

Article **Novel Complex Pythagorean Fuzzy Sets under Aczel–Alsina Operators and Their Application in Multi-Attribute Decision Making**

Huanhuan Jin 1,*, Abrar Hussain ² [,](https://orcid.org/0000-0003-2289-7464) Kifayat Ullah 2,[*](https://orcid.org/0000-0002-1438-6413) and Aqib Javed ²

- ¹ Department of Statistics, Zhejiang University City College, Hangzhou 310015, China
² Department of Mathematics, Riphab International University Labora Jabore 5400, P
- ² Department of Mathematics, Riphah International University Lahore, Lahore 5400, Pakistan

***** Correspondence: jinhh1988@mail.zjgsu.edu.cn (H.J.); Kifayat.khan.dr@gmail.com (K.U.)

Abstract: Aggregation operators (AOs) are utilized to overcome the influence of uncertain and vague information in different fuzzy environments. A multi-attribute decision-making (MADM) technique plays a vital role in several fields of different environments such as networking analysis, risk assessment, cognitive science, recommender systems, signal processing, and many more domains in ambiguous circumstances. In this article, we elaborated the notion of Aczel–Alsina t-norm (TNM) and t-conorm (TCNM) under the system of complex Pythagorean fuzzy (CPyF) sets (CPyFSs). Some basic operational laws of Aczel–Alsina TNM and TCNM are established including Aczel–Alsina sum, product, scalar multiplication, and power operations based on CPyFSs. We established several AOs of CPyFSs such as CPyF Aczel–Alsina weighted average (CPyFAAWA), and CPyF Aczel–Alsina weighted geometric (CPyFAAWG) operators. The proposed CPyFAAWA and CPyFAAWG operators are symmetric in nature and satisfy the properties of idempotency, monotonicity, boundedness and commutativity. To solve an MADM technique, we established an illustrative example to select a suitable candidate for a vacant post in a multinational company. To see the advantages of our proposed AOs, we compared the results of existing AOs with the results of newly established AOs.

Keywords: complex pythagorean fuzzy values; aggregation operators; Aczel–Alsina t-norm; multi-attribute decision-making method

1. Introduction

The purpose of the MADM technique is to categorize and deal with problems using a variety of different criteria. The MADM methodology has become increasingly popular among decision-makers as a consequence of its numerous applications in a variety of disciplines, including operation research, engineering technology management science, etc., through collecting the information into a single useful form, AOs are essential in helping to address all MADM issues. The decision-makers in real decision making categorize the alternatives using a variety of evaluation techniques, such as interval numbers or crisp numbers. Due to the growing uncertainty involved and the ambiguities of data, it has become more challenging for decision makers to solve decision-making problems using precise numerical values. Zadeh [\[1\]](#page-34-0) introduced the novel idea of the fuzzy set (FS) in 1965, by launching the membership value (MV), whose range lies between 0 and 1, to address this issue. In order to tackle decision-making problems involving uncertainties and ambiguities in the data more precisely than a crisp set, Zadeh's creation of the FS gives decision making a plate form. To overcome the decision-making difficulties, Atanassov [\[2\]](#page-34-1) enlarged the concepts of FS in the form of intuitionistic FS (IFS) in which the sum of the MV and the non-membership value (NMV) lies on interval [0, 1]. i.e., $0 \leq \Pi + \Xi \leq 1$, where $\Pi \in [0,1]$ represents MV and $\Xi \in [0,1]$ represents NMV in an IFSs. In some scenarios, when IFSs failed to deal with uncertain and vague information in fuzzy system, Yager [\[3\]](#page-34-2) provided an innovative idea of IFS in the form of Pythagorean FS (PyFS) in such a way

Citation: Jin, H.; Hussain, A.; Ullah, K.; Javed, A. Novel Complex Pythagorean Fuzzy Sets under Aczel–Alsina Operators and Their Application in Multi-Attribute Decision Making. *Symmetry* **2023**, *15*, 68. [https://doi.org/10.3390/](https://doi.org/10.3390/sym15010068) [sym15010068](https://doi.org/10.3390/sym15010068)

Academic Editor: Saeid Jafari

Received: 17 November 2022 Revised: 4 December 2022 Accepted: 19 December 2022 Published: 26 December 2022

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that the sum of the square of MV and NMV lies on interval $[0,1]$, i.e., $0 \leq \Pi^2 + \Xi^2 \leq 1$. Several researchers have plenty of commentary the above-discussed fuzzy environment. Adlassnig [\[4\]](#page-34-3) generalized the theory of FSs to formalize the uncertain information under the system of medical diagnosis. Atanassov [\[5\]](#page-34-4) also explored concepts of IFS in the framework of interval-valued IFS (IVIFS) with upper and lower cases of MV and NMV of an IVIFS. Mohd and Abdullah [\[6\]](#page-34-5) proposed a study of several similarity measured distances based on PyFSs.

It has been determined that the MCDM concerns were resolved, as the above current research in FS, IFS, and extended sets, such as PyFSs settings, are only capable of handling the vagueness and ambiguity of the data. All of these models are unable to address the lack of historical knowledge and data sensitivity. However, a complex data collection can handle both the periodicity and the uncertainty of the data at the same time. To deal with these circumstances, Ramot et al. [\[7](#page-34-6)[,8\]](#page-34-7) proposed the idea of a complex fuzzy set (CFS). They suggested that Πe^{iα}Π, whose range is expanded from unit disc to a complex plane, where $\Pi \in [0, 1]$ represents the MV of an amplitude term of a CFS and $\alpha_{\Pi} \in [0, 2\pi]$ represents MV of phase terms of a CFS. Alkouri and Salleh [\[9\]](#page-34-8) extended the theory of CFSs in the form of complex IFS (CIFS), having two aspects of MV and NMV in such a way that $(\Pi e^{i\alpha}, \Xi e^{\pi i\beta})$, $i = \sqrt{-1}$. A CIFS satisfied the conditions $0 \leq \Pi + \Xi \leq 1$ and $0 \le \alpha + \beta \le 2\pi$, where $\Pi \in [0,1]$ and $\Xi \in [0,1]$ represent the MV and NMV of amplitude terms, respectively. In the same way, *α* ∈ [0,2 $π$] and $β ∈ [0, 2π]$ represents the MV and NMV of phase terms, respectively. Ullah et al. [\[10\]](#page-34-9) developed an innovative concept of CIFS in the framework of complex PyFS (CPyFSs), and relaxed the condition of CIFS with the square of amplitude and phase terms of MV and NMV, respectively. Riaz and Hashmi [\[11\]](#page-34-10) provided a new extension of FSs in the form of linear Diophantine FS to handle vagueness and uncertainty in the fuzzy system. Akram and Naz [\[12\]](#page-34-11) introduced an innovative idea of PyFS in the framework of CPyFS to cope with uncertain information under an MADM approach. Khan et al. [\[13\]](#page-34-12) utilized the theory of complex T-SFSs to provide some new averaging and geometric operators based on power aggregation tools. Ali et al. [\[14\]](#page-34-13) explored the idea of complex q-ROFS and developed some new AOs to solve real life problem using an MADM technique. Mahmood [\[15\]](#page-34-14) worked on a bipolar soft set to cope with uncertain and ambiguous information. We also studied some basic notions of the fuzzy environment related to our research work, which are not discussed in the above paragraphs, seen in [\[15–](#page-34-14)[18\]](#page-34-15).

AOs are essential tools to cope with uncertain and vague information in different fuzzy environments. Several researchers worked on a distinct model of classical set theory and fuzzy systems. We studied some AOs developed by Xu [\[19\]](#page-34-16) in the form of weighted averaging operators and some special cases based on IFSs. Wei [\[20\]](#page-35-0) invented some AOs in the form of induced weighted geometric operators, and ordered weighted geometric operators and hybrid weighted geometric operators. Peng and Yuan [\[21\]](#page-35-1) explored some inequalities and invented some AOs of PyF value (PyFV) in the form of generalized weighted averaging operators. Akram et al. [\[22\]](#page-35-2) explored the idea of interval valued T-FSs based on a Bonferroni mean operator, and established an MADM technique under the solar system. Khan et al. [\[23\]](#page-35-3) extended the concepts of spherical FSs (SFSs) and introduced some new AOs of SFSs based on Dombi aggregation tools. Rahman et al. [\[24\]](#page-35-4) presented a list of new AOs of PyFSs-like weighted averaging, and weighted geometric operators with some basic deserved characteristics. Mahmood et al. [\[25\]](#page-35-5) presented some new AOs, an innovative concept of PyFS in the form of complex PyFS (CPyFS), to overcome the influence of vague and ambiguous information under the CPyFS system. Liu et al. [\[26\]](#page-35-6) explored the concepts of IFS to deal with vague information, and also developed a list of new AOs by utilizing the concepts of Maclaurin symmetric mean operators. Ullah [\[27\]](#page-35-7) utilized the concepts of Maclaurin symmetric mean operators and developed a list of new AOs based on picture FS (PFS). Akram et al. [\[28\]](#page-35-8) provided some new AOs of PyFS and also studied an MADM technique to complete a selection process for the textile industry. Chen [\[29\]](#page-35-9) developed new approaches by utilizing the innovative concept of prioritized AOs based on IVIFS.

Liu and Wang [\[30\]](#page-35-10) presented a list of new AOs by using the concepts of Archimedean Bonferroni tools under the system of q-rung orthopair FS (q-ROFS) to solve a real-life problems based on MADM techniques. Hussain et al. [\[31\]](#page-35-11) explored a list of new AOs and gave an illustrative example to solve an MADM problem for the selection of suitable tourism destinations. Garg [\[32\]](#page-35-12) developed a series of new AOs with entropy weight vectors based on IF information. Akram and Shahzadi [\[33\]](#page-35-13) worked on a new concept of Yager AOs and gave an MADM technique under the system of q-ROFS. Jan et al. [\[34\]](#page-35-14) introduced some new AOs under the system of linguistic cubic information to solve an MADM technique. Yang et al. [\[35\]](#page-35-15) explored an innovative idea of the TOPSIS method and developed some new aggregation tools of Fermatean fuzzy integrated weighted distance to process fuzzy information. Mahmood [\[18\]](#page-34-15) modified traditional Maclaurin symmetric mean operators and developed a list of new AOs in the environment of a bipolar complex fuzzy system. Ullah et al. [\[36\]](#page-35-16) utilized the concepts of T-spherical FSs (T-SFSs) and provided some AOs of T-SFSs to solve an MADM problem.

Menger [\[37\]](#page-35-17) introduced a new concept of triangular norms based on probabilistic metric space in 1942. Klement [\[38\]](#page-35-18) presented some new aggregated tools by utilizing the theory of t-norm (TNM) and t-conorm (TCNM) in different fuzzy information. To aggregate the information in numerous mathematical structures, a series of triangular norms were constructed. Information aggregation is critical for solving various MADM issues. Many different types of TN and TCN have been applied to the increase in the average and geometric aggregation process. The invented TNMs and TCNMs are the Lukasiewicz TNM and TCNM [\[39\]](#page-35-19), drastic TNM and TCNM [\[40\]](#page-35-20), nilpotent TNM and TCNM [\[41\]](#page-35-21), Frank TNM and TCNM [\[42\]](#page-35-22), Archimedean TNM and TCNM [\[43\]](#page-35-23), Einstein TNM and TCNM [\[44\]](#page-35-24), probabilistic TNM and TCNM [\[45\]](#page-35-25) and Dombi TNM and TCNM [\[46\]](#page-35-26). Recently Mahmood et al. [\[47\]](#page-35-27) proposed a new idea to cope with unpredictable and vague information by developing a list of AOs based on the Frank TNM and TCNM under a system of interval-valued picture FSs. Liu [\[48\]](#page-35-28) explored the theory of algebraic and Einstein AOs in the form of Hamacher AOs based on IVIF information. Garg [\[49\]](#page-35-29) generated the concepts of PyFSs and developed some new approaches to geometric AOs by utilizing the operations of the Einstein TNM and TCNM in the environment of PyFSs. Liu and Wang [\[30\]](#page-35-10) proposed a list of new AOs by using the fundamental operations of Archimedean Bonferroni operators under the system of q-ROFSs with an MADM technique. We also studied existing research work seen in the references [\[50,](#page-35-30)[51\]](#page-36-0).

Aczel and Alsina [\[52\]](#page-36-1) discovered some more reliable and flexible TNMs and TCNMs like the Aczel–Alsina TNM (AA-TNM) and the Aczel–Alsina TCNM (AA-TCNM) in 1982. We can overcome the impact of unreasonable and unpredictable information in different fuzzy environments. Babu and Ahmed [\[53\]](#page-36-2) worked on several TNMs and TCNMs to classify the best TNM and TCNM from a family of TNMs and TCNMs. After evaluation, they found that AA-TNM and AA-TCNM are more suitable aggregation tools than other ones. To see the advantages and benefits of AA-TNM and AA-TCNM, several researchers utilized these aggregation tools in their research works. Recently, Senapati et al. [\[54\]](#page-36-3) explored the concepts of AA-TNM and AA-TCNM and established an illustrative example to solve an MAMD technique under the system of IFSs. Senapati et al. [\[55\]](#page-36-4) also generalized the theory of AA-TNM and AA-TCNM and gave a list of new AOs based on IVIFSs. Naeem et al. [\[56\]](#page-36-5) enlarged the concepts of AA-TNM and AA-TCNM with more extensive information in the framework of picture FSs (PFSs). Hussain et al. [\[57\]](#page-36-6) enlarged the concepts of T-SFSs and developed some new AOs using the basic operations of AA-TNM and AA-TCNM. All of the aforementioned invented AOs to handle two tuple information; there is a chance of losing information during the aggregation process, whereby a decision maker cannot obtain original results for the decision's purpose. A CPyFS contains more information than FSs, IFSs and PyFSs. Keeping in mind the significance of CPyFSs, we developed some innovative concepts of AA-TNM and AA-TCNM within the framework of CPyFSs. The main contributions of this article are in the following forms:

- (1) We presented some new AOs and fundamental operational laws of CPyFSs. We also (1) We presented some new AOs and fundamental operational laws of CPyFSs. We also generalized the basic idea of Aczel–Alsina TNM and TCNM, with their operational generalized the basic idea of Aczel–Alsina TNM and TCNM, with their operational laws and illustrative examples. laws and illustrative examples.
- (2) By using the operational laws of Aczel–Alsina TNM and TCNM, we developed a (2) By using the operational laws of Aczel–Alsina TNM and TCNM, we developed a list list of new AOs like the CPyFAAWA operator and verified invented AOs with some deserved properties. deserved properties.
- (3) Furthermore, we also established the CPyFAAWAG operator based on the defined (3) Furthermore, we also established the CPyFAAWAG operator based on the defined fundamental operational laws of Aczel–Alsina TNM and TCNM. fundamental operational laws of Aczel–Alsina TNM and TCNM.
- (4) To find the feasibility and reliability of our invented methodologies, we explored some (4) To find the feasibility and reliability of our invented methodologies, we explored special cases, like CPyFAA ordered weighted (CPyFAAWAG), average (CPyFAAWAG) and CPyFAAOW geometric (CPyFAAOWG) operators, CPyFAA hybrid weighted (CPyFAAHW), average (CPyFAAHWA) and CPyFAAHW geometric (CPyFAAOWG) operators with some basic properties.
- (5) By utilizing our invented approaches, we solved an MADM technique. We estab-(5) By utilizing our invented approaches, we solved an MADM technique. We lished an illustrative example to select a suitable candidate for a vacant post at a multinational company. a multinational company.
- (6) To analyse the effectiveness of different parametric values of γ on the results of our proposed approaches, we discussed an influence study. proposed approaches, we discussed an influence study.
- (7) We checked the reliability and flexibility of our invented approaches, by comparing (7) We checked the reliability and flexibility of our invented approaches, by comparing the results of existing AOs with the results of our discussed technique. the results of existing AOs with the results of our discussed technique.

The structure of this manuscript is presented as follows and also displayed in the The structure of this manuscript is presented as follows and also displayed in the Figure 1: in Section 1, we thoroughly overviewed all previous history of our research Figure [1:](#page-4-0) in Section [1,](#page-0-0) we thoroughly overviewed all previous history of our research work; in Section 2, we recall the notions of CFSs, CPyFSs and fundamental operations of work; in Section [2,](#page-4-1) we recall the notions of CFSs, CPyFSs and fundamental operations of CPyFSs. In Section 3, we studied the concepts of some existing AOs under the different CPyFSs. In Section [3,](#page-6-0) we studied the concepts of some existing AOs under the different environments of fuzzy systems. In Section 4, we introduced innovative concepts of Aczel– environments of fuzzy systems. In Section [4,](#page-7-0) we introduced innovative concepts of Aczel– Alsina operations under the system of CPyF information. In Section [5,](#page-14-0) we developed several AOs of CPyFAAWA operators, and some special cases are also present here. In Section [6,](#page-23-0) we enlarged the idea of CPyFSs and introduced some AOs in the form of CPyFAAWG operators with some deserved characteristics. In Section [7,](#page-27-0) we solved an MADM technique to find the reliability and flexibility of our invented AOs, and we gave an illustrative example to select a suitable candidate for a multinational company. In Section [8,](#page-32-0) we studied
... the advantages and verified our invented AOs by comparing the results of existing AOs $\frac{1}{2}$ with the results of our invented AOs. In Section [9,](#page-33-0) we summarized the whole article in a
... single paragraph.

Figure 1. Flow chart of this article. **Figure 1.** Flow chart of this article.

2. Preliminaries 2. Preliminaries

We recall the notions of CFS and CPYFSs, and also discussed some basic operations \mathbf{b}_s . CPyFSs. Further, we studied the notion of score and accuracy function to compare CPyF
reduce (CP+FVA) values (CPyFVs). values (CPyFVs).We recall the notions of CFS and CPyFSs, and also discussed some basic operations of

Definition 1 ([\[7](#page-34-6)]). Consider \dot{W} to be a non-empty set, and a CFS Λ is defined as: *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 \mathcal{L} \ldots \ldots

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$$
\Lambda = \left\{ \left(x, \, \Pi_{\Lambda}(x) e^{2\pi i (\alpha_{\Lambda}(x))} \right) : x \in \mathring{W} \right\}, \, i = \sqrt{-1}
$$

where $\Pi_{\Lambda}(\boldsymbol{\varkappa}) \in [0, 1]$ and $\alpha_{\Lambda}(\boldsymbol{\varkappa}) \in [0, 1]$ represents the membership value (MV) of amplitude β of the condition of S in the β and β and β in the condition of β terms and phase terms of Λ , respectively. A CFS must satisfy the condition: $f_{\mathcal{A}}(\boldsymbol{\varkappa}) \in [0, 1]$ and $\alpha_{\Lambda}(\boldsymbol{\varkappa}) \in [0, 1]$ represents the membership value (MV) α $\overline{\mathcal{O}}$ where $\Pi_{\Lambda}(\kappa) \in [0, 1]$ and $\alpha_{\Lambda}(\kappa) \in [0, 1]$ represents the membership value (MV) of amplitude
tarms and phase tarms of A, reconstitute A, CES and satisfy the conditions $\text{and } \alpha \cdot (n) \in [0, 1]$ represents the membership value terms and phase terms of Λ , respectively. A CFS must satisfy the condition: *terms and phase terms of* , *respectively. A CFS must satisfy the condition:*

$$
0 \leq \Pi_\Lambda(\varkappa) \leq 1 \text{ and } 0 \leq \alpha_\Lambda(\varkappa) \leq 1.
$$

In the following Table [1, w](#page-5-0)e define the symbols and their meanings. *terms and phase terms of* , *respectively. A CFS must satisfy the condition: terms and phase terms of* , *respectively. A CFS must satisfy the condition:*

Table 1. Symbols and their meanings. \mathbf{S} **e 1.** Symbols and their meanings. **Symbol Meaning** Symbol Meaning Symbol Means and α and α meaning β .

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Definition 2 ([9]). A CPyFS Λ on a \hat{W} is defined as: **Definition 2** ([9]). A CPyFS Λ on a \hat{W} is defined as: *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35

$$
\Lambda = \left\{ \Pi_{\Lambda}(\kappa) e^{2\pi i (\alpha_{\Lambda}(\kappa))}, \Xi_{\Lambda}(\kappa) e^{2\pi i (\beta_{\Lambda}(\kappa))} : \kappa \hat{W} \right\}, i = \sqrt{-1}
$$

where $\Pi_{\Lambda}(\varkappa) \in [0, 1]$ and $\alpha_{\Lambda}(\varkappa) \in [0, 1]$ represents amplitude terms and pharmonic functions: $\alpha_{\Lambda}(\varkappa) \in [0, 1]$ and $\alpha_{\Lambda}(\varkappa) \in [0, 1]$ represents amplitude terms and pharmonic functions. of NMV, respectively. A CPyFS must satisfy these conditions: respectively. Similarly $\Xi_{\Lambda}(x) \in [0, 1]$ and $\beta_{\Lambda}(x) \in [0, 1]$ represents amplitude and phase to
contact the second state of the second st where $\Pi_{\Lambda}(\varkappa) \in [0, 1]$ and $\alpha_{\Lambda}(\varkappa) \in [0, 1]$ represents amplitude terms and phase terms of MV,
respectively Similarly $\Xi_{\Lambda}(\varkappa) \in [0, 1]$ and $\beta_{\Lambda}(\varkappa) \in [0, 1]$ represents amplitude and phase terms *respectively. Similarly* \in [0, 1] *and* $\alpha_A(\chi) \in$ [0, 1] *represents amplitude terms in phase te where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV, respectively.* $\mathcal{L} = [0, 1]$ and $\alpha_A(\mathcal{H}) \in [0, 1]$ represents amplitude terms and phase terms $\alpha_A(\mathcal{H}) \in [0, 1]$ and $\alpha_B(\mathcal{H}) \in [0, 1]$ and $\alpha_B(\mathcal{H})$ and phase $\alpha_B(\mathcal{H})$ where $\Pi_\Lambda(\varkappa) \in [0, 1]$ and $\alpha_\Lambda(\varkappa) \in [0, 1]$ represents amplitude terms and phase terms of MV respectively. Similarly $\Xi_{\Lambda}(\kappa) \subseteq [0, 1]$ and $\beta_{\Lambda}(\kappa) \in [0, 1]$ represents amplitude and phase terms of NMV, respectively. A CPyFS must satisfy these conditions: *For the sake of convenience, the pair* = (() of NMV, respectively. A CPyFS must satisfy these conditions: *of NMV,* \forall *P₍, 1) and* $\alpha_A(\chi) \in [0, 1]$ *represents ampli*where $\Pi_{\Lambda}(\kappa) \in [0, 1]$ and $\alpha_{\Lambda}(\kappa) \in [0, 1]$ represents amplitude terms and phase terms of MV, *respectively. Similarly* $\Xi_\Lambda(\varkappa) \in [0, 1]$ and $\beta_\Lambda(\varkappa) \in [0, 1]$ represents amplite Λ CRyFS must satisfy these souditions: every $\Gamma_1(\lambda) \subseteq [0, 1]$ and $\alpha_2(\lambda) \subseteq [0, 1]$ represents amplitude terms and phase terms of NMV respectively. A CPuFS must satisfy these conditions: where $\Pi_{\Lambda}(\varkappa) \in [0, 1]$ and $\alpha_{\Lambda}(\varkappa) \in [0, 1]$ represents amplitude terms a $\psi(x) \subset [0, 1]$ and $\psi(x) \subset [0, 1]$ represents annulitude torms and phase torms of MV) *f*, α and α _{Λ}(κ) \in [0, 1] represents amplitude terms and phase terms of N where $\Pi_\Lambda(\varkappa) \in \, [0,\,1]$ and $\,\alpha_\Lambda(\varkappa) \in \, [0,\,1]$ represents amplitude terms and phase terms of MV, of NMV, respectively. A CPyFS must satisfy these conditions: \overline{a} and \overline{a}

$$
0 \leq \Pi_{\Lambda}^{2}(x) + \Xi_{\Lambda}^{2}(\varkappa) \leq 1 \text{ and } 0 \leq (\alpha_{\Lambda}(\varkappa))^{2} + (\beta_{\Lambda}(\varkappa))^{2} \leq 1
$$

For the sake of convenience, the pair $\Lambda = \left(\Pi(\kappa)e^{2\pi i(\alpha(\kappa))}, \Xi(\kappa)e^{2\pi i(\beta(\kappa))}\right)$ ର ସାକ୍ଷରତା । ସେ ସାକ୍ଷରତା ସାକ୍ଷରତା । ସେ ସାକ୍ଷରତା ସାକ୍ଷରତା । ସେ ସାକ୍ଷରତା ସାକ୍ଷରତା । ସେ ସାକ୍ଷରତା ସାକ୍ଷରତା । ସେ ସା
ଗ୍ରାମ୍ବର ସାକ୍ଷରତା । ସେ ସାକ୍ଷରତା ସାକ୍ଷରତା । ସେ ସାକ୍ଷରତା ସାକ୍ଷରତା । ସେ ସାକ୍ଷରତା ସାକ୍ଷରତା । ସେ ସାକ୍ଷରତା ସାକ୍ଷରତା *tion* ˘() *of CPyFVs is given as:* For the sake of convenience, the pair $\Lambda=\left(\Pi(\varkappa)e^{2\pi i(\alpha(\varkappa))},\Xi(\varkappa)e^{2\pi i(\beta(\varkappa))}\right)$ is known as CPyFV. *tion* ˘() *of CPyFVs is given as:* For the sake of convenience, the pair $\Lambda = \left(\Pi(\varkappa)e^{2\pi i (\alpha(\varkappa))}, \Xi(\varkappa)e^{2\pi i (\beta(\varkappa))}\right)$ is known as CPyFV. *For the sake of convenience, the pair* = ൫()ଶగ൫ఈ(త)൯ *For the sake of convenience, the pair* = ൫()ଶగ൫ఈ(త)൯ *For the sake of convenience, the y* **Definition 3** ([31])**.** *Let* = (() , ()) *be a CPyFV; then, the score func-*For the sake of convenience, the pair $\Lambda = \left(\Pi(\varkappa)e^{2\pi i(\alpha(\varkappa))}, \Xi(\varkappa)e^{2\pi i(\beta(\varkappa))}\right)$ is known as CPyF¹ *tor the sure of convenience, the pa* For the sake of convenience, the pair $\Lambda = \left(\Pi(\chi)e^{2\pi i(\alpha(\chi))}, \Xi(\chi)e^{2\pi i(\beta(\chi))}\right)$ is known as CP_VF *tion* ˘() *of CPyFVs is given as:* For the sake of convenience, the pair $\Lambda=\left(\Pi(\varkappa)e^{2\pi i(\alpha(\varkappa))},\Xi(\varkappa)e^{2\pi i(\beta(\varkappa))}\right)$ is known as CPyFV. **Symbol Meaning Symbol Meaning** $\text{For the sake of convenience, the pair } \Lambda = \left(\prod_{(n) \alpha} 2\pi i (\alpha(\chi)) \right) \in (\alpha, 2\pi i (\beta(\chi)))$ is known as CBy *torms and of convenience, the pair* $\Delta t = \frac{1}{2} \sum_{i=1}^{n} \frac{1}{n} \sum_{j=1}^{n} \frac{1}{n}$ *where a the noix* $A = \left(\prod_{k=1}^n a_k \partial_z \pi i(\alpha(\boldsymbol{\chi})) \right) = (a_k) a_k \partial_z \pi i(\beta(\boldsymbol{\chi}))$ is known as CD_1 EV *there, in pair* $I = \begin{pmatrix} I_1(n) & h_1(n) & h_2(n) \\ h_1(n) & h_2(n) & h_3(n) \end{pmatrix}$ is known as $C_1(f)$ $g_{\mu\nu} = \left(\Pi(\cdot,\rho^2 \pi i(\alpha(\mu))) \Box(\cdot,\rho^2 \pi i(\beta(\mu)))\right)$ is known as CD ν EV For the sake of convenience, the pair $\Lambda=\Big(\Pi(\varkappa)e^{2\pi i(\alpha(\varkappa))},\Xi(\varkappa)e^{2\pi i(\beta(\varkappa))}\Big)$ is known as CPyFV. **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as:* **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as:* In the following Table 1, we define the symbols and their meanings. () ≤ 1 and 0 ≤ ()≤1. 0 ≤ *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 For the sake of convenience, the pair $\Lambda = \Big(\Pi(\varkappa)e^{2\pi i (\alpha(\varkappa))}, \Xi(\varkappa)e^{2\pi i (\beta(\varkappa))}\Big)$ is know

 $\begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix}$ function $\begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix}$ $\ddot{\mathbf{r}}$ $\ddot{}$ Let $\Omega = \left(\Pi(\boldsymbol{\varkappa})e^{2\pi i(\boldsymbol{\alpha}(\boldsymbol{\varkappa}))}, \Xi(\boldsymbol{\varkappa})\right)$ 3 ([31]). Let $\Omega = (\Pi(\kappa)e^{2\pi i(\alpha(\kappa))}, \Xi(\kappa)e^{2\pi i(\beta(\kappa))})$ be a CPyFV; then, the score *function* $R^*(\Omega)$ of CPyFVs is given as: **Definition 3** ([31]). Let $\Omega = \left(\Pi(\kappa)e^{2\pi i(\alpha(\kappa))}, \Xi(\kappa)e^{2\pi i(\beta(\kappa))}\right)$ be a CPyFV; then, the score function $R^*(\Omega)$ of CPyFVs is given as: *tion* ˘() *of CPyFVs is given as:* ρ_{uFVs} is oinen as: *tion* ˘() *of CPyFVs is given as:* function $R^{\sim}(\Omega)$ of CPyFVs is given as: $\overline{\mathcal{L}}$ Let $\Omega = \left(\Pi(\varkappa)e^{2\pi i(\alpha(\varkappa))}, \Xi(\varkappa)e^{2\pi i(\beta(\varkappa))}\right)$ be a CPyFV; then, the sco \overline{L} Let $\Omega = \left(\Pi(\varkappa) e^{2\pi i (\alpha(\varkappa))}, \Xi(\varkappa) e^{2\pi i (\beta(\varkappa))}\right)$ be a CPyFV; then, the sco Let $\Omega = \left(\Pi(\varkappa)e^{2\pi i (\alpha(\varkappa))}, \Xi(\varkappa)e^{2\pi i (\beta(\varkappa))}\right)$ be a CPyFV; then, the score **Definition 3** ([31]). Let $\Omega = (\Pi(\kappa)e^{2\pi i(\alpha(\kappa))}, \Xi(\kappa)e^{2\pi i(\beta(\kappa))})$ be a CPyFV; then, the score function $R^*(\Omega)$ of CPyFVs is given as: $\begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix}$ $\begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix}$ $\left(-\frac{1}{2} \sum_{i=1}^{n} \frac{1}{2} \sum_{j=1}^{n} \left(\frac{1}{2} \left(j + \frac{1}{2} \right) \right) \right)$ H ton σ ([51]). Let $\Omega = (H(\mathcal{U})e^{-\alpha(\mathcal{U}, \mathcal{U})}, E(\mathcal{U})e^{-\alpha(\mathcal{U}, \mathcal{U})})$ be a Cryf v; th **3** ([31]) Let $O = \left(\prod_{i=1}^{n} a_i \frac{2\pi i (\alpha(\mathcal{X}))}{\sum_{i=1}^{n} a_i \frac{2\pi i (\beta(\mathcal{X}))}{\sum_{i=1}^{n} a_i \frac{2\pi i (\beta(\mathcal{X}))}{\sum_{i=1}^{n} a_i}}\right)$ he a CPuEV then the score $\begin{pmatrix} 1 & 1 & 1 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}$ $\left(-\frac{1}{2} \right)$ $2\pi i \left(\frac{1}{2} \right)$ $\left(\frac{1}{2} \right)$ $2\pi i \left(\frac{1}{2} \left(2i \right) \right)$ $\left(\frac{1}{2} \right)$ $\left(\frac{1}{2}$ $\Omega = (H(X)e^{-\langle X,Y\rangle}, \Xi(X)e^{-\langle Y,Y\rangle})$ be a CPyFV; then, the score **Definition 3** ([31]). Let $\Omega = \left(\Pi(\kappa)e^{2\pi i(\alpha(\kappa))}, \Xi(\kappa)e^{2\pi i(\beta(\kappa))}\right)$ be a **Symbol Meaning Symbol Meaning Definition 3** ([31]) Let $O = \left(\prod_{(\chi) \rho^2} \frac{2\pi i (\alpha(\chi))}{\Gamma(\chi) \rho^{2\pi i (\beta(\chi))}}\right)$ be a CPuEV; then the score In the following Table 1, we define the symbols and their meanings. In the following Table 1, we define the symbols and their meanings. **tion 3** ([31]). Let $\Omega = \left(\Pi(\varkappa) e^{2\pi i (\alpha(\varkappa))}, \Xi(\varkappa) e^{2\pi i (\beta(\varkappa))}\right)$ be a CPyFV; then, the 0 ≤ 1. and 0≤ 1. and *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude* **Definition 3** ([31]). Let $\Omega = (\Pi(\kappa) e^{2\pi i (\alpha(\kappa))}, \Xi(\kappa) e^{2\pi i (\beta(\kappa))})$ be a CPyFV; then, the score \mathcal{I} **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as:* Ω and Ω , and a non-empty set Ω is defined as: Ω Definition 3 ([31]). Let $\Omega =$ **Definition 3** ([31]). Let $\Omega = \left(\Pi(\varkappa)e^{2\pi i(\alpha(\varkappa))}, \Xi(\varkappa)e^{i\omega(\varkappa)}\right)$ $f_{\text{unction}}(D)$ of CD_1 F/C_2 is given and *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* ren as:
———————————————————— \mathcal{L} **14**, $\mathbf{P}^{\mathbf{y}}(\mathcal{Q})$ **3500** $\mathbf{F}^{\mathbf{y}}$ $\mathbf{I}^{\mathbf{y}}$ $\mathbf{I}^{\mathbf{y}}$ \mathcal{L} \mathcal{L} $\mathbb{P}^{\mathbf{y}}(\Omega)$ *SCR FUL :*

 $\mathcal{L} = \{ \mathcal{L} \mid \mathcal{L} \in \mathcal{L} \}$ set $\mathcal{L} = \{ \mathcal{L} \mid \mathcal{L} \in \mathcal{L} \}$ set $\mathcal{L} = \{ \mathcal{L} \mid \mathcal{L} \in \mathcal{L} \}$

In the following Table 1, we define the symbols and their meanings.

$$
R^{(1)}(\Omega) = \frac{(H(\kappa))^{2} - (\Xi(\kappa))^{2} + (\kappa(\kappa))^{2} - (\beta(\kappa))^{2}}{2}
$$
 (1)

and the accuracy function is given as: and the accuracy function is given as: and the accuracy function is given as: \mathcal{L} of phase term \mathcal{L} TNMV of phase term \mathcal{L} **Symbol Meaning Symbol Meaning** In the following the symbols and the symbols a $\sum_{i=1}^{n}$ and the symbols *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\mathcal{L}(\mathcal{U})$ is given us. \mathcal{L} \mathcal{L} \mathcal{L} \mathcal{L} \mathcal{L} \mathcal{L} to \mathcal{L} $\$

where ˘ () ∈ [−1, 1] *and* ˘ () ∈ [0, 1]*.*

$$
A^{(2)}(\Omega) = \frac{(H(\kappa))^{2} + (\mathbb{E}(\kappa))^{2} + (\kappa(\kappa))^{2} + (\beta(\kappa))^{2}}{2}
$$
 (2)

In the following Table 1, we define the symbols and their meanings.

 \mathcal{L} Non-empty set \mathcal{L} Score function \mathcal{L} Score function \mathcal{L}

zuhere $R^{\sim}(O) \in [-1, 1]$ and $\Delta^{\sim}(O) \in [0, 1]$ *i. If* A˘(ଵ) < ˘(ଶ), *then* ଵ < ଶ, where $R^{\sim}(\Omega) \in [-1, 1]$ and $A^{\sim}(\Omega) \in [0, 1].$ *i. If* ˘(ଵ) < ˘(ଶ), *then* ଵ < ଶ, $where R^{\sim}(\Omega) \in [-1, 1]$ and $A^{\sim}(\Omega) \in [0, 1].$) \sim \sim \sim), *then we need to find out the accuracy function:* $\binom{n}{0}$ \in $\binom{4}{1}$, $\binom{n}{0}$ \in $\binom{0}{1}$ $\binom{1}{r}$ $\binom{1}{r}$, $\binom{1}{r}$, $\binom{1}{r}$, $\binom{1}{r}$, $\binom{1}{r}$ where $R^{\sim}(\Omega) \in [-1, 1]$ and $A^{\sim}(\Omega) \in [0, 1].$ *i. If* ˘(ଵ) < ˘(ଶ), *then* ଵ < ଶ, NMV of phase term Ŧ TNM $\lim_{n \to \infty}$ $\frac{1}{n}$ $\lim_{n \to \infty}$ $\frac{1}{n}$ $\lim_{n \to \infty}$ $\frac{1}{n}$ \subset [0, 1] \sim $\left[\cdot, \cdot\right]$. here $R^{\sim}(\Omega) \in [-1, 1]$ and $A^{\sim}(\Omega) \in [0, 1]$. $\mathcal{N}(\alpha) = \begin{bmatrix} 0 & 1 \end{bmatrix}$ $A(\Delta z) \subseteq [0, 1].$ \in [0, 1]. $\langle \rangle$ -final set $\langle \rangle$ set $\langle \rangle$ $\subset [-1, 1]$ and $A(12) \subset [0, 1].$ where $R^{(1)}(\Omega) \in [-1, 1]$ and $A^{(1)}(\Omega) \in [0, 1].$ λ , $\mathbf{S} = \begin{bmatrix} \mathbf{S} & \mathbf{S} \\ \mathbf{S} & \mathbf{S} \end{bmatrix}$ $A(\lambda) \in [0, 1].$ \overline{Z} $\sum_{i=1}^{n}$ the symbols and where $R^{\sim}(\Omega) \in [-1, 1]$ and $A^{\sim}(\Omega) \in [0, 1].$ $\mathbf{C}(\mathbf{x}, \mathbf{y}) = \begin{bmatrix} 1 & -\mathbf{y} & -1 \end{bmatrix}$ is defined as $\mathbf{C}(\mathbf{x}, \mathbf{y}) = \begin{bmatrix} 1 & -\mathbf{y} & -1 \end{bmatrix}$ $P(x, y) = P(x, y)$ $\in [0, 1]$. $\sqrt{2}$ the symbols and the s $\langle \rangle$ in the symbols and the $(0, 1, 1)$

i. If A˘(ଵ) < ˘(ଶ), *then* ଵ < ଶ,

 \hat{f} $\hat{f$ $\left(\Pi_2(\varkappa)e^{2\pi i(\alpha_2(\varkappa))}, \Xi_2(\varkappa)e^{2\pi i(\beta_2(\varkappa))}\right)$ be two CPyFVs. Then i. If $R^{\sim}(\Omega_1) < R^{\sim}(\Omega_2)$, then $\Omega_1 < \Omega_2$,
ii If $R^{\sim}(\Omega_1) = R^{\sim}(\Omega_2)$, then we need to find out the accuracy function: $\begin{array}{lll} \text{if} & \text$ *ii.* If $R^*(\Omega_1) = R^*(\Omega_2)$, then we need to find out the accu*i If* ifp **1** ifp **4** ifp *If* ifp *****If* ifp *If* ifp *****If* ifp *If* ifp \mathcal{L} **4** ([33]), Let $\Omega_1 = \left(\prod_1(\boldsymbol{\varkappa})e^{2\pi i(\alpha_1(\boldsymbol{\varkappa}))} \right)$ and Ω_2 ൯ *be two CPyFVs. Then* $\binom{1}{r-1}$ $\binom{1}{r-2}$ $\left(\begin{array}{ccc} 1 & \sqrt{-1} \end{array} \right)$, $\left(\begin{array}{ccc} 1 & \sqrt{1} \end{array} \right)$, $\left(\begin{array}{ccc}$ **Definition 5** ([32])**.** *Let* ଵ = ൫ଵ()ଶగ൫ఈభ(త)൯ ii. If $R^{\sim}(\Omega_1) = R^{\sim}(\Omega_2)$, then we need to find out the accuracy function: *i. If* ˘(ଵ) < ˘(ଶ), *then* ଵ < ଶ, *Definition 4* ([33]). Let Ω_1 *i* $\frac{1}{2}$ $\frac{2}{3}$ $\frac{1}{2}$ $\frac{2}{3}$ $\frac{1}{2}$ $\frac{2}{3}$ $\frac{1}{2}$ $\frac{2}{3}$ $\frac{1}{2}$ $\frac{1}{2$ *i. If* ˘(ଵ) < ˘(ଶ), *then* ଵ < ଶ, **Definition 4** ([33]). Let $\Omega_1 = (\Pi_1(\kappa)e^{2\pi i(\alpha_1(\kappa))}, \Xi_1(\kappa)e^{2\pi i(\beta_1(\kappa))})$ and $\Omega_2 =$ $\int \prod_2 (\boldsymbol{\varkappa}) e^{2\pi i (\alpha_2(\boldsymbol{\varkappa}))} \cdot \Xi_2(\boldsymbol{\varkappa}) e^{2\pi i (\beta_2(\boldsymbol{\varkappa}))}$ *i* $\frac{1}{2}$ (a), $\frac{1}{2}$ (a), $\frac{1}{2}$ $\left(\frac{1}{\sqrt{1+x}}\right)^{n+1}$ **(1)** $\int_0^1 I_2(x) e^{-\frac{1}{2}(x)}$ $\left(\begin{array}{cc} 1 & \text{(11)} \\ 1 & \text{(21)} \end{array} \right)$ ൯ *be two CPyFVs. Then* $\left(\Pi_2(\kappa)e^{2\pi i(\alpha_2(\kappa))}, \Xi_2(\kappa)e^{2\pi i(\beta_2(\kappa))}\right)$ be two CPyFVs. **ignition 4** ([33]) I *et* $\Omega_i = \left(\prod_i (\nu) e^{2\pi i} \right)$ $\frac{1}{2}$ $\int \pi$ (1221) $I_{st} \cap \left(\pi$ ($\frac{2\pi i (x_1(\gamma))}{\gamma} \pi$ ($\frac{2\pi i (y_1(\gamma))}{\gamma}$ $\frac{1}{2}$ $\frac{1}{2}$ *i***efinition** 4 ([33]). *Let* Ω_1 = **Definition 5** ([32])**.** *Let* ¹ = (¹ \overline{a} \dot{i} . i. If $R^{\circ}(\Omega_1) < R^{\circ}(\Omega_2)$, then $\Omega_1 < \Omega_2$, *ii.* If $K (12₁) = K (12₂)$, then we need to find o $\prod_2(\boldsymbol{\varkappa})e^{2\pi i(\alpha_2(\boldsymbol{\varkappa}))}$, $E_2(\boldsymbol{\varkappa})e^{2\pi i(\beta_2(\boldsymbol{\varkappa}))}$ i (² () ∈ [0, 1] *and ii. If* $\overline{R}^{\times}(\Omega_1) = R^{\times}(\Omega_2)$ then we need to find out the i. If $R^{\sim}(\Omega_1) < R^{\sim}(\Omega_2)$, then $\Omega_1 < \Omega_2$, *ii.* If $R^{\sim}(\Omega_1) = R^{\sim}(\Omega_2)$, then we need to find out the *ii. If* ˘(ଵ) = ˘(ଶ), *then we need to find out the accuracy function: i*. *If I* \vec{r} *ii.* \vec{r} *\vec{r}* $\lim_{t \to \infty} \frac{1}{t} \left(\frac{1}{t} \right)$, *then* $\frac{1}{t}$, $\frac{1}{t}$ α , α , α , α *u*. If $R(\Omega_1) = R(\Omega_2)$, then we need to find out the **i**finition 4 ([33]) Let $Q_i = \left(\prod_i (\chi)_i e^{2\pi i (\alpha_1(\chi))} \right)$ $\Xi_i (\chi)_i e^{2\pi i (\beta_1(\chi))}$ and $Q_2 =$ *i. If* A˘(ଵ) < ˘(ଶ), *then* ଵ < ଶ, $\left(\Pi_2(\kappa)e^{2\pi i(\alpha_2(\kappa))}, \Xi_2(\kappa)e^{2\pi i(\beta_2(\kappa))}\right)$ be two CPyFVs. Then $\mathbb{P}^{\mathcal{L}}(0) = \mathbb{P}^{\mathcal{L}}(0, \mathcal{L})$ then $\mathbb{P}^{\mathcal{L}}(0, \mathcal{L})$ and to find out the geomeon function. If $R^{\circ}(\Omega_1) = R^{\circ}(\Omega_2)$, then we need to find out the accuracy function: **Definition 4** ([33]). Let $\Omega_1 = (\Pi_1(\kappa)e^{2\pi i(\alpha_1(\kappa))}, \Xi_1(\kappa)e^{2\pi i(\beta_1(\kappa))})$ and $\Omega_2 =$ Ω $\left(\Pi_2(\varkappa)e^{2\pi i(\alpha_2(\varkappa))}, \Xi_2(\varkappa)e^{2\pi i(\beta_2(\varkappa))}\right)$ be two CPyFVs. Then $\frac{1}{\sqrt{1-\frac{1$ *For the sake of convenience, the pair* = ൫()ଶగ൫ఈ(త)൯ μ , μ \mathbf{r} $(\mathbf{r}_1) = \mathbf{r}$ (\mathbf{r}_2) , then we heed to find out the accuracy funct \ddot{C} *is known as CPY*. **PURIRION +** $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 &$ *ion.* **ion 4** ([33]). Let $\Omega_1 = \left(\Pi_1(\boldsymbol{\chi}) e^{2\pi i (\alpha_1(\boldsymbol{\chi}))}, \Xi_1(\boldsymbol{\chi}) e^{2\pi i (\beta_1(\boldsymbol{\chi}))} \right)$ and $\Omega_2 =$ *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* $\left(\Pi_2(\kappa)e^{2\pi i(\alpha_2(\kappa))}, \Xi_2(\kappa)e^{2\pi i(\beta_2(\kappa))}\right)$ be two CPyFVs. Then $\frac{d}{dx}$ *For the sake of convenience, the pair* = ൫()ଶగ൫ఈ(త)൯ \overline{a} *respectively.* Similarly $\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$ $\begin{bmatrix} n \\ n \end{bmatrix}$ $\begin{bmatrix}$ $\mathcal{L} = \mathcal{L}$ F **For the same is a same of convenient** α and β and α is the pair α of α in α is α is **Definition 4** ([33]). Let $\Omega_1 = \left(\Pi_1(\kappa) e^{2\pi i (\alpha_1(\kappa))}, \Xi_1(\kappa) e^{2\pi i (\beta_1(\kappa))} \right)$ and $\Omega_2 =$ *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* $\Omega_1 < \Omega_2$, \cdots \cdots *i.* If $R^{\sim}(\Omega_1) < R^{\sim}(\Omega_2)$, then $\Omega_1 < \Omega_2$,
ii. If $R^{\sim}(\Omega_1) = R^{\sim}(\Omega_2)$, then we need to find out the accuracy function: **Definition 4** ([33]). Let $\Omega_1 = (\Pi_1(\kappa)e^{2\pi i(\alpha_1(\kappa))}, \Xi_1(\kappa)e^{2\pi i \kappa})$ *of NMV, respectively. A CPyFS must satisfy these conditions: of NMV, respectively. A CPyFS must satisfy these conditions:* $\frac{1}{1}$ $\left(\frac{1}{1}, \frac{1$ Let $Q_{\tau} = \left(\prod_{\iota} (\nu) e^{2\pi i (\alpha_1(\boldsymbol{\chi}))} \right)_{\iota} \left(\nu \right) e^{2\pi i (\beta_1(\boldsymbol{\chi}))}$ and $Q_{\tau} =$ $\begin{pmatrix} 1 & 1 & 1 & 1 \end{pmatrix}$ $\left(\prod_{i}(u)_{i}e^{2\pi i(\alpha_{1}(\mathcal{H}))}\right)_{i}(u)e^{2\pi i(\beta_{1}(\mathcal{H}))}\right)$ and $\Omega_{2} =$ $\begin{pmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}$ $\mathcal{L}_{M}(\text{F3})$ $\mathcal{L}_{M}(\mathcal{L}) \cong \left(\frac{1}{\pi} \left(1 + \frac{1}{2\pi i (n_1(\mathbf{V}))} \right) \frac{1}{\pi} \left(1 + \frac{1}{2\pi i (n_1(\mathbf{V}))} \right) \frac{1}{\pi} \mathcal{L}_{M}(\mathbf{V})$ $\left(\begin{array}{cccc} \text{N} & \text{N} \\ \text{N} & \text{N} \end{array} \right)$ $\left(\begin{array}{cc} \bullet & \bullet & \bullet & \bullet & \bullet & \bullet & \bullet \end{array} \right)$ Let $\Omega_1 = (H_1(\varkappa)e^{2\pi i (\alpha_1(\varkappa))}, \Xi_1(\varkappa)e^{2\pi i (\beta_1(\varkappa))})$ and Ω $\Omega = \left(\nabla \left(\nabla \right) 2\pi i (\alpha_1(\boldsymbol{\nu})) - \nabla \right) 2\pi i (\beta_1(\boldsymbol{\nu})) \right)$ $\Gamma_{21} = \Gamma_{11} \times \Gamma_{22}$ $\left(\begin{array}{cc}1&\frac{1}{2}&\frac{1}{2$ **nition 4** ([33]). Let $\Omega_1 = (\Pi_1(\kappa)e^{2\pi i(\alpha_1(\kappa))}, \Xi_1(\kappa)e^{2\pi i(\beta_1(\kappa))})$ and $\Omega_2 =$ \mathbf{C} $(T_2(\varkappa)e^{2\pi i(\alpha_2(\varkappa))}, \Xi_2(\varkappa)e^{2\pi i(\beta_2(\varkappa))})$ be two CPyFVs. Then $\begin{pmatrix} \mathbf{H} & \mathbf{H} & \mathbf{H} \\ \mathbf{H} & \mathbf{H} & \mathbf{H} \end{pmatrix}$ and $\begin{pmatrix} \mathbf{H} & \mathbf{H} & \mathbf{H} \\ \mathbf{H} & \mathbf{H} & \mathbf{H} \end{pmatrix}$ and $\mathbf{H} \begin{pmatrix} \mathbf{H} & \mathbf{H} & \mathbf{H} \\ \mathbf{H} & \mathbf{H} & \mathbf{H} \end{pmatrix}$ ʊ Attribute Decision matrix $M_{\rm tot} = \left(\prod_{\iota} (\nu) e^{2\pi i (\alpha_1(\chi))} \mathbb{E}_{\iota} (\nu) e^{2\pi i (\beta_1(\chi))} \right)$ and $\Omega_2 =$ $\begin{pmatrix} 1 & 1 & 1 \ 1 & 1 & 1 \end{pmatrix}$ σ $(\pi \wedge 2\pi i(x, (\nu)) - (\sqrt{2\pi i} (k, (\nu)))$ 1.0 $\begin{pmatrix} \mathbf{1} & \mathbf{$ o attribute Decision matrix α **Definition 4** ([33]). Let $\Omega_1 = \left(\Pi_1\right)$ *of NMV, respectively. A CPyFS must satisfy these conditions:* **Symbol Meaning Symbol Meaning Table 1.** Symbols and their meanings. **Symbol Meaning Symbol Meaning Table 1.** Symbols and their meanings. $\begin{pmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \end{pmatrix}$ **Table 1.** Symbols and their meanings. $\begin{pmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \end{pmatrix}$ $< \Omega_2$, **Definition 4** ([33]). Let Ω_1 () $($ $\frac{1}{2}$ and $($ $\frac{1}{2}$ and $($ $\frac{1}{2}$ $\frac{1}{2}$ **Table 1.** Symbols and their meanings. **Definition 4** ([33]). Let $\Omega_1 = (\Pi_1(\chi)e^{2\pi i(\alpha_1(\chi))}, \Xi_1(\chi)e^{2\pi i(\beta_1(\chi))})$ and $\Omega_2 =$ NMV of phase term $\sqrt{1-\frac{1}{2}}$ *u*. If κ (121) = κ (122), the $\sum_{i=1}^{n} \sum_{i=1}^{n} (u_i(x_i)) = (1 - 2\pi i (8.4\pi))$ $\left(2\pi i(\alpha_2(\boldsymbol{\varkappa}))\right), \Xi_2(\boldsymbol{\varkappa})e^{2\pi i(\beta_2(\boldsymbol{\varkappa}))}\right)$ be two CPyFVs. Then i. If $R^{\sim}(\Omega_1) < R^{\sim}(\Omega_2)$, then $\Omega_1 < \Omega_2$,
ii. If $R^{\sim}(\Omega_1) = R^{\sim}(\Omega_2)$, then we need to find out the accuracy function: **Definition 4** ([33]). Let $\Omega_1 = \left(\Pi_1(\kappa) e^{2\pi i (\alpha_1(\kappa))}, \Xi_1(\kappa) e^{2\pi i (\beta_1(\kappa))} \right)$ and $\Omega_2 =$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $h^{2\pi i(\beta_2(\boldsymbol{\varkappa}))}$ be two CPyFVs. Then *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\left(\Pi_2(\varkappa)e^{2\pi i(\alpha_2(\varkappa))}, \Xi_2(\varkappa)e^{2\pi i(\beta_2(\varkappa))}\right)$ be two CPyFVs. Then

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of CPyFVs. By using an induction method, we prove Theorem 1 based on $\mathcal{A}_\mathcal{A}$

of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina

 $\frac{1}{\sqrt{2\pi}}\int_{0}^{\infty}e^{-i\omega t}e^{-i\omega t}dt = \frac{1}{\sqrt{2\pi}}\int_{0}^{\infty}e^{-i\omega t}e^{-i\omega t}dt$

i. If $A^{(1)}(\Omega_1) < A^{(1)}(\Omega_2)$, then $\Omega_1 < \Omega_2$, *i.* If $A^{(1)}(2_1) < A(12_2)$, then $\Omega_1 < \Omega_2$,
ii. If $A^{(2)}(2_1) = A^{(2)}(2_2)$, then $\Omega_1 = \Omega_2$. *ii. If* i. If $A^*(\Omega_1) < A^*(\Omega_2)$, then $\Omega_1 < \Omega_2$, $\{1\} < A \left(\Omega_2\right)$, then $\Omega_1 < \Omega_2$, $\check{\Gamma}(\Omega_1) < A\check{\Gamma}$ T_1) \leq T_1
 T_2) \leq A^2 (\ddotsc

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1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ

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Definition 1 C $\frac{2}{r}$ **Definition 1** \overline{a} **c** 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ **5. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Averaging Operators** A CPyFS contains more extensive information than IFSS and Γ μ_1 = A (μ_2), then μ_1 = μ_2 . $\Omega_1 = \Omega_2.$

Definition 5 ([32]). Let
$$
\Omega_1 = (\Pi_1(\kappa) e^{2\pi i (\alpha_1(\kappa))}, \Xi_1(\kappa) e^{2\pi i (\beta_1(\kappa))})
$$
 and $\Omega_2 = (\Pi_2(\kappa) e^{2\pi i (\alpha_2(\kappa))}, \Xi_2(\kappa) e^{2\pi i (\beta_2(\kappa))})$ be two CPyFVs. Then
\ni. $\Omega_1 \subseteq \Omega_2$ if $\Pi_1 \leq \Pi_2$, $\alpha_1 \leq \alpha_2$, $\Xi_1 \geq \Xi_2$ and $\beta_1 \geq \beta_2$.
\nii. $\Omega_1 \subseteq \Omega_2$ if $\Pi_1 = \Pi_2$, $\alpha_1 = \alpha_2$, $\Xi_1 = \Xi_2$ and $\beta_1 = \beta_2$.
\niii. $\Omega_1^c = (\Xi_1(\kappa) e^{2\pi i (\beta_1(\kappa))}, \Pi_1(\kappa) e^{2\pi i (\alpha_1(\kappa))})$.

൯ *be two CPyFVs. Then*

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has the two aspects of MV and NMV in terms of $\mathcal{M}^{\mathcal{M}}$ in terms of amplitude and phase terms. We develop

Ὺቁ Ὺ $\frac{1}{\sqrt{1 + \frac{1}{2}}\left(\frac{1}{\sqrt{1 + \frac{1}{2}}\left(\frac{1}{\sqrt{1 + \frac{1}{2}}}\right)} \right)}$

family of CPyFVs and its corresponding weight vectors ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ =

3. Existing Aggregation Operators 3. Existing Agglegation Operators α ^D Function α convertison α converters *terms and phase terms of* , *respectively. A CFS must satisfy the condition: terms and phase terms of* , *respectively. A CFS must satisfy the condition: where b and and* α *and* α *and* α *and* α *membership value (MV) of a membership value (MV) of a membership value of a membership value of* α *membership value of* α *membership value of* α *membership value of* 3. Existing Aggregation Operators 3. Existing Aggregation Operators **3. Existing Aggregation Operators** 3. Existing Aggregation Operators 3. Existing Aggregation Operators α . Expansing α of the C_P
Treation Characters \overline{O} is the \overline{O} is easily and verified inventod invented \overline{O} with some \overline{O} with some \overline{O} with some \overline{O} 3. Existing Aggregation Operators *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ =

Symbol Meaning Symbol Meaning

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The finite part, we recall the existing concepts of MV_{FS} and P_VFs It this part, we recall the existing concepts of Aczel-Alsina AOS under the system of
IFS and PyFs. () ∈ [0, 1] *and of NMV, respectively. A CPyFS must satisfy these conditions:* $\frac{6}{5}$ of $\frac{6}{5}$ or $\frac{1}{1}$ the existing concepts of Aczel–Alsina AOs i **Symbol Meaning Symbol Meaning** Table 1. Symbols and the symbols α v_{V} ¹, v_{V} 5. In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of IFS and PvFs. \overline{O} 1 **3. Existing Aggregation Operators** ng concepts of Aczel–Alsina AOs under the s nt, we fecan the existing concepts of Aczel–Alsina AOs under the system o *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 nt, we recall the existing con cepts of Aczel–Alsina AOs uno $\ddot{}$ ng concepts of Aczel–Alsina AOs under *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 ng concepts of Aczel–Alsina *∤* **Symmetry and Pyrs.** deserved properties. In this part, we recall the existing concepts of Aczel–Alsina AOs under the defined to the defined the concepts of Aczel–Alsina AOs under t t, we recall the existing concepts of Aczel–Alsina AOs under the system of *Symmetry and Pyrs.* s part, we recall the existing concepts of Aczel–Alsina AOs under the system of r.₈. • ₁₉, • ₂₉, • 2₉, • 2₉, • 2₀, • 2₀, • 20 $PyFs.$ and its corresponding weight vectors $\frac{1}{2}$ of $\frac{1}{2}$ or $\frac{1}{2}$ or $\frac{1}{2}$ or $\frac{1}{2}$ 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ we recall the existing concepts of Aczel–Alsina AOs under the system of ῃ In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of IFS and PyFs. ϵ we recan the **5. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Averaging Operators**

 $\sqrt{ }$ **Definition 6** ([55]). Let $\Omega_{\bf \bar{Z}}\,=\, \bigg(\Pi_{\Omega_{\bf \bar{Z}}}(\varkappa),\Xi_{\Omega_{\bf \bar{Z}}}$ $\frac{1}{2}$ (\approx $\frac{1}{2}$ \approx $\frac{2}{3}$, ..., $\frac{1}{2}$ operator is given as: *For the same of the speciality spector* $\Omega = (\Omega_1, \Omega_2, \Omega_3, \Omega_1)^\top$ of Ω (3 – 1 2 3 m) $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z}_3 = 1,2,\ldots, \mathfrak{N}$ and $\sum_{i=1}^{\mathfrak{U}} \mathfrak{D}_3 = 1$. Then, the IF Aczel–Alsina weight $($ [55]). Let $\Omega_{\mathbf{Z}} = \left(H_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) \right)$, $\delta = 1, 2, ...,$ We a collection of IF $\sum_{i=1}^{N}$ and η as: \mathcal{L} Non-empty set \mathcal{L} $\Omega_{\mathbf{z}} = \prod_{\Omega_{\mathbf{z}}(\mathbf{x}), \Xi_{\Omega_{\mathbf{z}}}(\mathbf{x})}$, $\mathbf{z} = 1, 2, \ldots, \mathbf{N}$ be a collection of IF $\begin{pmatrix} a & b \end{pmatrix}$ or $\omega_2 - (\omega_1, \omega_2, \omega_3, \dots, \omega_n)$ by $\omega_2 = (\omega_1, \omega_2, \omega_3, \dots, \omega_n)$, such that $\mathbb{R}^{\mathbb{N}}$ and $\sum_{n=1}^{\mathbb{N}}$ $\mathfrak{D}_n = 1$. Then, the IF Aczel–Alsina weighted averagi $S = \begin{bmatrix} 1 & 2 \end{bmatrix}$ $($ $)$ $(M_{\Omega_{\mathbf{Z}}}(\kappa), \Xi_{\Omega_{\mathbf{Z}}}(\kappa))$, $\delta = 1, 2, ...,$ the a collection of IF $\left(\mathcal{D}, \mathcal{D}, \mathcal{D}, \mathcal{D} \right)$ $\left(\mathcal{D}, \mathcal{D}, \mathcal{D}, \mathcal{D} \right)$ $\sum_{\substack{n=1\\n \neq n}}$ $\sum_{\mathbf{z}}^n \mathfrak{D}_{\mathbf{z}} = 1$. Then, the IF Aczel–Alsina weighted averaging \mathcal{N} **Definition 6** ([55]). Let Ω ₃ = $(\Pi_{\Omega_{\alpha}}(\kappa), \Xi_{\Omega_{\alpha}}(\kappa))$, 3 = 1,2,...,ⁿ be a collection of IF $\begin{pmatrix} c & b \\ c & d \end{pmatrix}$ numbers, with weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_z (z = 1, 2, 3, \ldots, n)$, such that $= 1$. Then, the IF Aczel–Alsina weighted averaging $\mathcal{L}(\mathcal{A}) = \mathcal{L}(\mathcal{A})$ and $\mathcal{L}(\mathcal{A}) = \mathcal{L}(\mathcal{A})$. The contribution of $\mathcal{L}(\mathcal{A})$ $\sum_{i=1}^{\infty}$ Non-empty set $\frac{1}{2}$ $\binom{1}{2}$ $\binom{1}{2}$ $\binom{1}{3}$ \sim fect \sim \sim \sim \sim \sim $\omega_{\mathcal{Z}} \in [0,1], \; \epsilon = 1,2,...,$ which $\omega_{\mathcal{Z}=1} \omega_{\mathcal{Z}} = 1.1$ **Symbol Meaning Symbol Meaning Definition 6** ([55]). Let $\Omega_{\mathcal{Z}} = \left(H \Omega_{\mathcal{Z}}(\mathcal{X}), \Xi \Omega_{\mathcal{Z}}(\mathcal{X}) \right)$, ϵ MV of phase term CPyFV $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots$, \mathfrak{U} and $\sum_{\mathbf{Z}_{i-1}}^{\infty} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the I. \mathbf{D}_2 **G** \mathbf{E} (**SER**) \mathbf{L}_2 (**C**) \mathbf{H} (**C**) \mathbf{H} (**C**) \mathbf{L} (**C** $\sum_{n=1}^{\infty} \frac{1}{3}$ $\binom{n}{n}$ $\binom{n}{n}$ $\binom{n}{n}$ $\binom{n}{n}$ \sim for \mathbb{R} and \mathbb{R} \sim \sim \mathbb{R} $\omega_{\mathcal{Z}} \in [0,1], \; i = 1,2,...,$ with $L_{\mathcal{Z}=1} \omega_{\mathcal{Z}} = 1$. Then, the IF Aczet- $\left(\begin{array}{ccc} \frac{1}{2} & \frac{1}{2} \\ \frac{1}{2} & \frac{1}{2} \end{array}\right)$ **Definition 6** ([55]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)\right)$, $\mathbf{Z} = 1, 2, ..., 1$ be a collect MV of phase term CPyFV $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the IF Aczel–Alsina we Ẁ Non-empty set ˘ Score function $\mathcal{M}(\mathcal{A})$ of an order term $\mathcal{M}(\mathcal{A})$ $\Omega \subset [0,1]$ $\mathbb{Z}-1$ Ω $\mathbb{R}^{\mathbb{N}}$ Ω Ω Ω Then the IE Agged Alging Ẁ Non-empty set ˘ Score function \mathcal{L} of an \mathcal{L} and \mathcal{L} $\mathcal{D}_z \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots$, \mathfrak{N} and $\sum_{i=1}^n \mathfrak{D}_z = 1$. Then, the IF Aczel–Alsina weighted $_{2=1}$ $_{3=1$ \mathcal{O} $\mathcal{L} = 1.2 \quad \text{and} \quad \mathcal{L}^{\parallel} = 1.7$ From the IE Agood Alging symbolical generative $Z_{\bar{z}=1}^{\infty}$ set \ldots where $Z_{\bar{z}=1}$ $M_{\rm V}$ and $M_{\rm V}$ are σ $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{5}{4}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{5}{4}$, $\frac{1}{2}$ $\frac{8}{9}$ operator is given as: \mathcal{L}_{max} **Definition 6** ([55]). Let $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) \Big)$, $\mathbf{Z} = 1, 2, ..., 1$ be a collection of IF 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* tor is given as: ῃ $\epsilon = 1$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\frac{1}{2}$ $\begin{bmatrix} 2, & 0, & 1, & 7, & 1, & 0 \\ 0, & 1, & 7, & 1, & 2, & 1 \end{bmatrix}$ or $\begin{bmatrix} 2, & 1, & 0 \\ 0, & 1, & 0 \\ 0, & 1, & 2, & 1 \end{bmatrix}$ or $\begin{bmatrix} 2, & 1, & 0 \\ 0, & 1, & 0 \\ 0, & 1, & 2, & 1 \end{bmatrix}$ or $\begin{bmatrix} 2, & 1, & 0 \\ 0, & 1, & 0 \\ 0, & 1, & 2, & 1 \end{bmatrix}$ n as: $\frac{a}{n}$ as: ῃ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\sum_{\mathbf{z} \in \mathbf{z}} \sum_{\mathbf{z} \in \mathbf{z}} \sum_{\mathbf{z}} \sum_{\mathbf{z}} \mathbf{z} = 1$. Then, the IF Aczel–Alstna weight numbers, with weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of Ω_z ($z = 1, 2, 3, ...$), such that $\mathfrak{D}_{\mathbf{Z}}\in[0,1]$, $\mathfrak{Z}=1,2,\ldots,$ \mathfrak{N} and $\sum_{\mathbf{Z}=1}^{\mathfrak{U}}\mathfrak{D}_{\mathbf{Z}}=1$. Then, the IF Aczel–Alsina t 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $w = 1, 2, \ldots, n$ and $\sum_{r=1}^{n} \mathcal{D}_r = 1$. Then, the IF Aczel–Alsina weighted averaging $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ $\frac{1}{2}$ $\begin{bmatrix} 0 & \text{if } w \text{ is a positive number, and } w \end{bmatrix}$ $\mathfrak{D}_\mathfrak{Z} \in [0,1], \, \mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{U}} \mathfrak{D}_\mathfrak{Z} = 1$. Then, the IF Aczel–Alsina weighted averaging **Definition 6** ([55]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) \right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{R}$ be a collection of IF *weight vector is given as:* $\frac{1}{2}$ 1], $\mathfrak{Z} = 1, 2, \ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z}}^{\mathfrak{U}}$, $\mathfrak{D}_{\mathbf{Z}}$ operations. For ῃ = 2, we have: **3. Existing Aggregation Operators** $\sum_{i=1}^{\infty} \sum_{i=1}^{\infty} \sum_{j=1}^{\infty} \sum_{i=1}^{\infty} \sum_{j=1}^{\infty} \sum_{j=1}^{\infty} \sum_{j=1}^{\infty} \sum_{i=1}^{\infty} \sum_{j=1}^{\infty} \sum_{i=1}^{\infty} \sum_{j=1}^{\infty} \sum_{i=1}^{\infty} \sum_{j=1}^{\infty} \sum_{i=1}^{\infty} \sum_{j=1}^{\infty} \sum_{i=1}^{\infty} \sum_{j=1}^{\infty} \sum_{i=1}^{\infty} \sum_{j$ $\mathfrak{D}_{\mathbf{\bar{Z}}}\in[0,1]$, $\mathfrak{Z}=1,2,\ldots,0$ and $\sum_{\mathbf{\bar{Z}}=1}^{0}\mathfrak{D}_{\mathbf{\bar{Z}}}=1$. Then, the IF Aczel–Alsina weighted averaging *weight vector is given us:* **Demittion** \mathbf{u} ([33]), Let Ω \mathbf{z} as $\left(\Pi_{\Omega} \mathbf{z}(\mathcal{A}), \mathcal{Q}(\mathbf{z}(\mathcal{A}))\right)$, $\epsilon = \Pi, \mathbf{z}, \ldots, \mathcal{Q}$ be a concentro [55]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa), \Xi_{\Omega_{\mathbf{Z}}}(\kappa)\right), \; \mathbf{Z} = 1, 2, ...$ $\Gamma_{\Omega_{\mathbf{Z}}}(\kappa), \Xi_{\Omega_{\mathbf{Z}}}(\kappa)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ be a $\frac{-s-1}{s}$ *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 numbers, with wei \mathcal{L} this part, we recall the existing concepts of \mathcal{L} $\mathcal{D}_z \in [0,1], \ z = 1,2,\ldots$, \mathcal{D}_z and $\mathcal{D}_z = 1$ is then, the IF Aczel–Alsina weighted averaging
overator is given as: $\sum_{\text{number of } (100 \text{ J})^2} \text{Let } 22 \frac{\text{if}}{3} = \left(\frac{11}{2} \frac{1}{3} \frac{1}{\text{if}} \frac$ $\binom{1}{r}$, $\binom{2}{r}$ \ldots , $\mathfrak h$ be a collection of **Definition 6** ([55]), Let $Q_{\sigma} = (H_{Q_{\sigma}}(\varkappa), \mathbb{E}_{Q_{\sigma}}(\varkappa))$, $\mathbb{E}_{q} = 1.2$, [1] be a collection of I $\mathfrak{D}_{\sigma} \in [0, 1], \mathfrak{Z} = 1, 2$ Ω onerator is of an as: IFS and PyFs. $\Omega \in [0, 1]$ 3 - 1 2 η_a $\sum_{c=1}^{\infty}$ or $\sum_{c=1}^{\infty}$ IFS and PyFs. **Definition 6** ([55]). Let $\Omega_{\mathbf{Z}} = \prod_{\alpha} \Pi_{\Omega_{\mathbf{Z}}}(\kappa), \Xi_{\Omega_{\mathbf{Z}}}(\kappa)$], $\mathbf{Z} = \mathbf{1}, \mathbf{2}, \ldots, \mathbf{Z}$ be a humbers, with weight bector $\omega_{\mathbf{Z}} = (\omega_1, \omega_2, \omega_3, ..., \omega_n)$ and $\omega_{\mathbf{Z}}$ (e = 1,2,3, $\mathcal{D} \subset [0,1]$ $\mathcal{F} = [2, 2]$ on $\mathcal{F} = [0, 1]$ is $\mathcal{F} = [0, 1]$ if $\mathcal{F} = [0, 1]$ $\frac{1}{2}$ by utilizing our inventor $\frac{1}{2}$ and $\frac{1}{2}$ ϵ operator as given as. (4) To find the feasibility and reliability of our invented methodologies, we explore λ **Definition 6** ([55]). Let Ω ₃ = $(\Pi_{\Omega_{\alpha}}(\kappa), \Xi_{\Omega_{\alpha}}(\kappa))]$, 3 = 1,2,...,ⁿ be a contributed by (CP) and CPyFA \sim CPyFAAOWG) operators, CPyFAAO were constructed (CP) operators, CPyFAAO wG \sim CPyFAAO WG \sim CPyFAAOWG \sim CP humbers, with weight vector $\mathfrak{D}_Z=(\mathfrak{D}_1,\mathfrak{D}_2,\ \mathfrak{D}_3,\dots,\ \mathfrak{D}_n)$ of Ω_Z ($\mathfrak{z}=1,2,3,\dots$ $\Omega \subset [0,1]$ \mathbb{Z} and Γ \mathbb{Z} of properties. We are basic properties. We are the some basic properties. $\omega_{\mathcal{Z}} \in [0,1], \epsilon = 1,2,\ldots,$ we write $\omega_{\mathcal{Z}=1} \omega_{\mathcal{Z}} = 1$. Then, the II Ticzel–Tilstna weighted abendging.
Superator is given as: $\sum_{i=1}^{\infty}$ $\sum_{i=1}^{\infty}$ $\binom{n}{i}$ $\binom{n}{i}$ $\binom{n}{i}$ $\binom{n}{i}$ $\binom{n}{i}$ of $\binom{n}{i}$ $\binom{n}{i}$ $\binom{n}{i}$ $\binom{n}{i}$ $\binom{n}{i}$ rition of it
. **1.2.** $\liminf_{n \to \infty} \sum_{n=1}^{\infty}$ $\liminf_{n \to \infty} \sum_{n=1}^{\infty}$ S_{n-1} the existing concepts of A_n **3.** B and $\sum_{n=1}^{\infty} 1$ **3.** Then the II $\epsilon = 1$ the existing concepts of $\epsilon = 1$ (4) To find the feasibility and reliability of our invented methodologies, we explore \mathcal{N} 55]). Let Ω ₃ = $(\Pi_{\Omega_{\mathbf{z}}}(\kappa), \Xi_{\Omega_{\mathbf{z}}}(\kappa))$, 3 = 1,2,...,^{\|} be a collection of IF $\mathcal{L}_{\mathcal{B}}^{\text{rel}} = (\mathcal{L}_{1}, \mathcal{L}_{2}, \mathcal{L}_{3}, \ldots, \mathcal{L}_{n})^{-\text{rel}} \sim \mathcal{L}_{\mathcal{B}}\left(\mathcal{L}_{1}, \mathcal{L}_{2}, \mathcal{L}_{3}, \ldots, \mathcal{L}_{n}\right)$, such that $g_{\text{rad}} = 1.2$ geometric (CP) operators operators with some properties. $\frac{1}{2}$ by utilizing our inventor $\frac{1}{2}$ and $\frac{1}{2}$ by solved and \frac μ strative example to select a suitable candidate for a vacant post at vacant post a \mathcal{A} To find the feasibility and reliability of our invented methodologies, we explore dimethodologies, we explore). Let $\Omega_{\mathbf{z}} = [\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa}), \Xi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})]$, $\mathbf{z} = 1, 2, ..., \mathbf{z}$ be a collection of IF $\begin{pmatrix} \epsilon & \epsilon & \end{pmatrix}$ and $\begin{pmatrix} \tau & \tau & \tau \\ \end{pmatrix}$ numbers, with weight vector $\mathfrak{D}_\mathbf{Z}=(\mathfrak{D}_1,\mathfrak{D}_2,~\mathfrak{D}_3,\dots,~\mathfrak{D}_n)^T$ of $\Omega_\mathbf{Z}\big($ $\mathbf{Z}=1,2,3,\dots$ $\mathbf{N}\big)$, such that geometric (CPyFAAOWG) operators with some basic properties. $(5, 1, 2, \ldots, 0)$ and $\sum_{Z=1} \mathcal{Y}_Z = 1$. Then, the IF Aczel–Alstha weighted averaging $=$ $\frac{1}{2}$ $\overline{\mathcal{L}}$ $\overline{}$ $\overline{\mathcal{L}}$.
... $(1, 2, 3, \ldots, \mathbb{N})$, such that ⎛ $\mathfrak{D}_\mathbf{Z} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,$ ^{[1}] and $\sum_{\mathbf{Z}=1}^n \mathfrak{D}_\mathbf{Z} = 1$. Then, the IF Aczel–Alsina weighted averaging n nd $\sum_{\rm Z=1}^{\rm R}\mathfrak{D}_{\rm Z}=1$. Then, the IF Aczel–Alsina weighted averaging \overline{S} α ², *2023*, *p*², *a*², *a*² *i 6* (1551). Let $Q_{\sigma} = \left(\prod_{i} \sigma_{i} \right)$ $\frac{1}{2}$ \overline{n} $\frac{2}{3}$ and $\frac{2}{3}$ Aczel–Alsina weighted avera numbers, with weight vector $\mathfrak{D}_\mathbf{Z}=(\mathfrak{D}_1,\mathfrak{D}_2,\ \mathfrak{D}_3,\dots, \ \mathfrak{D}_n)^T$ of $\Omega_\mathbf{Z}\left(\mathbf{Z}=1,2,3,\dots \mathbf{I}\right)$, such ⎟ ⎟ ⎟ ⎞ \overline{a} no μ , Let $\Omega_{\mathbf{Z}} = \left(\Omega_{\mathbf{Z}}(\mathcal{H}), \mathcal{H} \right)$ $\overline{1}$ \mathcal{L} ඨ 1−ି൬∑ ƺ ^ῃ ƺసభ ቀି൫ଵିƺ మ൯ቁῪ ൰ \overline{a} ر
Isina weighted averaging α $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,$ ¹¹ and $\sum_{\mathbf{Z}=1}^{\infty} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the IF Aczel–Alsina weigh *n* such that *a* such that ϵ = 1, i.e., ϵ = 1, ϵ = **Theorem 2.** *Consider* ƺ = ቆఆƺ () , ఆƺ () ቇ , ƺ = 1,2, … , ῃ *to be the* **Definition 6** ([55]). Let $\Omega_{\overline{2}} = (\Pi_{\Omega_{\overline{2}}}(x), \Xi_{\Omega_{\overline{2}}}(x))$, $\varepsilon = 1, 2, ...,$ be a collection of IF *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = $\mathfrak{D}_{\mathbf{Z}}\in[0,1]$, $\mathfrak{Z}=1,2,\ldots,$ \mathfrak{N} and $\sum_{\mathbf{Z}=1}^{\mathfrak{N}}\mathfrak{D}_{\mathbf{Z}}=1$. Then, the IF Aczel–Alsina weighted averaging *follor* $\mathcal{D}_{\mathcal{J}} = (\mathcal{D}_1, \mathcal{D}_2, \mathcal{D}_3, \dots, \mathcal{D}_n)$ of $\Omega_{\mathcal{J}}(z = 1, 2, 3, \dots, n)$, such that $\epsilon = 1$ pumbers with weight vector $\mathcal{D} = (\mathcal{D}, \mathcal{D}, \mathcal{D})$, $\mathcal{D} = (\mathcal{D}, \mathcal{D})^T$ of $\mathcal{D} = (\mathcal{D}, \mathcal{D})^T$ $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ the following forms: $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,1$ and $\sum_{\mathbf{Z}_{i-1}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the IF Aczel–Alsina weigh α operator is given as: open some some interesting $A = (A \cap A)$ numbers, with weight vector $\mathfrak{D}_{\mathbf{Z}}=(\mathfrak{D}_1,\mathfrak{D}_2,~\mathfrak{D}_3,\dots,~\mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}\Big(\mathfrak{Z}=1,2,3,\dots \mathfrak{N} \Big)$, such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z}_5 = 1,2,\ldots,1$ and $\sum_{i=1}^n \mathfrak{D}_3 = 1$. Then, the IF Aczel–Alsina weighted ω operator is given as: ω 1en. the IF Aczel–Alsina weighted averaging $\begin{array}{ccc} \text{a} & \text{b} & \text{c} & \text{c} & \text{c} & \text{c} & \text{d} & \text{c} & \text{d} & \text{e} & \text{e} & \text{f} & \text{$ $\mathcal{B}=1,2,\ldots,$ $``$ and $\sum_{{\bf 3} -1} \mathfrak{D}_{\bf 3} =1$. Then, the IF Aczel–Alsina weighted averaging \mathcal{G} is the basic idea of \mathcal{A} and \mathcal{A} and \mathcal{A} and \mathcal{A} and \mathcal{A} and \mathcal{A} oped to some innovative concepts of \overline{A} of \overline{A} (\overline{A} and \overline{A}) with the framework of \overline{A} with weight vector $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_3 (3 = 1, 2, 3, \dots, n)$, such that $\{1, 2, \ldots\}$ ¹ and $\sum_{\mathbf{z}}^{\infty}$ $\mathfrak{D}_{\mathbf{z}} = 1$. Then, the IF Aczel–Alsina weighted averaging \ldots , " and $\text{L}_{\text{Z}=1}$ ω_{Z} = 1. Then, the IF Aczel–Alsina weighted averaging 1,2,3, … ῃ), *such that* ƺ ∈[0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ *i*), $\mathfrak{z} = 1, 2, \ldots, \mathfrak{N}$ *be a collection of IF* **Defi[niti](#page-36-4)on 6** ([55]). Let $\Omega_{\overline{2}} = (\Pi_{\Omega_{\overline{2}}}(x), \Xi_{\Omega_{\overline{2}}}(x))$, $\overline{2} = 1, 2, ..., n$ be a collection of IF $\frac{1}{2}$ $\frac{1}{2}$ $\frac{2}{3}$ $\frac{1}{2}$ $\frac{2}{3}$, $\frac{3}{2}$ $\frac{1}{2}$ $\frac{2}{3}$ $\frac{1}{2}$ $\frac{2}{3}$ $\frac{1}{2}$ $\frac{3}{2}$, $\frac{5}{2}$ $\frac{1}{2}$ $\frac{5}{2}$ *i*], $\mathfrak{z} = 1, 2, ..., \mathfrak{h}$ *an* ght vector $\mathfrak{D}_\mathbf{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)$ ^r of $\Omega_\mathbf{Z}$ $(\mathfrak{z} = 1, 2, 3, \dots, 1)$, such that ିତ୍ୟ କରିଥିଲେ । ମୁଖ୍ୟ କରିଥିଲେ । numbers, with weight vector $\mathfrak{D}_7 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of Ω_7 ($\overline{3} = 1, 2, 3, \dots, n$), such that a list of $\frac{1}{\sqrt{2}}$ by utilizing the basic operational laws of $\frac{1}{\sqrt{2}}$ **Demitted b** ([55]). Let $\Omega_{\mathbf{Z}} = \left(H \Omega_{\mathbf{Z}}(R), \omega \Omega_{\mathbf{Z}}(R) \right)$, $\epsilon = 1, 2, ..., N$ be a concentral $-8=1$ and \overline{A} contains more extensive information than IFSS and PyFSS and PyFSS and PyFSS and PyFSS and PyFSS and PyFSS because a CPYFSS and PyFSS ([55]). Let $\Omega_{\mathbf{z}} = \prod_{\Omega_{\mathbf{z}}}(u), \Xi_{\Omega_{\mathbf{z}}}(u)$, $\mathbf{\Sigma} = 1, 2, \ldots, \mathbf{N}$ be a collection of IF weight beclui Λ $h_\tau(\varkappa)$ h , $\bar{\varkappa}$ and $\bar{\varkappa}$ in terms of and phase terms of $\bar{\varkappa}$ if $\bar{\varkappa}$ is a collection of IF a list of $\left($ \ldots , ω_n , ω

ʊ Attribute Decision matrix

with weight vector ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ =

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existing AOs with the results of our invented AOs. In Section 9, we summarized the whole

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In this part, we recall the existing concepts of A and A

ʊ Attribute Decision matrix

Theorem 2. *Consider* ƺ = ቆఆƺ

 \mathcal{L} the following Table 1, we define the symbols and the symbols and the symbols and their meanings.

Theorem 2. *Consider* ƺ = ቆఆƺ

= ⎜

ƺୀଵ *. Then, the CPyFAAWA operator*

⎜

In the following Table 1, we define the symbols and their meanings.

In this part, we recall the existing concepts of A

of C is a induction method, we prove Theorem 1 based on \mathcal{L} based on \mathcal{L}

In this part, we recall the existing concepts of A and A

$$
IFAMVA(\Omega_1, \Omega_2, \ldots, \Omega_{\tilde{Z}}) = \frac{\eta}{\tilde{Z}=1} (\mathfrak{D}_{\tilde{Z}} \Omega) = 1 - e^{-(\sum_{\tilde{Z}=1}^{\tilde{\eta}} \mathfrak{D}_{\tilde{Z}} (-ln(1-\Pi_{\Omega}))^{\Upsilon})^{\frac{1}{\Upsilon}}}, e^{-(\sum_{\tilde{Z}=1}^{\tilde{\eta}} \mathfrak{D}_{\tilde{Z}} (-ln(\Xi_{\Omega}))^{\Upsilon})^{\frac{1}{\Upsilon}}}
$$

 \mathcal{L} this part, we recall the existing concepts of \mathcal{L}

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 \mathcal{L} this part, we recall the existing concepts of \mathcal{L}

where ˘ () ∈ [−1, 1] *and* ˘ () ∈ [0, 1]*.* **Definition 4 a** (α) β and β and β and β and β γ bers with weight vector $\mathfrak{D}_{\mathbf{Z}}=(\mathfrak{D}_1,\mathfrak{D}_2,$ \mathfrak{D}_3,\dots $\mathcal{D} \in [0, 1]$ 3 - 1 2 \mathcal{D} and $\mathcal{D}^{\mathcal{D}}$ \mathcal{D} - 1 The), *then we need to find out the accuracy function:* \overline{a} (2) *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV,* **Definition 4** ([33])**.** *Let* ¹ = (¹ $\frac{1}{2}$ $\frac{1}{2}$ **pn** 7 ([58]). Let $\Omega_{\mathbf{Z}} = \left(\, \Pi_{\Omega_{\mathbf{Z}}} (\varkappa) , \Xi_{\Omega_{\mathbf{Z}}} (\varkappa) \, \right)$, 3 = 1,2,...,‼ be the collection of PyF α is α α α α α β β β $\frac{1}{8}$ E_3 is the same of continuous model $E_4 = \frac{1}{2}$ is the same of F_2 is the same of $\frac{1}{2}$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV, respectively.* Similarly, $E_{\Omega_{\alpha}}(\varkappa)$ $\big)$, $\overline{z} = 1, 2, ..., n$ be the collection of PyF *of NMV, respectively. A CPyFS must satisfy these conditions:* $\mathcal{L} = \mathcal{L}$ $\mathcal{L}_3, \ldots, \mathcal{L}_n$ by \mathcal{L}_3 ($\mathcal{L}_4 = 1, 2, 3, \ldots$ such that f_1, \ldots, f_n and $L_{\mathcal{Z}=1}$ $\omega_{\mathcal{Z}} = 1$. Then, the pyF-Aczel–Alsina weighted doeraging *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV,* $\sigma_{\tt g}=\left(\,\Pi_{\Omega_{\tt g}}(\varkappa), \Xi_{\Omega_{\tt g}}(\varkappa)\,\right)$, 3 = 1,2,...,‼ be the collection of PyF $\begin{array}{ccc} \circ & \langle & a & a \\ \hline \circ & \langle & \circ & a \\ \end{array}$ $\frac{1}{3}$ $E_{\xi=1}^{\xi=1}$ ζ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV,* $\mathcal{F}_{\alpha}(\varkappa)$, $\mathbb{E}_{\Omega_{\alpha}}(\varkappa)$, $\mathcal{F}_{\alpha} = 1, 2, ...,$ ⁿ be the collection of PyF \overline{a} $\frac{1}{2}$ ($\frac{1}{2}$, $\frac{1}{2}$ $F_{\rm r1}$ 2 $F_{\rm g}$ = 1. Then, the PyF Aczet–Alstha weighted doeragin ι g ι $($ $\frac{1}{2}$ where $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ numbers with weight vector $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of Ω_3 (3 = 1 *of NMV, respectively. A CPyFS must satisfy these conditions:* \sim $\frac{1}{2}$ \sim $\frac{1}{$ $\mathfrak{D}_3 \in [0,1], 3 = 1,2,\ldots, 0$ and $\sum_{\mathbf{Z}=1}^{\infty} \mathfrak{D}_3 = 1$. Then, the = ൛ ௸()ଶగ൫ఈ(త)൯ , ௸()ଶగ൫ఉ(త)൯ : Ẁൟ, = √−1 **Definition** 7 ([38]). Let $\Omega_{\overline{3}} = \left(H_{\Omega_{\overline{3}}}(\mathcal{H}), E_{\Omega_{\overline{3}}}(\mathcal{H}) \right)$, $\epsilon = 1, 2, ..., n$ b *of NMV, respectively. A CPyFS must satisfy these conditions:* F ^{*Former*} \approx $\frac{1}{8}$ ^{$\frac{1}{100}$} $($ $\frac{1}{2}$ $\frac{1}{2}$ numbers with weight vector $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_3 (3 = 1, 2, 3, \ldots$ n) such the *of NMV, respectively. A CPyFS must satisfy these conditions:* $\sum_{n=1}^{\infty} \mathfrak{D}_3 = 1$. Then, the PyF Aczel–Alsina
by as: = ൛ ௸()ଶగ൫ఈ(త)൯ , ௸()ଶగ൫ఉ(త)൯ : Ẁൟ, = √−1 **Definition** 7 ([58]). Let $\Omega_{\mathcal{Z}} = \left(H \Omega_{\mathcal{Z}}(\mathcal{X}), \Xi \Omega_{\mathcal{Z}}(\mathcal{X}) \right)$, $s = 1, 2, ..., N$ be the collection of I *of NMV, respectively. A CPyFS must satisfy these conditions:* F ^{*Former*} α ⁸ β ¹ ʊ Attribute Decision matrix ʊ Attribute Decision matrix ʊ Attribute Decision matrix ʊ Attribute Decision matrix *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = numbers with weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ $\Omega \subset [0,1]$ $\mathbb{Z} = 1,2$ \mathbb{R} and Γ^{II} $\Omega = 1$ Than the $\frac{d}{dt}$ and *a a* $\frac{d}{dt}$ *and and an respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* $\frac{a}{n}$, $\frac{b}{n}$ $\omega_{\xi} \in [0, 1]$, and $\omega_{\xi=1} \sim \frac{1}{2}$ represents a model of model ω_{ξ} , ω_{ξ} *respectively. Similarly we are presented* and phase terms $\frac{1}{2}$ *representation* and phase terms **and phase terms** *representation representation representation representation representation repre* $\begin{bmatrix} 0 & \cdots & 0 \\ 0 & \cdots & 0 \end{bmatrix}$ or $\begin{bmatrix} 0 & \cdots & 0 \\ 0 & \cdots & 0 \end{bmatrix}$. $\frac{d}{dt}$ and $\frac{d}{dt}$ *and terms as:* $\frac{d}{dt}$ *a* $\frac{d$ *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* $\begin{array}{ccccc} a & b & c & d \\ n & n & n & a \end{array}$ *while* $e = 1, 2, ..., N$ and $\angle 2 = 1$ $\angle 3 = 1$. Then, the 1 yr 1x 2x -1x and weighted averaging is given as: *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* **Definition** 7 ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa), \Xi_{\Omega_{\mathbf{Z}}}(\kappa)\right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{R}$ be $\mathbf{g} = 1$. Then, the PyF. \ldots , $\mathfrak{g}_{\mathfrak{a}}$ and $\sum_{\mathfrak{F}=1}^{\infty} \mathfrak{D}_{\mathfrak{F}} = 1$. Then, the PyF Aczel–Alsina $\sqrt{2\pi}$ = (⊜, 1,2,3, …,)² of **n Definition** 7 ([58]). Let $\Omega_{\mathbf{Z}} = \Big(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)\Big)$, $\mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ be the collection with weight vector $\mathfrak{D}_\mathfrak{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_{\mathfrak{Z}}$ $\left(\mathfrak{Z} = 1, 2, 3, \dots, n \right)$ $1-\frac{1}{2}$ $\overline{\mathbf{F}}$ (Feb $\overline{\mathbf{F}}$ () $\overline{\mathbf{F}}$ $\mathcal{M}(\mathcal{O})$. Let $\mathcal{O}_2 = \left(\frac{1}{2} \mathcal{A} \right)$ $\left(\frac{1}{2} \mathcal{A} \right)$, $\mathcal{O}(\mathcal{A})$, $\mathcal{O}(\mathcal{A})$, $\mathcal{O}(\mathcal{A})$ \mathbb{R} of a metric \mathbb{R} weight vector \mathbb{R} weight vector \mathbb{R} weight vector \mathbb{R} $\lim_{\delta \to 0} \sum_{z=1}^{\infty} \sum_{z=1$ given as: $\sqrt{2\pi}$ = (⊜, ∴, a, 3, …, a, 3, … д, a, 3, **Definition** 7 ([58]). Let $\Omega_{\bf \bar{z}}=\left(\varPi_{\Omega_{\bf \bar{z}}}(\varkappa),\Xi_{\Omega_{\bf \bar{z}}}(\varkappa)\right)$, $\vec{z}=1,2,\ldots,$ \vec{v} be the collection of PyF numbers with weight vector $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_3(3 = 1, 2, 3, \ldots, n)$ such that $1-$ ി $\begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}$ $\begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}$ $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$ \mathcal{L} and \mathcal{L} are $\left(\frac{1}{2} \mathcal{L}/\mathcal{L} \right)$ for a subset of \mathcal{L} and \mathcal{L} function \mathcal{L} is \mathcal{L} $n \times N$ $2, \ldots$, \mathfrak{g} and $\sum_{\mathbf{Z}=1}^{\infty} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the PyF Aczel–Alsina weighted at ${\sf dn}$ 7 ([58]). Let $\Omega_\mathbf{Z}=\left(\varPi_{\Omega_\mathbf{Z}}(\varkappa),\Xi_{\Omega_\mathbf{Z}}(\varkappa)\right)$, 3 $=1,2,\ldots,\mathfrak{N}$ be the collection of PyF lsina weighted averagi<mark>r</mark> $\mathfrak{D}_\mathbf{Z}\in[0,1]$, $\mathfrak{Z}=1,2,\ldots,\mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^\mathfrak{U}\mathfrak{D}_\mathbf{Z}=1.$ Then, the PyF Aczel–Alsina weighted averaging \mathbf{D} **efinition 7** ([58]), $\mathbf{L} \cdot \mathbf{D} = \begin{pmatrix} \Pi & (\mu) \ \nabla & (\mu) \end{pmatrix}$, $\mathbf{Z} = 1, 2, \dots, \mathbf{R}$ leads $\frac{1}{2} \left(\frac{1}{2} \frac{1}{2}$ d and $\sum_{\mathbf{Z}=1}^{\mathbf{U}}\mathfrak{D}_{\mathbf{Z}}=1$. Then, the PyI $\mathcal{L}^{(2)}$, $L_{\mathcal{A}}$ \mathcal{O} = $\left(\Pi_{\mathcal{A}}\left(\ldots\right), \nabla_{\mathcal{A}}\left(\ldots\right)\right)$ $\mathcal{Z}=1,2$, if \mathcal{A} he the collection of PyF $\frac{1}{2}$ $\left(\frac{1}{2}$ (n) = 1/2, (n) $\left(\frac{1}{2}$ (n) $\right)$ $\left(\frac{1}{2}$ = 1,2, …,) is the tementary g $\frac{1}{2}$ $\mathfrak{D}_{\mathbf{Z}} \in [0,1], \mathfrak{Z} = 1, 2, \ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{Y}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the PyF Aczel–Al **Definition 7** ([58])**.** *Let* ƺ = ൬ఆƺ (), ఆƺ ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* **ion** 7 ([58]). Let $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\kappa), \Xi_{\Omega_{\mathbf{Z}}}(\kappa))$, $\delta = 1, 2, ...,$ ¹¹ be the collection of PyF ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* m_{m} with weight vector $\approx \frac{1}{2}$ $(\approx 1, \approx 2, \approx 3)$ *mumbers with weight vector* $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \ \mathfrak{D}_3, \dots, \ \mathfrak{D}_n)^{\mathrm{T}}$ numbers with weight vector $\mathcal{D}_{-} = (\mathcal{D}_{1}, \mathcal{D}_{2}, \mathcal{D}_{3}, \mathcal{D}_{4})^T$ of $O_{-}(3-1, 2, 3, 1)$ α *v o o o s v n i s c*, *i i i s j s* (*∴ i i i* $\mathfrak{D}_{\mathbf{Z}}\in[0,1]$, $\mathfrak{Z}=1,2,\ldots,$ \mathfrak{N} and $\sum_{\mathbf{Z}=1}^{\mathsf{U}}\mathfrak{D}_{\mathbf{Z}}=1.$ Then, the PyF Aczel–Alsina weighted av *with weight vector* $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_3 \left(3 = 1, 2, 3, \dots 0 \right)$ sum \overline{I} $\mathcal{L}_{\mathcal{A}}$ ൫ƺ൯ $\mathfrak{D}_z \in [0,1], \ z = 1,2,...,n \text{ and } \sum_{i=1}^{n} \mathfrak{D}_z = 1.$ Then, the PuF Aczel–Alsing we **Definition** 7 ([58]). Let $\Omega_3 = \left(\Pi_{\Omega_7}(\kappa), \Xi_{\Omega_7}(\kappa)\right)$. ght vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \, \mathfrak{D}_3, \ldots)$ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* D c m ₁, $n \neq 1$ ῃ Definition 7 ([58]). Let $\Omega_{\tt Z} =$ ition 7 ([58]). Let $\Omega_{\bf{\overline{3}}}=\Bigl(\, \Pi_{\Omega_{\bf{\overline{3}}}}\,$ 3, ..., \mathfrak{D}_n ^T of Ω_2 (3 ctor $\mathfrak{D}_\mathfrak{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_\mathfrak{Z}$ $\left(\mathfrak{Z} :$ **Definition** 7 ([58]). Let Ω ₃ = $(\Pi_{\Omega_{\alpha}}(\kappa), \Xi_{\Omega_{\alpha}}(\kappa))$, 3 = 1,2,...,ⁿ be the $\left(\mathfrak{D}_n\right)^T$ of $\Omega_{\mathfrak{Z}}\left(\mathfrak{Z}=1\right)$ numbers with weight vector $\mathfrak{D}_g = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of Ω_g $\left($ \mathfrak{D}_g $\left($ \mathfrak{D}_g $\right)$ \mathfrak{D}_g $\frac{1}{2}$ in Section 1, we though $\frac{1}{2}$ in Section 1, we though $\frac{1}{2}$ $\omega_{\mathbf{z}} \in [0,1], i = 1, 2, \ldots,$ and $\omega_{\mathbf{z}_{\mathbf{z}=\mathbf{1}}} \omega_{\mathbf{z}} = 1$, then, the PyF Aczel–Aistria w **Definition** 7 ([58]) Let $O = (H_0(u), F_0(u))$ 3 = 1.2
 Be the coll **Definition** 7 ([58]). Let $\Omega_{\bf \bar{g}}=\left(\Pi_{\Omega_{\bf \bar{g}}}(\varkappa),\Xi_{\Omega_{\bf \bar{g}}}(\varkappa)\right)$, $\bf \bar{g}=1,2,\ldots, \bf \bar{g}$ be the coli \mathbf{r} in Section 3, we studied the concepts of some existing \mathbf{r} $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,\mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{N}} \mathfrak{D}_{\mathfrak{Z}} = 1$. Then, the PyF Aczel–Alsina weighted averaging $\mathbf{E}_{\Omega_{\widetilde{\mathbf{Z}}}}(\varkappa)\Big)$, 3 = 1,2,..., $\left(\mathfrak{O}_n\right)^T$ of $\Omega_{\mathfrak{Z}}\left(\mathfrak{Z}=1,2,3,\ldots \mathfrak{N}\right)$ such that \overline{L} $[58]$). Let Ω ₃ = $(\Pi_{\Omega_{\bf r}}(\kappa), \Xi_{\Omega_{\bf r}}(\kappa))$, 3 = 1,2,...,ⁿ be the collection of PyF numbers with weight vector $\mathfrak{D}_g = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_g (3 = 1, 2, 3, \ldots$ ⁿ $)$ such that $\frac{1}{2}$ Δ sina operations under the system of C information. In Section 5, we develop Δ $T_{\text{eff}}(t) = \left(\prod_{\alpha} (u) F_{\alpha} (u)\right)$ 3 – 1.2
 Il he the collection of $p_0 F$ **Definition** 7 ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)\right)$, $\mathbf{Z} = 1, 2, ..., 1$ be the collection of PyF $e_1 = 1, 2, \ldots$, it and $\sum_{\mathbf{Z}_{i-1}} \mathfrak{D}_{\mathbf{Z}_{i}} = 1$. Then, the PyF Aczel–Alsina weighted averaging and α sina operations under the system of C information. In Section 5, we developed severation α $\mathcal{D}_{\sigma} \in [0, 1]$ $\mathcal{I} = 1$ \mathcal{I} and $\sum_{n=1}^{n} \mathcal{D}_{\sigma} = 1$ Then, the PuF Aczel–A \mathcal{L}^{max} **Definition 7** ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)\right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ be the collection of PyF $\mathfrak{D}_{\mathbf{z}} \in [0,1], \mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathbf{z}}^{\mathfrak{N}}$ $\mathfrak{D}_{\mathbf{z}} = 1$. Then, the PyF Aczel–Alsina weight $\epsilon = 1$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\mathcal{L}_2^2 = 1$ \sim 8 1.1 and 0, the 1 g1 and 0.1. 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $c = 1$ $c = 3$ z *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* \ldots , \ldots and $\sum_{Z=1} \mathcal{D}_Z = 1$. Then, the PyF Aczel–Alsina weig numbers with weight vector $\mathfrak{D}_{\mathbf{\Sigma}} = (\mathfrak{D}_1, \mathfrak{D}_2, \, \mathfrak{D}_3, \ldots, \, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{\Sigma}} \Big(\mathfrak{Z} = 1, 2, 3, \ldots$ $\mathfrak{N} \Big)$ such that ῃ $\mathfrak{D}_{\mathbf{Z}}\in[0,1]$, $\mathfrak{Z}=1,2,\ldots,$ \mathfrak{N} and $\sum_{\mathbf{Z}=1}^{\mathbf{I}}\mathfrak{D}_{\mathbf{Z}}=1.$ Then, the PyF Aczel–Alsina t of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina $\sum_{\alpha=1}^{\infty}$. Then, the IF Accelerator is given as: $\mathbb{P}^1 = 1, 2, \ldots, \mathbb{P}^1$ and $\sum_{r=1}^{\mathbb{P}^1}$ $\mathfrak{D}_{\mathbf{z}} = 1$. Then, the PuF Aczel–Alsina weighted averaging $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ $\frac{1}{2$ $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$ $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$ $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$ $\mathfrak{D}_{\mathbf{Z}}\in[0,1]$, $\mathfrak{Z}=1,2,\ldots,$ \mathfrak{N} and $\sum_{\mathbf{Z}=1}^{\mathfrak{U}}\mathfrak{D}_{\mathbf{Z}}=1.$ Then, the PyF Aczel–Alsina weighted averaging **Definition** 7 ([58]). Let $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}} (\kappa), \Xi_{\Omega_{\mathbf{Z}}} (\kappa))$, $\mathbf{Z} = 1, 2, ..., n$ be the collection of PyF $\frac{1}{2}$ $\frac{1}{2}$ operations. For ῃ = 2, we have: **3. Existing Aggregation Operators** $\sum_{i=1}^{\infty}$ this part of $\sum_{i=1}^{\infty}$ (Acres $\sum_{i=1}^{\infty}$ (Acres $\sum_{i=1}^{\infty}$ and $\sum_{i=1}^{\infty}$ a $\mathfrak{D}_{\mathbf{Z}}\in[0,1]$, $\mathfrak{Z}=1,2,\ldots,$ \mathfrak{N} and $\ \sum_{\mathbf{Z}=1}^{\mathfrak{N}}\mathfrak{D}_{\mathbf{Z}}=1.$ Then, the PyF Aczel–Alsina weighted averaging *weight vector is given us:* **Definition** 7 ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa), \Xi_{\Omega_{\mathbf{Z}}}(\kappa)\right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ be the collection tion 7 ([58]), Let $Q_{\sigma} = \left(\prod_{\Omega}$ (γ) , $E_Q(\gamma)$, $\lambda = 1.2$, λ $\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ o $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., \mathfrak{N}$ and $\sum_{\mathbf{Z}-1}^{\mathfrak{N}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the PyF Aczel–Al. $1, 2, \ldots, 5$ $f \Omega_{\mathbf{z}}$ (3 = $\frac{1}{2}$ be the coll weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3)$ \mathbf{L}^{\bullet} ſ5 $\overline{}$ ଶగ \sum , a = 1,2,... \cdot , $\mathfrak h$ be the compared \mathfrak{D}_2 , \mathfrak{D}_3 , ..., \mathfrak{D}_n)^T of Ω_2 (3 = 1, 2, 3,. \overline{c} **Definition** 7 (1581), Let $\Omega_{\mathbf{z}} = \left(\prod_{\alpha} (\mathbf{z}) \mathbb{E}_{\alpha} (\mathbf{z})\right)$, $\mathbf{z} = 1.2$ ⎜ $\overline{}$ \blacksquare be the collection of Py $1, 2,$ F numbers with weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)$ of $\Omega_{\mathbf{Z}}$ ($\mathfrak{z} = 1, 2, 3, \dots$) such that *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 In this part, we recall the existing concepts of A **3. Existing Aggregation Operators** In this part, we recall the existing concepts of A fundamental operational laws of Aczel–Alsina TNM and TCNM. **Definition** 7 ([58]). Let $\Omega_{\mathcal{I}} = \prod_{\Omega_{\mathcal{I}}(\mathcal{X})} (\mathcal{X}) \Sigma_{\Omega_{\mathcal{I}}} (\mathcal{X})$ | , $\mathcal{I} = 1, 2, ..., \mathcal{I}$ be the co some special cases, like CP_yF_A \sim numbers with weight bector $\mathcal{L}_{Z} = (\mathcal{L}_1, \mathcal{L}_2, \mathcal{L}_3, ..., \mathcal{L}_n)$ of Ω_Z ($z = 1, 2, 3, ...$ $\Omega \in [0, 1]$, $\mathbb{R} = 1, 2$, \mathbb{R} and $\Sigma^{\mathbb{R}}$, $\Omega = 1$. Then the PyF Acrel, Algins such geometric (CPyFAAOWG) operators with some basic properties. ω by utilizing approaches, we solve a solved and ω solved and ω . fundamental operational laws of Aczel–Alsina TNM and TCNM. **Definition 7** ([58]). Let $\Omega_{\mathbf{Z}} = \prod_{\mathcal{A}} \prod_{\alpha} (\mathbf{x}), \Xi_{\Omega_{\mathbf{Z}}} (\mathbf{x})$ $, \mathbf{Z} = 1, 2, ..., \mathbf{N}$ be the collection some special cases, like \mathcal{L} numbers with weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \ \mathfrak{D}_3, \ldots, \ \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}\Big(\mathfrak{Z} = 1, 2, 3, \ldots$ $]$ such that $\Omega_{\rm c}$ = [0.1], \mathbb{R} = 1.2, and \mathbb{R}^{\parallel} = $\Omega_{\rm c}$ = 1. Thus the PeFA and Abisomiable \approx $\frac{3}{2}$ \approx $\frac{1}{2}$, $\frac{3}{2}$, $\frac{3}{2}$, $\frac{4}{2}$, $\frac{3}{2}$, $\frac{4}{2}$, $\frac{5}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ *operator is given as:* $\left(\nabla f\left(\nabla f\right)\right)$ and $\left(\nabla f\left(\nabla f\right)\right)$ *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 ([58]). Let $\Omega_{\bf \bar{3}} = \prod_{\Omega_{\bf 7}} (\varkappa) \sum_{\Omega_{\bf 7}} (\varkappa)$, $\delta = 1, 2, \ldots, \mathbb{I}$ be the collection of PyF some special cases, like $\mathcal{F}_{\mathcal{A}}$ and $\mathcal{F}_{\mathcal{A}}$ order weighted weighted weighted weighted weighted weighted weighted weighted weight (The vector $\omega_3 = (\omega_1, \omega_2, \omega_3, \dots, \omega_n)$ of Ω_3 (e $=$ 1, ω , 3, \dots of Such that and $\sum_{i=1}^{n}$ and $\sum_{i=1}^{n}$ Then the PuF Aczel–Alsing unighted guergeing $\mu_{\delta=1}$ some basic properties. \int utilization our inventor \mathcal{L} inventor \mathcal{L} fundamental operational laws of \mathcal{A} 8]). Let Ω _z = $\left(\Pi_{\Omega}(\varkappa), \Xi_{\Omega}(\varkappa)\right)$, $\mathfrak{z} = 1, 2, ..., \mathfrak{N}$ be the collection of PyF some special cases, like CPyFAA ordered weighted (CPyFAAWAG), average vector $\mathfrak{D}_{\mathbf{Z}}=(\mathfrak{D}_1, \mathfrak{D}_2, \ \mathfrak{D}_3, \dots, \ \mathfrak{D}_n)^{\scriptscriptstyle\sim}$ of $\Omega_{\mathbf{Z}}$ ($\mathfrak{z}=1,2,3,\dots$) such that \mathbb{R} and $\mathbb{R}^{\mathbb{R}}$ and \mathbb{R} are (CP) and \mathbb{R} and \mathbb{R} and \mathbb{R} and \mathbb{R} and \mathbb{R} $\mathfrak{D}_{\mathbf{\bar{Z}}}\in[0,1]$, $\mathfrak{Z}=1,2,\ldots,$ $\mathfrak{N}% _{1}$ and $\sum_{\mathbf{Z=1}}^{\mathbf{N}}\mathfrak{D}_{\mathbf{\bar{Z}}}=1.$ Then, the PyF Aczel–Alsina weighted averaging $\sum_{i=1}^{\infty}$ in י
ina weiohted averaoino ⎛ *is particularized as: Sylvator is given us.* **Symmetry is given us.** \ldots , \ldots be the collection of Py az $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the PyF Aczel–Alsina weighted averaging operator is given as: *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = **n** 7 ([58]). Let $\Omega_{\mathbf{Z}} = \Big(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)\Big)$, 3 = 1,2,..., \mathbf{N} be the collection of PyF numbers with weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}$ $\left(\mathfrak{Z} = 1, 2, 3, \dots$ $\mathfrak{N} \right)$ such that **Definition** 7 ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega} \right)$ $\Pi_{\Omega_{\mathbf{z}}}(\kappa)$, $\Xi_{\Omega_{\mathbf{z}}}(\kappa)$ |, $\mathbf{z} = 1, 2, \ldots, \mathbf{P}$ be the cold \hat{a} 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ **Definition 7** ([58]). Let $\Omega_2 = \left(\Pi_{\Omega_2}(x), \Xi_{\Omega_2}(x)\right)$, $\overline{z} = 1, 2, ..., \overline{n}$
 numbers with weight vector $\mathfrak{D}_2 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $\Omega_2\left(\overline{z} =$
 $\mathfrak{D}_3 \in [0,1], \overline{z} = 1, 2, ..., \overline{n}$ an oped some innovative concepts of A $\mathfrak{D}_\mathfrak{Z}\in[0,1],\ z=1,2,\ldots$, in and $\mathfrak{D}_{\mathfrak{Z}=1}\mathfrak{D}_\mathfrak{Z}=1.$ Then, in $\sum_{i=1}^{\infty}$ $\mathfrak{D}_{\mathbf{Z}}\in [0,1]$, $\mathfrak{Z}=1,2,\ldots,$ ^{\mathfrak{h}} and $\sum_{\mathbf{Z}=1}^{\mathfrak{U}}\mathfrak{D}_{\mathbf{Z}}=1.$ Then, the PyF Aczel–Alsina weighted averaging 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ oped some innovative concepts of \sim $\Omega = 1, 2, \ldots$, \mathfrak{g} and $\mathfrak{g}_{\mathbf{Z} = 1} \mathfrak{D}_{\mathbf{Z}} = 1.$ Then, the PyF Aczel–Alsina weighted averagi f as: f and fundamental operational laws of f and f s. We also f oped some innovative concepts of AA-TNM and AA-TCNM within the framework of 1, 2, ..., I and $\sum_{\mathbf{Z}_{-1}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the PyF Aczel–Alsina weighted averaging (1) SS:

$$
PyFAAWA\left(\Omega_{1},\,\Omega_{2},\,\ldots,\,\Omega_{\tilde{I}}\right)=\frac{\pi}{3-1}\left(\mathfrak{D}_{\tilde{Z}}\Omega\right)=\sqrt{1-e^{-\left(\sum_{\tilde{Z}=1}^{\tilde{I}}\mathfrak{D}_{\tilde{Z}}\left(-\ln(1-\Pi_{\Omega}^{2})\right)^{\Upsilon}\right)^{\frac{1}{\Upsilon}}}},\,e^{-\left(\sum_{\tilde{Z}=1}^{\tilde{I}}\mathfrak{D}_{\tilde{Z}}\left(-\ln(\Xi_{\Omega})\right)^{\Upsilon}\right)^{\frac{1}{\Upsilon}}}
$$
\nDefinition 8 ([58]). Let

\n
$$
\Omega_{\tilde{Z}}=\left(\Pi_{\Omega_{\tilde{Z}}}\left(\varkappa\right),\Xi_{\Omega_{\tilde{Z}}}\left(\varkappa\right)\right),\,\tilde{Z}=1,2,\ldots,\tilde{I}^{\tilde{I}}\,\,\text{be the collection of PyF}
$$

existing AOs with the results of our invented AOs. In Section 9, we summarized the whole

 \mathcal{L} this part, we recall the existing concepts of \mathcal{L}

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ii. ¹ ⊆ ² *if* ¹ = 2, ¹ = 2, ¹ = ² *and* ¹ = 2. *i.* ¹ ⊆ ² *if* ¹ ≤ 2, ¹ ≤ 2, ¹ ≥ ² *and* ¹ ≥ 2. **Definition 8** ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)\right)$, $\mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ be the collection of PyF \overline{c} *where* ˘ () ∈ [−1, 1] *and* ˘ () ∈ [0, 1]*.* s given as:
Solven as: \ddot{a} *w* vector $\omega_3 = (\omega_1, \omega_2, \omega_3, ..., \omega_n)$ by ω *where* ˘ () ∈ [−1, 1] *and* ˘ () ∈ [0, 1]*. where with weight vector* $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_3 \left(3 = 1, 2, 3, \ldots \right)$ the weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $\mathfrak{D}_{\mathbf{Z}} \in [0,1], \; \mathbf{\hat{z}} = 1, 2, \ldots$ $\begin{array}{cccc} 5 & 3 \\ 1 & 3 \end{array}$ 2 with weight vector $\mathfrak{D}_g = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of Ω_g $\left(3 = \frac{1}{2}\right)$ **Definition 8** ([58]). Let Ω _z = $\left($ ht vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}$ $(3 = 1, 2, 3, \ldots)$ $\mathfrak{D}_\mathfrak{Z} \in [0,1], \mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^n \mathfrak{D}_\mathfrak{Z} =$ $\begin{array}{ccc} 3 & 3 \end{array}$ \int_{z}^{z} a \int
mbers with weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}$ $\left(\mathfrak{Z} = 1, 2, 3, \ldots \mathfrak{N} \right)$ such $\frac{1}{2}$ of contract $\frac{1}{2}$ of C_P is given as: $\frac{1}{2}$ of C_P is given as: $\frac{1}{2}$ of $\frac{1}{2}$ $\begin{pmatrix} 1 & 1 & 1 \ 1 & 1 & 1 \end{pmatrix}$ h weight vector $\mathfrak{D}_{\mathbf{z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{z}}$ ($\mathfrak{z} = 1$, $\frac{1}{2}$ $\mathbf{f} = \mathbf{f} \cdot \mathbf{f} + \mathbf{f} \cdot \mathbf{f}$ *tion* ˘() *of CPyFVs is given as:* $\left(\frac{1}{2} \left(\frac{1}{2} \left(\frac{1}{2} \right) \right) \right)$ $\frac{1}{2}$ vector $\mathfrak{D}_{\mathbf{z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{z}} \left(3 = 1, 2, 3, \dots \right)^T$ $\approx \frac{1}{2}$ (b) $\frac{1}{2}$ Γ **ofinition** 8 ([58]) *Let* $\Omega =$ $\mathbf{z}_s = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of Ω_2 ($\mathfrak{Z} = 1, 2, 3, \dots$) such the \int ^{\int} \int **Definition 8** ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa), \Xi_{\Omega_{\mathbf{Z}}}(\kappa)\right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{R}$ be the coll \lim weight vector $\omega_3 = (\omega_1, \omega_2, \omega_3, ..., \omega_n)$ of $=(\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of i $\leq [0,1], \ 3 = 1,2,...,1$ and $\sum_{\mathbf{Z}=1}^{\mathbf{n}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the PyF Aczel–Alsina weighted geometric cater is given as: ector $\mathfrak{D}_{\mathfrak{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_{\mathfrak{Z}} \Big(\mathfrak{Z} = 1, 2, 3, \ldots \mathfrak{N} \Big)$ such the **inition 8** ([58]). Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa), \Xi_{\Omega_{\mathbf{z}}}(\varkappa)\right)$, $\mathbf{z} = 1, 2, \ldots, \mathbf{P}$ be the collection of PyF **4. Aczel–Alsina Operations Based on CPyFSs** inition 8 ([58]). *Let* $\Omega_{\bf \bar{g}} = \left(\varPi_{\Omega_{\bf \bar{g}}}(\varkappa), \Xi_{\Omega_{\bf \bar{g}}}(\varkappa)\right)$, 3 = 1,2, ([58]). Let Ω ₃ = $\left(\Pi_{\Omega}(\kappa), \Xi_{\Omega}(\kappa)\right)$, 3 = 1,2,...,ⁿ be the collection of PyF 4.4 Francis Based on C_P **Definition 8** ([58]). Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa}), \Xi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})\right)$, $\mathbf{z} = 1, 2, ..., 10$ be the \mathcal{L} $\mathcal{$ Ω $\mathcal{L}_\mathcal{Z}\left(\mathcal{Z}=1,2,3,\ldots \mathcal{R} \right)$ such the **Dennition 8** ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Omega_{1}, \Omega_{2}, \Sigma_{3}, \ldots, \Omega_{n} \right)^{T}$ of $\Omega_{\mathbf{Z}} \left(\mathbf{Z} = 1, 2, 3, \ldots, \mathbf{R} \right)$ such that ῃ น
3= $\mathbb{E}_1 \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the PyF Ac . Then, the PyF Aczel-1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the PyF Aczel–Alsina weighted geometric operator is given as:* ῃ ƺ ·A hen, the PyF Aczel–Alsina weighted geometric
— Ὺ , $\mathfrak{D}_z \in [0,1], \ z = 1,2,\ldots, \mathfrak{N}$ and $\sum_{z=1}^{\mathfrak{N}} \mathfrak{D}_z = 1$. Then, the PyF Aczel–Alsina weighted geometric $$ $\frac{1}{2}$. Then, the PyF $\frac{1}{2}$ and $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ α $\sqrt{2\pi}$ = (⊜, 1,2,3, and 2,1) **Definition 8** ([58]). Let $\Omega_{\overline{g}} = \left(H_{\Omega_{\overline{g}}}(\varkappa), \Xi_{\Omega_{\overline{g}}}(\varkappa) \right)$, $\varepsilon =$ numbers with weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)$ of $\Omega_{\mathbf{Z}}(z = 1, 2, 3, \dots)$ such that $\mathfrak{D}_3 \in [0,1], \, 3 = 1,2,\ldots, n$ and $\sum_{\mathbf{Z}=1}^n \mathfrak{D}_3 = 1$. The converter is given as: **Definition 8** ([58]) Let $O_7 = \left(\prod_{Q|X} x \right) E_Q(x)$ and $\begin{bmatrix} 3 & 1 \\ 2 & -1 \end{bmatrix}$ be the coll **Demitton** σ ([50]). Let Ω $\frac{1}{2}$ $\left(\frac{11}{2}$ $\left(\frac{11}{2} \times \frac{1}{2} \times \frac{1}{2$ **Definition** 8 ([58]), Let $O = (H_2(\omega), F_2(\omega))$, $\zeta = 1,2,3,1$ be the collection **Definition 8** ([58]). Let $\Omega_{\tilde{Z}} = \left(H \Omega_{\tilde{Z}}(X), \Xi \Omega_{\tilde{Z}}(X) \right)$, $z = 1, 2, ..., N$ be the conection **Definition 8** ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}), \Xi\right)$ $\omega_3 \cup [0,1], \epsilon = 1,2,...,$ ^o and $\omega_3 = 1$, $\omega_3 = 1,1$ ƺୀଵ *. Then, the PyF Aczel–Alsina weighted geometric operator is given as:* **Definition 8** ([58]) Let $O = (H_0(\nu) F_0(\nu))$ $X = 1.2$ [1] be the $\mathfrak{D}_{z} \in [0,1], \ z = 1,2,\ldots, \mathfrak{N}$ and $\sum_{r=1}^{\mathfrak{N}} \mathfrak{D}_{z} = 1$. Then, the PyF Au $\overline{}$ $\mathfrak{D}_{\mathbf{Z}} \in [0,1], \mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the PyF Aczel–Alsina weighted geometric ƺୀଵ *. Then, the PyF Aczel–Alsina weighted geometric operator is given as:* **Definition 8** ($\sqrt{5}$ \mathcal{L} *a* = 1 ○ $\frac{1}{2}$ \ldots , ⁿ and $\sum_{\mathbf{z}}^{H}$ $\mathfrak{D}_{\mathbf{z}} = 1$. Then, the PyF Aczel–Alsina weighted geometric $s=1$ \sim ƺୀଵ *. Then, the PyF Aczel–Alsina weighted geometric operator is given as:* $a \cdot (58)$. Let $\Omega_{\mathbf{z}} = \prod_{\Omega_{\alpha}} (\mathbf{z}).$ ƺୀଵ *. Then, the PyF Aczel–Alsina weighted averaging operator is given as:* **Definition 8** ([58]). Let $\Omega_{\mathbf{Z}} =$ $[0, 1]$, $[3, 2] = 1, 2, \ldots, \mathbb{R}$ and $\sum_{\mathbf{Z} = -1}^{\mathbb{R}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the PyF Aczel–Alsina weighted g 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the PyF Aczel–Alsina weighted averaging operator is given as:* $\liminf_{\theta \to 0} \frac{\log(\log(\log n))}{\log(n)}$ ῃ \mathfrak{g} _{(μ} MV of amplitude term ˘ Accuracy function **on 8** ([58]). Let $\Omega_{\mathcal{Z}} = \left(H_{\Omega_{\mathcal{Z}}}(\varkappa), \Xi_{\Omega_{\mathcal{Z}}}(\varkappa) \right)$, $\varepsilon = 1, 2, ...,$ where with weight vector $\mathcal{D}_{-} = (\mathcal{D}_{1}, \mathcal{D}_{2}, \mathcal{D}_{3}, \dots, \mathcal{D}_{N})^T$ of $\mathcal{D}_{-}(\mathbf{3} - 1, 2, 3, \dots, 1)$ $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the PyF Aczel–Alsina weighted averaging operator is given as:* σ ([σ]). Let $\Omega_{\mathcal{S}} = \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}$ $\mathbb{F}_{\Omega_{\mathbf{Z}}}$ (\mathbb{A} $\left(\begin{array}{ccc} \frac{1}{2} & \frac{$]). Let $\Omega_{\bf \bar{2}}=\left(\varPi_{\Omega_{\bf \bar{2}}}(\varkappa),\Xi_{\Omega_{\bf \bar{2}}}(\varkappa)\right)$, $\bar{\bf 3}=1,2,\ldots,$ $\bar{\bf 3}\,\,$ be the collection whit we to $\mathcal{D}_- = (\mathcal{D}_1, \mathcal{D}_2, \mathcal{D}_3, \dots, \mathcal{D}_n)^T$ of $O_-(3 - 1, 2, 3, \dots, n)$ such that numbers with weight vector $\mathfrak{D}_\mathbf{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_\mathbf{Z}$ $\left(\mathbf{Z} = 1, 2, 3, \dots$ \mathbf{R} such the \mathbf{Z} \mathbf{S} : **Definition 8** ([58]). Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa}), \Xi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})\right)$, $\mathbf{z} = 1, 2, \ldots, \mathbf{z}$ be the $\frac{1}{\sqrt{2\pi}}$ $\frac{1}{\sqrt{2\pi}}$ $\frac{1}{\sqrt{2\pi}}$ $\frac{1}{\sqrt{2\pi}}$ $\frac{1}{\sqrt{2\pi}}$ $\frac{1}{\sqrt{2\pi}}$ $\frac{1}{\sqrt{2\pi}}$ **Definition 8** ([58]). Let $\Omega_{\mathbf{Z}} = \left(H_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}), \Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}) \right)$, $\mathbf{Z} = 1, 2, ...,$ ¹¹ be the $\mathfrak{D}_{\mathfrak{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)$ of \overline{a} $\lim_{z \to z_1} \sum_{z=1}^{\infty} z = 1$. Then, the PyF Aczet–Alstna weights $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 8]). Let $\Omega_{\mathbf{Z}} = \left(H_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) \right)$, $\mathbf{Z} = 1, 2, ...,$ We the collection of PyF m mumbers with weight vector $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_3 \left(\mathfrak{F} = \mathfrak{F} \right)$ $\sqrt{2\pi}$ = (⊜,1,2,3, ∞,1), $\sqrt{2\pi}$ $1.$ Let $\Omega_\mathbf{Z} = \Big(\Pi_{\Omega_\mathbf{Z}}(\varkappa), \Xi_{\Omega_\mathbf{Z}}(\varkappa) \Big)$, $\mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ be the collection of PyF $\mathfrak{D}_{\mathfrak{Z}} \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., \mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathfrak{Z}} = 1$. Then, the PyF Aczel–Alsina weighted geometric operator is given as: **Definition 8** ([58]), Let $\Omega_{\tau} = \left(\prod_{\alpha} (\kappa) \mathbb{E}_{\alpha} (\kappa) \right)$, $\zeta =$ numbers with weight vector $\mathfrak{D}_\mathbf{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ $=$ $\frac{1}{2}$ $\frac{1}{2$ $\mathfrak{D}_{\mathfrak{Z}} \in [0,1], \mathfrak{Z} = 1,2,\ldots,\mathfrak{N}$ and
operator is given as: **Definition 8** ([58]). Let $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\kappa), \Xi_{\Omega_{\mathbf{z}}}(\kappa))$, $\mathbf{z} = 1, 2, ..., \mathbf{z}$ be the collection $\sqrt{6}$ = $\sqrt{2}$ = $\sqrt{2}$ = $\sqrt{3}$, $\sqrt{2}$ = $\sqrt{1}$ of $\sqrt{2}$ = 1,2,3, $\sqrt{2}$ numbers with weight vector $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)$ of $\Omega_3 \setminus \{2 = 1, 2, 3, \dots\}$ $[0, 1], \ \xi = 1, 2, \ldots, \xi$ and $\Sigma_{\zeta=1}$ *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = numbers with weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)$ ² of $\Omega_{\mathbf{Z}}$ $(2 = 1, 2, 3, \dots$ ¹¹) si $\mathfrak{D}_{\mathbf{Z}}=% {\textstyle\sum\nolimits_{\alpha}} \left(\mathfrak{D}_{\alpha}\right) ^{\alpha}$ $sum \text{ with weight vector } \mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3)$ Definition 8 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* finition 8 ([58]). Let $\Omega_{\bf{\bar{2}}}=\Big(\varPi_{\Omega_{\bf{\bar{3}}}}(p) \Big)$ $\mathcal{D}_{\mathcal{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots)$ numbers with weight vector $\mathfrak{D}_{\mathbf{Z}}=(\mathfrak{D}_1,\mathfrak{D}_2,\ \mathfrak{D}_3,\ldots, \ \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}\Big($ $\mathbf{\mathbf{Z}}=1,2,3,\ldots$ $\frac{1}{\sqrt{2\pi}}$ on 8 ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)\right)$, 3 = 1,2,..., 1 1 T_n structure of the structure $\left(T_n(x), \frac{1}{n}\right)$ is presented in the also displayed in the structure **Demittion 6** ([50]). Let $\Omega_2 = \left(\frac{H Q_2}{M} \left(\frac{\mu}{2} \right) \right)$ $\omega_2 = \left(\frac{H Q_2}{M} \right)$, $\omega_3 = \frac{H Q_2}{M}$ numbers with weight vector $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_3(3) = 1, 2, 3, \ldots$ and that $\mathfrak{D}_z \in [0,1], \ Z=1,2,\ldots$, $[0]$ and $\sum_{\alpha=1}^{\infty}$ $\mathfrak{D}_z=1$. Then, the PyF Aczel–Alsina weighte $\mathcal{L}_{\mathcal{A}}$ $\left(1+\frac{1}{2}\right)$ structure of this manuscript is presented as follows and also displayed in the $\left(1+\frac{1}{2}\right)$ **Definition 8** ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)\right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{R}$ be the collection α operator is of contains α in α in α in α is α in α in α in α is α in α is α is eral A $\mathcal{L}_{\mathcal{A}}$ $P_1, \Omega_2, ..., \Omega_{\parallel}$ = $\bigoplus_{\mathbf{Z}=1}^{\oplus} (\mathfrak{D}_{\mathbf{Z}} \Omega) = \mathbb{V} 1 - e^{-\mathfrak{D}_{\mathbf{Z}-1}}$ and Ω , e
 Definition 8 ([58]). Let $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(x), \Xi_{\Omega_{\mathbf{Z}}}(x))$, $\mathbf{Z} = 1, 2$,
 numbers with weight vector $\$ (α) , $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ be the cold $\left(\frac{1}{\pi} \left(\frac{1}{\pi} \right)^n \mathbb{E} \left(1 - \frac{1}{\pi} \right)$ $F_{\text{top}}(p)$, Let $\Delta z = \left(\frac{H_{12}}{2} \left(n \right), \frac{H_{22}}{2} \left(n \right) \right)$, $e = 1, 2, ...,$ be the concentration of 1 yr $\begin{pmatrix} 1 & 1 & 1 \\ 0 & 1 & 1 \end{pmatrix}$ $\mathcal{B}=1,2,\ldots, \mathcal{V}$ and $\sum_7^{\mathcal{V}}$, $\mathfrak{D}_7=1$. Then, the PyF Aczel–Alsina weighted geometric $\mathcal{L}_{\mathcal{L}}$ operations under the system of $\mathcal{L}_{\mathcal{L}}$ in Section 5, we define several set- $\left(\begin{array}{ccc} 1 & \lambda & \lambda & \lambda \\ 0 & 0 & \lambda & \lambda \end{array}\right)$ is presented as follows and also displayed in the λ **Definition 8** ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)\right)$, $\mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ be the collection of PyF work; in Section 2, we recall the notions of CFSs, CPyFSs and fundamental operations of $\sum_{i=1}^{\infty}$ is studied to see studied the studied the differential $\sum_{i=1}^{\infty}$ under the differential $\sum_{i=1}^{\infty}$ $\zeta = 1$ in $\zeta =$ numbers with weight vector $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_3 (3 = 1, 2, 3, \ldots$ n) such that $\mathcal{D}_{\sigma} \in [0, 1]$ $\mathcal{B} = 1, 2$ \ldots is and $\sum_{n=1}^{n} \mathcal{D}_{n} = 1$ Then, the PuF Aczel–A \mathcal{L}^{max} **Definition 8** ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)\right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ be the collection of PyF $\mathfrak{D}_z \in [0,1], \; \mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{i=1}^{\mathfrak{N}} \mathfrak{D}_z = 1$. Then, the PyF Aczel–Alsina weight $\epsilon = 1$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\mu_{\mathcal{S}=1}$ \sim 3 1.1 and 0, 0 1.9 1.0 20 1. σ σ $\left[0,1\right]$ $\left[7,1,2\right]$ $\left[1,2\right]$ $\left[0,1\right]$ $\left[2,1\right]$ $\left[0,1\right]$ $\left[0$ $\lim_{z \to 1} a$ s: ῃ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* \ldots , $\cdot\cdot$ and $\Delta_{\mathbf{Z}=1}\mathfrak{D}_{\mathbf{Z}}=1$. Then, the PyF Aczel–Alsina weig numbers with weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \, \mathfrak{D}_3, \ldots, \, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}} \Big(\mathbf{\mathbf{Z}} = 1, 2, 3, \ldots \mathbf{I} \Big)$ such that $\mathfrak{D}_{\mathbf{\bar{Z}}}\in [0,1]$, $\mathfrak{Z}=1,2,\ldots,$ \mathfrak{N} and $\sum_{\mathbf{\bar{Z}}=1}^{\mathbf{[l]}}\mathfrak{D}_{\mathbf{\bar{Z}}}=1.$ Then, the PyF Aczel–Alsina \mathfrak{v} $\sum_{i=1}^{\infty}$ *. Therefore is given as:* $\sum_{i=1}^{\infty}$ \mathbb{P}^1 and \mathbb{P}^1 \mathbb{P}^1 \mathbb{Q}^1 \mathbb{Z}^2 \mathbb{Z}^2 \mathbb{Z}^2 \mathbb{Z}^1 and \mathbb{Z}^1 \mathbb{Z}^2 \mathbb{Z}^2 \mathbb{Z}^1 \mathbb{Z}^2 \mathbb{Z}^2 \mathbb{Z}^2 \mathbb{Z}^2 \mathbb{Z}^2 \mathbb{Z}^2 \mathbb{Z}^2 \mathbb $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ $\frac{1}{2}$ $\begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$ = ($\begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$ = $\begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$ $\begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$ $\begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$ $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{N}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the PyF Aczel–Alsina weighted geometric **Definition 8** ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)\right)$, $\mathbf{Z} = 1, 2, ..., n$ be the collection of PyF $\frac{1}{2}$ operator is given as: $\sum_{i=1}^n$ $\sum_{i=1}^n$ **3. Existing Aggregation Operators** $\sum_{i=1}^{\infty} \sum_{i=1}^{\infty} \sum_{i$ $\mathfrak{D}_\mathbf{Z}\in[0,1]$, $\mathfrak{Z}=1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^\mathfrak{N} \mathfrak{D}_\mathbf{Z}=1.$ Then, the PyF Aczel–Alsina weighted geometric *weight vector is given us:* ition 8 ([58]). Let $\Omega_{\sigma} \equiv \left(\frac{\partial \rho}{\partial \rho} \right)$ (ν) , $E_O(\nu)$, $3 = 1.2$ $(\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ $\mathfrak{D}_z \in [0,1], \; \mathfrak{Z} = 1,2,\ldots,\emptyset$ and $\sum_{\mathbf{Z}-1}^{\mathfrak{Y}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the PyF Aczel–Al. $: 1, 2, \ldots, 0$ of $\Omega_{\texttt{Z}}$ (3 $=$ $\mathfrak h$ be the cold weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3)$ \mathbf{r} Ï۴ భ Ὺ ଶగ (α) , $\overline{z} = 1, 2, ..., n$ be the c Ļ. numbers with weight vector $\mathfrak{D}_\mathfrak{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_{\mathfrak{Z}}\Big(3 = 1, 2, 3, \dots$ ϵ **Definition 8** ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}), \Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})\right)$, $\mathbf{Z} = 1, 2$, \approx $\frac{3}{5}$ \sim [\sim] I_n the existing concepts of \mathcal{S}_n and \mathcal{S}_n Ω_{c} (0.1) \overline{Z} \overline{a} μ_1, \ldots, n be the collection $\mathbf{g}\left(3=1,2,3,\ldots^{n}\right)$ such **Definition 8** ([58]). Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}), \Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})\right)$, $\mathbf{Z} = 1, 2, ..., 1$ be the collection of \mathbb{P} **Properties** *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 numbers with weight vector $\mathfrak{D}_{\mathbf{Z}} = 0$ **3. Existing Aggregation Operators** In this part, we recall the existing concepts of A **3. Existing Aggregation Operators** In this part, we recall the existing concepts of A some special cases, like $\mathcal{L} = \mathcal{L} = \mathcal{L}^T$ humbers with weight bector $\mathcal{L}_Z = (\mathcal{L}_1, \mathcal{L}_2, \mathcal{L}_3, ..., \mathcal{L}_n)$ of \mathcal{L}_Z ($\varepsilon =$ $\mathcal{D} \in [0, 1]$, $\mathcal{F} = \mathcal{F} = \mathcal{F}$ and $\sum_{i=1}^{n} \mathcal{D} = \mathcal{F} = \mathcal{F}$ and $\sum_{i=1}^{n} \mathcal{D} = \mathcal{F} = \mathcal{F}$ and $\sum_{i=1}^{n} \mathcal{D} = \mathcal{F} = \mathcal{F}$ $\mathcal{E} = \mathcal{E} \setminus \mathcal{E}$ \mathcal{O} by utilizing approaches, we solve a solved and \mathcal{O} **Definition 8** ([58]). Let $\Omega_{\bf \bar{Z}} = \left(\Pi_{\Omega_{\bf Z}}(\varkappa), \Xi_{\Omega_{\bf Z}}(\varkappa) \right)$, $\bar{z} = 1, 2, \ldots, \bar{w}$ be t some special cases, $\frac{1}{2}$ or $\frac{1}{2}$ numbers with weight vector $\mathfrak{D}_\mathfrak{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^\mathrm{T}$ of $\Omega_\mathfrak{Z} \left(\mathfrak{Z} = 1, 2, 3, \dots \mathfrak{N} \right)$ such that $\Omega \in [0,1]$, $\mathbb{Z} = \{1,2, ..., n\}$ and $\mathbb{Z}^{\left[1\right]}$ and $\mathbb{Z} = \{1, T\}$ and $\mathbb{Z} = \{1, T\}$ and $\mathbb{Z} = \{1, 2, ..., n\}$ \approx $\frac{3}{5}$ \approx $\frac{1}{2}$, $\frac{3}{1}$, $\frac{3}{1}$, $\frac{4}{1}$, $\frac{5}{2}$, $\frac{3}{2}$, $\frac{4}{1}$, $\frac{5}{2}$, $\frac{3}{2}$, $\frac{1}{2}$, $\frac{5}{2}$, $\frac{1}{2}$, \frac ω utilizing operator is given as: $\left(\nabla f\right)$ of $\left(\nabla f\right)$ of $\left(\nabla f\right)$ and $\left(\nabla f\right)$ *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 ([58]). Let $\Omega_{\bf z} = \prod_{\Omega_{\bf z}} (\mu)$, $\Xi_{\Omega_{\bf z}} (\mu)$ |, $\lambda = 1, 2, \ldots, \emptyset$ be the collection of PyF some special cases, like \mathcal{F} ordered weighted It vector $\mathcal{D}_{\mathcal{Z}}=(\mathcal{D}_1,\mathcal{D}_2,\mathcal{D}_3,\ldots,\mathcal{D}_n)$ of $\Omega_{\mathcal{Z}}(s=1,2,3,\ldots)$ such that $\eta = \lim_{\epsilon \to 0} \frac{\Pi}{\epsilon}$ and ∇^{Π} and $\Gamma = 1$. Then, the ByF A cral, Alging spaighted coornative $Z_{Z=1}^{\infty}$ of $Z_{Z=1}$ and $Z_{Z=1}$ and $Z_{Z=1}$ is the some parameter. $\frac{1}{2}$ by utilizing our inventor $\frac{1}{2}$ by solved and MADM technique. We solve $\frac{1}{2}$ and $\frac{1}{2}$ fundamental operational laws of Aczel–Alsina TNM and TCNM. (4) To find the feature feature feature in the feature independent methodologies. Let $\Omega_{\mathbf{z}} = [\Pi_{\Omega_{\mathbf{z}}}(\kappa), \Xi_{\Omega_{\mathbf{z}}}(\kappa)]$, $\bar{\mathbf{z}} = 1, 2, ..., 1$ be the collection of PyF $\begin{pmatrix} 1 & 2 & 3 \ 0 & 0 & 0 \end{pmatrix}$ ector $\mathfrak{D}_{\mathbf{Z}}=(\mathfrak{D}_1,\mathfrak{D}_2,\mathfrak{D}_3,\dots,\mathfrak{D}_n)^{-}$ of $\Omega_{\mathbf{Z}}$ ($\mathfrak{z}=1,2,3,\dots$) such that $\mathbb{R}^{\mathbb{R}}$ and $\mathbb{R}^{\mathbb{R}}$ $\frac{1}{2}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{1000}$ or $\frac{1}{1000}$ basic properties. $\frac{1}{10}$

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PyFAAWG\left(\Omega_{1},\,\Omega_{2},\,\ldots,\,\Omega_{\tilde{I}}\right)=\frac{\tilde{I}_{1}}{\tilde{Z}=1}\left(\Omega_{\tilde{Z}}^{\mathfrak{D}_{\tilde{Z}}}\right)=e^{-\left(\sum_{\tilde{Z}=1}^{\tilde{I}_{1}}\mathfrak{D}_{\tilde{Z}}\left(-ln\left(\Pi_{\Omega}\right)\right)^{\mathsf{Y}}\right)^{\frac{1}{\tilde{I}}}},\,\sqrt{1-e^{-\left(\sum_{\tilde{Z}=1}^{\tilde{I}_{1}}\mathfrak{D}_{\tilde{Z}}\left(-ln\left(1-\Xi_{\Omega}^{2}\right)\right)^{\mathsf{Y}}\right)^{\frac{1}{\tilde{I}}}}.
$$

where ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*

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terms and phase terms of , *respectively. A CFS must satisfy the condition:*

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4. Aczel–Alsina Operations Based on CPyFSs μ *A and* Alging Operations Bessed on CB-FCs *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\mathbf{A} \mathbf{A} = \mathbf{I} \mathbf{A} \mathbf{I} \mathbf{A}$ $\mathbf{A} \mathbf{A}$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* 4. Aczel-Alsina Operations Based on CPyFSs

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where ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*

By utilizing the notions of Aczel–Alsina TNM and TCNM, we explored some fundamental operational laws of CPyFSs. We also study the generalization of union and intersection of CPyFSs and established some operations of the Aczel–Alsina-like Aczel– Alsina sum, product, scalar multiplication and power role. Then, we have: **System Communication** System Communication Communication and now of the system of \mathbf{S} Alsina sum, product, scalar multiplication and pow **Table 1.** Symbols and their meanings. By utilizing the notions of Aczel–Alsina TNM and TCNM, we explored son Δ leina sum product scalar multiplication and power role. Then we have \mathcal{L}_{1} we also and fundamental operational laws of \mathcal{L}_{2} *Thoma sum, product, sealar manipheditor and power role. Then, we have* matrices that $\frac{1}{2}$ is the unit continuous of $\frac{1}{2}$ is the significance of $\frac{1}{2}$. oped some product, sealing manapheation and power role. Then, we have. $\frac{1}{2}$ support that $\frac{1}{2}$ supported that $\frac{1}{2}$ is the significance of $\frac{1}{2}$ for $\frac{1}{2}$ is $\frac{1}{2}$ for $\frac{1}{2}$ is $\frac{1}{2}$ for $\frac{1}{2}$ is $\frac{1}{2}$ for $\frac{1}{2}$ for $\frac{1}{2}$ for $\frac{1}{2}$ for \frac $\sum_{i=1}^{n}$ and $\sum_{i=1}^{n}$ $\frac{1}{2}$, $\frac{1}{2}$,

Definition 9. Let $\Omega_1 = \left(\Pi_1(\boldsymbol{\varkappa}) e^{2\pi i (\alpha_1(\boldsymbol{\varkappa}))}, \Xi_1(\boldsymbol{\varkappa}) e^{2\pi i (\beta_1(\boldsymbol{\varkappa}))} \right)$ *r*) $e^{2\pi i(\alpha_2(\mathcal{X}))}$, $\Xi_2(\mathcal{X})e^{2\pi i(\beta_2(\mathcal{X}))}$ be any two CPyFVs. The extension of intersection and the union of the given CPyFVs are defined as follows: $\overline{I_1}(\varkappa)e^{2\pi i(\alpha_1(\varkappa))}, \Xi_1(\varkappa)e^{2\pi i(\beta_1(\varkappa))}\big)$ and Ω_2 *w*) $\mathcal{L}_{\mathcal{B}}(k, \mathcal{B}_{\mathcal{B}}(k))$ and the and the conduction of intersection and the membership in the membership value of k . The extension of intersection and the *terms are defined as follows:* $\pi i(\alpha_1(\boldsymbol{\varkappa}))$, $\Xi_1(\boldsymbol{\varkappa})e^{2\pi i(\beta_1(\boldsymbol{\varkappa}))}$ and $\Omega_2 = \Omega$ *whe* ℓ *)* $e^{2\pi i (\beta_2({\cal H}))}$ *be any two CPyFVs. The extension of intersection and the* $\mathbb{E}_1(\boldsymbol{\varkappa})e^{2\pi i(\beta_1(\boldsymbol{\varkappa}))}\big)$ and $\Omega_2 =$ *w*)) \hat{b} be any two CPyFVs. The extension of intersection and the *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\binom{11}{2}$ and Ω_2 = *Π*2(**Definition 9.** Let Ω_1 = $(\Pi_1(\varkappa))$ $\left(\Pi_2(\boldsymbol{\varkappa})e^{2\pi i(\alpha_2(\boldsymbol{\varkappa}))}, \Xi_2(\boldsymbol{\varkappa})e^{2\pi i(\beta_2(\boldsymbol{\varkappa}))}\right)$ *t* **Definition 9.** Let $\Omega_1 = \left(\prod_1(\boldsymbol{\varkappa})e^{2\pi i(\alpha_1(\boldsymbol{\varkappa}))} \right)$ $\overline{H}_2(\varkappa)e^{2\pi i(\alpha_2(\varkappa))}, \Xi_2(\varkappa)e^{2\pi i(\beta_2(\varkappa))}\Big)$ be any two **Definition 9.** Let $\Omega_1 = (\Pi_1(\boldsymbol{\varkappa})e^{2\pi i(\alpha_1(\boldsymbol{\varkappa}))}, \Xi_1(\boldsymbol{\varkappa})$ $\pi i (α_2(\bm{\varkappa}))$, $\Xi_2(\bm{\varkappa})e^{2\pi i(\beta_2(\bm{\varkappa}))}$) be any two CPyFVs **Definition 9.** Let $Q_1 = \left(\prod_1(\boldsymbol{\gamma})e^{2\pi i(\alpha_1(\boldsymbol{\chi}))} \right) \mathbb{E}_1(\boldsymbol{\gamma})e^{2\pi i(\beta_1(\boldsymbol{\chi}))}$ $\mathbb{E}_2(\varkappa) e^{2\pi i (\beta_2(\varkappa))}\big)$ be any two CPyFVs. The extension of intersection and the **Symbol Mean- Symbol Definition** 9. Let Ω_1 = $\left(\frac{1}{\sqrt{N}}\left(1\right) 2\pi i(x_0(x)) - \left(1\right) 2\pi i(x_0(x))\right)$ $\left(\begin{array}{ccc} 1 & 1 & 0 \\ 1 & 0 & 0 \end{array} \right)$ ($\left(\begin{array}{ccc} 1 & 0 & 0 \\ 0 & 0 & 0 \end{array} \right)$ $\left(\begin{array}{ccc} 1 & 0 & 0 \\ 0 & 0 & 0 \end{array} \right)$ $\left(\begin{array}{ccc} 1 & 0 & 0 \\ 0 & 0 & 0 \end{array} \right)$ **Definition 9.** Let Ω_1 = $\left(\nabla \left(\nabla \right) 2\pi i(\alpha_2(\boldsymbol{\nu})) - \left(\nabla \right) 2\pi i(\beta_2(\boldsymbol{\nu})) \right)$ $\left(\frac{H_2(\mathcal{H})e^{-\lambda(\mathcal{H}-\mathcal{H})} \cdot \frac{H_2(\mathcal{H})e^{-\lambda(\mathcal{H}-\mathcal{H})}}{2\lambda(\mathcal{H}-\mathcal{H})} \right)$ **Definition 9** Let $Q_1 = \left(\prod_{i} (\chi) e^{2\pi i (\alpha_1/\chi)} \right)$ $\left(\begin{array}{c}1\end{array}\right)$ $(112(\mathcal{H})e^{-\epsilon\kappa(\lambda_1\lambda_2\lambda_2\lambda_3)}, \Xi_2(\mathcal{H})e^{-\epsilon\kappa(\lambda_1\lambda_2\lambda_3\lambda_4)})$ be any two C. $\begin{pmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix} \begin{pmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix} \begin{pmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}$ \overline{D} *Consider a follows:* **Definition 9.** Let Ω_1 = $(\Pi_1(\kappa)e^{2\pi i (\alpha_1/\kappa))})$ $(\Pi_{\alpha}(x), 2\pi i(\alpha_2(\mathcal{X})) \boxminus_{\mathcal{F}_{\alpha}(x)} 2\pi i(\beta_2(\mathcal{X}))) \big)$ be any two Cl $\begin{pmatrix} -2\sqrt{N} \end{pmatrix}$ of the origin CBuFUs and of the original control α follows: μ into the given CPyFVs are defined as follows: **Definition 9.** Let $\Omega_1 = (\Pi_1(\kappa)e^{2\pi i(\alpha_1(\kappa))}, \Xi_1(\kappa)e^{2\pi i(\beta_1(\kappa))})$ and $\Omega_2 =$ $\mathbf{D} = \mathbf{D} \cdot (\mathbf{C} \cdot (\mathbf{C} \cdot \mathbf{C}) \mathbf{D} \cdot \mathbf{D} \cdot (\mathbf{C} \cdot (\mathbf{C} \cdot \mathbf{C} \cdot \mathbf{D} \$ $\mathcal{L}(\mathcal{L})$, $\mathbb{E}_2(\kappa) e^{2\pi i (\beta_2(\kappa))}$ be any two CPuFVs. The extension of intersection and the $\left(\Pi_2(\boldsymbol{\varkappa})e^{2\pi i(\alpha_2(\boldsymbol{\varkappa}))}, \Xi_2(\boldsymbol{\varkappa})e^{2\pi i(\beta_2(\boldsymbol{\varkappa}))}\right)$ be a **Table 1. Symbols and the International International International International International International I** $\left(\Pi_2(\varkappa)e^{2\pi i(\alpha_2(\varkappa))}, \Xi_2(\varkappa)e^{2\pi i(\beta_2(\varkappa))}\right)$ be any two CPyF $(12(h)e^{-h} - 72(h)e^{-h} - 36h)$ or any two crys vs. The extension of intersection and the **Table 1.** Symbols and the theorem is now the theorem in the symbols and the symbols and the symbols and the symbols μ $(112(\mathcal{X})e^{-\alpha\sqrt{2}(\mathcal{X})}, \Xi_2(\mathcal{X})e^{-\alpha\sqrt{2}(\mathcal{X})})$ be any two CPyF $\left(\prod_{i=1}^n (x_i) \lambda^{2} \pi i (\alpha_2(\boldsymbol{\gamma})) \right)$ $\mathbb{E}_{\alpha_1} \left(\ldots \right) \lambda^{2} \pi i (\beta_2(\boldsymbol{\gamma})) \right)$ is and two CB+FVe The **Definition 9.** Let Ω_1 = $(\Pi_1(\boldsymbol{\chi})e^{2\pi i(\alpha_1(\boldsymbol{\chi}))}, \Xi_1(\boldsymbol{\chi})e^{2\pi i(\alpha_1(\boldsymbol{\chi}))})$ $(112(\mathcal{H})^e$ $(2.11)\mathcal{H})^e$ $\mathbf{D} \cdot \mathbf{G}$ itionalized the basic idea of $\mathbf{D} \cdot \mathbf{G}$ $(T_2(\mu) e^{2\pi i (\alpha_2(\mathcal{H}))}, \Xi_2(\mu) e^{2\pi i (\beta_2(\mathcal{H}))})$ be any $\sum_{i=1}^{\infty}$ in the main contributions of the following forms: $\left(\frac{1}{\sum_{i=1}^{\infty}f(x_i,y_i)}\right)^{-1}$ (1) We presented some new AOS and fundamental operational laws of \mathbb{R} s. We also also \mathbb{R} $(II_2(\kappa)e^{2\lambda t(\alpha_2(\kappa))}, \Xi_2(\kappa)e^{2\lambda t(\beta_2(\kappa))})$ be any two CPyFVs. The extension of int Γ C iii contributions of the main contributions of the following forms: (1) We presented some new AOS and fundamental laws of \mathcal{L}_{max} $(\varkappa)e^{2\lambda t(\alpha_2(\varkappa))}, \Xi_2(\varkappa)e^{2\lambda t(\alpha_2(\varkappa))})$ be any two CPyFVs. The extension of intersection and the $C_n(t) = 0$ $I_n(t) = \left(\prod_{i=1}^n (1, 2\pi i (x_i(\mathbf{x})) - (1, 2\pi i (x_i(\mathbf{x})))\right)$ (1) $\frac{1}{2}$ we are new AOS and fundamental operational laws of CPS see FSS. We also also consider $\frac{1}{2}$ $e^{2\pi i (\alpha_2(\lambda t))}$, $\Xi_2(x) e^{2\pi i (\beta_2(\lambda t))}$ be any two CPyFVs. The extension of intersection and the **Definition 9** Let $Q_i = \left(\prod_i (x) e^{2\pi i (\alpha_1(\mathcal{H}))} \right) \prod_{i=1}^n (x) e^{2\pi i (\beta_1(\mathcal{H}))}$ α in the framework concepts of α and α and α $(II_2(\varkappa)e^{2\pi i(\alpha_2(\varkappa))}, \Xi_2(\varkappa)e^{2\pi i(\rho_2(\varkappa))})$ be any two CPyFVs. Th **Definition 9** Let $Q_2 = \left(\prod_{\mu} (\mu) e^{2\pi i (\alpha_1(\mu))} \right)$ and Q_2 α in the framework of α -TNM and AA-TNM and AA-TNM α $(II_2(\varkappa) e^{2\pi i (\alpha_2(\varkappa))}, \Xi_2(\varkappa) e^{2\pi i (\rho_2(\varkappa))})$ be any two CPyFVs. The extension of **Definition** 9. Let $\Omega_1 = \left(\prod_1(\boldsymbol{\varkappa})e^{2\pi i(\alpha_1(\boldsymbol{\varkappa}))} \right) \pi_1(\boldsymbol{\varkappa})e^{2\pi i(\beta_1(\boldsymbol{\varkappa}))}$ and $\Omega_2 =$ $\left(\begin{array}{c} 0 & \text{if } \lambda \neq 0 \end{array}\right)$ and $\left(\begin{array}{c} 0 & \text{if } \lambda \neq 0 \end{array}\right)$ $(11_2(\varkappa) e^{2.64(\varkappa_2(\varkappa_2))}, \Xi_2(\varkappa) e^{2.64(\varkappa_2(\varkappa_2))}$ be any two CPyFVs. The extension of int **Definition 9.** Let $\Omega_1 = \left(H_1(\varkappa) e^{2\mu(\varkappa_1(\varkappa_1), \varkappa_2)} \right)$ and Ω_2 $\frac{1}{2}$ winn of the circu CD¹CLC are defined as follows: $\mathcal{L}(l_1, l_2, \ldots, l_n)$, $\mathcal{L}(l_2, l_3, \ldots, l_n)$, $\mathcal{L}(l_3, l_4, \ldots, l_n)$

i.
$$
\Omega_1 \cup_{\mathbf{T}, \dot{\mathbf{S}}} \Omega_2 = \left\{ \begin{pmatrix} \dot{\mathbf{S}} \left(\Xi_1(\kappa) e^{2\pi i (\beta_1(\kappa))}, \Xi_2(\kappa) e^{2\pi i (\beta_2(\kappa))} \right), \\ \mathbf{T} \left(\Pi_1(\kappa) e^{2\pi i (\alpha_1(\kappa))}, \Pi_2(\kappa) e^{2\pi i (\alpha_2(\kappa))} \right) \end{pmatrix} \mid \kappa \in \dot{\mathbf{W}} \right\}
$$

ii.
$$
\Omega_1 \cap_{\mathbf{T}, \dot{\mathbf{S}}} \Omega_2 = \left\{ \begin{pmatrix} \mathbf{T} \left(\Pi_1(\kappa) e^{2\pi i (\alpha_1(\kappa))}, \Pi_2(\kappa) e^{2\pi i (\alpha_2(\kappa))} \right), \\ \dot{\mathbf{S}} \left(\Xi_1(\kappa) e^{2\pi i (\beta_1(\kappa))}, \Xi_2(\kappa) e^{2\pi i (\beta_2(\kappa))} \right) \end{pmatrix} \mid \kappa \in \dot{\mathbf{W}} \right\}
$$

 $\sum_{\text{where TNM and TCNM are denoted by T and } \dot{S}$, respectively. \mathcal{L} Non-empty set \mathcal{L} \overline{C} Non-empty set \overline{C} w at the W and W and W are w and w $where TNM$ and $TCNM$ are denoted by T and \dot{S} , respectively. \overline{a} and \overline{b} and \overline{c} \overline{O} *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* where TNM and TCNM are denoted by **T** and \dot{S} , respectively. *terms and phase terms of* , *respectively. A CFS must satisfy the condition: w b*, *representing*. **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as:* geometric (CPyFAAOWG) operators with some basic properties. $\mathcal{L}_{\mathcal{F}}$ $\mathcal{L}_{\mathcal{F}}$ $\overline{}$ $\overline{}$ of new AOs like the CPyFAAWA operator and verified invented AOs with some

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 $\mathcal{L} = \{ \mathcal{L} \mid \mathcal{L} \in \mathcal{L} \}$ set $\mathcal{L} = \{ \mathcal{L} \mid \mathcal{L} \in \mathcal{L} \}$ set $\mathcal{L} = \{ \mathcal{L} \mid \mathcal{L} \in \mathcal{L} \}$ **10.** Consider $\Omega = (\Pi_{\Omega}(\kappa)e^{2\pi i (\alpha_{\Omega}(\kappa))}, \Xi_{\Omega}(\kappa)e^{2\pi i (\beta_{\Omega}(\kappa))}), \Omega_1 =$ $(\alpha_{\Omega_1}(\tau))_{\Pi_{\Omega}} (\chi) e^{2\pi i (\beta_{\Omega_1}(\chi))}$ and $\Omega_2 = (\Pi_{\Omega_1}(\chi) e^{2\pi i (\alpha_{\Omega_2}(\chi))})_{\Pi_{\Omega_2}(\chi)}$ as the three CPyFVs, $\Upsilon \geq 1$ and $\Psi > 0$. Then, we have: M_{on} and $\Omega = \left(\prod_{\Omega}(\chi)e^{2\pi i(\alpha_{\Omega}(\chi))}\right)_{\text{on}} E_{\Omega}(\chi)e^{2\pi i(\beta_{\Omega}(\chi))}\right)_{\text{on}}$ $\frac{1}{\sqrt{2\pi i(\beta_0(\kappa))}}$ of $\frac{1}{\sqrt{2\pi i(\beta_0(\kappa))}}$ of $\frac{2\pi i(\beta_0(\kappa))}{\sqrt{2\pi i(\beta_0(\kappa))}}$ $N_1(N)^c$ of $N_2(N)^c$ $N_3(N)^c$ $N_4(N)^c$ $N_5(N)^c$ $N_6(N)^c$ $N_7(N)^c$ $N_8(N)^c$ $N_9(N)^c$ N $\frac{1}{\sqrt{2}}$ phase term $\frac{1}{\sqrt{2}}$ to phase term $\frac{1}{\sqrt{2}}$ $\mathcal{L}^{\mathcal{L}}(\mathcal{L}^{\mathcal{L}})$ set $\mathcal{L}^{\mathcal{L}}(\mathcal{L}^{\mathcal{L}})$ set $\mathcal{L}^{\mathcal{L}}(\mathcal{L}^{\mathcal{L}})$ set $\mathcal{L}^{\mathcal{L}}(\mathcal{L}^{\mathcal{L}})$ $\Omega = (\Pi_{\Omega}(\varkappa)e^{2\pi i (\alpha_{\Omega}(\varkappa))}, \Xi_{\Omega}(\varkappa)e^{2\pi i (\beta_{\Omega}(\varkappa))}), \Omega_1 =$ $\pi i(\beta_{\Omega_1}(\mu))$ and $\Omega_2 = (\Pi_{\Omega_2}(\mu)e^{2\pi i(\alpha_{\Omega_2}(\mu))}$. $E_{\Omega_2}(\mu)e^{2\pi i(\beta_{\Omega_2}(\mu))}$ $N \ll 1 \leq N$ of N or N $\left(\prod_{\Omega}(\boldsymbol{\gamma})e^{2\pi i(\alpha_{\Omega}(\boldsymbol{\chi}))}\right)E_{\Omega}(\boldsymbol{\gamma})e^{2\pi i(\beta_{\Omega}(\boldsymbol{\chi}))}\right)$, Ω_1 = $\sqrt{2\pi i(\alpha_0(x))}$ π $\sqrt{2\pi i(\beta_0(x))}$ $\lim_{\alpha \to 2} \frac{\alpha_2 - \left(1 + \frac{1}{2} \left(\frac{y}{x}\right)\right)}{\alpha_2 - \left(\frac{1}{2} + \frac{1}{2}\right)}$ \mathcal{L} of \mathcal{L} and \mathcal{L} $\sum_{i=1}^{n} A_{i} u_{i}$ $\qquad \qquad 11 \qquad \qquad 2 \qquad \qquad 11 \qquad \qquad 3 \qquad \q$ **Demittion 10.** Consult $\Delta z = \begin{pmatrix} 1 & 1 \\ 0 & 0 \end{pmatrix}$ $(\Pi_{\Omega_1}(\mu)e^{2\pi i(\alpha_{\Omega_1}(\mu))}, \Xi_{\Omega_1}(\mu)e^{2\pi i(\beta_{\Omega_1}(\mu))})$ and $\Omega_2 = (\Pi)$ **Symbol Meaning Symbol Meaning Definition 10.** Consider $\Omega = \left(\Pi_{\Omega}(\varkappa)e^{2\pi i (\alpha_{\Omega}(\varkappa)))}\right)$ $(\prod_{\Omega}(\kappa)e^{2\pi i(\alpha_{\Omega_1}(\tau))}, \Xi_{\Omega}(\kappa)e^{2\pi i(\beta_{\Omega_1}(\kappa))})$ and $\Omega_2=(\prod_{\Omega}(\kappa)e^{2\pi i \kappa})$ $\sum_{i=1}^{\infty} a_{i} t_{i} t_{i} = 2 \quad (1 \quad 2 \quad (\sum_{i=1}^{\infty} \ell_{i} \geq 2 \pi i (x_{i} + 1/2)) = 2 \cdot 2^{n}$ **Demittion 10.** Consuler $\Delta z = \left(\prod_{i} \left(\frac{\mu_i}{\mu_i} \right) e^{-\frac{\mu_i}{\mu_i} \left(\frac{\mu_i}{\mu_i} \right)} \right)$ $(\Pi_{\Omega_1}(\kappa)e^{2\pi i(\alpha_{\Omega_1}(\kappa))}, \Xi_{\Omega_1}(\kappa)e^{2\pi i(\beta_{\Omega_1}(\kappa))})$ and $\Omega_2 = (\Pi_{\Omega_2}(\kappa)e^{2\pi i(\alpha_{\Omega_2}(\kappa))})$ **Symbol Meaning Symbol Meaning efinition 10.** Consider $\Omega = (\Pi_{\Omega}(\kappa)e^{2\pi i (\alpha_{\Omega}(\kappa))}, \Xi_{\Omega}(\kappa)e^{2\pi i (\beta_{\Omega}(\kappa))})$ $H_{\Omega_{\alpha}}(\kappa)e^{2\pi i(\alpha_{\Omega_1}(\tau))}$, $E_{\Omega_{\alpha}}(\kappa)e^{2\pi i(\beta_{\Omega_1}(\kappa))}$ and $\Omega_2=(\Pi_{\Omega_{\alpha}}(\kappa)e^{2\pi i(\alpha_{\Omega_2}(\kappa))}$, $E_{\Omega_{\alpha}}(\kappa)e^{2\pi i(\beta_{\Omega_1}(\kappa))}$ *Definition to. Consuler* $\Omega = \left(H_Q \right)$ $(\Pi_{\Omega_1}(\kappa) e^{2\pi i (\alpha_{\Omega_1}(\tau))}, \Xi_{\Omega_1}(\kappa) e^{2\pi i (\beta_{\Omega_1}(\kappa))})$ and Ω_2 *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV, Definition IV.* Consider $\Omega = \begin{pmatrix} \Pi_{\Omega}(\varkappa) \end{pmatrix}$ $(\prod_{\Omega_1} {x})e^{2\pi i (\alpha_{\Omega_1} t)}$ *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* **Definition 10.** Consider $(\Pi_{\Omega_1}(\kappa)e^{2\pi i(\alpha_{\Omega_1}(\tau))}, \Xi_{\Omega_1}(\kappa)e^{2\pi i(\beta_{\Omega_1}(\kappa))})$ and Ω_2 $F = \frac{1}{2}$ **The Table 11.** Symbols and the set $\sum_{i=1}^{N-1} \prod_{j=1}^{N} (x_i)^{j}$
So the three CD: ΓV_0 , $\mathcal{M} \geq 1$ and $W > 0$. There we have: **The 10.** Consider $\Omega =$ $\mathbb{E}_{\Omega_1}(x) = \Omega_1(x) e^{-\mathbb{E}_{\Omega_1}(x)/x}$ and $\Omega_2 = (\Pi_{\Omega_2}(x) e^{-\mathbb{E}_{\Omega_2}(x)/x}$, $\mathbb{E}_{\Omega_2}(x) e^{-\mathbb{E}_{\Omega_1}(x)/x}$ **Table 1.** Symbols and the symbols $\left(\begin{array}{c} 1 & 1 \\ 1 & 1 \end{array} \right)$ $\sum_{i=1}^{n} \sum_{j=1}^{n} \binom{n}{i}$ and $W > 0$. Then are have **Sider** $\Omega = \left(\Pi_{\Omega}(\boldsymbol{\varkappa})e^{2\pi i (\mu_{\Omega}(\boldsymbol{\varkappa}))}\right)$ $\mathcal{C}^{\text{max}_{r_1, r_2, r_3, r_4}}$ and $\Omega_2 = (\Pi_{\Omega_2}(\kappa) e^{-\Lambda_{r_1, r_2, r_3, r_4}})$, $\Xi_{\Omega_2}(\kappa) e^{-\Lambda_{r_1, r_2, r_4, r_5, r_6}}$ \overline{a} $V = \frac{1}{2\pi i} \left(\frac{1}{2\pi i} \left(\frac{1}{2\pi} \right)^2 - \frac{1}{2\pi i} \left(\frac{1}{2\pi} \right)^2 \right)$ $(\Pi_{\Omega_1}(k)e^{2\pi i (k_1 \Omega_1(k))}, \Xi_{\Omega_1}(k)e^{2\pi i (p_{\Omega_1}(k))}$ and $\Omega_2 = (\Pi_{\Omega_2}(k)e^{2\pi i})$ **Inition 10.** Consider $\Omega = \left(\Pi_{\Omega}(\boldsymbol{\chi}) e^{2\pi i (\alpha_{\Omega}(\boldsymbol{\chi}))}, \Xi_{\Omega}(\boldsymbol{\chi}) e^{2\pi i (\beta_{\Omega}(\boldsymbol{\chi}))} \right)$ $(TI_{l_1}(\kappa)\epsilon$ 1. $T_{l_1}(\kappa)\epsilon$ 1. $T_{l_1}(\kappa)\epsilon$ 10 Consider $Q = \left(\prod_{\alpha} (\nu) e^{2\pi i (\alpha_{\alpha}(\chi))} \nabla_{\alpha} (\nu) e^{2\pi i (\beta_{\alpha}(\chi))} \right)$ $\int e^{2\pi i (\alpha_1 \alpha_1)}$, $\Xi_{\Omega_1}(\kappa) e^{2\pi i (\mu_1 \alpha_1)}$ and **Symbol Meaning Symbol Meaning** Consider $\Omega = (\Pi_O(\varkappa)e^{2\pi i(\alpha_\Omega(\varkappa))}, \Xi_O(\varkappa)e^{2\pi i(\beta_\Omega(\varkappa))})$, $\Omega_1 =$ $T = \Omega_1(\kappa) e^{-\frac{1}{2} \left(\kappa \right) \kappa}$ $\Omega = \left(\prod_{\alpha} (\mu) e^{2\pi i (\alpha_{\alpha}(\mu))} \right) \nabla_{\alpha}$ $T(x)e^{2\pi i (P\Omega_1(\lambda))}$ and $\Omega_2 = (H_{\Omega_2}(\lambda)e^2)$ **Symbol Meaning Symbol Meaning** In the following $\left(\begin{array}{cc} 1, & \alpha & \alpha & \alpha \\ \alpha & \alpha & \alpha & \alpha \end{array} \right)$ **The following Table 1.** Symbols and $\mathbf{I}(\mathbf{I}_\Omega(\mathbf{x}))e^{-\lambda \mathbf{I}(\mathbf{x})}$ and $\mathbf{I}_\Omega(\mathbf{x})e^{-\lambda \mathbf{I}(\mathbf{x})}$ $\mathbf{I}_\Omega(\mathbf{x})e^{-\lambda \mathbf{I}(\mathbf{x})}$ $\mathbf{I}_\Omega(\mathbf{x})e^{-\lambda \mathbf{I}(\mathbf{x})}$ $\mathbf{I}_\Omega(\mathbf{x})e^{-\lambda \mathbf{I}(\mathbf{x})}$ $\mathbf{I}_\Omega(\mathbf{x})$ $(II_{\Omega_1}(\kappa)e^{-\kappa \kappa_1 \kappa_2 t}, \Xi_{\Omega_1}(\kappa)e^{-\kappa \kappa_2 t})$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV,* $\frac{1}{\sqrt{1 + \left(\frac{1}{2}\right)^2 \pi i} \left(\frac{1}{2}\right)}$ = √ $\frac{2\pi i}{\pi i}$ *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* P **EXAMPLE 10.** C *original* $\mathbb{Z}^2 = \begin{pmatrix} 11 \\ 11 \end{pmatrix}$ *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* $\mathcal{O}(\mathcal{O}(\log n))$ $\mathcal{O}(\log n)$ $I_{\Omega_1}(x)e^{2\pi i(\alpha_{\Omega_1}(\tau))}$, $\Xi_{\Omega_1}(x)e^{2\pi i(\beta_{\Omega_1}(x))}$ and $\Omega_2=(\Pi_{\Omega_2}(x)e^{2\pi i(\alpha_{\Omega_2}(x))}$, $\Xi_{\Omega_2}(x)e^{2\pi i(\beta_{\Omega_1}(x))}$ as the three CPyFVs, $\Upsilon \geq 1$ and $\Psi > 0$. Then, we have: 0 ≤ 1.0 and 0≤ 1.0 and $\Xi_{\Omega_1}(\kappa) e^{2\pi i (\beta_{\Omega_1}(\kappa))}$ and $\Omega_2 = (\Pi_{\Omega_2}(\kappa) e^{2\pi i (\alpha_{\Omega_2}(\kappa))}, \Xi_{\Omega_2}(\kappa) e^{2\pi i (\beta_{\Omega_2}(\kappa))})$ **Definition 2** ([9])**.** *A CPyFS on a* Ẁ *is defined as:* $(\Pi_{\alpha}(\Delta a^{2\pi i(\alpha_{\Omega_1}(\tau)))}\nabla_{\alpha}(\Delta a^{2\pi i(\beta_{\Omega_1}(\tau)))})$ $\text{Der} \quad \Omega = \quad \left(\Pi_{\Omega}(\varkappa)e^{2\pi i (\alpha_{\Omega}(\varkappa))}, \Xi_{\Omega}(\varkappa)e^{2\pi i (\varkappa)}\right)$ $\Omega = \left(\Pi_{\Omega}(\kappa) e^{2\pi i (\alpha_{\Omega}(\kappa))}, \Xi_{\Omega}(\kappa) e^{2\pi i (\beta_{\Omega}(\kappa))} \right), \ \Omega_1 = \pi i (\beta_{\Omega_1}(\kappa))$ and $\Omega_2 = (\Pi_{\Omega_2}(\kappa) e^{2\pi i (\alpha_{\Omega_2}(\kappa))}, \ \Xi_{\Omega_2}(\kappa) e^{2\pi i (\beta_{\Omega_2}(\kappa))})$
d $\Psi > 0$. Then, we have: Then $\sum_{\alpha=2}^{\infty}$ the following $\sum_{\alpha=2}^{\infty}$ means the symbols and the $\tau_{\text{rel}}(x_0(\boldsymbol{\chi})) = \tau_{\text{rel}}(x_0(\boldsymbol{\chi}))$ conditions Ω and Ω $\int_{\alpha}^{1} e^{2\pi i(\beta \Omega_2(\kappa))}$ $\mathcal{L}^{\text{max}}_{\text{max}}$ and $\mathcal{L}^{\text{max}}_{\text{max}}$ to $\mathcal{L}^{\text{max}}_{\text{max}}$ **Definition 10.** Consider $\Omega = \left(\Pi_{\Omega}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega}(\boldsymbol{\varkappa}))}, \Xi_{\Omega}(\boldsymbol{\varkappa})\right)$ as the three CPyFVs, $Y \ge 1$ and $Y > 0$. Then, we have: $(\Pi_{\alpha}(\Delta) e^{2\pi i (\alpha \Omega_1(\tau))}$. $\Box_{\alpha}(\Delta) e^{2\pi i (\beta \Omega_1(\tau))}$ **Definition 10.** *Consider* $\Omega = \left(\Pi_{\Omega}(\kappa) e^{2\pi i (\alpha_{\Omega}(\kappa))}, \Xi_{\Omega}(\kappa) e^{2\pi i (\beta_{\Omega}(\kappa))} \right)$ $\lim_{n \to \infty} \mathbb{E}_{\Omega_1}(\mathbf{z}) e^{2n(\rho \Omega_1(\mathbf{z}))}$ and $\Omega_2 = (\Pi_{\Omega_2}(\mathbf{z}) e^{2n(\alpha \Omega_2(\mathbf{z}))}, \ \Xi_{\Omega_2}(\mathbf{z}) e^{2n(\rho \Omega_2(\mathbf{z}))})$ $\Omega(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega}(\boldsymbol{\varkappa}))}$, $\Xi_{\Omega}(\boldsymbol{\varkappa})e^{2\pi i(\beta_{\Omega}(\boldsymbol{\varkappa}))}\bigg)$, Ω_1 = $E_{Q_1}(\chi)e^{2\pi i(\beta_{\Omega_1}(\chi))})$ and $\Omega_2 = (\Pi_{Q_2}(\chi)e^{2\pi i(\alpha_{\Omega_2}(\chi))})$, $E_{Q_3}(\chi)e^{2\pi i(\beta_{\Omega_2}(\chi))})$ $\hspace{.16cm} \left. \begin{array}{ll} \hbox{if} \ \left(\alpha_\Omega(\boldsymbol{\varkappa}) \right), \ \ \mathbb{E}_{\Omega}(\boldsymbol{\varkappa}) e^{2 \pi i (\beta_\Omega(\boldsymbol{\varkappa}))} \end{array} \right), \quad \Omega_1 \quad = \quad \nonumber$ $W^{(1)}(P_{\Omega_1}(x))$ and $\Omega_2 = (\Pi_{\Omega_2}(x)e^{2\pi i (\alpha_{\Omega_2}(x))}, E_{\Omega_2}(x)e^{2\pi i (\rho_{\Omega_2}(x))})$ $\Omega(\boldsymbol{\varkappa})e^{2\pi i(\beta_{\Omega}(\boldsymbol{\varkappa}))}\Big)$, Ω_1 = *g* and $\Omega_2 = (\Pi_{\Omega_2}(\kappa)e^{2\pi i(\alpha_{\Omega_2}(\kappa))}, \Xi_{\Omega_2}(\kappa)e^{2\pi i(\beta_{\Omega_2}(\kappa))})$ *then, we have:* $\frac{1}{2}$ *respectively. A CFS must satisfy the condition:*)) *, Ω*¹ = $(\Pi_{\Omega_1}(\mathcal{L}_{\Omega_2})\mathcal{L}_{\Omega_2})$ **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as:* $(\Pi_{\Omega_1}(\kappa)e^{2\pi i(\alpha_{\Omega_1}(\tau))}, \Xi_{\Omega_1}(\kappa)e^{2\pi i(\alpha_{\Omega_1}(\tau))})$ $\int_{0}^{1} \frac{1}{2} \int_{0}^{1} \frac$ $\mathcal{F}^{(\tau)}$, $\mathbb{E}_{\Omega_1}(\kappa)e^{2\pi i(\beta_{\Omega_1}(\kappa))})$ and Ω_2 = **10.** Consider $\Omega = \Pi_{\Omega}(x)e^{2\pi i(\alpha_{\Omega}(x))}$, Ξ_{Ω} $\left(e^{2\pi i(\beta_{\Omega_1}(\kappa))} \right)$ and $\Omega_2 = (\Pi_{\Omega_2}(\kappa))$ as the three CPyFVs, $\Upsilon \geq 1$ and $\Psi > 0$. Then, we have: **be a non-empty set of the format format is defined as a non-empty set of the s** $= (\Pi_{\Omega_2}(\kappa)e^{2\pi i(\alpha_{\Omega_2}(\kappa))}, \, \Xi_{\Omega_2}(\kappa)e^{2\pi i(\kappa_{\Omega_2}(\kappa))}$ $\Pi_{\Omega}(\varkappa)e^{\varkappa n(\alpha_{\Omega}(\varkappa))}, \Xi_{\Omega}(\varkappa)e^{\varkappa n(\rho_{\Omega}(\varkappa))}), \quad \Omega_1 =$ $\int e^{2\pi i (\alpha_{\Omega_2}(\mu))} \mathbb{E}_{\Omega_1}(\mu) e^{2\pi i (\beta_{\Omega_2}(\mu))}$ *where have* $\overline{}$ and membership value (MV) of and membership value (MV) of and membership value (MV) of and membership value of a membership value of a membership value of a membership value of a membership value *terms and phase terms of* , *respectively. A CFS must satisfy the condition:*)) , Ξ*Ω*² ($\int_1^2 f(x) dx = \int_1^2 f(x) dx$ $\mathbb{E}_{\Omega_2}(\kappa) e^{2\pi i (\beta_{\Omega_2}(\kappa))})$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude* $\Omega_{\Omega}(\boldsymbol{\chi})e^{\boldsymbol{\omega} \boldsymbol{\kappa} \cdot (\boldsymbol{\kappa} \boldsymbol{\mu})}/\hat{\boldsymbol{\kappa}}$. If $\Omega_1 =$ $\frac{1}{\rho} 2\pi i (\beta_{\Omega_2}(\kappa))$))) PoG it is a solved approaches and Po ϵ established and the selection ϵ suitable candidate for a vacant post at ϵ **hybrid metally consider** $\theta = (\theta_1(\mu_0)^2 \pi i (\alpha_0(\mu))) \nabla_{\theta}(\mu_0)^2 \pi i (\beta_0(\mu_0)^2 \pi \mu_0^2 \mu_0^2)$ $\begin{pmatrix} -22(11) \\ -22(11) \end{pmatrix}$ $(11_{\Omega_1}(\kappa)e^{-\kappa\kappa(\kappa_1t_1+\kappa)}, \Xi_{\Omega_1}(\kappa)e^{-\kappa\kappa(\kappa_1t_1+\kappa)}\}$ and $\Omega_2 = (11_{\Omega_2}(\kappa)e^{-\kappa\kappa(\kappa_1t_2+\kappa)}, \Xi_{\Omega_2}(\kappa))$ **nition 10** Consider $Q = \left(\prod_{\mathcal{A}}(x)e^{2\pi i(\alpha_0(\mathcal{X}))}\right) \mathbb{E}_{\mathcal{A}}(x)e^{2\pi i(\beta_0(\mathcal{X}))}$ $Q_{\mathcal{A}} =$ $\begin{pmatrix} -42\sqrt{16} & -12\sqrt{16} \\ 0 & 0 \end{pmatrix}$ $(1I_{\Omega_1}(x)e^{-x/(n_1t_1(x))}, \Xi_{\Omega_1}(x)e^{-x/(r_1t_1(x))})$ and $\Omega_2 = (1I_{\Omega_2}(x)e^{-x/(n_1t_2(x))}, \Xi_{\Omega_2}(x)e^{-x/(r_1t_2(x))})$ ion 10 Consider $Q = (\Pi_Q(x)e^{2\pi i(\alpha_Q(x))} \Xi_Q(x)e^{2\pi i(\beta_Q(x))})$ $Q_1 =$ $2\pi i(x-\tau)$ operators $2\pi i(\beta-\tau)$ $\Omega_1(x)$ B $\Omega_1(x)$ B $\Omega_2(x)$ and $\Omega_2 = (H_{\Omega_2}(x)e^{-(\Omega_2(x))}, E_{\Omega_2}(x)e^{-(\Omega_2(x))})$ **Definition 10.** Consider $\Omega = \left(\prod_{\Omega}(\chi)e^{2\pi i(\alpha_{\Omega}(\chi))}, \Xi_{\Omega}(\chi)e^{2\pi i(\beta_{\Omega}(\chi))}\right)$ $(\mathbf{F}(\mathbf{C})^2 \mathcal{I}(\mathbf{C}(\mathbf{C}))$ and $(\mathbf{C}^2 \mathcal{I}(\mathbf{C}(\mathbf{C}(\mathbf{C})))$ of $(\mathbf{C}^2 \mathcal{I}(\mathbf{C}(\mathbf{C}(\mathbf{C})))$ of $(\mathbf{C}^2 \mathcal{I}(\mathbf{C}(\mathbf{C}(\mathbf{C})))$ $\begin{pmatrix} \text{tr}(t_1|\mathbf{x}) & \text{tr}(t_2|\mathbf{x}) & \text{tr}(t_3|\mathbf{x}) & \text{tr}(t_4|\mathbf{x}) & \text{tr}(t_5|\mathbf{x}) & \text{tr}(t_6|\mathbf{x}) & \text{tr}(t_7|\mathbf{x}) & \text{tr$ **efinition 10.** Consider $\Omega = (\Pi_O(\kappa)e^{2\pi i(\alpha_O(\kappa))}, \Xi_O(\kappa)e^{2\pi i(\beta_O(\kappa))})$, Ω_1 τ (\geq $2\pi i(\alpha_{\Omega}(\tau))$ and \geq $2\pi i(\beta_{\Omega}(\kappa))$ and \geq τ \geq $2\pi i(\alpha_{\Omega}(\kappa))$ or \geq $2\pi i(\beta_{\Omega}(\kappa))$ $\frac{d_1}{d_1}$ and $\frac{d_2}{d_2}$ and $\frac{d_3}{d_3}$ and $\frac{d_4}{d_4}$ and $\frac{d_5}{d_5}$ and $\frac{d_7}{d_7}$ and $\frac{d_8}{d_8}$ and $\frac{d_9}{d_9}$ and $\frac{d_9}{d_9}$ and $\frac{d_9}{d_9}$ and $\frac{d_9}{d_9}$ and $\frac{d_9}{d_9}$ and $\frac{d$ **nition 10.** Consider $\Omega = (\Pi_{\Omega}(\kappa)e^{2\pi i (\alpha_{\Omega}(\kappa))}, \Xi_{\Omega}(\kappa)e^{2\pi i (\beta_{\Omega}(\kappa))})$, $\Omega_1 =$ $(\zeta)^2\pi i(\alpha_0(\tau)) = (\zeta)^2\pi i(\beta_0(\kappa))$ and $\zeta = (\zeta)^2\pi i(\alpha_0(\kappa)) = (\zeta)^2\pi i(\beta_0(\kappa))$ $h(x) = \int \frac{\ln(x)}{\ln(x)} dx$ and $W > 0$. These research and $W > 0$ and $\lim_{x \to 0} \frac{\ln(x)}{\ln(x)}$ deserved properties. 3π $\left(\frac{1}{2}\right)$ $\left(\frac{1}{2}\right)$ $\left(\frac{1}{2}\right)$ $\left(\frac{1}{2}\right)$ $\left(\frac{1}{2}\right)$ $\left(\frac{1}{2}\right)$ $(II_{\Omega_1}(\kappa)e^{-i\kappa(\kappa_1t_1(\kappa))}, \Xi_{\Omega_1}(\kappa)e^{-i\kappa(\kappa_1t_1(\kappa))})$ and $\Omega_2=(I_{\Omega_1}(\kappa)e^{-i\kappa(\kappa_1t_1(\kappa))})$ Definition 10 $\begin{pmatrix} 3-i(n-1) & 3-i(n-1) \end{pmatrix}$ $f(II_{\Omega_1}(\kappa)e^{-\kappa\kappa(\kappa_1t_1(\kappa))}, \Xi_{\Omega_1}(\kappa)e^{-\kappa\kappa(\kappa_1t_1(\kappa))})$ and $\Omega_2=(II_{\Omega_2}(\kappa)e^{-\kappa\kappa(\kappa_1t_2)}$ deserved properties. The contraction of α $2\pi i(r_1(r_2)$ $2\pi i(\theta_1(r_3))$ $2\pi i(\theta_2(r_4)$ $2\pi i(r_5(r_6))$ $2\pi i(\theta_3(r_7))$ $f_{\Omega_1}(\kappa) e^{-\kappa \kappa \kappa \Omega_1(\kappa) \cdot \mu} E_{\Omega_1}(\kappa) e^{-\kappa \kappa \kappa \cdot \mu_1(\kappa) \cdot \mu}$ and $\Omega_2 = (\Pi_{\Omega_2}(\kappa) e^{-\kappa \kappa \kappa \Omega_2(\kappa) \cdot \mu}$ **Definition 10** Consider $\hat{Q} = \left(\prod_{C}(\mu)e^{2\pi i(\alpha_{Q}(\mu))}\right)E_{C}(\mu)e^{2\pi i(\beta_{Q}(\mu))}$ $\overline{2\pi i}$ (x $\overline{2\pi i}$ $(II_{\Omega_1}(\kappa))$ **Definition 10** Consider $\Omega = \left(\prod_{\alpha} (\chi) e^{2\pi i (\alpha_{\alpha}(\chi))} \right) \prod_{\alpha} (\chi) e^{2\pi i (\beta_{\alpha}(\chi))}$ $\frac{2\pi i(x-\tau)}{x}$ is $\frac{2\pi i(x-\tau)}{x}$ of $\frac{2\pi i(x-\tau)}{x}$ inventor and verified inventor $\frac{2\pi i(x-\tau)}{x}$ $(II_{\Omega_1}(\kappa)e$ and $II_{\Omega_2}(\kappa)e$ **Definition 10.** Consider $\Omega = \left(\prod_{\Omega} (\chi) e^{2\pi i (\alpha_{\Omega}(\chi))} \right) \mathbb{E}_{\Omega} (\chi) e^{2\pi i (\beta_{\Omega}(\chi))}$. Ω_1 σ $\sqrt{2\pi i}$ $\left(\kappa \right)$ σ $\sqrt{2\pi i}$ $\Omega_1(\kappa)$ ^t Ω_2 **Definition 10.** Consider $\Omega = (H_{\Omega}(\boldsymbol{\varkappa})e^{2\lambda t(\mathfrak{u}_{\Omega}(\boldsymbol{\varkappa}))}, \Xi_{\Omega}(\boldsymbol{\varkappa})e^{2\lambda t(\mathfrak{u}_{\Omega}(\boldsymbol{\varkappa}))})$ $(\Pi_{\Omega}(u)e^{2\pi i(\alpha_{\Omega_1}(\tau))}$ $\Xi_{\Omega}(u)e^{2\pi i(\beta_{\Omega_1}(\tau))}$ and $\Omega_{\Omega}-(\Pi_{\Omega}(u)e^{2\pi i(\alpha_{\Omega_2}(\tau))})$ as the three CPyFVs, $\Upsilon \geq 1$ and $\Psi > 0$. Then, we have: \mathcal{L} by using the operational laws of \mathcal{L} **Definition 10.** Consider $\Omega = (H_{\Omega}(\boldsymbol{\chi})e^{2\pi i (\alpha_{\Omega}(\boldsymbol{\chi}))}, \Xi_{\Omega}(\boldsymbol{\chi})e^{2\pi i (\beta_{\Omega}(\boldsymbol{\chi}))})$, Ω_1 $(\Pi_{\Omega}(x)e^{2\pi i(\alpha_{\Omega_1}(\tau))}$ $\mathbb{E}_{\Omega}(x)e^{2\pi i(\beta_{\Omega_1}(x))}$ and $\Omega_{\Omega}-(\Pi_{\Omega}(x)e^{2\pi i(\alpha_{\Omega_2}(x))}$ $\mathbb{E}_{\Omega}(x)e^{2\pi i(\beta_{\Omega_2}(x))}$ \mathcal{L} by using the operational laws of \mathcal{L} **Definition 10.** Consider $\Omega = (\Pi_{\Omega}(\kappa)e^{2\pi i (\alpha_{\Omega}(\kappa))}, \Xi_{\Omega}(\kappa)e^{2\pi i (\beta_{\Omega}(\kappa))})$, $\Omega_1 =$ $g_{\alpha}(\cdot)g^{2\pi i(\alpha_{\Omega_1}(\tau))} = g_{\alpha}(\cdot)g^{2\pi i(\beta_{\Omega_1}(\tau))})$ and $\Omega_2 = (\Pi_{\alpha}(\cdot)g^{2\pi i(\alpha_{\Omega_2}(\tau))} - g_{\alpha}(\cdot)g^{2\pi i(\beta_{\Omega_2}(\tau))})$ \mathcal{L} by using the operational laws of \mathcal{L} $\mathcal{L} = \mathcal{L} \times \mathcal{L}$ s and PyFSs. Keeping in mind the significance of \mathcal{L} **Definition 10.** Consider $\mathbf{12} = \begin{pmatrix} H_{\Omega}(x)e^{2\pi i (n\mathbf{1}/x)} & \mathbf{E}_{\Omega}(x)e^{2\pi i (n\mathbf{1}/x)} \end{pmatrix}$ $(T_{\Omega_{\alpha}}(\mathbf{v})e^{2\pi i(\alpha_{\Omega_1}(\tau))} \mathbb{E}_{\Omega_{\alpha}}(\mathbf{v})e^{2\pi i(\beta_{\Omega_1}(\mathbf{v}))})$ and $\Omega_2 = (\Pi_{\Omega_{\alpha}}(\mathbf{v}))$ $\mathcal{L}_{\mathcal{L}} = \mathcal{L}_{\mathcal{L}} \left(\mathcal{L}_{\mathcal{L}} \right)$ is and $\mathcal{L}_{\mathcal{L}} \left(\mathcal{L}_{\mathcal{L}} \right)$ **Definition 10.** Consider $\Omega = \left(H_{\Omega}(\varkappa)e^{-\kappa(\kappa_1/\varkappa n)} , \Xi_{\Omega}(\varkappa)e^{-\kappa(\kappa_1/\varkappa n)} \right)$, Ω $(T_{\Omega_{\alpha}}(\mathbf{x})e^{2\pi i(\alpha_{\Omega_1}(\tau))}E_{\Omega_{\alpha}}(\mathbf{x})e^{2\pi i(\beta_{\Omega_1}(\mathbf{x}))})$ and $\Omega_2=(\Pi_{\Omega_{\alpha}}(\mathbf{x})e^{2\pi i(\alpha_{\Omega_2}(\mathbf{x}))})$ $\left($ \cdots $\frac{1}{s}$ and PyFSs, $\left($ \cdots $\frac{1}{s}$ and \cdots $\frac{1}{s}$ and \cdots $\frac{1}{s}$ **Definition 10.** Consult $\Omega = \left(\Pi_{\Omega}(X)e^{-\pi i \langle \Omega, X \rangle}, \Xi_{\Omega}(X)e^{-\pi i \langle \Omega, X \rangle} \right)$, Ω_1 $(\Pi_{\Omega_{\alpha}}({}_\varkappa)e^{2\pi i(\alpha_{\Omega_1}(\tau))}, \Xi_{\Omega_{\alpha}}({}_\varkappa)e^{2\pi i(\beta_{\Omega_1}(\varkappa))})$ and $\Omega_2 = (\Pi_{\Omega_{\alpha}}({}_\varkappa)e^{2\pi i(\alpha_{\Omega_2}(\varkappa))})$. **Definition 10.** Consider $\Omega = \left(\prod_{Q} (\chi) e^{2\pi i (\alpha_{Q}(\chi))}, \sum_{Q} (\chi) e^{2\pi i (\beta_{Q}(\chi))} \right), \Omega_{1} =$ \mathbb{R}^2 s, IFSs and PyFSs. Keeping in mind the significance of CPS significance of CPS significance of CPS systems $m_{\rm F}$ s and $m_{\rm F}$ s and P yFSs. Keeping in mind the significance of C

 \mathcal{A} To find the feasibility and reliability of our invented methodologies, we explore dimensional methodologies, we explore dimensional methodologies, we explore dimensional methodologies, we explore dimensional meth

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\Omega_{1}\oplus \Omega_{2} = \left(\begin{matrix} \sqrt{1 - e^{-\left((-\ln(1 - H_{\Omega_{1}}^{2}))\right)^{\mathsf{T}} + \left(-\ln(1 - H_{\Omega_{2}}^{2}))^{\mathsf{T}}\right)^{\frac{1}{\mathsf{T}}}} \\ 2\pi i \left(\sqrt{1 - e^{-\left((-\ln(1 - e_{\Omega_{1}}^{2}))\right)^{\mathsf{T}} + \left(-\ln(1 - e_{\Omega_{2}}^{2}))^{\mathsf{T}}\right)^{\frac{1}{\mathsf{T}}}} } \\ e^{-\left(\left((-\ln(\Xi_{\Omega_{1}}))\right)^{\mathsf{T}} + \left(-\ln(\Xi_{\Omega_{2}}))^{\mathsf{T}}\right)^{\frac{1}{\mathsf{T}}}} \\ e^{\frac{2\pi i}{\mathsf{c}}\left(-\left((-\ln(\Pi_{\Omega_{2}}))^{\mathsf{T}} + \left(-\ln(\Pi_{\Omega_{2}}))^{\mathsf{T}}\right)^{\frac{1}{\mathsf{T}}}}\right)} \\ e^{-\left(\left(-\ln(\Pi_{\Omega_{2}}))^{\mathsf{T}} + \left(-\ln(\Pi_{\Omega_{2}}))^{\mathsf{T}}\right)^{\frac{1}{\mathsf{T}}}}\right)} \\ 2\pi i \left(\begin{matrix} e^{-\left((-\ln(1 - \Xi_{\Omega_{1}}))^{\mathsf{T}} + (-\ln(1 - \Xi_{\Omega_{2}}))^{\mathsf{T}}\right)^{\frac{1}{\mathsf{T}}}} \\ e^{-\left((-\ln(1 - \Xi_{\Omega_{1}}^{2}))^{\mathsf{T}} + (-\ln(1 - \Xi_{\Omega_{2}}^{2}))^{\mathsf{T}}\right)^{\frac{1}{\mathsf{T}}}} \\ \sqrt{1 - e^{-\left((-\ln(1 - \Xi_{\Omega_{1}}^{2}))^{\mathsf{T}} + (-\ln(1 - \Xi_{\Omega_{2}}^{2}))^{\mathsf{T}}\right)^{\frac{1}{\mathsf{T}}}} \\ 2\pi i \left(\sqrt{1 - e^{-\left((-\ln(1 - \Theta_{\Omega_{1}}^{2}))^{\mathsf{T}} + (-\ln(1 - \Theta_{\Omega_{2}}^{2}))^{\mathsf{T}}\right)^{\frac{1}{\mathsf{T}}}}\right)\end{matrix}\right)
$$

deserved properties. The serves of the s

deserved properties.

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\mathbf{Y}\Omega = \begin{pmatrix} \sqrt{1 - e^{-\left(\mathbf{Y}((-In(1 - H_{\Omega}^2))^{\mathbf{Y}}\right)}\right)^{\frac{1}{\mathbf{Y}}}} \\ 2\pi i \left(\sqrt{1 - e^{-\left(\mathbf{Y}((-In(1 - \alpha_{\Omega}^2))^{\mathbf{Y}}\right)}\right)^{\frac{1}{\mathbf{Y}}}} \\ e^{-\left(\mathbf{Y}(-In(2_{\Omega_{\mathbf{Z}}}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}} \\ e^{-\left(\mathbf{Y}(-In(2_{\Omega_{\mathbf{Z}}}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}} \\ e^{\left(\sqrt{1 - e^{-\left(\mathbf{Y}(-In(1\Omega_{\mathbf{Z}}))^{\mathbf{Y}}\right)}\right)^{\frac{1}{\mathbf{Y}}}} \\ e^{\left(\sqrt{1 - e^{-\left(\mathbf{Y}(-In(2_{\Omega_{\mathbf{Z}}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}}\right)}\right)} \\ \Omega^{\mathbf{Y}} = \sqrt{\frac{e^{-\left(\mathbf{Y}(-In(2_{\Omega_{\mathbf{Z}}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}}{\sqrt{1 - e^{-\left(\mathbf{Y}((-In(1 - \Xi_{\Omega}^2))^{\mathbf{Y}})\right)^{\frac{1}{\mathbf{Y}}}}}} \\ e^{\left(\sqrt{1 - e^{-\left(\mathbf{Y}((-In(1 - \theta_{\Omega}^2))^{\mathbf{Y}})\right)^{\frac{1}{\mathbf{Y}}}}}\right)} \end{pmatrix}}
$$

(5) By utilizing our invented approaches, we solve \mathcal{S} and \mathcal{S} and \mathcal{S} and \mathcal{S} and \mathcal{S} are solved and \mathcal{S} and \mathcal{S} are solved and \mathcal{S} are solved and \mathcal{S} are solved and \mathcal{S}

oped some innovative concepts of AA-TNM and AA-TCNM within the framework of

(1) We presented some new AOs and fundamental operational laws of CPyFSs. We also

hybrid weighted (CPyFAAHW), average (CPyFAAHWA) and CPyFAAHW

 $\mathcal{L}_{\mathcal{S}}$ by utilizing our invented approaches, we solve data approaches, we solve \mathcal{S}

hybrid weighted (CP) $\mathcal{L}_\mathcal{F}$ and \mathcal{L}_\mathcal

 ${\bf nple\,1.}$ Consider $\Omega=\left(0.56e^{2\pi i (0.35)},\,0.88e^{2\pi i (0.47)}\right)$, $\Omega_1=\left(0.66e^{2\pi i (0.05)},\,0.37e^{2\pi i (0.67)}\right)$ $\Omega_2 = \left(0.43 \cdot 2 \pi i (0.08) \right) 0.69 \cdot 2 \pi i (0.24)$ as the three CPuEVs. Then, we have: Ear $\mathcal{Y} = 3$ and $D_2 = \left(0.43 e^{2\pi i (0.08)}\right)$ $0.69 e^{2\pi i (0.24)}$ as the three CPuFVs. Then, we have: For $\Upsilon = 3$ and $\frac{4}{1}$ → $\frac{1}{2}$ of $\frac{1}{2}$ = $\frac{1}{2}$ $\frac{$ **Example 1** Consider $Q = \left(0.56e^{2\pi i(0.35)} + 0.88e^{2\pi i(0.47)}\right)$ $Q_1 = \left(0.66e^{2\pi i(0.05)}\right)$ $\frac{1}{2}$ as the three CI y_1 vs. 11 $\frac{d}{dx}$, we have: For $\Upsilon =$ and $\Omega_2=\left(0.43e^{2\pi i (0.08)},\,0.69e^{2\pi i (0.24)}\right)$ as the three CPyFVs. Then, we have: For $\Upsilon=$ **Example 1.** Consuler $\Omega = \begin{pmatrix} 0.56e & 0.06e & 0.06e \\ 0.06e & 0.06e & 0.06e & 0.06e \end{pmatrix}$, $\begin{pmatrix} 0.00e & 0.06e & 0.06e & 0.06e & 0.06e \\ 0.00e & 0.06e & 0.06e & 0.06e & 0.06e \end{pmatrix}$ $\mathcal{F}=4$. $\left(1-\frac{2}{\sqrt{3}}\right)$ and $\left(0.95\right)$ of $\left(0.97\right)$ and $\left(0.905\right)$ **Example 1.** Consider $\Omega = (0.56e^{2.00 \text{ GeV}})$, $0.88e^{2.00 \text{ GeV}}$, $\Omega_1 = (0.66e^{2.00 \text{ GeV}})$, 0.3 , and $\Omega_2 = (0.43e^{2\pi i(0.08)}, 0.69e^{2\pi i(0.24)})$ as the three CPuFVs. Then, we have: For γ $\mathbf{w} = 4$. $\mu \in \mathcal{L}$ $\mu \in \left(\mathcal{L} \setminus \mathcal{L} \right)$ $\left(\mathcal{L} \set$ **nple 1.** Consider $\Omega = (0.56e^{27t(0.55)}, 0.88e^{27t(0.47)})$, $\Omega_1 = (0.66e^{27t(0.05)}, 0.37e^{27t(0.67)})$ $\binom{6,0,0}{7}$ as the th ῃ $\overline{\mathfrak{c}}$ **Example 1** Consider $Q = \left(0.56e^{2\pi i(0.35)} + 0.88e^{2\pi i(0.47)}\right)$ $Q_1 = \left(0.66e^{2\pi i(0.05)}\right)$ FAAWG operators with some deserved characteristics. In Section 7, we solved an \mathcal{F} and $\Omega_2 = (0.43e^{2/11(0.50)}, 0.69e^{2/11(0.24)})$ as the three CPyFVs. Then, we have: i $\mathcal{Y}=4$: **Example 1.** Consider $Q = \left(0.56e^{2\pi i(0.35)}\right)$, $0.88e^{2\pi i(0.47)}\right)$, $Q_1 = \left(0.66e^{2\pi i(0.05)}\right)$, $0.37e^{2\pi i}$ $\begin{pmatrix} 2 \ \end{pmatrix}$ ($\begin{pmatrix} 2 \ \end{pmatrix}$ = 1(0.20) and $\Omega_2 = (0.43e^{-0.000\epsilon/2}, 0.69e^{-0.0000\epsilon/2})$ as the three CPyFVs. Then, we have: For $\mathcal{L}=\mathbf{4}$: $\mathbf{f} = \mathbf{f} \cdot \mathbf{f$ and $\Omega_2 = (0.43e^{27(0.005)}, 0.69e^{27(0.24)})$ as the three CPyFVs. Then, we have: For $\Psi=4$: environments of \mathcal{L} systems. In Section 4, we introduce concepts of Ac \mathcal{L} and $\Omega_2 = (0.43e^{-0.0000})$, $0.69e^{-0.0002}$ as the three CPyF vs. Then, we have: For Υ = $\mathcal{P}=4$: The structure of this manuscript is presented as follows and also displayed in the **Example 1.** Consider $\Omega = (0.56e^{2\pi i (0.35)}, 0.88e^{2\pi i (0.47)})$, $\Omega_1 = (0.66e^{2\pi i (0.05)}, 0.36e^{2\pi i (0.05)})$ $w \cdot \overline{O} = \left(0.42 \cdot 2\pi i (0.08) \cdot 0.62 \cdot 2\pi i (0.24) \right)$ as the three CDu Figure and functions of $\sum_{\text{max } 2, 2}$ (c. Let $\sum_{\text{max } 2}$, o. C. C. $\sum_{\text{max } 2}$ and the three Cr gr v s. Then, we have: T or $e^{\frac{1}{2}t}$ systems. In Section 4, we introduce concept in \mathcal{N} $T_{\rm eff}$ structure of this manuscript is presented as follows and also displayed in the also displayed in the $T_{\rm eff}$ **Example 1.** Consider $\Omega = \left(0.56e^{2\pi i (0.35)}\right)$, $0.88e^{2\pi i (0.47)}\right)$, $\Omega_1 = \left(0.66e^{2\pi i (0.05)}\right)$, $0.37e^{2\pi i (0.67)}\right)$ and $Q_1 = \left(0.43 \times 2 \pi i (0.08) \right)$ $0.69 \times 2 \pi i (0.24)$ as the three CPyFVs. Then zee here: For $Y_1 =$ $\frac{W}{\sqrt{2}}$ (see $\frac{W}{\sqrt{2}}$) is an over $\frac{1}{2}$ of some existing and different the differential differential different the differential different the different theorem in $\frac{1}{2}$ environments of function ℓ function ℓ and $\Omega_2=\left(0.43e^{2\pi i (0.08)},\,0.69e^{2\pi i (0.24)}\right)$ as the three CPyFVs. Then, we have: For $\frac{1}{2}$ (comparison), comparison $(0.43e^{2\pi i (0.08)}, 0.69e^{2\pi i (0.24)})$ as the three CPyFVs. Then, we have: For $\Upsilon=3$ and proposed approaches, we discussed an influence study. = 3 *and* $\Psi = 4$:

$$
\Omega_{1} \oplus \Omega_{2} = \begin{pmatrix}\n\sqrt{1 - e^{-\left((-ln(1 - (0.66)^{2}))^{3} + (-ln(1 - (0.43)^{2}))^{3}\right)^{\frac{1}{3}}}} \\
2\pi i \left(\sqrt{1 - e^{-\left((-ln(1 - (0.05)^{2}))^{3} + (-ln(1 - (0.08)^{2}))^{3}\right)^{\frac{1}{3}}}} \\
e^{-\left((-ln(0.37))^{3} + (-ln(0.69))^{3}\right)^{\frac{1}{3}}}\n\end{pmatrix}
$$
\n
$$
= \left(\begin{array}{c}\n0.2513e^{2\pi i \left((-ln(0.67))^{3} + (-ln(0.69))^{3}\right)^{\frac{1}{3}}}\n\end{array}\right)
$$
\n
$$
\Omega_{1} \otimes \Omega_{2} = \begin{pmatrix}\n\frac{e^{-\left((-ln(0.66))^{3} + (-ln(0.43))^{3}\right)^{\frac{1}{3}}}}\n\end{pmatrix}
$$
\n
$$
\Omega_{1} \otimes \Omega_{2} = \begin{cases}\n\frac{2\pi i \left(e^{-\left((-ln(0.66))^{3} + (-ln(0.08))^{3}\right)^{\frac{1}{3}}}\n\end{cases}
$$
\n
$$
\frac{2\pi i \left(e^{-\left((-ln(1 - (0.37)^{2}))^{3} + (-ln(1 - (0.69)^{2}))^{3}\right)^{\frac{1}{3}}}\n\end{cases}
$$
\n
$$
\frac{2\pi i \left(\sqrt{1 - e^{-\left((-ln(1 - (0.37)^{2}))^{3} + (-ln(1 - (0.24)^{2}))^{3}\right)^{\frac{1}{3}}}}\n\end{pmatrix}
$$
\n
$$
= \left(0.4163e^{2\pi i (0.0301)}, 0.2951e^{2\pi i (0.2611)}\right)
$$

$$
4\Omega = \begin{pmatrix} \sqrt{1 - e^{-\left(4\left(\left(-\ln(1 - (0.66)^2\right)\right)^3\right)\frac{1}{3}}}\n\end{pmatrix}
$$

\n
$$
4\Omega = \begin{pmatrix} \sqrt{1 - e^{-\left(4\left(\left(-\ln(1 - (0.05)^2)\right)^3\right)\right)^{\frac{1}{3}}}} \\
e^{-\left(4(-\ln(0.37))^3\right)^{\frac{1}{3}}}\n\end{pmatrix} = \left(0.6706e^{2\pi i (0.4328)}, 0.8316e^{2\pi i (0.3366)}\right)
$$

\n
$$
e^{-\left(4(-\ln(0.66))^3\right)^{\frac{1}{3}}}\n\end{pmatrix}
$$

\n
$$
\Omega^4 = \begin{pmatrix} e^{-(4(-\ln(0.66))^3)^{\frac{1}{3}}}\n\end{pmatrix}
$$

\n
$$
\sqrt{1 - e^{-\left(4\left(\left(-\ln(1 - (0.37)^2)\right)^3\right)\right)^{\frac{1}{3}}}}\n\end{pmatrix} = \left(0.4333e^{2\pi i (0.2200)}, 0.9518e^{2\pi i (0.5720)}\right)
$$

\n
$$
e^{\frac{e^{-\left(4\left(\left(-\ln(1 - (0.37)^2)\right)^3\right)\right)^{\frac{1}{3}}}}{2\pi i \left(\sqrt{1 - e^{-\left(4\left(\left(-\ln(1 - (0.67)^2)\right)^3\right)\right)^{\frac{1}{3}}}}\right)}
$$

Theorem 1. Let $\Omega = (\Pi_{\Omega}(\varkappa)e^{2\pi i(\alpha_{\Omega}(\varkappa))}, \Xi_{\Omega}(\varkappa)e^{2\pi i(\beta_{\Omega}(\varkappa))})$, $\Omega_1 =$ $e^{2\pi i (\alpha_{\Omega_1}(\kappa))}$, $\Xi_{\Omega_1}({}_\kappa)e^{2\pi i (\beta_{\Omega_1}(\kappa))}$ and $\Omega_2 = (\Pi_{\Omega_2}({}_\kappa)e^{2\pi i (\alpha_{\Omega_2}(\kappa))}$, $\Xi_{\Omega_2}({}_\kappa)e^{2\pi i (\beta_{\Omega_2}(\kappa))})$ be three CPyFVs. Then we have: *then we have:* $\frac{1}{2}$ a constant satisfy the conditions of conditions $\frac{1}{2}$ a condition: *n* $h(r) e^{2\pi i(\beta_{\Omega_1}(\kappa))}$ and $\Omega_2 = (\Pi_{\Omega_2}({}_*)e^{2\pi i(\alpha_{\Omega_2}(\kappa))}$, $\Xi_{\Omega_2}({}_*)e^{2\pi i(\beta_{\Omega_2}(\kappa))})$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition: terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $(\Pi_{\Omega_1}(\mathcal{L}_{\Omega_2})\mathcal{L}_{\Omega_2})$ **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as:* $(\Pi_{\Omega_1}(\kappa)e^{2\pi i(\alpha_{\Omega_1}(\kappa))}, \Xi_{\Omega_1}(\kappa)e^{2\pi i(\beta_{\Omega_1}(\kappa))})$ $\sum_{i=1}^n \frac{1}{i} \sum_{i=1}^n \frac{1}{i} \sum_{j=1}^n \frac{1}{j} \sum_{i=1}^n \frac{1}{j} \sum_{i=1}^n \frac{1}{j} \sum_{j=1}^n \frac{1}{j} \sum_{i=1}^n \frac{$ $\sum_{n=0}^{n}$ ∴ $E_{Ω_1}(x)e^{2πi(β_{Ω_1}(x))}$ and $Ω_2 = (Π_{Ω_2}(x)e^{2πi(β_{Ω_1}(x))})$ $\chi_{\Omega_1}(x)$, $\Xi_{\Omega_1}(x)e^{2\pi i(\beta_{\Omega_1}(x))}$ and $\Omega_2 = (\Pi_{\Omega_2}(x)e^{2\pi i(\alpha_{\Omega_2}(x))}$, and $\Xi_{\Omega_1}(x)e^{2\pi i(\beta_{\Omega_2}(x))}$ *the phase terms of the conditions of the conditions in the conditions of the* **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as:* $= (\Pi_{\Omega_2}(\kappa)e^{2\pi i(\alpha_{\Omega_2}(\kappa))}, \, \Xi_{\Omega_2}(\kappa)e^{2\pi i(\beta_{\Omega_2}(\kappa))}$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*)) , Ξ*Ω*² (\mathcal{L} **Consider** \mathcal{L} to be a non-empty set, and a consider \mathcal{L} is defined as: \mathcal{L})), $E_{\Omega_2}(k) e^{2\pi i (\beta \Omega_2(k))})$ $(\Pi_{\Omega_1}(x)e^{2\pi i(\alpha_{\Omega_1}(x))}, \Xi_{\Omega_1}(x)e^{2\pi i(\beta_{\Omega_1}(x))})$ and $\Omega_2 = (\Pi_{\Omega_2}(x)e^{2\pi i(\alpha_{\Omega_2}(x))}, \Xi_{\Omega_2}(x)e^{2\pi i(\beta_{\Omega_2}(x))})$ **Theorem 1.** Let $\Omega = \left(\Pi_{\Omega}(\varkappa) e^{2\pi i \left(\mu_{\Omega}(\varkappa) \right)}, \Xi_{\Omega}(\varkappa) e^{2\pi i \left(\mu_{\Omega}(\varkappa) \right)} \right)$ **Theorem 1.** Let $\Omega = \left(\Pi_{\Omega}(\varkappa) e^{2\pi i (\mu_{\Omega}(\varkappa))}, \Xi_{\Omega}(\varkappa) e^{2\pi i (\mu_{\Omega}(\varkappa))} \right)$, Ω_{Ω} $\mathcal{L}_{\mathcal{F}}$ s. The main contributions of this article article are in the following forms: **Theorem 1.** Let $\Omega = \left(H_{\Omega}(x)e^{-\alpha \left(\mu_1(x), \mu_2\right)} \right), \quad \Omega_1$ $\frac{1}{\sqrt{2}}$ and PyFSs. Keeping in mind the significance of CP_yFSs. $\frac{1}{\sqrt{2}}$ **Theorem 1.** Let $\Omega = \begin{pmatrix} H_{\Omega}(x)e^{-\lambda x} & H_{\Omega}(x)e^{-\lambda x} & H_{\Omega}(x)e^{-\lambda x} \end{pmatrix}$ $\left(\begin{matrix} -1 & 0 & 0 \\ 0 & -1 & 0 \end{matrix}\right)$ and $\left(\begin{matrix} 0 & 0 \\ 0 & 0 \end{matrix}\right)$ of $\left(\begin{matrix} 0 & 0 \\ 0 & 0 \end{matrix}\right)$ **Theorem 1.** Let $\Omega = \left(H_{\Omega}(x)e^{-\alpha \left(\mu_1(x)\right)}, \Xi_{\Omega}(x)e^{-\alpha \left(\mu_1(x)\right)} \right)$, matrix $\left(\mathbf{r} \times \mathbf{R} \times \mathbf{R}^{(n)}\right) = \left(\mathbf{r} \times \mathbf{R}^{(n)}\right)$ **Theorem 1.** Let $\Omega = (\Pi_{\Omega}(\kappa)e^{2\pi i(\alpha_{\Omega}(\kappa))}, \Xi_{\Omega}(\kappa)e^{2\pi i(\beta_{\Omega}(\kappa))}), \Omega_1$

 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\Pi_{\Omega_2} = \Pi_{\Omega_2} \oplus \Pi_{\Omega_1}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 0 ≤ 1.0 and 0≤ 1.0 and 0≤ 1.0 and 0≤ $\Pi_{\Omega_1} \oplus \Pi_{\Omega_2} = \Pi_{\Omega_2} \oplus \Pi_{\Omega_1}$ (2) By using the operational laws of \overline{H} (1) $H_{11} \oplus H_{12} = H_{12} \oplus H_{11}$ (2) By using the operational laws of \overline{N} (i) $H_{11} \oplus H_{12} = H_{12} \oplus H_{11}$ (2) By \mathcal{L} By using $H \circ H$ of $H_1 \circ H_2 = H_2 \circ H_1$

operator and verified inventor H_1 (1) $\Pi_{\Omega} \oplus \Pi_{\Omega} = \Pi_{\Omega} \oplus \Pi_{\Omega}$ (1) $\Pi_{\Omega} \oplus \Pi_{\Omega} = \Pi_{\Omega} \oplus \Pi_{\Omega}$ (1) $\Pi_{\Omega} \oplus \Pi_{\Omega} = \Pi_{\Omega} \oplus \Pi_{\Omega}$ mation than FSS and PyFSs. Keeping in mind the significance of C (1) $H_{11} \oplus H_{22} - H_{12} \oplus H_{21}$ mation than FSS and PyFSs. Keeping in mind the significance of C α_1 α_2 α_3 α_4 α_5 α_7 α_8 α_1 α_2 α_3 α_4 α_1 mation than FSS and PyFS and PyFS and PyFS and PyFS in mind the significance of CP $\begin{bmatrix} 0 & H_{11} & \cdots & H_{1n} \\ \vdots & \vdots & \ddots & \vdots \\ 0 & H_{n1} & \cdots & H_{nn} \end{bmatrix}$

 \mathcal{L}_S s. The main contributions of this article article article are in the following forms:

terms and phase terms of , *respectively. A CFS must satisfy the condition:*

- $\sqrt{2}$ $W(\frac{1}{\Pi} + \frac{1}{2})$ $W(\Pi + \frac{1}{2})$ $W(\Pi + \frac{1}{2})$ $\Pi_{\Omega_1} \otimes \Pi_{\Omega_2} = \Pi_{\Omega_2} \otimes \Pi_{\Omega_1}$ $\begin{pmatrix} 2 \\ 0 \end{pmatrix}$ (2) $H_{1/2} \otimes H_{1/2}$ = $\frac{d}{d\theta}$ $\frac{d}{d\theta}$ $\frac{d}{d\theta}$ $\frac{d}{d\theta}$ $\frac{d}{d\theta}$ $\frac{d}{d\theta}$ $\frac{d}{d\theta}$ $\frac{d}{d\theta}$ $\frac{d}{d\theta}$ (2) $\Pi_{\Omega} \otimes \Pi$ (2) $\Pi_{\Omega} \otimes \Pi_{\Omega} = \Pi_{\Omega} \otimes$ (2) $\Pi_{\Omega_2} \otimes \Pi_{\Omega_2} = \Pi_{\Omega_2} \otimes \Pi_{\Omega}$ (2) $\Pi_{11} \otimes \Pi_{22} = \Pi_{12} \otimes \Pi_{11}$
(2) $\Pi_{11} = \Sigma_{11}$ in the following forms: (2) $\Pi_{11} \otimes \Pi_{12} = \Pi_{12} \otimes \Pi_{11}$
(2) $\Pi_{1} = \overline{\Pi}_{11}$ in the following forms: CPyFSs. The main contributions of this article are in the following forms: matrices $\begin{array}{ccc} \n\pi & -\frac{1}{2}I & -\frac{1}{2}I & -\frac{1}{2}I & -\frac{1}{2}I \\ \n\pi & -\frac{1}{2}I & -\frac{1}{2}I & -\frac{1}{2}I & -\frac{1}{2}I & -\frac{1}{2}I \\ \n\pi & -\frac{1}{2}I & -\frac{1}{2}I & -\frac{1}{2}I & -\frac{1}{2}I & -\frac{1}{2}I \n\end{array}$ mation than FSs, IFSs and PyFSs. Keeping in mind the significance of CPyFSs, we devel-
- $U = I + I_1 I_2 + I + I_2 I_3$
 $U = \bigcup_{v \in V} U I_1 W + I_2 W + I_3$ $W > 0$ $(3) \quad \mathfrak{P}(H_0, \oplus H_0) = \mathfrak{P}H_0.$ $\mathcal{Y}(II_{\Omega}, \oplus II_{\Omega_2}) = \mathcal{Y}II_{\Omega}, \oplus \mathcal{Y}II_{\Omega_2}, \mathcal{Y} > 0$ \overline{H} $\overline{$ $I_{\Omega_{\alpha}}$, $\mathcal{Y} > 0$ \mathbf{I} (3) $\Psi(\Pi_{\Omega_1} ⊕ \Pi_{\Omega_2}) = \Psi \Pi_{\Omega_1} ⊕ \Psi \Pi_{\Omega_2}$, $\Psi > 0$ (3) FURTHERMORE, WE ALSO ESTABLISHED TO CHE CONTROL TO A WAG OPERATOR BASED ON THE DEFINITION OF DEFINITION ON THE DEFINITION OF DEFINITI (3) FURTHERMORE, WE ARE CRITED TO BE CONSIDERED TO A WAG OPERATOR ON THE DEFINITION ON THE DEFINITION ON THE DEFINITION OF $\frac{dV}{dt} = \frac{dV}{dt} = \frac{dV}{dt$ (3) Furthermore, we also established the CPYFA α WAG of the definition on the definition of α was constant (3) $\Psi(\Pi_{\Omega}, \oplus \Pi_{\Omega}) = \Psi\Pi_{\Omega}, \oplus \Psi\Pi_{\Omega}, \Psi > 0$ (3) $\Psi(\Pi_{\Omega}, \oplus \Pi_{\Omega}) = \Psi\Pi_{\Omega}, \oplus \Psi\Pi_{\Omega}, \Psi > 0$ (3) $\Psi(\Pi_{\Omega}, \oplus \Pi_{\Omega_2}) = \Psi \Pi_{\Omega_2} \oplus \Psi \Pi_{\Omega_2}$, $\Psi > 0$ (4) $(\Psi_1 + \Psi_2)H_{\Omega} = \Psi_1H_{\Omega} + \Psi_2H_{\Omega} + \Psi_3\Psi_4$ (4) $(\Psi_1 + \Psi_2)\Pi_2 = \Psi_1\Pi_2 + \Psi_2\Pi_3$ and $\Psi_1\Psi_2 = \Psi_1\Psi_3$ oped some innovative concepts of AA-TNM and AA-TCNM within the framework of (d) $(\Psi_+ \Psi_*)\Pi_{\alpha} - \Psi_*/\Pi_{\alpha} \oplus \Psi_*/\Pi_{\alpha} \Psi_* \Psi_* > 0$ (3) $\Psi(\Pi_0 \oplus \Pi_2) = \Psi(\Pi_0 \oplus \Psi_1)$ in $\Psi(\Pi_0 \oplus \Pi_2) = \Psi(\Pi_0 \oplus \Psi_2)$ (4) $(\Psi_+ + \Psi_2)H_Q - \Psi_2H_Q + \Psi_2H_Q$ with $\Psi_2 + \Psi_1$

terms and phase terms of , *respectively. A CFS must satisfy the condition:*

 \mathcal{L}_S s. The main contributions of this article article article are in the following forms:

- $\mathcal{H}_0 = \mathcal{H}_1 \Pi_O \oplus \mathcal{H}_2 \Pi_O$, $\mathcal{H}_1 \mathcal{H}_2 > 0$ $\mathcal{F}_2 \Pi_{\Omega}$, \mathcal{F}_1 , $\mathcal{F}_2 > 0$ \mathbf{F} **Table 1.** $(\Psi_1 + \Psi_2)I$ $(11 + 12)$ **H** $\Omega = 11$ $\mathcal{F}_2 \setminus \Pi_{\Omega} \equiv \Psi_1 \Pi_{\Omega} \oplus \Psi_2 \Pi$ **Ti**_(1, 1, 1, 1, 1, 1) $\lambda > 0$ (4) $(\Psi_1 + \Psi_2) \Pi_{\Omega} = \Psi_1 \Pi_{\Omega} \oplus \Psi_2 \Pi_{\Omega}$, $\Psi_1, \Psi_2 > 0$ $\binom{1}{1}$, $\binom{2}{1}$, $\binom{2}{1}$, $\binom{1}{2}$, $\binom{1}{1}$, $\binom{1}{2}$, $\binom{1}{2}$, $\binom{1}{1}$, $\binom{2}{2}$, $\binom{3}{2}$ (4) $(Y_1 + Y_2)I I_{\Omega} = Y_1I I_{\Omega} \oplus Y_2I I_{\Omega}$, $Y_1, Y_2 > 0$ (4) $({\bf Y}_1 + {\bf Y}_2)I I_{\Omega} = {\bf Y}_1 I I_{\Omega} \oplus {\bf Y}_2 I I_{\Omega}$, ${\bf Y}_1, {\bf Y}_2 > 0$ (i) $\binom{1}{1}$ $\binom{2}{1}$ $\binom{3}{1}$ $\binom{4}{1}$ $\binom{1}{2}$ $\binom{1}{1}$ $\binom{1}{2}$ $\binom{1}{1$ (i) $\binom{1}{1} + \binom{1}{2} + \binom{1}{1} - \binom{1}{1} + \binom{1}{2} +$ fundamental operation $\begin{array}{ccc} \n\frac{1}{2} & \frac{1}{2} & \frac{1}{$ (4) $(\ddot{Y}_1 + \ddot{Y}_2)H_Q = Y_1H_Q \oplus Y_2H_Q$, $\ddot{Y}_1, \ddot{Y}_2 > 0$ (4) $(\ddot{Y}_1 + \ddot{Y}_2)H_Q = Y_1H_Q \oplus Y_2H_Q$, $\ddot{Y}_1, \ddot{Y}_2 > 0$ (4) $(\Psi_1+\Psi_2)\Pi_O = \Psi_1\Pi_O \oplus \Psi_2\Pi_O$, $\Psi_1,\Psi_2>0$ $\left(\mathbf{F}\right)$ is the basic idea of \mathbf{F} and $\mathbf{$ ϵ is the basic idea of \mathcal{L} in \mathcal{L} is the \mathcal{L} (4) $(\ddot{Y}_1 + \ddot{Y}_2)H_0 = \ddot{Y}_1H_0 + \ddot{Y}_2H_0$, $\ddot{Y}_1 + \ddot{Y}_2 > 0$ $\left(\begin{matrix}E\end{matrix}\right)$ $\left(\begin{matrix}H & \otimes H\end{matrix}\right)$ $\begin{matrix}\begin{matrix}Y\end{matrix}\end{matrix}\right)$ $=\begin{matrix}H^{\Psi} & \otimes H^{\Psi} & W\end{matrix}$ operational their operational theory operations of $\begin{matrix}H & \otimes H^{\Psi} & W\end{matrix}$ $\begin{pmatrix} -1 & -2 \end{pmatrix}$ this article article article article article are in the following forms: $\begin{pmatrix} -1 & -2 \end{pmatrix}$ the main contributions of the following forms: $\left(\mathbf{F}\right)$ $\left(\mathbf{F}\right)$ are \mathbf{F} the following forms:
- $T_1 \otimes T_1 \otimes T_2$ = $T_1 \otimes T_2$, $T_1 > 0$ $T = \Pi_{\Omega_1}^{\mathbf{r}} \otimes \Pi_{\Omega_2}^{\mathbf{r}}$, $\mathbf{Y} > 0$ $T_1 \circ T_1$ T_2 , T_3 T_4 $\mathsf{Y} > 0$ (5) $(II_{\Omega_1} \otimes H_{\Omega_2})^{\circ} = H_{\Omega_1}^{\circ} \otimes H_{\Omega_2}^{\circ}$ σ $(\pi \circ \pi)^{\Psi}$ $\pi^{\Psi} \circ \pi^{\Psi}$ $w \circ \pi$ \cup , $\left(\prod_{1} \varphi \prod_{2} \varphi \right) = \prod_{1} \varphi \prod_{1} \varphi$ $\left(\Pi_{\Omega_1}\otimes\Pi_{\Omega_2}\right)^*=\Pi_{\Omega_2}\otimes\Pi_{\Omega}^*, \mathfrak{A}\geq 0$ $\mathbf{H} \times \mathbf{H}$ $\mathbf{H} \times \mathbf{H}$ $\mathbf{H} \times \mathbf{H}$ Ω_2) $-1 \Omega_1 \otimes 1 \Omega_2$, $1 > 0$ $\mathcal{S} \times \mathcal{S}$ $\mathcal{S} \times \mathcal{S}$ $(TJ_{\Omega_1} \otimes \Pi_{\Omega_2})^{\Psi} = \Pi_{\Omega_1}^{\Psi} \otimes \Pi_{\Omega_2}^{\Psi}, \Psi > 0$ (5) $(11_{\Omega_1} \otimes 11_{\Omega_2}) = 11_{\Omega_1} \otimes 11_{\Omega_2}$, $\gamma > 0$ (5) $(11_{\Omega_1} \otimes 11_{\Omega_2}) = 11_{\Omega_1} \otimes 11_{\Omega_2}$, $\tau > 0$ (3) $(11\Omega_1 \otimes 11\Omega_2) = 11\Omega_1 \otimes 11\Omega_2$, $1 > 0$ $\overline{5}$ (3) Furthermore, we also extend the CPA($\frac{V}{T} = \frac{V}{T} = \frac{V}{T} = \frac{V}{T}$ \overline{G} $(\overline{H}_2 \otimes \overline{H}_2)$ (3) First established the CPYFAAU operator established the CPYFAAWAG on the CPYFAAWAG on the definition of the definition on the definition of W_{A} and W_{B} and W_{B} and W_{B} and W_{B} and W_{B} (5) $(H_0 \otimes H_0)^{\mathcal{Y}}$ $\begin{pmatrix} 0 & 1 & 1 & 1 \ 0 & 0 & 0 & 0 \end{pmatrix}$ $\begin{array}{ccc}\n\text{(0)} & \left(\begin{array}{c} 1 & 1 & 1 \\ 1 & 1 & 1 \end{array} \right) & \text{(1)} \\
\text{(1)} & \text{(1)} \\
\text{(2)} & \text{(3)}\n\end{array}\n\end{array}$ $\begin{array}{ccccc}\n\text{(c)} & \begin{pmatrix} -1 & 1 & 1 \end{pmatrix} & \begin{pmatrix} -1 & 1 & 1 \end{pmatrix} \\
W & W & W & \end{pmatrix} & \begin{pmatrix} W & W \end{pmatrix}\n\end{array}$ (1) We presented some new AOs and fundamental operational laws of CPyFSs. We also (1) $\frac{u_1}{v_1} = \frac{u_2}{v_2}$ and $\frac{u_1}{v_1} = \frac{u_2}{v_2}$ (1) $\frac{1}{2} \left(\frac{w_1}{1} - \frac{w_2}{1} \right)$ and fundamental laws of CP₃+Ss. We also and $\frac{w_1}{1} - \frac{w_2}{1}$ and $\frac{w_$
- $\frac{1}{2}$ Meaning Symbol M Ω , $\frac{11}{12}$ ≥ 0 **Symbol Meaning Symbol Meaning** \mathbf{w} \mathbf{w} $(\mathbf{w}, \pm \mathbf{w})$ (6) $\Pi_{\Omega}^{-1} \otimes \Pi_{\Omega}^{-2} = \Pi_{\Omega}^{-1}$, $\mathbb{Y}_1, \mathbb{Y}_2$ (6) $\Pi^{Y_1} \otimes \Pi^{Y_2} = \Pi^{(Y_1+Y_2)} \Psi_1 \Psi_2 \times 0$ (b) $H_{12} \circ H_{22} \circ H_{13} \circ H_{14} \circ H_{15}$ \mathbf{w} \mathbf{w} $(\mathbf{w}, \pm \mathbf{w})$ $H_O^{\perp_1} \otimes H_O^{\perp_2} = H_O^{\perp_1 + \perp_2}, \Psi_1, \Psi_2 > 0$ $-\Pi^{(\Psi_1+\Psi_2)}\Psi \Psi \Psi \sim 0$ \mathbf{H}_{Ω} \mathbf{H}_{Ω} term \mathbf{H}_{Ω} ≥ 0 (6) $\Pi_{\Omega}^{\Psi_1} \otimes \Pi_{\Omega}^{\Psi_2} = \Pi_{\Omega}^{(\Psi_1 + \Psi_2)}$ $\chi_{\Omega}^{(1+1)}$, Ψ_{1} , $\Psi_{2} > 0$ **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as: Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 (6) $\Pi_{c1}^{T_1} \otimes \Pi_{c2}^{T_2} = \Pi_{c1}^{(T_1+T_2)}, Y_1, Y_2 > 0$ (6) $\Pi_{c1}^{H_1} \otimes \Pi_{c2}^{H_2} = \Pi_{c1}^{(T_1+T_2)}$, $\Psi_1, \Psi_2 > 0$ $S_1 = \prod_{i=1}^{n_1} \otimes \prod_{i=1}^{n_2} \equiv \prod_{i=1}^{n_1} \bigcup_{i=1}^{n_2} \mathcal{F}_1 + \mathcal{F}_2 > 0$ (6) $\Pi_{\Omega} \otimes \Pi_{\Omega} = \Pi_{\Omega}$, Π_{Ω} , $\Pi_{\Omega} > 0$ (6) $\Pi_{\Omega} \otimes \Pi_{\Omega} = \Pi_{\Omega}$, Π_{Ω} , $\Pi_{\Omega} > 0$ $\begin{pmatrix}\n\mathbf{y}_1 & -\mathbf{y}_2 & \mathbf{y}_3 \\
\mathbf{y}_3 & -\mathbf{y}_4 & -(\mathbf{y}_1+\mathbf{y}_2) & \mathbf{y}_3 \\
\mathbf{y}_4 & \mathbf{y}_5 & \mathbf{y}_6 & \mathbf{y}_7\n\end{pmatrix}$ (0) $\Pi_{\Omega} \otimes \Pi_{\Omega} - \Pi_{\Omega}$, $\Pi_{1} \otimes \Psi_{\Omega}$ (6) $\Pi_{\Omega}^{A} \otimes \Pi_{\Omega}^{B} = \Pi_{\Omega}^{A_1 + A_2}, \Psi_1, \Psi_2 > 0$ (6) $\Pi_{\Omega}^{A} \otimes \Pi_{\Omega}^{B} = \Pi_{\Omega}^{A_1 \cdots A_n}$, $\Psi_1, \Psi_2 > 0$ (6) $\Pi_{\Omega} \otimes \Pi_{\Omega} = \Pi_{\Omega} \otimes \cdots \otimes \Pi_{\Omega}$ (6) $\Pi_{\Omega} \otimes \Pi_{\Omega} = \Pi_{\Omega}$, $\Pi_1, \Pi_2 > 0$ (6) $\Pi_{\Omega} \otimes \Pi_{\Omega} = \Pi_{\Omega}$, with the summary Π_{Ω} (6) $\Pi_{\Omega} \otimes \Pi_{\Omega} = \Pi_{\Omega}$, $\Pi_{1}, \Pi_{2} > 0$

 \mathcal{L} Non-empty set \mathcal{L} Score function \mathcal{L} iven that $\Omega = \left(\Pi_{\Omega}(\varkappa) e^{2\pi i (\alpha \Omega(\varkappa))}, \Xi_{\Omega}(\varkappa) e^{2\pi i (\rho \Omega(\varkappa))} \right), \Omega_1 =$ $\Omega_1(\kappa)$, $\Xi_{\Omega_1}(\kappa)e^{2\pi i(\beta_{\Omega_1}(\kappa))}$ and $\Omega_2=(\Pi_{\Omega_2}(\kappa)e^{2\pi i(\alpha_{\Omega_2}(\kappa))}$, $\Xi_{\Omega_2}(\kappa)e^{2\pi i(\beta_{\Omega_2}(\kappa))})$ are the three CPyFVs, and \forall , Ψ_1 , $\Psi_2 > 0$, we have: $\mathcal{M} = (\Pi_{\Omega}(\boldsymbol{\chi})e^{2\pi i(\alpha_{\Omega}(\boldsymbol{\chi}))}, \mathbb{E}_{\Omega}(\boldsymbol{\chi})e^{2\pi i(\beta_{\Omega}(\boldsymbol{\chi}))}), \Omega_1 =$ \mathcal{L} Non-empty set \mathcal{L} Score function \mathcal{L} $=$ $\left(II_{\Omega}(\varkappa)e^{2\pi i(\alpha\Omega(\varkappa))},\Xi_{\Omega}(\varkappa)e^{2\pi i(\rho\Omega(\varkappa))}\right),$ Ω_1 = **Proof.** Given that $\Omega = (\Pi_{\Omega}(\boldsymbol{\chi})e^{2\pi i(\alpha_{\Omega}(\boldsymbol{\chi}))}, \Xi_{\Omega}(\boldsymbol{\chi})e^{2\pi i(\beta_{\Omega}(\boldsymbol{\chi}))})$, $\Omega_1 =$ $\mathcal{N} = \frac{1}{2} \sum_{i=1}^{N} \binom{N}{i}$ $\frac{1}{1001}$, $\frac{1}{1001}$, $\frac{1}{2}$ ʊ Attribute Decision matrix **Proof.** Given that $\Omega =$ ($\frac{1}{2}$ is the three CPyFVs, and Ψ , Ψ_1 , $\Psi_2 > 0$, we C_{trans} that $Q = \left(\frac{\pi}{M}\right)^{N}$ \mathbf{U} NMV of phase term \mathcal{T} en that $\Omega = [\Pi_{\Omega}(\chi)e^{2\pi i(\alpha_{\Omega}(\chi))},$ are the three CPyFVs, and Ψ , Ψ_1 , $\Psi_2 > 0$, we have: $\left(\pi$ () $2\pi i(\alpha_0(\mathbf{v})) - ($) $2\pi i(\beta_0(\mathbf{v}))\right)$ $\left(\begin{array}{ccc} 1 & 1 & 1 \end{array} \right)$ N of phase term N of phase term T TNMV of phase term T $e^{2\pi i (\alpha_{\Omega}(\mathcal{X}))}$, $\Xi_{\Omega}(\mathcal{X})e^{2\pi i (\rho_{\Omega}(\mathcal{X})))}$, Ω_1 = **Definition 2** ([9])**.** *A CPyFS on a* Ẁ *is defined as:* $\ln \left(\frac{1}{2\pi i} \left(\frac{\beta_0(\boldsymbol{\gamma})}{\beta_0(\boldsymbol{\gamma})} \right) \right)$ o $\left(\frac{1}{2} \left(\frac{n}{2} \right) \right)$ $\left(\frac{n}{2} \right)$ $\left(\frac{n}{2} \right)$ $\left(\frac{n}{2} \right)$ $\left(\frac{n}{2} \right)$ $(\Delta z \pi i(\alpha_0(\alpha)))$ π $(\Delta z \pi i(\beta_0(\alpha)))$ N of a mplitude term N of a measurement vector \mathcal{N} **Proof.** Given that $\Omega = (\Pi_{\Omega}(\kappa)e^{2\pi i(\alpha_{\Omega}(\kappa))}, \Xi_{\Omega}(\kappa)e^{2\pi i(\beta_{\Omega}(\kappa))})$, $\Omega_1 =$ $(\Pi_{\Omega_1}({}_*)e^{2\pi i(\alpha_{\Omega_1}({}_*))}, \ \Xi_{\Omega_1}({}_*)e^{2\pi i(\beta_{\Omega_1}({}_*))}$ and $\Omega_2 = (\Pi_{\Omega_2}({}_*)e^{2\pi i(\alpha_{\Omega_2}({}_*))}, \Xi_{\Omega_2}({}_*)e^{2\pi i(\beta_{\Omega_2}({}_*))})$ **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as:* $(\Pi_{\Omega_1}(\kappa)e^{2\pi i(\alpha_{\Omega_1}(\kappa))}, \Xi_{\Omega_1}(\kappa)e^{2\pi i(\beta_{\Omega_1}(\kappa))})$ **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as:*)), $\Xi_{\Omega_1}(\kappa) e^{2\pi i (\beta_{\Omega_1}(\kappa))})$ and $\Omega_2 = (\Pi_{\Omega_2}(\kappa) e^{2\pi i (\alpha_{\Omega_2}(\kappa))})$, $\Xi_{\Omega_2}(\kappa) e^{2\pi i (\beta_{\Omega_2}(\kappa))}$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $(\Pi_{\Omega_1}(\kappa)e^{2\pi i(\alpha_{\Omega_1}(\kappa))}, \Xi_{\Omega_1}(\kappa)e^{2\pi i(\beta_{\Omega_1}(\kappa))})$ and $\Omega_2 = (\Pi_{\Omega_2}(\kappa)e^{2\pi i(\alpha_{\Omega_2}(\kappa))}, \Xi_{\Omega_2}(\kappa)e^{2\pi i(\beta_{\Omega_2}(\kappa))})$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude* \overline{C} and \overline{C} and \overline{C} are \overline{C} and \overline{C} and **geometric (CP)** operating the some basic properties. The some basic properties $\left(\begin{array}{cc} H\Omega(X)\neq 0 \end{array} \right)$ σ and σ and σ are $(\sigma \leftrightarrow 2\pi i(n/(n)) - (n+1)\pi i(n/(n)))$ and σ **rroot.** Given that $\Omega = \begin{pmatrix} \Pi_{\Omega}(X)e^{-\lambda_{\Omega}(X,Y)} & \Delta_{\Omega}(X) \end{pmatrix}$ hybrid weighted $(\mathbf{F}_k(x), \mathbf{F}_k(x|\mathbf{z}))$ and $(\mathbf{F}_k(x), \mathbf{F}_k(x))$ and $(\mathbf{F}_k(x), \mathbf{F}_k(x))$ and $(\mathbf{F}_k(x), \mathbf{F}_k(x))$ **FOOT.** Given that $\Delta z = \left(\frac{\Pi f}{\mu} \left(\frac{\mu}{\mu} \right) e^{-\frac{\mu}{\mu} \left(\frac{\mu}{\mu} \right)} \right) e^{-\frac{\mu}{\mu} \left(\frac{\mu}{\mu} \right)}$ **Proof.** Given that $Q = \left(\prod_{\Omega}(\boldsymbol{\gamma})e^{2\pi i(\alpha_{\Omega}(\boldsymbol{\gamma}))}, \mathbb{E}_{\Omega}(\boldsymbol{\gamma})e^{2\pi i(\beta_{\Omega}(\boldsymbol{\gamma}))}\right)$ $2\pi f(x_0(t))$ and $2\pi f(x_0(t))$ geometric (CP) $\left(\Pi_{\Omega_1}(\kappa)e^{-\left(\Pi_{\Omega_2}(\kappa)\right)e^{-\left(\Pi_{\Omega_1}(\kappa)\right)e^{-\left(\Pi_{\Omega_2}(\kappa)\right)e^{-\left(\Pi_{\Omega_2}(\kappa)\right)e^{-\left(\Pi_{\Omega_2}(\kappa)\right)e^{-\left(\Pi_{\Omega_2}(\kappa)\right)e^{-\left(\Pi_{\Omega_2}(\kappa)\right)e^{-\left(\Pi_{\Omega_2}(\kappa)\right)e^{-\left(\Pi_{\Omega_2}(\kappa)\right)e^{-\left(\Pi_{\Omega_2}(\kappa)\right)e^{-\left(\Pi_{\Omega_2}(\kappa)\right)e^{-\left(\Pi_{\Omega_2}(\kappa)\right)e^{-\$ $2\pi i(x, \epsilon)$ and $2\pi i(\epsilon, \epsilon)$ and $2\pi i(\epsilon, \epsilon)$ operators, $2\pi i(x, \epsilon)$ operators, $2\pi i(x, \epsilon)$ operators, $2\pi i(x, \epsilon)$ and $2\pi i(x, \epsilon)$ and $2\pi i(x, \epsilon)$ operators, $2\pi i(x, \epsilon)$ and $2\pi i(x, \epsilon)$ and $2\pi i(x, \epsilon)$ and $2\pi i(x, \epsilon)$ and $\left(\Pi_{\Omega_1}(x)e^{-\left(\Pi_{\Omega_1}(x)\right)e^{-\left(\Pi_{\Omega_1}(x)\right)e^{-\left(\Pi_{\Omega_2}(x)\right)}}\right)}$ and $\Omega_2=\left(\Pi_{\Omega_2}(x)e^{-\left(\Pi_{\Omega_2}(x)\right)e^{-\left(\Pi_{\Omega_2}(x)\right)}}\right)e^{-\left(\Pi_{\Omega_2}(x)\right)e^{-\left(\Pi_{\Omega_2}(x)\right)}}$ (c) $2\pi i(\kappa_{\Omega}(v)) = (x^2)^2 \pi i(\kappa_{\Omega}(v))$ geometric (c) $2\pi i(\kappa_{\Omega}(v)) = (x^2)^2 \pi i(\kappa_{\Omega}(v))$ $(\Pi_{\Omega_1}(\kappa)e^{2\pi i(\mu_1\Omega_1(\kappa))}, \Xi_{\Omega_1}(\kappa)e^{2\pi i(\mu_1\Omega_1(\kappa))}$ and $\Omega_2=(\Pi_{\Omega_2}(\kappa)e^{2\pi i(\mu_1\Omega_2(\kappa))}, \Xi_{\Omega_2}(\kappa)e^{2\pi i(\mu_1\Omega_2(\kappa))}$ deserved properties. $\sum_{i=1}^{\infty}$ Furthermore, we also established the definition of $\sum_{i=1}^{\infty}$ Proof. **Proof.** Given that $Q = \left(\prod_{\Omega}(\boldsymbol{\mu})e^{2\pi i(\alpha_{\Omega}(\boldsymbol{\mu}))}\right)E_{\Omega}(\boldsymbol{\mu})e^{2\pi i(\beta_{\Omega}(\boldsymbol{\mu}))}\right)$ $3-i\left(\frac{3}{2}\right)$ $3-i\left(\frac{2}{2}\right)$ $3-i\left(\frac{2}{2}\right)$ $3-i\left(\frac{2}{2}\right)$ $3-i\left(\frac{2}{2}\right)$ $3-i\left(\frac{2}{2}\right)$ $\left(II_{\Omega_1}(\kappa)e^{-i\pi(\kappa_1t_1(\kappa))},\Xi_{\Omega_1}(\kappa)e^{-i\pi(\kappa_1t_1(\kappa))}\right)$ and $\Omega_2=(II_{\Omega_2}(\kappa)e^{-i\pi \kappa_1t_1(\kappa))}$ $\overline{\mathcal{C}}(k_{\infty}(u))$ of $\overline{\mathcal{C}}(k_{\infty}(u))$ some $\overline{\mathcal{C}}(k_{\infty}(u))$ \mathbf{u} $(II_{\Omega_1}(\kappa)e$ $\alpha = \alpha \cdot 2\pi i (\kappa_{\Omega}(u)) = \alpha \cdot 2\pi i (\kappa_{\Omega}(u))$ $(11\Omega_1(\kappa)\ell$

$$
(1) \quad \Pi_{\Omega_1} \oplus \Pi_{\Omega_2} = \begin{pmatrix} \sqrt{1 - e^{-\left((-In(1 - II_{\Omega_1}^2))^\mathsf{T} + (-In(1 - II_{\Omega_2}^2))^\mathsf{T}\right)^\frac{1}{\mathsf{T}}}} \\ 2\pi i \sqrt{1 - e^{-\left((-In(1 - \alpha_{\Omega_1}^2))^\mathsf{T} + (-In(1 - \alpha_{\Omega_2}^2))^\mathsf{T}\right)^\frac{1}{\mathsf{T}}}} \\ e^{-\left((-In(\Xi_{\Omega_1}))^\mathsf{T} + (-In(\Xi_{\Omega_2}))^\mathsf{T}\right)^\frac{1}{\mathsf{T}}}} \\ e^{-\left((-In(\beta_{\Omega_1}))^\mathsf{T} + (-In(\beta_{\Omega_2}))^\mathsf{T}\right)^\frac{1}{\mathsf{T}}}} \\ e^{-\left((-In(\beta_{\Omega_1}))^\mathsf{T} + (-In(\beta_{\Omega_2}))^\mathsf{T}\right)^\frac{1}{\mathsf{T}}}} \end{pmatrix}
$$

 $M_{\rm V}$ of a contract term \sim $M_{\rm V}$ and \sim MV of phase term CPyFV NMV of amplitude term Weight vector NMV of phase term T TNMV of phase term T $\mathcal{L}(\mathcal{M})$ and $\mathcal{M}(\mathcal{M})$ and $\mathcal{M}(\mathcal{M})$ and $\mathcal{M}(\mathcal{M})$

$$
= \begin{pmatrix} \sqrt{\frac{1}{1-e^{-\left(\left(-\ln\left(1-\Pi_{\Omega_{2}}^{2}\right)\right)^{\Upsilon}+\left(-\ln\left(1-\Pi_{\Omega_{1}}^{2}\right)\right)^{\Upsilon}\right)^{\frac{1}{\Upsilon}}}} \\ \frac{1}{2\pi i}\left(\sqrt{\frac{1}{1-e^{-\left(\left(-\ln\left(1-\alpha_{\Omega_{2}}^{2}\right)\right)^{\Upsilon}+\left(-\ln\left(1-\alpha_{\Omega_{1}}^{2}\right)\right)^{\Upsilon}\right)^{\frac{1}{\Upsilon}}}} \\ e^{-\left(\left(-\ln\left(\Xi_{\Omega_{2}}\right)\right)^{\Upsilon}+\left(-\ln\left(\Xi_{\Omega_{1}}\right)\right)^{\Upsilon}\right)^{\frac{1}{\Upsilon}}}} \\ \frac{1}{e^{-\left(\left(-\ln\left(\Xi_{\Omega_{2}}\right)\right)^{\Upsilon}+\left(-\ln\left(\Xi_{\Omega_{1}}\right)\right)^{\Upsilon}\right)^{\frac{1}{\Upsilon}}}} \\ \frac{2\pi i}{e}\left(e^{-\left(\left(-\ln\left(\beta_{\Omega_{2}}\right)\right)^{\Upsilon}+\left(-\ln\left(\beta_{\Omega_{1}}\right)\right)^{\Upsilon}\right)^{\frac{1}{\Upsilon}}}\right) \end{pmatrix}
$$

 $\frac{1}{2}$ $t(2)$. We can prove this easily by following Property 1 (2) We can prove this easily by following Property 1 (2) we can prove this easily by following Property 1. (2) We can prove this easily by following Property 1. (2) we can prove this easily by following Property 1. $\langle 2 \rangle$ We can prove this easily by following Property 1 (2) We can prove this easily by following Property 1. (2) We can prove this easily by following Property 1. $\frac{1}{2}$ The structure of this manuscript is presented in the also displayed in the also $\frac{1}{2}$ we can prove this easily by following 1 to present in the also displayed in the $T_{\rm eff}$ structure of this manuscript is presented as $W(\Pi_{\rm eff})$. (2) We can prove this easily by following Property 1. (2) We can prove this easily by following Property 1. α can prove this easily by following Property 1. an prove this easily by following Property 1. $\frac{1}{2}$ (2) We c (2) We can prove this We can prove this eas (2) By Using the operational laws of Acape-Alsing Superational 2. Accord-Alsina Tu-(2) We can prove this easily by following Property 1. (2) We can prove this easily by following Property 1. (2) We can prove this easily by following Property 1. (2) We can prove this easily by following Property 1. We can prove this easily by following Property 1.

 $\mathcal{L}_{\mathcal{F}}$ and $\mathcal{L}_{\mathcal{F}}$

geometric (CPyFAAOWG) operators with some basic properties.

geometric (CPyFAAOWG) operators with some basic properties.

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deserved properties. The served properties of the served properties of the served properties of the served pro

 $\overline{}$ operators with some basic properties. We also assume basic properties.

(2) Now we have to prove this property. $\Psi(\Pi_{\alpha}, \oplus \Pi_{\alpha})$ $x = \frac{1}{2}$ by comparison of $\frac{1}{2}$ by comparison of results of results of results of results of results of results of $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and (2) Now we have to prove this property. $\Psi(\Pi_2 \cap \Pi_2) - \Psi \Pi_2 \cap \Psi$ we studied the advantages and verified our invented \int our invented \int (3) Now we have to prove this property $\Psi(\Pi_{\Omega}, \mathbb{A} \Pi_{\Omega}) = \Psi \Pi_{\Omega} \oplus \Psi \Pi_{\Omega}$ $\frac{1}{2}$ know that (3) Now, we have to prove this property $\mathbb{P}(H_{\Omega_1} \oplus H_{\Omega_2})$ k now that k (3) Now, we have to prove this property $\mathbb{P}(H_{\Omega_1}\oplus H_{\Omega_2})=\mathbb{P}H_{\Omega_1}\oplus$ $k₁$ to find the reliability of our invention $k₁$ and we gave an inventory $k₂$ and we gave an investigation $k₁$ and we gave an investigation $k₂$ and we gave an investigation $k₁$ an (3) Now, we have to prove this property $T(T_1 \cap T_1 \oplus T_2) = T T_1 \cap T_1 \oplus T T_2$ $t_{\rm H}$ tow that $t_{\rm H}$ (3) Now, we have to prove this property $\Psi(\Pi_{\Omega_1}\oplus \Pi)$ α is stemments of α in Section 4, we introduce concepts of α and α (3) Now, we have to prove this property $\Psi(\Pi_{\Omega_1} \oplus \Pi_{\Omega_2}) = \Psi \Pi_{\Omega_1}$ α stems. In Section 4, we introduce the section 4, we introduce concepts of A (3) Now, we have to prove this property $\Psi(\Pi_{\Omega_1} \oplus \Pi_{\Omega_2}) = \Psi \Pi_{\Omega_1} \oplus$ environments of \mathbb{R} systems. In Section 4, we introduce concepts of Ac \mathbb{R} and Ac \mathbb{R} an σ_{F} is σ_{F} in Section 1, we thought that the property of μ_{11_1} σ_{11} \mathbf{N} in Section 2, we recall the notations of \mathbf{N} is \mathbf{N} such that σ_{row} , we have to prove this property $\iota_{\text{refl}_1 \oplus \text{refl}_2} = \iota_{\text{refl}_1}$ \mathbf{x} in Section 2, we recall the notations of \mathbf{y} $\sum_{i=1}^{\infty}$ in Section 1, we though the thorough history of $\sum_{i=1}^{\infty}$ of $\sum_{i=1}^{\infty}$ of $\sum_{i=1}^{\infty}$ of $\sum_{i=1}^{\infty}$ of $\sum_{i=1}^{\infty}$ of $\sum_{i=1}^{\infty}$ or $\sum_{i=1}^{\infty}$ or $\sum_{i=1}^{\infty}$ or $\sum_{i=1}^{\infty}$ \mathbf{r} in Section 2, we recall the notations of \mathbf{r} (3) Now, we have to prove this property $\Psi(\Pi_{\Omega_1} \oplus \Pi_{\Omega_2}) = \Psi \Pi_{\Omega_1} \oplus \Psi \Pi_{\Omega_2}$, $\Psi > 0$. We know that (3) Now, we have to prove this property $\Psi(\Pi_{\Omega}, \oplus \Pi_{\Omega_2}) = \Psi \Pi_{\Omega_1} \oplus \Psi \Pi_{\Omega_2}$, $\Psi >$ ested and include an induced an induced and include to select a suitable candidate for a vacant post at ϵ (5) Bow, we have to prove this property $\Psi(\Pi_{\Omega}, \oplus \Pi_{\Omega_2}) = \Psi \Pi_{\Omega_2} \oplus \Psi \Pi_{\Omega_2}$, $\Psi > 0$. We \mathbb{R} is the stablished and increase example to select a suitable candidate for a vacant post at \mathbb{R} vacant post at Now, we have to prove this property $\Psi(\Pi_{\Omega_1} \oplus \Pi_{\Omega_2}) = \Psi \Pi_{\Omega_2} \oplus \Psi \Pi_{\Omega_2}$, $\Psi > 0$. We α that illustrative example to select a suitable candidate for a vacant post at α (2) The can prove this easily by following respecty 1:
(3) Mow we have to prove this proporty, $\Psi(\Pi_2 \cap \Pi_2) = \Psi\Pi_2 \cap \Psi\Pi_3$ $\Psi \setminus$ $\lim_{x \to 0}$ which we have $\lim_{x \to 0} \lim_{x \to 0} \lim_{x \to 2} \lim_{x \to 2}$ (CRYFAA) and CRYFAA $\mathcal{L}(T_A \cap \Pi_A) = \mathcal{W}$ $\mathcal{L}(\cap \Pi_A \cap \mathcal{W})$ h_1 and h_1 and h_2 and h_3 are h_4 and h_1 and h_2 and h_3 and h_4 We have to prove this property $\Psi(\Pi_0 \oplus \Pi_0) - \Psi \Pi_0 \oplus \Psi \Pi_0$ $\Psi > 0$ We has a contribution of $\frac{1}{2}$ and \frac (3) Fow, we have to prove this property $\Psi(\Pi_{\Omega_1}\oplus \Pi_{\Omega_2})=\Psi\Pi_{\Omega_1}\oplus \Psi\Pi_{\Omega_2}$, Ψ know that (3) Now, we have to prove this property $\Psi(\Pi_{\Omega_1}\oplus \Pi_{\Omega_2})=\Psi\Pi_{\Omega_1}\oplus \Psi\Pi_{\Omega_2}$, $\Psi>0$. We $f(x)$ is a measure of $A(x)$ and $A(x)$ and $A(x)$ ∞ Theorem $A(x)$ (3) Now, we have to prove this property $\Psi(II_{\Omega_1}\oplus II_{\Omega_2}) = \Psi II_{\Omega_1}\oplus \Psi II_{\Omega_2}$, $\Psi > 0$. We $f(x)$ functional laws of $A(x)$ and $A(x)$ and $A(x)$ (3) Now, we have to prove this property $\,\Psi(\Pi_{\Omega_1}\oplus\Pi_{\Omega_2})=\Psi\Pi_{\Omega_1}\oplus\Psi\Pi_{\Omega_2}$, Ψ : know (3) Now, we have to prove this property $\Psi(\Pi_{\Omega_1}\oplus\Pi_{\Omega_2})=\Psi\Pi_{\Omega_1}\oplus\Psi\Pi_{\Omega_2}$, $\Psi>0$. We know that Now, we have to prove this property $\Psi(H_{\Omega_1}\oplus H_{\Omega_2})=\Psi H_{\Omega_1}\oplus \Psi H_{\Omega_2}$, $\Psi>0$. We know that (3) Now, we have to prove this property $\Psi(\Pi_{\Omega}, \oplus \Pi_{\Omega_2}) = \Psi \Pi_{\Omega_1} \oplus \Psi$. R s. The main contribution of the following forms: R are in the following forms: R and R are in the following forms: R (3) Now, we have to prove this property $\Psi(\Pi_{\Omega}, \oplus \Pi_{\Omega_2}) = \Psi \Pi_{\Omega}, \oplus \Psi \Pi_{\Omega_2}, \Psi > 0$. We comparison contributions of the main contributions of the following forms: \mathbb{R}^n Now, we have to prove this property $\Psi(\Pi_{\Omega_1}\oplus \Pi_{\Omega_2})=\Psi\Pi_{\Omega_1}\oplus \Psi\Pi_{\Omega_2}$, $\Psi>0$. We R s. The main contributions of the following forms: R this article are in the following forms: $\frac{1}{R}$ are in the following forms: $\frac{1}{R}$ and $\frac{1}{R}$ are in the following forms: $\frac{1}{R}$ and $\frac{1}{R}$ are in th $\frac{1}{2}$ s and PyFSs. Keeping in mind the significance of $\frac{1}{2}$ $m_{\rm E}$ FSs, $m_{\rm E}$ and $m_{\rm E}$ mation than FSS, IFS and PyFSs. IFS and PyFSs. Keeping in mind the significance of CPS significance of CPS systems

$$
\Psi(\Pi_{\Omega_1} \oplus \Pi_{\Omega_2}) = \Psi \left(\sqrt{\frac{1 - e^{-\left(\left(-\ln\left(1 - \Pi_{\Omega_1}^2 \right) \right)^{\mathsf{Y}} + \left(-\ln\left(1 - \Pi_{\Omega_2}^2 \right) \right)^{\mathsf{Y}} \right)^{\frac{1}{\mathsf{Y}}}}{e^{-\left(\left(-\ln\left(\Pi_{\Omega_1} \right) \right)^{\mathsf{Y}} + \left(-\ln\left(\Pi_{\Omega_2} \right) \right)^{\mathsf{Y}} \right)^{\frac{1}{\mathsf{Y}}}} \right)}
$$
\n
$$
\Psi(\Pi_{\Omega_1} \oplus \Pi_{\Omega_2}) = \Psi \left(e^{-\left(\left(-\ln\left(\Pi_{\Omega_1} \right) \right)^{\mathsf{Y}} + \left(-\ln\left(\Pi_{\Omega_2} \right) \right)^{\mathsf{Y}} \right)^{\frac{1}{\mathsf{Y}}}} \right)
$$
\n
$$
e^{-\left(\left(-\ln\left(\Pi_{\Omega_1} \right) \right)^{\mathsf{Y}} + \left(-\ln\left(1 - \Pi_{\Omega_2}^2 \right) \right)^{\mathsf{Y}} \right)^{\frac{1}{\mathsf{Y}}}} \right)
$$
\n
$$
= \left(\sqrt{\frac{1 - e^{-\mathsf{Y}\left(\left(-\ln\left(1 - \Pi_{\Omega_1}^2 \right) \right)^{\mathsf{Y}} + \left(-\ln\left(1 - \Pi_{\Omega_2}^2 \right) \right)^{\mathsf{Y}} \right)^{\frac{1}{\mathsf{Y}}}}{e^{-\mathsf{Y}\left(\left(-\ln\left(1 - \Pi_{\Omega_1}^2 \right) \right)^{\mathsf{Y}} + \left(-\ln\left(\Pi_{\Omega_2} \right) \right)^{\mathsf{Y}} \right)^{\frac{1}{\mathsf{Y}}}}}} \right)
$$
\n
$$
= e^{-\mathsf{Y}\left(\left(-\ln\left(\Pi_{\Omega_1} \right) \right)^{\mathsf{Y}} + \left(-\ln\left(\Pi_{\Omega_2} \right) \right)^{\mathsf{Y}} \right)^{\frac{1}{\mathsf{Y}}}}}
$$
\n
$$
e^{-\mathsf{Y}\left(\left(-\ln\left(\Pi_{\Omega_1} \right
$$

existing AOs with the results of our invented AOs. In Section 9, we summarized the whole existing AOs with the results of our invented AOs. In Section 9, we summarized the whole existing AOs with the results of our invented AOs. In Section 9, we summarized the whole trative example to select a suitable candidate for a multinational company. In Section 8,

 $\left(\begin{array}{cc} e & \end{array}\right)$ is presented as follows and also displayed in the set of the set of

(reliability and flexibility and flexibility of our invented approaches, by comparison of α

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tion 6, we encoduced the idea of CPS-SS and introduced some AOS in the form of CPS-SS and introduced some AOS in the form of CPS-SS and introduced some AOS in the form of CPS-SS and introduced some AOS in the form of CPS-

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trative example to select a suitable candidate for a multinational company. In Section 8, we studied the advantages and verified our invented λ

environments of fuzzy systems. In Section 4, we introduced innovative concepts of Aczel– $\left\langle \begin{array}{ccc} e & \sqrt{e} & \sqrt{$

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the results of existing AOs with the results of our discussed technique.

 $\mathcal{F}_{\mathcal{A}}$ is some deserved characteristics. In Section 7, we solved an \mathcal{A}

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the results of existing AOs with the results of our discussed technique.

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\begin{split} \left(\sqrt{\frac{1-e^{-\left(\Psi\left(-ln\left(1-\varPi_{\mathcal{D}_{1}}^{2}\right)\right)^{\Upsilon}+\Psi\left(-ln\left(1-\varPi_{\mathcal{D}_{2}}^{2}\right)\right)^{\Upsilon}\right)^{\frac{1}{\Upsilon}}}}{e^{-\left(\Psi\left(-ln\left(1-\varPi_{\mathcal{D}_{1}}^{2}\right)\right)\Upsilon+\Psi\left(-ln\left(1-\varpi_{\mathcal{D}_{2}}^{2}\right)\right)^{\Upsilon}\right)^{\frac{1}{\Upsilon}}}} \\ &=\left(\sqrt{\frac{1}{1-e^{-\left(\Psi\left(-ln\left(\Xi_{\mathcal{D}_{1}}\right)\right)^{\Upsilon}+\Psi\left(-ln\left(\Xi_{\mathcal{D}_{2}}\right)\right)^{\Upsilon}\right)^{\frac{1}{\Upsilon}}}}{e^{-\left(\Psi\left(-ln\left(\Xi_{\mathcal{D}_{1}}\right)\right)^{\Upsilon}+\Psi\left(-ln\left(\Xi_{\mathcal{D}_{2}}\right)\right)^{\Upsilon}\right)^{\frac{1}{\Upsilon}}}}\right) \right) \\ &=\left(\sqrt{\frac{1-e^{-\left(\Psi\left(\left(-ln\left(1-\varPi_{\mathcal{D}_{1}}^{2}\right)\right)^{\Upsilon}\right)\right)^{\frac{1}{\Upsilon}}e^{-2\pi i}\left(\sqrt{1-e^{-\left(\Psi\left(\left(-ln\left(1-\varPi_{\mathcal{D}_{1}}^{2}\right)\right)^{\Upsilon}\right)\right)^{\frac{1}{\Upsilon}}}}}{e^{-\left(\Psi\left(-ln\left(\Xi_{\mathcal{D}_{1}}\right)\right)^{\Upsilon}\right)\right)^{\frac{1}{\Upsilon}}e}}\\ &e^{-\left(\Psi\left(-ln\left(\Xi_{\mathcal{D}_{1}}\right)\right)^{\Upsilon}\right)\right)^{\frac{1}{\Upsilon}}e^{-2\pi i}\left(e^{-\left(\Psi\left(-ln\left(\varPi_{\mathcal{D}_{2}}\right)\right)^{\Upsilon}\right)\right)^{\frac{1}{\Upsilon}}}}\\ &\sqrt{1-e^{-\left(\Psi\left(\left(-ln\left(1-\varPi_{\mathcal{D}_{2}}^{2}\right)\right)^{\Upsilon}\right)\right)^{\frac{1}{\Upsilon}}e}}\\ &e^{-\left(\Psi\left(-ln\left(\Xi_{\mathcal{D}_{2}}\right)\right)^{\Upsilon}\right)\right)^{\frac{1}{\Upsilon}}e^{-2\pi i}\left(e^{-\left(\Psi\left(-ln\left(\varPi_{\mathcal{D}_{2}}\right)\right)^
$$

(5) By utilizing our invented approaches, we solved an MADM technique. We

(3) Furthermore, we also established the CP/FAAWAG operator based on the defined on th

(3) Furthermore, we also established the CP/FAAWAG operator based on the defined on th

(3) Furthermore, we also established the CP/FAAWAG operator based on the defined on th

(4) Now we have to prove $(\Psi_1 + \Psi_2) \Pi_{\Omega} = \Psi_1 \Pi_{\Omega} + \Psi_2 \Pi_{\Omega}$, y $\frac{d^2y}{dx^2}$ (4) Now we have to prove $(\gamma_1 + \gamma_2)I I_{\Omega} = \gamma_1 I I_{\Omega} + \gamma_2 I I_{\Omega}$, γ_1 , γ_2 (4) Now we have to prove $(\Psi_1 + \Psi_2)I I_{\Omega} = \Psi_1 I I_{\Omega} + \Psi_2 I I_{\Omega}$, y $\frac{1}{\sqrt{2}}$ is the idea of CPS in the form of CPS in the form of CPS-SS in the form of C (4) Now we have to prove $(\Psi_1 + \Psi_2) \Pi_{\Omega} = \Psi_1 \Pi_{\Omega} + \Psi_2 \Pi_{\Omega}$, Ψ_1 , $\Psi_2 > 0$. We have tha trative example to select a suitable candidate for a multiplier $\frac{1}{2}$ multiplier $\frac{1}{2}$ multiplier $\frac{1}{2}$ (4) Now we have to prove $(\Psi_1 + \Psi_2)H_Q = \Psi_1H_Q + \Psi_2H_Q$, $\Psi_1 \Psi_2 > 0$, We have that $\frac{1}{1}$, $\frac{1}{1}$, $\frac{1}{1}$, $\frac{1}{2}$ $\mathcal{L}(A)$ Newton 3, here is given by $\mathcal{L}(W + W)$ $\mathcal{L}(W)$ we studied the differential W (4) FOR WE have to prove $\begin{pmatrix} 1 & 1 & 2 \end{pmatrix}$ $\begin{pmatrix} 1 & 1 & 2 \end{pmatrix}$ (4) Now we have to prove $(\Psi_1 + \Psi_2)H_2 = \Psi_1H_2 + \Psi_2H_3$ w. ϵ is section 4, we introduce the function ϵ in ϵ in ϵ in ϵ in ϵ and ϵ \mathcal{A} operations under the system of \mathcal{A} information. In Section 5, we develop \mathcal{A} in Section 5, we develop severation. In Section 5, we develop see Section 5, we develop see Section 5, we develop see Section ow we have to prove $(1_1 + 1_2) \Pi_Q - 1_1 \Pi_Q + 1_2 \Pi_Q$, 1_1 , $1_2 > 0$. We have that Alsina operations under the system of CPyF information. In Section 5, we developed sevdefined as prove $\binom{1}{1}$ $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{2}$ $\frac{1}{2$ the results of existing AOs with the results of our discussed technique. T_{tot} structure of the structure T_{tot} and T_{tot} and T_{tot} and T_{tot} $\left(\begin{matrix} 1 \end{matrix}\right)$ and $\left(\begin{matrix} 1 \end{matrix}\right)$ of our discussed technique. (4) Now we have to prove $(\Psi_1 + \Psi_2) \Pi_{\Omega} = \Psi_1 \Pi_{\Omega} + \Psi_2 \Pi_{\Omega}$, $\Psi_1, \Psi_2 > 0$. We have that (4) Now we have to prove $(\Psi_1 + \Psi_2) \Pi_{\Omega} = \Psi_1 \Pi_{\Omega} + \Psi_2 \Pi_{\Omega}$, $\Psi_1, \Psi_2 > 0$. We have that $\left(1\right)$ Frow we have to prove $\left(1\right)$ $\left(1\right)$ (A) $\sum_{k=1}^{N}$ Following the second (W \pm W) \overline{H} and CPyFA $\mathcal{F}_{\mathcal{F}}$ is now we have to prove $\mathcal{F}_{\mathcal{F}}$ if $\mathcal{F}_{\mathcal{F}}$ (4) By using \mathbf{S} by using \mathbf{S} and \mathbf{S} and \mathbf{W} in \mathbf{W} in \mathbf{W} and \mathbf{W} a From we have to prove $\binom{r_1 + r_2 + r_1 - r_1 + r_2}{r_1 + r_2 + r_1 + r_2}$ of the have that Now we have to prove $(\Psi + \Psi)H = \Psi H + \Psi H$ w $\Psi > 0$. We have that $e \text{ and } e \text{ is given (1.1 + 12).}$ $\frac{1}{1} \cdot \frac{1}{2} \cdot \frac{1}{1} \cdot \frac{1}{2} \cdot \frac{1}{2$ fundamental operational laws of \mathcal{N} (4) Toow we have to prove $(11 + 12)11\Omega - 111\Omega + 12$ fundamental operational laws of $\mathbf{M} = \mathbf{M}$ (4) Now we have to prove $(\Psi_1 + \Psi_2) \Pi_{\Omega} = \Psi_1 \Pi_{\Omega} + \Psi_2 \Pi_{\Omega}$, $\Psi_1, \Psi_2 > 0$. We have t \mathcal{L} and verified invented invented invented invented invented invented in (4) Now we have to prove $(\Psi_1 + \Psi_2)H_Q = \Psi_1H_Q + \Psi_2H_Q$ \mathcal{L} and verified invented invented invented invented invented invented in Now we have to pro $\mathcal{L}(\mathcal{S})$ Furthermore, we also established the CPHFAAWAG operator based on the defined on the de α we have to prove ((3) Furthermore, we also established the CP/FAAWAG operator based on the defined on th (1) We presented some new AOS and fundamental laws of $\frac{1}{\sqrt{2}}$ (1) We presented some new AOS and fundamental operational laws of \mathcal{L} (4) Now we have to prove $(\gamma_1 + \gamma_2)I I_{\Omega} = \gamma_1 I I_{\Omega} + \gamma_2 I I_{\Omega}$, $\gamma_1, \gamma_2 > 0$. We has (1) We approach some new AOS and fundamental laws of CPS some (1) and (2) (4) Now we have to prove $(\gamma_1 + \gamma_2)I I_{\Omega} = \gamma_1 I I_{\Omega} + \gamma_2 I I_{\Omega}$, $\gamma_1, \gamma_2 > 0$. We have t

$$
\Psi_1\Pi_{\Omega} \oplus \Psi_2\Pi_{\Omega} = \left(\sqrt{\sqrt{1-e^{-\left(\Psi_1\left(\left(-\ln\left(1-\Pi_{\Omega}^2\right)\right)\Upsilon\right)\right)^{\frac{1}{\Upsilon}}}}e^{-\left(\Psi_1\left(\left(-\ln\left(1-\Pi_{\Omega}^2\right)\right)\Upsilon\right)\right)^{\frac{1}{\Upsilon}}}\frac{2\pi i}{e^{\left(-\left(\Psi_1\left(-\ln\left(\beta_{\Omega}\right)\right)\Upsilon\right)\Upsilon\right)^{\frac{1}{\Upsilon}}}}\right)}{\left(e^{-\left(\Psi_1\left(-\ln\left(2_{\Omega}\right)\right)\Upsilon\right)\Upsilon}\right)^{\frac{1}{\Upsilon}}e^{\left(-\left(\Psi_1\left(-\ln\left(\beta_{\Omega}\right)\right)\Upsilon\right)\Upsilon\right)^{\frac{1}{\Upsilon}}}}\right)
$$
\n
$$
\sqrt{\frac{1-e^{-\left(\Psi_2\left(\left(-\ln\left(1-\Pi_{\Omega}^2\right)\right)\Upsilon\right)\right)^{\frac{1}{\Upsilon}}}}{1-e^{-\left(\Psi_2\left(\left(-\ln\left(1-\Pi_{\Omega}^2\right)\right)\Upsilon\right)\right)^{\frac{1}{\Upsilon}}}}e^{\left(-\left(\Psi_2\left(-\ln\left(\beta_{\Omega}\right)\right)\Upsilon\right)\Upsilon\right)^{\frac{1}{\Upsilon}}}}\right)
$$

hybrid weighted (CP_{yFA}AHW), average (CP_{yFA}AHW), average (CP_{yFA}AHW), average (CP_{yFA}AHWA) and CP_{yFA}AHWA) and CP_{yFA}AHWA

hybrid weighted (CP_{yFA}AHW), average (CP_{yFA}AHW), average (CP_{yFA}AHW), average (CP_{yFA}AHWA) and CP_{yFA}AHWA) and CP_{yFA}AHWA

 $\left(\begin{array}{cc} 1 & 1 & 1 \\ 1 & 1 & 1 \end{array} \right)$

$$
= \left(\sqrt{\frac{1}{1-e^{-\left((\Psi_1+\Psi_2)\left((-ln(1-\Pi_{\Omega}^2))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}e^{2\pi i \left(\sqrt{\frac{1}{1-e^{-\left((\Psi_1+\Psi_2)\left((-ln(1-\alpha_{\Omega}^2))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}}{e}\right)}}{e^{-\left((\Psi_1+\Psi_2)(-ln(\Xi_{\Omega}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left((\Psi_1+\Psi_2)(-ln(\Xi_{\Omega}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}= (\Psi_1+\Psi_2)\Pi_{\Omega}.
$$

 $S = (11 + 12)I_1$

(5) We must now prove that $(\Pi_{\Omega_1} \oplus \Pi_{\Omega_2})^T = \Pi$ $\begin{pmatrix} 1 & 1 & -2 \end{pmatrix}$ we have noticed the notions of CFS such and fundamental operations of CFS such a (5) We must now prove that $(\Pi_{\Omega_1} \oplus \Pi_{\Omega_2})^{\perp} = \Pi_{\Omega_1}^{\mathbf{r}} \otimes$ environments of fuzzy systems. In Section 4, we introduced innovative concepts of Aczel– (5) We must now prove that $(II_{\Omega_1} \oplus II_{\Omega_2}) = II_{\Omega_1}^* \otimes II_{\Omega_2}^*,$ Y $> 0.$ We have that environments of Ψ in Section 4, we introduce concepts of Ψ (b) we must now prove that $(11\Omega_1 \oplus 11\Omega_2)$ = $11\Omega_1 \otimes 11\Omega_2$, $\tau > 0$. We have that τ and τ with the results of our discussed technique. $\begin{pmatrix} 1 & \frac{1}{2} & \frac{1}{2} & \frac{1}{2} \\ 0 & 0 & \frac{1}{2} & \frac{1}{2} \end{pmatrix}$ $\sqrt{\Gamma}$ M_I with the results of $\sqrt{\Gamma}$ of $\sqrt{\Gamma}$ T structure of this manuscript is presented as follows as follows and also displayed in the also displayed in the T The structure of this manuscript is presented as follows as follows and also displayed in the structure in the structur (5) We must now prove that $(II_{\Omega_1} \oplus II_{\Omega_2}) = II_{\Omega_1} \otimes II_{\Omega_2}$, $\Upsilon > 0$. We have The structure of this manuscript is presented as follows as follows and also displayed in the structure in the \sim (5) We must now prove that $\left(\Pi_{\Omega_1}\oplus\Pi_{\Omega_2}\right)^{\Psi}=\Pi_{\Omega_1}^{\Psi}\otimes\Pi_{\Omega_2}^{\Psi}$, $\Psi>0.$ We have that (Ψ) utilizing our invented approaches, we solve an \mathcal{W} (5) We must now prove that $(II_{\Omega_1} \oplus II_{\Omega_2}) = II_{\Omega_1} \otimes II_{\Omega_2}$, $\Upsilon > 0$. We have (Ψ) utilizing approaches, we solve a solved and \mathbf{w} (5) We must now prove that $(II_{\Omega_1} \oplus II_{\Omega_2}) = II_{\Omega_1} \otimes II_{\Omega_2}$, $\Upsilon > 0$. We have that (5) By utilizing our invented approaches, we solve an $\forall \Psi$ and $\forall \Psi$ b) we must now prove that $(11_{\Omega_1} \oplus 11_{\Omega_2})^2 = 11_{\Omega_1} \otimes 11_{\Omega_2}$, $1 \ge 0$. We have that hybrid weighted (CP) and $\mathbf{W} = \mathbf{W}$ (5) We must now prove that $(II_{\Omega_1}\oplus II_{\Omega_2})^-=II_{\Omega_1}^*\otimes II$ hybrid weighted (CP) and \mathbf{W} and \mathbf{W} (5) We must now prove that $(II_{\Omega_1}\oplus II_{\Omega_2})^-=II_{\Omega_1}^*\otimes II_{\Omega_2}^*,$ Y $>0.$ hybrid weighted (CPyFA) and \sqrt{P} and \sqrt{P} and \sqrt{P} $g(x)$ we must now prove that $(11\Omega_1 \oplus 11\Omega_2) = 11\Omega_1 \otimes 11\Omega_2$, $x > 0$. We (5) We must now prove that $(I_{1\Omega} \oplus \Pi_{\Omega_2})^{\Psi} = \Pi_{\Omega_2}^{\Psi} \otimes \Pi_{\Omega_2}^{\Psi}$, $\Psi > 0$. We have the some special cases, like CP_yFAA ordered weighted (CP_{yFA}), average $\frac{1}{\sqrt{2}}$ (5) We must now prove that $(I_{1\Omega} \oplus \Pi_{\Omega}^{\bullet})^{\Psi} = \Pi_{\Omega}^{\Psi} \otimes \Pi_{\Omega}^{\Psi}$, $\Psi > 0$. We have that some special cases, like CPyFAA ordered weighted (CPyFAAWAG), average We must now prove that $(I_{1O_1} \oplus H_{1O_2})^{\Psi} = \Pi_{1O_1}^{\Psi} \otimes \Pi_{1O}^{\Psi}$, $\Psi > 0$. We have that some special cases, like CP_{yFA} ordered weighted (CP_{yFA}), average \sim \overline{E} M/c m. (3) Forthermore, we also the CPYF_{IA} $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ W_0 must pour properties. (3) Fig. also established the CPIFA $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{2}$ $\frac{1$ le must pour prove that ($3/2$ Furthermore, $3/2$ $1/4$ $1/2$ $1/2$ (5) We must now prove that $(\Pi_{\Omega_1} \oplus \Pi_{\Omega_2})^{\Psi} = \Pi_{\Omega_1}^{\Psi} \otimes \Pi_{\Omega_2}^{\Psi}$, $\Psi > 0$. W generalized the basic idea of Ac $\frac{1}{\sqrt{N}}$ (5) We must now prove that $(\Pi_{\Omega} \oplus \Pi_{\Omega_0})^{\Psi} = \Pi_{\Omega}^{\Psi} \otimes \Pi_{\Omega}^{\Psi}$, $\Psi > 0$. We have that generalized the basic idea of Ac \mathcal{A} lsina TNM and TCNM, with the their operational TNM and TCNM, with the (5) We must now prove that $(\Pi_{\Omega_1} \oplus \Pi_{\Omega_2})^{\mathcal{F}} = \Pi_{\Omega_2}^{\mathcal{F}} \otimes \Pi_{\Omega_2}^{\mathcal{F}}$, $\mathcal{F} > 0$. We have that (5) We must now prove that $(\Pi, \oplus \Pi, \Psi^{\Psi} - \Pi^{\Psi} \otimes \Pi^{\Psi} \Psi > 0$ We Γ are main contributions of the following forms: Γ are in the following forms: (5) We must now prove that $(\Pi, \oplus \Pi, Y^{\Psi} - \Pi^{\Psi} \otimes \Pi^{\Psi} \otimes \emptyset)$ We have that $\sum_{i=1}^{\infty}$ for the matrix forms: $\sum_{i=1}^{\infty}$ $\sum_{i=1}^{\infty}$ for $\sum_{i=1}^{\infty}$ for $\sum_{i=1}^{\infty}$ (5) We must now prove that $(\Pi_{\alpha} \oplus \Pi_{\alpha})^{\Psi} = \Pi^{\Psi} \otimes \Pi^{\Psi} \quad \Psi > 0$ We have that $\begin{bmatrix} 1 \\ 1 \end{bmatrix}$ contributions of the following forms:

$$
(II_{\Omega_1} \otimes II_{\Omega_2})^{\Psi} = \begin{pmatrix} e^{-\left((-ln(\Pi_{\Omega}))^{\Psi} + (-ln(\Pi_{\Omega}))^{\Psi}\right)\frac{1}{\Psi}} \\ 2\pi i \left(e^{-\left((-ln(\Pi_{\Omega_2}))^{\Psi} + (-ln(\Pi_{\Omega_2}))^{\Psi}\right)} \right) \\ e^{-\left(\left(-ln(1-\Xi_{\Omega_2}^2))^{\Psi} + (-ln(1-\Xi_{\Omega_2}^2))^{\Psi}\right)\frac{1}{\Psi}} \end{pmatrix}
$$

$$
= \begin{pmatrix} e^{-\left(\Psi\left((-ln(\Pi_{\Omega}))^{\Psi} + (-ln(\Pi_{\Omega}))^{\Psi}\right)\right)\frac{1}{\Psi}} \\ e^{-\left(\Psi\left((-ln(\Pi_{\Omega}))^{\Psi} + (-ln(\Pi_{\Omega}))^{\Psi}\right)\right)\frac{1}{\Psi}} \\ e^{-\left(\Psi\left((-ln(\Pi_{\Omega}))^{\Psi} + (-ln(\Pi_{\Omega}))^{\Psi}\right)\right)\frac{1}{\Psi}} \end{pmatrix}
$$

$$
= \begin{pmatrix} e^{-\left(\Psi\left((-ln(\Pi_{\Omega}))^{\Psi} + (-ln(\Pi_{\Omega}))^{\Psi}\right)\right)\frac{1}{\Psi}} \\ 2\pi i \left(e^{-\left(\Psi\left((-ln(1-\Xi_{\Omega_2}^2))^{\Psi} + (-ln(1-\Xi_{\Omega_2}^2))^{\Psi}\right)\right)\frac{1}{\Psi}} \\ 2\pi i \left(\sqrt{1 - e^{-\left(\Psi\left((-ln(1-\mu_{\Omega_2}^2))^{\Psi} + (-ln(1-\mu_{\Omega_2}^2))^{\Psi}\right)\right)\frac{1}{\Psi}} } \end{pmatrix}
$$

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deserved properties. The served properties of the served properties of the served properties of the served pro
The served properties of the served properties of the served properties of the served properties of the served

geometric (CPyFAAOWG) operators with some basic properties.

deserved properties.

$$
= \left(\sqrt{\frac{e^{-\left(\Psi(-\ln(\Pi_{\Omega}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi(-\ln(\Pi_{\Omega}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi\left(\left(-\ln(1-\beta_{\Omega_{1}}^{2}))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi\left(\left(-\ln(1-\beta_{\Omega_{1}}^{2}))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi\left(\left(-\ln(1-\beta_{\Omega_{1}}^{2}))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi(-\ln(\Pi_{\Omega}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi(-\ln(\Pi_{\Omega}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi(-\ln(\Pi_{\Omega}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi(-\ln(\Pi_{\Omega}))^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi\left(\left(-\ln(1-\beta_{\Omega_{2}}^{2}))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi\left(\left(-\ln(1-\beta_{\Omega_{2}}^{2}))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi\left(\left(-\ln(1-\beta_{\Omega_{2}}^{2}))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi\left(\left(-\ln(1-\beta_{\Omega_{2}}^{2}))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi\left(\left(-\ln(1-\beta_{\Omega_{2}}^{2}))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi\left(\left(-\ln(1-\beta_{\Omega_{2}}^{2}))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi\left(\left(-\ln(1-\beta_{\Omega_{2}}^{2}))^{\mathbf{Y}}\right)\right)^{\frac{1}{\mathbf{Y}}}}e^{-\left(\Psi\left(\left(-\ln(1-\beta_{\Omega_{2}}^{2}))^{\math
$$

 $\sqrt{6}$ ϵ in a single paragraph. $\begin{array}{cc} W&=W&-(\Psi+\Psi) \end{array}$ (6) In order to prove that $H_{\Omega}^{\gamma_1} \otimes H_{\Omega}^{\gamma_2} = H_{\Omega}^{\gamma_1 \gamma_2 \gamma_1}$, $\gamma_1, \gamma_2 > 0$, FAAWG operators with some deserved characteristics. In Section 7, we solved an $\mathbf{F}_s = \mathbf{F}_s$ technique to find the reliability and flexibility of our invented AOs, and we gave an illusn order to prove that $\Pi_{\Omega}^{I_1} \otimes \Pi_{\Omega}^{I_2} = \Pi_{\Omega}^{(I_1 + I_2)}$, $\Psi_1, \Psi_2 > 0$, we have that \mathbf{r} suitable candidate for a multipable candidate for a multipable company. In Section 8, \mathbf{r} er to prove that $H^A_{\Omega} \otimes H^A_{\Omega} = H^{\{1,1,2\}}_{\Omega}$, $\Psi_1, \Psi_2 > 0$, we have that environments of \mathbf{u} and \mathbf{u} in \mathbf{v} in (6) In order to prove that $\Pi_{\Omega} \otimes \Pi_{\Omega} = \Pi_{\Omega} \otimes \cdots \otimes \Pi_{r}$, Υ_1 , $\Upsilon_2 > 0$, environments of $\Psi_x = \Psi_x = (\Psi_x + \Psi_x)$ we introduce concepts of Ψ_x (b) In order to prove that $H_{\Omega} \otimes H_{\Omega} = H_{\Omega}$, $H_{1}, H_{2} > 0$, we (6) In order to prove that $\Pi^{Y_1} \otimes \Pi^{Y_2} = \Pi^{(Y_1 + Y_2)} Y_1 Y_2 > 0$ we have that tion 6, we encode of ΔZ introduced some AOS introduced some AOS in the form of CPS-FSS and introduced some AOS in the form of CPS-FSS and intervals of CPS-FSS and intervals of CPS-FSS and intervals of CPS-FSS and inter (6) In order to prove that $\prod_{i=1}^{q_1} \otimes \prod_{i=2}^{q_2} = \prod_{i=1}^{(q_1+q_2)}$, $\gamma_1, \gamma_2 > 0$, we have that tion 6, we enlarged the idea of CPyFSs and introduced some AOs in the form of CPy-(6) In order to prove that $\overline{H}^{q_1} \otimes \overline{H}^{q_2} = \overline{H}^{(q_1+q_2)} \Psi \Psi \Psi \geq 0$ $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$ is section to $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$ over $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$ over $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$ (6) In order to prove that $\Pi^{Y_1} \otimes \Pi^{Y_2} = \Pi^{(Y_1+Y_2)} \Psi$, $\Psi_2 > 0$ we ha $\frac{1}{2}$ in Section 1, we though $\frac{1}{2}$ is the output all previous history of our research of our research in $\frac{1}{2}$ w_1 is w_2 in $\overline{X}^{W_1} \circ \overline{X}^{W_2}$ and $\overline{Y}^{(W_1+W_2)}$ and $\overline{Y}^{(W_1+W_2)}$ and fundamental operations of w_1 Crucial $H_Q \otimes H_Q = H_Q$, $H_P Z > 0$, we have that w to prove that $\Pi^{Y_1} \otimes \Pi^{Y_2} = \Pi^{(Y_1+Y_2)}$ w w ≥ 0 such and that The prove that $H_Q \circ H_Q$ H_Q H_Q H_Q H_Q H_Q H_Q is defined that (6) In order to prove that $\Pi_{\Omega}^{\Psi_1} \otimes \Pi_{\Omega}^{\Psi_2} = \Pi_{\Omega}^{(\Psi_1 + \Psi_2)}$ *Ω*⁽¹¹⁺¹²⁾, Ψ₁, Ψ₂ > 0, we have that (6) In order to prove that $\Pi^{Y_1}\otimes$ (5) By utilizing our invented approaches, we solved an MADM technique. We (6) In order to prove that $\prod_{i=1}^{\mathbf{F}_{1}}\otimes \prod_{i=1}^{\mathbf{F}_{2}}$ (5) By utilizing our invented approaches, we solved an MADM technique. We $\begin{pmatrix} W & & W & & (W+\mathbf{W}) \end{pmatrix}$ (6) In order to prove that $\Pi_{\Omega}^A \otimes \Pi_{\Omega}^A = \Pi_{\Omega}^A$ (b) Γ , Υ_1 , $\Upsilon_2 > 0$, we have that (\mathbf{F}_{i}) \mathbf{F}_{j} \mathbf{F}_{j} \mathbf{F}_{k} \mathbf{F}_{k} (6) In order to prove that $H_{\Omega} \otimes H_{\Omega} = H_{\Omega}$ binds for a value that fundamental operational laws of Aczel–Alsina TNM and TCNM. (6) In order to prove that $\Pi_{\Omega}^{A_1} \otimes \Pi_{\Omega}^{A_2} = \Pi_{\Omega}^{A_1 \cdots A_2}$, Ψ_1 fundamental operational laws of Aczel–Alsina TNM and TCNM. (6) In order to prove that $H_{\Omega}^{1} \otimes H_{\Omega}^{2} = H_{\Omega}^{(1)}^{(1)}$ (1) γ_{1} , γ_{2} some special cases, like CPYFAA ordered weighted weighted \sim In order to prove that $\Pi_{\Omega}^{A_1}\otimes \Pi_{\Omega}^{B_2}= \Pi_{\Omega}^{A_1\cdots A_2}\prime$, $\Psi_1,\Psi_2>0$, we have that $\mathbf{v}_t = \mathbf{v}_t = \mathbf{v}_t + \mathbf{v}_t = \mathbf{v}_t + \mathbf{v}_t$) order to prove that $H_{\Omega}^{F_1}\otimes H_{\Omega}^{F_2}=H_{\Omega}^{F_1+\cdots+\sigma}$, $\varphi_1,\varphi_2>0$, we have that (6) In order to prove that $\Pi_{\Omega}^{\tau_1} \otimes \Pi_{\Omega}^{\tau_2} = \Pi_{\Omega}^{\tau_1 + \tau_2}$, Ψ_1 $\frac{1}{2}$ by using the operational laws of Ac $\frac{1}{2}$ and T-M and T-(6) In order to prove that $\Pi_{\Omega}^{A_1}\otimes \Pi_{\Omega}^{A_2}=\Pi_{\Omega}^{A_1\cdots A_2}$, Ψ_1,Ψ_2 α deserved properties. (3) Furthermore, we have also extend the $H_Q \otimes H_Q = H_Q$ \rightarrow H_1 , $H_2 > 0$, we have dual $\frac{1}{2}$ In order to p (3) Furthermore, we also extends the $\frac{1}{2}$ $\frac{$ \mathbf{F} matricle article article article article are in the following forms: (b) In order to prove that $H_Q \otimes H_Q = H_Q$, H_1 \mathbf{F} matricle article article article article article article are in the following forms: (b) In order to prove that $H_{\Omega} \otimes H_{\Omega} = H_{\Omega}$, H_{Ω} / H_{Ω} / H_{Ω} $\mathbf{y} = \mathbf{y} = \mathbf$ If the independent in Ω \otimes $g(x) = \frac{1}{\sqrt{2}} \int_{0}^{\sqrt{2}} \frac{1}{\sqrt{2}} \frac{1}{$ (6) In order to prove that $\Pi_{\Omega}^{r_1} \otimes \Pi_{\Omega}^{r_2} = \Pi_{\Omega}^{r_1 + r_2}$, $\Psi_1, \Psi_2 > 0$, we have that (6) In order to prove that $\Pi_{\Omega}^{\Gamma_1}\otimes \Pi_{\Omega}^{\Gamma_2}=\Pi_{\Omega}^{\Gamma_1\cdots\Gamma_r}$, $\Upsilon_1,\Upsilon_2>0$, we have that

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\Pi_{\Omega}^{\mathbf{y}_{1}} \otimes \Pi_{\Omega}^{\mathbf{y}_{2}} = \left(\sqrt{\sum_{\mathbf{l} \in \mathcal{P}} \left(\mathbf{y}_{1}(-ln(\Pi_{\Omega}))^{\mathbf{y}_{1}} \right) \frac{\pi}{r}} e^{2\pi i \left(\sqrt{\sum_{\mathbf{l} \in \mathcal{P}} \left(\left(\sin\left(\mathbf{y}_{1} - \beta_{\mathbf{y}} \right) \right)^{\mathbf{y}_{1}} \right) \right) \frac{\pi}{r}}}} \\ \left(\sqrt{\sum_{\mathbf{l} \in \mathcal{P}} \left(\mathbf{y}_{1}(-ln(1-\mathbb{Z}_{\mathbf{y}}^{2}))^{\mathbf{y}_{1}} \right) \right) \frac{\pi}{r}} e^{2\pi i \left(\sqrt{\sum_{\mathbf{l} \in \mathcal{P}} \left(\sin\left(\mathbf{y}_{1} - \beta_{\mathbf{y}} \right) \right)^{\mathbf{y}_{1}} \right)} \right)} \\ \left(\sqrt{\sum_{\mathbf{l} \in \mathcal{P}} \left(\mathbf{y}_{2}(-ln(\Pi_{\Omega}))^{\mathbf{y}} \right) \frac{\pi}{r}} e^{2\pi i \left(e^{-\left(\mathbf{y}_{2}(-ln(\mathbf{y}_{1}))^{\mathbf{y}} \right) \frac{\pi}{r}} \right)} \\ \left(\sqrt{\sum_{\mathbf{l} \in \mathcal{P}} \left(\mathbf{y}_{2}(-ln(1-\mathbb{Z}_{\mathbf{y}}^{2}))^{\mathbf{y}} \right) \right)^{\mathbf{y}_{2}} e^{2\pi i \left(\sqrt{\sum_{\mathbf{l} \in \mathcal{P}} \left(\mathbf{y}_{2}(-ln(\mathbf{x}_{\mathbf{y}}))^{\mathbf{y}} \right) \right) \frac{\pi}{r}}}} \\ = \left(\sqrt{\sum_{\mathbf{l} \in \mathcal{P}} \left(\left(\mathbf{y}_{1} + \mathbf{y}_{2}(-ln(\Pi_{\Omega}))^{\mathbf{y}} \right) \frac{\pi}{r}} e^{2\pi i \left(e^{-\left(\left(\mathbf{y}_{1} + \mathbf{y}_{2} \right) (-ln(\mathbf{x}_{\mathbf{y}}))^{\mathbf{y}} \right) \right) \frac{\pi}{r}}}{e^{2\pi i \left(\sqrt{\sum_{\mathbf{l} \in \mathcal{P}} \left(\left(\mathbf{y}_{1} +
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5. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Averaging Operators i. Complex Pythagorean Fuzzy Aczel–Alsina *x* **Pythagorean Fuzzy Aczel–Alsina Weightec** 5. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Averaging Operato 5. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Averaging Operators **5. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Averaging Operators** 5. Complex Pythagorean Fuzzy Aczel-Alsina Weighted Averaging Operators $$ α ^{*y*} Puthagarean Euzzy Agral, Aleina Waighted Averaging Operators *is defined as a contract a set of the set of* Pythagorean Fuzzy Aczel-Alsina Weighted Averaging Operators ቇ , ƺ = 1,2, … , ῃ *to be the* **5. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Averaging Operators**

is particularized as:

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A CPyFS contains more extensive information than IFSs and PyFSs because a CPyFS **3. Existing Aggregation Operators** has the two aspects of MV and NMV in terms of amplitude and phase terms. We develop a list of new AOs of CPyFSs by utilizing the basic operational laws of Aczel–Alsina TNM and TCNM. *Symmetry Property 2023*, *2023* new Δ Os of CPvFSs by utilizing the basic operational laws of Δ czel–Alsina TNM IFS and PyFs. 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ Λ CP_VES contains more extensive information than IESs and Pv ESs because a CPvES α aspects of MV and NMV in terms α In this part, we recall the exist operational taws of Aczel–Alsina ATVIVI $\overline{1}$. A Cryptochial is more extensive information than those and types because a Crypto
has the two aspects of MV and NMV in terms of amplitude and phase terms. We develop a **3. Existing Aggregation Operators** $\frac{1}{2}$ in this part, we recall the existence of $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ are $\frac{1}{2}$ and $\frac{1}{2}$ are $\frac{1}{2}$ are $\frac{1}{2}$ and $\frac{1}{2}$ are $\frac{1}{2}$ are $\$ \overline{a} A CPyFS contains more extensive information than IFSs and PyFSs because a CPyFS list of new $\angle AOS$ of CPyFSs by utilizing the basic operational laws of Aczel–Alsina TNM list of new AOs of CPyFSs by utilizing the basic operational laws of Aczel–Alsina TNM
and TCNM. the two aspects of MV and NMV in terms of amplitude and phase terms. We develop a A CPyFS contains more extensive information than IFSs and PyFSs because a CPyFS t of new AOs of CPyFSs by utilizing the basic operational laws of Aczel–Alsina TNM
1 TCMM $\sum_{i=1}^{n}$ 2023 and $TCNM$ and TCNM $1+$ \mathbf{r} aspects of MV and NMV in terms of amplitude and phase terms. We develop a
AOs of CPyFSs by utilizing the basic operational laws of Aczel–Alsina TNM *is defined as:* d TCNM. ῃ A Cryrs contains more extensive information than free and ryrs because a Cryrs
has the two aspects of MV and NMV in terms of amplitude and phase terms. We develop a
list of next A Oc of CDrFCs by utilizing the basis aroust $a \qquad \qquad$ ƺୀଵ *. Then, the CPyFAAWA operator Symmetry* **2023**, *14*, x FOR PEER REVIEW 4 of 35

1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ

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 $\textbf{Definition 11.}$ *Consider* $\Omega_{\bf \bar{g}} = \left(\Pi_{\Omega_{\bf \bar{g}}}(\bm{\mathrm{\mathcal{H}}})e^{\frac{2\pi i (\alpha_{\Omega}}{\bf \bar{g}}(\bm{\mathrm{\mathcal{H}}}))}, \Xi_{\Omega_{\bf \bar{g}}}(\bm{\mathrm{\mathcal{H}}})e^{\frac{2\pi i (\beta_{\Omega}}{\bf \bar{g}}(\bm{\mathrm{\mathcal{H}}})}, \Xi_{\Omega_{\bf \bar{g}}}(\bm{\mathrm{\mathcal{H}}})e^{\frac{2\pi i (\beta_{\Omega}}{\bf \bar{g}}(\bm{\mathrm{\mathcal{H}}})}, \Xi_{\Omega_{\bf$ to be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_\mathbf{Z} = \left(\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n\right)^T$ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ of $\Omega_{\mathbb{Z}}\left(3=1,2,3,\ldots n\right)$, such that $\mathfrak{D}_{\mathbb{Z}}\in\left[0,1\right]$, $\mathbb{Z}=1,2,\ldots,n$ and $\sum_{\mathbb{Z}_{n-1}}^{n}\mathfrak{D}_{\mathbb{Z}}=1$ $CPyFAAWA operator is defined as:$ **Definition 11.** Consider $\Omega_{\mathcal{Z}} = \left(\Pi_{\Omega_{\mathcal{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\Xi =$ \mathcal{L}^{max} **Definition 11.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right), \ z = 1, 2, ..., \mathbb{N}$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* \mathcal{L}_1 , \mathcal{L}_2 , \ldots , \mathcal{L}_j is defined as:
erator is defined as: $\begin{pmatrix} 2 & 3 & 2 \ 0 & 0 & 1 \end{pmatrix}$
o be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ ῃ $\mathcal{L} = 1, 2, 3, \ldots, 1\mathcal{V}$, such that $\mathfrak{D}_\mathfrak{Z} \in [0, 1]$, $\mathfrak{Z} = 1, 2, \ldots, 1\mathcal{V}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{Y}} \mathfrak{D}_\mathfrak{Z} = 1$. Then, the *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*)) **11.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{\frac{-\kappa^2}{2}}), \Xi_{\Omega_{\mathbf{z}}}(\kappa)e^{\frac{-\kappa^2}{2}}), \mathbf{z} = 1, 2, ..., 1$ $r\,\Omega_{\mathtt{Z}}=\left(\varPi_{\Omega_{\mathtt{Z}}}\left(\varkappa\right)e^{2\pi i\left(\alpha_{\Omega_{\mathtt{Z}}}\left(\varkappa\right)\right)},\Xi_{\Omega_{\mathtt{Z}}}\left(\varkappa\right)e^{2\pi i\left(\beta_{\Omega_{\mathtt{Z}}}\left(\varkappa\right)\right)}\right),\, \mathtt{Z}=1,2,\ldots,\mathfrak{N},$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $O_8 \in [0, 1], \ z = 1, 2, \ldots, \text{`` and } \sum_{z=1}^{\infty} z = 1.$ Then, t $\mathbb{E}V$ s and its corresponding weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ $[0, 3 = 1, 2, \ldots, 0]$ and $\sum_{\mathbf{Z}=1}^{\mathbf{N}} \mathbf{D}_{\mathbf{Z}} = 1$. Then, the $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ *and* $\frac{1}{2}$ *r*epresents the membership value of a matrix $\frac{1}{2}$ of and $\frac{1}{2}$ of $\frac{1}{$ $\left(\prod_{\Omega_{\bm{\tau}}}(\bm{\varkappa})e^{\frac{2\pi i(\alpha_{\Omega_{\bm{Z}}}}{2}(\bm{\varkappa}))}, \Xi_{\Omega_{\bm{\tau}}}(\bm{\varkappa})e^{\frac{2\pi i(\beta_{\Omega_{\bm{Z}}}}{2}(\bm{\varkappa}))}\right),\, \mathfrak{F}=1,2,\ldots,\mathfrak{N},$ $1,2,3, \ldots, 2n$
n **and** $\sum_{i=1}^{n} a_i$ weight vectors $\mathcal{D}_z = (2j_1, 2j_2, 2j_3, \ldots, 2n)$ ῃ γ ζ – 1 of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina $z = 1.2$ n to be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}}=\left(\mathfrak{D}_1,\mathfrak{D}_2,~\mathfrak{D}_3,\dots,~\mathfrak{D}_n\right)^T$ S and S and S $(\mathcal{B}, \ldots, \mathcal{B})$, such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,\mathcal{B}$ and $\sum_{r=1}^{\mathcal{B}}$ $\mathfrak{D}_z = 1$. Then, the $\frac{1}{2}$ and $\frac{1}{2}$ $\frac{1}{2$ of $\Omega_{\bf \bar{Z}}\Bigl(3=1,2,3,\ldots$ $\rrbracket\Bigr)$, such that $\mathfrak{D}_{\bf \bar{Z}}\in[0,1]$, $\;3=1,2,\ldots, \mathfrak{N}\;$ and $\sum_{\bf \bar{Z}=1}^{\mathfrak{l}}\mathfrak{D}_{\bf \bar{Z}}=1.$ Then, the **Definition 11.** Consider $\Omega_{\overline{2}} = (\Pi_{\Omega_{\overline{2}}}(\varkappa)e^{-\frac{1}{2}i\omega t}, \Xi_{\Omega_{\overline{2}}}(\varkappa)e^{-\frac{1}{2}i\omega t}, \overline{2} = 1, 2, ..., 0$ **Definition 11.** Consider $\Omega_{\mathbf{Z}} = \begin{pmatrix} H_{\Omega_{\mathbf{Z}}}(\mathbf{x})e & e \\ H_{\Omega_{\mathbf{Z}}}(\mathbf{x})e & e \end{pmatrix}$, $\lambda_{\mathbf{Z}} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ to he the family o **ition 11.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\varkappa))}\right), \mathbf{z} = 1, 2, ..., 0$ 1,2, ∴ ∑ and
2, ∴ ∑ <mark>i</mark> to be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ \overline{a} \overline{b} \overline{c} \overline{d} $\overline{$ $I = \left(\begin{array}{c} H\Omega_{\mathbf{Z}}(\mathcal{U})^{\epsilon} \\ \end{array} \right)$ or $\Omega_{\mathbf{Z}}(\mathcal{U})^{\epsilon}$ under the system of $\left| \begin{array}{c} H\in \mathbb{R}^d, \\ H\in \mathbb{R}^d \end{array} \right|$ of $\Omega_{\overline{2}}\left(3=1,2,3,...,1\right)$, such that $\mathfrak{D}_{\overline{2}}\in[0,1]$, $\overline{3}=1,2,...,1$ and $\sum_{\overline{2}=1}^{11}\mathfrak{D}_{\overline{2}}=1$. Then, the *weffned us:* $\frac{d}{dx}$ = $\frac{$ ℓ $2\pi i(\alpha_0 \ (\mathbf{v}))$ $2\pi i$ $I_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{1}{2}(\varkappa/\varkappa)}$, $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{1}{2}(\varkappa/\varkappa)}$, $i=1,2,\ldots,\mathbb{N}$ α *as:* α = $\int d\mathbf{k} \left(\frac{\mu}{\rho} \mathbf{q} \left(\mathbf{k} \right) \right)$, $\mathbf{k} = 1, 2, 4$ ϵ , $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e$ ϵ), $\zeta = 1, 2, ...$ $\int_{\mathcal{L}}$ $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\boldsymbol{\kappa})e^{-i\pi(\boldsymbol{\kappa}\cdot\mathbf{z})}$ μ ଶగ $\frac{1}{\sqrt{2}}$ of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina $\frac{3}{2}$ ϵ_A^2 and the existing concepts of ϵ_B^2 under the system of ϵ_B^2 under th Ω $\left(z = 1, 2, 3, \dots, n \right)$ ough that Ω IMA operator is defined as: $\frac{1}{\epsilon}$ $\overline{2}$. $\ddot{}$ CPy *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 CPyFAAWA operator is defined as: to be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)$ CPyFAAWA operator is defined as: to be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbb{Z}}\left(3=1,2,3,\ldots,1\right)$, such that $\mathfrak{D}_{\mathbb{Z}}\in[0,1]$, $\mathbb{Z}=1,2,\ldots,1$ and $\sum_{\mathbb{Z}_{-1}}^{10}\mathfrak{D}_{\mathbb{Z}}=1$. Then, the ⎜ ⎜ $\left(\begin{array}{ccc} \frac{1}{2\pi i}(\alpha_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})) & \frac{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi}))}{\lambda} \end{array}\right)$ f**inition 11.** Consider $\Omega_{\mathtt{Z}}=$ $CPyFAAWA operator is defined as:$ \overline{a} $\delta =$ \Box , \Box ⎟ ⎟ ⎟ l h $\overline{}$ $\pi i(\alpha_O \left(\boldsymbol{\varkappa}) \right)$ ϵ , $\Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e$ and ⎜ nd $\sum_{z=1}^{\infty} \mathfrak{D}_z = 1$. Then, the \overline{a} *is particular* \overline{a} *is particular* \overline{a} *is a set of a set* $\left(\begin{array}{c} \mathcal{L}_{\mathcal{U}}(P_{\Omega} \mathbf{z}^{(\mathcal{X})}) \\ \mathcal{L}_{\Omega} \end{array} \right)$, 3 $\mathcal{D}_{\mathbf{z}}=1$. Then, the *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 to be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ *of C* $(3 - 1.2.3, 0)$ such that $\Omega \subset [0, 1]$ $(3 - 1.2, 0)$ and Γ^{II} $\Omega = 1$ $\mathcal{L}_{1}^{(1)}$, $\mathcal{L}_{2}^{(2)}$ = 1,2,5,..., $\mathcal{L}_{1}^{(2)}$, $\mathcal{L}_{2}^{(3)}$ = 1, $\mathcal{L}_{3}^{(4)}$, $\mathcal{L}_{4}^{(5)}$ = 1,2, $\mathcal{L}_{5}^{(5)}$, $\mathcal{L}_{6}^{(6)}$ = 1,2, $\mathcal{L}_{7}^{(7)}$, $\mathcal{L}_{7}^{(8)}$ = 1,2, $\mathcal{L}_{7}^{(7)}$ = 1.1,2, \math *is particularized as:* **Definition 11** Consider $O = \left(\prod_{\alpha} \mu_{\alpha}^{2\pi i (\alpha_{\Omega_{\vec{A}}}(x))} \right)$ $\mathbb{E}_{\alpha}^{2\pi i (\beta_{\Omega_{\vec{A}}}(x))}$ $\mathbb{E}_{\alpha}^{2\pi i (\beta_{\Omega_{\vec{A}}}(x))}$ $\mathbb{E}_{\alpha}^{2\pi i (\beta_{\Omega_{\vec{A}}}(x))}$ $\mathbb{E}_{\alpha}^{2\pi i (\beta_{\Omega_{\vec{A}}}(x))}$ 1 , and the corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^\mathrm{T}$ $= 1, 2, 3, \ldots$ ⁿ), suc **Definition 11.** Consider $\Omega_{\mathbf{Z}} = \prod_{\alpha} H_{\Omega_{\mathbf{Z}}}(\mathbf{x})e^{-\alpha \mathbf{x}^2}$ $\qquad \Sigma_{\Omega_{\mathbf{Z}}}(\mathbf{x})e^{-\alpha \mathbf{x}^2}$ to be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ (1) We presented some new AOS and fundamental operational laws of C of $\Omega_{\rm Z}$ ($\delta = 1, 2, 3, \ldots$ and To such that $\mathfrak{D}_{\rm Z} \in [0,1]$, $\delta = 1, 2, \ldots$, we and To $\alpha = 2\pi i(\alpha_0 + \sqrt{2\pi i(\beta_0 + \epsilon)}$ **Definition 11.** Consider $\Omega_{\mathbf{z}} = \prod_{\alpha} I_{\alpha}(\mathbf{z})e^{-\alpha}$ and $\Omega_{\mathbf{z}}(\mathbf{z})e^{-\alpha}$ (1) we also and fundamental operational laws of $\frac{1}{\sqrt{2}}$ of Ω ₃ $(3 = 1, 2, 3, \ldots$ ¹¹), such that $\mathfrak{D}_3 \in [0, 1]$, $3 = 1, 2, \ldots$, ¹¹ and \sum_3 $\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}) = \alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}) \sum_{\mathbf{Z}} \alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}) \sum_{\mathbf{Z}} \alpha_{\Omega_{\mathbf{Z}}}(\mathbf{Z})$ $\frac{f(x)-f(x)}{g(x)}$ *f* $\frac{f(x)-f(x)}{g(x)}$ $\mathcal{Z} = \frac{1}{2}$ $\gamma = 2\pi i (x - (x))$ $2\pi i (8 - (x))$ **on 11.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\mathbf{z})e^{-\mathbf{z}}\right)^{2}\left(\mathbf{z}\right)e^{-\mathbf{z}}\left(\mathbf{z}\right)e^{-\mathbf{z}}\left(\mathbf{z}\right)^{2}\left(\mathbf{z}\right)^{2}\left(\mathbf{z}\right)^{2}\left(\mathbf{z}\right)^{2}\left(\mathbf{z}\right)^{2}\left(\mathbf{z}\right)^{2}\left(\mathbf{z}\right)^{2}\left(\mathbf{z}\right)^{2}\left(\mathbf{z}\right)^{2}\left(\mathbf{z}\right)^{2}\left(\mathbf$ to be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $\Omega_{\bf \bar{2}}\left(3=1,2,3,\ldots{}^{[\bf l]}\right)$, such that $\mathfrak{D}_{\bf \bar{2}}\in[0,1]$, $\bar{\bf 2}=1,2,\ldots{}^{[\bf l]}$ and $\sum_{\bf \bar{2}=1}^{\bf \bar{1}}\mathfrak{D}_{\bf \bar{2}}=1.$ Then, the \mathcal{L} By using the operational laws of \mathcal{L} and \mathcal{L} and \mathcal{L} and \mathcal{L} and \mathcal{L} and \mathcal{L} $\mathcal{L} = 2\pi i (r_2 - r_1)$ and $\mathcal{L} = 2\pi i (r_1 - r_2)$ **11.** Consider $\Omega_7 = \left(\prod_{\Omega} (\chi)e^{-\frac{1}{\chi^2}(\chi,\chi)}\right)$ $\mathbb{E}_{\Omega} (\chi)e^{-\frac{1}{\chi^2}(\chi,\chi)}$ $\mathbb{E}_{\Omega} [\chi,\chi]$ $\begin{array}{ccc} \text{S} & \text{$ \mathcal{L} by using the operational laws of \mathcal{L} $2\pi i(\alpha_{\Omega_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{-}}(\boldsymbol{\chi}))$ $\sum_{i=1}^{n}$ $\sum_{i=1}^{n}$ are in the following forms: $\frac{1}{2}$ We also and fundamental operational laws of $\frac{1}{2}$ oped $\begin{bmatrix} 2 & 1 & 2 & 3 \end{bmatrix}$ and the framework of $\begin{bmatrix} 2 & 1 & 3 & 3 \end{bmatrix}$ of $\Omega_{\bf \bar Z}\bigl(3=1,2,3,\dots$ ^{[1}], such that $\mathfrak D_{\bf \bar Z}\in[0,1]$, $\bar z=1,2,\dots$, ${}^{[1]}$ and $\sum_{\bf \bar Z_{=1}}^{\infty}\mathfrak D_{\bf \bar Z}=1$. Then, the $C₁$ y matrix experimental operation laws of CP_{yF} states and $C₂$ $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ \overline{c} \overline{c} \overline{a} and \overline{a} \overline{b} and \overline{c} and \overline{c} and \overline{c} and \overline{c} and \overline{c} and \overline{c} C_1 C_2 C_3 C_4 C_5 C_7 C_8 C_7 C_8 C_9 C_9 α in a some innovative concepts of A $\Omega_{\bf \bar{Z}}\left(3=1,2,3,\ldots$ \prod , such that $\mathfrak{D}_{\bf \bar{Z}}\in[0,1]$, $\;3=1,2,\ldots, \begin{Vmatrix} \prod\limits_{i=1}^n\mathfrak{D}_{\bf \bar{Z}}=1\ 0\end{Vmatrix}$. Then, the $\binom{(\mathcal{H})}{3}$, $\binom{3}{2}$ = 1,2, $\binom{1}{2}$ *is defined as:* $Consider \Omega_{\sigma} = \left(\frac{2\pi i (\alpha_{\Omega_3}(\boldsymbol{\varkappa}))}{\prod_{\Omega} (\boldsymbol{\varkappa})e^{2\pi i (\beta_{\Omega_3}(\boldsymbol{\varkappa}))}} \right)$, $\mathfrak{z} = 1, 2, \ldots, n$ of CPyFVs and its corresponding weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)$ $\mathbf{R} = \frac{1}{2} \mathbf{I} \mathbf{S} + \frac{1}{2} \mathbf{I$

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CPyFAAWA\left(\Omega_{1},\,\Omega_{2},\,\ldots,\,\Omega_{\bar{\eta}}\right)=\frac{\eta}{3=1}\left(\mathfrak{D}_{\bar{z}}\Omega_{\bar{z}}\right)=\mathfrak{D}_{1}\Omega_{1}\oplus\mathfrak{D}_{2}\Omega_{2}\oplus,\ldots,\oplus\mathfrak{D}_{\bar{\eta}}\Omega_{\bar{\eta}}\quad (3)
$$

Theorem 2 G with $G = \left(\prod_{\alpha \in \mathcal{A}} \mathcal{L}^{\alpha i}(\alpha_{\alpha}(\alpha))\right)$, $\alpha_{\alpha} = \left(\prod_{\alpha \in \mathcal{A}} \mathcal{L}^{\alpha i}(\beta_{\alpha}(\alpha))\right)$ **1 heorem 2.** Consider $\Omega_{\overline{3}} = \left(H_{\Omega_{\overline{3}}}(\varkappa) e^{-\varkappa} \right)$, $\Xi_{\Omega_{\overline{3}}}(\varkappa) e^{-\varkappa}$ α ine funtity of C f yr v s $\overline{}$ mily of CPyFVs and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of WA operator is particularized as: $\left[\begin{array}{cc} -y & -y & -y \\ y & -y & -y \end{array} \right]$ **Theorem 2** Consider $O_r = \left(\prod_{Q} \left(\chi\right) e^{-\frac{2\pi i (\alpha_Q - \chi)}{2}} \mathbb{E}_{Q} \left(\chi\right) e^{-\frac{2\pi i (\beta_Q - \chi)}{2}} \right)$ $\mathcal{I} = 1$ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the PyF Aczel–Alsina weighted averaging operator is given as:* $\binom{\pi}{2}$, $\binom{3}{2}$, $\binom{\pi}{2}$, $\binom{\pi}{2}$ $\mathbb{R}^3 = 1, 2, 3, \ldots$ (1), such that $\mathfrak{D}_g \in [0, 1], \mathfrak{F} = 1, 2, \ldots, 0$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{U}} \mathfrak{D}_g = 1.$ భ **Symbol Meaning** $2\pi i(\theta - (n))$ **m 2.** Consider $\Omega_{\mathbf{z}} = \prod_{\Omega_{\alpha}} (\kappa) e^{i \mathcal{L}(\kappa \cdot \mathbf{z})} \mathcal{E}_{\Omega_{\alpha}}(\kappa) e^{-i \mathcal{L}(\kappa \cdot \mathbf{z})} \mathcal{E}_{\Omega_{\alpha}}(\kappa)$ MV of amplitude term ˘ Accuracy function $CPyFAAWA$ operator is particularized as: $\chi^2 \pi i (\kappa_{\Omega} \cdot (\nu))$ $2 \pi i (\beta_{\Omega} \cdot (\nu))$ Theorem 2. Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{2\pi i (\mathbf{A} \cdot \mathbf{A})t}, \Xi_{\Omega_{\mathbf{Z}}}(\kappa) e^{2\pi i (\mathbf{A} \cdot \mathbf{A})t}\right), \mathbf{Z} = 1, 2, ..., \mathbf{N}$ to $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ and $\sum_{\mathbf{Z}=1}^{\infty} \mathfrak{D}_{\mathbf{Z}} = 1.$ ƺసభ ቁ ($2\pi i(\alpha_{\Omega_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{-}}(\boldsymbol{\chi}))$ $\mathcal{M}\Omega_{\mathbf{Z}} = \begin{pmatrix} H_{\Omega_{\mathbf{Z}}}(\varkappa)e & \varkappa & \mathcal{H}_{\Omega_{\mathbf{Z}}}(\varkappa)e &$ NMV of amplitude term Weight vector N , such that $\mathfrak{D}_{\mathbf{Z}}\in [0,1]$, $\mathfrak{z}=1,2,\ldots,$ and $\sum_{\mathbf{Z}=\mathbf{1}}\mathfrak{D}_{\mathbf{Z}}=1.$ To *w* Consider $O_{\tau} = \left(\prod_{Q} \left(\chi\right) e^{-\frac{2\pi i (\alpha_Q - 1)}{3}} \mathbb{E}_{Q} \left(\chi\right) e^{-\frac{2\pi i (\beta_Q - 1)}{3}} \right)$, $\mathcal{I} = 1,2,3,4$, up to \therefore Consuler $\Omega_{\mathcal{Z}} = \left(\frac{H_1}{2} (\mathcal{X})^c \right)$, $\omega_{\Omega_{\mathcal{Z}}}(x)$, $\omega_{\Omega_{\$ $\frac{1}{4}$ $\frac{d}{2}$ $\frac{5}{2}$ $\frac{6}{3}$ $\frac{1}{3}$ $\frac{7}{2}$ $\frac{1}{4}$ $\frac{8}{2}$ $\frac{1}{2}$ hat $\mathfrak{D}_{\mathfrak{Z}} \in [0,1], \; \mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathfrak{Z}} = 1.$ Then, the $\mathcal{S} = \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}$ (a) $\mathcal{S} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$ $\Pi_{\Omega_{\alpha}}(\varkappa)e^{-\frac{2}{3}(\varkappa)/3}$, $\Xi_{\Omega_{\alpha}}(\varkappa)e^{-\frac{2}{3}(\varkappa)/3}$, $\zeta = 1, 2, ..., 0$ to $\begin{array}{cc} \begin{array}{ccc} \mathbf{c} & \mathbf{c} & \mathbf{c} \\ \mathbf{c} & \mathbf{c} & \mathbf{c} & \mathbf{c} \end{array} & \mathbf{c} & \mathbf{c} \end{array} & \begin{array}{ccc} \mathbf{c} & \mathbf{c} & \mathbf{c} \\ \mathbf{c} & \mathbf{c} & \mathbf{c} \end{array} & \begin{array}{ccc} \mathbf{c} & \mathbf{c} & \mathbf{c} \end{array} & \begin{array}{ccc} \mathbf{c} & \mathbf{c} & \mathbf{c} \end{array} & \begin{array}{ccc} \mathbf{c}$ $\mathcal{C} = 2\pi i (\kappa_{\Omega} \cdot (\boldsymbol{\varkappa}))$ $2\pi i (\beta_{\Omega} \cdot (\boldsymbol{\varkappa}))$ $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\varkappa}{2}i(\mathbf{a}_\Omega\mathbf{z}(\mathbf{z}))}, \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\varkappa}{2}i(\mathbf{a}_\Omega\mathbf{z}(\mathbf{z}(\mathbf{z}))}, \mathbb{I}_{\mathbf{Z}} = 1, 2, ..., \mathbb{I}_{\mathbf{Z}}\right)$ $\frac{1}{2} = 1 \times 8$ Then, the $\pi i(\alpha_{O_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{O_{-}}(\boldsymbol{\chi}))$ \mathcal{L} , $\mathbb{H}_{\Omega_{\mathbf{Z}}}(\varkappa)e$ and \mathcal{L} , $\mathcal{E} = 1, 2, ...,$ to $\begin{array}{c} \sim \\ \sim \\ \sim \\ \sim \end{array}$ $\begin{array}{c} \sim \\ \sim \\ \sim \\ \sim \end{array}$ at $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{b} = 1,2,\ldots,$ and $\sum_{3=1}^{\infty} \mathfrak{D}_3 = 1$. Then, the larized as: $2\pi i(\alpha_0 \left(\boldsymbol{\chi}\right))$ $2\pi i(\beta_0 \left(\boldsymbol{\chi}\right))$ $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{1}{2}(\varkappa+\varkappa/2)}$, $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{1}{2}(\varkappa+\varkappa/2)}$, $\mathbf{Z} = 1, 2, ..., 0$ to $\textit{ider } \Omega_{\mathbf{z}} = \left(\Pi_{\text{O}_{-}}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\mathbf{z}))}, \Xi_{\text{O}_{-}}(\boldsymbol{\varkappa})e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\mathbf{z})))}\right), \mathbf{z} = 1, 2, \ldots, \mathbf{N}$ to *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = ῃ unu 2 be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_{\mathfrak{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $Q_{\text{max}}(z, z_1, z_2, z_$ $\frac{12}{3}$ $\frac{12}{3}$ ൫ƺ൯ $(1, 2, 1, 2, ...)$ $$ $\Omega_{\bf\bar{Z}}\bigl(2=1,2,3,\ldots$ $!\bigl)$, such that $\mathfrak{D}_{\bf\bar{Z}}\in[0,1]$, $\mathfrak{Z}=1$ C_1 yi AAWA operator is particularized as: $Q_{\text{S}}(z_{1}, z_{2}, z_{1}, z_{2}, z_{1},$ $\Omega_{\mathbf{Z}}\left(s=1,2,3,...,4\right)$, such that $\mathfrak{D}_{\mathbf{Z}}\in [0,1], s=1,2,...,4$ and $\sum_{\mathbf{Z=1}}\mathfrak{D}_{\mathbf{Z}}=1.$ $\left(\begin{array}{ccc} c & b & c \end{array} \right)$ *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = $\Omega_{\mathbf{Z}}\left(3=1,2,3,\ldots^{\mathfrak{N}}\right)$, such that $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathbf{Z} = 1,2,\ldots,\mathbf{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the $\Omega_{\mathbf{Z}}$. Then $\Omega_{\mathbf{Z}}$ is a system is usual virtual similar and Ω $\ell = 2\pi i (\alpha_{\Omega} - (\boldsymbol{\chi}))$ $2\pi i (\beta_{\Omega} - (\boldsymbol{\chi}))$ \mathcal{L} with that $\Omega \subset [0,1]$, $\mathcal{L} = 1, \mathcal{L}$, $\mathcal{L} = 1, \mathcal{L}$, $\mathcal{L} = 1$, $\mathcal{L$ such that $\mathcal{D}_z \in [0,1], \ z = 1,2,\ldots$, \cdots and $\mathcal{D}_{z=1} \mathcal{D}_z = 1$. Then, the $w_{\text{ref}} \in [0, 1], \quad \mathbb{Z} \to [0,$ that $\mathfrak{D}_3 \in [0,1], \; i = 1, 2, \ldots, 0$ and $\sum_{3=1}^{\infty} \mathfrak{D}_3 = 1$. Then, the $\binom{11}{3}$ \mathcal{L} $\Omega_{\mathbf{Z}}\left(3=1,2,3,...^{n}\right)$, such that $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $3=1,2,...,^{n}$ and $\sum_{\mathbf{Z}-1}^{n} \mathfrak{D}_{\mathbf{Z}}$ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* 'onsider $\Omega_{\bf \bar{g}}= \Bigl(\Pi_{\Omega_{\bf \bar{g}}}(\varkappa)e\Bigr)$ ῃ ϵ $S \mathfrak{D}_{\mathfrak{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3,$ responding weight vectors $\mathfrak{D}_{\mathfrak{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \mathfrak{D}_4)$. **Definition 7** ([58])**.** *Let* ƺ = ൬ఆƺ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* ider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{\varkappa}{2}}\right)$ \overline{a} **Theorem 2.** Consider $\Omega_{\bf \bar{g}} = \left(\Pi_{\Omega_{\bf \bar{g}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega}}{\bf \bar{g}}(\varkappa))}, \Xi_{\Omega_{\bf \bar{g}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega}}{\bf \bar{g}}(\varkappa))}\right)$ be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_{\mathfrak{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of **Definition 7** ([58])**.** *Let* ƺ = ൬ఆƺ 1,2, … , _{1,2,}µ and ∑ <mark>⊥</mark> ∄ ∄ <mark>∴</mark> $CPyFAAWA operator is particularly a:\n\begin{cases}\n2 & -1 \\
1 & \end{cases}$ **Theorem 2.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\mathbf{Z} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$ **Theorem 2.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\kappa))}, \mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\kappa))}\right), \mathbf{z} = 1, 2, ..., \mathbf{N}$ α *terms and phase terms of* α *respectively.* $(\mathcal{C}, \mathcal{C}, \ldots, \mathcal{C})$, such that $\mathcal{D}_Z \in [0, 1]$, $\mathcal{C} = 1, 2, \ldots, \mathcal{C}$ and one atom is narticularized as: *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = ῃ $\mathcal{L} = 1, 2, 3, \ldots, n$, such that $\mathfrak{D}_\mathfrak{Z} \in [0, 1], \mathfrak{Z} = 1, 2, \ldots, n$ and $\sum_{\mathfrak{Z}=1}^n \mathfrak{D}_\mathfrak{Z} = 1$. Then, the $\lim_{\lambda \to 0} 2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $\lim_{\lambda \to 0} 2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*)) **n 2.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{1}{2}(\varkappa)}\right), \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{1}{2}(\varkappa)}\right), \mathbb{E}_{\mathbf{Z}} = 1, 2, ..., 0$ to $\pi\,\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \, \mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ to *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\mathcal{D}_3 \in [0, 1], \ s = 1, 2, \ldots,$ and $\mathcal{D}_{3=1} \mathcal{D}_3 = 1$. Then \mathcal{D}_4 as: *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = and $\sum_{\mathbf{Z}=1}^n \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the $\langle 2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{H}})) \rangle$ $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ *and* $\frac{1}{2}$ *r*epresents the membership value of a matrix $\frac{1}{2}$ of and $\frac{1}{2}$ and $\frac{1}{$ $\left(\prod_{\Omega_{\boldsymbol{\sigma}}}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega_{\boldsymbol{\mathcal{Z}}}}(\boldsymbol{\varkappa}))}, \Xi_{\Omega_{\boldsymbol{\sigma}}}(\boldsymbol{\varkappa})e^{2\pi i(\beta_{\Omega_{\boldsymbol{\mathcal{Z}}}}(\boldsymbol{\varkappa}))}\right),\, \mathfrak{z} = 1,2,\ldots,\mathfrak{N}\, \mathit{to}$ be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = \left(\mathfrak{D}_1, \mathfrak{D}_2, \, \mathfrak{D}_3, \ldots, \, \mathfrak{D}_n\right)^T$ of $\begin{pmatrix} 1 & 1 & 1 \\ 2 & 1 & 1 \end{pmatrix}$. Then, the IF Acceler averaging operator is given as: $\begin{pmatrix} 2 & 1 & 1 \\ 2 & 1 & 1 \end{pmatrix}$ μ_1 , $\epsilon = 1, 2, ...,$ and μ_2 ₌₁ \sim z – \int , $\bar{z} = 1, 2, ..., n$ to $I_{\text{weight}} \cap -1$ $(\mathbf{w}, \ldots \mathbf{w})$, such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z}_z = 1,2,\ldots$, \mathbf{w} and $\sum_{i=1}^{\mathfrak{U}} \mathfrak{D}_z = 1$. Then, the $\frac{c-1}{c}$ and $\frac{c-1}{c}$ $\Omega_{\bf \bar 2} \Bigl(3=1,2,3,\ldots \mathfrak l\Bigr),$ such that $\mathfrak D_{\bf \bar 2}\in [0,1],$ $\mathfrak F = 1,2,\ldots, \mathfrak l\bar l$ and $\ \Sigma_{{\bf \bar 2}=1}^{\mathfrak l\bar l}\mathfrak D_{\bf \bar 2}=1.$ Then, the **Theorem 2.** Consider $\Omega_{\overline{g}} = \left(\Pi_{\Omega_{\overline{g}}}(x)e^{-\frac{(x-\overline{g})(x-\overline{g$ **Ineorem** 2. Consider $\Omega_{\mathcal{Z}} = \left(H_{\Omega_{\mathcal{Z}}}(\kappa)e^{-\alpha} \right)$ and $\Omega_{\mathcal{Z}}(\kappa)e^{-\alpha}$ and $\Omega_{\mathcal{Z}}(\kappa)e^{-\alpha}$ h_{θ} **orem 2.** Consider Ω _z = $(\Pi_{\Omega_{-}}(\kappa)e^{-\frac{2\pi i}{3}}), \Xi_{\Omega_{-}}(\kappa)e^{-\frac{2\pi i}{3}})$, \overline{z} = 1,2,..., n to **Theorem 2.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa) e^{2\pi i (\alpha_{\Omega_{\mathbf{z}}}(\kappa))}, \Xi_{\Omega_{\mathbf{z}}}(\kappa) e^{2\pi i (\beta_{\Omega_{\mathbf{z}}}(\kappa))}\right), \mathbf{z} = 1, 2, ..., \mathbf{0}$ to 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ully of CPyFVs and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}}=(\mathfrak{D}_1,\mathfrak{D}_2,\,\mathfrak{D}_3,\dots,\,\mathfrak{D}_n)^T$ of $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ $\left(\begin{array}{c} \prod_{i} \prod_{j} p_{i} \end{array} \right)$ recall the system of $\left(\begin{array}{c} \prod_{i} p_{i} \end{array} \right)$ is the system of $\left(\begin{array}{c} \prod_{i} p_{i} \end{array} \right)$ is the system of $\left(\begin{array}{c} \prod_{i} p_{i} \end{array} \right)$ is the system of $\left(\begin{array}{c} \prod_{i} p_{i} \end{array$ 1,2,3,...,ⁿ), such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1,2,...,1$ and $\sum_{z=1}^{n} \mathfrak{D}_z = 1$. Then, the *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = χ $2\pi i(x_0(x))$ $2\pi i(x_1(x))$ $\Omega_{\mathbf{Z}}(\mathcal{H})e$ e $\Omega_{\mathbf{Z}}(\mathcal{H})e$ e $\left(\mathcal{H}\right)e$ is $=1,2,\ldots,$ if to *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = = ⎜ $\overline{2}$ \overline{a} $2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $[0, 1], \; \mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ and $\sum_{i=1}^{N}$ $\frac{1}{2}$ be the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_\mathbf{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of \overline{a} $\left(\begin{array}{cc}2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))&\n\end{array}\right)$ $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))\begin{array}{cc}2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))\n\end{array}$ j. $\frac{3}{3}$ κ) $e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))}$, $\mathbf{z} =$, $2, \ldots, \mathfrak{N}$ to $\begin{pmatrix} - & \sqrt{2\pi i (\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}}))} & - & \sqrt{2\pi i (\beta_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}}))} \end{pmatrix}$ $a \rightarrow b \rightarrow c$ $\Omega_{\bf Z}$ $($ $\bf 3=1,2,3,\ldots$ $\bf 3)$, such the **Solution** cases in the case cases of $\mu_{\Omega_3}(x)e$ order with $\mu_{\Omega_3}(x)e$ hybrid weighted (CP) $\frac{1}{2}$ $\Omega_{\mathbf{z}}$ (3 = 1,2,3,...!), such that $\mathfrak{D}_{\mathbf{z}} \in [0,1]$, 3 = (4) $2\pi i(\alpha_{\Omega_{\rm m}}(\boldsymbol{\varkappa}))$ $2\pi i(\beta_{\Omega_{\rm m}}(\boldsymbol{\varkappa}))$ **Solution specifical cases in the order specified weight consider the consider** $\iota_3 = \iota_1 \iota_{\Omega_3}(\varkappa) e^{-\varkappa}$ **,** $\iota_3 \iota_{\Omega_3}(\varkappa) e^{-\varkappa}$ hybrid weighted (CP)FAAHW), average (CP)FAAHWAD and CPyFAAHWAD and CPyF established an illustrative example to select a suitable candidate for a vacant post at $\mathcal{L}_{\mathcal{A}}$ 3 $(z = 1, 2, \ldots, 0, 1)$ $-3=1$ -3 ϵ if CPyFVs and its corresponding weight vectors $\Omega_{\sigma} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\{3,\ldots\}$, such that $\mathfrak{D}_z \in [0,1]$, $\{3,2,\ldots\}$, and $\sum_{n=1}^{\infty} \mathfrak{D}_z = 1$ ℓ the existing concepts of ℓ –Alsina A ℓ –Alsina A ℓ (a) $2\pi i(\alpha_0(\boldsymbol{\mu}))$ $2\pi i(\beta_0(\boldsymbol{\mu})))$ Sonsider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\mathbf{x})e^{\alpha} \right)$ and $\Xi_{\Omega_{\mathbf{z}}}(\mathbf{x})e^{\alpha}$ and $\Xi_{\Omega}(\mathbf{z})$, and $\Xi_{\Omega}(\mathbf{z})$ f α y α and as corresponding weight occions $\omega_2 = (\omega_1, \omega_2, \omega_3, ..., \omega_n)$ and $\frac{1}{2}$ by underlying or $\frac{1}{2}$ solved approximation and $\frac{1}{2}$ solved approximation and MADM technique. We solve that $\frac{1}{2}$ solved and $\frac{1}{2}$ solved and $\frac{1}{2}$ solved and $\frac{1}{2}$ solved and $\frac{1}{2}$ established an illustrative example to select a suitable candidate for a vacant post at ($2\pi i$ (κ) π i (κ)) π i (β)) sider $\Omega_{\overline{\mathbf{Z}}} = \left(\Pi_{\Omega_{\overline{\mathbf{Z}}}}(\varkappa)e^{\frac{-\varkappa}{2}(\varkappa+\varkappa)}\right)$, $\overline{\mathbf{Z}} = 1, 2, ..., 0$ to $\begin{bmatrix} c & c & c \end{bmatrix}$ f yr v s ana us corresponaing weight oectors $\omega_{\mathbf{Z}} = (\omega_1, \omega_2, \omega_3, \dots, \omega_n)$ and ω $\binom{n}{k}$ such that $\mathfrak{D}_n \in [0, 1]$ $\mathfrak{Z}_n = 1$ \mathfrak{Z} and $\sum_{k=1}^{\infty} \mathfrak{Z}_n = 1$ T $(2,3,...,1)$, such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1,2,...,1$ and $\sum_{\mathfrak{Z}=1}^{\infty} \mathfrak{D}_3 = 1$. Then, the ϵ is particle example to select a suitable candidate for a vacant post at ϵ m. \overline{a} $I_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))}{2}}$ భ Ὺ \overline{a} **Theorem 2.** Consider $\Omega_{\mathbf{Z}} = \begin{pmatrix} \Pi_{\Omega_{\mathbf{Z}}}(\kappa)e & e \\ \end{pmatrix}$, $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e$ $\Xi_{\mathbf{Z}}$, $\Xi_{\mathbf{Z}}(\kappa)e$ $\Xi_{\mathbf{Z}}$ భ Ὺ ⎜ ⎛ $\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots$ $\overline{3}$ \overline{a} ൯*.* **Theorem 2.** Consider $\Omega_3 = \prod_{\Omega_a}(\kappa) e^{-\frac{1}{2}(\kappa a)^2}$ fundamental of $\overline{}$ be the family of CPyF vs and its corresponding weight vectors $\mathfrak{D}_\mathfrak{Z}=(\mathfrak{D}_1,$ Ω_{σ} (3 = 1.2.3) such that $\Omega_{\sigma} \in [0, 1]$ 3 = 1.2 \emptyset and 5 ϵ ^C ϵ ^TA AMA geometric (continuus) operators, composition of ϵ CPyFAAWA operator is particularized as: α and verified inventor and verified invented in $2\pi i(\theta_1, \theta_2)$ **Theorem 2.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\alpha}}(\mathbf{z})e^{-\mathbf{z}}\right)^{1/2}$, $\Xi_{\Omega_{\alpha}}(\mathbf{z})e^{-\mathbf{z}}$ fundamental operational laws of Aczel–Alsina TNM and TCNM. Ω $\left(3-1, 2, 3, 0\right)$ cycle that Ω \subset [0, 1] $\left(3-1, 2, 3, 0\right)$ and $\Gamma^{[1]}$ $\Omega_{\mathcal{Z}}\left(\mathcal{Z}=1,2,3,\ldots\mathcal{Y}\right)$, such that $\mathfrak{D}_{\mathcal{Z}}\in[0,1]$, $\mathcal{Z}=1,2,\ldots,\mathcal{Y}$ and $\sum_{\mathcal{Z}=1}^{\mathcal{U}}\mathcal{D}_{\mathcal{Z}}=1$. Then, χ)e \overline{a} \cdot ^{2:} $\mathcal{L}^{2\pi i(\beta \Omega_{\mathbf{Z}}(\mathbf{x}))}$, $\mathfrak{Z} = 1, 2, ..., 0$ **Theorem 2.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\frac{2\pi i}{\kappa^2} \sum_{i=1}^{N} \sum_{j=1}^{N} (\kappa_j e^{-\frac{2\pi i}{\kappa^2} \sum_{j=1}^{N} \sum_{$ \mathbf{r} *iii.* = ൫()൫()൯ , ()൫()൯ ൯*. iii.* = ൫()൫()൯ , ()൫()൯ ൯*.* **(3)** Furthermore, $\Omega_5 = \left(\prod_{\Omega} (\mu) e^{-\frac{(\mu + \mu)}{2} (\mu)} \right)$, $\Xi_6 = (\mu) e^{-\frac{(\mu + \mu)}{2} (\mu)}$, $\Xi = 1, 2, \ldots, \emptyset$ to fundamental operational laws of Aczel–Alsina TNM and TCNM. in the family of CPyFVs and its corresponding weight vectors $\mathfrak{D}_\mathbf{Z}=(\mathfrak{D}_1,\mathfrak{D}_2,~\mathfrak{D}_3,\dots,~\mathfrak{D}_n)^T$ of $s-1, 2, 3, 0$ and that $\Omega \subset [0, 1], Z-1, 2, 0, 0, \mathbb{R}^n$ and \mathbb{R}^n $\Omega = 1$. Then, then $\frac{1}{2}$ and CPyFA $\frac{1}{2}$ and CPyFA $\frac{1}{2}$ operators, CPyFAAO $\frac{1}{2}$ $\lim_{z \to 0} 3 \text{ Covoid} \alpha \Omega = \left(\Pi_{\Omega_{\alpha}}(x) e^{2\lambda t (\alpha \Omega_{\alpha}(\mathbf{X}))} \right) \mathbb{E}_{\Omega_{\alpha}}(x) e^{2\lambda t (\beta \Omega_{\alpha}(\mathbf{X}))} \mathbb{E}_{\Omega_{\alpha}}(x) e^{2\lambda t (\beta \Omega_{\alpha}(\mathbf{X}))}$ fundamental operation \sum_{α} $s(\alpha, \beta)$ such a ordered weighted weighted weighted weighted (CP) or α $\Delta z_1 z_2 = 1, 2, 3, ...$; such that $\Delta z_2 \in [0, 1], z = 1, 2, ...$, " and $\Delta z_{3-1} \Delta z_3 = 1$. Then, the $\binom{11}{2}$ $\binom{3}{4}$ $\binom{4}{10}$ $\binom{5}{10}$ $\mathcal{L}_{\mathbf{Z}=1}^{[1]}$ $\mathfrak{D}_{\mathbf{Z}}=1$. Then, the $f(x) = 2\pi i(\kappa_0 \cdot (\kappa))$ $2\pi i(\kappa_0 \cdot (\kappa))$ **Theorem 2.** Consider $\Omega_{\overline{g}} = \left(\Pi_{\Omega_{\overline{g}}}(\varkappa)e^{2i\pi(\mu_1 g)(\varkappa)}\right), \Xi_{\Omega_{\overline{g}}}(\varkappa)e^{2i\pi(\mu_1 g)(\varkappa)}\right), \ z = 1, 2, ..., \pi$ to *is particularized as:* α is an as correspond \overline{a} *Symmetry* **2023**, *14*, x FOR PEER REVIEW 4 of 35 cuck that $\mathcal{D} \subset [0, 1]$ $\mathcal{I} = 1, 2, \dots, n$ and $\sum_{i=1}^{n} \mathcal{D} = 1$. Then the following $\alpha_3 \in [\infty, 1]$, $\alpha = 1, 2, \ldots$, and $\Delta_{3=1}^{\infty} \approx 3 - 1$. Then, the whether $\Omega \in [0, 1]$ $\mathcal{I} = 1, 2$ and Γ^{II} $\Omega = 1$ Then the oped some innovative concepts of $\mathbb{Z}_{2=1}^n$, $\mathbb{Z}_{3=1}^n$

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 (1) We presented some new AOS and fundamental operational laws of C

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\Omega_{\mathbf{Z}}\left(\mathbf{Z} = 1, 2, 3, \dots, \mathbf{I}\right), \text{ such that } \mathfrak{D}_{\mathbf{Z}} \in [0, 1], \mathbf{Z} = 1, 2, \dots, \mathbf{I} \text{ and } \sum_{\mathbf{Z}=\mathbf{I}}^{\mathbf{I}} \mathfrak{D}_{\mathbf{Z}} = 1. \text{ Then, the}
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CPyFAAWA \text{ operator is particularlyized as:}
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CPyFAAWA \left(\Omega_{1}, \Omega_{2}, \dots, \Omega_{\mathbf{I}}\right) = \begin{pmatrix} \sqrt{1 - e^{-(\sum_{\mathbf{Z}=\mathbf{I}}^{\mathbf{I}} \mathfrak{D}_{\mathbf{Z}} \left(-\ln(1 - \Pi_{\mathbf{Z}}^{2})\right)^{\mathbf{Y}})^{\frac{1}{\mathbf{Y}}}} e^{2\pi i \left(\sqrt{1 - e^{-(\sum_{\mathbf{Z}=\mathbf{I}}^{\mathbf{I}} \mathfrak{D}_{\mathbf{Z}} \left(-\ln(1 - \pi_{\mathbf{Z}}^{2})\right)^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}} e^{2\pi i \left(\sqrt{1 - e^{-(\sum_{\mathbf{Z}=\mathbf{I}}^{\mathbf{I}} \mathfrak{D}_{\mathbf{Z}} \left(-\ln(1 - \pi_{\mathbf{Z}}^{2})\right)^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}}} e^{2\pi i \left(\sqrt{1 - e^{-(\sum_{\mathbf{Z}=\mathbf{I}}^{\mathbf{I}} \mathfrak{D}_{\mathbf{Z}} \left(-\ln(1 - \pi_{\mathbf{Z}}^{2})\right)^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}}} e^{2\pi i \left(\sqrt{1 - e^{-(\sum_{\mathbf{Z}=\mathbf{I}}^{\mathbf{I}} \mathfrak{D}_{\mathbf{Z}} \left(-\ln(1 - \pi_{\mathbf{Z}}^{2})\right)^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}}} e^{2\pi i \left(\sqrt{1 - e^{-(\sum_{\mathbf{Z}=\mathbf{I}}^{\mathbf{I}} \mathfrak{D}_{\mathbf{Z}} \left(-\ln(1 - \pi_{\mathbf{Z}}^{2})\right)^{\mathbf{Y}}}\right
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 \mathbf{P}_{max} \mathbf{G}_{min} \mathbf{Q}_{max} \mathbf{G}_{max} mily of CPyFVs. By
lains energiesne. For using an induction method, we prove
 $\prod_{n=2}^{\infty}$ we have: be the family of CPyFVs. By using an induction method, we prove Theorem T based on
Aczel–Alsina operations. For $\sqrt{1} = 2$, we have: ൫, ,…,ῃ൯= ⨁ƺୀ ቀƺ ƺ ቁ *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* of CPyFVs. By using an induction method, we prove Theorem 1 based on
operations. For $\pi = 2$ we have: $\cos f$ Consider $Q = \prod_{n=1}^{\infty} (n) e^{2\pi i (\alpha q)} \frac{Z^{(n+1)}}{2} \mathbb{E}_{\alpha} (x) e^{2\pi i q}$ ℓ , $2\pi i(\alpha_0 \leq (\kappa))$ $\left\{ \begin{array}{cc} (x)e & c \\ c & c \end{array} \right\}$, $e = 1, 2,$ $\overline{Q_{\pi i}(r_{n-1}(s)})$ a $\overline{Q_{\pi i}(r_{n-1}(s))}$ $\overline{Q_{\pi i}(r_{n-1}(s))}$ $\frac{1}{3}(\varkappa)e$ \varkappa \v $\epsilon = \left(\prod_{\alpha} \left(\chi\right) e^{-2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(x))} \right)$ $\mathbb{E}_{\alpha} \left(\chi\right) e^{-2\pi i (\beta_{\Omega_{\mathbf{Z}}}(x))}$ $\mathbb{E}_{\alpha} \$ e prove Theorem 1 based or an induction method, we prove Theorem 1 based on $\sigma = \left(\prod_{n=1}^{\infty} \binom{2\pi i (\alpha_0 - \mu_0)}{n} \mathbb{E}_{\alpha_0}(x) \right)$ is $\sigma = 1, 2$ $2\pi i(\kappa_0(\boldsymbol{\nu}))$, $2\pi i(\kappa_0(\boldsymbol{\nu}))$ $\ddot{}$ $2\pi i(r_1 - (n))$ $2\pi i(8 - (n))$ $\mathbf{a}_{\mathbf{b}}(\mathbf{x})e^{-\mathbf{x}}$ /, $\mathbf{a} = 1, 2, ...,$ to \mathbf{on} $(\boldsymbol{\mathcal{H}})$ $2\pi i(\beta_{\Omega}(\boldsymbol{\mathcal{H}}))$ $\frac{1}{2}$, $\frac{1}{2}$, e the family of CPyFVs. By using an induction method, we prove Theorem 1 based on ቀƺ ƺ ቁ $\frac{1}{\sqrt{2\pi i (n-(n))}}$ **Proof.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{-2\pi i(\alpha_{\Omega_{\mathbf{z}}}}(\boldsymbol{\chi}))}\right)_{\mathbf{z}_{\Omega_{\mathbf{z}}}}$ Acz $\frac{2\pi i(x-(x))}{\sqrt{2\pi i(x-(x))}}$ $\frac{2\pi i(0-(x))}{\sqrt{2\pi i(x-1)}}$ **Proof.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\mathbf{z})e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\mathbf{z}))}, \Xi_{\Omega_{\mathbf{z}}}(\mathbf{z})e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\mathbf{z}))}\right), \mathbf{z} = 1, 2, ..., 1$ to be the family of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina operations. For $\sqrt[n]{n} = 2$, we have: χ $2\pi i(x_0, (\mathbf{v}))$ $2\pi i(\beta_0, (\mathbf{v})))$ $= \left(\Pi_{\Omega_{\mathbf{z}}}(\mu)e^{2\pi i(\mu_{\Omega_{\mathbf{z}}}(\mu))}, \mathbb{E}_{\Omega_{\mathbf{z}}}(\mu)e^{2\pi i(\mu_{\Omega_{\mathbf{z}}}(\mu))}\right), \; \mathbb{Z} = 1, 2, \ldots, \mathbb{N}$ to $2\pi i(r_1 - r_2), \ldots, 2\pi i(r_n - r_n),$ $I_{\Omega_{\sigma}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\sigma}}(\varkappa))}$, $\Xi_{\Omega_{\sigma}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\sigma}}(\varkappa))}$, $\overline{z} = 1, 2, ..., \mathbb{N}$ to **Proof.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega} \right)$ $\int_{\mathcal{F}}$ Consider Ω $\left(\Pi$ () $\right)$ $\mathbb{R}^{2\pi i(\alpha_{\Omega_{\mathbf{S}}}(x))}$ $\left(\Pi$ () $\right)$ $\mathbb{R}^{2\pi i(\beta_{\Omega_{\mathbf{S}}}(x))}$ **NMV** . Consider $\Omega_{\mathcal{Z}} = \begin{pmatrix} H\Omega_{\mathcal{Z}}(X)e & e \end{pmatrix}$, $\Omega_{\mathcal{Z}}(X)e$, $\Omega_{\mathcal{Z}}(X)e$ $(2\pi i(\alpha_{Q_{-}}(\boldsymbol{\chi}))$ \int $\Omega_{\text{M}} = \left(\frac{2\pi i (\alpha_{\Omega}(\mathbf{X}))}{\Pi_{\text{M}}(\alpha_{\Omega}(\mathbf{X}))} \right) \frac{2\pi i (\beta_{\Omega}(\mathbf{X}))}{\Pi_{\text{M}}(\alpha_{\Omega}(\mathbf{X}))} \frac{1}{\Pi_{\text{M}}(\alpha_{\Omega}(\mathbf{X}))}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\epsilon_t = \left(\begin{smallmatrix} 2\pi i (\alpha_{\Omega}^{} \mathbf{g}^{}(\boldsymbol{\varkappa})) \ H_{O-}^{}(\boldsymbol{\varkappa})e \end{smallmatrix}\right)^2$ $\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))}{\prod_{\alpha\in\mathbb{Z}}\left(\alpha_{\alpha}\right)^2}=\sum_{\alpha\in\mathbb{Z}}\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))}{\prod_{\alpha\in\mathbb{Z}}\left(\alpha_{\alpha}\right)^2}$ man and man $\Omega_{\mathcal{A}}(\mathcal{X})$ of $\Omega_{\mathcal{A}}(\mathcal{X})$ of $\Omega_{\mathcal{A}}(\mathcal{X})$ of $\Omega_{\mathcal{A}}(\mathcal{X})$ of $\Omega_{\mathcal{A}}(\mathcal{X})$ of $\Omega_{\mathcal{A}}(\mathcal{X})$ $2\pi i(\alpha_{\Omega_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{-}}(\boldsymbol{\chi}))$ భ $\frac{N(\alpha_{\Omega_2}(\mathcal{X}))}{T}$ of $\frac{2\pi(\beta_{\Omega_2}(\mathcal{X}))}{T}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ θ at the Decision matrix θ $\Omega_{\mathbf{z}}(\boldsymbol{\mathcal{H}})$ $\qquad \qquad 2\pi i(\beta_{\Omega_{\mathbf{z}}}(\boldsymbol{\mathcal{H}}))$ $\qquad \qquad$ \mathfrak{m} ler Ω _z = $\left(\prod_{O} (\chi)e^{2\pi i (\alpha_{O}} \chi^{(\chi))}\right)$, $\Xi_{O} (\chi)e^{2\pi i (\beta_{O}} \chi^{(\chi))}\right)$, $\Xi = 1, 2, ..., 1$ to **Proof.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\mu})e^{-2\pi i(\alpha_{\Omega_{\mathbf{z}}}}(\boldsymbol{\mu}))}\right)$ $\frac{1}{2}$ \overline{a} $\mathbf{C}^{(1)}$, $\mathbf{C}^{(1)}$, $\mathbf{C}^{(1)}$, $\mathbf{C}^{(1)}$, $\mathbf{C}^{(1)}$, $\mathbf{C}^{(1)}$, $\mathbf{C}^{(1)}$ **Proof.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{2\pi i \left\langle \mu_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})\right\rangle} \mathbb{E}_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{2\pi i \left\langle \mu_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})\right\rangle} \mathbb{E}_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})\right),\, \mathbf{z} = 1$ 1,2, units and ∑ ⊥ **b** a the family **Proof** Consider $O = \left(\prod_{\alpha} \left(\mu\right) e^{-2\pi i (\alpha_0 t)} \right)$ $\mathbb{E}_{\alpha} \left(\mu\right) e^{-2\pi i (\beta_0 t)} \left(\mu\right)$ $\mathbb{E}_{\alpha} \left(0,1\right)$ $\mathbb{E}_{\alpha} \left(0,1\right)$ $\mathbb{E}_{\alpha} \left(0,1\right)$ $\mathbb{E}_{\alpha} \left(0,1\right)$ $\mathbb{E}_{\alpha} \left(0,1\right)$ $\mathbb{E}_{\alpha} \left(0,1\right)$ $\mathbb{$ **11001.** Consider $\iota_2 = \iota_1 \iota_2 \iota_3$ (ι_3) ι_4 and ι_5 are ι_2 is given as ι_3 and ι_4 are ι_5 and ι_6 and ι_7 are ι_8 and ι_7 and ι_8 and ι_9 and ι_9 and $\iota_$ $\Omega_{\bm{\tau}}(q - (n))$, $2\pi i(q - (n))$ $\mathcal{M} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\frac{1}{2}\mathbf{z}^{(\varkappa)/2}}\right), \mathbf{z} = 1, 2, \ldots, \mathbf{w}$ to **Definition 7** ([58])**.** *Let* ƺ = ൬ఆƺ (), ఆƺ $T_{Q_{\bm{\sigma}}}(\bm{\varkappa})e^{\frac{2\pi i}{3}(\bm{\varkappa})}$, $E_{Q_{\bm{\sigma}}}(\bm{\varkappa})e^{\frac{2\pi i}{3}(\bm{\varkappa})}$, $\bar{\bm{\varkappa}}=1,2,\ldots,\bar{N}$ to $\frac{12}{2}$, $\frac{12}{2}$ $\text{onsider } \Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}} (\boldsymbol{\varkappa}) e^{\frac{\boldsymbol{\varkappa}}{2} \right)$ $\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})) \lim_{\sigma \to \Omega_{\mathbf{Z}}} (\boldsymbol{\varkappa})e^{i\sigma}$ er $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}\right)$ $(\mathcal{A})^2$, $\mathbb{E}_{\Omega_{\mathbf{z}}}(\mathbf{x})e^{2\pi i(\beta_{\Omega})}$ $\left(\varPi_{\Omega_{\bf Z}}(\varkappa)e^{\displaystyle\frac{2\pi i\left(\alpha_\Omega\right)}{2}};\Xi_{\Omega_{\bf Z}}(\varkappa)e^{\displaystyle\frac{2\pi i\left(\beta_\Omega\right)}{2}}\right.$ $\left\{ \begin{pmatrix} \varkappa & e^{2\pi i(\beta_{\Omega}}\mathbf{z}^{(\mathcal{H}))} \\ \varkappa & e^{2\pi i(\beta_{\Omega}} & \varkappa \end{pmatrix} \right\}$, 3 భ Ὺ Figure 1: in Section 1, we thoroughly overviewed all previous history of our research **Proof** Consider $Q_{\tau} = \left(\prod_{\alpha} \left(\mu\right)_{\alpha}^{S_{\alpha}}\right)_{\alpha}^{Z_{\alpha}}$ $\mathcal{L} = \left(\begin{array}{c} 1.7 \ 0.7 \end{array} \right)$ we studied the differential the differential $\mathcal{L} = \left(\begin{array}{c} 0.7 \ 0.7 \end{array} \right)$ **Proof** Consider $Q = (H_0, \omega)^{2\pi i (\alpha_0 \alpha_3 (\mathcal{H}))}$ \mathbb{F}_{α_0} (v) \mathbb{F}_{α_1} (v) \mathbb{F}_{α_2} $\sum_{i=1}^{\infty}$ $\sum_{i=1}^{\in$ ()) $\sum_{\mathcal{A} \in \Omega_{-}(\mathcal{H})} \frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))}{2\pi i}$ $\lim_{\Omega \to 0} \left(\chi \right) e^{2\pi i (\beta \Omega)} \left(\chi \right)$, $\overline{g} = 1, 2, \ldots, \overline{g}$ to $\left(\frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{H}}))}{2}\right), \; \mathbf{\Sigma} = 1, 2, \ldots, \mathbf{\Omega}$ to Consider $\Omega_{\mathbf{z}} = \left(\Pi_{Q}(\boldsymbol{\chi})e^{2\pi i(\alpha_{Q}}\mathbf{z}^{(\mathcal{X})})}, \Xi_{Q}(\boldsymbol{\chi})e^{2\pi i(\beta_{Q}}\mathbf{z}^{(\mathcal{X})})}\right), \mathbf{z} = 1, 2, ..., n$ to Consider $\lambda_2 = \left(\frac{H_Q}{2} \times e^{i\theta} \right)$ is $\lambda = \frac{H_Q}{2} \times e^{i\theta}$ under the differential λ_1 $w = \left(- \frac{2\pi i (\alpha_{\Omega_Z}(\mathbf{x}))}{\sigma_Z(\mathbf{x})} - \frac{2\pi i (\beta_{\Omega_Z}(\mathbf{x}))}{\sigma_Z(\mathbf{x})} \right)$ SIGE $\Omega_{\mathcal{Z}} = \left(H \Omega_{\mathcal{Z}} (R) e^{-\alpha} \right)$, $\omega_{\Omega_{\mathcal{Z}} (R) e^{-\alpha} \Omega_{\mathcal{Z}} (R) e^{-\alpha}$, $\omega_{\Omega_{\mathcal{Z}} (R) e^{-\alpha} \Omega_{\mathcal{Z}} (R) e^{ \frac{1}{2}$ he the family of $CPvEV_0$ ῃ \int_{τ} \mathbf{r} $(1,2\pi i(\alpha_0)(\boldsymbol{\gamma}))$ $2\pi i(\beta_0(\boldsymbol{\gamma}))$ \log_{10} the family of C_{Pv} EV_{e} ῃ v^2 $\mathbf{r} = \mathbf{r} + \mathbf{r}$ $(2\pi i(\alpha_0, (\gamma))$ $2\pi i(\beta_0, (\gamma))$ $\cos \left(\frac{1}{2} \right) = \left(\frac{1}{2} \right)$ ῃ ℓ and $2\pi i(\alpha_0)(\mathcal{H}))$ **The structure of this manuscript is manuscript** in the sense of $\lim_{n \to \infty} g(x)e^{-\frac{1}{2}x}$ $\ell = 2\pi i (\alpha_{\Omega}(\mathbf{x}))$ **Proof.** Consider $\Omega_{\mathcal{Z}} = \begin{pmatrix} H_{\Omega_{\mathcal{Z}}}(\varkappa) e & e \end{pmatrix}$, $\Xi_{\Omega_{\mathcal{Z}}}(\varkappa) e$ $(1,2\pi i(\alpha_{i-1},\alpha))$ $2\pi i(\beta_{i-1},\alpha))$ $\left(\frac{11 \Omega_g (\kappa) e}{11 \Omega_g (\kappa)} \right)$ $(\mathcal{H})^e$ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\Omega_{\mathcal{Z}}(x)e^{2\pi i(\alpha_{\Omega_{\mathcal{Z}}}(x))}, \Xi_{\Omega_{\mathcal{Z}}}(x)e^{2\pi i(\beta_{\Omega_{\mathcal{Z}}}(x))}$ $\gamma = 2\pi i (\kappa_{\alpha} - (\nu))$ $2\pi i (\beta_{\alpha} - (\nu))$ The structure of this manuscript is presented as $\lim_{\varepsilon \to 0} \left(\frac{\mu_0}{\varepsilon} \right)$ and also displayed in the structure in the set of the structure in the be the family of CPyFVs. By using an induction method, we prove Theorem 1 based on $\mathbf{r} = \mathbf{r} \cdot \mathbf{r$ **Proof.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ to be the family of Cryptys. By using an induction method, we prove Theorem 1 based on
Aczel–Alsina operations. For $\frac{1}{1} = 2$, we have: **Proof.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right), \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\mathbf{Z} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$ **Proof.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \, \mathbf{Z} = 1, 2, \ldots, \mathbf{Z}$ *where* **CD**, FV, **D** *represents the membership value (MV)* of a membership value of a membership value of a m e family of CPyFVs. By using an induction method, we prove Theorem 1 based on)) f. Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right), \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right), \mathbb{Z} = 1, 2, ..., 1$ to $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \; \mathbf{Z} = 1, 2, \ldots, \mathbf{N} \text{ to }$ $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ *represents the membership value (MV)* of a mplitude $\frac{1}{2}$ and $\frac{$ be the family of CPyFVs. By using an induction method, we prove Theorem 1 based on **Proof.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\varkappa))}\right), \ z = 1, 2, ..., \mathbb{N}$ to have: **Then, the IF Accelerator is given as:** α *n* α *is given as:* α *is given as:* α *is given as:* α *is given as:* **Proof.** Consider $\Omega_{\mathbf{z}} = \prod_{\alpha} (\mathbf{z})e^{-\mathbf{z}}$, $\mathbb{E}_{\Omega_{\alpha}} (\mathbf{z})e^{-\mathbf{z}}$ some special cases, like $\frac{d}{dt}$ $\ell = 2\pi i (\alpha_{\Omega}(\boldsymbol{\chi}))$ **Proof.** Consider $\Omega_{\mathbf{z}} = \prod_{\Omega_{\mathbf{z}}}\chi_{\mathbf{z}}e^{-\chi_{\mathbf{z}}^2}$, $\mathbb{E}_{\Omega_{\mathbf{z}}}(\chi_{\mathbf{z}})e^{-\chi_{\mathbf{z}}^2}$ some special cases, like $\frac{1}{2}$ some special cases, like $\mathcal{L}(\mathcal{N})$, and average $\mathcal{L}(\mathcal{N})$, and average $\mathcal{L}(\mathcal{N})$ (CPyFAAWAG) and CPyFAAOW geometric (CPyFAAOWG) operators, CPyFAA $\binom{11}{2}$ (A)c $\binom{11}{2}$ (A)c $\binom{1}{2}$ (CP) For $\epsilon = 2$, we have. $s_n(t)$ (cases), like CP_{yF}A_{(c}ases), average $s_n(t)$ (α) ² $\frac{1}{2}$ (CP) and $\frac{1}{2}$ (CP) and $\frac{1}{2}$ (CP) and $\frac{1}{2}$ (CP) and CPyFAAHWA) and CPyFAAHWA Aczel–Alsina operations. For $\mathbb{R} = 2$, we have: ϵ = 2, we have. **Proof.** Consider $\Omega_{z} = \prod_{\Omega} (\chi)e$ and $\chi \equiv \prod_{\Omega} (\chi)e$ of new AOS like the CPYFAAWA operator and verified invented and verified invented and verified invented AOS wi **Proof.** Consider $\Omega_{z} = \prod_{C}(\chi)e$ and $\Omega_{C}(\chi)e$ and $\Omega_{R}(\chi)e$ of new AOS like the CPYFAAWA operator and verified invented \sim α and $2\pi i(\alpha_{Q}(\boldsymbol{\chi}))$ and $2\pi i(\beta_{Q}(\boldsymbol{\chi}))$ $\Omega_{\mathbf{z}} = \prod_{\Omega_{\mathbf{z}}} \mathbf{z}$ $\left(3\right)$ $\left(3\right)$ $\left(4\right)$ $\left(5\right)$ $\left(6\right)$ $\left(7\right)$ $\left(8\right)$ $\left(9\right)$ $\left(9\right)$ $\left(1\right)$ $\left(1\right)$ $\left(1\right)$ Λ and $2\pi i(\alpha_{\Omega_{\rm m}}(\boldsymbol{\varkappa}))$ operation $2\pi i(\beta_{\Omega_{\rm m}}(\boldsymbol{\varkappa}))$ $\mu = |H_{\Omega_{\tau}}(\varkappa)e|$ \overline{CD} Furthermore, \overline{CD} established the CP_I \overline{CD} established on the definition on be the family of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina operations. For $\theta = 2$, we have: $\sum_{i=1}^{n}$ and $\sum_{i=1}^{n}$ Aczel–Alsina operations. For $\mathcal{H} = 2$, we have: $\gamma = 2\pi i (g_{\Omega}(\mathbf{x}))$ $2\pi i (\beta_{\Omega}(\mathbf{x}))$ $\sigma = \left(\prod_{\Omega} (\kappa) e^{-\frac{3\kappa^2}{4}}\right)^{1/2}$, $\Xi_{\Omega} (\kappa) e^{-\frac{3\kappa^2}{4}}$, $\Xi_{\Omega} (\kappa) e^{-\frac{3\kappa^2}{4}}$ to $\begin{pmatrix} 2 & 3 \ 1 & 2 \end{pmatrix}$ $\mathcal{M} = 2\pi i (\alpha_0 \left(\mathcal{H} \right))$ $2\pi i (\beta_0 \left(\mathcal{H} \right))$ $\prod_{\Omega} (\chi)e$ δ , $\Xi_{\Omega} (\chi)e$ δ δ Ξ_{Ω} and δ Ξ_{Ω} and δ Ξ_{Ω} and Ξ_{Ω} $\begin{array}{ccc} \text{S} & \text{$ *Symmetry* **2023**, *14*, x FOR PEER REVIEW 4 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 4 of 35

Aczel-Alsina operations. For
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, we have:
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$$
\mathfrak{D}_1 \Pi_{\Omega_1} = \begin{pmatrix}\n\sqrt{\frac{1}{1 - e^{-\left(\mathfrak{D}_1 \left(-\ln\left(1 - \Pi_{\Omega_1}^2\right)\right)^\mathsf{T}\right)^{\frac{1}{\mathsf{T}}}} e^{2\pi i \left(\sqrt{\frac{1}{1 - e^{-\left(\mathfrak{D}_1 \left(-\ln\left(1 - \mathfrak{D}_{\Omega_1}^2\right)\right)^\mathsf{T}\right)^{\frac{1}{\mathsf{T}}}}}{e}}\right)}\n\end{pmatrix}
$$
\n
$$
e^{-\left(\mathfrak{D}_1 \left(-\ln\left(\mathfrak{D}_{\Omega_1}\right)\right)^\mathsf{T}\right)^{\frac{1}{\mathsf{T}}}} e^{\frac{2\pi i}{\mathsf{T}} \left(e^{-\left(\mathfrak{D}_1 \left(-\ln\left(\beta_{\Omega_1}\right)\right)^\mathsf{T}\right)^{\frac{1}{\mathsf{T}}}}}{e}\n\end{pmatrix}
$$

$$
\mathfrak{D}_2\Pi_{\Omega_2}=\left(\sqrt{\frac{-\left(\mathfrak{D}_2\left(-\ln\left(1-\varPi_{\Omega_2}^2\right)\right)^{\mathrm{Y}}\right)^{\frac{1}{\mathrm{Y}}}}{2}}\frac{2\pi i}{e}\left(\sqrt{\frac{-\left(\mathfrak{D}_2\left(-\ln\left(1-\alpha_{\Omega_2}^2\right)\right)^{\mathrm{Y}}\right)^{\frac{1}{\mathrm{Y}}}}{e}}\right)\right),
$$

By Definition 11,
$$
CPyFAAWA(\Omega_1, \Omega_2) = \frac{2}{36} \left(\mathfrak{D}_3 \Omega_3 \right) = \mathfrak{D}_1 \Omega_1 \oplus \mathfrak{D}_2 \Omega_2
$$

\n
$$
\left\{ \begin{array}{l} \sqrt{1 - e^{-\left(\mathfrak{D}_1 \left(-i \mu \left(1 - i \partial_{\Omega_1} \right) \right) Y \right) \frac{1}{Y}}} \\ 2m \left(\sqrt{1 - e^{-\left(\mathfrak{D}_1 \left(-i \mu \left(1 - i \partial_{\Omega_1} \right) \right) Y \right) \frac{1}{Y}}} \\ e^{-\left(\mathfrak{D}_1 \left(-i \mu \left(1 - i \partial_{\Omega_1} \right) \right) Y \right) \frac{1}{Y}}} \\ e^{-\left(\mathfrak{D}_1 \left(-i \mu \left(1 - i \partial_{\Omega_1} \right) \right) Y \right) \frac{1}{Y}}} \\ e^{-\left(\mathfrak{D}_1 \left(-i \mu \left(1 - i \partial_{\Omega_1} \right) \right) Y} \right) \frac{1}{Y}} \\ e^{-\left(\mathfrak{D}_2 \left(-i \mu \left(1 - i \partial_{\Omega_2} \right) \right) Y} \right) \frac{1}{Y}} \\ e^{-\left(\mathfrak{D}_1 \left(-i \mu \left(1 - i \partial_{\Omega_1} \right) \right) Y + \mathfrak{D}_2 \left(-i \mu \left(1 - i \partial_{\Omega_2} \right) \right) Y} \right) \frac{1}{Y}} \\ e^{-\left(\mathfrak{D}_1 \left(-i \mu \left(1 - i \partial_{\Omega_1} \right) \right) Y + \mathfrak{D}_2 \left(-i \mu \left(1 - i \partial_{\Omega_2} \right) \right) Y} \right) \frac{1}{Y}} \\ e^{-\left(\mathfrak{D}_1 \left(-i \mu \left(1 - i \partial_{\Omega_1} \right) \right) Y + \mathfrak{D}_2 \left(-i \mu \left(1 - i \partial_{\Omega_2} \right) \right) Y} \right) \frac{1}{Y}} \\ e^{-\left(\mathfrak{D}_1 \left(-i \mu \left(1 - i \partial_{\Omega_1} \right) \right) Y + \mathfrak{D}_2 \
$$

In this part, we recall the existing concepts of A

fundamental operational laws of Aczel–Alsina TNM and TCNM.

(2) By using the operational laws of \mathcal{A} and \mathcal{A} and \mathcal{A} and \mathcal{A} and \mathcal{A} are developed a list

(2) By using the operational laws of \mathcal{A} and \mathcal{A} and \mathcal{A} and \mathcal{A} and \mathcal{A} are developed a list

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 $\overline{}$ by using the operational laws of $\overline{}$

 $\overline{}$ by using the operational laws of $\overline{}$

Also the state of $v_1 = 2$. $$ $t = 2$ tion 6, we encarge the idea of C -EPS some AOS in the form of CPS-SS and introduced some AOS in the form of CPS-SS and introduced some AOS in the form of CPS-SS and introduced some AOS in the form of CPS-SS and introduce

article in a single paragraph. Co Consider that $\mathfrak{N} = k$. Then, \mathcal{L} $(n,2)$, $(n,2)$ Consider that $\mathfrak{N} = k$. Then, \mathbb{R} . Then, then, the PyF Aczel–Alsina weighted averaging operator is given as: \mathbb{R} and \mathbb{R} are \mathbb{R} as: \mathbb{R} and \mathbb{R} are \mathbb{R} and \mathbb{R} are \mathbb{R} and \mathbb{R} are \mathbb{R} and \mathbb{R} ῃ $\frac{1}{\pi}$ Consider that $\frac{1}{\pi}$ ῃ Consider that $\theta = k$. Then $S \text{ if } \alpha = 2.$
Consider that $\beta = k$ Then $\mathcal{L}_{\mathcal{F}}$ Figure 1: in Section 1, we thoroughly overviewed all previous history of our research Consider that $\theta = \theta$, Then, Consider that $\mathfrak{N} = \mathfrak{L}$. Then, Γ_{B} and Γ_{B} and Γ_{B} are different the differential and Γ_{B} **Proof.** Consider ƺ = ቆఆƺ of CPYFVs. By using an induction method, we prove Theorem 1 based on A Concider that $\mathfrak{N} = \mathfrak{L}$. Then, S ¹ \mathbf{I} the existing concepts of Ac \mathbf{I} Constant that

$$
CPyFAAWA(\Omega_1, \Omega_2, \ldots, \Omega_k) = \frac{\overset{\text{II}}{\oplus}}{\underset{\text{Z}=1}{\oplus}} \Big(\mathfrak{D}_{\text{Z}} \Omega_{\text{Z}} \Big) = \mathfrak{D}_1 \Omega_1 \oplus \mathfrak{D}_2 \Omega_2 \oplus \ldots, \oplus \mathfrak{D}_k \Omega_k
$$

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hybrid weighted (CPyFAAHW), average (CPyFAAHWA) and CPyFAAHW

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$$
=\left(\sqrt{\frac{1}{1-e^{-\left(\sum_{\mathbf{Z}=1}^{k}\mathfrak{D}_{\mathbf{Z}}\left(-ln\left(1-\Pi_{\Omega_{\mathbf{Z}}^{2}}\right)\right)^{\mathrm{Y}}\right)^{\frac{1}{\mathrm{Y}}}}e^{-\left(\sum_{\mathbf{Z}=1}^{k}\mathfrak{D}_{\mathbf{Z}}\left(-ln\left(1-\Pi_{\Omega_{\mathbf{Z}}^{2}}^{2}\right)\right)^{\mathrm{Y}}\right)^{\frac{1}{\mathrm{Y}}}}e^{-\left(\sum_{\mathbf{Z}=1}^{k}\mathfrak{D}_{\mathbf{Z}}\left(-ln\left(\mathfrak{D}_{\mathbf{Z}}\right)\right)^{\mathrm{Y}}\right)^{\frac{1}{\mathrm{Y}}}\frac{2\pi i}{e}\left(e^{-\left(\sum_{\mathbf{Z}=1}^{k}\mathfrak{D}_{\mathbf{Z}}\left(-ln\left(\beta\Omega_{\mathbf{Z}}\right)\right)^{\mathrm{Y}}\right)^{\frac{1}{\mathrm{Y}}}}\right)},\n\right)
$$

3. Existing Aggregation Operators

fundamental operational laws of Aczel–Alsina TNM and TCNM.

 $\mathcal{R} = \mathcal{R} \times \mathcal{R}$, $\mathcal{R} = \mathcal{R} \times \mathcal{R}$, $\mathcal{R} = \mathcal{R} \times \mathcal{R}$ numbers $\mathcal{R} = \mathcal{R} \times \mathcal{R}$. For a further process, we have to show that this is true for $0 =$ For a further process, we have to show that this is true for $\mathfrak{N} = k + 1$ We have that 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ *ess, we have to show that this is true for* $\Pi = k+1$ We have that 11, µ and ∑ and ∑ ∴ 1 **and** ∑ 1 **n** er process*,* we have to show that this is true for $\Pi=k+1$ We have that For a further process, we have to show that this is true for $\mathfrak{N} = k + 1$ We have that \mathbf{r} and \mathbf{r} and \mathbf{r} and \mathbf{r} and \mathbf{r} and \mathbf{r} and \mathbf{r} T_{max} the results of existing AOs with the results of our discussed technique. $T_{\rm eff}$ structure of this manuscript is presented as follows and also displayed in the a we have to show that this is true for have to show that this is true for $\overline{v} = k + \overline{v}$ v

¹ how that this is true for $I = k + 1$ I భ Figure 1: in Section 1, we thoroughly overviewed all previous history of our research a further process, we have to show that this is true for $\theta = \kappa + 1$ we have that when any case, we have to chose that this is two foul. $h + 1$ Ms have that For a further process, we have to show that this is true for $\Pi = k + 1$ We have that $\frac{1}{2}$ and $\frac{1}{2}$ induction method, we prove Theorem 1 based on Accel–Alsina and Aczel–Alsina an ess, we have to show that this is true for $\mathfrak{N}=k+1$ We have that \mathcal{I} , we funct to \mathcal{I} \blacksquare In this part, we recall the existing concepts of \blacksquare For a further process, we have to shov Γ ay a fuutboy nyaaqoo yya haya to ghayy that the het a farahet process, we have to show and an For a further process, we have to show that this is For a further process, we have to show that this is true for $\mathfrak h$ = For a further process, we h For a further process, we have i further process, we have to show that this is true for $\Pi=k+1$ We have that For a further process, we have to show that this is true for $\mathfrak{N} = k + 1$ We have that For a further process, we have to show that this is true for $\mathfrak{N}=k+1$ We have that la diameter process, we have to generative the basic idea of Acceles–Alsing the basic idea of $\mathbb{R}^n \to k+1$. We have that laws and illustrative examples. For a further process, we have to show that this is true for $\mathbb{R} = k + 1$ We h (1) We presented some new AOs and fundamental operational laws of CPyFSs. We also

5. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Averaging Operators

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fundamental operational laws of Aczel–Alsina TNM and TCNM.

$$
CPyFAAWA(\Omega_1, \Omega_2, \ldots, \Omega_k, \Omega_{k+1}) = \mathfrak{D}_1 \Omega_1 \oplus \mathfrak{D}_2 \Omega_2 \oplus \ldots, \oplus \mathfrak{D}_k \Omega_k \oplus \mathfrak{D}_{k+1} \Omega_{k+1} = \frac{\mathfrak{y}}{\mathfrak{z} = 1} \left(\mathfrak{D}_{\mathbf{Z}} \Omega_{\mathbf{Z}} \right) \oplus (\mathfrak{D}_{k+1} \Omega_{k+1})
$$

$$
\begin{split}\label{eq:2} \begin{split} \mathcal{L} \left(\sqrt{1 - e^{-\left(\sum_{\substack{z=1 \\ \ell \geq 1}}^{z} \sum_{\substack{z=1 \\ \ell \geq 1}}^{z} \left(-n \left(1 - H_{2z}^2 \right) \right)^{\gamma} \right)^{\frac{1}{\gamma}} } \right) \right) \mathcal{L} \left(\sqrt{1 - e^{-\left(\sum_{\substack{z=1 \\ \ell \geq 1}}^{z} \left(-n \left(1 - H_{2z}^2 \right) \right)^{\gamma} \right)^{\frac{1}{\gamma}}}} \right) \mathcal{L} \left(\sqrt{1 - e^{-\left(\sum_{\substack{z=1 \\ \ell \geq 1}}^{z} \left(-n \left(1 - H_{2z}^2 \right) \right)^{\gamma} \right)^{\frac{1}{\gamma}}}} \right) \mathcal{L} \left(\sqrt{1 - e^{-\left(\sum_{\substack{z=1 \\ \ell \geq 1}}^{z} \left(-n \left(1 - H_{2z}^2 \right) \right)^{\gamma} \right)^{\frac{1}{\gamma}}}} \right) \mathcal{L} \left(e^{-\left(\sum_{\substack{z=1 \\ \ell \geq 1}}^{z} \sum_{\substack{z=1 \\ \ell \geq 1}}^{z} \sum_{\substack{z=1 \\ \ell \geq 1}}^{z} \left(-n \left(\log_{2} \right) \right)^{\gamma} \right)^{\frac{1}{\gamma}} } \right) \mathcal{L} \left(e^{-\left(\sum_{\substack{z=1 \\ \ell \geq 1}}^{z} \sum_{\substack{z=1 \\ \ell \
$$

We observed that $\eta = k + 1$ holds *We observed that* $\eta = k+1$ holds. Therefore, we observed that $\mathfrak{u} = \kappa + 1$ holds. Therefore, $\mathfrak{y}, \mathfrak{h}, \Box$ vec that vec tan $\arctan \theta = \kappa + 1$ n M_{c} are degined as follows*ing* M_{c} and M_{c} are defined as $\frac{1}{100}$ in $\frac{1}{100}$ $\mathbf{F} = \mathbf{F} \mathbf{G} \mathbf{G} + \mathbf{G} \mathbf{G} \mathbf{G} + \mathbf{$ nolds. Therefore, this theorem is proved ls. Therefore, this theorem is proved and σ ິດແລະປະຕິບັດປະກວດລາວ ໂດຍການລາວ ປະຕິບັດ that $\mathfrak{N} = k + 1$ holds. Therefore, this theorem is proved and completed for $\mathcal{L} \times \mathcal{L}$ is multiplicate, this diction is proved and completed re $s_{\rm{1}}$ s and established some operations of the Ac \sim Alsina-like Ac \sim Als We observed that $\mathcal{F} = k + 1$ holds. Therefore, this theorem is proved and completed for $\forall \mathcal{F} \subseteq \mathcal{F}$ $4.44₀$ $V, \mathbf{u} \square$ $\nabla_{\mathbf{y}}$ in \square \mathbf{v}_t utilizing the notions of \mathbf{v}_t ƺస ቁ *we observed that* $\ddot{v} = k + 1$ holds. There \forall , \therefore \Box *we observed that* $\mathcal{V} = k + 1$ holds. Therefore, the $\mathcal{V} = k + 1$ $V, \, \cdot \cdot \cdot$. \Box *we observed that* $w = k + 1$ holds. Therefore, this dieticity θ \mathbf{r}_j . Then, the PyF \mathbf{r}_j $(\mathcal{W}, \mathcal{W})$, $(\mathcal{W}, \mathcal{W})$, $(\mathcal{W}, \mathcal{W})$, $(\mathcal{W}, \mathcal{W})$ numbers \mathcal{W} numbers \mathcal{W} numbers \mathcal{W} numbers \mathcal{W} and \mathcal{W} \mathcal{L} $(0, \Box)$ We observed that $\mathfrak{t}^1 = k+1$ holds. Therefore, i eral A \vee , \mathbf{u} , \square We observed that $\mathbb{I} = k + 1$ holds. Therefore, this theorem is proved and completed for eral A γ , and some special cases are also present here. In Sec. **1**, ⊡ We observed that $\mathfrak{N} = k + 1$ holds. Therefore, this theorem is proved and completed for \mathbb{F}_p and \mathbb{F}_p operators with some deserved and \mathbb{F}_p solved $t_{\rm eff}$ to find the reliability and flexibility and flexibility of our invented AOs, and we gave an illus- \forall in \Box V $\forall, \, \mathfrak{u}, \, \sqcup$ \forall , n. \Box \sim 10 \Box $\frac{1}{\sqrt{2}}$ \mathbf{v} this manuscript is presented as follows and also displayed in the sented as follows and also displayed in the sense of th Figure 1: in Section 1, we thoroughly overviewed all previous history of our research d that $\sqrt[n]{a} = k + 1$ holds. Therefore, this theorem is proved an $k = k + 1$ holds. Therefore, this theorem is proved and com-10 rea and comprened Figure 1: in Section 1, we thoroughly overviewed all previous history of our research we observed that $w = k + 1$ holds. Therefore, this theorem is proved and comparisons of $n = 1$ \vee , w. \Box $F(x)$ in Section 1, we thought 1, we thought the conformation $f(x)$ is decomposite our research and our research We observed that $\mathbb{R} = k + 1$ holds. Therefore, this theorem is proved and completed for \mathbf{v}_r and \mathbf{v}_s in Section 3, we studied the differential AOs under the differ

ƺୀଵ *. Then, the PyF Aczel–Alsina weighted averaging operator is given as:*

FAAWG operators with some deserved characteristics. In Section 7, we solved an MADM

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Proof. Consider ƺ = ቆఆƺ

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Theorem 3. Consider
$$
\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\mathbf{Z})e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\mathbf{X}))}, \Xi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\mathbf{X}))}\right)
$$
, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ to
be all the same CPyFVs, \forall , $\mathbf{Z} = 1, 2, ..., \mathbf{N}$. Then, CPyFAAWA $(\Omega_1, \Omega_2, ..., \Omega_{\mathbf{Y}}) = \Omega$.

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In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of

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In this part, we recall the existing concepts of A and A and A and A

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IFS and PyFs. The PyFs.

Proof Show that $Q_{-} = \emptyset$ all the same CPyFVs, for $\overline{z} = 1, 2, ..., 1$. Then, μ , μ ₂ (λ) **Proof.** Show that $\Omega_{\mathbf{z}} = \int \Pi_{\mathbf{z}}$ $\sqrt{2}$ $\frac{1}{2}$ and $\frac{1}{2}$ \mathfrak{h}_t $\sqrt{2\pi}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$, $\Xi_{\Omega_{\zeta}}(\varkappa)e$ ζ $\ell = \frac{2\pi i (\alpha_{Q}(\boldsymbol{\chi}))}{2\pi i}$ $\frac{1}{2}$ ($n \geq 0$ $(e \leftarrow e)$, $\frac{1}{2}$, $\frac{1}{2}$ $\text{at } \Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(x)e^{-\frac{\mathbf{z}}{2}x}, \Xi_{\Omega_{\mathbf{z}}}(x)e^{-\frac{\mathbf{z}}{2}x}, \Xi_{\Omega_{\mathbf{z}}}(x)e^{-\frac{\mathbf{z}}{2}x}, \Xi_{\Omega_{\mathbf{z}}}(x)e^{-\frac{\mathbf{z}}{2}x}, \Xi_{\Omega_{\mathbf{z}}}(x)e^{-\frac{\mathbf{z}}{2}x}, \Xi_{\Omega_{\mathbf{z}}}(x)e^{-\frac{\mathbf{z}}{2}x}, \Xi_{\Omega_{\mathbf{z}}}(x)e^{-\frac{\mathbf{z}}{2}x},$ $\hat{H} = \left(\prod_{O} (\chi)e^{2\pi i (\alpha_{O}} \xi^{(\chi)})\right)_{\chi}$ $\sqrt{2}$ $\frac{1}{\sqrt{2}}$ $2\pi i(\alpha_{\Omega_{\bullet}}(\boldsymbol{\mathcal{H}}))$ $2\pi i(\beta_{\Omega_{\bullet}}(\boldsymbol{\mathcal{H}}))$ $\qquad \qquad$ $\int e^{-\frac{1}{2}x}$ $\left(\frac{3}{2} \right)$, $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\frac{3}{2} \left(\kappa \right)}$, $\mathbf{z} = 1, 2, \ldots, 1$ are $\sigma(\mathcal{H})$ $\qquad \qquad$ $2\pi i(\beta_{\Omega_{\mathcal{F}}}(\mathcal{H}))$ \qquad \int , \int \mathbb{L} , ିቀ∑ ƺ൫ି()൯ ^ῃ ^Ὺ **Proof.** Show that $\Omega_{\mathbf{z}} = \left(\prod_{\alpha} \left(\chi\right) e^{2\pi i (\alpha_{\Omega_{\mathbf{z}}}}(\chi))\right)$, Ξ_{α} $(\chi) e^{2\pi i (\beta_{\Omega_{\mathbf{z}}}}(\chi))$ \mathcal{L} **Proof.** Show that $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(v))}{2}}\right)$ **Proof.** Show that $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi}{3}}\right)$, $\mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi}{3}}\right)$, $\mathbf{z} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi}{3}}\right)$ **Proof.** Show that $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa}))}, \mathbb{E}_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa}))}\right), \mathbf{z} = 1, 2, ..., \mathbf{p}$ *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $\lim_{\lambda \to 0} 2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $\lim_{\lambda \to 0} 2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*)) **E**. Show that $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\frac{1}{2}(\varkappa_{\mathbf{z}})}\right), \mathbf{z} = 1, 2, ..., 1$ are $\text{tr }\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right), \ z = 1, 2, \ldots, \mathbb{n} \text{ are }$ *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = μ_j , \ldots , \ldots , is fitted, $\langle 2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))\rangle$ = $\mathbf{Z} = \mathbf{Z} \mathbf{Z} \mathbf{Z} + \mathbf{Z} \mathbf{Z} \mathbf{Z}$ $\frac{1}{2}$ and $\frac{1}{2}$ represents the membership value of amplitude $\frac{1}{2}$ value (MV) of and amplitude $\frac{1}{2}$ value $\$ $\left(\prod_{\Omega_{\boldsymbol{z}}(\mathcal{X})}2^{\pi i(\alpha_{\Omega_{\boldsymbol{z}}(\mathcal{X})})}, \Xi_{\Omega_{\boldsymbol{z}}(\mathcal{X})}e^{2\pi i(\beta_{\Omega_{\boldsymbol{z}}(\mathcal{X})})}\right), \ z=1,2,\ldots,\mathbb{N} \text{ are }$ $\frac{z}{z-12}$ in The contract that *i* of *c* is the *s* in the *s* is the *s* is that *i* such ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $= 1, 2, \ldots,$ of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina), $\mathfrak{z} = 1, 2, ..., \mathfrak{N}$ are $\ell = 2\pi i (\kappa_0 \cdot (\boldsymbol{\varkappa}))$ $2\pi i (\beta_0 \cdot (\boldsymbol{\varkappa}))$ $\begin{bmatrix} \Pi \Omega_{\mathbf{Z}}(\mathbf{W})e & e & , \Box \Omega_{\mathbf{Z}}(\mathbf{W})e & e \\ \end{bmatrix}$, $e = 1, 2, ..., N$ are $f(x) = \frac{1}{2}$ of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina v that $Q_{\mathbf{z}} = \left(\prod_{\Omega} (\mathbf{z})e^{-\sum_{\Omega} (\mathbf{z})} \mathbf{z}^{(\mathbf{z})} \right)$ In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of $\Omega = \left(\Pi_{\alpha} \left(\mu\right) e^{\frac{2\pi i (\alpha \Omega_{\mathbf{Z}}(\mathbf{X}))}{2}}\right)$ $\begin{array}{ccc} \text{S} & \text{S} & \text{S} \end{array}$ $\overline{a} = \left(\overline{H}_{\alpha} \left(u \right) e^{2\pi i \left(\alpha \right)} \overline{A}^{(n)} \right)$ $\begin{array}{ccc} \text{S} & \text{S} & \text{I} \end{array}$ $2_{\mathcal{Z}}$ = ⎜ (4) To find the feasibility and reliability of our invented methodologies, we explored $=\left(\prod_{Q_{\alpha}}(\chi)e^{2\pi i(\alpha_{Q_{\alpha}}(\chi))}\right)_{\alpha}$ $\mathbf{L}(\boldsymbol{\mathcal{H}})$ ⎠ , $\ddot{}$ **Proof.** Show that $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi i}{3}}\right), \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi i}{3}}\right), \mathbb{Z} = 1, 2, \ldots, \mathbb{N}$ are ($\frac{2\pi i(\alpha_{\text{O}_{-}}(\mathcal{H}))}{2\pi i(\beta_{\text{O}_{-}}(\mathcal{H}))}$ **Proof.** Show that $\Omega_{\mathbf{Z}} = \prod_{\alpha} \Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi})e^{-\alpha \mathbf{Z}}$ $\frac{1}{2}$ some special cases, like CPyFAA ordered weighted (CP)FAA $\frac{1}{2}$ (3) $2\pi i(\alpha_{\Omega_{\bullet}}(\boldsymbol{\mu}))$ $2\pi i(\beta_{\Omega_{\bullet}}(\boldsymbol{\mu}))$ **functional Proof.** Show that $\Omega_{\mathcal{Z}} = \left(\Omega_{\Omega_{\mathcal{Z}}}(\mathcal{X})e^{-\frac{1}{2}(\mathcal{Z}(\mathcal{X})\mathcal{Z})}\right)$ all the same CPvEVs for $\frac{1}{2}$ = 1.2 m. Then some special cases, like CPyFAA ordered weighted (CPyFAAWAG), average \mathbf{z} $\frac{1}{2}$ $\frac{1}{2}$ all the same CPyFVs, for $\vec{z} = 1, 2, ..., \vec{n}$. Then, , () $\overline{\mathcal{M}}$ ներում $\mathcal{A}(\mathcal{A})$ To find the feasibility and reliability of our invented methodologies, we explore defined methodologies, we explore $\mathcal{A}(\mathcal{A})$ $\sin \Omega_{\sigma} = \left(\prod_{\alpha} (\kappa) e^{2\pi i \langle \alpha \rangle / 2} \right)^{2\pi i \langle \alpha \rangle}$ F_a $(\kappa) e^{2\pi i \langle \beta \rangle / 2}$, $\zeta = 1.2$, η are $\begin{pmatrix} -\frac{1}{2} & \frac{1}{2} & \frac{1}{$ (a) $T = \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}$ of our invented methodologies, we explore $T = \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}$ $\mathbf{s} = \left(\prod_{\Omega} (\mathbf{y}) e^{-\frac{(\mathbf{x} - \mathbf{y})^2}{2}} \mathbf{g} (\mathbf{x}) e^{-\frac{(\mathbf{x} - \mathbf{y})^2}{2}} \mathbf{g} (\mathbf{x}) \right), \mathbf{z} = 1, 2, \dots, \mathbf{N}$ are $\begin{array}{ccc} \text{S} & \text{S} & \text{S} \end{array}$ $1, 2, \pi i(x, (n))$ $2, \pi i(2, (n))$ *of.* Show that Ω ₇ = $\frac{a}{\sqrt{a}}$ **Proof** Show that $Q = \left(H_{\alpha} \left(\omega\right)^{2\pi\left(\alpha\right)}\right)_{\alpha}^{2\pi\left(\alpha\right)}$ To $\left(\omega\right)^{2\pi\left(\beta\right)}$ laws and illustrative examples. (1) We presented some new AOS and fundamental operational laws of $\mathcal{L}_\mathcal{S}$ some also $\mathcal{L}_\mathcal{S}$ **Proof** Show that $Q_{\text{r}} = \left(\prod_{\Omega} (x)e^{2\pi i (u_{\Omega}(\Omega))} E_{\Omega} (x)e^{2\pi i (p_{\Omega}(\Omega))}\right)$ \tilde{R} , and \tilde{R} ⎜⎜ (c) By using $\left(\frac{2\pi i}{\alpha_2(\mathcal{X})}\right)$ and $\left(\frac{2\pi i}{\alpha_2(\mathcal{X})}\right)$ and $\left(\frac{2\pi i}{\alpha_2(\mathcal{X})}\right)$ ow that $\log \left(\frac{H(t)}{2} \times \frac{G}{2} \right)$ is $\log \left(\frac{H(t)}{2} \times \frac{G}{2} \right)$, $\epsilon = 1, 2, ..., n$ are $\mathcal{S}(\mathcal{S})$ Furthermore, we also established the CPHFAAWAG operator based on the defined on the definition of the defined on the defined on the defined on the $\int_{\mathbb{R}}$ by using the operation $\left(\frac{\pi}{M} \left(\frac{2\pi i (\alpha_{\Omega}(\mathbf{z})}{\alpha_{\Omega}(\mathbf{z})}) - \frac{2\pi i (\beta_{\Omega}(\mathbf{z})}{\alpha_{\Omega}(\mathbf{z})}\right)\right)$ and π of $\lim_{z \to z} \frac{z}{z} - \lim_{z \to z} \frac{z}{z}$ (*n*) is $\lim_{z \to z} \frac{z}{z} = \lim_{z \to z} \frac{z}{z}$ in oped some innovative concepts of \mathcal{A}_A and \mathcal{A}_A and \mathcal{A}_A oped some innovative concepts of \mathcal{A}_A and \mathcal{A}_A **oped some innovative concepts** $\left(\begin{array}{c} \n\frac{1}{2} \left(\frac{n}{2} \right)^n e^{-\frac{n}{2}} \n\end{array} \right)$, $e^{-\frac{n}{2} \left(\frac{n}{2} \right)^n}$ $\lim_{\alpha \to \infty} \mathcal{L}(\mathbf{F}) = \left(\frac{2\pi i (\alpha_{\Omega}(\mathbf{z}) - \mathbf{F})}{\alpha_{\Omega}(\alpha_{\Omega}(\mathbf{z}) - \mathbf{F})} \right)$ **11001.** Show that $\frac{1}{2}$ = $\left(\frac{11}{2} (n) e^{-n} \right)$, $\frac{11}{2} (n) e^{-n}$, $\frac{1}{2}$ $\frac{f(x, y)}{g(x, y)}$ $\mathfrak{F} = 1, 2, \ldots, \mathfrak{N}$ are **5.** Show that $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i (\alpha_{\Omega_{\mathbf{z}}}(\kappa))}, \Xi_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i (\beta_{\Omega_{\mathbf{z}}}(\kappa))}\right), \ z = 1, 2, \ldots, \mathbb{N}$ are $\mathcal{E} = 1, 2, ..., 1$ are $\sum_{i=1}^{n}$ \overline{a} ඨ = ⎜ . ت \overline{a} $\frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{H}}))}{2}$, $\mathbf{Z} = 1, 2, ...$ Vs, for $\mathfrak{z} = 1, 2, \ldots, \mathfrak{N}$. Then, $\Omega_{\mathbf{g}} = \left(\Pi_{\Omega_{\mathbf{g}}}(\varkappa) e^{\frac{2\pi i(\alpha_{\Omega_{\mathbf{g}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{g}}}(\varkappa) e^{\frac{2\pi i(\beta_{\Omega_{\mathbf{g}}}(\varkappa))}{2}}\right),$ 3 $= 1, 2, \ldots, 5$

$$
CPyFAAWA\left(\Omega_{1}, \Omega_{2}, ..., \Omega_{\eta}\right) = \bigoplus_{\mathbf{Z}=1}^{\mathbf{\eta}}\left(\mathbf{D}_{\mathbf{Z}}\Omega_{\mathbf{Z}}\right)
$$

Proof. Show that
$$
\Omega_2 = \left(\Pi_{\Omega_2}(\varkappa) e^{2\pi i (a_{\Omega_2}(\varkappa))}, \Xi_{\Omega_2}(\varkappa) e^{2\pi i (\beta_{\Omega_2}(\varkappa))} \right), 3 = 1, 2, ..., n
$$
 are
\nall the same CPyFVs, for $\overline{s} = 1, 2, ..., n$. Then,
\n
$$
CPyFAAWA \left(\Omega_1, \Omega_2, ..., \Omega_1 \right) = \bigoplus_{\overline{s}=1}^n \left(\mathfrak{D}_\overline{s} \Omega_2 \right)
$$
\n
$$
= \left(\sqrt{\frac{\sum_{i=1}^n a_i \left(\prod_{i=1}^n a_i \right) \left(\prod_{i=1}^n a_i \right)}{\left(\prod_{i=1}^n a_i \left(\prod_{i=1}^n a_i \right) \left(\prod_{i=1}^n a_i \left(\prod_{i=1}^n a_i \right) \left(\prod_{i=1}^n a
$$

article in a single paragraph. 1,2, ∴ Hei

existing AOs with the results of our invented \mathcal{A}

existing A our invented A

 $\mathcal{F}_{\mathcal{A}}$

IFS and PyFs. The PyFs.

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= ⎜

3. Existing Aggregation Operators

Hence,
\n
$$
CPyFAAWA\left(\Omega_{1}, \Omega_{2}, ..., \Omega_{\eta}\right) = \Omega
$$

Definition 9. *Let* ଵ = ൫ଵ()ଶగ൫ఈభ(త)൯ **Definition 9.** *Let* ଵ = ൫ଵ()ଶగ൫ఈభ(త)൯ sum, product, scalar multiplication and power role. Then, we have: **4. Aczel–Alsina Operations Based on CPyFSs 4. Aczel–Alsina Operations Based on CPyFSs** *tion* ˘() *of CPyFVs is given as:* By utilizing the notions of Aczel–Alsina TNM and TCNM, we explored some funda-**Definition 8** ([58])**.** *Let* ƺ = ൬ఆƺ *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = **Definition 8** ([58])**.** *Let* ƺ = ൬ఆƺ *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = **Definition 8** ([58])**.** *Let* ƺ = ൬ఆƺ we studied the advantages and verified our invented \Box we studied the advantages and verified our invented \Box Alsina operations under the system of CPyF information. In Section 5, we developed sev-Alsina operations under the system of CPyF information. In Section 5, we developed sevtion 6, we enlarge the idea of C some A \sim C tion 6, we enlarge the idea of C some A β some A β introduced some AOS in the form of C Figure 1: in Section 1, we thoroughly overviewed all previous history of our research CPyFSs. In Section 3, we studied the concepts of some existing AOs under the different \mathcal{L}^{max} in Section 3, we studied the concepts of some existing AOs under the differential \mathcal{L}^{max} IFS and PyFs. IFS and PyFs.

Definition 9. *Let* ଵ = ൫ଵ()ଶగ൫ఈభ(త)൯ $\lim_{\delta \to 0} \frac{2\pi i (\alpha_{\Omega}(\mathbf{x}))}{\mathbb{E}_{\mathbf{F}}[\mathbf{x}]} = \int \prod_{\mathbf{F}} \alpha_{\Omega}(\mathbf{x}) e^{2\pi i (\beta_{\Omega}(\mathbf{x}))} \mathbb{E}_{\mathbf{F}}[\mathbf{x}](\alpha) e^{2\pi i (\beta_{\Omega}(\mathbf{x}))}$ *union of the given CPyFVs are defined as follows:* be the family of CPyFVs, and $(0, 0, 0, \ldots)$ *be the family of CPyFVs, and consider* Ω^- = min $(121, 122, 123, \ldots, 12 \eta)$. Then, the ussocial $\mathbf{P} = \mathbf{P}(\mathbf{A} \mid \mathbf{A}) \mathbf{A}$ **Theorem 4.** Consider $\Omega_{\tau} = \left(\prod_{\Omega} (\gamma)e^{2\pi i (\alpha \Omega_{\Omega} (\mathbf{X})))} E_{\Omega} (\gamma)e^{2\pi i (\beta \Omega_{\Omega} (\mathbf{X})))}\right)$, $\mathbf{z} = \left(\prod_{\Omega} (\gamma)e^{2\pi i (\beta \Omega_{\Omega} (\mathbf{X})))} E_{\Omega} (\gamma)e^{2\pi i (\beta \Omega_{\Omega} (\mathbf{X})))}\right)$ *union of the given CPyFVs are defined as follows:* P_{α} Ω_{α} Ω) Then the associate $\frac{1}{2}$, ℓ be analyzed $2\pi i(\alpha_{\Omega_{\mathbf{r}}}(x))$ $2\pi i(\beta_{\Omega_{\mathbf{r}}}(x))$ **uneorem 4.** Consider $\Omega_{\overline{g}} = \left(\Pi \Omega_{\overline{g}} \right)$ m g of C r yr v s, and consuler Ω be the family of CP_UFVs, and consider $\Omega^- = \min \Big(\Omega \Big)$ $(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_{\P})$. Then, the associated value CPyFAAWA(s ℓ be analyzed $2\pi i(\alpha_0)(\gamma)$ be $2\pi i(\beta_0)(\gamma)$ **Theorem 4.** Consider Ω ₃ = $\Pi_{\Omega}(\varkappa)e$ PyFVs, and consider $\Omega = mn$ $_1$ in $\Big(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_{\vert \Omega_n \vert} \Big)$ \mathcal{D}_{η}). Then, the associated value CPyFAAWA(Ω_1 , Ω_2 , Ω_3 $2\pi i (\alpha_{\Omega} \mathbf{z}(\boldsymbol{\mu}))$ $\qquad \qquad 2i$ *where* ˘ () ∈ [−1, 1] *and* ˘ () ∈ [0, 1]*.* Ω and Ω are the associated value CD_1 CA_4 $MMA(O, O_2, O_3)$ is defined as: $\binom{23, \ldots, 29}{}$, *finn*, *in associated value* C*PyFIIIWI*(22], **Definition 9.** *Let* ଵ = ൫ଵ()ଶగ൫ఈభ(త)൯ , ଵ()ଶగ൫ఉభ(త)൯ ൯ *and* ଶ = \mathbf{m} 4. Consider $\Omega_{\mathbf{z}} = \left(\prod_{\Omega} (\mathbf{z})e^{\frac{2\pi i(\alpha_{\Omega}}{3}(\mathbf{X}))} \cdot \mathbb{E}_{\Omega} (\mathbf{z})e^{\frac{2\pi i(\beta_{\Omega}}{3}(\mathbf{X}))}\right)$, $\mathbf{z} = 1, 2, ..., \mathbf{n}$ to *union of the given CPyFVs are defined as follows:* ρ the associated value C PuFA AWA. $\mathbf{D}_{\mathbf{p}}$). Then, the associated value $CPyFAAWA(\Omega_1, \Omega_2, \ldots, \Omega_k)$ is defined as: $\begin{bmatrix} \alpha_{\Omega}(\boldsymbol{\kappa}) \end{bmatrix}$ \mathbb{E}_{Ω} $(\boldsymbol{\kappa})e^{2\pi i(\beta_{\Omega}(\boldsymbol{\kappa}))}$ $\mathbb{E}_{\Omega} = 1, 2, \ldots, \mathbb{I}$ to *where i* α ^{*i*} α ^{*i*} = min $(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n)$ ℓ $2\pi i(\alpha_0)(\chi)$ $2\pi i(\beta_0(\chi))$ $m\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e\right)^{\mathbf{z}}$, $E_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e$ $I = min \left(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n \right)$ *i* consider $\Omega^- = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and Ω^+ d value $CPyFAAWA(\Omega_1, \Omega_2, ..., \Omega_k)$ is defined as: $\frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{H}}))}{2}$ = 1.3 *where* ˘ () ∈ [−1, 1] *and* ˘ () ∈ [0, 1]*.* لفات المسلم بن المسلم بن المسلم بن المسلم 2000 processiated zyglyo C Bu LA AWA(Q , Q_2 , Q_3) is defined as $\ddot{}$ *i*, *inc associated can*d C*PyFIMMI*(22], 22*f*, ..., 22*k*) *is adjune* ℓ $2\pi i(\alpha_{\Omega_{\mathbf{r}}}(x))$ $2\pi i(\beta_{\Omega_{\mathbf{r}}}(x))$ **Theorem 4.** Consider $\Omega_{\overline{\mathbf{Z}}} = \left(\Pi_{\Omega_{\overline{\mathbf{Z}}}}(\varkappa)e^{\frac{2\pi i(\alpha_{\Omega_{\overline{\mathbf{Z}}}}(\varkappa))}{2}, \Xi_{\Omega_{\overline{\mathbf{Z}}}}(\varkappa)e^{\frac{2\pi i(\beta_{\Omega_{\overline{\mathbf{Z}}}}(\varkappa))}{2}}\right)$ $\left(\frac{1}{21}, \frac{2}{2}, \frac{2}{3}, \ldots, \frac{2}{9} \right)$ and $\frac{1}{2}$ be the family of CPyFVs, and consider $Q^-=\min\left(Q_1,Q_2,Q_3,\ldots,Q_n\right)$ and $Q^+=\max\left(Q_1,Q_2\right)$ $(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_\mathfrak{p})$. Then, the associated value $CPyFAAWA(\Omega_1, \Omega_2, \ldots, \Omega_k)$ is defined as *be the family of CPyFVs, a* $(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\eta})$. Then, the associated value CPyFAAWA($\Omega_1, \Omega_2, ..., \Omega_k$) is defined **SECTION OF STATE OF SOME OF THE ACCELENCE ACT ACTS** (A) $e^{i\omega}$ (A) $e^{i\omega}$ be the family of CPuEVs, and consider $Q^-=\min_{\Omega}$ ൯ *be any two CPyFVs. The extension of intersection and the* **Theorem 4.** Consider $O = \left(H_S \left(\frac{2\pi l \left(\alpha_0 g(\mathbf{X})\right)}{2\pi l \left(\alpha_0 g(\mathbf{X})\right)}\right)\right)$ **Theorem 4.** Consider $\Omega_{\overline{g}} = \left(\Pi_{\Omega_{\overline{g}}}(\varkappa) e^{2\pi i (\mu_1/3 \overline{g}(\varkappa))}, \Xi_{\Omega_{\overline{g}}}(\varkappa) e^{2\pi i (\rho_1/3 \overline{g}(\varkappa))}\right)$, $\cdot \cdot$ *accuracy function is given as a function is given as* $\frac{1}{2}$ $\mathcal{L} = 2\pi i (n - \langle \mathbf{x} \rangle)$ study the generalization of union and inter-**Supermum-Section of CPyFS and the Acceleration** $\sum_{i=1}^{\infty}$ ($\sum_{i=1}^{\infty}$ $\sum_{i=$ sum, production and power role. Then, we have \sim $(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\eta})$. Then, the associated value CPyFAAWA($\Omega_1, \Omega_2, ..., \Omega_k$) is defined as: $\prod_{O_{-}}(\chi)e^{2\pi i(\alpha_{O_{\vec{3}}}}(\chi))}, \sum_{O_{-}}(\chi)e^{2\pi i(\beta_{O_{\vec{3}}}}(\chi))}\bigg), \ z=$ $\frac{1}{2}$ *a* family of CPuFVs, and consider $Q^- = \min\left(Q_1, Q_2, Q_3, \ldots, Q_n\right)$ $\text{rem } A$ Consider $O = \left(\prod_{z=1}^{2\pi i (k_0)} \frac{z^{2\pi i (k_0)}}{z^{2\pi i}}\right)$ $\mathbb{E}_{z=1}$ (v) $\frac{z^{2\pi i (k_0)}}{z^{2\pi i}}$ $\mathbb{E}_{z=1}$ (v) $\mathbb{E}_{z=1}$ $\mathbb{E}_{z=1}$ $\mathbb{E}_{z=1}$ $\mathbb{E}_{z=1}$ $\mathbb{E}_{z=1}$ $\mathbb{E}_{z=1}$ $\mathbb{E}_{z=1}$ \mathbb **rem 4.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{2i\pi(\mathbf{a}_{12}(\mathbf{X})\mathbf{z})}, \Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{2i\pi(\mathbf{p}_{12}(\mathbf{X})\mathbf{z})}\right), \mathbf{Z} = 1, 2, ..., \mathbf{N}$ to *a a a a a accuracy function* \mathbf{a} *g* γ and $2\pi i(r-(s))$ and $2\pi i(0-(s))$ ider $\Omega_{\bf z}=\left(\Pi_{\Omega\cal A}\right)e^{-i\Omega_{\rm A}(\Lambda_1/2)}$, $E_{\Omega\cal A}(\mu)e^{-i\Omega_{\rm A}(\mu_1/2)}$, $\lambda=1,2,\ldots,0$ to sum, production and power role. Then, we have role to \sim Ω_{η}). Then, the associated value CPyFAAWA(Ω_1 , Ω_2 , ..., Ω_k) is defined as: $\mathbb{E}_{\mathcal{O}_{-}}(\varkappa) e^{\frac{2\pi i(\beta_{\Omega_{\mathcal{Z}}(\varkappa))}}{2}}$, $\mathfrak{z} = 1, 2, ..., \mathfrak{n}_{to}$ $\overline{1}$ *consider* $Q^-=\min\left(Q_1,Q_2,Q_3\right)$ \mathcal{L} $2\pi i(\kappa_0 \left(\mathbf{x} \right))$ $2\pi i(\kappa_0 \left(\mathbf{x} \right))$ **Theorem 4.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\lambda t(\alpha_{\Omega_{\mathbf{z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\lambda t(\varkappa_{\Omega_{\mathbf{z}}}(\varkappa))}\right), \ z = 1, 2, \ldots, \eta_{to}$ sum, product the family of CPyFVs and consider O^{-} = min(O_2 , O_3 , O_3 , O_4) and O^{+} = max $\frac{1}{\sqrt{1-\frac{1$ $\sum_{n=1}^{\infty}$ / $\sum_{n=2}^{\infty}$ (intersum, product, scalar multiplication and power role. Then, we have: $\frac{1}{2}$ $\frac{1}{2}$ **4. Aczel–Alsina Operations Based on CPyFSs** $\mathcal{L}_{\mathcal{A}}(y)$ und constant $\mathcal{L}_{\mathcal{A}} = \min\left\{ \frac{\mathcal{L}_{\mathcal{A}}(y) \mathcal{L}_{\mathcal{A}}(y) \cdots \mathcal{L}_{\mathcal{A}}(y)}{\mathcal{L}_{\mathcal{A}}(y) \mathcal{L}_{\mathcal{A}}(y) \cdots \mathcal{L}_{\mathcal{A}}(y)} \right\}$ and $\mathcal{L}_{\mathcal{A}}$ $(\Omega_1,\ldots,\,\Omega_{\bf n}).$ Then, the associated value CPyFAAWA(Ω_1 , Ω_2 , \ldots , Ω_k) is defined as: section of CPyFSs and established some operations of the Aczel–Alsina-like Aczel–Alsina **4. Aczel–Alsina Operations Based on CPyFSs** , and consuler $\Omega_1 = mn_1 \Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n$ and $\Omega_1 = max$ section of CPyFSs and established some operations of the Aczel–Alsina-like Aczel–Alsina **4. Aczel–Alsina Operations Based on CPyFSs** be the family of CPyFVs, and consider $\Omega^- = min\left(\,\Omega_1, \Omega_2, \, \Omega_3, \ldots, \, \Omega_{\}^n\,\right)$ and $\Omega^+ = max$. Then, the associated value $CPyFAAWA(\Omega_1, \Omega_2, \ldots, \Omega_k)$ is defined as: $(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\eta})$. Then, the associated value CPyFAAWA($\Omega_1, \Omega_2, ..., \Omega_k$) is defined as: **Theorem 4.** Consider $Q = \left(H - \frac{2\pi i (\alpha_0 - \mu)^2}{2\pi i (\alpha_0 - \mu)^2}\right)$ $\sum_{k=1}^{\infty}$ $\frac{2\pi i (\beta_0 - \mu)^2}{2\pi i (\beta_0 - \mu)^2}$ be the family of CPyFVs $=$ $\frac{1}{2}$ $\frac{1}{2$ 1,2, … , _{1,2,} … , 1,2, … , 1,2 the family of CPyFVs, and consi **11,2, Theorem 4.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\alpha}}(\boldsymbol{\chi})e^{2\pi i(\alpha_{\Omega_{\alpha}}(\boldsymbol{\chi}))}, \mathbb{E}_{\Omega_{\alpha}}(\boldsymbol{\chi})e^{2\pi i(\beta_{\Omega_{\alpha}}(\boldsymbol{\chi}))}\right), \mathbf{z} = \mathbf{z}$ $\text{der } \Omega^- = \min \Big(\Omega_1, \Omega_2, \Omega_3, \ldots \Big)$ $\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))}{\Omega_{\mathbf{Z}}(\boldsymbol{\mu})e} \sum_{\mathbf{Z}} \frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))}{\Omega_{\mathbf{Z}}(\boldsymbol{\mu})e},$ Ὺ , $n\Bigl(\, \Omega_1, \Omega_2, \, \Omega_3, \ldots, \, \Omega_{\} \, \Bigr)$ and $\, \Omega^+ \, = \, max$ \mathfrak{p}_1 , $\Omega_3, ..., \Omega_{\text{I}}$ and $\Omega^+ = \text{max}$ **Theorem 4.** Consider $Q_{\sigma} = \left(\prod_{Q} \left(\chi\right) e^{-2\pi i (\alpha_{Q}(\chi))} \right)_{\sigma} \mathbb{E}_{Q} \left(\chi\right) e^{-2\pi i (\beta_{Q}(\chi))}$ $\chi = 1$ \overline{a} be the family of CPyFVs, and consider Ω^- = min $\left(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\eta}\right)$ and Ω^+ = max article in a single paragraph. **Theorem 4.** Consider $\Omega_{\overline{2}} = \left(\Pi_{\Omega_{\overline{2}}}(x)e^{2\pi i (\mu_{\Omega_{\overline{2}}}(x))}, \Xi_{\Omega_{\overline{2}}}(x)e^{2\pi i (\mu_{\Omega_{\overline{2}}}(x))}\right), \overline{2} = 1, 2, ..., \overline{0}$ W with α **f** CPuEVs and consider $O^- = \min \left(O_2, O_2, O_3, \ldots, O_n \right)$ and $O^+ = \max$ $\lim_{n \to \infty} g(x + y + \infty)$, and consider $\Omega^2 = \min\left\{\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \ldots, \frac{1}{n}\right\}$ and $\Omega^2 = \max$ α^2 CBuEVs and consider $Q^- = \min \left(Q, Q, Q, \ldots, Q \right)$ and $Q^+ = \max$ $\int \text{C} \text{P} \text{y} \text{F} \text{v} \text{s}$, and consider $\Omega = \min \left(\Omega_1, \Omega_2, \Omega_3, \dots, \Omega_n \right)$ and $\Omega' = \max$ *Is and consider* $Q^{-} = min \left(Q_1, Q_2, Q_3, \ldots, Q_n \right)$ and $Q^{+} = max$ $\sum_{i=1}^{3}$ and consuct $\sum_{i=1}^{3}$ = $\sum_{i=1}^{3}$ $\sum_{i=1}^{3}$ eral AOS of CPyFAAWA operators, and some special cases are also present here. In Sec-**Theorem 4,** Consider $O = \prod_{\alpha} \binom{n}{\alpha} \binom{n}{\beta}^{\alpha}$ $\frac{2}{\sqrt{3}}$ be the family of CPuFVs, and consider $Q^-=\min\left(Q_1,Q_2\right)$ τ select a suitable candidate for a multinational company. In Section 8, τ eral AOS of CPyFAAWA operators, and some special cases are also present here. In Sec-**Theorem 4** Consider $Q_r = \prod_Q (v)e^{2\pi i (u_1/2g(R))}$. Eq. (v)e. $\frac{2}{\sqrt{2}}$ operators with some deserved and $\frac{2}{\sqrt{2}}$ be the family of CPyFVs, and consider $Q^-=\min_{\Omega_1,\Omega_2,\Omega_3} Q$ $t \approx \frac{1}{2}$ $\mathcal{F}_{\mathcal{A}}$ and the deserved characteristics. In Section 7, we solved an \mathcal{A} **Theorem 4** Consider $Q_{\text{t}} = \left(\prod_{Q} (x)e^{i\lambda t |u|} \right)^{2\lambda t |u|}$ $R_{Q} (x)e^{i\lambda t |u|} \left(\frac{2}{\lambda} \left(\frac{u}{\lambda}\right)^{2}\right)^{2}$ $\frac{1}{2} = 1.2$ $\frac{1}{2}$ suitable candidate for a multiple candidate for a multiple company. In Section 8, 1980, In Section 8, 1990, In be the family of CPuFVs, and consider $Q^-=\min\left(Q_1,Q_2,Q_3\right)$ and $Q^+=\min\{Q_1,\max\{Q_2,\max\{Q_3,\max\{Q_4,\max\{Q_4,\max\{Q_5,\max\{Q_6,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_7,\max\{Q_$ existing $\mathcal{L}(\mathbf{z}, \mathbf{z})$ of our invention $\mathcal{L}(\mathbf{z}, \mathbf{z})$ $\mathcal{F}_{\mathcal{A}}(t) = \mathcal{F}_{\mathcal{A}}(t)$ in Section 7, we solved an MADMM **Theorem 4.** Consider $Q_{\sigma} = \left(\prod_{Q} (x)e^{i\pi i(x)/2} \right)^{1/2}$ $\mathbb{E}_{Q} (x)e^{i\pi i(x)/2}$ $\mathbb{E}_{Q} (x)e^{i\pi i(x)/2}$ $\mathbb{E}_{Q} (x)e^{i\pi i(x)/2}$ $\begin{pmatrix} -\frac{1}{2} & \frac{1}{2} & \frac{1}{$ be the family of CPyFVs, and consider $\Omega^- = \min(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n)$ and $\Omega^+ = \max$ ϵ and ϵ of our investigation ϵ of ϵ of ϵ or ϵ in Section 9, we summarize the whole ϵ **CP** $\text{Cov}(X, Y) = \int \prod_{z} \binom{2\pi i (x-z)}{z} \nabla z$ (some existing A $\sum_{i=1}^{\infty}$ systems. In Section 4, we introduce concepts $\sum_{i=1}^{\infty}$, $\sum_{i=1}^{\infty}$ concepts of Aczel– be the family of CPyFVs, and consider $Q^- = \min_{\mathbf{z}} Q_{\mathbf{z}} Q$ $\begin{pmatrix} 1 \ 1 \end{pmatrix}$ Figure 1: in Section 1, we thoroughly overviewed all previous history of our research work; in Section 2, we recall the notions of CFSs, CPyFSs and fundamental operations of **Theorem 4,** Consider $Q = \left(\prod_{\alpha} (x) e^{-\frac{(x-\alpha)^2}{2}}\right)^2$ $\mathbb{E}_{\alpha} (x) e^{-\frac{(x-\alpha)^2}{2}}$ environmental systems. In $\frac{1}{3}$ be the family of CPyFVs and consider $Q^{\perp} = min \n\begin{pmatrix}\nQ_1 & Q_2\n\end{pmatrix}$ eral A \sim of CPyFAAWA operators, and some special cases are also present here. In Sec- ℓ $2\pi i(\alpha_0 \left(\boldsymbol{\gamma}\right))$ $2\pi i(\beta_0 \left(\boldsymbol{\gamma}\right))$ **Theorem 4.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu})e^{-\mathbf{Z}t} - \mu_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu})e^{-\mathbf{Z}t}\right), \mathbf{Z} = \left(\mathbf{Z}^{T}\right)^{T}$ eral A \sim of CPyFA \sim 300 second special cases are also present here. In Sec. be the family of CPyFVs, and consider $\Omega^- = mn \left(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_{\text{R}} \right)$ and Ω t_{t} is find the reliability and flexibility of our invented AOs, and we gave an invented AOS, and w ℓ $2\pi i(\alpha_{\text{O}_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\text{O}_{-}}(\boldsymbol{\chi}))$ **Theorem 4.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \, \mathbf{Z} = 1, 2$ eral A \sim of CPyFA \sim 300 second special cases are also present here. In Sec. present be the family of CPyFVs, and consider $\Omega^- =$ min $\Big(\varOmega_1,\varOmega_2,\varOmega_3,\ldots,\varOmega_{\P} \Big)$ and \varOmega^+ $(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n)$. Then, the associated value CPyFAAWA $(\Omega_1, \Omega_2, \ldots, \Omega_k)$ is defined an $\frac{1}{2}$ is the reliability of our invented AOs, and we gave an invented AO 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ $\begin{pmatrix} 1 & 2 & 4 \ 1 & 2 & 3 \end{pmatrix}$ ῃ \mathbf{u}^{\prime} **Theorem 4.** Consider $\Omega_{\mathcal{Z}} = \left(\Pi_{\Omega_{\mathcal{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\Xi_{\Omega_{\mathcal{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\mathcal{Z} = \left(\Pi_{\Omega_{\mathcal{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$ *be the family of CPuFVs, and consider* $\Omega^- = \min\left(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n\right)$ and *ic me junit* $\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_{\mathbf{n}}$). Then, the associated value CPyFAAWA($\Omega_1, \Omega_2, \ldots, \Omega_{\mathbf{n}}$) \mathfrak{m} $(\Omega_1, \Omega_2, \ldots, \Omega_n)$. Then, the associated value CPyFAAWA($\Omega_1, \Omega_2, \ldots, \Omega_k$) is defined as: Theorem 4. Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\kappa))}, \mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\kappa))}\right), \mathbf{z} = 1, 2, ..., \mathbf{N}$ *where family of CPuEVs, and consider* $Q^- = min(Q_0, Q_2, Q_3)$ *and* $Q^+ = max$ *be the family of CPyFVs, and consider* $\Omega^- = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\text{R}})$ and $\Omega^+ = \Omega$ *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $\lim_{\lambda \to 0} 2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $\lim_{\lambda \to 0} 2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude mily of CPyFVs, and consider* $\Omega^- = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ *and* $\Omega^+ = max$)) **n 4.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right), \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right), \mathbf{Z} = 1, 2, ..., \mathbf{N}$ to *ning* of ∠*z* g*z* + *c*/*mm* cen $\mathcal{R} = \frac{1}{2} \sum_{i=1}^{n} \frac{1}{i} \sum_{j=1}^{n} \frac{1}{j} \$ $\sigma \propto \Omega_{\bf Z} = \left(\varPi_{\Omega_{\bf Z}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega}}{\bf Z}(\varkappa))}, \Xi_{\Omega_{\bf Z}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega}}{\bf Z}(\varkappa))}\right), \, \Xi = 1, 2, \ldots, \mathfrak{n}_{\textit{to}}$ W_s and consider Q^- = $\min\left(Q_s, Q_2, Q_3, \ldots, Q_n\right)$ and Q^+ = \max *FVs, and consider* $\Omega^- = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_\Pi)$ and $\Omega^+ = max$
 weight vector ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $\langle 2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))\rangle$ = γ = γ , γ $\frac{1}{2}$ and $\frac{1}{2}$ represents the membership value (MV) of and membership value (MV) of and $\frac{1}{2}$ of and $\frac{1$ $\sum_{\text{consider } \Omega^- = \min\left(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n\right)}^{\infty}$ and $\Omega^+ = \max$ $\left(\prod_{\Omega_{\boldsymbol{\alpha}}}\left(\varkappa\right)e^{2\pi i\left(\alpha_{\Omega_{\boldsymbol{\zeta}}}\left(\varkappa\right)\right)},\Xi_{\Omega_{\boldsymbol{\alpha}}}\left(\varkappa\right)e^{2\pi i\left(\beta_{\Omega_{\boldsymbol{\zeta}}}\left(\varkappa\right)\right)}\right),\ z=1,2,\ldots,\text{Nto}$ be the family of CPyFVs, and consider $\Omega^- =$ min $\Big(\Omega_1,\Omega_2,\,\Omega_3,\dots,\,\Omega_{\}^P\Big)$ and $\Omega^+ =$ max $(\Omega_1,\Omega_2,\ \Omega_3,\dots,\ \Omega_{\P})$. Then, the associated value CPyFAAWA $(\Omega_1,\ \Omega_2,\ \dots,\ \Omega_k)$ is defined as: γ using an induction method, we prove Theorem 1 based on Ac γ , Ω_2 , Ω_3 , \dots , $\Omega_{\mathfrak{Y}}$) and $\Omega^+=\Omega$ $\hat{\Omega}^+ = \max$ $\begin{pmatrix} 1 & 2 \ 0 & 1 \end{pmatrix}$, $\begin{pmatrix} 2 & 3 \ 0 & 1 \end{pmatrix}$ m_{ℓ} $\begin{pmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}$ we prove Theorem 1 based on Ac $\begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}$ $\ddot{}$ $\binom{1}{k}$, 3 = 1, 2, ..., \mathfrak{n}_{t} **Theorem 4.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ to **Symmetry 1**, Consider $O = \left(\prod_{\alpha} \left(\mu\right)_{\alpha}^{2n}$, $\left(\mu\right)_{\alpha}^{2n}$, $\left(\mu\right)_{\alpha}^{2n}$, $\left(\mu\right)_{\alpha}^{2n}$, $\left(\mu\right)_{\alpha}^{2n}$, $\left(\mu\right)_{\alpha}^{2n}$ $(Q_1, Q_2, Q_3, \ldots, Q_m)$ Then the ass *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 **SYMMETRY 2023** $\left(\begin{array}{c} 11 \frac{1}{2} \frac{1}{2} \end{array} \right)$, $\left(\begin{array}{c} 11 \frac{1}{2} \end{array} \right)$, $\left(\begin{array}{c} 11 \frac{1}{2} \end{array} \right)$, $\left(\begin{array}{c} 1 \end{array} \right)$, $\left(\begin$ (12₁,12₂, 12₃,..., 12_ŋ). Then, the associated val **Theorem 4.** Consider $\Omega_{\overline{z}} = \left(\Pi_{\Omega_{\overline{z}}}(x)e^{2\pi i (\alpha_1 z_{\overline{z}}(x))}, \Xi_{\Omega_{\overline{z}}}(x)e^{2\pi i (\beta_1 z_{\overline{z}}(x))}\right)$, $\overline{z} = 1, 2, ..., \overline{n}$ to $\Omega_3, \ldots, \Omega_{\text{R}})$. Then, the associated value $\text{CPyFAAWA}(\Omega_1, \Omega_2, \ldots, \Omega_k)$ is d *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 $^+$ ⎜ $\overline{}$ $\mathbf{z}^{2\pi i(\beta \cap \mathbf{z}(\mathcal{H}))}$, $\mathbf{z} = 1, 2, ..., \mathbf{n}_{to}$ \mathfrak{D} Ω_2 , λ \bar{I} 2, Ω_3 , ..., Ω_{η} and $\Omega^+ =$ \overline{a} l consider $\Omega^- = \min\left(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\text{R}}\right)$ and $\Omega^+ = m$
, the associated value CPyFAAWA($\Omega_1, \Omega_2, ..., \Omega_k$) is defined **4.** Consider $\Omega_{\mathbf{z}} = \prod_{\Omega_{\mathbf{z}}} \prod_{\Omega_{\mathbf{z}}}$, the associated value $CPyFAA$ λ $A(\Omega_1, \Omega_2, \ldots, \Omega_k)$ is defined nax ⎟

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\Omega^{-} \leq CPyFAAWA\bigg(\Omega_{1},\,\Omega_{2},\,\ldots,\,\Omega_{\parallel}\bigg) \leq \Omega^{+}
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4. Aczel–Alsina Operations Based on CPyFSs

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 $\Omega_{\mathbf{Z}} = \begin{pmatrix} H_{\Omega_{\mathbf{Z}}}(\varkappa)e & \varkappa & \varkappa_{\Omega_{\mathbf{Z}}}(\varkappa)e & \varkappa_{\Omega_{\mathbf{Z}}}(\varkappa)e & \varkappa_{\Omega_{\mathbf{Z}}}(\varkappa)e & \varkappa_{\Omega_{\mathbf{Z}}}(\varkappa)e & \v$ $\int_{0}^{\infty} f(x) \, dx = \int_{0}^{\infty} f(x) \, dx$ $\int \sin \theta$ is Let $\Omega = \min\left\{ \frac{\Omega_1}{\Omega_2}, \frac{\Omega_2}{\Omega_3}, \dots, \frac{\Omega_n}{\Omega_n} \right\}$ $\hat{a} = \hat{a}$ $\hat{b} = \hat{a}$ $\hat{c} = \hat{a}$ $\hat{c} = \hat{a}$ $\hat{c} = \hat{a}$ $\hat{c} = \hat{c}$ $\hat{c} = \hat{a}$ $\hat{c} = \hat{c}$ $\hat{c} = \hat{c$ $2\pi i(\alpha_0 \left(\mathcal{H} \right))$ $2\pi i(\beta_0 \left(1\right))$ **Definition 5** ([32])**.** *Let* ଵ = ൫ଵ()ଶగ൫ఈభ(త)൯ , ଵ()ଶగ൫ఉభ(త)൯ $\text{tr }\Omega^{-} = min\left(\, \Omega_1, \Omega_2, \, \Omega_3, \ldots, \, \Omega_{\rlap{\scriptsize\rm I\rlap{\scriptsize\rm I}}\,\right) \, = \, (\varPi^{-}_{\varOmega}(\varkappa) , \Xi^{-}_{\varOmega}(\varepsilon))$ $\Omega_{\mathbf{n}}$ = $(\Pi_{\Omega}^{+}(\kappa), \Xi_{\Omega}^{+}(\kappa))$ such that $\Pi_{\Omega}^{-}(\kappa)$ **B** $\mathcal{L}_{\Omega_{\mathbf{Z}}}(\varkappa)e$ **B** σ ൫ଶ()ଶగ൫ఈమ(త)൯ , ଶ()ଶగ൫ఉమ(త)൯ ൯ *be two CPyFVs. Then* $\eta(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n) = (\Pi_0(\mathcal{U}), \Xi_0(\mathcal{U}))$ and \int_{Ω} \int_{Ω} \int $2\pi i (\alpha_{\Omega_{\bullet}})$ Proof. Let $\Omega_{\overline{g}} = \left(\Pi_{\Omega_{\overline{g}}}(\varkappa)e^{2\pi i(\alpha \Omega_{\overline{g}}}(\varkappa))}, \Xi_{\Omega_{\overline{g}}}(\varkappa)\right)$ *tion of CPvFVs.* Let $\Omega^- = min(\Omega_1, \Omega_2)$ $\mathbf{f} \cdot \mathbf{f} \cdot \mathbf{f} = \left(\sum_{\mathbf{H}} \mathbf{f}(\mathbf{x}_0, \mathbf{x}^{(1)})\right)$ \mathbf{E} . Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{(\mathbf{x}+\mathbf{x})^2}{2\pi^2}}, \mathbf{E}_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{(\mathbf{x}+\mathbf{x})^2}{2\pi^2}}\right)$ $2\pi i (r_1 + r_2)$ $2\pi i (r_2 + r_3)$ $2\pi i (r_3 + r_4)$ **Proof.** Let $\Omega_{\mathbf{z}} = \left(\prod_{Q_{\alpha}} \left(\chi\right) e^{2\pi i (\alpha_{Q_{\alpha}}(\chi))} \right)_{\alpha} \mathbb{E}_{Q_{\alpha}}(\chi) e^{-2\pi i (\alpha_{Q_{\alpha}}(\chi))}$ \sqrt{a} *iion of CPyFVs. Let* Ω^- = $min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ $max\left\{\Omega_1,\Omega_2,\Omega_3,\ldots,\Omega_n\right\} = \left\{I\right\}$ $T = \frac{1}{2}$ $\det\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right), \mathbf{Z} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right).$ *where TNM and TCNM are denoted by* Ŧ *and* Ṥ, *respectively. ii. If* ˘(ଵ) = ˘(ଶ), *then we need to find out the accuracy function: f.* Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa) e^{-\frac{(\mathbf{z} - \mathbf{z})^2}{2}} \right)$, *i*. *If* CPyFVs. Let $\Omega^- = min\left(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\text{II}}\right) = \left(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\text{II}}\right)$ *i*
 i. a = a $\left(\frac{1}{\sqrt{1 + (1 - \frac{1}{n})^2}}\right)$ *, <i>i* \overline{X} α ൯ *and* ଶ = $2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))$, $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))$, \mathbf{Z} $\sum_{r=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} (x) e^{-\frac{(x-1)^2}{2} (\frac{x}{n})^2}$, $\sum_{r=1}^{n} \sum_{j=1}^{n} (x-1)^2$, $\sum_{r=1}^{n} \sum_{j=1}^{n} (x-1)^2$ $\mathcal{L} = 2 \pi i (\pi - (33))$. $2 \pi i (\theta - (33))$ $\left(\prod_{O} \left(\chi\right) e^{2\pi i \left(\alpha_{O}(\chi)\right)}, \Xi_{O}(\chi) e^{2\pi i \left(\beta_{O}(\chi)\right)}\right), \ z = 1, 2$ *i. If* ˘(ଵ) < ˘(ଶ), *then* ଵ < ଶ, Let Ω^- = $min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n) = (\Pi_{\Omega}^- (\kappa), \Xi_{\Omega}^- (\kappa))$ I_i , $\Omega_{\bf n}$ = $(\Pi_{\Omega}^{+}(\varkappa), \Xi_{\Omega}^{+}(\varkappa))$ such $T_{\rm eff}$ $^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))}$, $\Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi})e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))}\big)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ as a colled *where TNM and TCNM are denoted by* Ŧ *and* Ṥ, *respectively. ii. If* ˘(ଵ) = ˘(ଶ), *then we need to find out the accuracy function: i. If* ˘(ଵ) < ˘(ଶ), *then* ଵ < ଶ, $\binom{12}{1}$, $\binom{22}{2}$, $\binom{12}{3}$, \ldots , $\binom{12}{1}$ = $\binom{11}{1}$ $I_2, \Omega_3, \ldots, \Omega_n$ = $(\Pi^+_0(\kappa), \Xi^+_0(\kappa))$ such that $\Pi^-_0(\kappa)$ \overline{C} \overline{a} $\lim_{n \to \infty} \frac{2\pi i (\alpha_{\Omega}(\mathbf{x}))}{n}$ $2\pi i(\ell-(t))$ **Proof.** Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\varkappa))}\right), \ z = 1, 2, ..., \mathbb{N}$ as a collec- $\lim_{\delta \to 0} \int_{-\infty}^{\infty} \frac{e^{iz}}{(2i\hbar\Omega_1^2 + \Omega_2^2 + \Omega_3^2 + \Omega_4^2)}$ / $\lim_{\delta \to 0} \left(\frac{1}{\Omega_1^2 + \Omega_2^2 + \Omega_3^2 + \Omega_4^2} - \frac{1}{\Omega_1^2 + \Omega_2^2 + \Omega_3^2} \right)$ and **Proof.** Let $\Omega_{\mathbf{z}} = \begin{pmatrix} II_{\Omega_{\mathbf{z}}}(\kappa)e & \varepsilon & \dots \end{pmatrix}$ *where TNM and TCNM are denoted by* Ŧ *and* Ṥ, *respectively.* $\mathcal{A}(\mathcal{A})$ be any two CPYFVs. The extension of $\mathcal{A}(\mathcal{A})$ $D_{\tau} = \left(\prod_{\alpha} (\kappa) e^{2\pi i (\mu_{\alpha} \sigma)} \bar{g}^{(\kappa)}\right)_{\text{FQ}} (\kappa) e^{-2\pi i (\mu_{\alpha} \sigma)} \bar{g}^{(\kappa)}$ *i* $\left(\begin{array}{c} \n\frac{1}{2} \sqrt{1 + \frac{1}{2} \sqrt{1 +$ $\int f(x) dx$ $\lim_{n \to \infty} \frac{1}{2} \left(\frac{n}{\epsilon} \right)^n$ $\left(\frac{n}{3} \right)^{n-1/2}$
 $\text{etc. } \Omega^{-} = \min \left(\Omega_1, \Omega_2, \Omega_3, \dots, \Omega_n \right) = \left(\prod_{i=1}^{n-1} (\chi_i) \right) \mathbb{E}^{-}_0(\chi)$ $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ \ldots , Ω_{\parallel} = $(\Pi_{\Omega}^{+}(\kappa), \Xi_{\Omega}^{+}(\kappa))$ such that $\Pi_{\Omega}^{-}(\kappa) = \min \left\{ \Pi_{\Omega}^{-}$ $\left(\frac{2\pi i(\alpha_{\Omega}g(\mathcal{X}))}{\prod_{\alpha}(\alpha_{\alpha})g} \mathbb{E}_{\alpha_{\alpha}}(\alpha_{\alpha})\right)$ \int' , \int' $\frac{d^2}{d^2}$ ($\frac{d^2}{dt^2}$ or $\frac{d^2}{dt^2}$ ($\frac{d^2}{dt^2}$ or $\frac{d^2}{dt^2}$ ($\frac{d^2}{dt^2}$ or $\frac{d^2}{dt^2}$ ($\frac{d^2}{dt^2}$ ($\frac{d^2}{dt^2}$ ($\frac{d^2}{dt^2}$ ($\frac{d^2}{dt^2}$ ($\frac{d^2}{dt^2}$ ($\frac{d^2}{dt^2}$) and $\frac{1}{3}$ Ω_{η} = $(\Pi_{\Omega}^{+}(\kappa), \Xi_{\Omega}^{+}(\kappa))$ such that $\Pi_{\Omega}^{-}(\kappa)$ = min $\left\{\Pi_{\Omega}^{-}(\kappa)\right\}$, $\mathcal{L}(\mathcal{U})$ $\mathcal{L}(\mathcal{$ \int' $\frac{1}{2}$, $\frac{1}{2}$ tion of CPyFVs. Let Ω^- = $min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ = $(\Pi_{\Omega}^-(\chi), \Xi_{\Omega}^-(\chi))$ and Ω^+ = $\frac{1}{3}$ $max\left(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_{\Pi}\right) = \left(\Pi^+_{\Omega}(\kappa), \Xi^+_{\Omega}(\kappa)\right)$ such that $\Pi^-_{\Omega}(\kappa) = min\left\{\Pi^-_{\Omega}(\kappa)\right\}$, By utilizing the notions of Aczel–Alsina TNM and TCNM, we explored some funda-**Proof** Let $Q = \prod_{\alpha} \left(\frac{\mu}{e} \right)^{\beta}$ $\lim_{\alpha \to \infty} \left(\frac{\mu}{e} \right)^{\beta}$ $\lim_{\alpha \to \infty} \left(\frac{\mu}{e} \right)^{\beta}$ section of $\frac{1}{2}$ and $\frac{1}{2}$ $\left(\begin{array}{ccc} 1 & -1 & -1 \\ 0 & 0 & 0 \end{array} \right)$ $\left(\begin{array}{ccc} 1 & -1 & -1 \\ 0 & 0 & 0 \end{array} \right)$ **Proof** Let $O = \left(H - \left(\frac{1}{N}\right)^{2} \right)^{2\pi i (k_{\Omega}Z(\mathcal{X}))}$ and $\frac{1}{N}$ and inter- $\sum_{i=1}^{\infty}$ section of $\sum_{i=1}^{\infty}$ $\binom{n}{2}$ and $\sum_{i=1}^{\infty}$ accelerations of the Ac i $max(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n) = (\Pi_1^+(\varkappa), \mathbb{F}_n^+(\varkappa))$ such that $\Pi_2^-(\varkappa)$ $\left(\begin{array}{c} n_1, n_2, \ldots, n_r, m_1 \\ \vdots \end{array} \right)$ $\left(\begin{array}{c} n_1, n_2, \ldots, n_r, m_1 \\ \vdots \end{array} \right)$ $\mathcal{L} = 2\pi i (n - \langle \mathbf{x} \rangle)$ and $\mathbf{R} = 2\pi i (n - \langle \mathbf{x} \rangle)$ **Proof.** Let $\Omega_7 = \left(\prod_{\Omega} (\kappa) e^{-\frac{(\kappa+1)^2}{2}} \right)^{(\kappa+1)}$, $\Xi_{\Omega} (\kappa) e^{-\frac{(\kappa+1)^2}{2}}$, $\Xi_{\Omega} = 1, 2, \ldots, \mathbb{N}$ section of CPyFSs and established some operations of the Aczel–Alsina-like Aczel–Alsina $max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n) = (\Pi_{\Omega}^+(\kappa), \Xi_{\Omega}^+(\kappa))$ such that $\Pi_{\Omega}^-(\kappa) = min\{\Pi_{\Omega}^+(\kappa)\}$ $\left(\begin{array}{ccc} a & b \\ c & d \end{array}\right)$ **oof.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ as a collec- δ s. Let $\Omega^- = \min\left(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_{\Pi}\right) = (\Pi_\Omega(\kappa), \Xi_\Omega(\kappa))$ and $\Omega^+ = \Omega_\Omega(\kappa)$ α α α $(\pi + (\alpha + \pi + (\beta))$ $\binom{1}{3}, \ldots, \binom{1}{n} = \binom{1}{n} \binom{n}{n} \in \Omega(\mathcal{M})$ such that $\prod_{\Omega} \binom{n}{\Omega} = \min$ **Definition 9.** *Let* ଵ = ൫ଵ()ଶగ൫ఈభ(త)൯ , ଵ()ଶగ൫ఉభ(త)൯ let Ω^- = min $\left(\Omega_1,\Omega_2,\Omega_3,\ldots,\Omega_{\tilde{p}}\right)$ = $\left(\Pi_{\Omega}^-(\varkappa),\Xi_{\Omega}^-(\varkappa)\right)$ and $\Omega^+=$ \overrightarrow{a} and \overrightarrow{b} \overrightarrow{c} and \overrightarrow{b} and \overrightarrow{b} $\langle u_0, u_1 \rangle = (u_0(x), \Delta_0(x))$ such that $u_0(x) = \min\{u_0(x)\}$ \int_{0}^{π} **C** $\left(\frac{d}{dt} \right) \left(\frac{d}{dt} \right)$ \int_{0}^{π} $\lim_{\delta \to 0} \left(\frac{\text{arg}(s_1, s_2, \ldots, s_n)}{\delta} \right) = \left(\frac{\text{arg}(s_1, s_2, \ldots, s_n)}{\delta} \right) - \left(\frac{\text{arg}(s_1, s_2, \ldots, s_n)}{\delta} \right)$ $I = (\Pi^+(u), \overline{u}^+(u))$ such that $\Pi^-(u) = r$ $\left(\frac{1}{\sqrt{2}} \left(n \right) \right)$ seen and $\left(\frac{1}{\sqrt{2}} \left(n \right) \right)$ \overline{a} κ)e²⁰⁰⁶($\Xi_{\Omega_{\mathbf{Z}}}(\kappa)$ e²⁰⁰ $\det\Omega_\mathbf{\bar{Z}}=\left(\Pi_{\Omega_\mathbf{\bar{Z}}}(\varkappa)e^{\frac{2\pi i (\alpha_{\Omega_\mathbf{\bar{Z}}}(\varkappa))}{2}},\Xi_{\Omega_\mathbf{\bar{Z}}}(\varkappa)e^{\frac{2\pi i (\beta_{\Omega_\mathbf{\bar{Z}}}(\varkappa))}{2}}\right)$ **4. Aczel–Alsina Operations Based on CPyFSs** $\max(\Omega_1,\Omega_2,\Omega_3,\ldots,\Omega_{\text{R}})=\left(\Pi_\Omega'(\varkappa),\Xi_\Omega'(\varkappa)\right)$ such that $\Pi_\Omega(\varkappa)$ \mathcal{L} operational laws of CPS study the generalization of union and inter- 2π $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\kappa) e^{\sum_{\mu} \mathbb{E}_{\Omega_{\mu}}[\mu]_2}$ $\left(\varPi_{\Omega_{\bf \bar{Z}}}(\varkappa)e^{\frac{2\pi i\left(\alpha_\Omega\right){\bf Z}}{2}(\varkappa)},\Xi_{\Omega_{\bf \bar{Z}}}(\varkappa)e^{\frac{2\pi i\left(\beta_\Omega\right){\bf Z}}{2}(\varkappa)}\right.$ \mathcal{L} operational laws of CPS study the generalization of union and inter- $\frac{1}{2}$ $E_{\Omega_{\mathbf{Z}}}(x)e^{-\frac{(x-\mathbf{Z})^2}{2}}$, $\mathbf{Z}=\mathbf{Z}$ Ὺ **4. Aczel–Alsina Operations Based on CPyFSs** $\max(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_{\mathfrak{Y}}) = (\Pi^+_{\Omega}(\kappa), \Xi^+_{\Omega}(\kappa))$ such that $\Pi^-_{\Omega}(\kappa) = \min \{ \Pi^-_{\Omega}(\kappa) \}$, $\frac{1}{2}$ $\frac{1}{2}$ Vs. Let $\Omega^- = min(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n) = (\Pi_{\Omega}^-(\chi), \Xi_{\Omega}^-(\chi))$ and $\Omega^+ =$ mental operational laws of \mathcal{L} study the generalization of union and inter $s_{\rm s}$ Let $\Omega^- = min(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n) = (\Pi^-_{\Omega}(\varkappa), \Xi^-_{\Omega}(\varkappa))$ and $\Omega^+ =$ mental operational laws of \mathcal{L} study the generalization of union and inter- $\{ \Omega_3, \ldots, \Omega_n \} = (H_0^+(x), \Xi_0^+(x))$ such that $H_0^-(x) = \min \{ H_0^-(x) \}$. $s_{\rm m}$, scalar multiplication and power role. Then, we have \sim tion of CPyFVs. Let Ω^- = $min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\Pi}) = (\Pi^-_{\Omega}(\varkappa), \Xi^-_{\Omega}(\varkappa))$ and Ω^+ = mental operational laws of union and inter-study the generalization of union and inter- $\{G_n\} = (\Pi_{\Omega}^+(\varkappa), \Xi_{\Omega}^+(\varkappa))$ such that $\Pi_{\Omega}^-(\varkappa) = \min \{ \Pi_{\Omega}^-(\varkappa)\}.$ sum, product, scalar multiplication and power role. Then, we have: **Proof** Let $Q = (H_0, \omega)^{2\pi i (\alpha \Omega_g(\mathcal{X}))}$ $\mathbb{E}_{\mathcal{A}} (\omega)^2 \frac{2\pi i (\beta \Omega_g(\mathcal{X}))}{\mathcal{A}}$ $\frac{1}{2}$ $\frac{1}{2}$ 1,2, … , _{1,2,}µ and ∑ <mark>i</mark>i $max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n) = (H_0^+(\kappa), \Xi_G^+(\kappa))$ such that $H_0^-(\kappa)$ **Proof.** Let $\Omega_{\tau} = \left(\prod_{O} (\gamma)e^{\frac{2\pi i (\alpha_{O_2}(\gamma))}{2}} \cdot \mathbb{E}_{O} (\gamma)e^{\frac{2\pi i (\beta_{O_2}(\gamma))}{2}}\right)$, $\zeta = 1, 2, \ldots$ *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = **Soot.** Let $\Omega_{\mathbf{Z}} = \begin{pmatrix} II_{\Omega_{\mathbf{Z}}}(\varkappa)e & \varkappa & \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e & \varkappa & \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e & \varkappa e & \varkappa e^{i\omega_{\mathbf{Z}}} \end{pmatrix}$, $\mathbf{Z} = 1, 2, ...,$ $\left(\begin{array}{ccc} \begin{array}{ccc} \end{array} & \begin{$ of Cryfys. Let $\Omega = \min\left(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n\right) = \left(\Omega_\Omega(\mathcal{X}), \Xi_\Omega(\mathcal{X})\right)$ and $\binom{1}{\lambda}$ of $\binom{1}{\lambda}$ $\binom{1}{\lambda}$ $\binom{1}{\lambda}$ of $\binom{1}{\lambda}$ of $\binom{1}{\lambda}$ \mathcal{L} $2\pi i(\alpha_0 \left(\mathcal{H} \right))$ $2\pi i(\beta_0 \left(\mathcal{H} \right))$ **Proof.** Let $\Omega_{\mathbf{z}} = \begin{pmatrix} \Pi_{\Omega_{\mathbf{z}}}(\mathbf{x})e & e \end{pmatrix}$, $\Xi_{\Omega_{\mathbf{z}}}(\mathbf{x})e$ e e e f , $\mathbf{z} = 1, 2, ..., 1$ as a colle $\lim_{\epsilon \to 0}$ of CPyFVs. Let $\Omega^- = \min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n) = (\Pi^-_0(\kappa), \Xi^-_0(\kappa))$ and Ω^+ $\begin{pmatrix} 1 & 1 \\ 0 & 0 \\ 0 & 0 \end{pmatrix}$ \overline{a} \overline{b} \overline{c} $\overline{$ $\left(\begin{array}{ccc} 2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}})) & 2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}})) \\ 0 & 0 & 0 \end{array}\right)$ $\left(\begin{array}{c} 1 & \frac{1}{2} \end{array} \right)$ (*N*)^e $\left(\begin{array}{c} 1 & \frac{1}{2} \end{array} \right)$, $e = 1, 2, ..., n$ as a conect Let Q^- a min $\left(Q, Q_2, Q_3, Q_4\right) = \left(\Pi^{-1}(y), \overline{T}^{-1}(y)\right)$ and Q^+ $\text{CPyFVs. Let } \Omega^- = \min \Big(\Omega_1, \Omega_2, \Omega_3, \dots, \Omega_{\Pi} \Big) = \big(\Pi_{\Omega}^-(\varkappa), \Xi_{\Omega}^-(\varkappa) \big)$ and $\Omega^+ = \Omega$ $(\Omega_n) = (\Pi_0^+(\chi), \Xi_0^+(\chi))$ such that $\Pi_0^-(\chi) = \min \{ \Pi_0^-(\chi) \}$ $\frac{1}{\sqrt{2}}$ $\det \Omega_{\sigma} = \left(\prod_{O} \left(\chi\right) e^{-2\pi i (\alpha_{O} \cdot \mathbf{z}}(X))}, \mathbb{E}_{O} \left(\chi\right) e^{-2\pi i (\beta_{O} \cdot \mathbf{z}}(X))}\right), \ z = 1, 2, \ldots, \mathbb{N}$ as a collec*with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = $\binom{m}{n}$ = $\left(\prod_{\Omega}^{+}(\kappa), \Xi_{\Omega}^{+}(\kappa)\right)$ such that $\prod_{\Omega}^{-}(\kappa)$ = $\min\left\{\prod_{\Omega}^{-}(\kappa)\right\}$, $\mathcal{L}_{\mathcal{A}}(\varkappa)e$ and $\mathcal{L}_{\Omega_{\mathbf{Z}}}(\varkappa)e$ are $\mathcal{L}_{\mathbf{Z}}(\varkappa)e$ as a collec- $\left(\begin{array}{ccc} 1 & 1 & 1 \ 1 & 1 & 1 \end{array}\right)$ $\mathcal{M} = \min\left(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n\right) = \left(\Omega_\Omega(\mathcal{X}), \Xi_\Omega(\mathcal{X})\right)$ and $\Omega^+ =$ $\int \frac{\mu_1}{\lambda_2}$ (x) μ_1 of μ_2 (x) μ_3 (x) μ_4 (x) μ_5 (x) μ_7 $2\pi i(\mathfrak{g}_{\Omega}(\boldsymbol{\gamma}))$ $2\pi i(\mathfrak{g}_{\Omega}(\boldsymbol{\gamma}))$ $\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ and $\overline{\varkappa}_{\Omega_{\mathbf{Z}}}(\varkappa)e$ and $\overline{\varkappa}_{\Omega_{\mathbf{Z}}}(\varkappa)e$ as a collecet Ω^- = $min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ = $(\Pi_0(\varkappa), \Xi_0(\varkappa))$ and Ω^+ = $\frac{d\mathbf{r}}{d\mathbf{r}}$ $\mathcal{L}^{\mathcal{A}}$ (κ) , $\Xi_{\Omega}^{+}(\kappa)$ such that $\Pi_{\Omega}^{-}(\kappa) = \min \left\{ \Pi_{\Omega}^{-}(\kappa) \right\}$, Ὺ $\mathcal{L}(\mathcal{H})$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{$ \int_{γ} $\alpha = 1, 2, ...,$ as a conection set of α O_2 , O_3 \qquad \qquad $\left\{ \left| \right| \right\}$ (a) $\left\{ \left| \right| \right\}$ (b) $\left\{ \left| \right| \right\}$ $\frac{1}{\sqrt{2}}$ ($\frac{1}{\sqrt{2}}$) $2\pi i(\alpha_{\Omega_{\bm{r}}}(x))$, $2\pi i(\beta_{\Omega_{\bm{r}}}(x))$, n **Proof.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \; \mathbf{Z} = 1, 2, \ldots, \mathbf{N} \; \text{as a collective} \; \text{and} \; \mathbf{M} = \mathbf{M} \cdot \mathbf{M} \cdot \mathbf{M} \cdot \mathbf{M}$ tion of CPyFVs. Let $\Omega^- = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n) = (H^{-}_{\Omega}(\kappa), \Xi^{-}_{\Omega}(\kappa))$ and $\Omega^+ =$ $\overline{S}^+(u)$ and that $\overline{H}^-(u) = \min$ $max\left(\Omega_1,\Omega_2,\Omega_3,\ldots,\Omega_{\text{r}}\right) = \left(\Pi_{\Omega}(\kappa),\Xi_{\Omega}(\kappa)\right)$ such that $\Pi_{\Omega}(\kappa) = min\left\{\Pi_{\Omega}(\kappa)\right\}$ $\begin{bmatrix} 1 & 1 & 2 & 3 & 4 \end{bmatrix}$ $max(\Omega_1, \Omega_2, \Omega_3, \ldots)$ **Proof.** Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi i}{3}}\right)$, $\mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi i}{3}}\right)$, $\mathbf{z} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi i}{3}}\right)$ *weight vector of CPvFVs. Let* $\Omega^- = min(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n) = (\Pi^-_0(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega^-_n))$ 1,2, … , _{2,2}, … , 2,2, … , 2,2, … , 2,2, … , 2,2, … , 2,2, … , 2,2, … , 2,2, … , 2,2, … , 2,2, … , 2,2, … , 2,2, ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\text{N}}) = (H^{\text{+}}_{\Omega}(\kappa), \Xi^{\text{+}}_{\Omega}(\kappa))$ such that Π **Proof.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \, \mathbf{Z} = 1, 2, ..., \mathbf{Z}$ $\lim_{\epsilon \to 0}$ of CPvFVs Let $O^- = \min \left(\bigcirc_{\epsilon} \bigcirc$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition: weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = tion of CPyFVs. Let $\Omega^- = \min \Big(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_{\Pi} \Big) = \big(\Pi_{\Omega}^-(\varkappa), \Xi_{\Omega}^-(\varkappa) \big)$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude tion of CPvFVs.* Let $\Omega^- = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n) = (\Pi_{\Omega}^-(\chi), \Xi_{\Omega}^-(\chi))$ and Ω^+ $(\mathbf{u} + (\mathbf{v} + (\mathbf{v} + \mathbf{v})))$ such that \mathbf{u})) **Proof.** Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right), \Xi_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right), \mathbf{z} = 1, 2, ..., \mathbf{z}$ as a colle $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ \frac 2, $\Delta z_3, \ldots, \Delta z_{\text{II}}$ = $\left(\frac{1}{2}I_Q(\lambda)\right)$ ῃ $\Omega_{\mathfrak{N}}\Big) \;=\; \big(\varPi^+_{\varOmega}(\varkappa),\Xi^+_{\varOmega}(\varkappa)\big)$ such that $\varPi^-_{\varOmega}(\varkappa) \;=\; \mathfrak{m}$ t $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \ z = 1, 2, ..., \mathbb{k}$ as a collec- W_EW_S Let $O⁻ = min \Big(O_2, O_3, O_2, \ldots, O_k \Big) = \Big(\Pi^{-1}(v) \ \mathbb{E}^{-1}(v) \Big)$ and $O⁺ = 0$ $f(x)$ is det in $\left(\begin{array}{c} x_1 \ldots \ x_n \end{array} \right)$ $\left(\begin{array}{c} x_1 \ldots \ x_1 \end{array} \right)$ $\left(\begin{array}{c} x_1 \ldots \ x_n \end{array} \right)$ *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = PyFVs. Let Ω^- = $min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\Pi}) = (H_{\Omega}^-(\varkappa), \Xi_{\Omega}^-(\varkappa))$ and Ω^+ = భ భ $\frac{1}{2}$ and $\frac{1}{2}$ represents the membership value (MV) of and membership value (MV) of and amplitude $\frac{1}{2}$ represents the membership value of amplitude $\frac{1}{2}$ represents the membership value of amplitude \frac tion of CPyFVs. Let Ω^- = $min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\Pi}) = (H_{\Omega}^-(\varkappa), \Xi_{\Omega}^-(\varkappa))$ and Ω^+ = $(\Pi^+_{\Omega}(\kappa), \Xi^+_{\Omega}(\kappa))$ such that $\Pi^-_{\Omega}(\kappa) = \min \Biggl\{ \Pi^-_{\Omega}(\kappa) \Biggr\}$ $\left(\prod_{\Omega_{\mathbf{z}}(\mathcal{H})e}2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\mathcal{H}))\right),\, z=1,2,\ldots,\text{ as a collection.}$ $\Pi_{\Omega}^{-}(\nu)$ (i)), $\Xi_{\Omega_{\mathcal{I}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathcal{I}}}}(\varkappa))}$, $\bar{z}=1,2,\ldots,\bar{v}$ as a collecof CPyFVs. By using an induction method, we prove Theorem 1 based on \mathcal{A} $(L_2, \Omega_3, \ldots, \Omega_{\Pi}) = (H_{\Omega}(\varkappa)),$ $\Gamma_{\Pi} \bigg) = \big(\Pi^-_\Omega(\varkappa)$, $\Xi^-_\Omega(\varkappa) \big)$ and $\Omega^+ = \Omega$ $\int_{0}^{1} \frac{1}{2}$ (*h*) $\int_{0}^{1} e^{-1/2} dx$, $\int_{0}^{1} \frac{1}{2} dx$ and $\int_{0}^{1} dx$ $F = (\Pi^+(v), \overline{F}^+(v))$ such that $\Pi^-(v) = \min \int \overline{H}^-(v)$ $\binom{r}{r}$ $\binom{r}{r}$ $\binom{r}{r}$ satisfy the conditions of $\binom{r}{r}$ $\binom{r}{r}$ *PyFVs.* Let $Ω^- = min(Ω_1, Ω_2, Ω_3, ..., Ω_1) = (Π_Ω(κ), Ξ_Ω(κ))$ and $Ω^+ =$ *w*) $F^+(v)$ such that $\overline{H}^-(v) = \min \int \overline{H}^-(v)$ $max\left(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_{\tilde{p}}\right) = \left(\Pi_{\Omega}^+(\varkappa), \Xi_{\Omega}^+(\varkappa)\right)$ such that $\Pi_{\Omega}^-(\varkappa) = min\left\{\Pi_{\Omega}^-(\varkappa)\right\},$ χ **2** $\pi i(\alpha_0 \left(\mathcal{H} \right))$ **2** $\pi i(\beta_0 \left(\mathcal{H} \right))$ of \mathcal{N} induction method, we prove Theorem 1 based on \mathcal{N} $(L_2, \Omega_3, \ldots, \Omega_{\Pi}) = (H_{\Omega}(\kappa))$ $\binom{1}{\Omega} = \left(\prod_{\alpha=1}^{+\infty} (\chi), \Xi_{\Omega}^{+}(\chi) \right)$ such that $\prod_{\alpha=1}^{-} (\chi)$ If or Cr yr vs. Let $\Omega = \lim_{\lambda \to 1} \left(\frac{\lambda^2 \lambda^2 \lambda^2 \lambda^2 \lambda^2 \lambda^2 \mu}{\lambda^2 \lambda^2 \mu^2} \right) = \left(\frac{\mu_0 \lambda^2 \mu_0 \mu_0}{\mu_0 \lambda^2 \mu_0^2} \right)$ and $\Omega =$ $\Pi_{\Omega}^{+}(\varkappa), \Xi_{\Omega}^{+}(\varkappa)$ such that $\Pi_{\Omega}^{-}(\varkappa) = \min \biggl\{ \Pi_{\Omega_{\mathbf{Z}}}^{-}(\varkappa) \biggr\},$ $\mathbb{E}_{\Omega_{\mathbf{z}}}(\varkappa)e$ **3 b**, $\mathfrak{z}=1,2,$ In this part, we recall the existing concepts of Λ $\left(\begin{array}{c} 1,1/2,1/3,\ldots,1/2_{\eta} \end{array} \right) = \left(\begin{array}{c} 1/I_{\Omega}(\varkappa),\Xi_{\Omega}(\varkappa) \end{array} \right)$ and $\Omega^+ = 0$ $2\pi i(\kappa_0(\boldsymbol{\mu}))$ $2\pi i(\beta_0(\boldsymbol{\mu})))$

In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of

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$$
\Pi_{\mathcal{O}}^{+}(x) = \max\left\{\Pi_{\mathcal{O}_{\frac{1}{2}}^{+}}^{+}(x)\right\} \text{ and } \Xi_{\mathcal{O}}^{-}(x) = \max\left\{\Xi_{\mathcal{O}_{\frac{1}{2}}^{+}}^{+}(x)\right\}. \Xi_{\mathcal{O}}^{+}(x) = \min\left\{\Xi_{\mathcal{O}_{\frac{1}{2}}^{+}}^{+}(x)\right\}.
$$

\nThen, the associated value $CPyFAAWA(\mathcal{O}_{1}, \mathcal{O}_{2}, ..., \mathcal{O}_{n})$ must satisfy the following conditions:
\n
$$
\sqrt{\frac{\left(1 - e^{-\left(\sum_{\substack{1}^{n} \sum_{\substack{3}^{n} \sum
$$

$$
\Pi_{\Omega}^{+}(\varkappa) = \max \left\{ \Pi_{\Omega_{\mathbf{Z}}}^{+}(\varkappa) \right\} \text{ and } \Xi_{\Omega}^{-}(\varkappa) = \max \left\{ \Xi_{\Omega_{\mathbf{Z}}}^{-}(\varkappa) \right\}, \ \Xi_{\Omega}^{+}(\varkappa) = \min \left\{ \Xi_{\Omega_{\mathbf{Z}}}^{+}(\varkappa) \right\}.
$$
\nThen, the associated value $CPyFAAWA(\Omega_{1}, \Omega_{2}, \ldots, \Omega_{\eta})$ must satisfy the following conditions:

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Definition 11. *Consider* ƺ = ቆఆƺ

In this part, we recall the existing concepts of A and A and A and A

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In this part, we recall the existing concepts of A and A and A and A

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 $\frac{1}{\sqrt{2\pi}}\int_{0}^{\infty}e^{-\frac{1}{2}x}dx$

In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of established an illustrative example to select a suitable candidate for a vacant post at established an illustrative example to select a suitable candidate for a vacant post at of new AOs like the CPyFAAWA operator and verified invented AOs with some generalized the basic idea of Aczel–Alsina TNM and TNM

laws and illustrative examples.

laws and illustrative examples.

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IFS and PyFs.

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\left(\sqrt{\frac{1-e^{-\left(\sum_{\substack{a=1 \\ a \neq i}}^{n} \sum_{\substack{a=1 \\ a \neq i}}^{n} \left(-i\alpha \left(1-\left(i/\bar{c}_a\right)^2\right)\right)^T\right)^{\frac{1}{T}}}{1-e^{-\left(\sum_{\substack{a=1 \\ a \neq i}}^{n} \sum_{\substack{a=1 \\ a \neq i}}^{n} \left(-i\alpha \left(1-\left(i/\bar{c}_a\right)^2\right)\right)^T\right)^{\frac{1}{T}}}\right)} \right) \leq \frac{1}{e^{-\left(\sum_{\substack{a=1 \\ a \neq i}}^{n} \sum_{\substack{a=1 \\ a \neq i}}^{n} \left(-i\alpha \left(1-\left(i/\bar{c}_a\right)^2\right)\right)^T\right)^{\frac{1}{T}}}\right)}} \cdot \frac{1}{e^{-\left(\sum_{\substack{a=1 \\ a \neq i}}^{n} \sum_{\substack{a=1 \\ a \neq i}}^{n} \left(-i\alpha \left(1-\left(i/\bar{c}_a\right)^2\right)\right)^T\right)^{\frac{1}{T}}}\right)}} \cdot \frac{1}{e^{-\left(\sum_{\substack{a=1 \\ a \neq i}}^{n} \sum_{\substack{a=1 \\ a \neq i}}^{n} \left(-i\alpha \left(1-\left(i/\bar{c}_a\right)^2\right)\right)^T\right)^{\frac{1}{T}}}\right)}} \cdot \frac{1}{e^{-\left(\sum_{\substack{a=1 \\ a \neq i}}^{n} \sum_{\substack{a=1 \\ a \neq i}}^{n} \left(-i\alpha \left(1-\left(i/\bar{c}_a\right)^2\right)\right)^T\right)^{\frac{1}{T}}}\right)}} \cdot \frac{1}{e^{-2\pi i}(\sum_{\substack{a=1 \\ a \neq i}}^{n} \sum_{\substack{a=1 \\ a \neq i}}^{n} \left(-i\alpha \left(\sum_{\substack{a=1 \\ a \neq i}}^{n} \sum_{\substack{a=1 \\ a \neq i}}^{n} \left(\sum_{\substack{a=1 \\ a \neq i}}^{n} \sum_{\substack{a=1 \\ a \neq i}}^{n} \left(\sum_{\substack{a=1 \\ a \neq i}}^{n} \sum_{\substack{a=1 \\ a \neq i}}^{n} \left(\sum_{\substack
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geometric (CPyFAAOWG) operators with some basic properties.

 $\mathcal{L}_{\mathcal{A}}$, $\mathcal{L}_{\mathcal{A}}$, $\mathcal{L}_{\mathcal{A}}$, $\mathcal{L}_{\mathcal{A}}$, $\mathcal{L}_{\mathcal{A}}$, $\mathcal{L}_{\mathcal{A}}$, $\mathcal{L}_{\mathcal{A}}$

 $\overline{}$ operators with some basic properties. We also assume basic properties.

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1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ

This shows that:
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\Omega^{-} \leq CPyFAAWA\left(\Omega_{1}, \Omega_{2}, ..., \Omega_{\Pi}\right) \leq \Omega^{+}
$$

 \Box , *respectively.* \Box , \Box , *respectively.* \Box , \Box , mental operational laws of C study the generalization of union and inter-setup the generalization of union and inter-1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ existing AOS with the results of our invented AOS. In Section 9, we summarize the whole summarized the whole s existing AOs with the results of our invented AOs. In Section 9, we summarized the whole 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ tion 6, we enlarged the idea of \Box introduced some AOS in the form of \Box tion 6, we enlarged the idea of CPyFSs and introduced some AOs in the form of CPytion 6, we enlarge the idea of C some A S s and introduced some A S s and σ tion 6, we encarge the idea of C -central some AOS in the form of C CPyFSs. In Section 3, we studied the concepts of some existing AOs under the different \Box in Section 3, we studied the concepts of some existing \Box CPyFSs. In Section 3, we studied the concepts of some existing AOs under the different

3. Existing Aggregation Operators

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IFS and PyFs. The PyFs.

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3. Existing Aggregation Operators

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Proof. Consider ƺ = ቆఆƺ

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\frac{\text{Symmetry 2023, 15, 68}}{\text{Theorem 5. If } \Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}, \Sigma_{\Omega_{\mathbf{Z}}}(\kappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\kappa))}\right), \quad \mathbf{Z} = 1, 2, ..., N \text{ and}
$$
\n
$$
\Omega_{\mathbf{Z}}' = \left(\Pi_{\Omega_{\mathbf{Z}}'}(\kappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}'}(\kappa))}, \Sigma_{\Omega_{\mathbf{Z}}'}(\kappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}'}(\kappa))}\right), \quad \mathbf{Z} = 1, 2, ..., N \text{ are two CPyFSs and if}
$$
\n
$$
\Omega_{\mathbf{Z}} \leq \Omega_{\mathbf{Z}}', \quad \forall, \quad \left(\mathbf{Z} = 1, 2, ..., N\right), \text{ then we have:}
$$
\n
$$
CPyFAAWA\left(\Omega_{1}, \Omega_{2}, ..., \Omega_{\mathbf{Z}}\right) \leq CPyFAAWA\left(\Omega_{1}', \Omega_{2}', ..., \Omega_{\mathbf{Z}}'\right)
$$

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In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of

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 $\frac{D}{2}$ $\mathcal{W}_{\mathcal{P}}$ are prove this by using the steps of Theorem $2 \Box$ $\frac{1}{2}$ of $\frac{1}{2}$ is the case $\frac{1}{2}$ of $\frac{1}{2}$ is $\frac{1}{2}$ is $\frac{1}{2}$ if $\frac{1}{2}$ is $\frac{1}{2}$ is $\frac{1}{2}$ if $\frac{1}{2}$ is $\frac{1}{2}$ is $\frac{1}{2}$ **Proof.** We can prove this by using the steps of Theorem 2. \Box **Symbol Meaning Symbol Meaning** In prove this by using the steps of Theorem 2. \Box of. We can prove this by using the steps of Theorem 2. \Box **Symbol Meaning Symbol Meaning Proof.** We can prove this by using the steps of Theorem 2. \Box n prove this by using Proof. We can prove this by using t he ste this by using the ste **Proof.** We can prove this by using the steps of Theorem 2. \Box

In this part, we recall the existing concepts of A and A and A and A

IFS and PyFs. The PyFs.

3. Existing Aggregation Operators

Example 2. Consider $\Omega_1 = (0.46e^{2i\pi(0.15)}, 0.61e^{2i\pi(0.22)}), \Omega_2 =$ $\Omega_{23} = (0.65e^{-0.017})$, $0.16e^{-0.01}$
with corresponding weight vector $\frac{1}{2}$ $CPyFAAWA operator are given for Y = 3.$ $\frac{1}{\sqrt{2}}$ = (σ, 1,2,3, ω,¹) such that $\frac{1}{\sqrt{2}}$ = 1,2,3, ω,¹ $\frac{1}{\sqrt{2}}$ = 1,2,3, ω,¹ $\frac{1}{\sqrt{2}}$ = 1,2,3, ω,1,2, ω, **Example 2.** Consider $\Omega_1 = (0.46e^{2i\pi(0.15)}, 0.61e^{2i\pi(0.22)}), \Omega_2 = (0.17e^{2i\pi(0.25)}, \Omega_2 = (0.63e^{2i\pi(0.45)}, 0.16e^{2i\pi(0.67)})$ and $\Omega_1 = (0.86e^{2i\pi(0.29)}, 0.49e^{2i\pi(0.24)})$ Ẁ Non-empty set ˘ Score function **Xample 2.** Consider $\Omega_1 = (0.46e^{2i\pi(\omega/3L)}, 0.61e^{2i\pi(\omega/2L)}, 1.22e^{2i\pi(\omega/3L)}, 0.4e^{2i\pi(\omega/3L)}, 0.4e^{2i\pi(\omega/3L)}, 0.4e^{2i\pi(\omega/3L)}, 0.4e^{2i\pi(\omega/3L)}, 0.4e^{2i\pi(\omega/3L)}, 0.4e^{2i\pi(\omega/3L)}, 0.4e^{2i\pi(\omega/3L)}, 0.4e^{2i\pi(\omega/3L)}, 0.4e^{2i\pi(\omega/3L$ $M_3 = (0.03e^{-x}$, $0.10e^{-x}$) unu $M_4 = (0.30e^{-x}$, $0.49e^{-x}$
 $M_5 = (0.02e^{-x})^2$ $N_{\text{min}} = 4$ (creating term of $\Omega = (0.20, 0.35, 0.30, 0.15)$. Then, the aggregated values Ω_{min} . $\mathbf{F} = \mathbf{1} \cdot \mathbf{2} \cdot \mathbf{G} = (0.46 \cdot 2i\pi(0.15) \cdot 2.61 \cdot 2i\pi(0.22)) \cdot \mathbf{G} = (0.45 \cdot 2i\pi(0.37) \cdot 2.97 \cdot 2i\pi)$ $(0.63e^{2i\pi(0.45)}, 0.16e^{2i\pi(0.67)})$ and ῃ $d\Omega_4 =$ $\frac{1}{2}$ and have for $\frac{7}{2}$ - 1 2 2 4 Consider $Q_{\rm t} = (0.462 \text{ln}(0.15) - 0.612 \text{ln}(0.22))$ $Q_{\rm t} = (0.172 \text{ln}(0.37) - 0.272 \text{ln}(0.54))$ $\lim_{\Omega \to 0} (0.45)$ $(0.462 \pi (0.67))$ and $\Omega_t = (0.36e^{2i\pi (0.29)})$ $(0.49e^{2i\pi (0.24)})$ are $\frac{1}{\sqrt{2}}$ and $\frac{1}{\sqrt{2}}$ of $\frac{1}{\sqrt{2}}$ in $\frac{1}{\sqrt{2}}$ **nple 2.** Consider $\Omega_1 = (0.46e^{2i\pi(0.15)}, 0.61e^{2i\pi(0.22)}), \Omega_2 = (0.17e^{2i\pi(0.37)}, 0.27e^{2i\pi(0.54)}),$
 $\Omega_1 = (0.63e^{2i\pi(0.45)}, 0.16e^{2i\pi(0.67)}, \text{and } \Omega_2 = (0.36e^{2i\pi(0.29)}, 0.49e^{2i\pi(0.24)}, \text{are four CmEVs})$ $\frac{1}{2}$ $M_1 = (0.46e^{2i\pi(\omega/2)})$, $0.6e^{2i\pi(\omega/2)})$, $M_2 = (0.1e^{2i\pi(\omega/2)})$, $0.2e^{2i\pi(\omega/2)})$, M_{tot} of M_{tot} of M_{tot} of Ω_{tot} of with corresponding weight vector $\mathfrak{D} = (0.20, 0.35, 0.30, 0.15)$. Then, the aggregated values of δ ⁿ δ ⁿ $1, 2, \ldots$ $(9.46 \frac{2i\pi (0.15)}{2 \pi (0.25)}$ $2.61 \frac{2i\pi (0.37)}{2 \pi (0.37)}$ $2.97 \frac{2i\pi (0.54)}{2 \pi (0.37)}$ $\Gamma^{(0.67)}$) and $\Omega_4 = (0.36e^{2i\pi(0.29)})$ $\boldsymbol{\eta}$ $, 0.49e$ $i\pi(0.15)$ Ω 61.2 $i\pi(0.22)$ Ω = (0.17.2 $i\pi(0.37)$ 0.27.2 $i\pi(0.54)$) and $\Omega_t = (0.36e^{2i\pi(0.29)})$ $0.49e^{2i\pi(0.24)}$ are four CmiFVs $\zeta = 3$. $1,2, 0, 16,2^{2iπ(0.15)}$ **0.61** $_2^{2iπ(0.22)}$ **0.** $-$ (**0.17** $_2^{2iπ(0.37)}$ **0.27** $_2^{2iπ(0.54)}$) $d\Omega_4 = (0.36e^{2i\pi(0.29)}, 0.49e^{2i\pi})$ ῃ (0.24)) **Example 2.** Consider $\Omega_1 = (0.46e^{2i\pi(0.15)})$, 0.61e² $\Omega_3 = (0.63e^{2i\pi(0.45)}, 0.16e^{2i\pi(0.67)})$ and $\Omega_4 = 0$ Example 2. Consider $\Omega_1 = (0.46e^{2i\pi(0.15)}, 0.61e^{2i\pi(0.22)})$, Ω_2 $\Omega_3 = (0.63e^{2i\pi(\omega, \omega)})$, $0.16e^{2i\pi(\omega, \omega)}/\pi$ and $\Omega_4 = (0.36e^{2i\pi(\omega, \omega)})$ **EXAMPLE 2.** CONSINER $\Delta z_1 = (0.40e^{\frac{3\pi}{10.67}})$, $0.01e^{\frac{3\pi}{10.67}}$, $0.01e^{\frac{3\pi}{10.67}}$ $\Delta 23 = (0.006 \times 7, 0.106 \times 7)$ unu $\Delta 24 = (0.006 \times 7, 0.006 \times 7)$ CD_1E4 AMA onorgin x and $x = (0.20, 0.00, 0.00, 0.10)$. $\mathcal{L} = \mathcal{L} \times \mathcal{L} = \{(\mathbf{r}, \mathbf{u}) | \mathbf{r} = (0.15, 0.15, 0.05, 0$ **EXAMPLE 2.** CONSIDER $Y_1 = (0.46e^{2i\pi(0.67)})$, $0.01e^{2i\pi(0.27)}$, $Y_2 = (0.17e^{2i\pi(0.45)})$ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ with corresponding weight vector $\mathfrak{D} = (0.20, 0.35, 0.30, 0.15)$. Then, the aggreg CBuEA AMA corresponding weight $\mathfrak{D} = (0.20, 0.35, 0.30, 0.15)$. Then, the aggreg **Symbol Mean** $\frac{1}{2} \theta$ (0.46 $\frac{2i\pi(0.15)}{2}$ 0.61 $\frac{2i\pi(0.22)}{2}$) (0.15 $\frac{2i\pi(0.22)}{2}$ **Example 2.** Consider $\Omega_1 = (0.46e^{2i\pi(0.15)}, 0.61e^{2i\pi(0.22)}), \Omega_2 = (0.17e^{2i\pi(0.37)}, 0.61e^{2i\pi(0.27)}, 0.61e^{2i\pi(0.27)}, 0.61e^{2i\pi(0.27)}, 0.61e^{2i\pi(0.27)}, 0.61e^{2i\pi(0.27)}, 0.61e^{2i\pi(0.27)}, 0.61e^{2i\pi(0.27)}, 0.61e^{2i\pi(0.27)},$ $\Omega_3 = (0.63e^{2\pi i (0.35)}$, $0.16e^{2\pi i (0.65)}$ and $\Omega_4 = (0.36e^{2\pi i (0.25)}$, $0.49e^{2\pi i (0.24)}$ are **Symbol Mean Act 121** = $(0.40\epsilon^{5/2})$, $(0.01\epsilon^{5/2})$, $(0.62\epsilon^{2})\pi(0.45)$, $(0.62\epsilon^{2})\pi(0.29)$, $(0.62\epsilon^{2})\pi(0.24)$, $(0.62\epsilon^{2})\pi(0.24)$ $(0.00e^{\gamma}$, $0.10e^{\gamma}$ summarized to $(0.20e^{\gamma} - 0.00e^{\gamma})$ we get $(0.00e^{\gamma} - 0.00e^{\gamma})$ we get $\frac{1}{N}$ of a contract $\frac{1}{N}$ of $\frac{1}{N}$ or $\frac{1}{N}$ $\frac{1}{N}$ or $\frac{1$ $\mathcal{L} = \mathcal{L} \times \mathcal{L} = \{(\mathbf{r}, \mathbf{u}) \in \mathbb{R}^2 : |(\mathbf{r}, \mathbf{u})| \leq \mathcal{L} \times \mathbb{R}^2 : |\mathbf{r}| \leq \mathcal{L} \times \mathbb{R}^2 : |\mathbf{r}| \leq \math$ **EXAMPLE 2.** CONSIDER $Y_1 = (0.46e^{2i\pi(0.67)})$, $0.01e^{2i\pi(0.27)}$, $Y_2 = (0.17e^{2i\pi(0.27)})$, $0.27e^{2i\pi(0.27)}$ $\Omega_3 = (0.63e^{-i\pi(\omega, \omega)}, 0.1)$
znik corresponding zneje T_{res} onding weight vector $\mathfrak{D} = (0.20, 0.35, 0.30, 0.15)$. Then, the aggregated values of **Simbol Meaning Symbol Mean** $\frac{2i\pi(0.15)}{2\pi(0.25)}$ **Symbol Mean** $\frac{2i\pi(0.37)}{2\pi(0.54)}$ $^{(12)}_{45} = (0.762 \times 10^{-6})$, $^{(12)}_{52} = (0.172 \times 10^{-6})$, $^{(12)}_{52} = (0.172 \times 10^{-6})$, $^{(12)}_{52} = (0.172 \times 10^{-6})$ Ω \hat{G} \ldots Ω Ω \ldots Ω Ω Ω Ω π Ω π *with weight weight with weight vector* $\frac{1}{2}$ $\frac{12}{3}$ (cross) $\frac{12}{3}$ (cross) $\frac{12}{3}$ (cross) $\frac{12}{3}$ (cross) $\frac{12}{3}$ (cross) $\frac{12}{3}$ Ω_3 $(0.63e^{2i\pi(\omega, \mathbf{x})}, 0.16e^{2i\pi(\omega, \mathbf{x})})$ and $\Omega_4 = (0.36e^{2i\pi(\omega, \mathbf{x})}, 0.16e^{2i\pi(\omega, \mathbf{x})})$ *with corresponding weight vector* $\mathfrak{D} = (0.20, 0.35, 0.30, 0.15)$ *. Then, the aggregated values of* $\mathfrak{D} = \mathfrak{D}$ *CPuFA AWA onerator are given for* $\mathfrak{D} = 3$ **Example 2.** *Consider* $\Omega_1 = (0.46e^{2i\pi(0.15)}, 0.61e^{2i\pi(0.22)}), \Omega_2 = (0.17e^{2i\pi(0.37)}, 0.27e^{2i\pi(0.54)}),$ $\Omega_3 = (0.63e^{2i\pi(0.45)}$, $0.16e^{2i\pi(0.67)})$ and $\Omega_4 = (0.36e^{2i\pi(0.29)})$, $0.49e^{2i\pi(0.24)})$ are four CpyFVs **Example 2.** Consider $\Omega_1 = (0.46e^{2i\pi(0.15)}, 0.61e^{2i\pi(0.22)}),$ $\Omega_3 = (0.63e^{2i\pi(0.45)}, 0.16e^{2i\pi(0.67)})$ and $\Omega_4 = (0.36e^{2i\pi(0.65)})$ **3. Example 2.** Consider **Example 2.** Consider $\Omega_1 = (0.46e^{2i\pi(0.15)}, 0.61e^{2i\pi(0.22)}), \Omega_2 = (0.17e^{2i\pi(0.57)}, 0.27e^{2i\pi(0.34)}),$
 $\Omega_3 = (0.63e^{2i\pi(0.45)}, 0.16e^{2i\pi(0.67)})$ and $\Omega_4 = (0.36e^{2i\pi(0.29)}, 0.49e^{2i\pi(0.24)})$ are four CpyFVs i iii. j iii. j iii. j ii. j ii. j i. j , $\mathcal{O}(\mathcal{O}(\log n))$

b $\frac{1}{2}$ **dution.** Since we have: for $\overline{3} = 1, 2, 3, 4$ α are have: for $\overline{z} = 1, 2, 3, 4$ \overline{Q} \overline{Q} \overline{Q} $-v$, v , v solution. Since **Solution.** Since we have: for $\epsilon = 1$, ϵ , δ , ϵ \overline{N} of a metal vector vectors \overline{N} and \overline{N} vectors \over **Solution.** Since we have: for $\overline{z} = 1$, 2, 3, 4 **ION.** Since we have: for $z = 1, 2, 3, 4$ $N = \frac{1}{2}$ $N = \frac{1}{N} \sum_{i=1}^{N} \sum_{j=1}^{N}$ **Solution.** Since we have: for $\bar{z} = 1$, 2, 3, 4 **Solution.** Since we have: for $\overline{z} = 1, 2, 3, 4$ **Solution** Since the have: for **Solution.** Since we have: for $3 = 1$, 2, 3, 4 IFS and PyFs. α and α for $\overline{3}$ - 1 2 3 A **Solution.** Since we have: for $z = 1, 2, 3, 4$ $1, 2, 3, 4$

Table 1. Symbols and their meanings.

$$
CPyFAAWA(\Omega_1, \Omega_2, \ldots, \Omega_4) = \begin{pmatrix} \sqrt{\frac{1}{1 - e^{-\left(\sum_{\mathbf{Z}=1}^4 \mathfrak{D}_{\mathbf{Z}}\left(-\ln\left(1 - \Pi_{\mathbf{Z}}^2\right)\right)^3\right)^{\frac{1}{3}}}} \\ 2\pi i \sqrt{\frac{1}{1 - e^{-\left(\sum_{\mathbf{Z}=1}^4 \mathfrak{D}_{\mathbf{Z}}\left(-\ln\left(1 - \alpha_{\mathbf{Z}}^2\right)\right)^3\right)^{\frac{1}{3}}}} \\ e^{-\left(\sum_{\mathbf{Z}=1}^4 \mathfrak{D}_{\mathbf{Z}}\left(-\ln\left(\Xi_{\mathbf{Z}}\right)\right)^3\right)^{\frac{1}{3}} } \\ e^{-\left(\sum_{\mathbf{Z}=1}^4 \mathfrak{D}_{\mathbf{Z}}\left(-\ln\left(\Xi_{\mathbf{Z}}\right)\right)^3\right)^{\frac{1}{3}} } \\ e^{\frac{2\pi i}{e^{-\left(\sum_{\mathbf{Z}=1}^4 \mathfrak{D}_{\mathbf{Z}}\left(-\ln\left(\beta\right)\right)^3\right)^{\frac{1}{3}}}} \end{pmatrix}
$$

$$
\begin{pmatrix}\n\sqrt{\sqrt{\frac{1}{1-e^{-\left(\left((0.20)\left(-\ln(1-(0.46)^2\right)\right)^3+(0.35)\left(-\ln(1-(0.17)^2\right)\right)^3+\right)^3}}}\n\sqrt{\frac{1}{1-e^{-\left(\left((0.30)\left(-\ln(1-(0.63)^2)\right)\right)^3+(0.15)\left(-\ln(1-(0.36)^2)\right)^3+\right)^3}}}\n\sqrt{\sqrt{\frac{1}{1-e^{-\left(\left((0.20)\left(-\ln(1-(0.15)^2)\right)^3+(0.35)\left(-\ln(1-(0.37)^2)\right)^3+\right)^3\right)^3}}}\n\sqrt{\frac{1}{1-e^{-\left(\left((0.30)\left(-\ln(1-(0.45)^2)\right)^3+(0.15)\left(-\ln(1-(0.29)^2)\right)^3+\right)^3\right)}}}\n\sqrt{\frac{1}{1-e^{-\left(\left((0.20)(-1n(0.61))^3+(0.35)(-1n(0.27))^3+\right)^3\right)^3}}}\n\sqrt{\frac{1}{1-e^{-\left(\left((0.20)(-1n(0.61))^3+(0.15)(-1n(0.49))^3\right)\right)^3}}}\n\sqrt{\frac{1}{1-e^{-\left(\left((0.20)(-1n(0.22))^3+(0.35)(-1n(0.54))^3+\right)^3\right)}}}\n\sqrt{\frac{1}{1-e^{-\left(\left((0.20)(-1n(0.22))^3+(0.35)(-1n(0.24))^3\right)\right)^3}}}\n\sqrt{\frac{1}{1-e^{-\left(\left((0.20)(-1n(0.67))^3+(0.15)(-1n(0.24))^3\right)\right)^3}}}\n\sqrt{\frac{1}{1-e^{-\left(\left((0.20)(-1n(0.67))^3+(0.15)(-1n(0.24))^3\right)}\right)^3}}}\n\sqrt{\frac{1}{1-e^{-\left(\left((0.20)(-1n(0.67))^3+(0.35)(-1n(0.27))^3+(0.15)(-1n(0.24))^3\right)}\right)^3}}}
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= \left(0.5417e^{2i\pi(0.3927)}, 0.2480e^{2i\pi(0.3424)}\right)
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Definition 11. *Consider* ƺ = ቆఆƺ

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a list of new AOS of CPS state of CPS by utilizing the basic operation the basic operational laws of Ac μ

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We explore our invented AOs and presented new AOs of CPyF using an Aczel–Alsina-order weighted averaging (CPyFAAOWA) operator based on Aczel-Alsina operations. We explore our invented AOs and presented new AOs of CPyF using an Aczel–Alsina-order
weighted averaging (CPyFA AOWA) operator based on Aczel–Alsina operations IFS and PyFs. \overline{O} \overline{O} \overline{O} aging (CPyFAAOWA) operator based on Aczel–Alsina operations. We explore our invented AOs and presented new AOs of CPyF using an Aczel–Alsina-order
weighted averaging (CPyFA AOWA) operator based on Aczel–Alsina operations ⎜ the CP vFAAOWA) operator based on Aczel–Alsina operat wented AOs and presented new AOs of CPyF using an Aczel–⁄
ing (CPyFAAOMA) are grater has a dead on Appl Alsine are gratic భ ⎟ io \overline{a} /
We explore our invented AOs and presented new AOs of CPyF using an Aczel–Alsina-or \overline{a} χF weighted averaging (CPyFAAOWA) operator based on Aczel–Alsina operations. \mathcal{L} (CPyFAAOWA) operator based on Aczel–Alsina operations. ze \overline{A} new AOs of CPyF using an Aczel–Alsina-order $\frac{1}{2}$ ⎜ weighted averaging (CPyFAAOWA) operator based on Aczel-Alsina operations. $= (0.5417e^{2i\pi(0.3927)}, 0.2480e^{2i\pi(0.3424)})$
We explore our invented AOs and presented new AOs of CPyF using an Aczel–Alsina-order $=$ \mathbf{V} ighted averaging (CPyFAAOWA) operator based on Aczel–Alsina operations. \overline{a} We explore our invented AOs and presented new AOs of CPyF using an Aczel-Alsina-order ing (CPyFAAOWA) operator based on Aczel–Alsina operations. ing (CPvFAAOWA) operator based on Aczel–Alsin 1− ed AOs and presented new AOs of CPyF using an Aczel–Alsina-order
CPyEA AOWA) eperator based op Aczel–Alsina eperations λ OWA) operator based on Aczel–Alsina op Ĵ, A COPYFS operator based on Acker Thoma operations. $n = 1$ AOWA) operator based on Aczel–Alsina operati

Definition 12. Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{3}{2}+\frac{1}{2}}$, $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{1}{2}+\frac{1}{2}}$, $\mathbf{Z} = \mathbf{Z}$ to be the family of CPyFVs, and its corresponding weight vectors $\mathfrak{D}_{{\bf Z}}=(\mathfrak{D}_1,\mathfrak{D}_2,\,\mathfrak{D}_3,\dots,\,\mathfrak{D}_n)^T$ of $\Omega_{\mathbb{Z}}\left(\mathbb{Z}=1,2,3,...\mathbb{N}\right)$, such that $\mathfrak{D}_{\mathbb{Z}}\in[0,1]$, $\mathbb{Z}=1,2,...,\mathbb{N}$ and $\sum_{\mathbb{Z}}\mathbb{Z}_{\mathbb{Z}}\supseteq\mathbb{Z}$ $CPyFAAOWA operator is particularly anisomorphism.$ **Definition 12.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}),$ $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ $\alpha \left(r, 122, n \right)$, $\alpha \left(r, 122, n \right)$, $\alpha \left(r, n \right)$ \mathcal{C} as: to be the family of CPyF*∨s* $\frac{1}{2}$ $\frac{1}{2}$ $\mathcal{L}, \mathcal{S}, \ldots$ °'), such thut $\mathcal{L} \mathcal{L} \in [0,1]$ onerator is narticularized as: ῃ $(=1,2,3,\ldots, n)$, such that $\mathfrak{D}_3\in [0,1]$, $\mathfrak{Z}=1,2,\ldots, n$ and $\sum_{\mathbf{Z}=1}^n \mathfrak{D}_{\mathbf{Z}}=1$. Then, the $\frac{1}{2}$ represents the membership value (MV) of a membership value (MV) of a membership value (MV) of a membership value of $\frac{1}{2}$ value (MV) of a membership value of amplitude $\frac{1}{2}$ value of a membership value mily of CPyFVs, and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \, \mathfrak{D}_3, \ldots, \, \mathfrak{D}_n)^T$ **12.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2}{3}(\mathbf{Z}^T\mathbf{Z}(\varkappa)e^{-\frac{2}{3}(\mathbf{Z}^T\mathbf{Z}(\varkappa))^2})}, \mathbf{Z} = 1, 2, ..., 1$ $\mathcal{L}_{\mathcal{B}}^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(x))}$ ansider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(x))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(x))}, \mathbf{Z} = 1, 2, \ldots, 0$ $\int f(t) \cdot \mathbf{r} \cdot d\mathbf{r}$, satisfy the condition \mathbb{R}^n of \mathbb{R}^n and \mathbb{R}^n the conditions of \mathbb{R}^n and \mathbb{R}^n $\mathcal{E} = \begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$ −vs, ana its corresponaing $\frac{1}{2}$. The IF Accelers $\frac{1}{2}$ $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ is given as: $\frac{1}{2}$ is give $\mathcal{O}_{\mathbf{Z}} \in [0,1], \; \varepsilon = 1,2,\ldots,$ " นท $\mathcal{O}_{\mathbf{Z}}$ as ῃ ind $\sum_{\bf \overline{Z}=1}^n \mathfrak{D}_{\bf \overline{Z}}=1.$ Then, the $\frac{1}{2}$ and $\frac{1}{2}$ *and* $\frac{1}{2}$ *and* $\frac{1}{2}$ *represents the membership* value (MV) of a matrix $\frac{1}{2}$ *the corresponding weight vectors* $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ to be the family of CPyFVs, and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = \left(\mathfrak{D}_1, \mathfrak{D}_2, \, \mathfrak{D}_3, \ldots, \, \mathfrak{D}_n\right)^T$ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\mathcal{L}_{3=1}$ \sim ϵ of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina $(\mathcal{B}, \ldots, \mathcal{B})$, such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1, 2, \ldots, \mathcal{B}$ and $\sum_{z=1}^{\mathcal{B}} \mathfrak{D}_z = 1$. Then, the $\frac{c-1}{c}$. Then, the IF $\frac{c-1}{c}$ of $\Omega_{\bf \bar{Z}}\Bigl(3=1,2,3,\ldots{}^{\displaystyle 1\!\!\,1}\Bigr)$, such that $\mathfrak{D}_{\bf \bar{Z}}\in[0,1]$, $\,3=1,2,\ldots{},^{\displaystyle 1\!\!\,1}$ and $\sum_{\bf \bar{Z}=1}^{\displaystyle 1\!\!\,1}\mathfrak{D}_{\bf \bar{Z}}=1.$ Then, the **Definition 12.** Consider $\Omega_{\overline{2}} = (\Pi_{\Omega_{\overline{2}}}(x)e^{-\Pi_{\Omega_{\overline{2}}}(x)}, \Xi_{\Omega_{\overline{2}}}(x)e^{-\Pi_{\Omega_{\overline{2}}}(x)})$, $\overline{2} = 1, 2, ..., N$ **Definition 12.** Consider $\Omega_{\mathbf{Z}} = (H_{\Omega_{\mathbf{Z}}}(\kappa)e^{\alpha}$ and $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{\alpha}$ and $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{\alpha}$ to he the family c ition 12. Consider $\Omega_3 = (\Pi_{\Omega_3}(\varkappa) e^{2\pi i (\alpha_{\Omega_3}(\varkappa))}, \Xi_{\Omega_3}(\varkappa) e^{2\pi i (\beta_{\Omega_3}(\varkappa))}),$ 3 = 1,2,..., 11 $CPyFAAOWA operator is particularly as:\n\begin{pmatrix}\n\cdot & \cdot & \cdot \\
\cdot & \cdot & \cdot \\
\cdot & \cdot & \cdot\n\end{pmatrix}$ Theorem $\overline{\mathcal{E}}$ is and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}}=(\mathfrak{D}_1,\mathfrak{D}_2,\,\mathfrak{D}_3,\dots,\,\mathfrak{D}_n)^T$ $\sum_{i=1}^n$ $\sum_{i=1}^n$ $I = (II_{\Omega_{\vec{3}}}(x)e$ c_req₃ $(x)e$ c₎, $z = 1, 2, ...,$ \mathcal{A} , such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots$, \mathfrak{A} and $\sum_{z=1}^{\infty} \mathfrak{D}_z = 1$. Then, the $2\pi i(x - \mu)$ 2π $\text{Consider } \Omega_{\mathbf{Z}} = (H_{\Omega_{\mathbf{Z}}}(\varkappa)e \qquad \varkappa \qquad , \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e \qquad \varkappa \qquad , \varkappa \in [1,2,\ldots,1]$ $g = (II_{\Omega}(\kappa)e$ $\frac{\alpha_{\Omega}}{3}(\kappa)$, $\Xi_{\Omega}(\kappa)e^{2\pi i(\beta_{\Omega})}$ ⎟ ⎞ $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa}))},$ ֧֡֜׆ ⎝ ⎠ **Definition 12.** Consider $\Omega_{\overline{g}} = (\Pi_{\Omega_{\overline{g}}}(\kappa)e^{-\frac{(\kappa+1)^2}{2}(\kappa)})$, $\Xi_{\Omega_{\overline{g}}}(\kappa)e^{-\frac{(\kappa+1)^2}{2}(\kappa)})$, $\overline{s} = 1, 2, ...$ $\left(3=1,2,3,\ldots$ ⁿ, such that $\mathfrak{D}_3 \in [0,1]$, $\overline{3}=1,2,\ldots$, ⁿ and $\sum_{\mathbf{Z}=1}^{\mathbf{N}} \mathfrak{D}_{\mathbf{Z}}=1$. Then, the **3. Existing Aggregation Operators** of $\Omega_3\left(3=1,2,3,\ldots$ $\ket{0}$, such that $\mathfrak{D}_3\in[0,1]$, $\,3=1,2,\ldots, \begin{matrix}0\end{matrix}$ and $\sum_{3=1}^{\begin{matrix}0\end{matrix}}\mathfrak{D}_3$ to be the family of CPyFVs, and its corresponding weight vectors $\mathfrak{D}_\mathfrak{Z} = (3, 1, 2, \ldots, 5)$ order weighted averaging (CP) operator based on $\mathcal{L}(\mathcal{P})$ of $\Omega_{\mathbb{Z}}\left(3=1,2,3,...\right)$, such that $\mathfrak{D}_{\mathbb{Z}}\in[0,1]$, $\mathfrak{Z}=1,2,...,\mathfrak{N}$ and $\sum_{\mathbb{Z}=1}^{\mathbb{N}}\mathfrak{D}_{\mathbb{Z}}=1$. **Definition 12.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega})$ $\frac{1}{2}$ is the function of $\frac{1}{2}$ if $\frac{1}{2}$ $CPyFAAOWA operator is particularly as:\n\begin{pmatrix}\n0 & 0 \\
0 & 0\n\end{pmatrix}$ $= (0.5417e^{2i\pi((0.3927)}, 0.2480e^{2i\pi((0.3424)}))$
We explore our invented AOs and presented new AOs of CPyF using an Aczel–Alsin
weighted averaging (CPyFAAOWA) operator based on Aczel–Alsina operations.
Definition 12. *C* order weighted averaging (CPyFAAOWA) operator based on Aczel–Alsina operations. to be the family of CPyFVs, and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ $\frac{1}{3}$, $\frac{1}{3}$ of $\Omega_{\mathbf{Z}}$ $(\mathbf{\hat{z}} = 1, 2, 3, ...$ ¹), such that $\mathfrak{D}_{\mathbf{Z}} \in [0, 1]$, $\mathbf{\hat{z}} = 1, 2, ...$, th and $\sum_{\mathbf{Z}=1} \mathfrak{D}_{\mathbf{Z}} = 1$. I order weighted averaging (CPyFAAOWA) operator based on Aczel–Alsina operations. $\frac{1}{3}$ $f(x, 122, 0)$ \ldots $f(x, t) = (0, 1, 2, 1, 0, \ldots)$ \ldots $\begin{bmatrix} 0 & 0 & 0 \\ 0 & -1 & \cdots & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$ $\Omega_{\mathbf{Z}}$ $\{z = 1, 2, 3, \ldots$ ¹), such that $\mathfrak{D}_{\mathbf{Z}} \in [0, 1]$, $\{z = 1, 2, \ldots, 1 \text{ and } \sum_{\mathbf{Z}_{i} = 1} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the ν FAAOWA onerator is narticularized as: \cdots , \cdots $W_{\rm{max}}$ $2\pi i(\kappa_{\Omega}(\mathcal{U}))$ $2\pi i(\kappa_{\Omega}(\mathcal{U}))$ *family of CPy_z Fig. (a),* $\{a\}$ *=* $\{1, 2, \ldots, a\}$ *and* $\sum_{n=1}^{a}$ $\mathfrak{D}_n = 1$. Then, the \sum_{j} , such that $\sum_{j} \in [0,1]$, $\sum_{j} = 1,2,...$, and $\sum_{j=1}^{\infty} \sum_{j=1}^{\infty} = 1$. Then, the CPI surface $\sum_{j=1}^{\infty}$ $\mathbf{D} \cdot \mathbf{G}$ with $\mathbf{D} \cdot \mathbf{G}$ and $\mathbf{D} \cdot \$ $rac{1}{T}$ **Demitted 12.** Constant $22\frac{\pi}{3} - \frac{11}{2} \frac{\pi}{2}$ of Ω_5 $(3 = 1, 2, 3, \ldots \mathbb{I})$, such that $\mathfrak{D}_5 \in [0, 1]$, $3 = 1, 2, \ldots, \mathbb{I}$ and $\mathbf{D} \in \mathbb{C}$ is the presented new Apple $\mathbf{D} = \frac{2\pi i (\alpha_{0,2})}{\sigma}$ $\sum_{\text{Cylimit of } \Delta} \frac{1}{2}$ \mathbf{D} explore our inventor of \mathbf{L} and \mathbf{L} and \mathbf{L} and \mathbf{L} \sum cementor \sum _i \sum _conoma) \sum ₂ \sum ₂ (x₁)^c \mathbf{D} explore only and presented \mathbf{D} and presented new A \mathbf{D} $\sum_{i=1}^{\infty} \sum_{j=1}^{\infty} \sum_{j$ $\frac{3}{2}$. Existing $\frac{3}{2}$. ω_1 , ω_2 , ω_3 , \ldots , ω_n $\ddot{}$ (ν) der $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{-}}(\mathbf{z})e^{\mathbf{i} \cdot \mathbf{z}} + \mathbf{z}_{\Omega_{-}}(\mathbf{z})e^{\mathbf{i} \cdot \mathbf{z}_{\Omega_{-}}(\mathbf{z})}e^{\mathbf{i} \cdot \mathbf{z}_{\Omega_{-}}(\mathbf{z})}$ order weighted averaging (CP_S) operations. \mathcal{O} $\mathcal{L}^{[1]}$, such that $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,\mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ **5.** $\mathfrak{D}_3 \in [0,1], \ 3 = 1,2,\ldots, n$ and $\sum_{3=1}^n \mathfrak{D}_3 = 1$. Then, the ularized as: $= (0.5417e^{2i\pi(0.3927)}, 0.2480e^{2i\pi(0.3424)})$
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 22 et sphere our invented AOs and presented new AOs of CPyF using an Aczel–Alsina-order
 efinition 12. Consider $\Omega_2 = (\Pi_{\Omega_2}(x)e^{2\pi i(\alpha_2}(x))$, $H_{Q}(\boldsymbol{\chi})e^{-\frac{2\pi i}{3}}$, $E_{Q}(\boldsymbol{\chi})e^{-\frac{2\pi i}{3}(2\pi i)}$, $\zeta = 1, 2, \ldots, n$ $f(x) = \frac{1}{2}$ and its corresponding weight vectors $\frac{1}{2}$ $\frac{1}{2}$ *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 $\frac{1}{\alpha}$ iii. $\frac{1}{\alpha}$ ii $\alpha - 1$ **Definition 12.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi i}{3}})$ $\overline{\mathfrak{g}}$ $f \Omega_{\mathbf{Z}} \left(\mathbf{Z} = 1, 2, 3, \dots \mathbf{I} \right)$, such that $\mathfrak{D}_{\mathbf{Z}} \in [0, 1]$, $\mathbf{Z} = \mathbf{Z} \cup \mathbf{Z}$ \mathcal{Y}^I \mathbf{a} .
id. $\det \Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{\frac{2\pi i(\alpha_{\Omega_{\mathbf{z}}})}{\pi i}}$ \overline{a} \mathbb{Z}, Ξ ⎠ $\mathbf{1}$ భ Ὺ $\overline{}$ $\text{ectors } \mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D})$ $_1$, \mathfrak{D}_2 , \mathfrak{D}_3 , . L ⎠ $\overline{1}$ $\mathfrak{g}_{\mathbb{Z}}$ $\left(0, \frac{(7-122-1)}{2}, \frac{1}{2}\right)$ and $\left(1, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}\right)$ and $\left(1, \frac{1}{2}, \frac{1}{2}\right)$ and $\left(1, \frac{1}{2}\right)$ ω or the family ω Cr y_1 V σ , and its corresponding weight occurs $\omega_2 = (\omega_1, \omega_2, \omega_3, \ldots, \omega_n)$ ^{te} $\overline{}$ $\mathcal{S} = \frac{1}{2}$ is and its corresponding weight vectors $\mathfrak{D}_{\mathsf{a}} = (\mathfrak{D}_{\mathsf{a}}, \mathfrak{D}_{\mathsf{a}}, \mathfrak{D}_{\mathsf{a}})^T$ CD_1FA ΔOWA operator is particularized as: $2\pi i(\alpha_{\text{O}_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\text{O}_{-}}(\boldsymbol{\chi}))$ *finition 12. Conside* ⎜ ⎜ ඨ 1−ି൬∑ ƺ ^ῃ $\binom{n}{3}$, such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{F} = 1, 2, \ldots, \mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{U}} \mathfrak{D}_3 = 1$.
1 and $\sum_{\mathbf{Z}=1}^{n} \mathfrak{D}_{\mathbf{Z}} = 1$. Th $i(\alpha_0, (\boldsymbol{\gamma}))$ $2\pi i(\beta_0, (\boldsymbol{\gamma}))$ e^z , $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)$ 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ $\sum_{i=0}^{\infty}$ $(\gamma)e^{2\pi i(p_{12}^{\gamma})}$ \overline{a} finition 12 \in be the family of CPyFVs, and its corresponding weight vectors $\mathfrak{D}_\mathbf{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)$ $\overline{}$ $f_2(z=1,2,3,...,i)$, such that $\mathfrak{D}_z \in [0,1]$, $z=1,2,...,i$ and $\mathfrak{D}_{z=1} \mathfrak{D}_z = 1$. Then, the $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ = 1 $\frac{2}{3}$ = 1 $\frac{2}{3}$ = 1 $\frac{2}{3}$ *r*
^{Theorem 2. *Constant and in a speciality sectors* $\Omega_{-} = (\Omega_{1}, \Omega_{2}, \Omega_{3})$} Sonsider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ \varkappa , $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ \varkappa), $\varkappa = 1, 2, ..., 5$ ቇ , ƺ = 1,2, … , ῃ *to be the* $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ of $\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$...¹¹), such that $\mathfrak{D}_\mathbf{Z} \in [0,1]$, $\mathfrak{Z} = 1, 2, \ldots$, ¹¹ and $\sum_{\mathbf{Z} = 1}^{\infty} \mathfrak{D}_\mathbf{Z} = 1$. Then, the ator is particularized as: $\begin{bmatrix} 0 \\ 1 \end{bmatrix}$ such that $\mathfrak{D}_{\mathbf{z}} \in [0, 1]$, $\mathfrak{Z} = 1, 2, \ldots, \mathfrak{Y}$ Γ :PyFVs, and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D})$ u
∫aler ∩ \mathcal{U} $\int u \, \mathfrak{D}_3 \in [0,1], \, \mathfrak{F} = 1,2,\ldots, \mathfrak{l}$ and $\ddot{}$ of Ω_2 $(3 = 1, 2, 3, ...$ $\mathbb{I})$, such that $\mathfrak{D}_3 \in [0, 1]$, $3 = 1, 2, ...$, \mathbb{I} and $\sum_{3=1}^{\mathbb{I} \mathbb{I}} \mathfrak{D}_3 = 1$. Then, the $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ $)$ \overline{a} **Definition 12.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\mathbf{z}))e^{i\mathbf{z}(\mathbf{z})/\mathbf{z}}$, $\Xi_{\Omega_{\mathbf{z}}}(\mathbf{z})e^{i\mathbf{z}(\mathbf{z})/\mathbf{z}}$, $\Xi_{\mathbf{z}}$, $\Xi_{\mathbf{$ to be the jumity of CP yr vs, and its corresponding weight bectors $\omega_{\mathbf{Z}} = (\omega_1,$ $\frac{1}{\sqrt{2}}$ oped some innovative concepts of α be the family of CPyFVs, and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3)$ $AOWA$ operator is particularized as: $AOWA$ laws and illustrative examples. **Theorem 2.** *Consider* ƺ = ቆఆƺ $2\pi i(r_1 - r_2)/r_1$, and $2\pi i(8 - r_1)/r_2$ $q_7 = (\Pi_{\Omega} \cdot \theta)$ ῃ \mathcal{CP} yFVs, and its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ \mathcal{P} .
ra $\frac{1}{n}$ m: \overline{a} $\frac{1}{\cdot}$ $\Big)$, such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1, 2, \ldots, \mathfrak{N}$ and \sum \cdot Ω $\omega_{\mathbf{g}}(\mathbf{w})$ $\mathbf{z}^{(\mathcal{H})}$ \overline{a} ϵ and its corresponding weight vectors $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ Ļ. \cdot \approx \cdot , \cdot *Symmetry* **2023**, *14*, x FOR PEER REVIEW 4 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 4 of 35 of Ω_2 ($\overline{\mathcal{S}} = 1, 2, 3, \ldots$ ^{[1}], such that $\mathfrak{D}_3 \in [0, 1]$, $\overline{\mathcal{S}} = 1, 2, \ldots$, ^{[1}] and $\sum_{\mathcal{S}=1}^n \mathfrak{D}_3 = 1$. Then, the α yet discreptions. α for $M_{\rm max}$ and α . \mathcal{C} Figure AOMA operator is naticularized as: CPyFAAOWA operator is particularized as: $2\pi i(\alpha_0 \left(\boldsymbol{\gamma}\right))$ $2\pi i(\beta_0 \left(\boldsymbol{\gamma}\right))$ **Definition 12.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{\int_{\mathbf{z}}^{\infty} \mathcal{L}_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{\int_{\mathbf{z}}^{\infty} \mathcal{L}_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{\int_{\mathbf{z}}^{\infty} \mathcal{L}_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{\int_{\mathbf{z}}^{\infty} \mathcal{L}_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{\int_{\mathbf{z}}^{\infty} \math$ *family of CPVs and its corresponding weight vectors weight vectors weight vectors weight vectors and its corresponding weight vectors and its corresponding vectors* $\frac{1}{2}$ α corresponding weight economic $\mathcal{L}_2 = (\mathcal{L}_1, \mathcal{L}_2, \mathcal{L}_3, \dots, \mathcal{L}_n)$, such that $\mathfrak{D}_7 \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots$, \mathfrak{N} and $\sum_{r=1}^{\mathfrak{U}}$ $\mathfrak{D}_7 = 1$. Then, the of $\Omega_{\mathbf{Z}}\left(\mathbf{\hat{z}}=1,2,3,\ldots\mathbf{Y}\right)$, such that $\mathfrak{D}_{\mathbf{Z}}\in[0,1],\ \mathbf{\hat{z}}=1,2,\ldots\mathbf{Y}$ and $\mathbf{\Sigma}_{\mathbf{Z}=1}\mathfrak{D}_{\mathbf{Z}}=1$. Then, the and TCNM. ⎜ \overline{z} d its corresponding weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ $, =$ d its corresponding weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ $2\pi i(r-(x))$ $2\pi i(8-(x))$ hat $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{F} = 1, 2, ..., 0$ and λ

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CPyFAAOWA\left(\Omega_{1}, \Omega_{2}, \dots, \Omega_{\eta}\right) = \bigoplus_{\mathbf{Z}=1}^{\eta} \left(\mathfrak{D}_{\mathbf{Z}}\Omega_{\mathbf{b}(\mathbf{Z})}\right) = \mathfrak{D}_{1}\Omega_{\mathbf{b}(1)} \oplus \mathfrak{D}_{2}\Omega_{\mathbf{b}(2)} \oplus \dots, \oplus \mathfrak{D}_{\eta}\Omega_{\mathbf{b}(\mathbf{R})}
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 $\mathcal{L}_{\mathcal{A}}$, and $\mathcal{L}_{\mathcal{A}}$, and $\mathcal{L}_{\mathcal{A}}$, and $\mathcal{L}_{\mathcal{A}}$, and $\mathcal{L}_{\mathcal{A}}$

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 $\forall, \, 3 = 1, 2, 3, \ldots$! ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* $w_i(x) = \frac{1}{2}$, and $\frac{1}{2}$, of $\frac{1}{2}$, $\frac{1}{2}$, ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* where (b(1), b(2), b(3), ..., b(3)) is a permutation of (3 = 1, 2, 3, ... ^{[1}) and $\Omega_{b(3-1)} \ge \Omega_{b(3)}$, $\mathfrak{p}(\mathsf{c}-1)$ $\mathfrak{p}(\mathsf{c})$ $\mathcal{M} = \{ \mathcal{M} \mid \mathcal{M} \leq \mathcal{M} \}$ set $\mathcal{M} = \{ \mathcal{M} \mid \mathcal{M} \leq \mathcal{M} \}$ set $\mathcal{M} = \{ \mathcal{M} \mid \mathcal{M} \leq \mathcal{M} \}$ $(\nabla \cdot \mathbf{r})^2 + (\nabla \cdot \mathbf{r})^2 + (\nabla \cdot \mathbf{r})^2$ D_1, \ldots , $\mathfrak{b}(3)$) is a permutation of $(3 = 1, 2, 3, \ldots !!)$ and $\Omega_{\mathfrak{b}(3 - 1)} \ge \Omega_{\mathfrak{b}(3)}$, $\mathcal{L}(s)$ is a permanance of $(s = 1, 2, 3, ...$ i fum $\mathcal{L}_{b}(2-1) \leq \mathcal{L}_{b}(2)$ $where (b(1), b(2), b(3), ..., b(8))$ is a p
 $\forall z = 1, 2, 3$ [1] $(3), \ldots$, $b(3))$ is a per. n $(5, \ldots, 5(5))$ is a permutation of $(5 = 1, 2, 3, \ldots, 9)$ a $(2, 3, \ldots 0)$ and $\Omega_{b(2, -1)}$ α permutation of $(3 = 1, 2, 3, \ldots \mathbb{I})$ and $\Omega_{\mathbf{b}(\mathbf{3} - 1)}$ $= 1, 2, 3, \ldots$ ^o $\lim_{b} \Omega_{b}(\mathbf{z}_{-1})$ $\mathfrak{p}(\varepsilon)$ 2, 3, ... $\mathfrak{g}_{p(2-1)} \geq \Omega_{p(2-1)}$ $\mathcal{L}(\mathcal{L} - \mathcal{L})$ $\mathbf{r}(\mathbf{s})$. $w^2(\frac{1}{2}) = \frac{1}{2} \left(\frac{1}{2} \right) + \frac{1}{2} \left(\frac{2}{3} \right)$ is a normalization of $(\frac{7}{2} - 1, 2, 3)$ $\left(\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \cdots, \frac{1}{2} \right)$. Then, is given as: $\frac{1}{2}$ $\mu_{\text{m}}(5(1), 5(2), 5(3), \ldots, 5(2))$ is a permutation of $(2 = 1, 2, 3, \ldots 9)$ and $\frac{1}{2}$, and $\frac{1}{2}$, and $\frac{1}{2}$ *where* $(b(1), b(2), b(3), \ldots, b(3))$ *is a permutation of* $(3 \equiv 1, 2, 3, \ldots, n)$ and Ω Ϧ(ƺ), ∀, ƺ = 1,2,3, … ῃ*.* where $(\mathfrak{b}(1),\,\mathfrak{b}(2),\,\mathfrak{b}(3),\,\ldots,\,\mathfrak{b}(8))$ is a permutation of $(\mathfrak{b}=1,\,2,\,3,\ldots$ ii) and $\Omega_{\mathfrak{b}(3)}$ $\frac{1}{2}$, w _{*whore* $(L(1), L(2), L(3)) \neq L(3)$, is a portunitation of $(3 - 1, 2, 3, \ldots)$ and Ω} $\frac{1}{2}$ $w_0(L(1), L(2), L(3))$, $L(3)$, p_0 permutation of $(3, -1, 2, 3, 1)$ and Ω $\frac{1}{2}$, $\frac{1}{2}$ *g* B_1, \ldots, B_2 is a permutation of $(3 = 1, 2, 3, \ldots, 1)$ and $\Omega_{(2, 2, 3)} > \Omega_{(2, 2)}$ where $(\mathfrak{b}(1),\,\mathfrak{b}(2),\,\mathfrak{b}(3),\,\ldots,\,\mathfrak{b}(3))$ is a permutation of $(3=1,\,2,\,3,\ldots$ $\mathfrak l)$ and $\Omega_{\mathfrak{b}(Z-1)}\geq \Omega_{\mathfrak{b}(Z)},$ $\mathfrak{g}_{\mathfrak{m}}$ 1, ², ∴ and ∑ ⊥ ∄ ∑ ∴ ⊥ ∄ ∑ ∴ ⊥ ∄ ∴ ∴ ∆ ∄ <mark>⊥</mark> $1,2,0,0,1,1.$ $\sum_{i=1}^n \frac{1}{i}$ this part, we recall the existing concepts of $\sum_{i=1}^n \frac{1}{i}$ where (b(1), b(2), b(3), ..., b(3)) is a permutation of ($3 = 1, 2, 3, ...$ 1) and $\Omega_{b(3-1)} \geq \Omega_{b(3)}$, \overline{p} and \overline{p} and \overline{p} and \overline{p} under the system of \overline{p} under the system of \overline{p} $\forall x \ \mathbf{\bar{z}} = 1, 2, 3, \dots, n$. If the particulation of $(e-1, 2, 3, \ldots$ of and $\Omega_b(2-1) \leq \Omega_b(2)$ $P(a, 1)$ $P(a)$ α *tonere* ϵ) μ is a permanation of $(3 = 1, 2, 3, \ldots, \mathbb{I})$ and $\Omega_{b/3} = \frac{1}{2}$ $\frac{1}{2}$ (b(1), b(2), b(3), ..., b(2)) is a permutation
 $\frac{1}{2}$ (c) $\frac{1}{2}$ (c) $\frac{1}{2}$ (c) $\frac{1}{2}$ $u \Delta z_{b} (z_{-1}) \leq \Delta z_{b} (z)$ $(\beta, \ldots, \beta(8))$ is a permutation of $(8 = 1, 2, 3, \ldots 9)$ and $\Omega_{\beta(8 - 1)} \ge \Omega_{\beta(8)}$ $\mathfrak{b}(3)$ $\mathfrak{b}(5)$ is a permutation of $(3 \equiv 1, 2, 3, 0, \mathbb{R})$ and Ω tation of $(2 = 1, 2, 3, \ldots, n)$ and $\Omega_{b(2-1)} \geq \Omega_{b(2)}$, $b(3), \ldots, b(3)$ ⎠ $perp(b(1) b(2) b(3)$ (3) Furthermore, we also established the CPyFAAWAG operator based on the defined on the defined on the definition on the definition of $p(z-1)$ $\lambda = 1, 2, 3, \ldots$ " $h(1)$, $h(2)$, $h(3)$, ... $\begin{bmatrix} \n\mathbf{y} & \mathbf{z} & \mathbf{z} & \mathbf{z} & \mathbf{z} \\
\mathbf{z} & \mathbf{z} & \mathbf{z} & \mathbf{z} & \mathbf{z} \\
\mathbf{z} & \mathbf{z} & \mathbf{z} & \mathbf{z} & \mathbf{z}\n\end{bmatrix}$ f_1/\mathcal{L}_1 , \mathcal{L}_2 , \mathcal{L}_3 , \mathcal{L}_4 , \mathcal{L}_5 , \mathcal{L}_6 , \mathcal{L}_7 , \mathcal{L}_8 , \mathcal{L}_9 *b*(3), ..., *b*(8)) is a permuta $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ $h(3)$ $h(3)$ is a permutation of $(3 - 1, 2)$ \ldots \mathfrak{m} and \mathfrak{g} where $(\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ is a permutation of $(3 = 1, 2, 3, \ldots 0)$ and $\Omega_{\mathfrak{t}, (3)} \geq \Omega_{\mathfrak{t}, (3)}$ γ , $\epsilon = 1/2, 0, \ldots$ T. $\langle v, \sigma \rangle = 1/2, \sigma, \ldots$ \mathbf{a} $\sum_{j=1}^{\infty} \sum_{j=1}^{\infty} \sum_{j$ σ $\frac{1}{3}$ (ξ) , ..., $b(3)$ is a permutation of $(3 = 1, 2, 3, 4)$ $\phi(3)$ is a permutation of $(3 = 1, 2, 3, \ldots)$ ⎟ ⎟ ⎞ μ 2), $\mathfrak{b}(3)$, \dots , $\mathfrak{b}(3)$ is a permutation of $(3 = 1, 2, 3, \dots, n)$ and $\Omega_{\mathfrak{b}(3-1)} \ge \Omega_{\mathfrak{b}(3)}$, \forall , $\mathfrak{z} = 1, 2, 3, \ldots$!! (3), ..., $\mathfrak{b}(3)$ is a permutation of $(3 = 1, 2, 3, \ldots, n)$ and $\Omega_{\mathfrak{b}(3 - 1)} \ge \Omega_{\mathfrak{b}(3)}$,

11,2, Theorem 6. Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi}))}, \mathbb{E}_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi}))}\right)$ the family of CPyFVs and its corresponding weight vector $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2)$ 1,2,3,...!'), such that $\mathfrak{D}_{\mathfrak{Z}} \in$ $[0, 1], \overline{3} = 1, 2, \ldots,$
explore are national exists (\mathbb{R}^n) , such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., n$
The CPuFAAOWA operator are particularized $\mathcal{L} = \mathcal{L} \left(\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \ldots, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \ldots, \frac{1}{2} \right)$ **11,2, Theorem 6.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\kappa))}e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\kappa))}{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\kappa))}}\right), \; \mathbf{Z} = 1$ $\frac{1}{2}$ and $\frac{1}{2}$ a = 1,2,...,^{η} and $\Sigma_{\mathcal{Z}}^{\mathfrak{U}}$
particularized as: $\mathcal{L} = 1, 2, 3, \ldots \mathfrak{N}$, such that $\mathfrak{D}_{\mathbf{Z}} \in [0, 1]$, $\mathfrak{Z} = 1, 2, \ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z} = 1}^{\mathfrak{N}} \mathfrak{D}_{\mathbf{Z}} = 1.$ $\left(\frac{2\pi i (x-(12))}{\pi i (x-(12))} \right)$ **m 6.** Let Ω ₃ = $(\Pi_{\Omega_{\alpha}}(\varkappa)e^{-\frac{1}{2}x^2}$, $\Xi_{\Omega_{\alpha}}(\varkappa)e^{-\frac{1}{2}x^2}$, Ξ_{α} , Ξ_{α} ily of CPyFVs and its corresponding weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $(2\pi i(\alpha_0)(\boldsymbol{\chi}))$ $2\pi i(\beta_0(\boldsymbol{\chi})))$ $\lim_{n \to \infty} \frac{1}{2} \left(\frac{n_1}{2} (n) \right)$ ῃ $\overline{}$ $\binom{m}{k}$ and $\binom{n+1}{k}$ $\binom{n+1}{k}$ $\binom{n+1}{k}$ $\binom{n+1}{k}$ $\binom{n+1}{k}$ $\binom{n+1}{k}$ $\binom{n+1}{k}$ $\left(\begin{array}{cc}2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}}))&2\pi i(\beta_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}}))\end{array}\right)$ $M_{\mathcal{Z}} = \begin{pmatrix} H_{\Omega_{\mathcal{Z}}}(\kappa)e & e & , \Xi_{\Omega_{\mathcal{Z}}}(\kappa)e & e \end{pmatrix}, \; \mathcal{Z} = 1, 2, ...$ $\mathcal{L}_{\mathcal{A}}^{(1)}$, such that $\mathcal{D}_{\mathcal{B}} \in [0,1]$, $\mathcal{B} = 1,2,\ldots$, $\mathcal{D}_{\mathcal{A}}$ and $\mathcal{D}_{\mathcal{A}} = 1$. The CPuFAAOWA operator are particularized as: *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = 6. Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\kappa))} e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\kappa))}{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\kappa))}}\right), \; \mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ be $\mathcal{D}_3 = 1$. Then, then hat $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,\mathfrak{N}$ and $\sum_{\mathbf{Z}_{i=1}}^{\mathfrak{N}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the $2\pi i(\ell_{\text{sc}}(n))$ $2\pi i(\ell_{\text{sc}}(n))$ $\mathbb{E}_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e^{-\frac{2\pi i}{3}}\mathbb{E}_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e^{-\frac{2\pi i}{3}}\mathbb{E}_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e^{-\frac{2\pi i}{3}}\mathbb{E}_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e^{-\frac{2\pi i}{3}}\mathbb{E}_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e^{-\frac{2\pi i}{3}}\mathbb{E}_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e^{-\frac{2\pi i}{3}}\mathbb{E}_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e$ the family of CPyFVs and its corresponding weight vector $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $(2\pi i(\alpha_0)(\chi))$ $2\pi i(\beta_0(\chi))$ $R = \frac{1}{3}$ ῃ $\frac{1}{2}$ $\alpha_{\Omega_{\mathbf{r}}}(\boldsymbol{\mu})$ $2\pi i(\beta_{\Omega_{\mathbf{r}}}(\boldsymbol{\mu}))$ γ α , $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\mathbf{x})e$ α β $\mathbf{x} = 1, 2, ...,$ where α $\frac{1}{n}$ $\frac{1}{n}$ $[0, 1]$, $[3] = 1, 2, \ldots, \mathbb{N}$ and $\sum_{\mathbf{Z} = 1}^{\mathbb{N}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the $\left\{ \frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{X}}))}{\sum_{\mathbf{E}}\mathbf{G}_{\mathbf{E}}}(\boldsymbol{\mathcal{Y}})e^{-\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{X}}))}{\sum_{\mathbf{Z}}\mathbf{G}}} \right\} \quad \text{and} \quad \mathbf{E} = 1.2$ $\overline{}$ $\mathfrak{g}_{\mathsf{rad}} \in [0, 1], \mathfrak{Z} = 1, 2, \ldots, \mathfrak{g}_{\mathsf{and}} \mathfrak{D}^{\mathsf{d}} \subset \mathfrak{D}_{\mathsf{rad}} = 1.$ Then the e^+ $\mathbf{Q}^{-1}(\mathbf{r}, \mathbf{r})$. $\mathbf{Q}^{-1}(\mathbf{Q}^{-1}(\mathbf{r}, \mathbf{r}))$ **Theorem 6.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\frac{2\pi i}{3}(\kappa)/2} \mathbb{E}_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\frac{2\pi i}{3}(\kappa)/2} \right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ be $\Omega_{\mathbf{z}}$ $(3 = 1, 2, 3, \ldots, n)$, such that $\mathfrak{D}_{\mathbf{z}} \in [0, 1]$, $3 =$ as associated values of the CPyFAAOWA operator are particularized as: $(3 - 1.2.3 \text{ m})$ such that $\Omega \subseteq [0, 1]$, $3 - 1$ $\frac{1}{\cdot}$ $\Omega_{\mathbf{z}}$ $(3 = 1, 2, 3, \ldots, n)$, such that $\mathfrak{D}_{\mathbf{z}} \in [0, 1]$, $3 = 1, 2, \ldots, n$ and $\sum_{\mathbf{z}}^{n} \mathfrak{D}_{\mathbf{z}} = 1$. the family of CPyFVs and its corresponding weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $\begin{bmatrix} 1 \end{bmatrix}$ such that $\mathcal{D} \in [0, 1]$ $\mathcal{F} = \begin{bmatrix} 2 & 1 \end{bmatrix}$ and $\sum_{i=1}^{n} \mathcal{D} = 1$. Then, the ത്തി such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., \mathfrak{N}$ and $\sum_{\mathbf{Z}_{i-1}}^{\mathfrak{N}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the $\frac{1}{\sqrt{2}}$ that $\mathfrak{D}_5 \in [0,1]$, $\mathfrak{Z}_5 = 1,2,\ldots,\mathfrak{N}$ and $\sum_{i=1}^{\mathfrak{N}} \mathfrak{D}_5 = 1$. Then, the $\Omega_{\mathbf{Z}}\left(3=1,2,3,\ldots^{|\mathbf{I}|}\right)$, such that $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathbf{Z} = 1,2,\ldots, \mathbf{N}$ and $\sum_{\mathbf{Z}=1}^{|\mathbf{I}|} \mathfrak{D}_{\mathbf{Z}} = 1$ associated values of the CPuFAAOWA operator are particularized as: **em 6.** Let $\Omega_{\bar{z}} = (H_{\Omega_{\bar{z}}})$ κ)e^{2nt(u} Ω ₃⁽ⁿ⁾, E_{Ω} ₃(i) \mathcal{U} Let $\Omega_{\mathbf{\bar{z}}} = (\Pi_{\Omega_{\mathbf{\bar{z}}}}(\varkappa)e$ $\mathfrak{S}^{(\varkappa\sigma)}$, $\mathfrak{\Xi}_{\Omega_{\bf \vec{Z}}}(\varkappa)e^{2\pi i(\beta)}$ **Theorem 6.** Let $Q_{\sigma} = \left(\prod_{Q} \left(\chi\right) e^{-2\pi i (\alpha_Q(\chi))} \right)$ $\mathbb{E}_{Q} \left(\chi\right) e^{-2\pi i (\beta_Q(\chi))}$ the family of CPyFVs and its corresponding weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{\Sigma}} = \left(\Pi_{\Omega_{\mathbf{\Sigma}}} (\mathbf{\mu}) e^{\mathbf{\Sigma} \mathbf{\Sigma} \mathbf{\mu}} \right)$ $\mathcal{L}_{\Omega_{\mathbf{Z}}}^{(n)}(\mu)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(x))}$ **Theorem 6.** Let $\Omega_{\sigma} = \left(\prod_{Q} \left(\chi \right) e^{-2\pi i (\alpha_Q \chi)} \right)_{Q} \approx \frac{2\pi i (\beta_Q \chi)}{2}$ *CPyFVs and its corresponding weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ)*,* $\int_{\mathcal{L}} f(x) dx = \int_{\mathcal{L}} f(x) dx + \int_{\mathcal{L}} \frac{2\pi i (\alpha_{\Omega}(\mathbf{x}))}{\alpha_{\Omega}(\mathbf{x})} dx + \int_{\mathcal{L}} f(x) dx + \int_{\mathcal{L}} f(x) dx$ $\begin{array}{ccc} \mathbf{c} & \mathbf{c} & \mathbf{c} \\ \mathbf{c} & \mathbf{c} & \mathbf{c} \end{array}$ $\mathcal{T}_{\text{min}} = \left(\prod_{\alpha} \left(\mathbf{x} \right) e^{-2\pi i (\beta_{\alpha}, \mathbf{x})} \right)$, $\mathcal{Z}_{\text{min}} = \left(\prod_{\alpha} \left(\mathbf{x} \right) e^{-2\pi i (\beta_{\alpha}, \mathbf{x})} \right)$, $\mathcal{Z}_{\text{min}} = \left(\prod_{\alpha} \left(\mathbf{x} \right) e^{-2\pi i (\beta_{\alpha}, \mathbf{x})} \right)$ $\begin{pmatrix} c & c \\ d & d \end{pmatrix}$ and its corresponding weight vector $\Omega = (\Omega_1, \Omega_2, \Omega_3, \dots, \Omega_n)^T$ of *s* and us corresponding weight vector $\omega_{\mathbf{z}} = (\omega_1, \omega_2)$ $\binom{1}{1}$ $\binom{2}{2}$ $\binom{3}{2}$ $\binom{4}{2}$ $\binom{4}{2}$ $\Omega_{\mathbf{Z}}\left(3=1,2,3,\ldots\mathbb{N}\right)$, such that $\mathfrak{D}_{\mathbf{Z}}\in[0,1]$, $\mathfrak{Z}_{\mathbf{Z}}=1,2,\ldots,\mathbb{N}$ and the family of CPyFVs and its corresponding weight vector $\mathfrak{D}_z =$ *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ $\frac{1}{2}$ $\binom{3}{2}$ $\frac{1}{2}$ $C\left(3-1, 2, 3, 0\right)$, *cycle that* $D \subset [0, 1], 3, ...$ $\Omega_{\mathbf{Z}}(z=1,2,3,\ldots,4)$, such that $\mathcal{D}_{\mathbf{Z}} \in [0,1]$, $z=$ *CPyFAAOWA operator are particularized as:* C^{2} $(3 - 1, 2, 3, 7)$ *ough that* $D \subset [0, 1], 3, -1, 2,$ $\Omega_{\mathcal{Z}} \{ \mathcal{Z} = 1, 2, 3, \ldots \mathcal{Y} \}$, such that $\mathcal{Z}_{\mathcal{Z}} \in [0, 1], \mathcal{Z} = 1, 2, 3, \ldots$ *CPyFAA* \mathbf{r} $C^{(3-1,2,3)}$ and that $C^{(0,1)}$, $z=1,2,...,n$ and $\Omega_{\mathcal{Z}}\left(\mathcal{Z} = 1, 2, 3, \ldots \mathcal{Z} \right)$, such that $\mathcal{Z}_{\mathcal{Z}} \in [0, 1], \mathcal{Z} = 1, 2, \ldots, \mathcal{Z}$ and **Theorem 6.** Let $\Omega_{\mathbf{Z}} = \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}$ ῃ $\Pi_{\Omega_{\mathbf{z}}}$ (: g weight vector $\mathfrak{D}_{\mathbf{\mathcal{Z}}}% ^{\ast}=\mathfrak{D}_{\mathbf{\mathcal{Z}}}% ^{\ast}$ and vonding weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n$ $\frac{1}{\sqrt{2}}$ $\Omega_{\mathbf{g}} = \left(\Pi_{\Omega_{\mathbf{g}}} (\boldsymbol{\kappa}) e^{-\frac{\boldsymbol{\kappa}}{2} \mathbf{g}(\boldsymbol{\kappa})} \right)$ ῃ , $\Xi_{\Omega_{\mathbf{z}}}(% \mathbf{z})$ the family of CPyFVs and its corresponding weight vector $\mathfrak{D}_{\mathfrak{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of **Definition 7** ([58])**.** *Let* ƺ = ൬ఆƺ ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* $($ $2\pi i(\alpha_{\mathcal{O}})(\chi))$ $2\pi i(\beta_{\mathcal{O}}((\chi)))$ *CPyFirm and* $\sum_{\mathbf{z}} f(\mathbf{z}) = [0,1], \mathbf{z} = 1,2,\ldots$ *,*^[1] and $\sum_{\mathbf{z}}^{|1|} \mathbf{z} = 1$. Then, the associated values of the CPyFAAOWA operator are particularized as: $\epsilon = 1$ ϵ \mathcal{L}^{Ω} $\left\{ \mathcal{L}^{(\mathcal{X})^{\mathcal{C}}} \right\}$ $\epsilon = 1$ $\mathfrak{D}_{z} \in [0,1], \, \mathfrak{F} = 1,2,\ldots,\mathfrak{N}$ and $\sum_{r=1}^{\mathfrak{N}} \mathfrak{D}_{z} = 1$. Then, the \mathcal{G} $2\pi i(\alpha_{\Omega} \left(\mathcal{H} \right))$ $2\pi i(\beta_{\Omega} \left(\mathcal{H} \right))$ $\mathcal{L}_{\mathcal{Z}=1}^{\mathcal{Z}}$ and $\mathcal{Z}_{\mathcal{Z}=1}^{\mathcal{Z}}$ are particularized as: $\int f \cdot d\theta = 1,2,...$ \cdot , \cdot ve $\sum_{i=1}^n z_i s_i \cdots s_n$ $\frac{2\pi i(x-(n))}{\pi n}$ **Theorem 6.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}})}{2}}\right)$ $\Omega_{\bf \bar{g}} \left({\bf \bar{g}}={\bf 1,2,3}\right)$ $\Omega_{\mathbb{Z}}\left(3=1,2,3,...\,1\right)$, such that $\mathfrak{D}_{\mathbb{Z}}\in[0,1]$, $3=1,2,...,\,1$ and $\sum_{\mathbb{Z}=1}^{11}3$ **Theorem 6.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{-\frac{m}{2} \sum_{i=1}^{n} (\varkappa) e^{-\frac{m}{2} \sum_{i=1}^{n} (\varkappa)} \right)$, $\mathbf{Z} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{-\frac{m}{2} \sum_{i=1}^{n} (\varkappa) e^{-\frac{m}{2} \sum_{i=1}^{n} (\varkappa)} \right)$, $\mathbf{Z} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{-\frac{m}{2}$ **Theorem 6.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right), \ z = 1, 2, ..., 1$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* the family of CPyFVs and its corresponding weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $\Gamma, 2, 3, \ldots$ Γ), such that $\mathcal{D}_Z \in$ $\mathcal{B} = 1, 2, 3, \ldots \mathcal{B}$, such that $\mathfrak{D}_{\mathbf{Z}} \in [0, 1]$, $\mathcal{B} = 1, 2, \ldots, \mathcal{B}$ and $\sum_{\mathbf{Z}=1}^{\mathcal{B}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*)) **rem 6.** Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa) e^{-\frac{\mathbf{z}}{2} + \mathbf{z}} \cdot \mathbf{z}_{\Omega_{\mathbf{z}}}(\kappa) e^{-\frac{\mathbf{z}}{2} +$ $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \; \mathbf{Z} = 1, 2, \ldots, \mathbf{N} \; be$ $\sum_{i=1}^{\infty}$ $\alpha \in \mathbb{Z}_3 \times \mathbb{Z}_5 = \mathbb{Z}_2 \times \mathbb{Z}_4$ if $\alpha \in \mathbb{Z}_3$ and $\alpha \in \mathbb{Z}_4$ and $\alpha \in \mathbb{Z}_4$ are non-ticularized as: FVs and its corresponding weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of , Il and $\sum_{\mathbf{Z}=1}^{n} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the $\frac{1}{2}$ and $\frac{1}{2}$ *and* $\frac{1}{2}$ *and* $\frac{1}{2}$ *r* $\left(\Pi_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega_{\boldsymbol{\zeta}}}(\boldsymbol{\varkappa}))},\Xi_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\varkappa})e^{2\pi i(\beta_{\Omega_{\boldsymbol{\zeta}}}(\boldsymbol{\varkappa}))}\right),\; \mathfrak{z}~=~1,2,\ldots,\mathfrak{N}~be$ the family of CPyFVs and its corresponding weight vector $\mathfrak{D}_2 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\begin{pmatrix} 1 & 1 & 1 & 1 \\ 0 & 1 & 1 & 1 \end{pmatrix}$ $\begin{pmatrix} 1 & 1 & 1 & 1 \\ 0 & 1 & 1 & 1 \end{pmatrix}$ $\sum_{\mathcal{B}}$, ator are particularized as: ῃ $_{=1}$ \sim 3 $I_{\alpha t}$ Ω = $\Big| I$ $\Omega_{\bf\bar{2}}\Big(3=1,2,3,\dots$ 1), such that $\mathfrak{D}_{\bf\bar{2}}\ \in\ [0,1]$, $\,3\ =\ 1,2,\dots$, $\mathfrak{N}\,$ and $\sum_{\bf\bar{2}=1}^{\mathfrak{U}}\mathfrak{D}_{\bf\bar{2}}\ =\ 1.$ Then, the **Theorem 6.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{2\pi i}{3}(\kappa x)}, \Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{2\pi i}{3}(\kappa x)}\right)$, $\mathbf{Z} = 1, 2, ..., 10$ be **Incorem 6.** Let $\Omega_{\mathbf{Z}} = \begin{pmatrix} H_{\Omega_{\mathbf{Z}}}(\varkappa) e & e \end{pmatrix}$, $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e$ under the system of Ω , $\varkappa = 1$, the family of (**prem 6.** Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\varkappa))}\right), \mathbf{z} = 1, 2, ..., \mathbf{N}$ be 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ family of CPyFVs and its corresponding weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of \overline{a} \overline{b} \overline{c} \overline{d} \overline{c} $\left({}^{11}\Omega_{\sigma} \right)$ $\left(\kappa \right)$ is $\left(\alpha \right)$ and $\left(\alpha \right)$ and $\left(\alpha \right)$ is $\left(\alpha \right)$ is $\left(\alpha \right)$ in \left $(3 = 1, 2, 3, \ldots 0)$, such that $\mathfrak{D}_3 \in [0, 1]$, $3 = 1, 2, \ldots, 0$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{Y}} \mathfrak{D}_3 = 1$. Then, the $2\pi i(\alpha_0$ (**x**)) $2\pi i(\beta_0)$ $\mathcal{L}(\mathcal{H})e$ concepts of $\mathcal{L}_{\mathcal{D}_{\mathcal{I}}}(\mathcal{H})e$ concepts of $\mathcal{L}(\mathcal{H})e$ is $\mathcal{L}(\mathcal{H})e$ ℓ $2\pi i(\alpha_{\Omega} \left(\mathcal{H} \right))$ $2\pi i(\beta_{\Omega} \left(\mathcal{H} \right))$ **forem 6.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{\frac{i}{2} \boldsymbol{\varkappa}} \cdot \Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{\frac{i}{2} \boldsymbol{\varkappa}} \right), \; \mathbf{Z} = 1, 2, \ldots, 0$ be $\Omega_{\mathcal{E}}\left(\mathcal{E}=1,2,3,\ldots$ ⁿ, such that $\mathcal{D}_{\mathcal{E}}\in[0,1],\ \mathcal{E}=1,2,\ldots$, n and $\sum_{z=1}^{n}\mathcal{D}_{z}=1$. Then, the $\overline{}$. $, 3 = 1, 2, ..., 10$ be the family of CPyFVs and its corresponding weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3)$ **3. Existing Aggregation Operators** In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of \mathcal{L} this part, we recall the existing concepts of \mathcal{L} **eorem 6.** Let Ω ₃ $=$ $\left(\Pi_{\Omega}(\varkappa)e\right)^{2}$ $\left(\Pi_{\Omega}(\varkappa)e\right)^{3}$ $\left(\Pi_{\Omega}(\varkappa)e\right)^{2}$ $\left(\Pi_{\Omega}(\varkappa)e\right)^{3}$ $\left(\Pi_{\Omega}(\varkappa)e\right)^{3}$ order weighted averaging (CPyFA) operator based on \mathcal{F} *family of the CPyFAAOWA operator are particularized as:* $\ell = 2\pi i (\kappa_{\Omega} - (\boldsymbol{\varkappa}))$ $2\pi i (\beta_{\Omega} - (\boldsymbol{\varkappa}))$ *i Jumity by Cryf vs and its corresponding weight bector* $\mathcal{L}_3 = (\mathcal{L}_1, \mathcal{L}_2, \mathcal{L}_3, ..., \mathcal{L}_n)$
 $\mathcal{L}_4 = \begin{bmatrix} 3 & 1 \end{bmatrix}$ such that $\mathcal{L}_5 = \begin{bmatrix} 0 & 1 \end{bmatrix}$ $\mathcal{L}_5 = \begin{bmatrix} 1 & 2 \end{bmatrix}$ and \sum $\begin{bmatrix} 0 & 1$ = ൫()൫()൯ , ()൫()൯ some special cases, $\lim_{\Omega \to \infty} \left(\prod_{\Omega} (\mu) e^{-\frac{2\pi i}{3}} \right)$, $\lim_{\Omega \to \infty} \left(\prod_{\Omega} (\mu) e^{-\frac{2\pi i}{3}} \right)$, $\lim_{\Omega \to \infty} \left(\prod_{\Omega} (\mu) e^{-\frac{2\pi i}{3}} \right)$ $\begin{array}{cc} \begin{array}{ccc} \diagup \end{array} & \diagup \end{array}$ operators, CPyFAA $\begin{array}{ccc} \diagup \end{array}$ ϵ \sim ϵ and ϵ and ϵ suitable to select a suitable candidate for a vacant positive candidate for a vacant positive ϵ ($2\pi i(\alpha_0(\boldsymbol{\mathcal{U}}))$ $2\pi i(\beta_0(\boldsymbol{\mathcal{U}}))$ **em 6.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\varkappa}{2}(\varkappa)/T}\right), \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\varkappa}{2}(\varkappa)/T}\right), \mathbb{Z} = 1, 2, ..., \mathbb{N}$ be tily of CPyFVs and its corresponding weight vector $\mathfrak{D}_\mathbf{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^\top$ of $g = 1, 2, 3, \ldots, n$, such that $\mathfrak{D}_7 \in [0, 1], \mathfrak{F} = 1, 2, \ldots, n$ and $\sum_{i=1}^{n} \mathfrak{D}_i$ (5) By utilizing our invented approaches, we solved an MADM technique. We ⎜ We explore our invented AOs and presented new AOs of CPyF using an Aczel–Alsina-some special cases, like CPyFAA ordered weighted (CPyFAAWAG), average some special cases, like CPyFAA ordered weighted (CPyFAAWAG), average *is particularized as:* established and illustrative example to select a suitable candidate for a vacant positive μ \overline{a} , i \mathcal{L} veight vector $\mathfrak{D}_{\mathbf{z}} = (\mathfrak{D}_1, \mathfrak{D}_2)$ \sim $\langle \begin{array}{ccc} \epsilon & \epsilon & \epsilon \end{array} \rangle$ $\frac{1}{2}$ $\left(\frac{1}{2} \frac{1$ \overline{a} \overline{a} ⎟ ⎟ ⎟ ℓ $2\pi i(\alpha_0 \left(\mathcal{H} \right))$ $2\pi i(\beta_0 \left(\mathcal{H} \right))$ order weighted averaging (CPyFAAOWA) operator based on Aczel–Alsina operations. Theorem 6. Let $\Omega_\mathbf{Z}$: fundamental operation of the corresponding weight occurs $\omega_{\zeta}=\infty$ $\mathcal{L}_{\mathcal{F}}$ $\alpha = 2\pi i(\kappa_{Q}(\boldsymbol{\chi}))$ $2\pi i(\beta_{Q}(\boldsymbol{\chi}))$ orem 6. Let $\Omega_{\mathfrak{Z}} = \begin{pmatrix} \Pi_{\Omega_{\mathfrak{Z}}}(\varkappa)e & \varepsilon & \frac{\Sigma_{\Omega_{\mathfrak{Z}}}(\varkappa)e & \varepsilon \\ \end{pmatrix}$, $\mathfrak{Z} = 1, 2, ...,$ ¹¹ be the further of CPyFVs and its expressionating engight exercy $\Omega = (\Omega, \Omega, \Omega, \Omega)^\mathrm{T}$ of amily of CPyFVs and its corresponding weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^{\text{-}}$ of $\mathcal{L}_{\mathcal{F}}$ and $\mathcal{F}_{\mathcal{F}}$ and $\mathcal{F}_{\mathcal{F}}$ and $\mathcal{F}_{\mathcal{F}}$ and $\mathcal{F}_{\mathcal{F}}$ associated values of the CPyFAAOWA operator are particularized a \cdot $(\mathfrak{g},\ldots\mathfrak{g})$, si \cdot ⎜ $\frac{1}{2}$ ⎟ \bigcup $\begin{bmatrix} a & b & d \end{bmatrix}$ s corresponding weight vector <mark>3</mark> the family of CPyFVs and its corresponding weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $\frac{1}{2}$ $(3-123 \text{ N})$ such that $\Omega \subset [0,1]$ $3-12 \text{ N}$ and $\overline{\Gamma}^{\text{II}}$ $\Omega = 1$ The $\left(\begin{array}{cc} \begin{array}{cc} \end{array} & 2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})) & \end{array} \right) & \begin{array}{cc} 2\pi i(\beta_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})) & \end{array} \end{array}$ **Theorem 6.** Let $\Omega_{\mathbf{Z}} = \begin{pmatrix} H_{\Omega_{\mathbf{Z}}}(\mathbf{x})e & e \\ e^{i\theta_{\mathbf{Z}}} & e^{i\theta_{\mathbf{Z}}}e^{i\theta_{\mathbf{Z}}} \end{pmatrix}$, $\delta = 1, 2, ...$ $\Omega_{\mathbf{Z}}\Big(3=1,2,3,\ldots^{\mathfrak{N}}\Big)$, such that $\mathfrak{D}_{\mathbf{Z}}\in [0,1]$, $3=1,2,\ldots,^{\mathfrak{N}}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{N}}\mathfrak{D}_{\mathbf{Z}}=1$. Then, then associated values of the CPyFAAOWA operator are particularized as: $\left(\begin{array}{cc} 2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}})) & \ldots & 2\pi i(\beta_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}})) \end{array}\right)$ **oped innovative integral integral concepts** ι , $\Delta_{\Omega}(\chi)e$ is ι and ι , ι and ι , *is defined as:* \mathcal{L} Ω ₃ = $\left(\Pi_{\Omega}(\kappa)e^{-\frac{(\kappa+1)^2}{2}(\kappa)}\right)$, $\Xi_{\Omega}(\kappa)e^{-\frac{(\kappa+1)^2}{2}(\kappa)}$ $\ln \frac{1}{2}$ \vdots $\frac{1}{\sqrt{2\pi}}$ $\left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right)$ $\sigma_{\mathbf{g}}(\boldsymbol{\kappa})e^{\frac{2\pi i(\alpha_{\Omega_{\mathbf{g}}}(\boldsymbol{\kappa}))}{2\pi i(\beta_{\Omega_{\mathbf{g}}}(\boldsymbol{\kappa}))}e^{\frac{2\pi i(\beta_{\Omega_{\mathbf{g}}}(\boldsymbol{\kappa}))}{2\pi i(\beta_{\Omega_{\mathbf{g}}}(\boldsymbol{\kappa}))}},$ ⎟ ⎟ \cdot ⎟ Ω_3 $(3 = 1, 2, 3, \ldots, n)$, such that $\mathfrak{D}_3 \in [0, 1]$, $3 = 1, 2, \ldots, n$ and $\sum_{i=1}^{n} \mathfrak{D}_3 = 1$. Then, Τ λ \mathbf{a} **Theorem 6.** Let $\Omega_z = \left(\prod_{\Omega} \left(\chi \right) e^{-2\pi i (\alpha_{\Omega} g(x))} \right)$, $\Xi_{\Omega} \left(\chi \right) e^{-2\pi i (\beta_{\Omega} g(x))}$, $\Xi = 1, 2, \ldots, \emptyset$ be CPyFSs. The main contributions of this article are in the following forms: \mathcal{L}_S s. The main contributions of this article article article are in the following forms: the family of CPyF \overline{a} Q_{α} $(3 = 1.2.3...^{n})$ the family of CPyFVs an \overline{a} Ω_z (3 = 1.2.3..., !), such the family of CPyFVs and its correst య \overline{a} $Q_{\sigma}(\mathfrak{F}=1,2,3,\ldots,1)$, such that \mathfrak{D}_{σ} onding weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of ⎟ $\Omega_{\mathcal{Z}}\left(3=1,2,3,\ldots ,\mathfrak{l}\right)$, such that $\mathfrak{D}_{\mathcal{Z}}\in[0,1],\;$ $3=1,2,\ldots ,\mathfrak{l}$ and $\sum_{\mathcal{Z}=1}^{\mathfrak{l}}\mathfrak{D}_{\mathcal{Z}}=1.$ Then, the a list of new AOs of CPyFSs by utilizing the basic operational laws of Aczel–Alsina TNM $\Omega_{\mathbf{Z}}\left(\mathbf{Z}=1,2,3,\ldots\mathbf{N}\right)$, suc \mathcal{D}), such that $\mathfrak{D}_\mathbf{Z} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,\mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{U}} \mathfrak{D}_\mathbf{Z} = 1$. Then, the $\mathbf{z} = [\Pi_{\Omega_{\mathbf{z}}}(\mathbf{x})e \qquad \epsilon \qquad , \Xi_{\Omega_{\mathbf{z}}}(\mathbf{x})e \qquad \epsilon \qquad], \mathbf{z} = 1, 2, \ldots, \mathbf{u}$ be $\begin{array}{c} \searrow \\ \searrow \\ \searrow \end{array}$

$$
\Omega_{\mathbf{Z}}\left(\mathbf{Z} = 1, 2, 3, \dots, \mathbf{T}\right), \text{ such that } \mathfrak{D}_{\mathbf{Z}} = [0, 1], \mathbf{Z} = 1, 2, \dots, \mathbf{T} \text{ and } \Sigma_{\mathbf{Z} = 1}^{\mathbf{T}} \mathfrak{D}_{\mathbf{Z}} = 1. \text{ Then, the associated values of the CPyFAAOWA operator are particularized as:}
$$
\n
$$
\sqrt{1 - \left(\sum_{i=1}^{n} \mathfrak{D}_{\mathbf{Z}}\left(-\ln\left(1 - H_{\mathbf{Z}_{\mathbf{B}}}^2\right)\right)\right)^{\mathbf{T}}\right)^{\frac{1}{\mathbf{T}}}}
$$
\n
$$
CPyFAAOWA\left(\Omega_{1}, \Omega_{2}, \dots, \Omega_{\mathbf{T}}\right) = \left(\sum_{i=1}^{n} \mathfrak{D}_{\mathbf{Z}}\left(-\ln\left(1 - H_{\mathbf{Z}_{\mathbf{B}}}^2\right)\right)\right)^{\mathbf{T}}\right)^{\frac{1}{\mathbf{T}}}
$$
\n
$$
(\mathbf{Z}_{\mathbf{Z}}\left(\mathbf{Z}_{\mathbf{Z}}\right), \dots, \mathbf{Z}_{\mathbf{T}}\right) = \left(\sum_{i=1}^{n} \mathfrak{D}_{\mathbf{Z}}\left(-\ln\left(\mathbb{E}_{\mathbf{Z}_{\mathbf{B}}}^2\right)\right)\right)^{\mathbf{T}}\right)^{\frac{1}{\mathbf{T}}}
$$
\n
$$
(\mathbf{Z}_{\mathbf{Z}}\left(\mathbf{Z}_{\mathbf{Z}}\right) - \left(\sum_{i=1}^{n} \mathfrak{D}_{\mathbf{Z}}\left(-\ln\left(\mathbb{E}_{\mathbf{Z}_{\mathbf{B}}}^2\right)\right)\right)^{\mathbf{T}}\right)^{\frac{1}{\mathbf{T}}}
$$
\n
$$
(\mathbf{Z}_{\mathbf{Z}}\left(\mathbf{Z}_{\mathbf{Z}}\right) - \left(\sum_{i=1}^{n} \mathfrak{D}_{\mathbf{Z}}\left(-\ln\left(\mathbb{E}_{\mathbf{Z}_{\mathbf{B}}}^2\right)\right)\right)^{\mathbf{T}}\right)^{\frac{1}{\mathbf{T}}}
$$
\n
$$
(\mathbf{Z}_{\mathbf{Z}}\left(\mathbf{Z}_{\mathbf{Z}}
$$

 $\sqrt{100}$ $(b(1), b(2), b(3), ..., b(3))$ is the set of permu $\varOmega_{\mathfrak{b}(\mathbf{Z}-1)} \ge \varOmega_{\mathfrak{b}(\mathbf{Z})'} \, \forall, \, \mathbf{Z} = 1, 2, 3, \ldots \mathbf{F}.$ $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1,$ $\Omega \sim 0 \quad \forall \mathbf{z} = 1.22$ $\mathcal{I}_{\mathfrak{b}}(3-1) \leq \mathcal{I}_{\mathfrak{b}}(3)$, $\mathcal{I}_{\mathfrak{b}}(3)$, $\mathcal{I}_{\mathfrak{b}}(3)$, $\mathcal{I}_{\mathfrak{b}}(3)$, $\mathcal{I}_{\mathfrak{b}}(3)$ *n* - > *n* - ∀3 - 1 2 3] $\binom{1}{b}$, $\binom{1}{c}$, $\binom{1}{c}$, $\binom{1}{c}$ *is the set of* $\sum_{i=1}^{n} I_{b(3)}^{\gamma}$, \forall , $\delta = 1, 2, 3, ...$, α , $\mathfrak{b}(3)$ is the set of permutations of $(3 = 1, 2, 3, \ldots, 1)$ and $-1.22 \quad 1$ $\hat{I} = I_1 \hat{Z}_1 \hat{J}_2 \dots$ *ii.* \hat{I} Ω_{ν} , $\chi \gg \Omega_{\nu}$, χ , χ , χ = 1, 2, 3, ..., η . *ie. set of permutations of* [3 η *is the set of permutations of* $(3 = 1, 2, 3, ..., 9)$ *and* $(b(1), b(2), b(3), ..., b(8))$ is the set of permutations of $(3 = 1, 2, 3, ...)$ $\mathcal{L}_{\mathcal{L}}$ $\binom{4}{3}$ $\binom{8}{1} \stackrel{\sim}{\sim} \binom{8}{1} \stackrel{\sim}{\sim} \binom{8}{5}$ $(b(1), b(2), b(3), ..., b(3))$ is the set of permuta $(4)(1)$, $9(4)$, $9(4)$ $\Omega_{\mathrm{b}(\mathsf{Z}-1)} \geq \Omega_{\mathrm{b}(\mathsf{Z})}, \forall, \; 1 \leq i \leq 1, 2, 3, ...$ $\begin{array}{ccc} \searrow & \bigcirc & \forall & \mathbf{3} - 1 & \mathbf{2} & \mathbf{3} \\ \end{array}$ $\binom{2}{3}$, $\binom{6}{4}$, $\binom{6}{4}$, $\binom{6}{4}$, $\binom{6}{4}$, $\binom{6}{4}$ $\frac{1}{2}$ \mathfrak{c}_i of permana $\mathfrak{b}(3)$) *is the set of permutations of* $\left(3 = 1, 2, 3, ..., 1\right)$ $\mathcal{I}(\mathbf{r}, \mathbf{r})$ $\mathbf{F} = [1, 2, 3, \dots, 0],$ \overline{a} $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ..., 1)$ and , ଶ()ଶగ൫ఉమ(త)൯ ൯ *be any two CPyFVs. The extension of intersection and the* $\mathsf{a}^{-1}b(2-1) = \mathsf{a}^{-1}b(2)$ $\Omega_{b(2-1)} \geq \Omega_{b(2)}$, \forall , $3 = 1, 2, 3, ...$ ¹. $\begin{array}{ccc} \hline \text{1} & \text{1} &$ $\Omega_{\mathfrak{b}(\mathbf{Z}-1)} \geq \Omega_{\mathfrak{b}(\mathbf{Z})'}$ \forall , $\mathfrak{z} = 1, 2, 3, \ldots$ \mathfrak{h} . $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ..., n)$ and $D_{\rm h(2)} \geq \Omega_{\rm h(2)}$, \forall , $\bar{z} = 1, 2, 3, \ldots$. \mathcal{L} , \mathcal{L} , sum, product, scalar multiplication and power role. Then, we have: $\left(\frac{2}{\sqrt{2}}\right)$ and $\left(\frac{2}{\sqrt{2}}\right)$ and $\left(\frac{2}{\sqrt{2}}\right)$ are explored some fundamental some $\Omega_{\rm b}(\rm z_{-1}) \geq \Omega_{\rm b}(\rm z_{1})$, \forall , $\delta = 1,2,3,...,1$. $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ..., n)$ and $\mathcal{B}(\mathbf{z})$ utilizing the notions of \mathbf{z} $\Delta^2 b(2-1) \leq \Delta^2 b(3)$, V, $\epsilon = 1, 2, 3, ...$ $\left(\frac{P(1)}{P(1)} \right)$ $\frac{P(2)}{P(1)} \cdot \frac{P(0)}{P(0)} \cdot \cdots$ \ddot{a} $\Omega = \times \Omega = \forall 3-123$ Networks study the generalization of union and inter- $\Omega_{\rm b(2-1)} \ge \Omega_{\rm b(2)}$, \forall , 3 = 1, 2, 3, . . . !!. \mathcal{L} utilizing the notions of \mathcal{L} m_{-1} \geq Δt _b(\overline{z}), v, ϵ $=$ 1, \angle , 0, \dots \cdots \dots , $b(3)$ *is the set of permutations of* $(3 = 1, 2, 3, \dots, 1)$ and \forall 5 - 1 2 3 \forall Fey also study the generalization of union and intersection of CPyFSs and established some operations of the Aczel–Alsina-like Aczel–Alsina $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots, 1)$ and $m_{\rm{c}}\approx$ \forall , $\overline{3}$ = 1.2.3..., $\overline{1}$, $\mathfrak{p}(\epsilon-1)$ and $\mathfrak{p}(\epsilon)$ $(b(1), b(2), b(3), \ldots, b(3))$ is the $b(3), \ldots, b(3)$ is the se μ _s ϵ et is the set of permutations of $(3 = 1, 2, 3, \ldots)$ utations of $(3 = 1,$ $\frac{2}{x}$ ns of $\left(2=1, 2, 3, \ldots, 1\right)$ and _. $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ..., 1)$ and $\mathbf{y} = \mathbf{y}$ l $\Omega_{\mathfrak{b}(2)}, \forall, \; 2 = 1, 2, 3, \dots$ ^u. $\ddot{}$ p_{ℓ} $\text{ions} \quad \text{of} \quad (2 = 1, 2, 3)$ \mathcal{L} $\mathfrak{g}, \ldots, \mathfrak{g}$ $\mathfrak n$ $(3), \ldots$, $\mathfrak{b}(3)$ *is the set of permutations of* $(3, 3, \ldots, 0)$ and $\Omega_{\mathrm{b}(\mathbf{Z}-1)} \geq \Omega_{\mathrm{b}(\mathbf{Z})}^{\mathrm{}}$, \forall , $\mathbf{\bar{z}} = 1, 2, 3, \ldots$ ^{[1}]. ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* $\binom{0}{r}$ $\binom{0}{r}$ $\binom{0}{r}$ $\binom{0}{r}$ $\overline{1}$ \sum \overline{a} \overline{a} \overline{d} $\Omega_{\mathfrak{b}(\mathbf{Z}-1)} \geq \Omega_{\mathfrak{b}(\mathbf{Z})}$, \forall , $\mathfrak{z} = 1, 2, 3, \dots$ **!!** $\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ is the set of permutations of $\{3 = 1, 2, 3, \ldots, 9\}$ *(b(1), b(2), b(3), ..., b(3)) is the set of permutations of* $(3 = 1, 2, 3, ..., 1)$ *a* $\Omega_{\mathrm{b}(\mathbf{Z}-1)} \geq \Omega_{\mathrm{b}(\mathbf{Z})}$, \forall , $\mathbf{Z} = 1, 2, 3, ...$!]. $p(\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots, 1)$ and $\frac{1}{\sqrt{2}}$ $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ..., 1)$ and $\mathcal{F}_{\mathcal{A}}$ operators with some deserved characteristics. In Section 7, we solve an MADMM $\Omega_{b(2-1)} \geq \Omega_{b(2)}, \forall, 3 = 1, 2, 3, \ldots$... F_p (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(3 = 1, 2, 3, ..., 1)$ and $= 1, 2, 3, ..., n$ a $\begin{pmatrix} 1 & 1 & 1 & 2 \end{pmatrix}$ $\begin{pmatrix} 2 & 1 & 2 \end{pmatrix}$ $\begin{pmatrix} 1 & 2 & 1 \end{pmatrix}$ $e^{-(2\pi/2)(\alpha-1)}$ s(c), we introduce the section 4, we introduce concepts of α -spectrum $F_{\rm b}(1)$ $F_{\rm b}(2)$ $F_{\rm b}(3)$ is the set of nermutations of $(3-1, 2, 3, 1)$ environments of \mathcal{E} in \mathcal{E} in \mathcal{E} in \mathcal{E} in \mathcal{E} in \mathcal{E} of \mathcal{E} in $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ..., n)$ and 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ $P(\sigma, 1)$. Then, the IF $P(\sigma)$ \mathbf{w} , $\mathbf{z} = 1, 2, 3, \ldots, n$, \mathbf{w} $\label{eq:Omega_bZ-1} \Omega_{b\left(\mathbf{\mathbf{Z}}-\mathbf{1}\right)} \geq \Omega_{b\left(\mathbf{\mathbf{Z}}\right)}, \forall, \; \mathbf{\mathbf{Z}}=\mathbf{1}, \mathbf{2}, \mathbf{3}, \ldots \mathbf{N}.$ Ω_{\parallel} $(v, b(2))$ is the set of permutations of $(3 = 1, 2, 3, \ldots, 1)$ and

i. If I. *i.e. i.e. i.e. i.e. i.e. i.e. i.e. i.e. ii. I*ve can prove this by using the st $\overline{}$ $\overline{\$ α ^{*i*} as α ^{*i*} and α is equal to α if the steps of Theorem 3. \Box **Proof.** We can prove this by using the steps of Theorem 3. \Box **where TNM and TNM and TNM are denoted by** \mathbf{F} **where TNM and TNM and** $\frac{1}{\sqrt{2}}$ **Proof.** We can prove this by using the steps of Theorem 3. \Box Proof. We can prove this by using the s $\frac{1}{2}$ and $\frac{1}{2}$ for $\frac{1}{2}$ and $\frac{1}{2}$ a Proof. We can prove this by using the steps of α can prove this by using the ste **Proof.** We can prove this by using the steps of Theorem 3. \Box *unity the steps of friedrith of* \Box \overline{a} \Box μ ³ of the given σ : \Box $\mathbf{D} = \mathbf{C} \mathbf{M}$ $\mathbf{d} \cdot \mathbf{d} = \mathbf{d} \cdot \mathbf{d}$ **Proof.** We can prove this by using the steps of I section of CPyFSs and established some operations of the Aczel–Alsina-like Aczel–Alsina **Proof.** We can prove this by using the steps of Theorem 3. \Box *an prove this by using the steps* section of CPyFSs and established some operations of the Aczel–Alsina-like Aczel–Alsina \therefore we can prove this by using the steps of Theorem β . \Box α this by using the stans of Theorem 2. \Box *and the accuracy function is given as:* n prove this by using the steps of Theorem $3 \Box$ $\frac{1}{\sqrt{2}}$ s of $\frac{1}{\sqrt{2}}$ **Proof.** We can prove this by using the steps of Theorem 3. \Box **Proof.** We can prove this by using the steps of Theorem 3. \Box *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = **Proof.** We can prove this by using the steps of Theorem 3. \Box an prove this by using the steps of Theorem 3. \Box an prove uus by using u $\frac{1}{2}$, the PyF $\frac{1}{2}$ **f**. We can prove this by using the steps of r. this by using the steps of Theorem 3. Ⅰ **Proof.** We can prove this by using the steps of Theorem 3. \Box **Proof.** We can prove this by using the steps of Theorem 3. \Box \mathbf{p}_{max} (\mathbf{W}_{max} are may the by using the ctone of Theorem $2 \Box$ $\frac{1}{\sqrt{2}}$ with $\frac{1}{\sqrt{2}}$ of $\frac{1}{\sqrt{2}}$ of $\frac{1}{\sqrt{2}}$ is $\frac{1}{\sqrt{2}}$ in $\frac{1}{\sqrt{2}}$ in $\frac{1}{\sqrt{2}}$ is $\frac{1}{\sqrt{2}}$ in $\frac{1}{\sqrt{2}}$ \mathbf{D}_{max} (\mathbf{S} \mathbf{M}_{max} express this has saint that $\mathcal{L} = \mathcal{L} \mathcal{L} = \mathcal{L} \mathcal{L}$ *with we can prove this by using the steps of Theorem 3.* □ **Proof.** We can prove this by using the steps of Theorem 3. \Box $\sum_{i=1}^{\infty}$ $\sum_{i=1}^{\infty}$ $\sum_{i=1}^{\infty}$ $\sum_{i=1}^{\infty}$ numbers $\sum_{i=1}^{\infty}$ $\frac{1}{2}$ *v o* ⊥ this by using the steps of Theorem 3. \Box **Proof**. We can prove this by using the steps of Theorem 3 \Box $\frac{1}{2}$ *Then, the careful every assigned steps of* **Proof.** We can prove this by using the steps of Theorem 3. \Box

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family of 37 and *its corresponding weight vectors in the set of 37*

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family of 37 and *its corresponding weight vectors in the set of 37*

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1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ

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Theorem 7. *Consider* $\Omega_{\bf \bar{Z}} = \left(\Pi_{\Omega_{\bf \bar{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\bf \bar{Z}}}(\varkappa))}, \Xi_{\Omega_{\bf \bar{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\bf \bar{Z}}}(\varkappa))}\right)$ all same CPyFVs, \forall , $\vec{z} = 1, 2, ..., n$. Then we have: **Theorem 7.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{-\varkappa_{\mathbf{Z}}}{2}}\right)$, $\Omega_{\mathbf{Z}}(\varkappa)e^{\frac{-\varkappa_{\mathbf{Z}}}{2}}\right)$, to b **Theorem 7.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))}, \Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))}\right)$, to be the family consider *terms and phase terms of* , *respectively. A CFS must satisfy the condition: weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $(1, 1, 1)$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*)) **n** 7. Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2}{3}t} \right)$, to be the family of $\pi \, \Omega_{\bf \bar{Z}} = \left(\, \Pi_{\Omega_{\bf Z}}\left(\varkappa\right)e^{\,2\pi i \left(\alpha_\Omega\,\bf Z}\left({\bf z}\right)\right)}, \Xi_{\Omega_{\bf Z}}\left(\varkappa\right)e^{\,2\pi i \left(\beta_\Omega\,\bf Z}\left({\bf z}\right)\right)}\right),$ to be the family of *terms and phase terms of* , *respectively. A CFS must satisfy the condition: weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $\frac{1}{2}$ *. Then* we *have.* $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow $\frac{1}{2}$ *a*_{$\frac{1}{2}$ *r* $\frac{1}{2}$})) , *to be the family of* $\ell = 2\pi i (\kappa_0 \cdot (\boldsymbol{\varkappa}))$, $2\pi i (\kappa_0 \cdot (\boldsymbol{\varkappa}))$ **Theorem 7.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\frac{m}{2}i\mathcal{L}^2}\right)$, to be the family of $\left(\begin{array}{cc}2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\chi}))&2\pi i(\beta_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\chi}))\end{array}\right)$ **Summer Theorem 7.** Consider $\Omega_{\mathcal{R}} = \prod_{\Omega_{\mathcal{R}}} (\mathcal{H})e$ and $\Xi_{\Omega_{\mathcal{R}}} (\mathcal{H})e$ and **Symmetry 2** Theorem 7. Consider $\Omega_{\mathcal{F}} = \left(\prod_{O} \left(\chi\right) e^{-\frac{2\pi i (\alpha_{O_{\mathcal{Z}}}(x))}{2}} \right)$. *Lo be the family of* ily ⎜ $\Omega_{\mathbf{Z}}(\boldsymbol{\mu}) = \frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mu}))}{\sum_{\mathbf{Z}} \Omega_{\mathbf{Z}}(\boldsymbol{\mu})}$ to be the family of $\mathbb{E}_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e^{-\frac{i}{2}(\boldsymbol{\mu})\boldsymbol{\mu}}$, to be the family $y \circ f$ $\Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{H}})$ $\qquad \qquad$ $2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{H}}))$ $\mathcal{L} = \begin{pmatrix} 1 & \mu & \mu \\ 0 & \mu & \mu \end{pmatrix}$ α) e α are α , to be the family of $f(\mathbf{z}^{\mathcal{L}}) = 2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\mathbf{x})) \sum_{\mathbf{z}} \alpha_{\mathbf{z}}(\beta_{\Omega_{\mathbf{Z}}}(\mathbf{x}))$ $\mathcal{I} = \left(\Pi_{\Omega_{\mathbf{Z}}} (\boldsymbol{\varkappa}) e \right)$ **a** $\mathcal{I}_{\Omega_{\mathbf{Z}}} (\boldsymbol{\varkappa}) e$ **b** \mathcal{I} to be the family of $(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ _i die (° ° β , β $\mathcal{E}_{\Omega_{\bf Z}}(\varkappa) e^{\frac{2\pi i(\beta_{\Omega}}{\bf Z}^{(\mathcal{H})})}$, to be the family of $\textit{Consider} \ \Omega_\mathbf{\mathcal{Z}}=\left(\Pi_{\Omega_\mathbf{\mathcal{Z}}}(\varkappa)e^{\frac{2\pi i (\alpha_\Omega-\mathbf{Z}(\varkappa))}{2}}, \Xi_{\Omega_\mathbf{\mathcal{Z}}}(\varkappa)e^{\frac{2\pi i (\beta_\Omega-\mathbf{Z}(\varkappa))}{2}}\right)$, to be the family of a list of C **Theorem 7.** Consider $\Omega_{\mathbf{z}} = \left(\prod_{\Omega_{\mathbf{z}}}\left(\chi\right)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}}(\chi)\right)$, $\Xi_{\Omega_{\mathbf{z}}}(\chi)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}}(\chi))\right)$, to be the family of

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 $\mathcal{L} = \{ \mathcal{L} \mid \mathcal{L} \in \mathcal{L} \}$

$$
CPyFAAOWA\left(\Omega_{1},\,\Omega_{2},\,\ldots,\,\Omega_{\eta}\right)=\Omega
$$

 \mathbf{f} We can prove this theorem easily \Box $\mathbf{u} \in \mathbb{R}$ **Table 1.** Symbols and their meanings. $\exists x \Box$ \blacksquare **Table 1.** Symbols and their meanings. \mathbf{p} . We can prove this theore **Proof.** We can prove this theorem easily. \Box \mathbf{I} 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ and TCNM. *Symmetry* **2023**, *14*, x FOR PEER REVIEW 21 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 21 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 21 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 21 of 35 ⎜ le can prove this theorem easily.

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IFS and PyFs. The PyFs.

3. Existing Aggregation Operators

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Theorem 8. Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2i\pi(\mathbf{a}_{12}^T\mathbf{Z}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2i\pi(\mathbf{a}_{12}^T\mathbf{Z}(\varkappa))}\right), \ z = 1, 2$ family of CPyFVs, and Ω^{-} = $min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and Ω^{+} = $max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$. 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ Then, we have: $\Omega^- \leq CP$ yFAA **Table 1.** Symbols and their meanings. **Solution** $\sum_{i=1}^{n} \sum_{j=1}^{n} (n_i)^c$, $\sum_{i=1}^{n} \sum_{j=1}^{n} (n_i)^c$, $\sum_{i=1}^{n} \sum_{j=1}^{n} ...$ ω and ω are have: $\Omega^{-} \leq CPyFAAOWA\left(\Omega_{1}, \Omega_{2}, ..., \Omega_{n}\right) \leq \Omega^{+}$ \mathbf{F} **c** \mathbf{F} **f** \mathbf{F} **c** $\left(\mathbf{F}$ **c** $\right)$ \mathbf{F} $\left(\mathbf{F}$ \mathbf{F} $\left(\mathbf{F}$ \mathbf{F} \mathbf **Example 11 i** $\frac{1}{2}$ = $\left(\frac{11}{2}(\frac{\pi}{3})^c\right)$, $\frac{1}{2}(\frac{\pi}{3})^c$, $\frac{1}{2}(\frac{\pi}{3})^c$, $\frac{1}{2}$ of $O_7 = \left(\prod_{\Omega} (\nu) e^{-2\pi i (\mu_1/2)} e^{(\lambda \nu)} \right)$ $\mathbb{E}_{\Omega} (\nu) e^{-2\pi i (\nu_1/2)} e^{(\lambda \nu)} \right)$ $\mathbb{E}_{\Omega} = 1.2$ The the $\begin{pmatrix} -\frac{1}{2} & \frac{1}{2} & \frac{1}{$ $\Omega^{-} \leq CPyFAAOWA(\Omega_1, \Omega_2, ..., \Omega_{\text{N}}) \leq \Omega^{+}$ **n** 8. Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\frac{1}{2} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{j=1}^{N} \sum_{j=1}^{N} \mathbf{Z}_{j}(\kappa)} \right), \mathbf{Z} = 1, 2, ..., N$ be the ƺୀଵ *. Then, the PyF Aczel–Alsina weighted averaging operator is given as:* \cdot . . . \cdot . $T = \frac{2\pi i (x - \mu)}{2\pi i}$ $\int_{0}^{1} \frac{1}{2} \binom{n}{k}$ $\int_{0}^{1} \frac{1}{2} \binom{n}{k}$ $\int_{0}^{1} \frac{1}{2} \binom{n}{k}$ $\mathcal{M}^{\mathcal{A}}$ $CPyFAAOWA(\Omega_1, \Omega_2, ..., \Omega_n) \leq \Omega^+$ $\left(\begin{array}{cc}2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{X}}))&\n\end{array}\right)$, $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{X}}))\n\right)$, \mathbf{Z} , \math $w = \left(\begin{array}{c} 11 \frac{1}{2} \frac$ $\mathbb{E}\left[\mathbb{E}\left[\mathbf{y}\right]\right]$ $\mathbb{E}\left[\mathbf{y}\right]$ $\mathbb{E}\left[\mathbf{y}\$ $\begin{pmatrix} -3 & -3 \\ -2 & -3 \end{pmatrix}$

(compared) $\begin{pmatrix} -2 \\ 2 \end{pmatrix}$ and $\begin{pmatrix} -2 \\ 2 \end{pmatrix}$ of $\begin{pmatrix} -2 \\ 2 \end{pmatrix}$ $\Omega^{-}\leq \mathit{CPyFAAOWA}\Big(\,\Omega_1,\,\Omega_2,\,\ldots,\,\Omega_{\P}\,\Big) \leq \Omega^{+}$ family of CPyFVs, and $\Omega^{-} = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and $\Omega^{+} = max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$.
Then we have: **Theorem 8.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-2\pi i(\beta_{\Omega_{\mathbf{Z}}})}\right)$ Γ *hen, we have:* Γ ை **Theorem 8.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\omega_{\mathbf{Z}}}{2}}\right), \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\omega_{\mathbf{Z}}}{2}}\right)$, $\mathbf{Z} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\omega_{\mathbf{Z}}}{2}}\right)$ C^{\dagger} *. Then, we have.*
 C^{\dagger} $\leq C P_1 E 4 A Q W 4 \begin{pmatrix} Q_1 & Q_2 & Q_3 \end{pmatrix} \leq Q^{\dagger}$ ൫ଵ, ଶ,…,ῃ൯= ⨁ƺୀଵ $\varOmega^{-}\leq \mathit{CPyFAAOWA}\Big(\varOmega_{1},\, \varOmega_{2},\, \dots,\, \varOmega_{n}$ **Theorem 8.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right), \ z = 1, 2, \ldots, \mathbb{N}$ $w^2 = \begin{pmatrix} 8 & 8 & 7 \ 1 & 1 & 1 \end{pmatrix}$
weight of CPuEVs, and O = $-\min(O, O_2, O_3, \ldots, O_k)$ and $O_2^+ = \max(O, O_2, O_3)$ $\Omega^{-} \leq CPyFAAOWA\left(\Omega_{1},\Omega_{2},\ldots,\Omega_{n}\right) \leq \Omega^{+}$ $2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $\frac{a}{a}$ $\frac{a}{a}$)) , Ξ*^Ω* **Definition 8.** Let $\Omega_3 = \left(\Pi_{\Omega_3}(\varkappa)e^{-\frac{2}{3}}\right), \Xi_{\Omega_3}(\varkappa)e^{-\frac{2}{3}}\right), \Xi = 1, 2, ..., \Xi$ be the $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ ῃ $\frac{1}{2}$ $\mathcal{L} \Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\mathbf{X}))}{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\mathbf{X}))}} \right), \mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ be the *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* PyFAAOWA $\left(\,\Omega_{1},\,\Omega_{2},\, \ldots,\,\Omega_{\Vert}\,\right)\leq \Omega^{+}$ $\begin{pmatrix} 8 & 8 \\ 2 & 6 \end{pmatrix}$ and $\begin{pmatrix} 2 & 0 \\ 0 & 0 \end{pmatrix}$ and $\begin{pmatrix} 2 & 0 \\ 0 & -1 \end{pmatrix}$ $\mathsf{DWA}\left(\Omega_{1},\,\Omega_{2},\,\ldots,\,\Omega_{\bar{\pmb{\eta}}}\right)\leq \Omega^{+1}$ $\langle 2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))\rangle$ = $\langle \cdot \rangle$ = \mathbb{R} = $\langle \cdot \rangle$ = \mathbb{R} = $\langle \cdot \rangle$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude* $\left(\prod_{\Omega_{\mathbf{Z}}(\mathbf{x})}2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\mathbf{x}))\right),\, \mathbf{z}=1,2,\ldots,\mathbf{N}$ be the family of CPyFVs, and $\Omega^{-}=min(\Omega_1,\Omega_2,$ $\Omega_3,\ldots,$ $\Omega_{\text{\tiny I\! N}})$ and $\Omega^+=max(\Omega_1,\Omega_2,$ $\Omega_3,\ldots,$ $\Omega_{\text{\tiny I\! N}}).$ Then, we have: $\Omega^{-} \leq \mathit{CPyFAAOWA}(\Omega_{1}, \Omega_{2}, \ldots, \Omega_{n}) \leq \Omega^{+}$ \int , $\overline{z} = 1, 2, \ldots, \overline{p}$ be the $\mathcal{P}_\mathcal{Q} \subset \Omega_\mathcal{Z}(\mathcal{X})$ k $\mathcal{P}_\mathcal{Q}(\mathcal{X})$ k $\mathcal{P}_\mathcal{Q}(\mathcal{X})$ k $\mathcal{P}_\mathcal{Q}(\mathcal{X})$ k $\mathcal{P}_\mathcal{Q}(\mathcal{X})$ k $\mathcal{P}_\mathcal{Q}(\mathcal{X})$ Ω in Ω ⁺ using an induction method, we prove Theorem 1 Ω \cdot , \cdot *pc mc* of CPyFVs. By using an induction method, we prove Theorem 1 based on \mathcal{N} $\Omega_1, \Omega_2, \ldots, \Omega_{\Pi}$ $\leq \Omega$ $\left(\right) \leq \Omega^+$ **Symmetry 2023**, $\begin{bmatrix} \mathcal{L} & \mathcal{L} \\ \mathcal{L} & \mathcal{L} \end{bmatrix}$, $\begin{bmatrix} 2\pi i (\alpha_{\Omega} \mathbf{z}(\mathcal{X})) \\ \alpha_{\Omega} \mathbf{z}(\mathcal{X}) \end{bmatrix}$, $\begin{bmatrix} 2\pi i (\beta_{\Omega} \mathbf{z}(\mathcal{X}))) \\ \beta_{\Omega} \mathbf{z}(\mathcal{X}) \end{bmatrix}$, $\mathbf{z} = 1, 2, \dots, n$ *n*, we have:
 $\frac{1}{2}$, $\frac{1}{2}$ $\frac{32}{2}$ $\frac{3}{2}$ Cr grammotive $\frac{32}{1}$, $\frac{32}{1}$, $\frac{32}{1}$, $\frac{32}{1}$, $\frac{32}{1}$ $\mathcal{L} = 2^{-1}(\mathbf{r} - (s_1)^2)$ $\mathbf{r} = 2^{-1}(\mathbf{r} - (s_1)^2)$ $\lim_{n \to \infty} \frac{1}{n}$ is $\lim_{n \to \infty} \frac{1}{n}$ $\lim_{M \to \infty} \int \frac{d\mu}{dx}$ *Signal 12* = $\lim_{M \to \infty} \frac{d\mu}{dx}$, $\lim_{M \to \infty} \frac{d\mu}{dx}$ S^{max} , we have.
 S^{max} S^{max} $\left(\bigcirc S, \bigcirc S, \bigcirc S, \bigcirc S, \bigcirc S, \circ S \right)$ **Symmetry 2008**, $I \circ A$, $O = \prod_{i=1}^n (x_i)^2 \cdot \frac{2n(n+1)}{3}$, $\frac{1}{2}$ $\frac{d^2}{dt^2}$ \leq **CI** given $\frac{d^2}{dt^2}$, $\frac{d^2}{dt^2}$, \cdots , $\frac{d^2}{dt^2}$ $\frac{2\pi i}{a}$, $\frac{2\pi i}{a}$, $\frac{1}{a}$, $\frac{1}{$ $S^-\leq CPLFAAOWA\left(\begin{array}{ccc} 0 & 0 \\ 0 & \end{array}\right) < 0$ f_{2}^{2} *Sympatric and* Q^{-} *= min(Q, Q, Q, Q, Q) and* Q^{+} *= max Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 family of CPyFVs, and $\Omega^{-} = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and $\Omega^{+} = max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$. $(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n)$ and $\Omega^+ = max(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n)$. ⎜ \overline{a} $\Omega^{-} \leq C P v F A A O W A \left(\Omega_{1}, \Omega_{2}, \ldots, \Omega_{r} \right)$ $\frac{2\pi i}{\alpha}$ F_{A} $\begin{bmatrix} \text{FA} & \text{A} & \text{OWA} & \text{O} & \text{O} & \text{O} & \text{O} \end{bmatrix}$ \int , $\epsilon = 1, 2, \ldots$, θ we the $= min(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n)$ and $\Omega^+ = max(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n).$ $f(x) = 2\pi i (x - (n\epsilon))$ $2\pi i (\beta - (n\epsilon))$ $\Pi_{\Omega_{\mathcal{F}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathcal{S}}}(\varkappa))}, \Xi_{\Omega_{\mathcal{F}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathcal{S}}}(\varkappa))}\big),$ $\mathfrak{z}=\mathfrak{1},\mathfrak{2},\ldots,\mathfrak{N}$ be the \hat{a} *in* \hat{a} \hat{b} \hat{c} \hat{c} \hat{d} $f(x)$ $\binom{(\mathcal{A}^j)}{j}$, $\mathfrak{Z} = 1, 2, \ldots, \mathfrak{N}$ be the $\frac{1}{2}$ *mar(O_i*, O₂, O₂) ΩS , and $\Omega^{-} = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and $\Omega^{+} = max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ *i* $\frac{2\pi}{\pi}$ \overline{a} λ *f* $2\pi i(\alpha_0 \left(\mathcal{H} \right))$ $2\pi i(\beta_0 \left(\mathcal{H} \right))$ Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi i}{3}(\varkappa_{H})}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi i}{3}(\varkappa_{H})}\right), \, \mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ be the $\leq CPuFAAOWA(\Omega_1, \Omega_2, \ldots, \Omega_n) \leq \Omega^+$ $\Omega_{\mathcal{L}}(x)e$ $\qquad \qquad$ \therefore $\Omega_{\mathcal{L}}(x)e$ $\qquad \qquad$ \qquad \qquad $dFVs$, and $\Omega^{-} = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and $\Omega^{+} = max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$. **Definition 11.** *Consider* ƺ = ቆఆƺ *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = \leq Ω ⁺ ^య ൱ቍ $\overline{}$ $\Omega^ \lt$.
P $Q^ \lt C$ P_U F \overline{A} $Q^ \leq$ CP_1FA $AOMA$ $\overline{\Omega}$ a list of new AOs of CPyFSs by utilizing the basic operational laws of Aczel–Alsina TNM $= 1, 2, \ldots, 5$ $\frac{1}{2}$ \overline{a} $(\mathcal{H}))$, $\Xi_{\mathcal{G}}$ $\frac{2\pi i(\beta\Omega_{\mathbf{Z}}(\boldsymbol{\varkappa}))}{2\tau}$, 3 : $\frac{1}{\Omega_2}$ ⎟ \overline{a} $OWA\left(\Omega_1\right)$ $\mathbf{g} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{-\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})/\mathbf{z}}, \mathbb{E}_{\Omega_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})}\right)$ s
~ $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}})))$ 3 4 2 ϵ \mathbf{z}^{\top} $\frac{1}{2}$ $max(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n).$ $\ddot{}$ $\frac{1}{2}$ ⎜ ⎜ $(\Omega_1, \Omega_2, \Omega_3, \ldots, \Omega_n).$

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• We can prove this theorem easily by following the steps of Th we can prove this theorem easily by following the steps of fried. ove this theorem easily by following the steps of Theorem 4. \Box $\mathcal{L} = \mathcal{L} \mathcal{L} = \mathcal{L} \mathcal{L} \mathcal{L}$ μ alternative by TCD and the section of Theorem 4. \Box Proof. We can prove this theorem easily by following the steps of Theorem 4. \Box \overline{a} ϵ an prove this theorem easily by following the steps of Theorem 4. \Box **Proof.** We can prove this theorem easily by following the steps of Theorem 4. \Box \sim IFS and PyFs. ans of $\overline{}$ \cdot by f following the steps of Theorem 4. \Box **Proof.** We can prove this theorem easily by following the steps of Theorem 4. \Box ቇ , ƺ = 1,2, … , ῃ *to be the* \Box u. \mathbf{p}_{root} We can prove this Proof. We can prove this the $\ddot{}$ **Proof** We can prove this theory Proof. We can prove this theorem $\ddot{}$ roof. We can prove this theorem easily f. We can prove this theorem easily by \overline{a} $\ddot{\ }$ We can prove this theorem easily by following the steps of Theorem 4. \Box m 4. \Box

3. Existing Aggregation Operators

 $\frac{1}{2}$ or given $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$

NMV of amplitude term \mathcal{N}

 $\frac{3}{2}$ and $\frac{3}{2}$ $\frac{3}{2$ $\Omega'_{\mathbf{z}} = \left(\prod_{O'} (\mathbf{x}) e^{-\frac{\mathbf{x}^T \mathbf{x}^T \mathbf$ ƺୀଵ *. Then, the PyF Aczel–Alsina weighted geometric operator is given as:* $\frac{1}{2}$ $\Omega_{\mathbf{Z}}\leq\Omega_{\mathbf{Z}}^{\prime},\ \forall,\ \left(\mathbf{\mathit{Z}}=1,2,\ldots,\mathbf{\mathit{!l}}\right)$, then we have: $\begin{pmatrix} a \\ b \end{pmatrix}$, $\begin{pmatrix} a \\ b \end{pmatrix}$, $\begin{pmatrix} a \\ c \end{pmatrix}$, $\Omega'_{\mathbf{z}} = \begin{bmatrix} \Pi_{\Omega'_{\mathbf{z}}}(\varkappa)e & \varkappa^2 \end{bmatrix}$, $\Xi_{\Omega'_{\mathbf{z}}}(\varkappa)e & \varkappa^2$, $\Xi_{\Omega'}(\varkappa)e$, $\Xi_{\Omega'}(\varkappa)e$ $\frac{2}{\sqrt{3}}$ and $\frac{3}{\sqrt{2}}$ and CP_uFAMW1 $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$ ῃ $(2\pi i(\alpha_0)(\chi))$ $2\pi i(\beta_0)(\chi)$ $\begin{pmatrix} 2\pi i(\alpha_{\Omega'})(\chi) \end{pmatrix}$ $2\pi i(\beta_{\Omega'})(\chi)$ = ൛ ௸()ଶగ൫ఈ(త)൯ , ௸()ଶగ൫ఉ(త)൯ : Ẁൟ, = √−1 *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* $GPRMOWI$ $(2.6 \times 10^{11} M)$ **Theorem 9.** Consider that $\Omega_{\overline{g}} = \left(H_{\Omega_{\overline{g}}}(\varkappa) e^{-\varkappa^2} - \varkappa^2 \Omega_{\overline{g}}(\varkappa) e^{-\varkappa^2} - \varkappa^2 \right)$, and $W = \int \frac{2\pi i (\alpha_{\Omega'_\mathbf{Z}}(\mathbf{z}))}{\sigma^2} \mathbf{z} \cdot \$ $\Omega'_{\mathbf{z}} = \left(\Pi_{\Omega'_{\mathbf{z}}}(x)e \right)$ and $\Gamma_{\Omega_{\mathbf{z}}}(x)e$ and $\Gamma_{\mathbf{z}}(x)e$ are two CPyFSs; $\sqrt{2}$ $\sum_{i=1}^{N}$ $\sum_{i=1}^{N}$ $\sum_{i=1}^{N}$ $\sum_{i=1}^{N}$ $\sum_{i=1}^{N}$ \overline{a} **Definition** 2 **a** $\left(\frac{H\Omega}{g}(X)\right)$ **c** $\left(\frac{H\Omega}{g}(X)\right)$ $\left(\frac{1}{\mu} \right)$ $\left(\frac{1}{\mu} \right)$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV,* $\Omega_2, \ldots, \Omega_{\text{m}}$ \leq CPyFAAOWA $\left(\Omega'_1, \Omega'_2, \ldots, \Omega'_{\text{m}}\right)$ \mathcal{L} $\mathcal{$ $\left(\Pi_{\Omega'_{\bm{\sigma}}}(\varkappa)e^{\frac{\varkappa}{2}}\right),\, \frac{\varkappa}{2} = 1,2,\ldots,\frac{\eta}{2}$ are two CPyFSs; if 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the PyF Aczel–Alsina weighted geometric operator is given as:* $\left(\begin{array}{cc} 0 & 0 \\ 0 & 0 \end{array} \right)$ < CP $\left(\begin{array}{cc} 0 & 0 \\ 0 & 0 \end{array} \right)$ ($2\pi i(\alpha_0 \left(\chi\right))$ $2\pi i(\beta_0 \left(\chi\right))$ $\widetilde{\text{tr}}(\alpha_{\Omega}(\kappa))$ $2\pi i(\beta_{\Omega}(\kappa))$ = ൛ ௸()ଶగ൫ఈ(త)൯ , ௸()ଶగ൫ఉ(త)൯ : Ẁൟ, = √−1 *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* α continuated α conditions: α conditions: der that $\Omega_{\mathfrak{Z}} = \left(H_{\Omega_{\mathfrak{Z}}}(\varkappa)e^{\frac{1}{2} \varkappa} \cdot \mathbb{Z}_{\Omega_{\mathfrak{Z}}}(\varkappa)e^{\frac{1}{2} \varkappa} \cdot e^{\frac{1}{2} \varkappa} \right)$, and *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = ², $E_{\Omega'_{\mathbf{Z}}}(\varkappa)$ ² $\left(\varkappa \right)$, $\left(\varkappa \right)$ = 1, 2, ..., if are two CPyFSs; if $\frac{1}{\sqrt{2\pi}}$ $\frac{1}{2}$, ... $\mathbf{B} = \begin{pmatrix} 1 & \mu_2 \end{pmatrix} \mathbf{X}^{(k)}$ or $\mathbf{A}^{(k)}$ is $\mathbf{A}^{(k)}$ $\binom{1}{1}$, $\binom{3}{1}$ = 1.2, $\binom{1}{1}$ are two CPvFSs; i \vdots *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV,* $CPyFAAOWA(\Omega_1, \Omega_2, ..., \Omega_{\text{R}}) \leq CPyFAAOWA(\Omega'_1, \Omega'_2, ..., \Omega'_{\text{R}})$ $\frac{1}{\sqrt{2}}$ $\Omega'_7 = \left(\Pi_{Q'}(\kappa)e^{-\frac{(1/3)(1/2)}{2}}\right), \, \bar{\kappa} = 1, 2,$ *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = $CPyFAAOWA\Big(\,\Omega_1,\ \Omega$ **Theorem 9.** Consider that $\Omega_{\mathbf{Z}} = \left(H_{\Omega_{\mathbf{Z}}}(\varkappa) e^{-\varkappa^2} \right)$ α' $\left(\begin{array}{cc} 2\pi i(\alpha_{\Omega'_{\mathbf{Z}}}(\boldsymbol{\mathcal{U}})) & 2\pi i(\beta_{\Omega'_{\mathbf{Z}}}(\boldsymbol{\mathcal{U}})) \\ \mathbf{Z} & \mathbf{Z} \end{array}\right)$ $\sigma^2 z = \begin{pmatrix} 11 \Omega'_2 \Omega' \\ 0 \Omega'_2 \end{pmatrix}$ *. Then, the PyF Alg*e-1, $\Omega_2, \ldots, \Omega_{\mathfrak{g}} \bigg) \leq C P y$ y FAAOWA $\left(\Omega_{1},\,\Omega_{2},\,...,\,\Omega_{\Vert}\right)\leq CPyF.$ **Definition 1. Consider that** $\Omega_{\mathbf{Z}} = \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}$ $(\mathbf{Z}^T)^{(\mathbf{Z})}$ $(\mathbf{Z}^T)^{(\mathbf{Z})}$ $(\mathbf{Z}^T)^{(\mathbf{Z})}$ $Q' = \left(\frac{2\pi i (\alpha_{\Omega_1'}(\mathcal{X}))}{\Pi_{\mathcal{A}}(\alpha_1)} \mathcal{Z} \right)_{\mathcal{A}} \frac{2\pi i (\beta_{\Omega_1'}(\mathcal{X}))}{\Pi_{\mathcal{A}}(\alpha_2)} \mathcal{Z} \frac{1}{\Pi_{\mathcal{A}}(\alpha_3)} \mathcal{Z} \frac{1}{\Pi_{\mathcal{A}}(\alpha_4)} \mathcal{Z} \frac{1}{\Pi_{\mathcal{A}}(\alpha_4)} \mathcal{Z} \frac{1}{\Pi_{\mathcal{A}}(\alpha_5)} \mathcal{Z} \frac{1}{\Pi_{\mathcal{A}}(\alpha_6)} \math$ $\Omega_{\mathcal{Z}} = \left(\frac{11_{\Omega_{\mathcal{Z}}'}(x)e^{\alpha}}{2}, \frac{11_{\Omega_{\mathcal{Z}}'}(x)e^{\alpha}}{2}, e^{\alpha} \right), \ z = 1, 2, ..., n$ as $\Omega_{\mathbf{\widetilde{Z}}}\leq \Omega^{'}_{\mathbf{\widetilde{Z}}},~\forall,~\left(\mathbf{\widetilde{Z}}=1,2,\ldots ,\mathbf{R}\right),$ then we have: $\binom{1}{0}$ \leq CPyFAAOWA $CPuFAAOWA(\Omega_1, \Omega_2, ..., \Omega_n) < CPuFAAOWA(\Omega)$ **Table 1.** Symbols and their meanings. **Symbol Meaning Symbol Meaning** $Q' = \left(\prod_{\alpha\in\mathcal{N}} (\varkappa) e^{-\frac{\varkappa}{2} \cdot \frac{(\varkappa - 1)}{2}} \cdot E_{\alpha\in\mathcal{N}} (\varkappa) e^{-\frac{\varkappa}{2} \cdot \frac{(\varkappa - 1)}{2}} \right)$. $\bar{z} = 1, 2, \ldots, \bar{v}$ are $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ **Theorem 9.** Consider that $\Omega_{\tau} = \left(\prod_{\Omega} (\chi)e^{\frac{\chi \pi i (\alpha \Omega_{\Omega} (\chi))}{2\pi i (\beta \Omega_{\Omega} (\chi))}}\right)$. $\begin{array}{ccc} & & \epsilon & \epsilon & \epsilon \\ \epsilon & & \epsilon & \epsilon \\ \epsilon & & \epsilon & \epsilon \\ \epsilon & & \epsilon & \epsilon \end{array}$ $\Omega'_{\mathbf{Z}}\,=\,\left(\Pi_{\Omega'_{\mathbf{Z}}}(\varkappa)e^{-\frac{\sum_{i=1}^{n}(\mathbf{x}_{i})^{2}}{2}},\Xi_{\Omega'_{\mathbf{Z}}}(\varkappa)e^{-\frac{\sum_{i=1}^{n}(\mathbf{x}_{i})^{2}}{2}}\right),\; \mathbf{Z}\,=\,1,2,\ldots,\mathbf{N}$ are two CPy $\left(\Omega_1, \Omega_2, \ldots, \Omega_n\right)$ < CPyFAAOWA $\left(\Omega'_1, \Omega'_2, \ldots, \Omega'_n\right)$ $\left(\begin{array}{cc} 1 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{array}\right)$ **9.** Consider that $\Omega_{\mathbf{Z}} = \begin{pmatrix} H_{\Omega_{\mathbf{Z}}}(\mathbf{x})e & e \end{pmatrix}$, $\Xi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e$ are $2\pi i(\alpha_{\Omega'}(\boldsymbol{\mu}))$ $2\pi i(\beta_{\Omega'}(\boldsymbol{\mu}))$ $\mathbb{E}_{\Omega'_{\bm{\alpha}}}(\bm{\kappa})e$ are two CPyFSs; $\mathbb{E}_{\Omega'_{\bm{\alpha}}}(\bm{\kappa})e$ are two CPyFSs; $\begin{array}{c} \begin{array}{c} \mathbf{c} \\ \mathbf{c} \end{array} \end{array}$ $\mathcal{A}, \, (\lambda^2 = 1, 2, \ldots, 1^{\mathsf{T}}),$ then we have: FAAOWA $(\Omega_1, \Omega_2, ..., \Omega_n) \leq CPyFAAOWA(\Omega'_1, \Omega'_2, ..., \Omega'_n)$ FAAOWA $(\Omega_1, \Omega_2, ..., \Omega_{\eta}) \leq CPyFAAOWA(\Omega'_1, \Omega'_2, ..., \Omega'_{\eta})$ **Definition 7.** Consider that $\Omega_{\tilde{Z}} = \left(\frac{H\Omega_{\tilde{Z}}(\mathcal{H})e}{\Omega_{\tilde{Z}}(\mathcal{H})e} \right)$, and $\mathcal{L} = \left(\frac{2\pi i (\alpha_0 / \mathcal{B})}{\pi} \mathcal{L} \right)$ $\mathcal{L} = \left(\frac{2\pi i (\beta_0 / \mathcal{B})}{\pi} \mathcal{L} \right)$ $\mathcal{L} = 1,2,3,4$ is the CP Eq. if $\begin{cases} 11_{\Omega'_2}(x)e & e \end{cases}$, $\Xi_{\Omega'_2}(x)e$ e , $\Xi_{\Omega'_3}(x)e$, $e = 1, 2, ..., n$ are two CPyFSs; if $\Omega_{\mathbf{Z}} \leq \Omega_{\mathbf{Z}}^{\prime}$, \forall , $(3 = 1, 2, ..., 1)$, then we have: $\left(\Omega_1', \Omega_2', \ldots, \Omega_{\eta}'\right)$ $\sqrt{2\pi}$ $\frac{3}{2\pi i}$ (a) $\left(\frac{u}{3} \right)^{n}$ $\mathbb{E}_{\Omega}(\mu) e^{-\frac{u}{3} \cdot \mu}$ $\mathbb{E}_{\Omega}[\frac{u}{3} \cdot \mu]$ $\mathbb{E}_{\Omega}[\frac{u}{3} \cdot \mu]$ are two CPvFSs: if $\frac{1}{2}$ and $\frac{1}{2}$ NMV of phase term Ŧ TNM Consider that $\Omega_{\bf{z}} = \left(\Pi_{\Omega}(\bf{z})e^{2\pi i(\alpha_{\Omega}(\bf{z})B)}\right)$, $E_{\Omega}(\bf{z})e^{2\pi i(\beta_{\Omega}(\bf{z})B)}\right)$, and $\frac{z}{2\pi i(\alpha_{\alpha\ell}(\mathbf{v}))}$ $\frac{z}{2\pi i(\beta_{\alpha\ell}(\mathbf{v})))}$ $\frac{z}{2\pi i(\beta_{\alpha\ell}(\mathbf{v})))}$ $\left\{ \alpha, \alpha \right\}$ $\left\{ \alpha, \alpha \right\$ $\lt{CPuFAAOWA}(\Omega'_1, \Omega'_2, ..., \Omega'_n)$ $\mathcal{L}_{\mathbf{Z}} = \begin{bmatrix} \Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e & \varkappa & \mu_{\Omega_{\mathbf{Z}}}(\varkappa)e & \varkappa \end{bmatrix}$, and $2\pi i(\beta_{\Omega'}(\boldsymbol{\mu}))\setminus$ $\mathcal{Q}'_{\mathbf{z}}(\varkappa)e$ and $\mathcal{Q}(\varkappa)e$ are two CPyFSs; if ϵ and the phase term of phase term ℓ Λ $\ldots, \Omega_{\mathbf{n}} \leq CPyFAAOWA[\Omega'_1, \Omega'_2, \ldots, \Omega'_{\mathbf{n}}]$ that $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\mu})e^{\sum_{i=1}^{K}(\boldsymbol{\mu})}E_{\Omega_{\mathbf{z}}}(\boldsymbol{\mu})e^{\sum_{i=1}^{K}(\boldsymbol{\mu})}e^{\sum_{i=1}^{K}(\boldsymbol{\mu})} \right)$, and $\sum_{\mathbf{z}}^{\mathbf{z}}$ (\mathbf{z})) $\sum_{\mathbf{z}}^{\mathbf{z}}$ = $\sum_{\mathbf{z}}^{\mathbf{z}}$ \mathcal{I}_3^2 , $\mathbb{E}_{\Omega'_3}(\varkappa)e^{-\frac{\varkappa_1}{2}T_3(\varkappa)}$, $\mathfrak{z}=1,2,\ldots,\mathfrak{N}$ are two CPyFSs; if $AOWA(\Omega_1, \Omega_2, ..., \Omega_n) \leq CPyFAAOWA(\Omega'_1, \Omega'_2, ..., \Omega'_n)$ **Theorem 9.** Consider that $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{\theta} \right)$, $\Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{\theta}$ \mathcal{C}' $\left(\begin{array}{cc} 2\pi i(\alpha_{\Omega'_{\mathbf{Z}}}(x)) & 2\pi i(\beta_{\Omega'_{\mathbf{Z}}}(x)) \\ 0 & 0 \end{array}\right)$ $\Omega'_{\mathbf{Z}} = \begin{pmatrix} \Pi_{\Omega'_{\mathbf{Z}}}(\varkappa) e & \varkappa & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{pmatrix}$, $\mathbf{Z} = 1, 2, ..., \mathbf{Z}$ are $=$ $\left(\right.$ **Theorem 9.** Consider that $\Omega_{\overline{g}} = \left(II_{\Omega_{\overline{g}}}(\varkappa)e^{\varkappa}$ are $\Omega_{\overline{g}}(\varkappa)e^{\varkappa}$ and $\Omega_{\overline{g}}(\varkappa)e^{\varkappa}$ $Q' = \left(\prod_{\alpha} \binom{2\pi i (\alpha_{\alpha'}(\mathcal{X}))}{\alpha} \right)^2$ $\frac{2\pi i (\beta_{\alpha'}(\mathcal{X}))}{\beta}$, $\frac{2}{\alpha}$, $\frac{1}{\alpha}$, $\frac{1}{\alpha}$, $\frac{1}{\alpha}$, we two CPvES $\Omega_{\overline{2}} = \left(\frac{H_{\Omega_2'}(x)e^{-\epsilon}}{2}, \frac{H_{\Omega_2'}(x)e^{-\epsilon}}{2}\right), \epsilon = 1, 2, ...,$ th are two CryF. $(2,\ldots,1)$, then we have: $AOWA(\Omega'_1, \Omega'_2, \ldots)$ $AOWA$ $\left(Q_1, Q_2, \ldots, Q_n \right)$ < CPuFAAOWA $\left(Q'_1, Q'_2, \ldots, Q'_n \right)$ ($= \left(\Pi_{\Omega_{\mathbf{z}}}(\mu)e^{-\frac{2\pi i}{3}(\mu)}\right), \Xi_{\Omega_{\mathbf{z}}}(\mu)e^{-\frac{2\pi i}{3}(\mu)}$ $\frac{2\pi i(\alpha_{\Omega'_{\mathbf{Z}}}(\boldsymbol{\mathcal{U}}))}{\pi}$ $\left(\begin{array}{cc} 2\pi i(\beta_{\Omega'_{\mathbf{Z}}}(\boldsymbol{\mathcal{U}})) \\ 0 \end{array}\right)$ of a membership value of \mathbf{F}^{α} is the membership value of \mathbf{F}^{α} is the membership value of \mathbf{F}^{α} is the membershi $I_{\Omega'_\mathbf{Z}}(\mathcal{H})e$ c_{respectively} $\mathcal{H}_{\mathbf{Z}}(\mathcal{H})e$ crespectively. $\mathcal{H}_{\mathbf{Z}}(X,e)$ is a condition: $\mathcal{H}_{\mathbf{Z}}(X,e)$ **9.** Consider that $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\mu)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\mu))}, \Xi_{\Omega_{\mathbf{z}}}(\mu)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\mu))}\right)$, and $\frac{z}{2\pi i(\alpha_{\alpha\beta}(\kappa))}$ $\frac{z}{2\pi i(\beta_{\alpha\beta}(\kappa))}$ $\frac{z}{2\pi i(\beta_{\alpha\beta}(\kappa))}$ $\frac{z}{2\pi i(\beta_{\alpha\beta}(\kappa))}$ $\Pi_{\Omega'_{\mathbf{Z}}}(\varkappa)e^{-\frac{\mathbf{Z}\cdot\mathbf{A}(\mathbf{A}_{\Omega_{\mathbf{Z}}^{j}}(\varkappa))}{2}}, \mathbb{E}_{\Omega'_{\mathbf{Z}}}(\varkappa)e^{-\frac{\mathbf{Z}\cdot\mathbf{A}(\mathbf{A}_{\Omega_{\mathbf{Z}}^{j}}(\varkappa))}{2}}\bigg), \; \mathbb{I} = 1, 2, \ldots, \mathbb{I}$ are two CPyFSs; if \mathcal{L}_{max} \sim and the following Table 1, we define the symbols and the $\lim_{\lambda \to 0} 2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $\lim_{\lambda \to 0} 2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ where *and* set is a member of and membership value of $\frac{1}{2}$ value of $\$ $\frac{q_1(a_1)}{3}$ $\frac{q_2(a_2)}{5}$ $\frac{2a_1(p_1)}{3}$ $\frac{q_1}{2}$ $\frac{q_2}{2}$ $\frac{q_3}{2}$ m are two CPs ES_C; if \overline{a} and \overline{a})) $\text{sider that } \Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\frac{1}{2} \mathbf{Z}^2} \right), \text{ and }$ $\left(\frac{2\pi i(\alpha_{\Omega'}(\mathcal{X}))}{3} \right)$ $\left(\frac{2\pi i(\beta_{\Omega'}(\mathcal{X}))}{3}\right)$ $\left(\frac{2\pi i}{3}, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}\right)$ are two CByES₂; if $\begin{cases} \n\cdot & \text{if } \frac{1}{2} \left(\frac{x}{g} \right) \text{ if } g \text{ is } \frac{1}{2} \text{ if } g$ $\Omega_{\mathbf{Z}} \leq \Omega'_{\mathbf{Z}}$, \forall , $(3 = 1, 2, ..., 1)$, then we have: $PvFAAOWA(\Omega'_{1}, \Omega'_{2}, ...)$ (P_n) < CPUFAAOWA $(\Omega'_1, \Omega'_2, ..., \Omega'_n)$ ($\mathcal{E}^{\left(\cdots\right)}, \mathbb{E}_{\Omega_{\mathbf{z}}}\left(\varkappa\right)e^{-\mathcal{E}\left(\mathbf{z}\right)^{2}}$, and $\frac{2\pi i(\beta_{\Omega'_{\mathbf{Z}}}(\mathbf{X}))}{\sigma}$ **a** and membership value of \mathbf{E} $\mathcal{L}_{\Omega'_{\mathbf{Z}}}(\kappa)e$ c \qquad , $\lambda = 1, 2, ...,$ are two CP ypps; if $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{z}}}(\kappa))}{2}}, \Xi_{\Omega_{\mathbf{z}}}(\kappa)e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{z}}}(\kappa))}{2}}\right)$, and $\frac{8}{2\pi i(\beta_{\alpha'}(κ)))}$ **a** $\frac{8}{2\pi i}$ **c** $\frac{8}{2\pi i}$ **c** $\frac{8}{2\pi i}$ = $\frac{8}{2\pi i$ $\mathcal{L}^{\Sigma_{\Omega}}(\varkappa) e^{-\mathcal{L}^{\Sigma_{\Omega}}(\mathcal{P}_{\Omega}(\varkappa))}$, $\mathfrak{z} = 1, 2, ..., \mathfrak{N}$ are two CPyFSs; if α , and α are α or α are α or $($ $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ **where** *and* ∞ $\frac{1}{2}$ represents the membership value (MV) of and membership value (MV) of and $\frac{1}{2}$ of and $\$ $\left(\frac{P_{\Omega_1'}(R)}{Z}, \frac{R}{Z}\right)$ $Z = 1.2$ means $CP_{V}EC_0$; if $))$), and $Ω$ ¹ In this part, we recall the existing concepts of \overline{A} $\Omega'_{\mathbf{Z}} = \begin{bmatrix} \Pi_{\Omega'_{\mathbf{Z}}}(\varkappa)e & \varkappa^2 & \nabla_{\Omega'_{\mathbf{Z}}}(\varkappa)e & \varkappa^2\end{bmatrix}$ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\sqrt{2}$ $\Pi_{\Omega_{\cdot}^{\prime}}$ **Theorem 9.** Concider that $Q = \left(H_{\alpha} - \frac{2\pi i (\alpha_0 g)}{g}\right)$ $\Omega'_{\mathtt{Z}}\ =\ \left(\varPi_{\Omega'_{\mathtt{Z}}}(x)e \qquad \, \, \textrm{{\small{2}}}\quad \, \, ,\Xi_{\Omega'_{\mathtt{Z}}}(x)e \qquad \, \, \textrm{{\small{3}}}\quad \, \right)\!,\ \, \mathtt{\small{3}}\, :$ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\mathcal C$ $CPyFAAOWA(\Omega_1, \Omega_2, ..., \Omega_n)$ $\frac{1}{2}$ $\mathcal{E}_{\Omega'_{\mathcal{A}}}(\mu)e$ **3** $\mathcal{E}_{\Omega'_{\mathcal{A}}}(\mu)e$ **3** $\Omega_{\mathbf{Z}} \leq \Omega_{\mathbf{Z}}^{\prime}$, \forall , $\left(3=1,2,\ldots,1\right)$, then we have: ²*πi*(*αΩ*⁰ In this part, we recall the existing concepts of A and A and A and A $\Omega_{\sigma}^{\prime} = \left(\prod_{\alpha\prime}(\gamma)e^{\frac{2\pi i}{3}(\alpha\gamma)}\right)$, $\Omega_{\sigma}^{\prime} = \left(1\right)$, $\Omega_{\sigma}^{\prime} = \left(1\right)$ *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = \mathcal{L} \mathcal{L} \mathcal{L} \mathcal{L} \mathcal{L} $\$ (**Theorem 9.** Consider that $\Omega_7 = \left(\Pi_{\Omega_8}(\mu)e^{-\frac{2\pi i}{3}(n\mu_1/2)}e^{-\frac{2\pi i}{3}(n\mu_2/2)}\right)$ $2\pi i(\alpha_{\Omega'_{\mathbf{r}}}(x))$ $2\pi i(\beta_{\Omega'_{\mathbf{r}}}(x))$ $\frac{1}{2}$ $\left(\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $CPyFAAOWA\left(\Omega_{1}, \Omega_{2}, ..., \Omega_{\eta}\right) \leq CPyFAAOWA\left(\Omega_{1}, \Omega_{2}, ..., \Omega_{\eta}\right)$)) , $^{\Xi}_{\Omega'}$ **Theorem 9.** Concider that $Q = \left(H_{\text{tot}}(u)\right)^{2\pi i (R_0 g(W))}$ $\sum_{n=1}^{\infty}$ under the system of Acape IFS and PyFs. $\Omega'_{\mathbf{z}} = \left(\Pi_{\Omega'_{\mathbf{z}}}(\kappa) e^{\frac{2\pi}{3}} , \Xi_{\Omega'_{\mathbf{z}}}(\kappa) e^{\frac{2\pi}{3}} \right), \; \mathbf{z} = 1, 2, ..., \mathbf{z}$ are two 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $A A O W A \left(\,\Omega_1,\,\Omega_2,\,\ldots,\,\Omega_{\pmb{n}}\,\right) \le C P y F A A O W A \left(\,\Omega_1^{\prime\prime}\right)$ $\frac{1}{2}$ $\mathcal{E}_{\Omega'_{\mathbf{z}}}(\mu)e$ \mathcal{E} |, $\mathcal{E} = 1, 2, ..., \mathcal{E}$ $\Omega_{\mathbf{Z}} \leq \Omega_{\mathbf{Z}'}'$, \forall , $\left(\mathbf{\overline{z}} = 1, 2, ..., \mathbf{R} \right)$, then we have: $2\pi i(\beta_{\Omega_0^{\prime}})$ In this part, we recall the existing concepts of \mathcal{A} **orem** 9 $\Omega'_n = \left(\prod_{Q'} (x)e^{-\frac{\sum x_i(\mu_Q x_i)}{2}}\right)^n$, $\overline{z} = 1, 2, \ldots, \overline{z}$ are two CPvFSs; if *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $\lim_{z_2, \ldots, z_n} \sum_{j=1}^{\infty} C_{r} y r A N N N \left(\frac{1}{2}, \frac{1}{2}, \ldots, 1 \right)$ (Consider that $\Omega_{\bf{z}} = \left(\Pi_{\Omega}(\bf{z})e^{-\mu\nu} \right)^{2\pi i \left(\mu_1\right)^2}$ $\sum_{\Omega} (\bf{z})e^{-\mu\nu_1\left(\mu_1\right)^2}$ and $\sum_{\Omega} (\bf{z})e^{-\mu\nu_1\left(\mu_1\right)^2}$ $2\pi i(\beta_{\Omega'_{\mathbf{n}}}(\boldsymbol{\mathcal{H}})))$ $\frac{1}{2}$ $\left(\frac{1}{2}\right)^{1/2}$ $\left(\frac{1}{2}\right)^{1/2}$ $\left(\frac{1}{2}\right)^{1/2}$ $\left(\frac{1}{2}\right)^{1/2}$ $\left(\frac{1}{2}\right)^{1/2}$ $\left(\frac{1}{2}\right)^{1/2}$))\ , $P^{-t}(x-(\alpha))$ $P^{-t}(\beta - (\alpha))$ 19. Consider $\Pi_{Q'_{-}}(\varkappa) e^{-\frac{1}{2}(\varkappa)}$, $\Xi_{Q'_{-}}(\varkappa) e^{-\frac{1}{2}(\varkappa)}$, $\overline{z} = 1, 2, ..., \overline{z}$ are two CPyFSs; if *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $\begin{pmatrix} 0 & 0 & 0 \end{pmatrix}$ $\leq CPuFAAO$ $= 1, 2, \ldots,$ $\left(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu})\right)$ = $\left(\alpha\right)_{\mathbf{z}}^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))}$ and of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina , $\mathfrak{Z} = 1, 2, ..., \mathfrak{N}$ are two CPyFSs; if $\begin{pmatrix} 2\pi i(\alpha_{\Omega'}(\boldsymbol{\varkappa})) & 2\pi i(\beta_{\Omega'}(\boldsymbol{\varkappa})) \end{pmatrix}$ $\sqrt{2\pi}$ of $\sqrt{2\pi}$ $CPyFAAOWA(\Omega_1, \Omega_2, ..., \Omega_n)$ $\sqrt{2\pi}$ of $\sqrt{2\pi}$ $CPyFAAOWA \left(\Omega_1, \Omega_2, \ldots, \Omega_{\tilde{\eta}}\right) \leq CPy$ **3. Existing Aggregation Operators** $\begin{pmatrix} 2\pi i(\alpha_{\Omega'_{\boldsymbol{z}}}(\boldsymbol{\mathcal{U}})) & \epsilon & \epsilon & \epsilon & \epsilon \\ 2\pi i(\beta_{\Omega'_{\boldsymbol{z}}}(\boldsymbol{\mathcal{U}})) & \epsilon & \epsilon & \epsilon & \epsilon \end{pmatrix}$ $\mathcal{L} = \{ \mathcal{L} \mid \mathcal{L} = \mathcal{L} \}$ of $\mathcal{L} = \{ \mathcal{L} \mid \mathcal{L} = \mathcal{L} \}$, such that $\mathcal{L} = \{ \mathcal{L} \mid \mathcal{L} = \mathcal{L} \}$ $CPyFAAOWA\left(\Omega_{1}, \Omega_{2}, \ldots, \Omega_{\bar{\eta}}\right) \leq CPyFAAO$ $\frac{1}{2}$ and $\frac{1}{2}$ based on $\frac{1}{2}$ $\overline{\beta}$ $\frac{1}{2}$ $\frac{1}{2}$ $\mathfrak{z}^{(\mathcal{H}))}\big)$, and of \mathcal{N} using an induction method, we prove Theorem 1 based on Ac \mathcal{N} $\left(\Omega_{1}, \Omega_{2}, \ldots, \Omega_{\overline{1}} \right) \leq \text{CPyFAAOWA} \left(\Omega'_{1}, \Omega'_{2}, \ldots, \Omega'_{\overline{1}} \right)$ ζ ⎜ į, $\Omega_1, \Omega_2, \ldots, \Omega_{\eta}$ $CPuFAAOWA$ $\left(\Omega_{1}, \Omega_{2}, \Omega_{3}\right)$ $\leq CPuFAAOWA$ $\left(\Omega_{1}^{\prime}, \Omega_{2}^{\prime}\right)$ $\frac{3}{2}$ $\left(\frac{-1}{2}x^{(k)}\right)$ $\frac{3}{2}$ $\left(\frac{1}{2}x^{(k)}\right)$ $\Omega'_\n\pi = \prod_{Q'} (\chi)e$ $\qquad \xi$ $\qquad \qquad$ $\Xi_{Q'} (\chi)e$ $\qquad \xi$ \qquad \qquad $\xi = 1, 2, \ldots, 1$ are two CPyFSs; if $\frac{1}{\sqrt{2}}$ $CPyFAAOWA(\Omega_1, \Omega_2, ..., \Omega_n) \leq CPyFAAOWA(\Omega'_1, \Omega'_2, ..., \Omega'_n)$ **Particle 2023**, **14**, $\frac{1}{2}$ $\Omega'_\tau = \prod_{Q'} (\chi) e$ \qquad \qquad *iii.* = ൫()൫()൯ , ()൫()൯ ൯*.* $CPyFAAOWA(\Omega_1, \Omega_2, ..., \Omega_n) \leq CPyFAAOWA(\Omega'_1, \Omega'_2, ..., \Omega'_n)$ $\frac{32}{2}$, $\frac{3$ $2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\varkappa}))$ α , α , α ₃ $(\alpha)e$ $2'_1$ ⎜ $\ddot{}$ $CPyFAAOWA\left(\Omega_1, \Omega_2, \ldots, \Omega_{\eta}\right) \leq CPyFA$ $f(x) = 2\pi i(\alpha_0 \mu)$ $2\pi i(\beta_0 \mu)$ λ Consider that $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{\sum_{i=1}^{N}(\mathbf{x}_{i})} \mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa)e^{\sum_{i=1}^{N}(\mathbf{x}_{i})} \mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa)e^{\sum_{i=1}^{N}(\mathbf{x}_{i})} \mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa)e^{\sum_{i=1}^{N}(\mathbf{x}_{i})} \mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa)e^{\sum_{i=1}^{N}(\mathbf{x}_{i})} \mathbb{E}_{\$ $2\pi i(\alpha_{\Omega'}(\boldsymbol{\varkappa}))$ $\mathbb{E}_{\Omega_{-}'}(\varkappa)e$ $\qquad \qquad \tilde{\mathcal{E}}_{\Omega_{-}'}(\varkappa)$ $\Omega_1, \ldots, \Omega_n$) \leq CPyFAAOWA $\bigcap \Omega_1'$ $\text{tnat } \Omega_{\mathbf{Z}} = \begin{pmatrix} \Pi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e & e \\ \vdots & \vdots \\ \Pi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e & e \end{pmatrix}$, and $\left[3\right]$ ², $E_{Q'}(\kappa)e^{-i\frac{\kappa}{2}}$, $\left[7\right]$, $\kappa=1,2,...,1$ ⁰ are two CPyFSs; if 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the CPyFAAWA operator* **Theorem 2.** *Consider* ƺ = ቆఆƺ *family of are two CPyFSs; if* 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ $\left(\begin{array}{cc} 1, & \mathbf{1} \end{array}\right)$ $\overline{}$ ⎟ ⎟ ⎟ ⎟ $\overline{}$ \sim \sim \sim χ)e $CPyF A$ ⎟ ⎟ ⎞ $\overline{}}$ \overline{a} \mathfrak{c}_Ω r ⎠ ⎟ ⎟ ⎟ ⎟ , \sim $\frac{1}{3}$ \overline{a} CPyFAAOV \overline{A} Γ \overline{a} ⎟ $)$ ⎟ \mathbf{a} $\overline{3}$ $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$ $\sim \frac{1}{2} \Omega'$ $\overline{\mathcal{A}}$ $CPyFAAOWA$ Ω $\frac{1}{2}$ $\ddot{}$ CP_4 $FAAOWIA$ Ω $\frac{1}{7}$ $\frac{1}{\sqrt{1-\frac{1}{2}}}$ $\sqrt{2}$ $\overline{}$ \overline{a} \overline{r} $\Omega_\mathtt{S}\leq \Omega'_\mathtt{Z}$, \forall , $\big($ 3 $=$ 1,2, \dots , $\mathfrak{N}\big)$, then we have $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$ χ)e $CPyFAAOWA(\Omega_1, \Omega_2, ...)$ $\overline{}$ \leq \leq C_{PuEA} AQWA $\left(\begin{matrix} 0' & 0' & 0' \end{matrix}\right)$ α ⎟ $\sqrt{ }$ $\lim_{\alpha \to 0} \frac{2\pi i (\alpha \Omega_g(\boldsymbol{\mu}))}{\sum_{\Omega} (\boldsymbol{\mu})e^{-2\pi i (\beta \Omega_g(\boldsymbol{\mu}))}}$ and **Theorem 2.** *Consider* ƺ = ቆఆƺ and TCNM. **Definition 11.** *Consider* ƺ = ቆఆƺ *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = **Drem 9.** Consider that $\Omega_{\sigma} = \left(\prod_{\Omega} (\gamma)e^{i\pi i \left(\mu_1\right)^2 \left(\gamma\right)^2} \right)$ and PyFS and PyFS because a CPyFS because $\Omega_{\sigma} = \left(\prod_{\Omega} (\gamma)e^{i\pi i \left(\$ has the two aspects of $\frac{1}{2}$ and $\frac{1}{2}$ and phase terms of amplitude and phase terms. We develop the set of amplitude and phase terms of amplitude and phase terms of amplitude and phase terms. We develop the set of $Q' = \left(\frac{\prod_{i=1}^{n} (x_i)^2}{\prod_{i=1}^{n} (x_i)^2} \right)^2$ $\frac{Z-12}{\prod_{i=1}^{n} (X-1)^2}$ $\frac{Z-12}{\prod_{i=1}^{n} (X-1)^2}$ $\sum_{i=1}^{n}$ **Definition 11.** *Consider* ƺ = ቆఆƺ , ఆƺ $CPyFAAOWA\left(\Omega_1, \Omega_2, ..., \Omega_n\right) \leq CPyFAAOWA\left(\Omega'_1, \Omega'_2, ..., \Omega'_n\right)$ $\mathcal{L}_{\mathcal{F}}$ contains more extensive information than IFSs and PyFSs **h h** as the two aspects of H_{α} (v) $e^{2\pi i (\alpha \Omega_{\alpha}(\mathbf{X}))}$ is a conducted and phase terms. We develope the phase terms. We develope the phase terms. a list of $\frac{1}{2}$ by utilizing the basic operation by $\frac{1}{2}$ $Q' = \left(\frac{2\pi i (\alpha_{Q'_2}(\mathbf{X}))}{\prod_{Q'_1} (\mathbf{X})^2} \right)^{2\pi i (\beta_{Q'_2}(\mathbf{X}))}$ $\mathbf{Z} = 1.2$ are two CPvFSs; if $\Omega'_{\mathbf{Z}}, \ \forall, \ \big(\mathbb{3} = 1, 2, \ldots, \mathbb{N} \big),$ then we have: $\ddot{}$ *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = $CPyFAAOWA(\Omega_1, \Omega_2, ..., \Omega_n) \leq CPyFAAOWA(\Omega'_1, \Omega'_2, ..., \Omega'_n)$ α \sum_{x}^{8} , \sum_{x}^{14} , \sum_{x}^{8} , \sum_{x}^{16} \mathcal{L} $\overline{\mathcal{L}}$ $($ $\mathcal{C}_{\mathcal{A}}$ $\begin{pmatrix} a & b & c \\ c & d & d \end{pmatrix}$ $\begin{pmatrix} a & b & d \\ c & d & d \end{pmatrix}$ $\vec{B} = \prod_{Q} (\vec{v})e^{\vec{v}}$ \vec{c} \vec{c} \vec{c} \vec{d} \vec{e} \vec{d} \vec{c} \vec{d} \vec{c} \vec{d} \vec{c} \vec{d} \vec{e} \vec{d} \vec{d} \vec{e} \vec{d} \vec{e} \vec{d} \vec{e} \vec{d} \vec{e} \vec{d} \vec{e} \vec **Experimentally**, **Contract that** $\frac{1}{2}$ $\frac{1}{2}$ $\binom{n}{1}$ **,** $\binom{n}{2}$ $\binom{n}{3}$ **,** $\binom{n}{4}$ I A α $\begin{bmatrix} \mu \end{bmatrix}$ ³, $\begin{bmatrix} \Sigma_{\Omega} \\ \mu \end{bmatrix}$ μ ³ $\begin{bmatrix} 3 \end{bmatrix}$ 3 = 1.2 ^[] are two CPvFSs; if $\sum_{i=1}^n a_i x_i$, consider that $\sum_{i=2}^n a_i x_i$ $\sum_{i=1}^n a_i x_i$ \overline{A} $\lim_{n\to\infty}$ (e.g. o) $\lim_{n\to\infty}$ (e.g. o) \mathcal{L}_{max} $\frac{1}{2}$ $\left(\begin{array}{ccc} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{array}\right)$ $F_{\text{Q}}(k)e$ **3 1**, **3** = 1.2 **l** are two CPvFSs: if \mathbb{E}_{Ω} (\mathbf{v}) $e^{2\pi i(\mathbf{v}+1)}$ and PyFs and has the two aspects of MV and NMV in terms of amplitude and phase terms. We develop \int 3 = 1.2 \int new two CPyFSs if and TCNM. *family and its corresponding* $\Omega'_1, \Omega'_2, \ldots, \Omega'_n$ $1, \ldots, 12$ n $)$ ≤ CP *y* FAAOWA $\left(12_1, 12_2, \ldots, 12_n \right)$ *Symmetry* **2023**, *14*, x FOR PEER REVIEW 21 of 35 $\overline{0}$ $\sum_{n=1}^{\infty}$ E_{Ω} (*y*)e²¹¹(μ)²²¹¹(μ)²²¹¹($\frac{1}{2}$)²)₂ and has the two aspects of MV and NMV in terms of amplitude and phase terms. We develop -12 list of $\lim_{n\to\infty}$ CPyFSs: if $\overline{}$ \mathcal{L} *for* Ω'_1 *,* Ω'_2 *, ...,* Ω'_1 θ'_2

 $\left(\begin{array}{ccc} 1 \end{array} \right)$ = $\left(\begin{array}{cc} 1 \end{array} \right)$

 $\frac{1}{\sqrt{2}}$

 $\left(\begin{array}{cc} 0 & 0 \\ 0 & 0 \end{array} \right)$

Table 1. Symbols and their meanings.

 $\sqrt{3.5}$

 $\begin{pmatrix} 1 & 2 & 4 \\ 0 & 0 & 0 \end{pmatrix}$

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1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ

 $\frac{1}{2}$

 \mathcal{L}

 $\left(\frac{1}{2} \right)$ = $\left(\frac{1}{2} \right)$ and $\left(\frac{1}{2} \right)$

 $\left(\begin{array}{c} 1 \\ 1 \end{array}\right)$ = $\left(\begin{array}{c} 1 \\ 1 \end{array}\right)$ = $\left(\begin{array}{c} 1 \\ 1 \end{array}\right)$

Table 1. Symbols and their meanings. భ భ

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 $\left(\begin{array}{ccc} 1, & \cdots & 1$

 $\left(\begin{array}{cccc} P & P & \mathcal{L}^2 & \mathcal{N} & \mathcal{N} \\ \mathcal{N} & \mathcal{N} & \mathcal{N} & \mathcal{N} \end{array}\right) = \left(\begin{array}{cccc} P & \mathcal{L}^2 & \mathcal{N} & \mathcal{N} & \mathcal{N} \\ \mathcal{N} & \mathcal{N} & \mathcal{N} & \mathcal{N} \end{array}\right)$

 $0 \left(\frac{1}{2} \right)$ = $\frac{3}{2}$

 $\frac{1}{2}$ $\frac{1}{2}$

 $\lim_{z \to 0} \int e^{i\omega} \sin \omega \sin \left(\frac{d^2y}{2} \right) \sin \omega \sin \left(\frac{dy}{dx} \right)$

 $\left(\begin{array}{cc} P & P \end{array} \right)$

 \mathcal{O} at tribute \mathcal{O}

is defined as: is defined as:

 \mathcal{N} of amplitude term \mathcal{N}

 $\frac{1}{2}$ **c** $\frac{1}{2}$

For the sake of convenience, the pair = ൫()ଶగ൫ఈ(త)൯ **4. Acceleration 3 and COPER OPERATIONS C** *Form the same prove this theorem easily.* \Box $\frac{4.4}{5}$ \Box **Proof.** We can prove this theorem easily. \Box Γ ¹ $\overline{1}$ **Let EV**, we can prove the \mathbf{B} incording casiny. \Box **Definition 2** ([9])**.** *A CPyFS on a* Ẁ *is defined as:* \mathbf{u} , we can prove this theorem easily. \Box **Definition 2** ([9])**.** *A CPyFS on a* Ẁ *is defined as:* **Proof.** We can prove this theorem easily. \Box $\frac{1}{2}$ $\mathbf{I}_{\mathbf{x}}$ \Box **Symbol Meaning Symbol Meaning** χ Non-empty set χ Second set χ Second set χ Second set χ **Symbol Meaning Symbol Meaning Symbol Meaning Symbol Meaning** \Box w easily. □ n prove this theorem Proof. We can prove this theorem e this theorem easily. **Proof.** We can prove this theorem easily. \Box IFS and PyFs. **Definition** \Box **Consider** \Box \Box *CFS* \Box *C***_S** \Box *C* $I_{\mathcal{F}}$ and $I_{\mathcal{F}}$ \Box $\overline{}$ ł. \overline{a} \sim f. We can prove this theorem easily. \square ϵ Ve c \mathfrak{p} ⃓ ⃓ n prove this theorem easily. \Box $\frac{1}{\sqrt{2}}$ ⎜ ve tl \mathbf{u} ⃓ ⃓ is theorem easily. \Box $\overline{}$

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Table 1. Symbols and their meanings.

3. Existing Aggregation Operators

Theorem 10. If $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{-}}(\mathbf{z})e^{-\frac{i\mathbf{z}}{2}(\mathbf{z})}, \mathbb{E}_{\Omega_{-}}(\mathbf{z})e^{-\frac{i\mathbf{z}}{2}(\mathbf{z})}\right)$ mental operational laws of $\frac{1}{\sqrt{2\pi i}(\frac{1}{\sqrt{2\pi i}})}$ and inter- $\left(\frac{\prod_{s \in \mathcal{S}} \{y\}e^{-\sum_{s \in \mathcal{S}} \{y\}}}{\prod_{s \in \mathcal{S}} \{y\}e^{-\sum_{s \in \mathcal{S}} \{y\}}}\right)$ 3 = 1.2 $\prod_{s \in \mathcal{S}} \{y\}$ $\begin{pmatrix} 1 & 2 & 3 & 4 \ 2 & 3 & 3 \end{pmatrix}$ $\frac{2}{3} = \frac{2}{3}$, $\frac{2}{3}$ and $\frac{2}{3}$ and $\frac{2}{3}$ and $\frac{2}{3}$ and $\frac{2}{3}$ and $\frac{2}{3}$ α ൯ *be any two CPyFVs. The extension of intersection and the* **4. Aczel–Alsina Operations Based on CPyFSs Theorem 10.** If $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)\right) e^{i\kappa}$ and $\Xi_{\Omega_{\mathbf{z}}}(\kappa)e^{i\kappa}$ and $\Omega_{\mathbf{z}}$ $\left(\frac{2\pi i (\alpha_{\alpha\alpha}(\mathbf{W}))}{2\pi i (\beta_{\alpha\alpha}(\mathbf{W}))} \right)$ $\left(\begin{array}{cc} \prod_{\Omega}(\chi)e\end{array}\right)^2$ $\left(\begin{array}{cc} \chi\vdash e\end{array}\right)^2$ $\left(\begin{array}{cc} \chi\vdash e\end{array}\right)^2$ $\begin{pmatrix} \delta & \delta \end{pmatrix}$ $CD₁FAAOI$ $\frac{d}{dx}$ be an $\frac{d}{dx}$ cp_r $\frac{d}{dx}$ of $\frac{d}{dx}$ ℓ $2\pi i$ $\left(\kappa_{\alpha} \left(\boldsymbol{\mu}\right)\right)$ $2\pi i\left(\beta_{\alpha} \left(\boldsymbol{\mu}\right)\right)$ **Theorem 10.** If Ω _z = $\left($ $\left(\sum_{r} \sum_{r} (x) e^{2\pi i (\beta_{\Omega'_2}(x))} \right)$, $\overline{z} = 1, 2, ..., n$ are the 2 \overline{d} i $\Omega_{\mathbf{Z}} \leq \Omega'_{\mathbf{Z}}$, \forall , $(3 = 1, 2, ..., 1)$, then we have: $\sqrt{2}$ \sim \sim \mathcal{L} $\mathcal{L} = \mathcal{L} = \left\{ \begin{matrix} \n\pi & \dots & 2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\mathbf{X})) & \dots & 2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\mathbf{X})) \end{matrix} \right\}$ methem in $y = \frac{1}{2}$ π $\frac{1}{2}$ (n/e and π $\frac{1}{2}$ π), $\frac{1}{2}$ π $\begin{pmatrix} 2\pi i(\alpha_{\Omega'_{\alpha}}(\varkappa)) & 2\pi i(\beta_{\Omega'_{\alpha}}(\varkappa)) \end{pmatrix}$ $\left\{II_{\Omega'_{\mathbf{z}}}(\kappa)e \right\}$ and power roles. Then, we have $\left\{I_{\Omega'_{\mathbf{z}}}(\kappa)e\right\}$ and $\left\{I_{\Omega'_{\mathbf{z}}}(\kappa)e\right\}$ \mathcal{A} ൯ *be any two CPyFVs. The extension of intersection and the* CP_1 *FAAOWA* (Q_1, Q_2, \ldots, Q_n) $($ ²³ $2\pi i(\beta_{\Omega'_{\alpha}}(\varkappa))$ $\left.\begin{array}{c}\n\sqrt{-1/3} & \sqrt{\varkappa/2} \\
\sqrt{-1/3} & \sqrt{\varkappa/2}\n\end{array}\right)$, and $\overline{1}$ *and the accuracy function is given as:* \overline{A} $B = \int \prod_{\Omega_{\mathbf{Z}}} (\mathbf{x}) e^{i\mathbf{x}} e^{i\mathbf{x}}$, $\Xi_{\Omega_{\mathbf{Z}}} (\mathbf{x}) e^{i\mathbf{x}}$, and $\Omega_{\mathbf{Z}}' = \Omega_{\mathbf{Z}}$ $2\pi i(\alpha_{\alpha\alpha}(\mu))$ $2\pi i(\beta_{\alpha\alpha}(\mu))$ \mathbf{x})e \mathbf{z} , \mathbf{z}_{Ω} (\mathbf{x})e \mathbf{z} , \mathbf{z} = 1,2,..., n are the two CPyFSs, and if sum, production and power role. Then, we have role to \mathcal{E} $CD_uFA₄OWA$ \overline{a} $\log P_{\text{HOMI}}(p \mid p)$ ℓ $2\pi i(x_0, (\nu))$ $2\pi i(\beta_0, (\nu))$ $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\kappa})e^{-\mathcal{L}(\mathbf{x}^T \mathbf{z})^2/\mathbf{z}^2/\mathbf{z}^2/\mathbf{z}^2/\mathbf{z}^2} \right)$ (a) $\binom{1}{k}$, $\binom{3}{k}$ = 1,2,..., ^[] are the two CPyFSs, and if $\overline{}$ $\Omega_{\mathbf{Z}} \leq \Omega'_{\mathbf{Z}}$, \forall , $(\mathbf{Z} = 1, 2, ..., 0)$, then we have: $\frac{1}{2}$ \leq \overline{C} \overline{D} \overline{F} \overline{A} \overline{A} \overline{O} $\frac{1}{\sqrt{2}}$ \mathbf{r} $\int_{\mathcal{F}}$ $2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))$ \mathcal{L}_2 s of $\left(\frac{11}{2}(\kappa)\epsilon$ and $\frac{1}{2}(\kappa)\epsilon$ such $\frac{1}{2}(\kappa)\epsilon$ of $\frac{1}{2}(\kappa)\epsilon$ inter $s(\mathcal{H})$ and $2\pi i(\beta_{\Omega'_{-}}(\mathcal{H}))$ $\mathcal{S}_{\Omega'_{\boldsymbol{\sigma}}}(\varkappa)$ e \vdash \vdash \mathcal{S} = 1,2,..., it are the two CPyFSs, and \mathcal{R} ଶ \mathcal{R} $\ddot{\mathbf{a}}$ ൯ *be any two CPyFVs. The extension of intersection and the* $V_A(\Omega_1, \Omega_2, \ldots, \Omega_n) < CPuFAAOWA(\Omega)$ $2\pi i(\alpha_{\Omega_{\bullet}}(\boldsymbol{\mathcal{H}}))$ 2*i* \int and $\frac{1}{3}$ + \int \overline{c} *and the accuracy function is given as:* $\mathcal{A}^{\mathcal{A}}$ **4. Theorem 10.** If Ω $\begin{pmatrix} 2\pi i(\alpha_{\alpha\alpha}(\mathbf{X})) \\ 2\pi i(\beta_{\alpha\alpha}(\mathbf{X}))) \end{pmatrix}$ $\left(\Pi_{\Omega'}(\chi)e\right)^{3}$, $\Xi_{\Omega'}(\chi)e^{3}$, $\Xi_{\Omega''}(\chi)e^{3}$, $\Xi_{\Omega''}$, $\Xi_{\Omega''}$, $\Xi_{\Omega''}$ section of CP_S and established some operations of the Ac $\frac{1}{2}$ $CD_uF4AOM4$ \circ \circ \circ $\sqrt{CD_{1} + AD_{2}}$ $\ell = \frac{2\pi i (\alpha_{\Omega_{\bm{r}}}, \bm{u})}{2}$ **Theorem 10.** If $\Omega_{\mathcal{Z}} = \left(\Omega_{\mathcal{Z}}(\mathcal{X})e^{-\alpha \cdot \mathcal{Z}} \right)$ \int 11 $\Omega_{\tilde{g}}^{\'}$ (*n*)c ቀƺ ƺ ቁ $=$ $\frac{1}{2}$ $\frac{1}{2$, $\frac{1}{\sqrt{2}}$ **with weight vector** $\int_{\mathbf{H}}^{\mathbf{G}} f(x) dx = \int_{\mathbf{H}}^{\mathbf{G}} f(x) dx$ and $\int_{\mathbf{H}}^{\mathbf{G}} f(x) dx = \int_{\mathbf{H}}^{\mathbf{G}} f(x) dx$ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the PyF Aczel–Alsina weighted geometric operator is given as:* ൫, ,…,ῃ൯= ⨁ƺୀ ٠, $\frac{1}{2}$ ^{(*H*)e} \overline{a} \overline{a} $\sum_{i=1}^n$ $\text{If } \Omega_{\tau} = \left(\Pi_{\Omega} \left(\mathbf{y} \right) e^{2\pi i (\alpha \Omega_{\mathbf{Z}} \left(\mathbf{X}) \right)}, \mathbb{E}_{\Omega} \left(\mathbf{y} \right) e^{2\pi i (\beta \Omega_{\mathbf{Z}} \left(\mathbf{X}) \right)} \right)$ $\mathcal{M} = 2\pi i (\alpha_{\Omega'} \left(\mathcal{H} \right))$ $2\pi i (\beta_{\Omega'} \left(\mathcal{H} \right))$ $\int \Pi_{\Omega'_{\bm{n}}}(\bm{\varkappa}) e^{-\frac{2}{3}}$, $\Xi_{\Omega'_{\bm{n}}}(\bm{\varkappa}) e^{-\frac{2}{3}}$, \int , $\bar{\bm{\varkappa}} = 1, 2, ..., 1$ are the two CPyFSs, a *of NMV, respectively. A CPyFS must satisfy these conditions:* CP_1 $FAAOWA$ (Q, Q_2, Q_3) r_{GUTA} (α) (α σ' σ' σ') $\mathcal{L} = \mathcal{L} \mathcal{L} \mathcal{L} = \mathcal{L} \mathcal{L} \mathcal{L} \mathcal{L} = \mathcal{L} \mathcal{L} \mathcal{L} \mathcal{L} = \mathcal{L} \mathcal{L}$ **10.** If $\Omega_z = \left(\Pi_{\Omega_z}(x) e^{\frac{2\pi i (\alpha_{\Omega_z}(x))}{Z_{\Omega_z}(x) e^{\frac{2\pi i (\beta_{\Omega_z}(x))}{Z_{\Omega_z}(x) e^{\frac{2\pi i}{\lambda_{\Omega_z}(x) e^{\frac{2\pi$ $(\kappa)e$ $\qquad \qquad \stackrel{?}{\sim} \qquad \qquad$ $\mathbb{E}_{\Omega_{\mathbf{Z}}'}(\kappa)e$ 3, $\mathbf{z}^{(n)}$ $(\ldots, 0)$, then we have: (1) $2\pi i(\alpha_0)(\chi))$ $2\pi i(\beta_0(\chi))$ **cm i** $\int u \, du$ $\int u^2 \, du$ $\int u \, du$ $\int u^2 \, du$ $\int u \, du$ $\int u^2 \, du$ $\int u \, du$ $\int u^2 \, du$ $2\pi i(\alpha_{\Omega'_\mathbf{Z}}(\mathbf{X}))$ $2\pi i(\beta_{\Omega'_\mathbf{Z}}(\mathbf{X}))$ \mathbf{Z} $\alpha_i(X)\ell$ conditions $\alpha_j(\lambda)\ell$ must be contained by $\alpha_j(\lambda)\ell$ if $\alpha_j(\lambda)\ell$ is $\alpha_j(\lambda)\ell$ if $\alpha_j(\lambda)\ell$ $\mathcal{F}_{\mathbf{c}}$ \overline{a} ൯ *is known as CPyFV.* $\int_{\mathbf{H}} f(x) dx = \int_{\mathbf{H}} f(x) dx + \int_{\mathbf{H}} f$ **borem 10.** If $\Omega_{\overline{2}} = (\Pi_{\Omega_{\overline{2}}}(x)e$ \qquad \qquad ൫, ,…,ῃ൯= ⨁ƺୀ $=$ $\frac{1}{2}$ $\overline{)}$ \mathcal{N} $\frac{1}{2}$ \mathcal{L} $\mathcal{L}_{\alpha}(\kappa) e^{2\pi i (\alpha \Omega_{\mathbf{Z}}(\mathbf{X})))}$ $\mathbb{E}_{\Omega}(\kappa) e^{2\pi i (\rho \Omega_{\mathbf{Z}}(\mathbf{X})))}$, and $\Omega_{\mathbf{Z}}' =$ $w_{\alpha'}(\boldsymbol{\chi})$ and $\sum_{\alpha'} \alpha(\boldsymbol{\chi})$ and phase terms and phase terms and phase terms and phase terms of α' \mathcal{F}_s^2 , $\mathbb{E}_{\Omega'_n}(\varkappa)e$ is \mathcal{F}_s^2 and \mathcal{F}_s^1 are the two CPyFSs, and if *of NMV, respectively. A CPyFS must satisfy these conditions:* $\frac{1}{2}$ $F_{\text{AOMA}}(Q, Q_2, Q_3)$ < CP_1 FA $F_{\text{AOMA}}(Q', Q')$ α' ($\mathcal{L} = \mathcal{L} \mathcal$ If $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\alpha}} (\chi) e^{\frac{2\pi i (\alpha_{\Omega_{\alpha}}(\chi))}{2\pi \alpha_{\Omega_{\alpha}}(\chi)}} e^{\frac{2\pi i (\beta_{\Omega_{\alpha}}(\chi))}{2\pi \alpha_{\Omega_{\alpha}}(\chi)}} \right)$, and $\Omega_{\mathbf{z}}' =$ $(\kappa)e$ $\qquad \qquad$ $\Big\}$, $\frac{1}{2} = 1, 2, ...$, ^η are $=$ $\frac{1}{2}$ $\frac{1}{2$ $\Omega(\mathcal{H})$ $= 2\pi i(\beta_{\Omega}(\mathcal{H})) \setminus$ $\binom{111}{3}$ *a m a a b a a b <i>c c c f c f c f c f f c f f c f f f f f f f f f f f f f f* $\langle 2\pi i(\beta_{\Omega'_\mathbf{Z}}(\mathbf{z})) \rangle$ $\qquad \qquad$ **n** $\qquad \qquad$ **and** $\qquad \qquad$ *represents and phase terms in the phase terms of p* $\alpha_i(\mathcal{U})^{\ell}$ conditions $\alpha_i(\mathcal{U})^{\ell}$ is $\alpha_i(\mathcal{U})^{\ell}$ and $\alpha_i(\mathcal{U})^{\ell}$ is α 0 ≤ ௸ $\mathbf{F}_{\mathbf{r}}$ λ $\chi^2 = 2\pi i (\kappa - (n))$ $2\pi i (\beta - (n))$ $= \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\kappa))}, \Xi_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\kappa))}\right),$ and $\Omega_{\mathbf{z}}' =$ $\begin{cases} 3 & 1, 2, ..., 1 \\ 3 & 1 \end{cases}$ are the e two $\int_{\mathbf{H}}$ **a** $\int_{\mathbf{H}}$ $\begin{pmatrix} 2\pi i(\alpha_{\Omega'}\ (\boldsymbol{\chi})) \end{pmatrix}$ ῃ $\frac{1}{2\pi i}$ $\left(\mathfrak{Z}=1,2,\ldots ,\mathfrak{N}\right)$, then we have: $\binom{a}{c}$, $\binom{a}{c}$ is $\binom{a}{c}$. *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = **10** If $Q = \left(\prod_{\alpha} \left(\chi \right) e^{2\pi i (\alpha \alpha} \frac{2 \pi i (\alpha \alpha)}{2} (\chi) \right)$ and Q' $2\pi i(\alpha_{\Omega'_{\mathbf{Z}}}(\boldsymbol{\mu}))$ $2\pi i(\beta_{\Omega'_{\mathbf{Z}}}(\boldsymbol{\mu}))$ \mathfrak{c}_{\cdot} $x)) \setminus$ \int , $\mathcal{L}(\mathcal{A})$ Non-empty set $\mathcal{L}(\mathcal{A})$ If $\Omega_{\tau} = \left(\prod_{\Omega} (\gamma) e^{2\pi i (\mu_{\Omega} \gamma)} \mathbb{E}_{\Omega} (\gamma) e^{2\pi i (\rho_{\Omega} \gamma)} \mathbb{E}_{\Omega} (\gamma) \right)$, and $\Omega_{\tau} =$ $\begin{pmatrix} 2 & 3 \ 2 & 4 \end{pmatrix}$ $\left[\frac{M_{\rm X}}{2} \right]$ $\left[\frac{M_{\rm X}}{2} \right]$ $\left[\frac{M_{\rm X}}{2} \right]$ $\left[\frac{M_{\rm X}}{2} \right]$ are the two CPuFSs, and $\frac{1}{2}$ of phase term $\frac{1}{2}$ o Attribute Decision matrix and the contract of the contract of the contract of the contract of the contract o $(1,2, \ldots, \frac{2\pi i (a_1, a_2, a_3)}{2})$ $q_{\mathbf{g}} = \begin{pmatrix} \Pi_{\Omega_{\mathbf{g}}}(\mathbf{x})e & \mathbf{g} \\ \Pi_{\Omega_{\mathbf{g}}}(\mathbf{x})e & \mathbf{g} \end{pmatrix}$ ῃ \sim ീ $\Omega_{\tt g}$ ($\int f \cdot e^{\lambda} = 1, 2, \ldots, n$ are λ the two CPyFSs, and
 $\ddot{\mathfrak{e}}$ $\mathbb{C}P \text{uFAAOWA}(\Omega_1, \Omega_2, ..., \Omega_n)$ $\vert < CP$ μ EA AOWA $\left(\begin{array}{cc} O' & O' \\ O' & O' \end{array}\right)$ ℓ $2\pi i(\alpha_0 \left(\boldsymbol{\gamma}\right))$ $2\pi i(\beta_0 \left(\boldsymbol{\gamma}\right))$ ϵ $(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e$ ϵ , $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e$ ϵ ϵ), and $\Omega_{\mathbf{Z}}'$ = $2\pi i(\beta_{\Omega'}(\boldsymbol{\chi}))\setminus$ $\mathcal{L}(\varkappa)e$ and if $\mathcal{L}(\varkappa)e$ is a $\mathcal{L}(\varkappa)e$ are the two CPyFSs, and if $\binom{2}{n}$ $A(\Omega_1, \Omega_2, \ldots, \Omega_n) < CPvFAAOWA(\Omega'_1, \Omega'_2)$ *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = $\overline{C} = \left(\overline{H}_{\alpha} \left(u \right) e^{2\pi i \left(\alpha \right)} \overline{g}^{(u)} \right)$ and $\overline{Q'} = \overline{Q}$ $\sum_{\alpha=1}^{6}$ $2\pi i(\beta_{\Omega'_{\mathbf{Z}}}(\mathbf{\chi}))$ ϵ $\frac{1}{\sqrt{2}}$ $\mathcal{L} = \mathcal{L} \left(\mathcal{L} \right)$ set $\mathcal{L} = \mathcal{L} \left(\mathcal{L} \right)$ set $\mathcal{L} = \mathcal{L} \left(\mathcal{L} \right)$ set $\mathcal{L} = \mathcal{L} \left(\mathcal{L} \right)$ $(\gamma)e^{2\pi i(\mu_1)}\left(\frac{\gamma}{2}(\lambda)\right)$ and Ω'_{-} MV of phase term CPyFV $\begin{bmatrix} \mathcal{L}^{\mathcal{L}} \\ \mathcal{L} \end{bmatrix}$ $\mathcal{L}^{\mathcal{L}}$ and $\mathcal{L}^{\mathcal{R}}$ are the two CPuFSs, and if \overline{N} of phase term \overline{N} that the phase term \overline{N} $\frac{2\pi i (q_1, (p_1))}{2\pi i (q_2, (p_2))}$ $\frac{2\pi i (q_1, (p_1))}{2\pi i (q_2, (p_2))}$ ϵ , $\Xi_{\Omega_{\zeta}}(\kappa)e$ ϵ ῃ \int , an $1,$ α are the two Cr yr 5s, and \dot{y} $\Omega_2, \ldots, \Omega_n$) < CP_VFAAOWA(Ω Ω'_1 , Ω'_2 , α') $(\boldsymbol{\mu})$ $2\pi i(\beta_0 \ (\boldsymbol{\mu}))$ $\mathcal{F} \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e$ ε , and $\Omega'_{\mathbf{Z}} =$ $\frac{1}{\sqrt{2}}$ $= 1, 2, \ldots$, ^{{|} are the two CPyFSs, and if $0 < CPuFAAOWA(\Omega'_1, \Omega'_2, ..., \Omega'_n)$ \int $2\pi i(\alpha_0)$ **PRESERVAGED 10.** $y = \lambda z = \int 11 \Omega_z (R) e^{-r}$ $\left(\begin{array}{cc} 2\pi i(\alpha_{\Omega'_\lambda}(\mathcal{H})) & 2\pi i(\beta_{\Omega'_\lambda}(\mathcal{H})) \\ \Box & \Box & \Box \end{array}\right)$ \mathcal{L} \overline{c} \overline{c} \int $\sqrt{2}$ **Definition 7** ([58])**.** *Let* ƺ = ൬ఆƺ \int_{R} (heorem 10 If $Q = \int_{R} \int_{R}$ (x) $e^{2\pi i (\alpha_{\Omega_g}(\chi))}$ F_{Ω_g} $\begin{array}{ccc} \n\sqrt{2} & \text{S} & \sqrt{2} \text{C} \\ \n\sqrt{2} & \text{S} & \text{C} \n\end{array}$ $\left(\Pi_{\Omega'_{\mathbf{z}}}(\varkappa)e^{-\frac{2\pi i}{3}(\mathbf{z}^{\prime})}, \Xi_{\Omega'_{\mathbf{z}}}(\varkappa)e^{-\frac{2\pi i}{3}(\mathbf{z}^{\prime})}\right), \; \mathbf{z} = 1, 2,$ $\begin{array}{ccc} 0 & \epsilon & \epsilon \\ \Omega & \epsilon & \Omega' & \forall \end{array}$ CD_1 EA AOWA \overline{a} ƺసభ ൰ Ω_2 Ω \bigcap **Symbol Means 10.** If $\Omega_{\tau} = \prod_{\Omega} (\mu) e^{2\pi i (\mu_1/3) \sum_{\Omega} (\mu)}$ $\begin{pmatrix} 2 \\ 2 \end{pmatrix}$ $\begin{pmatrix} 3 \\ 2 \end{pmatrix}$ Scotland $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$ Scotland $\begin{pmatrix} 3 \\ 2 \end{pmatrix}$ $\left(\prod_{\Omega}(\mu)e^{-\frac{(\mu+\mu)^2}{2}}\right)^{1/2}$ $\left(\mu\right)e^{-\frac{(\mu+\mu)^2}{2}}$, $\frac{1}{2}$ $= 1, 2, \ldots, 5$ $\sqrt{2}$ of phase term $\sqrt{2}$ $\Omega_{\mathbf{Z}} \leq \Omega'_{\mathbf{Z}}$, \forall , $(3 = 1, 2, ..., 0)$, then we have: $CP_1FAAOWA$ $\begin{pmatrix} O_1 & O_2 & O_1 \end{pmatrix}$ < CP_1 **Definition 7** ([58])**.** *Let* ƺ = ൬ఆƺ (), ఆƺ ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* **Theorem 10.** If $\Omega_{\mathcal{R}} = \left(\Pi_{\Omega_{\mathcal{R}}}(\varkappa) e^{2\pi i (\mu_1/\varkappa)} \mathbb{E}_{\Omega_{\mathcal{R}}}(\varkappa) e^{2\pi i (\mu_1/\varkappa)} \right)$ $(2\pi i(\alpha_{c1}(\mathcal{H}))$ $2\pi i(\beta_{c2}(\mathcal{H})))$ $2\pi i(\beta_{c1}(\mathcal{H})))$ $\left(\frac{11_{\Omega'_2}(\varkappa)e}{2}\right)$ ῃ $\sqrt{\mu} \Omega'_{\mathbf{Z}}$ $\Omega_{\mathbf{Z}} \leq \Omega_{\mathbf{Z}}', \forall, \left(3 = 1, 2, ..., 1\right)$, then we have: $1-\frac{1}{2}$ \mathcal{L} $\frac{3\pi i}{\ell} \left(\frac{3\ell}{2} \right)$ $\frac{3\pi i}{\ell} \left(\frac{\ell}{2} \right)$ **Theorem 10.** If $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi i}{3}}\mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi i}{3}}$ $\begin{pmatrix} \epsilon & \epsilon \\ 2\pi i(\alpha_{\alpha\alpha}(\mathbf{x})) & \frac{2\pi i(\beta_{\alpha\alpha}(\mathbf{x})) \\ \end{pmatrix}$ $\left(\Pi_{O'}(\kappa)e^{-\frac{1}{3}}\right)$, $E_{O'}(\kappa)e^{-\frac{1}{3}}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ $\begin{pmatrix} 3 & 3 \ 1 & 2 \end{pmatrix}$ $\mathcal{L}(\mathcal{A})=\mathcal{L}(\mathcal{A})$ and $\mathcal{L}(\mathcal{A})=\mathcal{L}(\mathcal{A})$ and $\mathcal{L}(\mathcal{A})=\mathcal{L}(\mathcal{A})$. Then the contribution $CPuFAAOWA(\Omega_1, \Omega_2, ..., \Omega_n) < CPuFAAOWA(\Omega'_1, \Omega'_2)$ **Theorem 10** If $Q = \left(\prod_{B} \left(\mu\right) e^{\frac{2\pi i (\alpha_B - \mu)}{\sigma^2}} \mathbb{E}_{Q} \left(\mu\right) e^{\frac{2\pi i (\beta_B - \mu)}{\sigma^2}} \mathbb{E}_{Q} \left(\mu\right) e^{\frac{2\pi$ $\frac{1}{2}$ of $\frac{1}{2}$ $\frac{1}{2}$ $\left(\Pi_{\Omega'_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i(\alpha_{\Omega'_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega'_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i(\beta_{\Omega'_{\mathbf{Z}}}(\varkappa))}{2}}\right), \ z = 1, 2, \ldots, \mathbb{N}$ are the two CI $\overline{\bigcirc^{\mathit{W}}}$ $4(\Omega, \Omega_2, \Omega)$ λ \sim $\overline{P}uFAAOWA$ \overline{O} $\frac{1}{2}$ **orem 10.** If $\Omega_7 = \left(\prod_{\Omega} (\varkappa) e^{-\frac{(\varkappa + \varkappa + \varkappa)^2}{2}} \right)^{2\kappa} E_{\Omega} (\varkappa) e^{-\frac{(\varkappa + \varkappa + \varkappa + \varkappa)^2}{2}}$, and $\frac{c}{2\pi i}$ $\left(\frac{8}{2\pi i} (l_1 - (1/2))\right)$ $\left(\frac{8}{2\pi i} (l_2 - (1/2))\right)$ $(\kappa)e^{-\frac{(x-\kappa)^2}{2}}$, $E_{\Omega}(\kappa)e^{-\frac{(x-\kappa)^2}{2}}$, $\zeta = 1, 2, \ldots, \ln$ are the two CPuFSs. $\frac{1}{2}$ of phase term $\frac{1}{2}$ Ω'_z , \forall , $(3 = 1, 2, ..., 0)$, then we have: $CP_uFAAOWA$ $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$ < $CP_uFAAOWA$ $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$ $\mathcal{L}^{(1)} = \mathcal{L}^{(1)} \cup \mathcal{L}^{(2)} \cup \mathcal{L}^{(3)}$ **Theorem 10.** If $\Omega_{\mathcal{R}} = \left(\Pi_{\Omega_{\mathcal{R}}}(\varkappa)e^{2\pi i \left(\mu_{1}\right)} \mathcal{E}^{(\varkappa_{1})}, \Xi_{\Omega_{\mathcal{R}}}(\varkappa)e^{2\pi i \left(\mu_{1}\right)} \mathcal{E}^{(\varkappa_{1})}\right)$, and $\Omega_{\mathcal{R}}' =$ $1,2, \ldots$, $2\pi i (a_{c1}(\chi))$ $2\pi i (b_{c1}(\chi))$ $2\pi i (b_{c2}(\chi))$ $\mathcal{L}_{\Omega_{\mathcal{S}}^{\prime}}(\varkappa)e$ ῃ \int , $\frac{3}{5}$ $= 1, 2, \ldots, 11$, then we have: $1-\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ $S_{\overline{m}}(x) = \frac{2\pi i (x - \mu x)}{2}$ $f \Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa) e^{-\frac{1}{2} \mathbf{z}^{(1)}}, \Xi_{\Omega_{\mathbf{z}}}(\varkappa) e^{-\frac{1}{2} \mathbf{z}^{(1)}}, \text{ and } \Omega_{\mathbf{z}}' = 0 \right)$ $(\boldsymbol{\mu})$ $\qquad \qquad \sum_{\alpha=1}^{\infty}$ $(\boldsymbol{\mu})$ $\qquad \qquad \sum_{\alpha=1}^{\infty}$ $\mathcal{F}_{\Omega'}(\varkappa)$ e \mathcal{F}_{δ} | \mathcal{F}_{δ} = 1,2,..., ^{||} are the two CPyFSs, $\frac{1}{\sqrt{2}}$ of amplitude term $\frac{1}{\sqrt{2}}$ $\mathcal{L}^{\text{max}}_{\text{max}}$ and $\mathcal{L}^{\text{max}}_{\text{max}}$ TCNM and $\mathcal{L}^{\text{max}}_{\text{max}}$ $OWA(\Omega_1, \Omega_2, \ldots, \Omega_n)$ < CPuFAAOWA $(\Omega'_1, \Omega'_2, \ldots, \Omega'_n)$ ℓ $2\pi i(\alpha_0, (\boldsymbol{\nu}))$ $2\pi i(\beta_0, (\boldsymbol{\nu})))$ **a 10.** If $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu})e^{-\mathbf{Z}(\mathbf{Z}^T)} , \Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu})e^{-\mathbf{Z}(\mathbf{Z}^T)} \right)$, and $\Omega_{\mathbf{Z}}' =$ $2\pi i(\alpha_{\Omega'}(\boldsymbol{\chi}))$ **a a z a b z a b z b c c** $\int_{0}^{1} \frac{d^{2}y}{y^{2}} dx$ $1, 2, \ldots$ $\frac{1}{2}$ $1-\frac{1}{2}$ \overline{a} ƺసభ ቁ () $2\pi i(\alpha_{\alpha\alpha}(\mu))$ $2\pi i(\beta_{\alpha\alpha}(\mu))$ $\left(\begin{array}{cc} \prod_{\Omega'_{\mathbf{Z}}}(\mathbf{z})e^{-\mathbf{z}} & \mathbf{z} \\ \end{array}\right)$ $\begin{pmatrix} 1 & 1 & 1 & 1 \ 0 & 1 & 1 & 1 \end{pmatrix}$ $\overline{\mathbf{a}}$ \mathbf{L} $\int \frac{2\pi i(\alpha_{\Omega'}(\boldsymbol{\chi}))}{\sqrt{2\pi i(\beta_{\Omega'}(\boldsymbol{\chi}))}}$ $\left(\begin{array}{ccc} \prod_{\Omega'_\mathbf{Z}} (\varkappa)e & \varepsilon & \ \end{array} \right), \ \ \xi = \left[\begin{array}{ccc} \varepsilon & \ \end{array} \right]$ $\Omega_{\mathbf{z}} \leq \Omega'_{\mathbf{z}}$, \forall , $(3 = 1, 2, ..., n)$, then we have: ିତ୍ୟ କରାଯାଏ । ସେଥି ସେଥି $\frac{42}{3} \geq \frac{42}{3}$, v, $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$, $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$ $\left(\prod_{Q\in\mathcal{P}}\left(\chi\right)e^{-\frac{\sum_{i=1}^{N}S_{i}\left(\chi\right)}{2}}\right),\ z=1,2,\ldots$ $\begin{pmatrix} 2 & 2 \end{pmatrix}$ ῃ $\Omega_\mathtt{Z}\leq \Omega'_\mathtt{Z}, \ \forall, \ \bigl(\mathtt{Z} = \mathtt{1}, \mathtt{2}, \ldots, \mathtt{N} \bigr),$ Ι, **Theorem 10.** If $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\mu)e^{-\frac{S}{2}t} \right)$, $\Xi_{\Omega_{\mathbf{Z}}}(\mu)e^{-\frac{S}{2}t}$ $\left(\begin{array}{cc} 2\pi i(\alpha_{\Omega'_{\mathbf{Z}}}(\mathbf{X})) & 2\pi i(\beta_{\Omega'_{\mathbf{Z}}}(\mathbf{X})) \\ 0 & 0 \end{array}\right)$ $\left(\begin{array}{ccc} 11 \Omega'_{\mathcal{I}} & \mathcal{I} & \mathcal{I} & \mathcal{I} \\ 0 & \mathcal{I} & \mathcal{I} & \mathcal{I} \end{array} \right)$, $\mathcal{I} = \left(\begin{array}{ccc} 1, 2, \ldots, \mathcal{I} & \mathcal{I} \\ 0 & \mathcal{I} & \mathcal{I} \end{array} \right)$ CP_2 CP_2 CP_4 Q_2 $\frac{1}{2}$ \bigcap \bigcap \bigcap \bigcap \bigcap \bigcap \bigcap \bigcup \bigcup $=$ $($ **Theorem 10.** If $\Omega_{\overline{3}} = (\Pi_{\Omega_{\overline{3}}}(x)e^{i\theta}$ and $\Xi_{\Omega_{\overline{3}}}(x)e^{i\theta}$ and $\left(\begin{array}{cc} 2\pi i(\alpha_{\Omega_1'}(X)) & 2\pi i(\beta_{\Omega_1'}(X)) \\ \hline 7 & 1,2\end{array}\right)$ $\begin{array}{cc} 7 & 1,2\end{array}$ are the two CD₁₁ $\left(\begin{array}{cc} 11_{\Omega'_2}(\varkappa)e & e \\ 0 & \frac{\varkappa_2}{2} \end{array} \right)$, $\varkappa = 1, 2, ..., N$ are the two City ῃ $\Omega_{\mathbf{Z}} \leq \Omega_{\mathbf{Z}}^{\prime}, \forall, (\mathbf{Z}=1,2,\ldots,\mathbf{N})$, then we have: $NA(\Omega_1, \Omega_2, ..., \Omega_n)$ Ω , Ω \geq $PvFAAOWA(\Omega'_1)$ $\frac{1}{4}$ and $\frac{1}{2}$ ($= \left(\Pi_{\Omega_{\mathbf{z}}}(\mu)e^{-\frac{2\pi i}{3}(\mu)} , \Xi_{\Omega_{\mathbf{z}}}(\mu)e^{-\frac{2\pi i}{3}(\mu)}\right)$ $\frac{2\pi i (\alpha_{\Omega'_\mathbf{Z}}(\mathbf{X}))}{\sigma}$ \longrightarrow $\frac{2\pi i (\beta_{\Omega'_\mathbf{Z}}(\mathbf{X}))}{\sigma}$ and $\frac{n}{\sigma}$ of π of σ *t* $I_{\Omega'_{\mathbf{Z}}}(\mathcal{H})$ *e*, $\mathbb{H}_{\Omega'_{\mathbf{Z}}}(\mathcal{H})$ *e* conditions in \mathcal{H} are the t CP_1 FA AOWA $\left(\begin{array}{cc} O_1 & O_2 \end{array}\right) < CP_1$ FA AOWA $\left(\begin{array}{cc} O'_1 & O'_2 \end{array}\right)$ **Theorem 10.** If $\Omega_3 = \left(\Pi_{\Omega_7}(\mu)e^{2\pi i(\alpha_{\Omega_3}(\mu))}, \Xi_{\Omega_7}(\mu)e^{2\pi i(\beta_{\Omega_3}(\mu))}\right)$, and $\Omega_3' = \Omega_3$ *wiids* and *a* and *a* s and *c* c *s* and *s* i(*ε*, (*γ*)) *s* s and *s* i(*ε*, (*γ*)) *s* $\left(\Pi_{\Omega'_{\mathbf{Z}}}(\varkappa)e^{\frac{\varkappa_{\Omega(1)}\Omega_{\Omega_{\mathbf{Z}}}}{2}(\varkappa)e^{\frac{\varkappa_{\Omega(1)}\Omega_{\Omega_{\mathbf{Z}}}}{2}(\varkappa)}}\right)$, $\bar{z}=1,2,\ldots,\bar{z}$ are the two CPyFSs, and $\frac{1}{\alpha}$ $\frac{1}{\sqrt{2\pi}}$ $\tilde{\mathcal{L}}$ $\overline{1}$ $\lim_{\lambda \to 0} 2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $\lim_{\lambda \to 0} 2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ *where i* and membership value (M₂, 1², 1 $\frac{d\mu_0}{d\mathbf{z}}\left(\mathbf{z}\right) = \frac{2\mu_0}{\mathbf{z}}\left(\mathbf{z}\right)$ and $\mathbf{z} = \mathbf{z}$ must be two CPuCS \overline{a} In the following Table 1, we define the symbols and the symbo)) , Ξ*^Ω* **10.** $\iint_{1}^{3} 2z^{2} = \int_{1}^{1} \left(\frac{1}{2} \times \frac{1}{2} \right) e^{z}$, $\frac{1}{2} \left(\frac{1}{2} \times \frac{1}{2} \right) e^{z}$, $\frac{1}{2} \left(\frac{1}{2} \times \frac{1}{2} \right)$, unu $\frac{1}{2} \left(\frac{1}{2} \right)$ $\begin{bmatrix} 2\pi i (\alpha_{\Omega'_k}(X)) & 2\pi i (\beta_{\Omega'_k}(X)) \\ 2\pi i (\alpha_{\Omega'_k}(X)) & 2\pi i (\beta_{\Omega'_k}(X)) \end{bmatrix}$ **z** = 1,2, if are the two CDuESe, and if 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\binom{1}{2}$ < CPUFAAOWA $\binom{1}{2}$ \sim 40m/ \sim \sim Q'_2, \ldots, Q'_n α' (\mathcal{L}^2 $\mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{\kappa}{2}i\omega}$, and $\Omega'_{\mathbf{z}}=0$ $\mathbb{Z}m(\beta_{\Omega'_{\mathbf{Z}}}(\mathbf{X}))$ **and** $\mathbb{Z}m$ *and* $\mathbb{Z}m$ *represents the membership* value of a membership value of a membership value of a memory value of $\mathbb{Z}m$ and $\mathbb{Z}m$ and $\mathbb{Z}m$ and $\mathbb{Z}m$ and $\mathbb{$ $f_{C_2}^{\mu}(x)e$ *c* μ , $\lambda = 1, 2, ...,$ are the two CPyFSs, and if Ω_2 , Ω_n $\leq CPuFAAOWA\left(\Omega'_1,\Omega'_2,\ldots,\Omega'_n\right)$ $\mathcal{L}_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}{\sigma_{\mathbf{Z}}} \right), \text{ and } \Omega_{\mathbf{Z}}' = 0$ $\begin{array}{cccc} c & \sqrt{8} & \sqrt{8} \\ 2\pi i(\beta_{\pi'}/(W))) & 8 \end{array}$ / $\begin{array}{cccc} c & \sqrt{8} & \sqrt{8} \\ 2\pi i & \sqrt{8} & \sqrt{8} \\ 2\pi i & \sqrt{8} & \sqrt{8} \end{array}$ $\mathcal{L} = \Omega_{\mathbf{Z}}(\mathbf{x})e^{-2\pi i(\mathbf{p}_{\Omega'_{\mathbf{Z}}(\mathbf{x})})}$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ are the two CPyFSs, and if $\overline{1}$ \overline{a} $\lim_{\lambda \to 0} 2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ **where** *an* and membership value (MV) of and membership value of a membership value of and amplitude $\frac{1}{2}$ of and $\left(\frac{P_{Q}}{Z}(M)\right)$ $\left(2, -1, 2\right)$ are the two CDuESs and if $\begin{array}{ccc} \n\hline\n\end{array}$ $\chi(e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))}, \Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi})e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))}\bigg), \text{ and } \Omega_{\mathbf{Z}}' = 0$ $\begin{array}{c}\n\mathcal{F}_{\mathcal{A}}(\mathcal{U})\n\end{array}$ $\begin{array}{ccc}\n\mathcal{F}_{\mathcal{A}} & \mathcal{F}_{\mathcal{A}} & \mathcal{F}_{\$ $\left\{ \begin{array}{rcl} \mathcal{E} \end{array} \right\}$, $\mathcal{E} = 1, 2, \ldots, 0$ are the two CPyFSs, and if Q' Q' λ = $\sqrt{ }$ $\Pi_{\Omega_{\cdot}^{\prime}}$ **Theorem 10** If $\Omega = \left(H_{\text{c}}\right)_{\text{c}}\left(\mu\right)_{\text{c}}^{2\pi i \left(\alpha \right)}$ $\left(\Pi_{\Omega'_{\mathbf{Z}}}(\kappa)e^{\qquad \qquad \hat{\mathbf{z}}}\right), \ \mathbf{Z}_{\Omega'_{\mathbf{Z}}}(\kappa)e^{\qquad \qquad \hat{\mathbf{z}}}\quad \text{and}\quad \mathbf{Z}_{\Omega_{\mathbf{Z}}}(\kappa)=\left(\nabla_{\mathbf{Z}}\left(\mathbf{z}\right) e^{\qquad \qquad \hat{\mathbf{z}}}\right).$ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\mathcal{L}(\mathcal{A})$ **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as:* $\left(\Pi_{\Omega'_{\bm{n}}}(\mu)e\right)^{2}$, $\Xi_{\Omega'_{\bm{n}}}(\mu)e^{2}$ $\Omega_{\mathbf{Z}} \leq \Omega'_{\mathbf{Z}}$, \forall , $(3 = 1, 2, \ldots, 1)$, then we have: CD_2E_4AOMA Ω ²*πi*(*αΩ*⁰ In this part, we recall the existing concepts of A and A and A and A and A $\left(\prod_{Q\in\mathcal{P}}(\chi)e^{i\sum_{i=1}^{N}(\chi_i)}\right)^2$, $E_{Q\in\mathcal{P}}(\chi)e^{i\sum_{i=1}^{N}(\chi_i)}$, $\overline{z}=1,2,...,k$ *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $CD_{\mathbf{r}}$ (**Theorem 10.** If $\Omega_7 = \left(\Pi_{\Omega_8}(\mu)e^{2\pi i(\mu_1/2)}\right)^{2/3}E_{\Omega_8}(\mu_9)$ $2\pi i(\alpha_{\Omega'_{\bullet}}(\boldsymbol{\varkappa}))$ $2\pi i(\beta_{\Omega'_{\bullet}}(\boldsymbol{\varkappa}))$ $\binom{n_1}{2}$ $\binom{n_1}{2}$ $\binom{n_2}{3}$ $\binom{n_3}{4}$ $\binom{n_4}{2}$ $\binom{n_5}{4}$ $\binom{n_6}{4}$ $\binom{n_7}{4}$ $\binom{n_8}{4}$ $\binom{n_9}{4}$ $\binom{n_1}{4}$ $\binom{n_1}{4}$ $\binom{n_1}{4}$ $\binom{n_1}{4}$ $\binom{n_1}{4}$ $\binom{n_1}{4}$ $\binom{n_1}{4}$ $\binom{n_1}{4}$ $\binom{n$ $\Omega_{\mathbf{Z}} \leq \Omega'_{\mathbf{Z}}$, \forall , $(3 = 1, 2, ..., n)$, then we have:)) , $^{\Xi}_{\Omega^{\prime}}$ Theorem 10, If $Q = \left(H_{\infty}(\alpha)\right)^{2\pi i (\alpha_0}$ $g(\alpha)$, α under the system of $A^{2\pi i (\beta_0)}$ $\left(\Pi_{\Omega'_{\mathbf{Z}}}(\varkappa)e\right)^{\mathbf{Z}}$, $\Xi_{\Omega'_{\mathbf{Z}}}(\varkappa)e$ $\left(\varkappa\right)^{\mathbf{Z}}$ $\left(\varkappa\right)^{\mathbf{Z}}$, $\mathbf{Z}=\mathbf{1},\mathbf{2},\ldots,\mathbf{N}$ are the i 1,2, … , 2, and
2, and ∑ <mark>and</mark> ∑ <mark>and</mark> ∑ <mark>and</mark> ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* **Definition 1** ([7])**.** *Consider* Ẁ *to be a non-empty set, and a CFS is defined as:* $\mathcal{E}_{\Omega'_{\mathbf{z}}}(\mu)e$ \mathcal{E} |, $\mathcal{E} = 1, 2, ..., \mathcal{E}$ $\Omega_{\bf \bar{Z}} \le \Omega^{\prime}_{\bf \bar{Z}}$, \forall , $\left({\bf \bar{z}}=1,2,\ldots , {\bf \bar{\it n}} \right)$, then we have: $\left(0, 0, \frac{1}{\sqrt{2}}\right)$ < CD_1 $\left(0, 0, \frac{1}{\sqrt{2}}\right)$ $2\pi i(\beta_{\Omega_0^{\prime}})$ In this part, we recall the existing concepts of \mathcal{A} IF and PyFe
Theory $\left(\prod_{Q\in\mathcal{P}}(\mathbf{x})e^{-\sum_{i=1}^{N}(\mathbf{x})}$, $E_{Q\in\mathcal{P}}(\mathbf{x})e^{-\sum_{i=1}^{N}(\mathbf{x})}$, $\mathbf{x} = 1, 2, ..., \mathbf{R}$ are the two CPuFSs *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $\frac{1}{2}$ (**Drem 10.** If $\Omega_7 = \left(\Pi_{\Omega_8}(\chi)e^{2\pi i (\mu_1/\chi_8(\chi_7))}, \Xi_{\Omega_8}(\chi)e^{2\pi i (\mu_1/\chi_8(\chi_7))}\right)$, and $2\pi i(\beta_{\Omega'_{\bullet}}(\boldsymbol{\varkappa}))$ $\frac{y}{3}$ (*n*)^{*c*} $\frac{y}{3}$ ($\Omega_{\mathbf{Z}} \leq \Omega'_{\mathbf{Z}}$, \forall , $(3 = 1, 2, ..., 0)$, then we have: $)) \setminus$, In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of heorem 10. $\Pi_{\Omega'_{-}}(\varkappa)e$ $\Xi_{\Omega'_{-}}(\varkappa)e$ $\Xi_{\Omega'}(\varkappa)e$ $\Xi_{\Omega}(\varkappa)e$ $\Xi_{\$ *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $AOWA$ Ω , Ω ₂ Ω ₁) ൫ƺ൯ $= 1, 2, \ldots,$ $\mathcal{P}_{\alpha_{\mathbf{Z}}}(\boldsymbol{\mu}) = \mathcal{P}_{\alpha_{\mathbf{Z}}}(\boldsymbol{\mu}) \mathcal{P}_{\alpha_{\mathbf{Z}}}(\boldsymbol{\mu})$ and $\mathcal{Q}' =$ of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina μ , $\bar{z} = 1, 2, \ldots, \bar{z}$ are the two CPyFSs, and if $\left(\begin{array}{cc} 2\pi i(\alpha_{\Omega'}^{}(\boldsymbol{\chi})) & 2\pi i(\beta_{\Omega'}^{}(\boldsymbol{\chi})) \end{array} \right)$ $\sqrt{2\pi}$ of $\sqrt{2\pi}$ $\sqrt{2\pi}$ of $\sqrt{2\pi}$ *Set CPyFAAOWA* $(\Omega_1, \Omega_2, ..., \Omega_{\Pi}) \leq CPyFAAOWA$
 Proof. We can prove this theorem easily. \square
 Theorem 10. If $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(x)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(x))}, \Xi_{\Omega_{\mathbf{Z}}}(xe^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(x))}, \Xi_{\Omega_{\mathbf{Z}}}(xe^{2\pi i(\beta_{\Omega_{$ **3. Existing Aggregation Operators** $\left(\frac{2\pi i(\alpha_{\Omega'_2}(\mathbf{z}))}{\prod_{\alpha\in\mathcal{N}_1(\alpha_1)}(\alpha_2)}\right)^2 = \left(\frac{2\pi i(\beta_{\Omega'_2}(\mathbf{z}))}{\sum_{\alpha\in\mathcal{N}_2(\alpha_2)}(\alpha_2)}\right)^2 = 1.3$ *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $CPuFAAOWA\left(\Omega_1,\Omega_2,\ldots,\Omega_n\right) \leq CPuFAAO$ $\pi i(\alpha_{\Omega'_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$, $2\pi i(\beta_{\Omega'_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$, α $\frac{1}{2}$ and $\frac{1}{2}$ based on $\frac{1}{2}$ *CPyFAAOWA* $\mathcal{L}(\mathcal{L})$ $\overline{\mathfrak{g}}$ $y = \frac{1}{2}$ \cdot and Ω'_{z} = of \mathcal{N} using an induction method, we prove Theorem 1 based on Ac \mathcal{N} \setminus \leq *CPyFAAOWA* $\Big($ \overline{a} $\mathcal{A} \cup \{x\}$ \sim \sim \sim \sim Δ THEOREM 10. If $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\begin{array}{cc}\n\sqrt{2\pi i(\alpha_{\Omega_{\bullet}'}(\varkappa))} & \frac{2\pi i(\beta_{\Omega_{\bullet}'}(\varkappa))} \\
\end{array}$ $\Omega_{\mathbf{z}} \leq \Omega'_{\mathbf{z}}$, \forall , $(3 = 1, 2, ..., n)$, then we have: *family of CPyFVs, and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = \mathcal{C} PuFA, $CPuFAAOWA(\Omega_1, \Omega_2, \ldots, \Omega_n)$ M_{Euler} invention in M_{Euler} and M_{Euler} $\begin{pmatrix} 2\pi i(\alpha_{\Omega'_{\mathcal{A}}}(H)) & 2\pi i(\beta_{\Omega'_{\mathcal{A}}}(H)) \end{pmatrix}$ *family of CPyFVs, and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = $\mathcal{C}P\mathcal{U}FAAOW.$ WFAAOWA $(\Omega_1, \Omega_2, ..., \Omega_n) < CP$ **THEOTERM** TO: $y = \lambda z = \left(\frac{11 \lambda_2}{2} \left(\frac{\mu}{c} \right) e^{-\frac{\mu}{2}} \right)$ $\begin{pmatrix} 2\pi i(\alpha_{\Omega_{\bf k}'}(\mathbf{x})) & 2\pi i(\beta_{\Omega_{\bf k}'}(\mathbf{x})) \end{pmatrix}$ *family of CPyFVs, and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = CP_1 ^{EA}AOWA \bigcap_{Ω_1} $OWA(\Omega_1, \Omega_2, \ldots, \Omega_n) < CPuFAA$ $\mathcal{O}(\mathcal{O}_\mathcal{S})$, $\mathcal{O}(\mathcal{O}_\mathcal{S})$ Theorem 10. If Δz $=$ $\begin{pmatrix} 1 & 0 \\ 1 & 0 \end{pmatrix}$ $\begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix}$ $\begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix}$ $\begin{pmatrix} 2\pi i(\alpha_{\Omega'_\mathbf{r}}(\mathbf{x})) & 2\pi i(\beta_{\Omega'_\mathbf{r}}(\mathbf{x})) \end{pmatrix}$ *family of CPyFVs, and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = $CPuFAAOWA$ Ω_1 , Ω_2 $(\Omega_2, \ldots, \Omega_n)$ < CPyFAAOWA Ω'_2 $\left(\begin{array}{cc} 2\pi i(\alpha_{\Omega_{\pi}}(\mathcal{X})) & 2\pi i(\beta_{\Omega_{\pi}}(\mathcal{X})) \end{array} \right)$ $\left(\frac{11_{\Omega_{\mathcal{B}}^{\prime}}(\varkappa)e^{-\varkappa}}{2},\Xi_{\Omega_{\mathcal{B}}^{\prime}}(\varkappa)\right)$ $\Omega_{\mathbb{Z}} \leq \Omega_{\mathbb{Z}}^{\prime}$, \forall , $(3 = 1, 2, ..., 1)$, then we have: In this part, we recall the existing concepts of \mathcal{A} **Symmetry 10** If $Q = \prod_{\alpha} (x)e^{x} \cdot \frac{x^{(n)}}{2}$, $E_{\alpha} (x)e^{x} \cdot \frac{x^{(n-1)}}{2}$ and $Q' = \frac{1}{2}$ *ii* $\frac{1}{2}$ () $\Omega_1, \Omega_2, \Omega_3$ of Ω_2 concerns Ω_3 of Ω_4 of Ω_5 χ **2** $\pi i(\alpha_{\Omega_{\bullet}}(\boldsymbol{\chi}))$ **2** $\pi i(\beta_{\Omega_{\bullet}}(\boldsymbol{\chi}))$ $\binom{1}{2}$ (*x*)e c $\binom{3}{2}$, $\binom{3}{2}$ = 1, 2, ..., i are the $\begin{array}{ccc} \n\end{array}$ = \ldots, Ω'_n $CPuFAAOWA(Q_1, Q_2, \ldots, Q_n) \leq CPuFAAOWA(Q'_1, Q'_2, \ldots, Q'_n)$ $CPuFAAOWA$, $\Omega_1, \Omega_2, \ldots, \Omega_n$, $\leq CPuFAAOWA$, $\Omega'_1, \Omega'_2, \ldots, \Omega'_n$ \int_{a}^{∞} = (\int_{a}^{∞} \int , and $\Omega'_{\mathbf{Z}}$ = o CPyFSs, and if $(1, 2\pi i(\kappa_0, (\nu)))$ $2\pi i(\kappa_0, (\nu))$ $\left(\prod_{O'}\left(\chi\right)e^{\frac{2\pi i(\alpha_{O'_2}(\chi))}{2}}, \Xi_{O'}\left(\chi\right)e^{\frac{2\pi i(\beta_{O'_2}(\chi))}{2}}\right), \overline{z} = 1,2,\ldots$, ⁿ are the two CPyFSs, and if *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = $CPyFAAOWA$ $\bigl(\,$ Ω T_1 **Theorem 2.** T_2 = $T_1/2$ T_2 ($T_1/2$ T_3 ($T_1/2$ T_2 ($T_1/2$ T_3 ($T_1/2$ $T_1/2$ T_2 ($T_1/2$ T_3 ($T_1/2$ T_2 T_3 ($T_1/2$ T_3 ($T_1/2$ T_2 T_3 ($T_1/2$ T_3 T_4 T_5 T_6 T_7 $f(x)e$ *i* $E_{\Omega'_{\mathcal{I}}} (x)e$ *i* \longrightarrow $\begin{cases} 3 & , 3 \end{cases}$ = 1,2,..., ^[] are the two CPyFSs, and if 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the CPyFAAWA operator* $\mathfrak{g}_{\mathfrak{m}}$ β_{ζ} \vdots $\sqrt{ }$ $\left\{ \begin{array}{ll} 3 & 3 \\ 2 & 1,2,\ldots \end{array} \right\}$ $\mathbf{B} = 1, 2, ..., 0$ are ⎜ ⎜ ⎜ ⎜ ⎛ඩ **Theorem 10.** If $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa) e^{2\pi i (\alpha \Omega_{\mathbf{z}}(\kappa))}, \Xi_{\Omega_{\mathbf{z}}}(\kappa) e^{2\pi i (\rho \Omega_{\mathbf{z}}(\kappa))} \right)$, and $\Omega_{\mathbf{z}}' =$ $\sqrt{2}$, $\sqrt{2}$, $\sqrt{2}$ α $\frac{1}{\sqrt{2}}$ $\Pi_{\Omega'_{\mathbf{Z}}}(\varkappa)e$ ξ , $\Xi_{\Omega'_{\mathbf{Z}}}(\varkappa)e$ $\frac{3}{2}$,
3 \mathfrak{L} \mathfrak{L}_z , \mathfrak{V} , \mathfrak{R} = 1, 2, \dots , \mathfrak{N} *)*, then we have: $\mathcal{O}(\mathbb{R}^2)$ \sqrt{a} $\overline{ }$ $\ddot{}$ \overline{a} \mathbf{z}^* \mathbf{r} $\overline{}$ $\overline{\mathbf{u}}$ $= 1, 2, \ldots, \mathfrak{N}$ are the two n are the two CP₁ భ Ὺ $\frac{2}{3}$ $\tilde{\mathcal{D}}$ Ϧ(ƺ), ∀, ƺ = 1,2,3, … ῃ*.* e $\langle \Omega_n', \forall \rangle$ ⎜ $\frac{1}{2}$ $\tilde{}$.
re \overline{a} , $\mathbb{E}_{\Omega'_{\mathbf{Z}}}(\kappa) e^{-\mathbb{E}_{\mathbf{Z}}}$, 3 \int ଶగ \overline{a} ŕ $\sqrt{2}$ $($ α ⎟ $\ddot{}$ $\ddot{}$ \overline{a} $\ddot{}$ $\mathbf{v}^{\mathbf{a}}$ l are the two CPyFSs, a two CPyFSs, and i $\overline{}$ \mathcal{O} , \mathcal{O} , \mathcal{O} , \mathcal{O} , \mathcal{O} , \mathcal{O} , \mathcal{O} \mathcal{O} $\frac{1}{2}$, $\frac{1}{2}$, = $\mathcal{E} = 1, 2, ...$ $\mathcal{L}^{\mathcal{L}}$ \mathfrak{c}_Ω ⎜ \mathcal{L} ⎜ ⎜ ⎜ \overline{a} $\Gamma_{\mathbf{z}}(\kappa) e^{-\mathbf{z}}$, $\Gamma_{\mathbf{z}} = 1, 2, ...$ \int , \int , .
ກ Ω then we have \overline{a} \overline{a} \overline{a} e i $\ddot{}$ $\left(\frac{1}{2} \right)$ $\mathcal{L}_{\mathcal{A}}$ į, PyFSs, and if \iint $\frac{1}{\sqrt{2}}$, $\frac{1}{2}$ $\pi i(\beta_{\Omega}(\nu))$ $1, 2, \ldots, \mathbb{N}$ are the two CPyFSs, and if *is particularized as:* $\overline{ }$ then we ha ⎜ $\tilde{\zeta}$ \overline{a} Π .., Ω_{η} \leq CPyFAAOWA $(\Omega_1', \Omega_2', ..., \Omega_{\eta}')$

easily. \square
 $\Omega_{\mathbf{Z}}(\kappa) e^{\frac{2\pi i(\alpha \Omega_{\mathbf{Z}}(\kappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}(\kappa) e^{\frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\kappa))}{2}})}$, and $\Omega_{\mathbf{Z}}'$ ⎜ ⎜ ⎜ $\frac{1}{\sqrt{2}}$ \int , $\delta = 1, 2, \ldots, 9$ are the two C భ య Γ (Γ Λ Γ Λ ⁿ Γ Λ $\overline{\mathcal{O}}$ \overline{a} iu \overline{a} (y) **Theorem 2.** *CPuFSs, and if is particularized as:*

$$
CPyFAAOWA\left(\Omega_{1}, \Omega_{2}, ..., \Omega_{\eta}\right) \le CPyFAAOWA\left(\Omega_{1}', \Omega_{2}', ..., \Omega_{\eta}'\right)
$$

where (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(\Omega_{2}'; \mathbb{Z} = 1, 2, 3, ..., \eta)$.

 $\sum_{\substack{\text{where } (b(1), b(2), b(3), \ldots, b(n))}}$ *i*. where $(b(1), b(2), b(3), \ldots, b(3))$ is the \sim \sim \sim \sim \sim \sim $T_{\rm eff}$, and $T_{\rm eff}$, and $T_{\rm eff}$, and $T_{\rm eff}$ $\left(\begin{array}{ccc} 2 & 1 & 1 & 1 \end{array} \right)$ **Proof.** We can prove this theorem easily. \Box $\overline{r(2)}$ $\overline{r(3)}$ is the set of means $\mathfrak{b}(1)$, $\mathfrak{b}(2)$, $\mathfrak{b}(3)$, ..., $\mathfrak{b}(3)$) is the set of permutations of $\left(\Omega_{\mathbf{Z}}^{\prime}:\mathbf{Z}=1,2,3,\ldots,\mathbf{R}\right)$. ϵ α $T_{\rm eff}$, $T_{\rm eff}$ $\begin{pmatrix} 3 & 7 & 7 & 7 \end{pmatrix}$ a this theorem easily. □ $\frac{1}{3}$ where (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(\Omega'_{\mathbf{z}} : \mathbf{z} = 1, 2, 3, ..., 1)$ \Box ϵ \overline{a} **Proof.** We can prove this theorem easily. \Box where (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(\Omega'_3 : 3 = 1, 2, 3, \ldots)$ \mathbf{a} $\lim_{(x,y)\to(0)}$ $\lim_{(x,y)\to(0)}$ $\lim_{(y,y)\to(0)}$ is the set of permanente of $\left(\frac{1}{2}, \frac{1}{2}, \frac{1}{2}\right)$ s. \overline{a} $\binom{1}{3}$, $\binom{5}{7}$, $\binom{6}{7}$, \ldots , $\binom{8}{1}$ is the set of permutations of $\binom{12}{3}$: $\binom{8}{4}$, $\binom{1}{2}$, $\binom{5}{1}$, \ldots , $\binom{11}{1}$. of. We can prove this theorem easily. \Box *t*), $b(3)$, ..., $b(3)$) is the set of permutations of $(\Omega'_3 : 3 = 1, 2, 3, ..., 9)$. $(m \geq (5))$ in $(m \geq (5))$ is the set of point values of $\left(\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \cdots \right)$. \overline{a} δ + δ + δ + δ + δ + δ $B_5(3)$ is the set of permutations of $(O' \cdot 3 = 1, 2, 3, \ldots, n)$ where $(\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ is the set of permutations of $\left(\Omega_{\mathbf{Z}}^{\prime} : \mathbf{Z} = 1, 2, 3, \ldots, 10\right)$. s theorem operative \Box where (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $\left(\Omega'_{\mathbf{Z}}: \mathbf{Z} = 1, 2, 3, ..., \mathbf{Z}\right)$ $h(3)$) is the set of permutations of $(0' \cdot 3 = 1, 2, 3)$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV,* (1) $\mathfrak{b}(2)$ $\mathfrak{b}(3)$, $\mathfrak{b}(3)$ is the set of permutations of $(\mathcal{O}' \cdot 3 - 1 \cdot 2 \cdot 3 \cdot 1)$ *b*(*e*)) is the set of permutations of $(1/\frac{1}{2}: 2 = 1, 2, 3, \ldots, 1)$. $\mathfrak{b}(3), \ldots, \mathfrak{b}(3)$ is the set of permutations of $\left(\Omega'_{\mathbf{Z}} : \mathbf{Z} = 1, 2, 3, \ldots, \mathbf{P}\right)$. (3) is the set of permutations of $(O' \cdot 3 - 1, 2, 3, \ldots, n)$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV,* where $(\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ is the set of permutations of $(\Omega'_3 : 3 = 1, 2, 3, \ldots, 1)$. \overline{U} $w_{\alpha\beta} f_{\alpha\beta}$ are nearer this that $w_{\alpha\beta}$ is \Box $\mathcal{L}(\mathbf{z})$ = $\mathcal{L}(\mathbf{z})$ = $\mathcal{L}(\mathbf{z})$ = $\mathcal{L}(\mathbf{z})$ is the set of normalistic no of (\mathbf{z}) . $\frac{1}{2}$ $\binom{1}{2}$, $\binom{3}{2}$, $\binom{5}{2}$, $\binom{6}{1}$, $\binom{8}{0}$, $\binom{1}{2}$, $\binom{3}{0}$, $\binom{1}{2}$ $p_{\textit{re}}$ where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of $(1\frac{7}{3} : 3 = 1, 2)$ \mathbf{p}_{max} ϵ M_{max} are *n* avoirs this that α and α as it is \Box **Proof.** We can prove this theorem easily. \Box \Box $\mathcal{L}(\mathcal{L}(1), \mathcal{L}(2), \mathcal{L}(3))$ is the est of normalistic on of $(\mathcal{L} \times \mathcal{L} \times \mathcal{L} \times \mathcal{L} \times \mathcal{L})$ $\frac{1}{2}$, $\frac{1}{1}$ $\frac{1}{3}$ $\begin{pmatrix} 1 & b(2) & b(3) \\ b(3) & b(3) \end{pmatrix}$ is the set of permutations of $\begin{pmatrix} 0' & 3 & -1 & 2 & 3 \\ 0 & 0 & 3 & -1 & 2 \end{pmatrix}$ $\frac{1}{2}$ **b** $\frac{1}{2}$ **c** $\frac{1}{2}$ \mathbf{D}_{eff} where (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $\left(\Omega'_{\mathbf{z}}: 3 = 1, 2, \ldots\right)$ *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = $\begin{pmatrix} 3 & 3 \ 1 & 2 \end{pmatrix}$ **Proof.** We can prove this theorem easily. \Box Φ (b(1) $\Phi(2)$, $\Phi(3)$ = $\Phi(3)$) is the set of permutations of $\Phi(2^t \cdot 3 - 1, 2, 3)$ $\frac{1}{2}$ **a** $\frac{1}{2}$, \frac), $\mathfrak{b}(3), \ldots, \mathfrak{b}(3)$ is the set of permutations of $\left(\Omega'_7 : 3 = 1, 2, 3, \ldots, \mathfrak{N}\right)$. \sqrt{c} $D(a,b(2), b(3), \ldots, b(2))$ is the set of permutations of $\left(\Omega'_{\mathbf{Z}} : \mathbf{Z} = 1, 2, 3, \ldots, \mathbf{B}\right)$. *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = $\begin{pmatrix} 3 & 3 \ 1 & 1 \end{pmatrix}$ $\mathbb{E}(3)$ is the set of permutations of $(\mathcal{O}' \cdot 3 - 1, 2, 3, \dots, n)$ $\frac{1}{3}$ and $\frac{1}{2}$ of $\frac{1}{2}$, $\frac{1}{3}$ in $\frac{1}{2}$ in $\mathrm{silv.}\ \Box$ he set of permutations of $(\Omega'_7 : 3 = 1, 2, 3, \ldots, \mathbb{I})$. $\sum_{i=1}^{n}$ where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(\Omega'_3 : 3 = 1, 2, 3, ..., 1)$. *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = **WIRTE** $\left(\frac{9}{1}\right)$, $\left(\frac{1}{2}\right)$ where $(b(1) - b(2) - b(3) = b(3)$ is the set of permutations of $\left(\frac{O}{b(2)}\right)$ \Box equily \Box where $(b(1), b(2), b(3), \ldots, b(2))$ is the ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* $\frac{1}{2}$ where $\left(\frac{p(1)}{p(2)}, \frac{p(2)}{p(3)}, \dots, \frac{p(\varepsilon)}{q(\varepsilon)}\right)$ is the set , $b(3)$ is the set of possible where (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(\Omega'_3 : 3 = 1, 2, 3, ..., 1)$. *where* ൫Ϧ(1), Ϧ(2), Ϧ(3),…,Ϧ(ƺ)൯ *is a permutation of* (ƺ = 1, 2, 3, … ῃ) *and* Ϧ(ƺିଵ) ≥ *where* ൫Ϧ(1), Ϧ(2), Ϧ(3),…,Ϧ(ƺ)൯ *is a permutation of* (ƺ = 1, 2, 3, … ῃ) *and* Ϧ(ƺିଵ)≥ $\mathbf w$ $\mathcal{R} = \mathcal{R} \times \mathcal{R}$ is a permutation of $\mathcal{R} = \mathcal{R} \times \mathcal{R}$ *where* ൫Ϧ(1), Ϧ(2), Ϧ(3),…,Ϧ(ƺ)൯ *is a permutation of* (ƺ = 1, 2, 3, … ῃ) *and* Ϧ(ƺିଵ) ≥ $\frac{1}{\sqrt{2}}$ of $\frac{1}{\sqrt{2}}$ of $\frac{1}{\sqrt{2}}$ of $\frac{1}{\sqrt{2}}$ in $\frac{1}{\sqrt{2}}$ \mathbf{F}_{kin} \mathbf{F}_{K} = \mathbf{F}_{in} \mathbf{F}_{in} \mathbf{F}_{out} \mathbf{F}_{out} = \mathbf{F}_{out} \mathbf{F}_{out} = $\mathbf{F}_{$ *, such that* $*∞* = *1*$ *, such th* $\sum_{i=1}^{n} f(X_i) f(x_i) = \sum_{i=1}^{n} f(X_i) f(x_i)$ **Proof.** We can prove this theorem easily. \Box \overline{a} $\bm{\mathrm{v}}$ e this theorem easily. $\bm{\Box}$ \overline{b} మ൯ቁῪ permutations of $\left(\Omega'_{\mathbf{z}}: \mathbf{z}=\mathbf{z}\right)$ $\frac{1}{2}$ \mathbf{a} \ddots . , $\mathfrak{b}(3))$ is the set of permuta భ Ὺ \mathcal{L} \mathbf{r} $(n, b(2))$ is the set of permutations of $\left(\Omega_{\mathbf{Z}}^{\prime} : \mathbf{Z} = 1, 2, 3, \ldots, 90\right)$. *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 $\begin{pmatrix} 1 & (x(1) & (2) & (3) & (4) \\ 1 & (3) & (4) & (5) & (7) & (8) \end{pmatrix}$ *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 Now, we set of permutations of $\left(\Omega_{\mathbf{Z}}^{\prime}:\ \mathbf{\hat{z}}=1,\ 2,\ 3,\ldots\ \mathbf{\hat{i}}\ \right) .$, $\mathfrak{b}(2)$, $\mathfrak{b}(3)$, ..., $\mathfrak{b}(3)$ is the set of permutations of $(\Omega_3 : 8 = 1, 2, 3, \ldots, 9)$. $(1, \ldots, 6(8))$ is the set of permutations of $(1²g : 8 = 1, 2, 3, \ldots, 9)$. $\frac{1}{1}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{3}$ L

Proof. We can prove this theorem easily. \Box κ can prove this theorem easily. \Box Γ root. We can prove this theorem easily. \square $prove$ ms incordition and $y_i \sqcup$ sum, production and power role. Then, we have \mathcal{L} **Proof.** We can prove this theor can prove this theorem easily. [**Proof.** We can prove this theorem easily. \Box ቀƺ $\lim_{x \to 0} \cos(x) =$ *of NMV, respectively. A CPyFS must satisfy these conditions:* $\overline{1}_{\text{total}}$ and $\overline{2}_{\text{total}}$ and $\overline{2}_{\text{total}}$ weighted geometric complex $\overline{2}_{\text{total}}$ **Proof.** We can prove this theorem easily. \square **Proof.** We can prove this theorem easily. \Box *Proof.* We can prove this theorem easily. □ 1,2, … , ∄ and **Proof.** We can prove this theorem easily. \Box \mathbf{M} r_{incor} α_{sn} α_{sn} $\mathcal{M}(\mathcal{M})$ of a matrix $\mathcal{M}(\mathcal{M})$ and $\mathcal{M}(\mathcal{M})$ are the set of amplitude term $\mathcal{M}(\mathcal{M})$ MV of amplitude term ˘ Accuracy function **Proof.** We can prove this theorem easily. \Box \sim **Symbol Meaning Symbol Meaning** $\frac{1}{2}$ **Proof.** We can prove this theorem easily. \Box $\frac{1}{\sqrt{2}}$ = (σ, 1,2,3, ω, 1, **Symbol Meaning Symbol Meaning Proof.** We can prove this theorem easily. \Box $\frac{1}{\sqrt{2}}$ = (σ, 1,2,3, ω, 1, **Proof.** We can prove this theorem easily. □ \overline{a} . Then, the IF \overline{a} \mathbf{y} . \Box *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 **3. Existing Aggregation Operators** *Symmetry* **2023**, *14*, x FOR PEER REVIEW 6 of 35 $\overline{\mathbf{S}}$ **3.** Existing $\overline{\mathbf{S}}$ and $\overline{\mathbf{S}}$ $\overline{\mathbf{S}}$ **f.** We can prove this theorem easily. \Box **3. Existing Aggregation Operators** $\ddot{}$ **Proof.** We can prove this theorem easily. \Box We explore our invented AOS and presented and presented and presented new AOS of CPHF using an Ac μ

We also discussed another extension, like the CPyFAA hybrid averaging (CPy

contains of the CPyFA AMA and CPyFA AOMA operators based on Acrel Algina of operator of the CPyFAAWA and CPyFAAOWA operators, based on Aczel–Alsina oper $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ operator of the CPyFAAWA and CPyFAAOWA operators, based on Aczel–Alsina operations. *and the accuracy function is given as:* **b** and the actension, like the CPyFAA hybrid averaging (CPyFAA)
CPvFA AWA and CPvFA AOWA operators, based on Aczel, Alsina opera $\frac{1}{\sqrt{2}}$ reflassed another extension, the the extension of the anti-point averaging (extension in the constant of the anti-point of the anti-point of the constant of the anti-point of the constant of the constant of the constant of *and the accuracy function is given as:* CPyFAAWA and CPyFAAOWA operators, ൯ *be any two CPyFVs. The extension of intersection and the* isily. □
ison, like the CPyFAA hybrid averaging (CPyFAA)
FAAOWA operators, based on Aczel–Alsina opera and CPyFAAOWA operators, based on p. reading the extension, the the Crytan hybrid averaging (Crytanitation) and CPyFAAOWA operators, based on Aczel–Alsina operation on, like the CPyFAA hybrid averaging (CPyFAAHA) ൯ *is known as CPyFV.* Z_e l–Alsina operations. operator of the CPyFAAWA and CPyFAAOWA operators, based on Aczel–Alsina operations. $\frac{1}{3}$ whid averaging (CPy)
sed on Aczel–Alsina o *Ne* also discussed another extension, like the CPyFAA hybrid averaging (CPyFAAHA)

operator of the CP_VFA AWA and CPvFA AOWA operators based on Aczel–Alsina operations α *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms Ne* also discussed another extension, like the CPyFAA hybrid averaging (CPyFAAHA)

apparent of the CPyFA AMA and CPyFA AOMA operators, based on Aczol–Alsina operations $\ddot{}$ $\frac{1}{\sqrt{2}}$ *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms of NMV, also and Internation, like the CPyFAA hypnd aver* 0 ≤ ௸ \mathbf{a} + ൫௸()൯ also discussed another extension, like the CPyFAA hybrid averaging (CP)
of the CPyFAAWA and CPyFAAOWA operators, based on Aczel–Alsina ῃ We also discussed another extension, like the CPyFAA hybrid averaging the CR_{VEA} AMA and CR_{VEA} AQMA approaching based on Assal FAAWA and CPyFAAOWA operators, based on Aczel–Alsina operations. Sed another extension, like the CPyFAA hybrid averaging (CPyFAAHA)
RAAWA and CR: EAAOWA aperators hased on Assal Alsine aperations operator of the CPyFAAWA and CPyFAAOWA operators, based on Aczel-Alsina operations. We also discussed another extension, like the CPyFAA hybrid averaging (CPyFAAHA)
operator of the CPyFA AWA and CPyFA AOWA operators based on Aczel–Alsina operations ῃ o μ α More the Calendard and the CryFAAWA and CPyFAAOWA operators, based on Aczel–Alsina weighted averaging operator of the CPyFAAWA and CPyFAAOWA operators, based on Aczel–Alsina ῃ operator of the CPyFAAWA and CPyFAAOWA operators, based on Aczel–Als $\frac{1}{2}$ \mathbf{r} operator of the CPyFAAWA and CPyFAAOWA operators, based on Aczel–Alsina operations. $\overline{\text{opt}}$ ƺసభ ቁ We also discussed another extension, like the CPyFAA hybrid averaging (CPyFAAHA) ƺసభ ቁ \overline{a} We also discussed another extension, like the CPyFAA hybrid averaging (CPyFAAHA) IFS and PyFs. \overline{I} **DEFINITION 1 and CPyFAS.** The and CP *y LIFTRITY* seta a relagning (CI *y LIFTRITY*, *I* and CPyFAAOWA operators, based on Aczel–Alsina operations. WHEAAWA and CPyFAAOWA operators, based on Aczel–Alsina Ť beta discussed another extension, the the extension sperator averaging (er yin thin), operator of the CPyFAAWA and CPyFAAOWA operators, based on Aczel–Alsina operations. $_{\rm ope}$ -- -*,*
ms We also discussed aperton wetension, like the CByFA Λ by which $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ ng (CPyi $\overline{\mathbf{v}}$ weighted averaging (CP) operator based on $\overline{\mathbf{v}}$ $m_{\rm s}$ is generally **Definition 16**
A operators, based on Aczel–Alsina ope AAHA) We also discussed another extension, like the CPyFAA hybrid averaging (CPyFAAHA) () 10 μ of μ of μ μ σ σ σ **Definition 16**².
 Definition is a set of an above that α is a set of a el–Alsina operations. $\hat{\mathbf{S}}$.

Definition 15. Consuler $\Omega_{\tilde{Z}} = \begin{pmatrix} 1 & \Omega_{\tilde{Z}} \\ 0 & \Omega_{\tilde{Z}} \\ 0 & 0 \end{pmatrix}$ $\Omega_{\tilde{Z}}(R)$ (*x*) $\Omega_{\tilde{Z}}(R)$ (*x*) $\Omega_{\tilde{Z}}(R)$ (*x*) $\Omega_{\tilde{Z}}(R)$ (*x*) $\Omega_{\tilde{Z}}(R)$ (*x*) $\Omega_{\tilde{Z}}(R)$ (*x*) $\Omega_{\tilde{Z}}(R)$ is the family of CPyFVs. Then, a CPyFAAHA operator is p **13.** Consider $\Omega_{\mathbf{z}} = \left(\prod_{\Omega} (\mathbf{z})e^{2\pi i(\alpha_{\Omega}(\mathbf{z})/R)} \cdot \mathbb{E}_{\Omega} (\mathbf{z})e^{2\pi i(\beta_{\Omega}(\mathbf{z})/R)} \right), \mathbf{z} = 1, 2, \ldots, \mathbf{R}$ r and the two control of CPyFVs. Then a CPyF¹AHA ensuring provision of the two CP_y *i of CPyFVs. Then, a CPyFAAHA operator is particularized as:* $\mathcal{L}[\mathcal{A}] = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}, \mathcal{A}[\mathcal{B}]$ $\mathcal{A}[\mathcal{B}]$ \mathcal{B} $\mathcal{A}[\mathcal{B}]$ \mathcal{B} \mathcal{B} $\overline{\Pi}_{\Omega}$ (**x**)e^{2711($\alpha \Omega$ ₃^(\overline{X})). **E**_{Ω} (**x**)e²⁷¹¹(\overline{P} Ω ₃^{(\overline{X})))₁, 3₌₁,2,....}} $\mathfrak g$ R_1 ൯ *be two CPyFVs. Then is the family of CPyFVs. Then, a CPyFAAHA operator is particularized as:* ൯ *be any two CPyFVs. The extension of intersection and the union of the given corporation 13 Cov* \ddot{a} \ddot{a} \ddot{a} is the family of CPyFVs. Then, a CPyi $\ell = 2\pi i(\kappa_0 + (\boldsymbol{\varkappa}))$ $2\pi i(\kappa_0 + (\boldsymbol{\varkappa}))$ $2\pi i(\kappa_0 + (\boldsymbol{\varkappa}))$ **Definition 13.** Consider Ω _z = the family of CPyFVs. Then, a CPyFAAHA operator is particulariz
 $\frac{2\pi i}{\alpha}$ *where* ˘ () ∈ [−1, 1] *and* ˘ () ∈ [0, 1]*. union of the given CPyFVs are defined as follows:* **Definition 13.** Consider $\Omega_{\mathbf{Z}} = \begin{pmatrix} H_{\Omega_{\mathbf{Z}}}(\mathbf{x})e & e \\ 0 & \mathbf{Z}_{\Omega} \end{pmatrix}$, Ξ_{Ω} , *ition 13. Consider* $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{-\frac{\mathbf{z}^T\mathbf{z}}{2}}\right)$ α ℓ $2\pi i(x_0, (\nu))$ $2\pi i(\beta_0, (\nu))$ **inition 13.** Consider $\Omega_{\mathbf{z}} = \prod_{\Omega_{\mathbf{z}}(\mathbf{z})}(\mathbf{z})e^{-\mathbf{z}^T\mathbf{z}^T}$ is the family of CPyFVs. Then, a CPyFAAHA operator is particularized as: $2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))$ $2\pi i(\beta)$ *where* ˘ () ∈ [−1, 1] *and* ˘ () ∈ [0, 1]*.* \mathcal{U} and $2\pi i(\alpha_{\Omega_{\bullet}}(\boldsymbol{\mathcal{H}}))$ *i*. i_{Ω} and i_{Ω} = $\left(\Pi_{\Omega} (n)e^{-i\theta} - \Pi_{\Omega} (n)e^{-i\theta} \right)$, so i_{Ω} $\Omega_{\bf Z} = \left(\varPi_{\Omega_{\bf Z}}\left(\varkappa\right)e^{2\pi i\left(\alpha_{\Omega}}{\bf z}^{\left(\varkappa\right)\right)}, \Xi_{\Omega_{\bf Z}}\left(\varkappa\right)e^{2\pi i\left(\beta_{\Omega}}{\bf z}^{\left(\varkappa\right)}\right)}\right)$ **Definition 15.** Consider $\Omega_{\overline{2}} = \begin{pmatrix} 11 \Omega_{\overline{2}} \ (x)e & 0 \\ 0 & 0 \end{pmatrix}$, $\Xi \Omega_{\overline{2}} \ (x)e & 0 \\$ Ξ , $\$ $\sum_{i=1}^{n} \sum_{j=1}^{n} \binom{n}{j}$, $\sum_{i=1}^{n} \binom{n}{j}$, $\sum_{i=1}^{n} \binom{n}{j}$, $\sum_{i=1}^{n} \binom{n}{j}$, $\sum_{i=1}^{n} \binom{n}{j}$ $\text{Im } 13.$ Consider $\Omega_{\mathbf{z}} = \left(\prod_{O} (\chi) e^{-\frac{\sum_{i} \left(\chi \right)^2}{2} (\chi_i^2)} \right), \mathbb{E}_{O} (\chi) e^{-\frac{\sum_{i} \left(\chi \right)^2}{2} (\chi_i^2)} \right), \mathbb{E}_{P} (\chi) = 1, 2, \ldots, \mathbb{N}$ $m = \frac{1}{2}$ s. We also study the generalization of union and inter- $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ \sum_{α} \sum_{β} $\sum_{\$ **Definition 13.** Consider $\Omega_{\overline{g}} = \left(\Pi_{\Omega_{\overline{g}}}(\varkappa)e^{2\pi i \langle \mu_{\Omega_{\overline{g}}}(\varkappa)\rangle}, \Xi_{\Omega_{\overline{g}}}(\varkappa)e^{2\pi i \langle \mu_{\Omega_{\overline{g}}}(\varkappa)\rangle}\right), \overline{s} = 1, 2, ..., \mathbb{N}$ ൯ *be a CPyFV; then, the score func-* \mathcal{O} and \mathcal{O} are also study the generalization of union and interti ${\bf p}$ n 13. Consider $\Omega_{\bf \bar{Z}}=\Big(\Pi_{\Omega_{\mathbb{R}}}$ **Definition 13.** Consider $\Omega_{\mathbf{\mathcal{Z}}} = \left(\Pi_{\Omega_{\mathbf{\mathcal{Z}}}}\right)$ ns ider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{-\frac{\boldsymbol{\varkappa}}{\boldsymbol{\varkappa}}}\right)$ **Definition 12** Cousider $Q = \left(H_1, \ldots, H_n\right)$ $\left(\frac{2\pi i (\alpha_0)}{3}(\mathcal{H})\right)$ $\frac{2}{\pi^2}$ $\frac{12}{3}$ (1) $\lim_{\epsilon \to 0}$ 13 Consider O $_{\epsilon} = 0$ π _n π ^{2 $\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))$ _{Fo}} **4. Aczel–Alsina Operations Based on CPyFSs Definition 13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{2\pi i (\mathbf{M} \cdot \mathbf{Z}(\mathbf{Z}^{\prime}))}, \mathbb{E}_{\Omega_{\mathbf{Z}}}(\kappa)e^{2\pi i (\mathbf{M} \cdot \mathbf{Z}(\mathbf{Z}^{\prime}))}\right)$, $\mathbf{Z} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{2\pi i (\mathbf{M} \cdot \mathbf{Z}(\mathbf{Z}^{\prime}))}\right)$ is the family of CPyFVs. Then, a CPyFAAHA operator is particularized as: $)$ $e^{i\pi/2}$ $\sum_{\alpha=0}^{\infty}$ $\sum_{\alpha=0}^{\infty}$ $\binom{n}{\alpha}$ video $O = \left(H_1, \ldots, H_n^{2\pi i (\alpha \Omega)} g^{(\chi)}\right)$ $F^2 = \begin{pmatrix} 1/3 & 1/3 \\ 2/3 & 1/3 \end{pmatrix}$ $\int_{\Pi_{\Omega}}$ $\int_{\mathcal{H}}^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))}$ π_{Ω} $\left(\mu\right)$ ^{2 $\pi i(\beta_{\Omega}(\mu))$} 3 – *For the same of the same of* **Definition 13.** Consider $\Omega_{\mathbf{z}} = \left(\prod_{\Omega} \left(\chi\right) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{z}}}}{(\chi)})} \right)$, $\mathbb{E}_{\Omega} \left(\chi\right) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{z}}}}{(\chi)})}$, $\mathbb{E}_{\mathbf{z}} = 1, 2, \ldots$ **4. Aczel–Alsina Operations Based on CPyFSs** \mathbf{H} $_{amily}$ of CPyFVs. Then, a $\grave{C}PyF$ is the family of CPyFVs. Then, a $CPyFZ$ Ὺ ඨ −ି൬∑ ƺቀି൫ି ൯ቁ ^ῃ ^Ὺ ƺస ൰ is the family of CPyFVs. Then, a CPyFAAHA $\sum_{\lambda} \sum_{\lambda}$ Then, a CPyFAAHA operator Riemann $\Omega = \left(\prod_{\alpha} \frac{2\pi i (\alpha_{\Omega_{\vec{A}}}(\mathbf{x}))}{\sum_{\alpha} \sum_{\alpha} \alpha_{\alpha}}\right)$ $\lim_{\epsilon \to 0} 13.$ Consider $\Omega_{\sigma} = \left(\prod_{\alpha} (\kappa) e^{-\frac{2\pi i (\alpha \Omega_2 (\kappa))}{2}} \mathbb{E}_{\alpha} (\kappa) e^{-\frac{2\pi i (\rho \Omega_2 (\kappa))}{2}}\right)$ $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$ by $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$ $\zeta = \frac{2\pi i(\kappa_{\Omega}(\kappa))}{2\pi i(\kappa_{\Omega}(\kappa))}$ $\frac{2\pi i(\kappa_{\Omega}(\kappa))}{2\pi i(\kappa_{\Omega}(\kappa))}$ is the family of CPyFVs. Then, a CPyFAAHA operator is particularized as: $\textit{ider}\ \Omega_\mathtt{Z} = \Big(\varPi_{\Omega_\mathtt{Z}}(\varkappa) e^{2\pi i (\alpha_\Omega_\mathtt{Z}(\varkappa))}, \Xi_{\Omega_\mathtt{Z}}(\varkappa) e^{2\pi i (\beta_\Omega_\mathtt{Z}(\varkappa))}\Big),\ \mathtt{Z} = 1,2,\ldots, \mathfrak{N}$ $\left(\prod_{\Omega} (\kappa) e^{-\frac{2\pi i}{3}(\kappa)}\right)$ $\mathbb{E}_{\Omega} (\kappa) e^{-\frac{2\pi i}{3}(\kappa)}$ $\mathbb{E}_{\Omega} [\kappa]$ $\begin{pmatrix} 2 & 2 \end{pmatrix}$ $2\pi i(\beta \circ (\boldsymbol{\nu}))$ $2\pi i(\beta \circ (\boldsymbol{\nu}))$ \mathbb{R}^{n} , we have \mathbb{R}^{n} , \mathbb{R}^{n} is the collection of \mathbb{R}^{n} finition 13. Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}{2\pi i \left(\beta_{\Omega_{\mathbf{Z}}}(\kappa)\right)^2}, \mathbf{Z} = 1, 2, \ldots, 0$ **Definition 2** ([9])**.** *A CPyFS on a* Ẁ *is defined as:* \mathbb{R} is the family of CPuFVs. Then. a CPuFAAH. **Definition 13.** Consider $Q_{\sigma} = \prod_{\alpha} (\kappa) e^{2\pi i (\mu_1/2)} \zeta^{(\alpha)}$ ω and funding ω ω gr (c). Then, a ω grimming $\sum_{i=1}^{\infty}$ definition 15. Consult $\sum_{i=2}^{\infty}$ $\sum_{i=1}^{\infty}$ $\binom{n}{i}$ $\binom{n}{i}$ onerator is n **3.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2}{3}(\varkappa + \varkappa)}\right)$ γ of amplitude term γ **Definition 13.** Consider $\Omega_{\mathbf{z}} = \left(\prod_{\Omega_{\mathbf{z}}}\left(\mathbf{x}\right)e^{-2\pi i(\alpha_{\Omega_{\mathbf{z}}}\left(\mathbf{x}\right))}\right)$ is the family of CPyFVs. Then, a CPyFAAHA operator is particulari: is the family of CPyFVs. Then. a CPyFAAHA operator is particular. $\mathcal{M} = \mathcal{M} \cup \mathcal{M}$ **Definition 13.** Consider $Q_{\sigma} = \prod_{\alpha} (\kappa) e^{2\pi i (\kappa q)} \sum_{\alpha} (\kappa) e^{2\pi i (\kappa q)} \sum_{\alpha} (\kappa) e^{2\pi i (\kappa q)}$ w the family of Cr yr vo. Then, a Cr yri unitin operator to particularize is the family of CPyFVs. Then, a CPyFAAHA operator is particularized as: $\Omega_{\mathbf{z}}(\kappa)e^{-\frac{\mathbf{z}}{2}(\kappa^2)}$, $\Xi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{\mathbf{z}}{2}(\kappa^2)}$ $\gamma = \frac{1}{\sqrt{2\pi i (n - \left(\frac{1}{2}\right))}}$ **13.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\mu})e^{-\frac{2\pi i}{3}(\mathbf{x})}, \Xi_{\Omega_{\mathbf{z}}}(\boldsymbol{\mu})e^{-\frac{2\pi i}{3}(\mathbf{x})}\right)$ \mathbf{v} at tribute \mathbf{v} at the set of \mathbf{v} $\frac{1}{2}$, $\Xi_{\Omega_{\mathbf{Z}}}(x)e$ and \int , $\mathbf{Z}=1$
operator is particularized as: $\frac{2\pi i}{\alpha}$ $rac{1}{2}$ **Definition 13.** Consider $Q_{\mathbf{z}} = \begin{pmatrix} 2\pi i (\alpha_0, \mathbf{z}(\mathbf{x})) \\ \Pi_{\Omega} & \mathbf{z}(\mathbf{x}) \end{pmatrix}$ $\frac{1}{2}$ \overline{P} . Then, the PyF \overline{P} \overline{P} $Definition 13$. Consi ϵ and its corresponding weight vector α α α β **Definition 13.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{-\lambda \mathbf{r} \cdot \mathbf{r} \cdot \mathbf{r}}\right)$ ℓ $2\pi i(\alpha_0 \quad (1$ **Definition 13.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{\frac{\sum_{i=1}^{N}(\mathbf{x_i})^2}{2}}\right)$ *CPyFAAOWA operator are particularized as:* ℓ $2\pi i(\alpha_0 \ (x))$ **Definition 13.** Consider $\Omega_{\overline{g}} = \left(\Pi_{\Omega_{\overline{g}}}(\varkappa)e^{2i\Omega_{\Omega_{\overline{g}}}(\varkappa^{(n)})}, \Xi_{\overline{g}}(\varkappa^{(n)})\right)$ $C = 2\pi i(\alpha_0, (\boldsymbol{\varkappa}))$ $2\pi i$ **Definition 13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{-\sum_{\alpha}^{N}(\mathbf{x}_i)}\right)^{\mathbf{Z}}$, $\Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{-\sum_{\alpha}^{N}(\mathbf{x}_i)}$ $2\pi i(\beta_{\Omega}(\boldsymbol{\mu})))$ $\sum_{k=1}^{n}$ θ as: **Definition 13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right), \, \mathbf{Z} = 1, 2, \ldots, \mathbf{Z}$ s the family of CPyFVs. Then, a CPyFAAHA operator is particularized as: ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as: where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*)) **13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \, \mathbf{Z} = 1, 2, \ldots, 11$ *k* Then, a CPyFAAHA operator is particularized as: ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ *and* $\frac{1}{2}$ *represents the membership value (MV)* of a moment *membership* value of a moment of amplitude $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ and **Definition 13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}\right)$, 3 = 1,2,..., 1 is the family of $CPyFVs$. Then, a $CPyFAAHA$ operator is particularized as: of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina is the family of CPyFVs. Then, a CPyFAAHA operator is particularized as: $\frac{1}{2}$ $\frac{1}{2}$ ῃ $\frac{1}{2}$ \overline{B} \overline{B} \overline{B} \overline{B} \overline{B} \overline{B} \overline{C} $\sum_{\text{max}} \sum_{\text{max}} \sum_{\$, ఆƺ ቇ , ƺ = 1,2, … , ῃ *to be the* **Definition 13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))}, \Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}(\boldsymbol{\varkappa})})}\right)$ $\sum_{\substack{\lambda=1,2,\ldots,\ell\geq 0}}$ ($\sum_{\substack{\lambda=1,2,\ldots,\ell\geq 0}}$ and $\sum_{\substack{\lambda=1,2,\ldots,\ell\geq 0}}$ $\frac{1S}{2}$ $f(x) = \frac{f(x)}{f(x)}$ of CP_yF_A $f(x)$ is particular in particular is particular in particular in particular is particular in the set of CP₃ \overline{a} \int , \int , **Definition 13.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi i}{3}(\kappa)}\right), \mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi i}{3}(\kappa)}\right), \mathbb{z} =$ *operator is particularized as:* $f(x) = \frac{1}{2}$ CP_yF_A $f(x)$ \int_{0}^{∞} articularized as: \mathcal{S} **Definition 13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}\right), \, \mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ *operator is particularized as:* $\frac{1}{2}$ $\mathcal{L} = 2\pi i (\kappa_0 - (\boldsymbol{\nu}))$, $2\pi i (\beta_0 - (\boldsymbol{\nu})))$ *family of CP₃* $f(x)$ *if* $f(x)$ *is corresponding* $f(x)$ *if* $f(x)$ *is* $f(x)$ *is*

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CPyFAAHA\left(\Omega_{1}, \Omega_{2}, \ldots, \Omega_{\tilde{\eta}}\right) = \frac{\eta}{\tilde{\eta}}\left(\mathfrak{q}_{\tilde{\chi}}\mathcal{X}_{b(\tilde{\chi})}\right) = \mathfrak{q}_{1}\mathcal{X}_{b(1)} \oplus \mathfrak{q}_{2}\mathcal{X}_{b(2)} \oplus \ldots, \oplus \mathfrak{q}_{\tilde{\eta}}\mathcal{X}_{b(\tilde{\eta})}
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(7)

3. Existing Aggregation Operators

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3. Existing Aggregation Operators

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Definition 11. *Consider* ƺ = ቆఆƺ

3. Existing Aggregation Operators

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where the corresponding weight vector of CPyFAAHA operator is denoted by $\pmb{\mathfrak{g}}=(\pmb{\mathfrak{g}}_1,\pmb{\mathfrak{g}}_2,\pmb{\mathfrak{g}}_3,\dots,\pmb{\mathfrak{g}}_{\pmb{\mathfrak{p}}})^T$, $\big)^T$, $\frac{1}{2}$ $\frac{1}{2}$ $\frac{2}{3}$ $\frac{1}{2}$, $\frac{3}{2}$, $\frac{3}{2}$, $\frac{3}{2}$ $3 - \sqrt{37}$ $\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n$ ^T, such that $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{N}} \mathfrak{D}_{\mathbf{Z}} = 1$; $\mathcal{X}_{\mathrm{b}(\mathbf{Z}-1)} \geq \mathcal{X}_{\mathrm{b}(\mathbf{Z})}$, \forall , $\mathfrak{Z} = 1$, 2, 3,... \mathfrak{N} and a \hat{c} \hat{a} \hat{b} \hat{c} = 1,2,3, m) 2^{312} ², $\sqrt{ }$ c_6 (r_1, r_2, n) $12, \, \sqrt{2}$ (z_1, z_2, n) $, \ (s-1,2)$ $(22 \text{ A} \cdot \text{B})$ such that $\texttt{H}_{\texttt{Z}}\in[0,1]$, $\texttt{Z}=1,2,\ldots,$ ¹¹ and $\sum_{\texttt{Z}=1}^{\infty}\texttt{H}_{\texttt{Z}}=1$ and $\mathcal{X}_{\texttt{Z}}=k\mathfrak{D}_{\texttt{Z}}\Omega_{\texttt{Z}}$, $\left(\texttt{Z}=1,2,3,\ldots$ ¹¹ of CPyFVs. By using an induction method, we prove Theorem 1 $\overline{\text{P}}$ ିତ୍ୟ କରିଥିଲେ ।
ମୃତ୍ୟୁକ୍ତ କରିଥିଲେ ।
ମୃତ୍ୟୁକ୍ତ କରିଥିଲେ । $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ *i* $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ *y* = 1,2,3, …,2, …,2, …,2, …,1, …,1,1, with the weight $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$ *m* such that $\pi_3 \in [0,1]$, $\bar{z} = 1,2,\ldots, \bar{z} = 1$ and $\sum_{i=1}^{N} \pi_3 = 1$ and $\mathcal{X}_3 = k \mathfrak{D}_3 \Omega_3$, $\left(\bar{z} = 1,2,3,\ldots, \bar{z} \right)$ is the set of any permutations $(\mathcal{X}_{b(1)}, \mathcal{X}_{b(2)}, \mathcal{X}_{b(3)}, \ldots, \mathcal{X}_{b(3)})$ of CPyFVs. The associated $weight \ vector \ of \ CPyFVs \ of \ \Omega_{\mathbf{Z}} \ is \ represented \ by \ \mathfrak{D}_{\mathbf{Z}}$ between $\frac{2}{3}$ and $\frac{2}{3}$ being $\frac{1}{2}$ being $\frac{1}{2$ $\zeta = 1$ c weight vector of CPyFVs of $\Omega_{\mathbf{z}}$ is represented by $\mathfrak{D}_{\mathbf{z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$, su $\Omega \in [0, 1], \{3, -1, 2\}$ 1], $\mathfrak{F} = 1, 2, ..., \mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathbf{Z}} = 1;$ $\mathcal{X}_{b(\mathbf{Z}-1)}$, coefficient are denoted by k. where the corresponding weight vector of CPyFAAHA operator is denoted by $\bm{\mathrm{g}}=(\bm{\mathrm{g}}_1,\bm{\mathrm{g}}_2,\;\bm{\mathrm{g}}_3,\dots$, $\bm{\mathrm{g}}_{\text{I}})^T$, \overline{a} \overline{a} \overline{b} \overline{c} \overline{d} $\overline{$ $\mathcal{L}_{\mathcal{B}} = \text{span}\{X_{\mathcal{B}} = [0, 1], \ \mathcal{B} = 1, 2, \ldots, \mathcal{B} \text{ and } \mathcal{L}_{\mathcal{B}} = 1 \text{ and } \mathcal{K}_{\mathcal{B}} = \mathcal{K} \mathcal{B}_{\mathcal{B}} \Omega_{\mathcal{B}} \}$ $\mathcal{A}_{1,2}, \ldots, \mathfrak{n}$ and $\sum_{\mathbf{z}=1}^{\mathbf{n}} \mathfrak{D}_{\mathbf{z}} = 1; \ \mathcal{X}_{b(\mathbf{z}-1)} \geq \mathcal{X}_{b(\mathbf{z})}, \ \forall, \ \mathbf{z} = 1, 2, 3, \ldots, \mathfrak{n}$ and a where the corresponding weight vector of CPyFAAHA operator is denoted by $\mathbf{g}=(\mathbf{g}_1,\mathbf{g}_2,\ \mathbf{g}_3,\dots,\ \mathbf{g}_\mathbf{p})^T$, $\frac{1}{\sqrt{1-\frac{1}{2}}}\left\{ \frac{1}{\sqrt{1-\frac{1}{2}}}\right\}$ is the set of permutations of $\frac{1}{\sqrt{1-\frac{1}{2}}}\left\{ \frac{1}{\sqrt{1-\frac{1}{2}}}\right\}$ such that $\text{g}_\text{Z} \in [0,1]$, $\text{Z} = 1,2,\ldots, \text{N}$ and $\sum_{\text{Z}=1}^{\text{U}} \text{g}_\text{Z} = 1$ and $\mathcal{X}_\text{Z} = k \mathfrak{D}_\text{Z} \Omega_\text{Z}$, $\left(\text{Z} = 1,2,3,\ldots \text{N}\right)$ weight vector of CPyFVs of $\Omega_{\mathbf{Z}}$ is represented by $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$, such that by k . l and $\sum_{\mathbf{Z}=1}^{\mathbf{N}} \mathfrak{D}_{\mathbf{Z}} = 1$; $\mathcal{X}_{\mathbf{b}(\mathbf{Z}-1)} \geq \mathcal{X}_{\mathbf{b}(\mathbf{Z})}$, \forall , $\mathbf{Z} = 1$, 2, 3, $\lim_{\mathbf{\tilde{g}}=1}\mathfrak{D}_{\mathbf{\tilde{g}}}=1;$ $\mathcal{X}_{\mathbf{\tilde{b}}(\mathbf{\tilde{g}})-}\geq\mathcal{X}_{\mathbf{\tilde{b}}(\mathbf{\tilde{g}})'}$ \forall , 3 = $\mathfrak{D}_{\mathbf{Z}} = 1; \ \mathcal{X}_{b(\mathbf{Z}-1)} \geq \mathcal{X}_{b(\mathbf{Z})'} \ \forall, \ \mathbf{Z} = 1, \ 2, \ \mathbf{Z}$ $\begin{pmatrix} \lambda \mathfrak{b}(1) & \lambda \mathfrak{b}(2) & \lambda \mathfrak{b}(3) & \cdots \\ \vdots & \vdots & \ddots & \vdots \\ \mathfrak{C} & \mathfrak{C} & \mathfrak{C} & \cdots & \mathfrak{C} \end{pmatrix}$ weight vector of CPyFVs of Ω_3 is represented by $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$, such that -1 \mathcal{Y} $> \mathcal{Y}$ \forall 3 - 1 2 $\binom{n}{b(2)}$, $\binom{n}{c-1}$, $\binom{n}{c}$, \ldots and **Proof.** Consider ƺ = ቆఆƺ $\lim_{\epsilon \to 0} \frac{H(x, \epsilon)}{x}$ is the set of any permutations $(\mathcal{X}_{b(1)}, \mathcal{X}_{b(2)}, \mathcal{X}_{b(3)}, \ldots, \mathcal{X}_{b(3)})$ of CPyFVs. The associated Unere the corresponding weight occurr of ⊂r gri in the permior is denoted by $n = \sqrt{\frac{1}{n}}$ *operator is uch the such the suc* \mathcal{L} 1,2, … where the corresponding weight occur of Cr *y* 11 *x* 11 r operator is achoica by $n = (n_1, n_2, n_3, n_4, n_5, n_6, n_7, n_8, n_9, n_1, n_2, n_3, n_4, n_5, n_6, n_7, n_8, n_9, n_1, n_2, n_3, n_4, n_5, n_6, n_7, n_7, n_8, n_9, n_9, n_1, n_2, n_$ **b** *such that* q_3 $\mathfrak{D}_{\mathbf{Z}} \in [0,1], \; \mathbf{Z} = 1, 2, \ldots, \mathbb{N}$ and $\sum_{\mathbf{Z}-1}^{\mathbb{N}} \mathfrak{D}_{\mathbf{Z}} = 1; \; \mathcal{X}_{\mathbf{b}(\mathbf{Z}-1)} \geq \mathcal{X}_{\mathbf{b}(\mathbf{Z})}, \; \forall, \; \mathbf{Z} = 1, 2, 3, \ldots, \mathbb{N}$ and a *mare in corresponding weight occur of* CP *yD* Ω D *D correction is denoted by η = (Λ_1, Λ_2, Ω_3, \ldots, θ_n, \ldots, � such that* $A_5 \in [0, 1]$ $1, 2, 3, 5, 7, 7, 7, 7, 1 | 7, 7, 7, 8, 6, 8, 1 | 7, 7, 8, 9, 1 | 7, 7, 8, 9, 1 | 7, 7, 8, 9, 1 | 7, 7, 8, 9, 1 | 7, 7, 8, 9, 1 | 7, 7, 8, 9, 1 | 7, 7, 8, 9, 1 | 7, 7, 8, 9, 1 | 7, 7, 8, 9, 1 | 7, 7, 8, 9, 1 | 7, 7, 8, 9, 1 | 7, 7,$ *o* that $A_2 \in [0,1]$, $\delta = 1,2,$. such that $\pi_3 \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots, \mathfrak{k}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{R}} \pi_{\mathfrak{Z}} = 1$ and $\mathcal{X}_{\mathfrak{Z}} = k \mathfrak{D}_{\mathfrak{Z}} \Omega_{\mathfrak{Z}}, \ \left(\mathfrak{Z} = 1,2,3,\ldots \mathfrak{k} \right)$ *of CPyFVs. The associated* weight vector of CPyFVs of $\Omega_{\mathbf{Z}}$ is represented by $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$, such that
 $\mathfrak{D}_{\mathbf{Z}} \in [0,1], \mathfrak{Z} = 1,2,\dots, n$ and $\sum_{i=1}^n \mathfrak{D}_{\mathbf{Z}} = 1; \mathcal{X}_{\mathbf{Z}(\mathbf{Z}-1)} \geq \math$ $\frac{1}{2}$ \bar{a} are denoted by \bar{k} . \bar{k} $\mathfrak{D}_\mathbf{Z}$ ∈ [0, 1], $\mathfrak{Z} = 1, 2, ..., \mathfrak{N}$ and $\sum_{\mathbf{Z}_{=1}}^{\mathfrak{U}} \mathfrak{D}_\mathbf{Z} = 1$; $\mathcal{X}_{\mathfrak{b}(\mathbf{Z}-1)} \geq 0$ is the set of any permutations $(\mathcal{X}_{b(1)}, \mathcal{X}_{b(2)}, \mathcal{X}_{b(3)}, \ldots, \mathcal{X}_{b(3)})$ of CPyFVs. The associated **3. Existing Aggregation Operators** where the corresponding weight vector of CPyFAAHA operator is denoted by $\bm{\mathsf{q}}=(\mathfrak{q}_1,\mathfrak{q}_2,\ \mathfrak{q}_3,\dots,\ \mathfrak{q}_{\bm{\mathsf{q}}})^T$, \overline{P} = \overline{P} = 2, we have: $\mathfrak{D}_{\mathfrak{Z}} \in [0,1], \; \mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathfrak{Z}} = 1; \; \mathcal{X}_{\mathfrak{b}(\mathfrak{Z}-1)} \geq \mathcal{X}_{\mathfrak{b}(\mathfrak{Z})}, \; \forall, \; \mathfrak{Z} = 1, 2, 3, \ldots, \mathfrak{N}$ and a *iii.* is the set of any permutations $(\mathcal{X}_{b(1)}, \mathcal{X}_{b(2)}, \mathcal{X}_{b(3)}, \ldots, \mathcal{X}_{b(3)})$ of CPyFVs. The associated *operator is particularized as:* $\mathcal{L}_{\text{max}}^{\text{that}}$ $\mathcal{L}_{\text{max}}^{\text{in}} \in [0,1], \mathcal{L}_{\text{max}}^{\text{in}} = 1,2,\ldots,\text{max}$ $\mathcal{L}_{\text{max}}^{\text{in}}$ $\mathcal{L}_{\text{max}}^{\text{in}}$ $\mathcal{L}_{\text{max}}^{\text{out}}$ $\mathcal{L}_{\text{max}}^{\text{out}}$ $\mathcal{L}_{\text{max}}^{\text{out}}$ $\mathcal{L}_{\text{max}}^{\text{out}}$ $\mathcal{L}_{\text{max}}^{\text{out}}$ \mathcal If $\sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{j=1}$ is the set of any permutations $(\mathcal{X}_{b(1)}, \mathcal{X}_{b(2)}, \mathcal{X}_{b(3)}, \ldots, \mathcal{X}_{b(3)})$ of CPyFVs. The associated *operator is particularized as:* $[0, 1]$, $[3] = 1, 2, \ldots$, $[1]$ and $\sum_{\mathbf{Z}_{i=1}}^{\infty} A_{\mathbf{Z}} = 1$ and λ $\int_{f}^{g(1)}$ $\int_{g(1)}^{g(1)}$ α denoted by \vec{k} . α $\mathfrak{F} = 1, 2, 3, \ldots$ n and a v_3, \ldots, ω_n , such that **3. Existing Aggregation Operators** $\frac{1}{2}$ this part, we recall the existing concepts of $\frac{3}{4}$ and $\frac{3}{4}$ and $\frac{3}{4}$ and system of $\frac{3}{4}$ and $\frac{3}{4}$ and *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 ൯*.* $\Omega \in [0, 1]$ 3 - 1 I_{rel} is particular the existence of I_{rel} and I_{rel} and I_{rel} S_{scat} , S_{scat} S_{scat} S_{scat} S_{scat} S_{scat} S_{scat} S_{scat} S_{scat} $\mathfrak{D}_3 \in [0,1], \, 3 = 1, 2, \ldots, \mathbb{N}$ and $\sum_{i=1}^{\mathbb{N}} \mathfrak{D}_3 = 1; \, \mathcal{X}_{\mathbf{b}(3-1)} \geq \mathcal{X}_{\mathbf{b}(3)}, \, \forall, \, 3 = 1, 2, 3, \ldots, \mathbb{N}$ *Superion is the contractor of CPuFVs of* Q_7 *is represented by* $\mathfrak{D}_7 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \mathfrak{D}_4)^T$ *such that* coefficient are denoted by $k = 1$ under C $\sum_{i=1}^n$ $\sum_{j=1}^n$ $\sum_{i=1}^n$ $\sum_{j=1}^n$ $\sum_{i=1}^n$ $\sum_{j=1}^n$ $\sum_{i=1}^n$ $\sum_{j=1}^n$ $\sum_{i=1}^n$ \sum_{i $\sum_{\mathbf{z}} \mathbf{z}_{\mathbf{z}} = \sum_{\mathbf{z}} \mathbf{z}_{\mathbf{z}} = 1; \; \mathcal{X}_{\mathbf{b}(\mathbf{z}-1)} \geq \mathcal{X}_{\mathbf{b}(\mathbf{z})}, \; \forall, \; \mathbf{z} = 1, \, 2, \, 3, \ldots$ ¹¹ and a section of \mathbf{z} ficient are denoted by k. *symbolt pector of CPuFVs of* Q_n *is represented by* $\mathfrak{D}_n = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \mathfrak{D}_4)^T$ *such that* **Definition 1** α *C* to *C C C C C C C to be a non-empty set, and a CFS* α *is defined as:* α $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ ⎜ \blacksquare $\begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$ of $\begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$ $\begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$ $\begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$ $\begin{bmatrix} 0 & 0 & 0 \end{bmatrix}$ $\frac{1}{2}$ *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = ῃ **Theorem 1.2,...,** \mathbb{R} **and** $\sum_{\mathbf{Z}=1}^{\mathbf{U}} \mathfrak{D}_{\mathbf{Z}} = 1$ **,** $\mathcal{X}_{\mathbf{b}(\mathbf{Z}-1)} \geq \mathcal{X}_{\mathbf{b}(\mathbf{Z})}$ **,** \forall **,** $\mathbf{Z} = 1$ **, 2, 3,...,** \mathbb{R} **and a** *family of CPIFVs and its corresponding weight vectors weight vectors weight vectors in the weight vectors of* α ƺୀଵ *. Then, the CPyFAAWA operator* \mathbb{R}^{1} , \mathbb{R}^{2} , \mathbb{R}^{3} , \mathbb{R}^{3} , \mathbb{R}^{3} $\tilde{=}$ $\mathfrak{D}_{\sigma} \in [0,1], \mathfrak{F} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\sigma=1}^{\mathfrak{N}} \mathfrak{D}_{\sigma} = 1; \mathfrak{X}, \mathfrak{D}_{\sigma} \geq \mathfrak{X}, \mathfrak{D}, \forall, \mathfrak{F} = 1,2,3,\ldots, \mathfrak{N}$ and a $(\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$, sud tor of CPyFVs of Ω_3 is represented by $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$, such that $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{N}} \mathfrak{D}_{\mathbf{Z}} = 1$; $\mathcal{X}_{\mathrm{b}(\mathbf{Z}-1)} \geq \mathcal{X}_{\mathrm{b}(\mathbf{Z})}$, \forall , $\mathfrak{Z} = 1$, 2, 3,... \mathfrak{N} and a $\ddot{}$ $\frac{1}{3}$ 1 $\frac{1}{2}$ $= 1$ and $\mathcal{X}_{z} = k \mathfrak{D}_{z} \Omega_{z}$, $\left(3 \right)$ $1, 2, 3, \ldots$ ⎟ $\sum_{i=1}^{n}$ $a_r \in [0, 1]$, $3 = 1, 2$, \prod and \sum ¹¹, $g_r = 1$ and $\mathcal{X}_r = k \mathfrak{D}_r \Omega_r$, $(3 = 1, 2, 3, \ldots, 1)$ *g* permutations $(\mathcal{X}_{b(1)})$ fundamental operational laws of Aczel–Alsina TNM and TCNM. $(1, \delta = 1, 2, \ldots, \mathfrak{g})$ and $\sum_{3-1} \mathfrak{D}_3 = 1$; $\mathcal{X}_{\mathfrak{b}(3-1)} \geq \mathcal{X}_{\mathfrak{b}(3)}, \forall, \delta = 1, 2, 3, \ldots, \mathfrak{g}$ and a generalized the basic idea of CDuEA AHA operator is denoted by $\mathbf{g} = (\mathbf{g}_\bullet \ \mathbf{g}_\bullet \ \mathbf{g}_\bullet \ \mathbf{g}_\bullet)^T$ laws and illustrative examples. $[0,1], \mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{r=1}^{\mathfrak{U}}$ $\mathfrak{A}_7 = 1$ and $\mathcal{X}_7 = k\mathfrak{D}_7 \Omega_7$, $(\mathfrak{Z} = 1,2,3,\ldots, \mathfrak{N})$ $\frac{d}{dt}$ $d_{\text{t}}(X_{b(1)}, X_{b(2)}, X_{b(3)}, \ldots, X_{b(2)})$ of CPyFVs. The associated η in η $\tau = 1, 2, \ldots, 1$ and $\sum_{z=1}^{\infty} \mathfrak{D}_z = 1$; $\lambda_{b(z-1)} \ge \lambda_{b(z)}$, \vee , $s = 1, 2, 3, \ldots$ and a **Theorem 2. Consider** $\left\{ \frac{1}{2} \right\}$ $= (A_1, A_2, A_3, \ldots, A_n)^T$ *f*₂ $\sum_{z=1}$ *f*₃ = 1 *and* $\chi_{z} = \kappa \mathfrak{D}_{z} \Omega_{z}, \ (z = 1, 2, 3, \dots, 0)$ ƺୀଵ *. Then, the CPyFAAWA operator* \mathcal{B}_3 is represented by $\mathcal{D}_3 = (\mathcal{D}_1, \mathcal{D}_2, \mathcal{D}_3, \dots)$ $\pi i(\beta)$ Ω_{ζ} , $(3 = 1, 2, 3, \dots 1)$.., \ln and $\Sigma_{\mathbf{Z}=1}^{\mathbf{R}}$ $\mathbf{A}_{\mathbf{Z}} = 1$ and $\mathcal{X}_{\mathbf{Z}} = k\mathfrak{D}_{\mathbf{Z}}\Omega_{\mathbf{Z}}$, $(3 = 1, 2, 3, \dots \ln)$ \cdots , $\binom{n}{b(2)}$, $\binom{f}{j}$ is the set of permutations of $\frac{f}{d}$ ve $d \sum_{\mathbf{z}}^{\mathbf{\eta}}$ $\mathfrak{D}_{\mathbf{z}}$ Δ $\left(\mathcal{X}_{b(1)},\mathcal{X}\right)$ \det of CPuFA AHA operator is denoted by $\mathfrak{g} = (\mathfrak{g}, \mathfrak{g}, \mathfrak{g})$ $\begin{pmatrix} 1 & 1 & 1 \\ 0 & 1 & 1 \end{pmatrix}$ $\epsilon = 1$ ϵ
be definitions $(X_{b(1)}, X_{b(2)}, X_{b(3)}, \ldots, X_{b(3)})$ of CPyFVs. The associated κ_1 $M_3 = 1$ and $\kappa_3 = \kappa_2$ κ_3 κ_1 $= 1, 2, 3, \ldots$ $= 1; \ \mathcal{X}_{b(2-1)} \geq \mathcal{X}_{b(2)}$, \forall , $3 = 1$, 3 $\lim_{\alpha \to 0} \log \mathfrak{D}_{\mathfrak{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots)$ $(\mathfrak{d}_n)^T$, such $\frac{1}{\sqrt{2}}$ $\frac{1}{\epsilon}$ $\begin{bmatrix} 1 & 2 & 4 & 0 \end{bmatrix}$ $\begin{bmatrix} 0 & 1 & 1 \end{bmatrix}$ $\begin{bmatrix} 0 & 0 & 1 & 1 \end{bmatrix}$ $\begin{bmatrix} 0 & 1 & 1 \end{bmatrix}$ $\begin{bmatrix} 0 & 1 & 1 \end{bmatrix}$ $\begin{bmatrix} 0 & 1 & 1 \end{bmatrix}$ of CPyFVs of $\Omega_{\mathbf{z}}$ is represented by $\mathfrak{D}_{\mathbf{z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$, such that $g_z \in [0,1], \ z = 1,2,...,1$ and $\sum_{r=1}^{11} g_z = 1$ and $\mathcal{X}_z = k\mathfrak{D}_z \Omega_z$, $(z = 1,2,3,...,1)$ \overline{a} corresponding weight vector of CPuFA AHA operator is denoted by $\mathbf{g} = (\mathbf{g}_1, \mathbf{g}_2, \mathbf{g}_3, \mathbf{g}_4)^T$ ω interponding weight economy of α given in to permiss is denoted by $n - \langle n_1, n_2, n_3, \ldots, n_n \rangle$ ny permututions $(\lambda_{b(1)}, \lambda_{b(2)}, \lambda_{b(3)}, \ldots, \lambda_{b(2)})$ by Cryp vs. The ussociated $c = 1, 2, ...,$ and $\sum_{z=1}^{\infty} z_z = 1$; $\alpha_{b(z-1)} \leq \alpha_{b(z)}, \forall s = 1, 2, 3, ...$ and a matrix σ \mathbf{S} and \mathbf{S} and \mathbf{S} and \mathbf{S} and \mathbf{S} of \mathbf{S} and \mathbf{S} we develop of \mathbf{S} and $\mathbf{$ esponding weight vector of CPyFAAHA operator is denoted by $\bm{\mathsf{A}} = (\mathbf{\mathsf{A}}_1, \mathbf{\mathsf{A}}_2,~\mathbf{\mathsf{A}}_3, \dots,~\mathbf{\mathsf{A}}_{\bm{\mathsf{I}}})^T$, (1) $\begin{pmatrix} 1 & 0 & -1 \end{pmatrix}$ operational laws of CP $\begin{pmatrix} 1 & 0 \end{pmatrix}$ bermalizations $(\alpha_{b(1)}, \alpha_{b(2)}, \alpha_{b(3)}, \ldots, \alpha_{b(2)})$ by $\alpha_{b(1)}$ vs. The associated $\begin{bmatrix} 2 & 4 & 0 \\ 0 & \alpha & 1 \end{bmatrix}$ by and T_{NM} and T_{NM} and T_{NM} and T_{NM} and T_{NM} and T_{NM} $\mu_1, \mu_2, \ldots,$ when $L_{Z=1} \sim Z^{-1}$, $\mu_{b}(Z_{-1}) \sim \mu_{b}(Z)$, $\mu_{b}(Z_{-1}) \sim \mu_{b}(Z)$ $\sum_{i=1}^{n} a_i$ of CPyFVS. 1 ⎜ \overline{a} vs. The associated $\left(\cdot, \mathfrak{D}_n \right)^T$, such that \overline{a} the coefficient are denoted by k . ⎜ \vert and \sum $^{\prime}$ ϵ \mathfrak{m} $\mathbb{I}=\mathbb{I}$ уFAAHA operator is denoted by $\pmb{\mathfrak{z}} = (\mathfrak{K}_1,\mathfrak{K}_2,\ \mathfrak{K}_3,\dots,\ \mathfrak{K}_{\textbf{n}})^T$, $a_{\mathbf{z}}$ is \mathcal{X} $\overline{}$ \overline{a} ,
b $\int_{\mathcal{A}}^{\mathcal{A}} \mathcal{L}_{\mathcal{A}}^{\mathcal{A}} = 1$ and $\mathcal{X}_{\mathcal{A}} = k \mathfrak{D}_{\mathcal{A}} \Omega_{\mathcal{A}}$, $\left(\mathcal{A} = 1, 2, 1 \right)$ $'$ $\mathcal{X}_{b(2)}, \mathcal{X}_{b(3)}, \ldots, \mathcal{X}_{b(2)}$ of CPyFVs. The as $E_{\mathcal{B}(2)}^{(1)}$ is $\mathcal{D}_{\mathcal{B}(2)}^{(2)}$ is \mathcal{D}_{\math $\left(\begin{array}{c} 7 \ 7 \ 7 \end{array}\right)$
3, $\frac{3}{7}$ *family* $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ *, such that* \overline{a} *S* $\mathcal{L} = \begin{bmatrix} 2 & 3 \end{bmatrix}$ **2023**, $\mathcal{L} = \begin{bmatrix} 2 & 3 \end{bmatrix}$ is the set of any permutations $(\mathcal{X}_{b(1)}, \mathcal{X}_{b(2)}, \mathcal{X}_{b(3)}, \ldots, \mathcal{X}_{b(2)})$ of CPyFVs. The associated $[0, 1], \ \delta = 1, 2, \ldots$, it and $\sum_{z=1}^{\infty} \mathfrak{D}_z = 1; \ \mathcal{X}_{b(z-1)} \geq \mathcal{X}_{b(z)}, \ \forall, \ \delta = 1, 2, 3, \ldots$ it and a $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ ƺୀଵ *. Then, the CPyFAAWA operator* Ω_3 is represented by $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$, such that $\mathbf{z} = \mathbf{z}$, $\frac{1}{2}$ $\frac{1}{2}$ 15 1 presented by $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$, st $(\mathcal{X}_{b(2)}, \mathcal{X}_{b(3)}, \ldots, \mathcal{X}_{b(3)})$ of CPyFVs. The assumed to $\mathcal{X}_{b(2)}, \mathcal{X}_{b(3)}, \ldots, \mathcal{X}_{b(3)})$ *balancing coefficient are denoted by k.* !
!
. $\mathfrak{p}(z-1)$ $\mathfrak{p}(z)$ $3, \ldots$ $\ddot{}$ \overline{r} μ ⎜ 3, ඨ $\ddot{}$ \mathcal{S} \overline{a} as

 $^{\prime}$ $\overline{}$ $\frac{1}{2}$ is the set of $\frac{1}{2}$ ⎛ \mathbf{h} $\mathcal{Q}_n = \left(\prod_{\Omega} \left(\mathbf{v} \right) e^{-2\pi i (\alpha_{\Omega} - \mathbf{z})} \mathbf{z}^{2\pi i (\beta_{\Omega} - \mathbf{z})} \right)$ $\mathbf{z} = 1, 2$ \mathbf{z} the the family of CPyFVs. Then, the CPyFAAHA operator is particularized as: **EXECUTED 11.** Let $\Omega_{\mathcal{Z}} = \left(H \Omega_{\mathcal{Z}} (R) e^{-\frac{1}{2} \int R} \int R \rho^{2} e^{-\frac{1}{2} \int R} \rho^{2} \rho^{2} \right)$, expectively is not integrated as: *gamily of* CP yP v 5. Then, the CP yPPD tiPPT operator is particularized as family of CPyFVs. Then, the CPyFAAHA operator is particularized as: $\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))}{2}$, $\frac{1}{2}$ $\frac{1}{2}$
Thu EA AHA operator is narticularized as: μ gr. **1.** 1. *i* operator is particularized as. , ఆƺ ቇ , ƺ = 1,2, … , ῃ *be the family of* **Theorem 11.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi})e^{-\frac{2\pi i}{3} \left(\mathbf{Z}(\boldsymbol{\chi})e^{-\frac{2\pi i}{3} \left(\mathbf{Z}(\boldsymbol{\chi})e^{-\frac{2\pi i}{3} \left(\mathbf{Z}(\boldsymbol{\chi})e^{-\frac{2\pi i}{3} \left(\mathbf{Z}(\boldsymbol{\chi})e^{-\frac{2\pi i}{3} \left(\mathbf{Z}(\boldsymbol{\chi})e^{-\frac{2\pi i}{3} \left(\mathbf{Z}(\boldsymbol{\chi})e^{-\frac{2\pi i}{3} \left(\$ family of CPyFVs. Then, the CPyFAAHA operator is particularized as: **Theorem 6.** *Let* ƺ = ቆఆƺ , ఆƺ ቇ , ƺ = 1,2, … , ῃ *be the family of* **Theorem 11.** Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{-\frac{\mathbf{z}}{2}(\mathbf{z}^T)}, \Xi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{-\frac{\mathbf{z}}{2}(\mathbf{z}^T)}\right), \, \mathbf{z} = \mathbf{1},$ **Theorem 6.** *Let* ƺ = ቆఆƺ , ఆƺ ቇ , ƺ = 1,2, … , ῃ *be the family of* **Theorem 11.** Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{-\frac{2\pi i}{3}(\mathbf{z}^{\prime})}, \Xi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{-\frac{2\pi i}{3}(\mathbf{z}^{\prime})}\right), \, \mathbf{z} = 1, 2, \ldots,$ $\mathbf{C} = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}$ **Theorem 11.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right)$, $\mathbf{Z} = 1, 2, ..., 1$ be the $\frac{1}{2}$ $\Xi_{\Omega_{\textbf{\large{)}}}}(\varkappa)e\quad \xi}$ erator is narticularized $\ddot{}$ $(2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}})))$ H A onerator is narticularized $\int_0^{\frac{\pi}{3}}$, $\frac{3}{4}$ = 1,2,...,t $\frac{1}{2}$ $\ell = 2\pi i (\alpha_0/\alpha)$ net ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* Γ heorem $\overline{11}$. Le $(2\pi i(\alpha_{\Omega}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega}(\boldsymbol{\chi})))$ $\frac{1}{2}$ and $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ and $\frac{1$ ῃ $\sum_{i=1}^n$ $(2\pi i(\alpha_0)(\boldsymbol{\gamma}))$ $2\pi i(\beta_0(\boldsymbol{\gamma}))$ α is the set of $\frac{1}{2}$ (10) _g (0) (0) ῃ $\mathcal{L}(\mathcal{A})$ $(2\pi i(\alpha_{\Omega_{\boldsymbol{\sigma}}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{\boldsymbol{\sigma}}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{\boldsymbol{\sigma}}}(\boldsymbol{\chi}))$ $\mu_2 = \left(\frac{11}{2} (R) \epsilon \right)$ ا با
ا $\overline{\mathcal{L}}_{12}^{\Omega}$ $(2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}})))$ $2\pi i(\beta_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}})))$ $3.2,$ $\frac{1}{2}$, $\frac{1$ $g^{(n)c}$, $\Xi_{2g}^{(n)c}$ ῃ $\mathcal{L}(\mathcal{A})$ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* ϵ , $E_{\Omega_{\cal Z}}(x)e$ and ῃ **Theorem 11.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}, \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}\right),$ **Theorem 11.** Let $\Omega_{\mathcal{Z}} = \left(\Pi_{\Omega_{\mathcal{Z}}}(\varkappa)e^{-\frac{\varkappa_{\mathcal{Z}}}{2}}\right), \mathbb{E}_{\Omega_{\mathcal{Z}}}(\varkappa)e^{-\frac{\varkappa_{\mathcal{Z}}}{2}}\right), \mathbb{Z} =$ **Theorem 11.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \, \mathbf{Z} = 1, 2, \ldots, \mathbf{Z}$ family of CPyFVs. Then, the CPyFAAHA operator is particularized as: $\frac{1}{2}$ and $\frac{1}{2}$ $\frac{1}{$)) **orem 11.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\mathbf{Z}}{2}(\varkappa)}\right), \mathbf{Z} = 1, 2, ..., \mathbf{I}$ be the $\alpha_t \Omega_{\bf \bar{Z}} = \left(\Pi_{\Omega_{\bf Z}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\bf \bar{Z}}(\varkappa))}}{2\Omega_{\bf Z}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\bf \bar{Z}}(\varkappa))}}{2\Omega_{\bf Z}}}, \, \Xi = 1, 2, \ldots, \text{where}$ *weight vector is* a superior *s* and *s* and *s* and *i* contribution of *a* superior *such the CPuFAAHA* onerator is narticularized as: $\langle 2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))\rangle$ = $\langle 2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))\rangle$ $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ *and* $\frac{1}{2}$ *represents the membership value (MV)* of a mplitude $\frac{1}{2}$ of a mpl $\left(\prod_{\Omega_{\mathbf{z}}(\mathcal{H})e}2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\mathcal{H}))\right)$, $\mathcal{H}=\{1,2,\ldots,\mathfrak{N}\}$ be the family of CPyFVs. Then, the CPyFAAHA operator is particularized as: ∂ , $\mathfrak{z} = 1, 2, \ldots, \mathfrak{h}$ be the $($ $2\pi i(\alpha_{\Omega_{\bm{\tau}}}(\bm{\chi}))$ $2\pi i(\beta_{\Omega_{\bm{\tau}}}(\bm{\chi}))$ γ $i\Omega_{\mathbf{Z}} = \left(H_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e \right)$ $2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{H}})))$ 7 1.2 m $\lim_{\epsilon \to 0} 11$ Let $O_{\epsilon} = \left(\prod_{\Omega \in \mathcal{N}} \left(\chi\right) e^{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\mathcal{H}))} \right)$ $\mathbb{E}_{\Omega} = \left(\chi\right) e^{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))}$ $\lim_{\epsilon \to 0} 11$ Let $O_{\epsilon} = \left(\prod_{\Omega \in \mathcal{N}} \left(\chi\right) e^{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))} \right)$ $\mathbb{E}_{\Omega} = 1, 2$ $\frac{f}{f}$ of $\frac{f}{f}$ is particular is particular is particular is particular is particular is particular in the set of $\frac{f}{f}$ is particular in the set of $\frac{f}{f}$ is particular in the set of $\frac{f}{f}$ is particular **1** Let $\Omega = \left(\Pi_{\alpha} \left(\mu\right) e^{\frac{2\pi i (\alpha \Omega_{\alpha}(\mathcal{X}) (x))}{2}}\right)$ *f* , we have the *fullarized* as: $\overline{\Pi}_{\Omega_{\sigma}}(\varkappa)e^{-\frac{2\pi i}{3}(\varkappa_{f})/2}$, $E_{\Omega_{\sigma}}(\varkappa)e^{-\frac{2\pi i}{3}(\varkappa_{f})/2}$, 3 PyFVs. Then, the CPyFAAHA operator is particularized as: \hat{H} $\Omega = \left(\Pi_{\text{C}(\lambda)}\right)^{2\pi i (\alpha_{\Omega}S(\mathcal{U}))}$ and $\Omega_{\text{C}(\lambda)}^{2\pi i (\beta_{\Omega}S(\mathcal{U}))}$ and $\Omega_{\text{C}(\lambda)}^{2\pi i (\beta_{\Omega}S(\mathcal{U}))}$ and $\Omega_{\text{C}(\lambda)}^{2\pi i (\beta_{\Omega}S(\mathcal{U}))}$ \int_{0}^{1} \int_{0}^{1} (CPyFAA) and CPyFAA α and CPyFAAOWG) operators, CPyFAAOWG, CPYFAA $\eta = \left(\prod_{\alpha} \left(\mu\right)e^{\frac{2\pi i}{\alpha}(\alpha)}\right)^2$ $\sum_{\alpha=1}^{\infty}$ operators with some basic properties. $)e$ \overline{a} πi $\Omega_{\mathbf{Z}}(\boldsymbol{\kappa})$), $\mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ be **Theorem 11.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{2\pi i}{3}(\kappa t)}\right), \Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{2\pi i}{3}(\kappa t)}\right), \mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ be the $2\pi i(\beta_{\infty}(\mu))$ $c(x)e^{-x^2+2x^2}$, $z=1,2,...,n$ be the **Example of CPyFIA** Theoretic domestic on Academy $\int_{\mathcal{A}} e^{-(1/2)} e^{-(1/2)}$ **Theorem 11.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{2\pi i}{3}t}$, $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{2\pi i}{3}t}$, $\mathbf{Z} = 1, 2, ..., 1$ be the $PyFVs.$ Then, the $CPyFAAHA$ operator is particularized as: $\mathcal{S}(\mathcal{S})$ Furthermore, we also established the CPHA $\mathcal{S}(\mathcal{S})$ I_{θ} f O_{-} $=$ $\left(\prod_{\alpha} \left(\mu\right) e^{-\frac{2\pi i}{3}(H)}\right)^2$ $\prod_{\alpha} \left(\mu\right) e^{-\frac{2\pi i}{3}(H)}\left(\frac{R}{M}\right)^2$ $\left(\frac{2\pi i}{3}(H)\right)^2$ $\left(\frac{2\pi i}{3}(H)\right)^2$ $\frac{1}{2}$ To find the feasibility and reliability of our invented methodologies, we explore $\frac{1}{2}$ $\mathbf{S}(\mathcal{X}) = \mathbf{S}(\mathcal{X})$ Furthermore, we also established the definition based on the definition on the definition on the definition of $\mathbf{S}(\mathcal{X})$ $f_{\text{eq}} = \left(\frac{\pi}{\sqrt{N}}\left(\frac{\mu}{\mu}\right)^2\right)^{2\pi\left(\mu\right)/2}$ $\frac{1}{\sqrt{2}}$ To find the feasibility of our invented methodologies, we explore $\frac{1}{\sqrt{2}}$ $\frac{2\pi i(\alpha_{\Omega}(\boldsymbol{\chi}))}{\sigma}$ $\frac{2\pi i(\beta_{\Omega}(\boldsymbol{\chi}))}{\sigma}$ $\frac{\sigma}{\sigma}$ = 1.2 π b) is the $\begin{cases} \epsilon, & \epsilon, \exists_{\Omega_{\mathcal{Z}}}(\kappa)e \end{cases}$, $\epsilon = 1,2,...,$ α be the \mathcal{L} $\mathcal{L}^{(1)}$), $\mathfrak{z} = 1, 2, \ldots, \mathfrak{N}$ be the \mathbf{r} \mathbf{r} \mathbf{r} \mathbf{r} $\mathbb{E}_{\Omega}(\kappa) = \frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\kappa}))}{2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\kappa}))}.$ ϵ , $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e$ ϵ), 3 $\ddot{}$ $\mathcal{L} = \mathbf{R}^{-1} \left(\begin{array}{cc} 1 & \mu_1 \\ \mu_2 & \mu_2 \end{array} \right)$ **(i)** rem 11. Let $\Omega_3 = \prod_{\Omega_7} (\chi)e$ and $\sum_{\Omega_7} (\chi)e$ and χ^2 and χ^3 are Ω_3 . We the $C = 2\pi i (x - \mu x)$ are $2\pi i (8 - \mu x)$ **11.** Let $\Omega_{\mathbf{Z}} = \begin{pmatrix} H_{\Omega_{\mathbf{Z}}}(\mathbf{x})e & e \end{pmatrix}$, $\Xi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e$ $\Xi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e$ $\Xi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e$ $\Xi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e$ $\Xi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e$ $\Xi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e$ $\Xi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e$ $\Xi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e$ Vs. Then, the CPuFAAHA operator is narticularized as: **Theory are** C_1 **get a half operator** to particular ized as. $\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))}{2}$ ⎜ $^{\prime}$ $\frac{1}{2}$ \hat{h}_{P} \overline{a} \overline{a} ົດ of Cryrvs. Then, the CryrAAITA openhor is purheuminzed as. $)e^{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\bigg), \, \mathbf{Z}=\mathbf{1},\mathbf{Z}$ $\ddot{}$ \cdot , of CPyFVs. Then, the CPyFAAHA operator is particularized as:

Proof. We can prove this theorem analogously. \Box **Proof.** We can prove this theorem analogously. \Box \mathbf{h} be any two CP_{yF} section of \mathbf{v} and the \mathbf{v} **Proof.** We can prove this theorem analogously. \Box **Proof.** We can prove this theorem analogously. \Box s soon we can prove and accordination goally. $m = 6$ MSs. We also study the generalization of union and inter-**From Section of CPS and Section Section** and acceptual some of the \mathbf{A} mental operational laws of CPS study the generalization of union and inter- \mathbf{S} , we can prove this theorem analogously. \Box mental operational laws of CPyFSs. We also study the generalization of union and inter-**Proof.** We can prove this theorem analogously. \square ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* **of.** We can prove this theorem analogously. \Box *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = \Box \Box $\frac{1}{\sqrt{2}}$ an prove this theorem analogously. □ **Proof.** We can prove this theorem analogously. \Box \mathbf{A} operations under the system of \mathbf{B} information. In Section 5, we developed several seve

6. Complex Pythagorean F σ 6. Complex Pythagorean Fuzzy Aczel–Alsina weighted Geometric
Aggregation Operators \ddot{o} Complete \ddot{o} 6. Complex Pythagorean Fuzzy Aczel–Alsina \overline{R} ,
6. Complex Pythagorean Fuzzy Aczel–Alsina Weighted ,01ean Fuzzy Aczei–Aisina vveigi
Itors س Pythagorean Fuzzy Aczel−Alsina Weighted Geome y Aczel–Alsina weighted Geome orean Fuzzy Aczel–Alsina Weighted Geometric an Fuzzy Aczel–Alsina Weighted Geometric
<u>s</u> sina vveignieu Geometric 6. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Geometric
Aggregation Operators \sim $\mathcal{L}_{\mathcal{L}}$ θ ൯ *and* ଶ = \bullet $\mathcal{L}(\mathbf{z}) = \mathbf{z} \cdot \mathbf{w}$ in Tomos of Aczel–Alsina TNM and TNM an o. Complex r yungotean ruzzy Aczel–Alsina weighted George also study the generalization of union and intersection of CPyFSs and established some operations of the Aczel–Alsina-like Aczel–Alsina 6. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Geometric
Aggregation Operators \overline{a} section of CP_S and established some operations of the Ac z ₂–Alsina-like Ac z ₂–Alsina-like Ac z \mathcal{L} *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = ⎜ *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = 1 Fuzzy Aczel−Alsına W ƺୀଵ *. Then, the PyF Aczel–Alsina weighted geometric operator is given as:* agorean Euzzy Aczel–Alsina Weigh **H** aan Euzzy Aczel–Alsina Weighted Coometr $\overline{\mathbf{a}}$ **\czel–Alsina Weighted Geometric** mplex Pythagorean Fuzzy Aczel–Alsina Weighted Geometric $\mathcal{L}(\mathcal{L}) = \mathcal{L}(\mathcal{L})$ *with with weight vector-throw weighted Geometric*
pation Operators P ^{*Definition* Fuzzy Aczel, Alcine Weighted Coometric} *r* yinagorean ruzzy Aczel–Aisina weighted Geometric
n Operators 6. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Geometric
Aggregation Operators ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers with twilly recent rational resigned* such that α i. Complex Pythagorean Fuzzy Aczel–Alsina Weightec
Aggregation Operators ean Fuzzy Aczel–Alsina Weighted Geometric

The space of the state of the state of Aczel–Alsina operations, we explored a state of the state of \overline{SD} and \overline{MS} and \over By utilizing the theory of Aczel–Alsina operations, we explored the concept of CPyFS
in the framework of CPyFAAWG operators with some reversed properties. To support ou In the Hallework of Cryptarty operators with some reversed properties. To support
proposed technique, we established a numerical example. *i* and the theory of Aczel–Alsina operations, we explored the contract of \overrightarrow{G} *i* theory of Aczel–Alsina operations, we explored the concept of Cl referred the concept of CPyFSs approximations, we explored the concept of CPyFSs of Aczel–Alsina operations, we explored the concept of CPyFSs Operators
ing the theory of Aczel–Alsina operations, we explored the concept of CPyFS. \mathbf{s} $\overline{11}$ By utilizing the theory of Aczel–Alsina operations, we explored the concept of CPyFSs By utilizing the theory of Aczel–Alsina operations, we
 i framework of CPyFAAWG operators with some rev *by* unizing the theory of Accel-Alsina operations, we explored in the framework of CP_VFA AWC operators with some reversed prop *union of the given CPyFVs are defined as follows: i*.∟
pr in the framework of CPyFAAWG operators with some reversed properties. \mathbf{r} \mathbf{e} . \overline{a} *u*_c *u*_{FV} *divident CP_P <i>CP*₄ *i*¹</sup> *d*₂ *i*¹ by utilizing the theory of Aczel–Alsir Aggregation Operators
By utilizing the theory of Aczel–Alsina operations, we explored the co by dimining the theory of richer running operate $\frac{1}{2}$ Aggregation Operators
By utilizing the theory of Aczel–Alsina operations, we explored the concept of CPyFSs *and the mandework of Crymany* proposed technique, we established a numerical example. \ddot{a} and \ddot{a} and \ddot{a} *a a and the accuracy of these them* operators, we explored the explored the conserversed properties. and the *grimm* operators what some reversed properties. To support
que, we established a numerical example. sed technique, we established a numerical example. \mathbf{f} meany of recent radial operators, we express the entropy of or yet $\mathcal{A}(\mathcal{A})$ \mathcal{L} \mathbf{R} ample. ored \ddot{o} el–Alsina operations, we explored the concept of CPyFSs npl CPyFAAWG operators with some reversed properties. To support our by utilizing the theory of Aczel–Aisina operations, we explored the concept of Cryr-Ss
in the framework of CPyFAAWG operators with some reversed properties. To support our
proposed technique, we established a numerical exa By utilizing the theory of Aczel–Alsina operations, we explored the concept of CPyFSs
in the framework of CPyFA AWG operators with some reversed properties. To support our For the sample.
 $2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))$ $\mathbb{E}_{\Omega_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu})}$ $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))$ $\mathbb{E}_{\Omega_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu})}$ $\mathbb{E}_{\Omega_{\Omega_{\Omega}}}(\boldsymbol{\mu})$ $\mathbb{E}_{\Omega_{\Omega_{\Omega}}}(\boldsymbol{\mu})$ $\mathbb{E}_{\Omega_{\Omega}}(\boldsymbol{\mu})$ $\mathbb{E}_{\Omega_{\Omega}}(\boldsymbol{\mu})$ $\mathbb{E}_{\$ proposed technique, we established a numerical example. IFS and PyFs. R_{V} utilizing the theory of Δ czal $-\Delta$ lsing operations, we explored the concent of C_{V} _{ESs} $\frac{3}{2}$. Existing the uncorrected Aggregation of $\frac{3}{2}$. **Existing** \mathbf{I} and \mathbf{I} Aggregation Operators
By utilizing the theory of Aczel–Alsina operations, we explored the concept of CPvFSs proposed technique, we established a numerical example. In this part, we recall the existing concepts of \mathcal{A}

 \mathcal{A} operations under the system of \mathcal{A}

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 $\mathcal{L} = \mathcal{L} \times \mathcal{L}$

Definition 14 Consider $O = (\prod_{\alpha} (\gamma) e^{2\pi i (\alpha \gamma)} R_{\alpha} (\gamma)$ $\frac{1}{2}$ $(1.12)^{2}$ **iii.on 14** Consider $O = (\prod_{\Omega} (\mu) e^{\frac{2\pi i (\alpha_{\Omega}(\mu))}{2}} \sum_{\Gamma_{\Omega}} (\mu) e^{\frac{2\pi i (\beta_{\Omega}(\mu))}{2}})^{2\pi i}$ $x^2 + 4x + 3$ *m* and $x^2 + 2x + 2$ *m* $x^2 + 2x + 3$ *m* $x^2 + 2x + 2$ *m* $x^2 + 2x + 3$ *m* $x^2 + 2x + 2$ *m* $x^2 + 2x + 3$ *m* $x^2 + 2x + 2$ **Definition 14.** Consider $\Omega_{\mathbf{Z}}$ to be the family of CPyFVs and weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3)$ *where TNM and TCNM are denoted by* Ŧ *and* Ṥ, *respectively.* Γ **Definition 14.** Consider $\Omega_{\overline{3}} = (\Pi_{\Omega_{\overline{3}}})_{\overline{3}}$ *i*. $I = \{f, f\}$ on 14. Consider $\Omega_{\overline{g}} = (\Pi_{\Omega_{\overline{g}}}(\varkappa)e^{2\pi i(\alpha \Omega_{\overline{g}}(\varkappa))}, \Xi_{\Omega_{\overline{g}}}(\varkappa))$ *where TNM and TCNM are denoted by* Ŧ *and* Ṥ, *respectively.* $\mathbf{f} = \mathbf{f} \mathbf{f} \mathbf{f} + \mathbf$ *Demnition 14.* Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\kappa))}, \Xi_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i(\kappa_{\Omega_{\mathbf{z}}}(\kappa))}$ *where TNM and TCNM are denoted by* Ŧ *and* Ṥ, *respectively.* $\mathbf{f} = \mathbf{f} \mathbf{f} \mathbf{f} + \mathbf$ *ii*iiii. Consuler *i* $\Omega_{\mathbf{g}} = (\Pi_{\Omega_{\mathbf{g}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{g}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{g}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{g}}}(\varkappa))},$ \ddot{a}

weight vector $\mathfrak{D}_n = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_2, \ldots, \mathfrak{D}_n)$ *where TNM and TCNM are denoted by* Ŧ *and* Ṥ, *respectively.* $\mathbf{f} = \mathbf{f} \cdot \mathbf{$ μ_{on} ₂ μ_{1} μ_{2} $er \Omega_{\mathbf{g}} = (\Pi_{\Omega_{\mathbf{g}}}(\varkappa)e^{\frac{2\pi i(\alpha_{\Omega_{\mathbf{g}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{g}}}(\varkappa)e^{\frac{2\pi i(\beta_{\Omega_{\mathbf{g}}}(\varkappa))}{2}}), \mathbf{g} = 1, 2, \ldots$ $(\mathfrak{D}_{\mathbf{a}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\mathfrak{O}_{\mathbf{a}}(3 =$ to be the family of CPyFVs and weight vector $\mathfrak{D}_g = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_g (3 = 1)$ $\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))$, $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))$, $\mathbf{Z} = 1, 2$ $(\mathbb{R}^3)^n$, $\mathbb{E}_{\Omega_{\mathbb{Z}}}(\mu)e^{-\mathbb{E}(\mathbb{R}^3)}$, $\mathbb{Z} = 1, 2, ..., 0$ $2\pi i(\alpha_0(\boldsymbol{\gamma}))$ 2 **Definition 14.** Con $\frac{1}{2}$, and $\frac{1}{2}$, and $\frac{1}{2}$, and $\frac{1}{2}$ to be the family of CPyFVs and weight vector $\mathfrak{D}_{\mathbf{\mathbf{Z}}}=(\mathfrak{A})$ $2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\chi}))$ *union of the given CPyFVs are defined as follows:* $2\pi i(\alpha_{\Omega_{\infty}}(\boldsymbol{\mathcal{H}}))$ 2π \mathfrak{c}_1 $2\pi i(\alpha_0 \quad (\gamma))$ $2\pi i(\beta_0 \quad (\gamma))$ ي
up the family of CDuEVs and woodst weeks \mathbf{D}_s **G** \mathbf{F} is given as \mathbf{D}_s and \mathbf{D}_s are defined as \mathbf{D}_s \sum CHINNON 14. Constant $\frac{1}{2}$ $\frac{1}{3}$ = $\frac{1}{11}$ $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ of CPyFVs and weight vector $\mathfrak{D}_{\mathbf{\mathbf{Z}}}=(\mathfrak{D}_{1})$ σ σ σ **tion 14.** Consider $\Omega_{\mathbf{Z}} = (H_{\Omega_{\mathbf{Z}}}(\varkappa)e$ the family of CPyFVs and weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of Ω_z (3 = 1, $2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\chi}))$ n **inition 14.** Consider $\Omega_{\mathbf{Z}} = (H_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{-\frac{1}{2}t}$ $\tilde{\mathbf{c}}$ $2\pi i(\alpha_{\Omega_{\bullet}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{\bullet}}(\boldsymbol{\chi}))$ $\frac{1}{2}$ *where* ˘ () ∈ [−1, 1] *and* ˘ () ∈ [0, 1]*.* T_{cutoff} of T_{cutoff} (), $2\pi i(\alpha_{\Omega}(\boldsymbol{\chi}))$ \Box () $iPuFVs$ and weight vector $\mathfrak{D}_n = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T a$ tor $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)$ ¹ of Ω σ τ $\omega = (H_{\Omega_{\mathbf{Z}}}(\kappa)e^{\epsilon}$ ϵ , $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{\epsilon}$ **Definition** $\begin{bmatrix} 3 & 7 & 7 \\ 7 & 7 & 8 \end{bmatrix}$, **b**, **b**, **b**, **b**, **b**, **b**, **c** α $\mathcal{O}(\mathcal{A} \otimes \mathcal{A})$ any two $\mathcal{A}(\mathcal{A})$ and the extension of intersection and the $\mathcal{A}(\mathcal{A})$ $Q = (\Pi_{\alpha}(\nu)e^{2\pi i(\mu\Omega)}\bar{g}^{(\nu\mu)}E_{\alpha}(\nu)e^{2\pi i(\rho\Omega)}\bar{g}^{(\nu)}$ *i* and $\lim_{n \to \infty} \frac{d^n z^n}{dz^n}$ ($\lim_{n \to \infty} \frac{d^n z^n}{dz^n}$ ($\lim_{n \to \infty} \frac{d^n z^n}{dz^n}$ of $\Omega_{\mathbf{Z}}(\mathbf{Z}) =$ $\begin{array}{cc} \mathcal{T} & \mathcal{T} \end{array}$ e family of CPyFVs and weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_{\overline{z}}(z = 1, 2, 3, \ldots)$ $\mathcal{L}(\mathcal{U}) = \mathcal{U}(\mathcal{U})$ utilizing the notions of $\mathcal{U}(\mathcal{U})$ $\lim_{\epsilon \to 0} 14$. Consider $\Omega_{\epsilon} = (\Pi_{\epsilon})^{(k)}e^{2\pi i m_1} \mathbb{E}_{\epsilon}$ (y) $\epsilon^{(k)}e^{2\pi i (m_1/2)}$, $\mathbb{E}_{\epsilon} = 1.2$ [1] section of $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ $B_{\rm eff}$ the notions of $A_{\rm eff}$ the notions of $A_{\rm eff}$ the notions of $A_{\rm eff}$ and $A_{\rm eff}$ and $A_{\rm eff}$ **14** Consider $O = (\Pi_0/\mu)$ $\left(\mu \right)_2$ $\left(\mu \right)_3$ $\left(\mu \right)_2$ $\left(\mu \right)_2$ $\left(\mu \right)_2$ $\left(\mu \right)_3$ $\left(\mu \right)_1$ $\left(\mu \right)_2$ $\left(\mu \right)_2$ $\frac{3}{2}$ s and $\frac{3}{2}$ $2\pi i(\kappa_0(\boldsymbol{\nu}))$ $2\pi i(\beta_0(\boldsymbol{\nu}))$ $m_{\mathbf{z}}=(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{\mathbf{i}\mathbf{i}\cdot\mathbf{z}}$, $E_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{\mathbf{i}\mathbf{i}\cdot\mathbf{z}}$, $(\mathbf{i}\cdot\mathbf{i})$, $\mathbf{z}=\mathbf{1},\mathbf{2},\ldots,\mathbf{N}$ $\begin{pmatrix} 1 & 0 & \cdots & 0 \\ 0 & 0 & 0 & \cdots & 0 \end{pmatrix}$ of the Aczel–Also $\begin{pmatrix} 0 & \cdots & 0 \\ 0 & 0 & \cdots & 0 \end{pmatrix}$ the family of CPyFVs and weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_{\mathfrak{Z}}(\mathfrak{Z}=1, 2, 3, \ldots$ $\mathfrak{k})$), $2\pi i (\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}}))$ $\pi i(\alpha_{\Omega_{\bm{\tau}}}(\bm{\chi}))$ $2\pi i(\beta_{\Omega_{\bm{\tau}}}(\bm{\chi}))$ $\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))}{\sum_{\mathbf{Z}}^{\mathbf{Z}}(1, \mathbf{Q})}$ $\lim_{\alpha \to \infty} 14 \text{ Covity } O \qquad (\prod_{k=1}^{\infty} \binom{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(x))}{\alpha_{\Omega_{\mathbf{Z}}}(x)})^{\alpha_{\Omega_{\mathbf{Z}}}(x)}$ $\textbf{mition 14.}$ Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{(\mathbf{x}-\mathbf{Z}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{(\mathbf{x}-\mathbf{Z}(\varkappa))}{2}}, \mathbf{Z} = 1, 2, \ldots, \mathbf{Z}$ $\tau \approx 2\tau \approx 3\tau \cdots$, $\approx n$ is σ $\approx 2\tau \approx 3$ is the set of alternative set of alterna $2\pi i (n_0, (12))$ $2\pi i (n_0, (12))$ *w* **14.** *Consider* $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{(\mathbf{Z} - \mathbf{Z}(\varkappa))^2}{2}}), \mathbf{Z} = 1, 2, ..., n$ $\begin{align} \mathbf{r} & \mathbf{r} & \mathbf{r} \\ \mathbf{r} & \mathbf{r} & \mathbf{r} \end{align}$ ⎜ $\mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}$ (3 = 1, 2, 3, ⎜ μ $\frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{H}}))}{3}$, $\mathbf{Z} = 1.2$. \ldots \mathfrak{y}_{i} **S** and weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of Ω_z $(2 = 1, 2, 3, \dots, n)$, \mathbf{L} $2\pi i(\alpha_0 \left(\mathcal{H}\right))$ $2\pi i(\beta_0 \left(\mathcal{H}\right))$ *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = $\lim_{\alpha \to 0} \frac{2\pi i (\alpha \Omega_{\mathbf{Z}}(\boldsymbol{\mu}))}{\mathbb{E}_{\Omega}(\boldsymbol{\mu})e^{-2\pi i (\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mu}))}}$ 3 = 1.2 $\mathcal{L}_{\mathbf{Z}}(\mathcal{H})$ $\mathcal{L}_{\mathbf{Z}}$ 1.2 (\varkappa) ² σ σ σ σ $(\mathfrak{D}_3,\ldots,\mathfrak{D}_n)^T$ of $\Omega_{\mathfrak{Z}}(\mathfrak{Z}=1,2,3,\ldots\mathfrak{N})$, Ω ⎜ $\sqrt{1}$ ϵ) $e^{\frac{1}{2}}$ $\overline{}$ $(\beta_O \; (\gamma))$ $(\mathcal{L}_{\Omega_{\mathbf{Z}}}^{(2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))}),\mathbf{\Sigma}_{\Omega_{\mathbf{Z}}}(\mathbf{\varkappa})e^{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))}),\mathbf{\Sigma}_{\Omega_{\mathbf{Z}}}(\mathbf{\varkappa})e^{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))},\mathbf{\Sigma}_{\Omega_{\mathbf{Z}}}(\mathbf{\varkappa})e^{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\mathbf{\varkappa}))},\mathbf{\Sigma}_{\Omega_{\mathbf{Z}}}(\mathbf{\varkappa})e^{2\pi$ to be the family of CPyFVs and weight vector $\mathfrak{D}_g = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of Ω_g $(3 = 1, 2, 3, \ldots$ $\mathfrak{N})$, $\frac{d}{dx}$ is a single paragraph. $\theta = (\Pi$ existing AOs with the results of our invented \mathcal{A} **Definition 14.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\kappa))}, \mathbf{Z} =$ **Definition 14.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}),$ $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ o be the family of CPyFVs and weight vector $\mathfrak{D}_g = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of Ω_g $(2 = 1, 2, 3, \dots, n)$, $\frac{a}{2}$ and $\frac{a}{2}$ *b* $\frac{a}{2}$ *a*₂ *a*₂ *f n*₂ *m*₂ *m*₂ *d n*₂ *m*₂ *m*₂)) **14.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\frac{(\mathbf{z}^T - \mathbf{z}^T)^2}{2}}), \mathbb{E}_{\Omega_{\mathbf{z}}(\varkappa)e^{-\frac{(\mathbf{z}^T - \mathbf{z}^T)^2}{2}}}, \mathbb{Z} = 1, 2, ..., 1$ $er \Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}), \mathbf{Z} = 1, 2, ..., \mathbf{N}$ and weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_z(\mathfrak{F} = 1, 2, 3, \dots, \mathfrak{N})$, $\frac{1}{2}$ and $\frac{1}{2}$ represents the membership value (MV) of a membership value of a m $(\Pi_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e^{2\pi i(\alpha_{\Omega_{\boldsymbol{\zeta}}}(\boldsymbol{\mu}))}, \Xi_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e^{2\pi i(\beta_{\Omega_{\boldsymbol{\zeta}}}(\boldsymbol{\mu}))}, 3 = 1, 2, \ldots, \mathbb{N}$ α *becaur* ω $\mathbf{z} = (\omega_1, \omega_2, \omega_3, ..., \omega_n)$ *v*_{α} \mathbf{z} ₂ (*c* - 1, 2, 0,),. $\mathcal{L}_{\mathcal{A}}$ to be the family of CPyFVs and weight vector $\mathfrak{D}_\mathbf{Z}=(\mathfrak{D}_1,\mathfrak{D}_2,\,\mathfrak{D}_3,\ldots, \,\mathfrak{D}_n)^T$ of $\Omega_\mathbf{Z}(\mathbf{Z}=1,2,3,\ldots$ $\mathbf{N})$,. Γ s \mathcal{L} s: *to be the family of CPyFVs and weight vector* $\mathfrak{D}_{{\bf Z}}=(\mathfrak{D}_1,\mathfrak{D}_2,\,\mathfrak{D}_3,\dots,\,\mathfrak{D}_n)$ $\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))}{\sum_{\mathbf{Z}} (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))} \sum_{\mathbf{Z}} \alpha_{\mathbf{Z}}(\boldsymbol{\chi}) \sum_{\mathbf{Z}} \alpha_{\mathbf{Z}}(\mathbf{Z})$ *weight vector* $\mathfrak{D}_\mathbf{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_\mathbf{Z}(\mathbf{Z} = 1, 2, 3)$. *where* $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ *of* $\Omega_{\mathbf{Z}}(\mathfrak{Z} = 1, 2, 3, \dots)$ *
* $\mathfrak{D}_{\mathbf{Z}}$), $z = 1, 2, \ldots,$ in

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such that $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., \mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the $particularized$ as: 1,2, … , ∄ and ∑ <mark>and</mark> ∑ <mark>and</mark> ∑ ∑ <mark>1</mark> \overline{u} = \overline{u} = such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,\mathfrak{N}$ and $\sum_{z=1}^n \mathfrak{D}_z = 1$. Then, the CPyFAAWG operator is *weight weight vectors* μ and μ is the such that *of* μ μ is that μ is the *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $\frac{1}{2}$ is that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{3=1}^{\mathfrak{U}} \mathfrak{D}_3 = 1$. Then, the CPyFAAWG operator is $\frac{a}{s}$ = $\frac{b}{s}$, $\frac{b}{s}$, $\frac{c}{s}$, $\frac{b}{s}$ = $\frac{b}{s}$, $\frac{c}{s}$ = $\frac{c}{s}$ particularized as: such that $\mathfrak{D}_7 \in [0,1]$, $\mathfrak{Z} = 1, 2, \ldots, \mathfrak{N}$ and $\sum_{r=1}^{\mathfrak{N}} \mathfrak{D}_7 = 1$. Then, the CPyFAAWG operator is μ *u i L L i L i L i L i s s i s s i s s i s s i s s i s s i s j s i s j s j s j s j s j s j s j s j s j s j s* a na $\sum_{\mathbf{Z}=\mathbf{1}}\mathfrak{D}_{\mathbf{Z}}=1$. Then, the :
The Generator is $=1$ $\frac{1}{2}$ $\frac{1}{2}$ – 1. Then, the Cryfring \overline{a} ଶగ ⎜ ⎜ ⎜ ଵିషቆ∑ ƺ ^ῃ *is defined as: Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 $as:$ ῃ generalized $\Omega \subset [0,1]$ $\mathbb{Z} = \{1,2,\ldots,\mathbb{Z}\}$ and $\mathbb{Z}^{\left[1\right]}$ and $\mathbb{Z} = \{1,2,\ldots,\mathbb{Z}\}$ and \mathbb{Z} operational \mathbb{Z} \approx $\frac{1}{2}$ examples. guch that $\Omega \subset [0, 1]$, $\mathcal{R} = 1, 2$, \mathcal{R} and $\sum_{n=1}^{n} \mathcal{R} = 1$. Then, the CPuEA AWC opera $\frac{1}{2}$ and illustrative examples. μ and μ and μ . oped states C_0 (and \overline{X} and \overline{Y} and \over CRUT MAIN $\approx \frac{1}{2}$ (b) $\frac{1}{2}$ of the following forms: $\frac{1}{2}$ $\frac{3}{2}$ $\frac{1}{2}$ \mathcal{L} we present some new AOS and fundamental operational laws of \mathcal{L} ough that $\Omega \subset [0, 1]$ $\mathcal{I} = 1, 2$ \mathcal{I} and \mathcal{I}^{Π} $\Omega = 1$ Then the CPuEA AWC operation such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1, 2, \ldots$, \mathfrak{U} and $\sum_{\mathfrak{Z}=1}^{\infty} \mathfrak{D}_3 = 1$. Then, the CP (1) We presented some new AOs and fundamental operational laws of CPyFSs. We also \mathcal{L} Vζ \in [0, 1] $\mathcal{I} = 1.2$ **legal 11**, $\mathcal{I} = 1$ \mathcal{I} and $\sum_{n=1}^{n}$ $\mathcal{I} = 1$ \mathcal{I} Then the CPuFAAWG operator is

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CPyFAAWG\left(\Omega_{1}, \Omega_{2}, \ldots, \Omega_{\eta}\right) = \frac{\eta}{\xi_{-1}}\left(\Omega_{\xi}^{\mathfrak{D}_{\xi}}\right) = \Omega_{1}^{\mathfrak{D}_{1}} \otimes \Omega_{2}^{\mathfrak{D}_{2}} \otimes \ldots \otimes \Omega_{\eta}^{\mathfrak{D}_{\eta}} \qquad (9)
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to be the family of CPyFVs and weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ $w = \frac{1}{2} \left[\frac{1}{2} \right] \left[\frac{1}{2} \right] = \frac{1}{2} \left[\frac{1}{2$ such that $\mathfrak{D}_\mathfrak{Z} \in [0,1]$, $\mathfrak{Z} = 1, 2, \ldots$, is and $\sum_{\mathfrak{Z}=1}^{\infty} \mathfrak{D}_\mathfrak{Z} = 1$. Then, the as: *FAAWG operator is a* ை
இதற்க $\frac{1}{2}$ is the finite weight vector $\frac{1}{2}$ $\frac{1}{2}$, $\frac{1}{2}$ $1,2,3,4,3, ...$ EAAWG operator is also a CPyFV, and we have: $(2\pi i(\alpha_{Q_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{Q_{-}}(\boldsymbol{\chi})))$ to be the family of CPyFVs and weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_{\overline{z}}(z = 1, 2, 3, \dots, n)$, \mathbb{R}^n $\mathbb{R}^n \times \mathbb{R}^n$ $\mathbb{R}^n \times \mathbb{R}^n$ of the constant that \mathbb{R}^n \mathbb such that $\mathcal{D}_3 \in [0,1]$, $s = 1, 2, ...,$ and $\mathcal{D}_3 = \frac{1}{3}$, $\mathcal{D}_3 = 1$. Then, the associated value of the C. $w_{\text{ref}}(t) = \begin{bmatrix} 0 & 1 & 7 & 1 & 9 \end{bmatrix}$ of $\begin{bmatrix} 0 & 1 & 7 & 1 & 9 \end{bmatrix}$ in $\begin{bmatrix} 0 & 1 & 7 & 1 & 9 \end{bmatrix}$ in $\begin{bmatrix} 0 & 1 & 7 & 1 & 9 \end{bmatrix}$ t that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{z} = 1, 2, \ldots$, \mathfrak{u} and $\sum_{z=1} \mathfrak{D}_z = 1$. Then, the associated value of the CPy- $\frac{1}{2}$ $\frac{1}{2}$ (n) ῃ ϵ such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z}_5 = 1,2,\ldots, \mathfrak{N}$ and $\sum_{3}^{\mathfrak{N}} \mathfrak{D}_3 = 1$. Then, the associated va ler $\Omega_{\mathbf{z}} = \left(\begin{matrix} \n\alpha & \frac{2\pi i (\alpha_{\Omega_{\mathbf{z}}}(x))}{2}, \mathbb{E}_{\alpha} \n\end{matrix}\right)$ $\int f(x) dx$ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\mathfrak{slder}\ \Omega_{\mathfrak{Z}}=\left(\Pi_{\Omega_{\mathfrak{Z}}}(\varkappa)e\right)$ \mathcal{L} **Theorem 12.** *Consider* $\Omega_{\bf \bar{g}} = \left(\Pi_{\Omega_{\bf \bar{g}}}(\boldsymbol{\pi})e^{\frac{2\pi i (\alpha_{\Omega}}{\bf \bar{g}}(\boldsymbol{\pi}))}, \Xi_{\Omega_{\bf \bar{g}}}(\boldsymbol{\pi})e^{\frac{2\pi i (\beta_{\Omega}}{\bf \bar{g}}(\boldsymbol{\pi}))} \right)$ $\frac{100 \text{ }}{5}$ $\frac{100}{3}$ $\frac{100}{3}$ $\frac{100 \text{ }}{3}$ $\frac{100 \text{ }}{3}$ \mathfrak{D}_n ^T of Ω ₃ (3 = 1,2, to be the family of CPyFVs and weight vector $\mathfrak{D}_g = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $\Omega_g(\mathfrak{F} = 1, 2, 3, ... \mathfrak{N})$, **Definition 7** ([58])**.** *Let* ƺ = ൬ఆƺ **Theorem 12.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\mathbf{Z} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$ **Theorem 12.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \ z = 1, 2, ..., \mathbb{N}$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\sigma \in [0,1]$, $\delta = 1, 2, ..., N$ and $\sum_{z=1}^{\infty} \mathcal{D}_z = 1$. Then, the as to be the family of CPyFVs and weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_z (z = 1, 2, 3, \dots, n)$, ῃ $\mathfrak{D}_\mathbf{Z}\in [0,1]$, $\mathfrak{Z}=1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z}=1}^{\mathfrak{N}}\mathfrak{D}_\mathbf{Z}=1$. Then, the associated value of the CPy*where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*)) **12.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi}{3}}\right), \Xi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi}{3}}\right), \mathbf{z} = 1, 2, ..., 1$ $\alpha \wedge \Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \; \mathbf{Z} = 1, 2, \ldots, \mathbf{Z}$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\frac{0}{1}$ and $\frac{0}{2}$ $\frac{0}{3}$ = 1. Then, the associated value of the C
d we have: s and weight vector $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of Ω_z ($\overline{z} = 1, 2, 3, \dots$ 1), ῃ $\mathfrak{D}_{\mathbf{Z}} = 1$. Then, the associated value of the CPy- $\frac{1}{2}$ and $\frac{1}{2}$ *a*nd $\frac{1}{2}$ *a*nd $\frac{1}{2}$ *r r*epresents the membership value of and $\left(\Pi_{\Omega_{\boldsymbol{\pi}}}(\varkappa)e^{-2\pi i(\alpha_{\Omega_{\boldsymbol{\pi}}}}(\varkappa))},\Xi_{\Omega_{\boldsymbol{\pi}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\boldsymbol{\pi}}}}(\varkappa))}\right),\; \mathfrak{z}=1,2,\ldots,\mathfrak{N},$ to be the family of CPyFVs and weight vector $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}(3 = 1, 2, 3, \ldots, n)$, ῃ u cuiu \mathcal{L} of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina IF and PyFs. *such that* $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\alpha}^{\mathfrak{U}} \mathfrak{D}_z = 1$. Then, the associated value of the CPy- $=\left(H_{\infty}(\omega)g^{2\pi i(\alpha_0\cdot\mathbf{z}}(\mathbf{x}))\right)g_{\infty}(\omega)g^{2\pi i(\beta_0\cdot\mathbf{z}}(\mathbf{x}))\right)\mathbf{z}=1.2$ $\frac{e-1}{e}$ *. There is given a verator is given as the IF Acceler-Alsing operator is given as:* $\mathcal{P} = \mathbb{R}^n$ and $\mathcal{P}^{\parallel} = \mathbb{R}^n = 1$. Then, the associated value of the CPu such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., 0$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{Y}} \mathfrak{D}_{\mathfrak{Z}} = 1$. Then, the associated value of the CPy-**Ineorem 12.** Consider $\Omega_{\mathbf{Z}} = \begin{pmatrix} II_{\Omega_{\mathbf{Z}}}(\varkappa) e & e \\ 0, \varkappa \end{pmatrix}$, $\Omega_{\mathbf{Z}}(\varkappa) e$ and $\Omega_{\mathbf{Z}}(\varkappa) e$ by $\varkappa = 1, 2, ..., n$ **Theorem 12.** Consider $\Omega_{\overline{g}} = \left(\Pi_{\Omega_{\overline{g}}}(\varkappa)e^{-\frac{\varkappa}{2}(\varkappa_1/\varkappa_2/\varkappa_3/\varkappa_4)}\right), \, \overline{g} = 1, 2, \ldots, 0$ **25 of 37**
 and $\sum_{3}^{1} \in [0,1], \quad 3 = 1, 2, ..., 1$ and $\sum_{3}^{11} \mathfrak{D}_3 = 1$. Then, the CPyFAAWG operator is

particularized as:
 $CPyFAAWG\left(\Omega_1, \Omega_2, ..., \Omega_{\Pi}\right) = \sum_{3}^{10} \left(\Omega_3^{3/3}\right) = \Omega_1^{3/1} \otimes \Omega_2^{3/2} \otimes, ..., \otimes \Omega_{\Pi}^{3/1}$ **3. Existing Aggregation Operators IN THE EXAMPLE EXISTENT CONSUMER LATE** $\begin{pmatrix} 1 & 1 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{pmatrix}$, $\begin{pmatrix} 2 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}$, $\begin{pmatrix} 2 & -1 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}$ such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{z=1}^n \mathfrak{D}_z = 1$. Then, the associated value of the CPy-**3. Existing Aggregation Operators In 12.** Consider $\Omega_{\mathbf{Z}} = \begin{pmatrix} H_{\Omega_{\mathbf{Z}}}(\varkappa)e & e \\ \end{pmatrix}$, $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ and $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ $\text{Theorem 12,} \text{Consider } \Omega = \left(\prod_{\alpha \in \mathcal{A}} \mathcal{Z}^{\pi i}(\alpha_{\alpha}(\alpha)) \right) \subseteq \mathcal{Z}^{\pi i}(\beta_{\alpha}(\alpha)) \setminus \mathcal{Z} = 1, 2, \dots, n.$ *is particularized as:* $FAAWG$ operator is also a CPyFV, and we have: L. *Then, the associated val*
——————————————————— lı ie vj such that $\mathfrak{D}_\mathbf{Z} \in [0,1]$, $\mathfrak{Z} = 1, 2, \ldots$, ^[] and $\sum_{\mathbf{Z}}$ \mathcal{A} To find the feasibility and reliability and reliability of our invented methodologies, we explore define **Summer specifier Specific C**_P $\left(\frac{\mu}{\mu_0}g^{(\lambda)}\right)^2$, E_Q (v)² $\frac{\mu_0}{\mu_0}g^{(\lambda)}$, and a specifies $\sum_{\mathbf{p}} \left(\begin{array}{c} \mathbf{p} \mathbf{p} \mathbf{p} \mathbf{p} \mathbf{p} \end{array} \right)$ $\begin{bmatrix} 1 & 1 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ of $\begin{bmatrix} 0 & 1 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ of $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ Such that $\omega_3 \in [0,1]$, $\varepsilon = 1,2,...$, which $\omega_3 = 1$, $\omega_3 = 1$, then, the associated value of \mathcal{A} To find the feasibility and reliability of our invented methodologies, we explore \mathcal{A} and \mathcal{A} and **Theorem 12.** Consider $Q_{\sigma} = \left(\prod_{Q} \left(\mu\right) e^{-\frac{2\pi i}{3} \left(\mu\right)} e^{-\frac{2\pi i}{3} \left(\mu\right)} e^{-\frac{2\pi i}{3} \left(\mu\right)}\right)$, $\bar{z} = 1.2$. ϵ (CP_yF_A) geodethed Ω \subset [0.1] \overline{Z} = 1.2] and \overline{Y} = 0.1.2] and $\sum_{i=1}^{\infty}$ $\sum_{j=1}^{\infty}$ by $\sum_{i=1}^{\infty}$ by $\sum_{i=1}^{\infty}$ and $\sum_{i=1}^{\infty}$ $\sum_{i=1}^{\infty}$ and \sum **Theorem 12.** Consider $\Omega_3 = \left(\Pi_{Q_{\alpha}}(\varkappa)e^{-\frac{1}{2}(\varkappa^2)}\right), \Xi_{Q_{\alpha}}(\varkappa)e^{-\frac{1}{2}(\varkappa^2)}\right), \zeta = 1,$ fundamental operational laws of \sim Ac \sim such that $\Omega \subset [0, 1]$, $3 - 1, 2$, \prod and $\sum_{i=1}^{n}$, $\Omega = 1$. Then, the associated value of $\begin{bmatrix} 2 & 1 & 1 \\ 2 & 1 & 2 \end{bmatrix}$ and $\begin{bmatrix} 2 & 1 & 2 \\ 2 & 2 & 2 \end{bmatrix}$ operators, $\begin{bmatrix} 2 & 2 & 1 \\ 2 & 2 & 2 \end{bmatrix}$ **Theorem 12.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\kappa))}, \Xi_{\Omega_{\mathbf{z}}}(\kappa)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\kappa))}\right), \mathbf{z} = 1, 2, \ldots$ fundamental operational laws of Aczel–Alsina TNM and TCNM. to be the family of CPyFVs and weight vector $\frak D_\mathbf Z=(\frak D_1, \frak D_2, \,\frak D_3, \dots, \, \frak D_n)^T$ of $\Omega_\mathbf Z(\mathbf Z=1,2,3,\dots)$ such that $\mathfrak{D}_p \in [0, 1]$ $\mathfrak{Z}_p = 1$ 2 and $\sum_{i=1}^{\mathfrak{U}}$ $\mathfrak{D}_p = 1$ Then the associated value of the i $\Gamma_{\rm A}$ AWC geometry is also a CPyFM and run $\frac{1}{8}$ $\frac{1}{2}$ if $\frac{1}{2}$ iveration $\frac{1}{2}$ is the basic idea of $\frac{1}{2}$ (2) \mathbb{R}^n by using the operational laws of \mathbb{R}^n and \mathbb{R}^n and TCNM, we developed a list of that $\omega_3 \in [0,1]$, $\varepsilon = 1,2,\ldots$, \lq and $\omega_{{\bf z}_{-1}} \omega_3 = 1$. Then, the associated value of the \cup (1) Theorem 12 Consider $Q_{\tau} = \left(\prod_{\alpha} \left(\frac{\nu}{R}\right)^{\beta} \right)^{2/(1-\alpha)} \mathbb{E}_{\alpha} \left(\frac{\nu}{R}\right)^{\beta}$ (v) $\left(\frac{\nu}{R}\right)^{\beta}$ (v) $\frac{1}{2}$ = 1.2 [1] $\frac{d}{dx}$ is the basic idea of $\frac{d}{dx}$ $\begin{bmatrix} 1 & d & d \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ $\begin{bmatrix} 2 & 4 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ $\begin{bmatrix} 1 & d & d \\ 0 & 1 & d \\ 0 & 0 & 0 \end{bmatrix}$ such that $\mathfrak{D}_\mathfrak{Z} \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., \mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{U}} \mathfrak{D}_\mathfrak{Z} = 1$. Then, the associated value of the CPy-**Theorem 12.** Consider $\Omega_{\mathbf{z}} = \prod_{\Omega_{\mathbf{z}}(\mathbf{z})e} \qquad \epsilon \qquad \text{E}_{\Omega_{\mathbf{z}}(\mathbf{z})e} \qquad \epsilon \qquad , \quad \epsilon = 1, 2, \ldots, 0$ oped some innovative concepts of \mathcal{L} and \mathcal{L} ω octaic jailing of ϵ r yr v salai weight occion $\omega_{\mathcal{Z}} = (\omega_1, \omega_2, \omega_3, \ldots, \omega_n)$ for ω laws and illustrative examples. to be the family of CDuEVs and angight vector $\Omega = (\Omega, \Omega, \Omega, \Omega, \frac{1}{\Omega})^T$ of Ω ($Z = 1, 2, 3, \ldots$) $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{2}{3}$, $\frac{1}{2}$ $\frac{3}{4}$, $\frac{1}{2}$ $\frac{3}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, $\frac{3}{$ $\sum_{i=1}^{n} a_i e^{-\frac{(n+1)}{2}}$, $\sum_{i=1}^{n} a_i e^{-\frac{(n+1)}{2}}$, $\sum_{i=1}^{n} a_i e^{-\frac{(n+1)(n+1)}{2}}$ $2\pi i(\alpha_{\Omega}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega}(\boldsymbol{\chi})))$ $\mathcal{L}^2\mathcal{L}^2$, $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\mathcal{L}^2\mathbf{Z}(\varkappa\cdot\mathbf{Z}^2)}$, $\mathcal{I}=\mathbf{1},\mathbf{2},\ldots,\mathbf{N}$ -100 $\frac{f}{f}$ and $\frac{f}{f}$ and $\frac{f}{f}$ and $\frac{f}{f}$ and $\frac{f}{f}$ of $\frac{f}{f}$ of $\frac{f}{f}$ $\mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_3(\mathfrak{F}) = \{ (3, 1, 2, 3, \ldots, 1), \}$ $\frac{1}{2}$ \ldots, \mathfrak{n}

$$
CPyFAAWG\left(\Omega_{1}, \Omega_{2}, ..., \Omega_{\Pi}\right) = \begin{pmatrix} -\left(\sum_{\alpha=1}^{k} \mathcal{D}_{\mathbf{Z}}\left(-\ln\left(n_{\Omega_{\mathbf{Z}}}\right)\right)^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}\\ \frac{2\pi i}{\left(e^{-\left(\sum_{\alpha=1}^{k} \mathcal{D}_{\mathbf{Z}}\left(-\ln\left(n_{\Omega_{\mathbf{Z}}}(x)\right)\right)^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}\right)}\\ \frac{e^{-\left(\sum_{\alpha=1}^{k} \mathcal{D}_{\mathbf{Z}}\left(-\ln\left(1-\left(\mathbb{E}_{\Omega_{\mathbf{Z}}}\right)^{2}\right)\right)^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}\\ \frac{1}{\sqrt{1-e^{-\left(\sum_{\alpha=1}^{k} \mathcal{D}_{\mathbf{Z}}\left(-\ln\left(1-\left(\mathbb{E}_{\Omega_{\mathbf{Z}}}\right)^{2}\right)\right)^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}}}\\ \frac{2\pi i}{e^{-\left(\sum_{\alpha=1}^{k} \mathcal{D}_{\mathbf{Z}}\left(-\ln\left(1-\left(\beta_{\Omega_{\mathbf{Z}}}(x)\right)\right)^{2}\right)\right)^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}\\ \frac{1}{e^{-\left(\sum_{\alpha=1}^{k} \mathcal{D}_{\mathbf{Z}}\left(-\ln\left(1-\left(\beta_{\Omega_{\mathbf{Z}}}(x)\right)\right)\right)^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}\right)}\end{pmatrix}
$$
\nTheorem 13. Corrating Ω , $\left(\Pi_{\mathbf{Z}}\left(\lambda\right)^{2\pi i \left(\mathcal{R}_{1}\mathbf{Z}\left(x\right)\right)}\right) = \left(\lambda\right)^{2\pi i \left(\mathcal{R}_{1}\mathbf{Z}\left(x\right)\right)}\right)$, the highest of Ω .

Theorem 13. Consider $\Omega_{\overline{g}} = \left(\Pi_{\Omega_{\overline{g}}}(\mu)e \right)$ and $\Omega_{\Omega_{\overline{g}}}(\mu)e$ all same CPyFVs, \forall , $\vec{z} = 1, 2, ..., 1$. Then, we have: *union of the given CPyFVs are defined as follows:* sum, production and power role. Then, we have $\mathcal{L}(\mathcal{N})$ $\int_{0}^{2\pi} \frac{1}{2} \int_{0}^{2\pi} \frac{1}{2$ **Definition** $\lim_{n \to \infty} \frac{1}{3} \left(\frac{n}{3} \frac{a}{n} \right)^n$, $\lim_{n \to \infty} \frac{1}{3} \left(\frac{n}{3} \right)^n$, $\lim_{n \to \infty} \frac{1}{3} \left(\frac{n}{3} \right)^n$ **heorem 13.** Consider $\Omega_{\mathbf{z}} = \left(H_{\Omega_{\infty}}(\varkappa) e^{-\frac{2\pi}{3}i\omega t} \right)$, to be the set mental operational laws of $\frac{d}{dt}$ study the generalization of union and inter- $\mathcal{L}(\mathcal{U}) = \mathcal{L}(\mathcal{U})$ utilizing the notions of $\mathcal{U}(\mathcal{U})$ **rem 13.** Consider $O_R = \left(\prod_{Q} \left(\mu\right) e^{-\frac{2\pi i}{\left(\mu\right)^2} \sum_{Q} \left(\mu\right) e^{-\frac{2\pi i}{\left(\mu\right)^2} \left(\mu\right)}\right)$ to be the set of section of $\frac{1}{2}$ and $\frac{1}{2}$ B_1B_2 Counidar $\Omega = \left(H - \left(\frac{2\pi\left(\alpha_0 - \frac{2\pi\left(\beta_0 - \alpha_0 + \alpha_0\right)}{2}\right)}{2\alpha_0 - \alpha_0}\right) + \epsilon_0\ln\theta_0\right)$ for the sot of measure of $\left(\begin{array}{c} -\frac{1}{2} \frac{1}{2} \cdots \end{array} \right)$, where $\left(\begin{array}{c} \frac{1}{2} \cdots \end{array} \right)$ **m 13.** Consider $\Omega_{\mathbf{z}} =$ $\overline{}$ sider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa}))}, \Xi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})\right)$ **4. Aczel–Alsina Operations Based on CPyFSs** \cdot) $\mathcal{L}^{2\pi i \left(\alpha _{\Omega }\right) }$ $\mathcal{L}_{\Omega _{\boldsymbol{\gamma }}}\left(\boldsymbol{\varkappa }\right) e^{2\pi i \left(\beta _{\Omega }\right) }$ (1) $2\pi i(\alpha_0)(\chi))$ $2\pi i(\beta_0(\chi))$ **For the same of the same of the pair is known as CP₃ (** κ **)e in the set of the set of** $\frac{1}{2}$ \int $\frac{2\pi i(\alpha_{\Omega_{7}}(x))}{x}$ **Consider** $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\kappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\kappa))}{2}}\right)$, to be the set of \cdot) $\left(\frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{H}}))}{2} \right)$, to be the set of $2\pi i(\alpha_0 \left(\boldsymbol{\gamma}\right))$ $2\pi i(\beta_0 \left(\boldsymbol{\gamma}\right))$ F_{12} F_{2} = $\left({}^{11} \Omega_{\mathcal{Z}} (\mathcal{H}) e$ converges $\Omega_{\mathcal{Z}} (\mathcal{H}) e$ converges $\Omega_{\mathcal{Z}}$ $\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))}{\sum_{\mathbf{E}}\left(\boldsymbol{\mu}\right)e}$ $\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mu}))}{\sum_{\mathbf{E}}\left(\boldsymbol{\mu}\right)e}$ to be the set of $\lim_{\lambda \to \infty} \Omega$ $\lim_{\epsilon \to 0} O \left(\frac{2\pi i (\alpha_{\Omega}(\mathbf{X}))}{\epsilon} \right)$ $\lim_{\epsilon \to 0} \frac{2\pi i (\beta_{\Omega}(\mathbf{X}))}{\epsilon}$ to be the set of $\Omega_{\mathbf{Z}}(x)e$ pe $2\pi i(\kappa_0 \cdot (\nu))$, $2\pi i(\kappa_0 \cdot (\nu))$ $\int^{\pi/2} \frac{1}{2}$ ƺస ቁ $\frac{d\mathbf{y}}{dt}$ \int ^{*r*} \int **Theorem 13.** Consider $\Omega_{\overline{g}} = \left(H_{\Omega_{\overline{g}}}(\varkappa) e^{-\varkappa^2} - \varkappa^2 \Omega_{\overline{g}}(\varkappa) e^{-\varkappa^2} - \varkappa^2 \right)$, to be the set of Theorem 13. Consid $\ddot{\mathbf{r}}$ **13.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}})t}\right)$ $=$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ ῃ **Theorem 13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right)$, to be the *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = **Theorem 13.** Consider $Q_{\sigma} = \left(\prod_{Q} \left(\chi\right) e^{-\frac{2\pi i (\alpha_Q - 1)}{3} E_{Q}} \left(\chi\right) e^{-\frac{2\pi i (\beta_Q - 1)}{3} E_{Q}}\right)$ to be the set *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = **m 13.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\mathbf{z})e^{2\pi i(\mathbf{z}\Omega_{\mathbf{z}}(\mathbf{z}))}, \Xi_{\Omega_{\mathbf{z}}}(\mathbf{z})e^{2\pi i(\rho_{\Omega_{\mathbf{z}}}(\mathbf{z}))}\right)$, to be the set of $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ -1 , 2 _i, \ldots \ld $\Omega_{\mathbf{z}} = \left(\prod_{\alpha} \frac{2\pi i (\alpha_{\Omega_{\mathbf{z}}}}{(\mathbf{z})}(\mathbf{z}))\right)$, to be the s ℓ $2\pi i(\alpha_0 \left(\mathcal{H}\right))$ $2\pi i(\beta_0 \left(\mathcal{H}\right))$ $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\frac{2\pi i}{3}(\varkappa)/2}, \mathbb{E}_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\frac{2\pi i}{3}(\varkappa)/2}\right)$, to be the set of ʊ Attribute Decision matrix $\ell = 2\pi i (\alpha_{\Omega} (\mathbf{x}))$ $2\pi i (\beta_{\Omega} (\mathbf{x})))$ **Theorem 13.** Conside $\ell = 2\pi i (\alpha_{\Omega} (\chi))$ $2\pi i (\beta_{\Omega} (\chi)))$ **Theorem 13.** Consider L. $\ell = 2\pi i(\kappa_{\Omega}(\nu))$, $2\pi i(\beta_{\Omega}(\nu)))$ **Theorem 13.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa) e^{-\frac{|\mathbf{z}|^2}{2}} \right)$, *to be t* all same CPyFVs, \forall , $\vec{z} = 1, 2, ..., 1$. Then, we have: $\overline{\mathcal{L}}$ $\overline{\$ **Theorem 13.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{i}{2}(\mathbf{z}^*)/\mu}\right)$, *is be the set* $\mathcal{L} = 2\pi i (\kappa_0 \cdot (\mathbf{x}))$, $2\pi i (\beta_0 \cdot (\mathbf{x})))$ **3.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}} (\kappa) e^{\frac{-(\kappa+1)}{2}} \right),$ to be the set of eral AOS of CPYFAAWA operators, and some special cases are also present here. In Sec-**Theorem 13.** Consider $O_n = \left(\prod_{\alpha} (\mu) e^{i \pi i n \mu} \right)^{2}$ $\mathbb{E}_{\alpha} (\mu) e^{i \pi i \mu n} \left(\mathbb{E}_{\alpha} (\mu) e^{i \pi i n \mu} \right)$ to be the se $\frac{2}{\sqrt{3}}$ operators with some deserved and $\frac{1}{\sqrt{3}}$ or ϵ of CP_{yF}(c) of C_P(c) present here. In Sec. 2.1. and some special cases are also present here. In Sec. 2.1. In **theorem 13.** Consider $\Omega_7 = \left(\prod_{\Omega} (\gamma)e^{2\pi i \left(\prod_{\Omega} \frac{\gamma}{2} \right)^2} \right)$ to be the set of FAAWG operators with some deserved characteristics. In Section 7, we solved an MADM $Q = \left(\prod_{\alpha} \left(\mu\right) e^{2\pi i (\alpha \Omega_{\vec{A}}(\vec{\mu}))} \right)$ and $e^{2\pi i (\beta \Omega_{\vec{A}}(\vec{\mu}))}$ to be the set $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ $\overline{\mathcal{L}}$ ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* **EXECUTE:** Interference of $\frac{1}{2}$ $\left(\frac{1}{2}n\right)^c$, $\frac{1}{2}$ (n/c), we the section $\frac{1}{2}$ Γ rsection 3, C we stay $C = \left(\frac{Z\pi(\alpha_0, \mathbf{z}(\mathcal{X}))}{Z} \right)$ of $C = \left(\frac{Z\pi(\beta_0, \mathbf{z}(\mathcal{X}))}{Z} \right)$ to be the set of **Theorem 13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{2\pi i (\alpha \Omega_{\mathbf{Z}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{2\pi i (\beta \Omega_{\mathbf{Z}}(\varkappa))}\right)$, to be the set of all same CPyFVs, \forall , $\mathbf{Z} = 1, 2, ..., n$. Then, we have: **Theorem 13.** Consider $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi i}{3}}\right)$, $\Xi_{\Omega_{\mathbf{z}}}(\kappa)e^{-\frac{2\pi i}{3}}$, to b **Theorem 13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\kappa))}\right)$, to be the set of *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $\lim_{\lambda \to 0} 2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $\lim_{\lambda \to 0} 2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*)) **13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{-\frac{(\varkappa + \varkappa)^2}{2}}\right)$, to be the set of $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right)$, to be the set of *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = \overline{n} *. Then, we have.* $\langle 2\pi i(\beta\Omega_{\mathbf{z}}(\boldsymbol{\mathcal{H}}))\rangle$ \longrightarrow \mathcal{A} $\frac{1}{2}$ and $\frac{1}{2}$ represents the membership value (MV) of and membership value of and $\frac{1}{2}$)) , *to be the set of* $\ell = 2\pi i (\kappa_{\Omega} - (\nu))$ $2\pi i (\beta_{\Omega} - (\nu))$ **Theorem 13.** Consider $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\frac{1}{2}i} \right)$, b be the set of \mathcal{L}_{max} $\left(\begin{array}{cc}2\pi i(\alpha_{\Omega_{\mathbf{r}}}\left(\mathbf{X}\right))&2\pi i(\beta_{\Omega_{\mathbf{r}}}\left(\mathbf{X}\right))\end{array}\right)$ **Theorem 13.** Consider $\Omega_{\mathbf{z}} = \begin{bmatrix} 1 & \Omega_{\mathbf{z}} \\ \end{bmatrix}$ $(\mathbf{x})e$ $(\mathbf{z})^2$ and $(\mathbf{x})^2e$ $(\mathbf{z})^3e$ $(\mathbf{z})^4e$ $(\mathbf{z})^5e$ $(\mathbf{z})^5e$ $(\mathbf{z})^4e$ $(\mathbf{z})^5e$ $(\mathbf{z})^5e$ $(\mathbf{z})^5e$ $(\mathbf{z})^5e$ $(\mathbf{z})^5e$ $(\mathbf{$ **Symmetry 13.** Consider $\Omega_{\tau} = \left(\prod_{\Omega} (\chi) e^{\frac{2\pi i (\alpha_{\Omega}(\chi))}{2\pi \sigma}} \right)$. Let be the set of et $2\pi i(\kappa_0$ $(\kappa))$ $2\pi i(\kappa_0$ $(\kappa))$ \mathcal{L} $\frac{2\pi(\alpha_1)}{2}$ $\frac{1}{2}$, $\frac{1}{$ *is particularized as:* **10, he the set of** *is particularized as:* $\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $\qquad \qquad$ $\Omega_{\mathcal{Z}}(\mathcal{H})e$

$$
CPyFAAWG\Big(\Omega_1,\,\Omega_2,\,\ldots,\,\Omega_{\Pi}\Big)=\Omega
$$

Proof. We can prove this theorem by following t $T_{\rm eff}$ and $T_{\rm eff}$, and $T_{\rm eff}$, and $T_{\rm eff}$ **Proof.** We can prove this theorem by following the steps of Theorem 3. \Box **Proof** We can prove this theorem by following the steps ൯ , *and the accuracy function is given as:* e can prove this theorem by following the steps of Theorem 3. \Box *and the accuracy function is given as:* **Proof.** We can prove this theorem by following the steps of Theorem 3. \Box sum, production and power role. Then, we have related the second power role. Then, we have \mathcal{L} mental operational laws of CPyFSs. We also study the generalization of union and inter-**Proof.** We can prove this theorem by following the steps of Theorem 3. \Box mental operational laws of C study the generalization of union and interneorem by following the steps of Theorem 3. following the steps of Theorem 3. \Box \mathbf{d} y following the steps of Theorem 3. \Box ῃ **Example 8** and prove this theorem by following the steps of Theorem 3. □ eorem by following the steps of Theorem 3. \Box t rative example to select a suitable candidate for a multinational company. In Section 8, \Box **Troot**, we can prove this theorem by following the steps of friedem σ . \mathbf{p}_{mod} (M_c can muove this theorem by following the steps of Theorem 2, \Box $\frac{1}{2}$ we can prove this diesterm by conoming the steps of Theorem of \Box W_{α} an prove this theorem by following the steps of Theorem 2 \Box **T** $\frac{1}{2}$ \Box \Box **Thetable 1.** Symbols we can prove this theorem by following the steps of Theorem in \mathbf{r} is the steps of \mathbf{r} em by following the s **Proof.** We can prove this theorem by following the steps of Theorem 3. \Box IFS and PyFs. rove this theorem by following the steps of Theorem 3. \Box

 \int $\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\mathbf{X}))}{\alpha_{\Omega_{\mathbf{Z}}}(\mathbf{X})}$ $=$ $\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\mathbf{X}))}{\alpha_{\Omega_{\mathbf{Z}}}(\beta_{\Omega_{\mathbf{Z}}}(\mathbf{X}))}$ $t \Omega_z = \left(\prod_{O} (\varkappa) e^{2\pi i (\alpha_{O} \varkappa)} \mathbf{z}^{(\varkappa)} \right)$, \mathbf{z}_C $2\pi i$ family of CPyFVs, and Ω^{-} = $min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and Ω^{+} = $max(\Omega_1, \Omega_2, \Omega_3, ...$
Then the associated value CPyFA AWG(Ω_2 , Ω_3 , Ω_4) has that $\frac{2}{\pi}$ $\left(\frac{1.3}{3} \right)$, $\frac{1.3}{3}$, $\left(\frac{1.3}{3} \right)$ Ṥ ൫ଵ()ଶగ൫ఉభ(త)൯, ଶ()ଶగ൫ఉమ(త)൯൯ *where TNM and TCNM are denoted by* Ŧ *and* Ṥ, *respectively.* Ṥ ൫ଵ()ଶగ൫ఉభ(త)൯, ଶ()ଶగ൫ఉమ(త)൯൯ \tilde{f} $\tilde{$ **i** \mathbf{r} **ii.** \mathbf{r} $\mathbf{$ Ŧ ൫ଵ()ଶగ൫ఈభ(త)൯, ଶ()ଶగ൫ఈమ(త)൯൯ , ൱ | ∈ Ẁൡ α β πi $(\alpha \circ (\mathbf{x}))$ $\int \pi$ (a)^a $\frac{2\pi i (\alpha \Omega_{\mathbf{Z}}(\mathcal{H}))}{\pi}$ (a)² \overline{u} \overline{u} $T_{\Omega}(\lambda)$ _g(λ) ϵ , $\Xi_{\Omega}(\lambda)$ Then, the associated value $CPyFAAWG(\Omega_1, \Omega_2, \ldots, \Omega_k)$ has the $\begin{pmatrix} 2\pi i(\alpha_0 & (\boldsymbol{\gamma})) & 2\pi i(\beta_0 & (\boldsymbol{\gamma})) \end{pmatrix}$ **Theorem 14.** Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa) e^{-\frac{|\mathbf{z}|^2}{2}} \right)$, $\mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa) e^{-\frac{|\mathbf{z}|^2}{2}}$ $\left(\begin{array}{cc} 2\pi i (\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{U}})) & \dots & 2\pi i (\beta_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{U}})) \end{array} \right)$ **Theorem 14.** Let $\Omega_{\overline{\mathbf{3}}} = \left(\Pi_{\Omega_{\overline{\mathbf{3}}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\overline{\mathbf{3}}}}(\varkappa))}{2}, \Xi_{\Omega_{\overline{\mathbf{3}}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\overline{\mathbf{3}}}}(\varkappa))}{2}}\right), \, \overline{\mathbf{3}} = 1, 2, 3, 4, 5, 6, 6, 7$ 2 he t amily of CPyFVs, and $\Omega^- = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_{\text{R}})$
Then, the associated value CPyFAAWG($\Omega_1, \Omega_2, ..., \Omega_{\text{R}}$ **Definition 9.** *Let* ଵ = ൫ଵ()ଶగ൫ఈభ(త)൯ , ଵ()ଶగ൫ఉభ(త)൯ ൯ *and* ଶ = **Theorem 14** Let $O = \left(\prod_{\alpha} \left(\chi\right) e^{\frac{2\pi i (\alpha_{\Omega_3}(\chi))}{\pi_{\Omega_3}(\chi)}}\right)$ $\frac{2\pi i (\beta_{\Omega_3}(\chi))}{\pi_{\Omega_3}(\chi)}\right)$ $\chi = 1.2$ The the \sum_{y} \sum_{y} \sum_{z} \sum_{y} family of CPyFVs, and $\Omega^- = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and $\Omega^+ = max(\Omega_1, \Omega_2,$
Then, the associated value CPyFAAWG($\Omega_1, \Omega_2, ..., \Omega_k$) has that $\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))}{\sum_{\mathbf{Z}} (\alpha_{\Omega}(\boldsymbol{\mathcal{H}}))^2} \mathbf{Z}(\boldsymbol{\mathcal{H}})$ 2 \mathcal{L} **before** \mathcal{L} $\left(\begin{array}{cc}2\pi i(\alpha_{\Omega_{\boldsymbol{r}}}(\boldsymbol{\mathcal{U}}))&\ 2\pi i(\beta_{\Omega_{\boldsymbol{r}}}(\boldsymbol{\mathcal{U}}))\end{array}\right)$ **14.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\kappa))}{2}}\right)$, $\mathbf{Z} = 1, 2, ..., N$ be the \mathbf{u} $\mathcal{L} = \mathcal{L} \mathcal{L} = \mathcal{L} \mathcal{L}$ $\mathcal{L} = \mathcal{L} \mathcal{L} \mathcal{L} \mathcal{L}$ $\begin{pmatrix} 2\pi i(\alpha_{\Omega}a)(x) & 2\pi i(\beta_{\Omega}a)(x) \\ \Box & \Box & \Box\end{pmatrix}$ $\begin{pmatrix} 2\pi i(\beta_{\Omega}a)(x) \\ 3\pi i & 2\pi i(\beta_{\Omega}a)(x) \end{pmatrix}$ $\int \frac{d^2y}{dx^2}$ $\frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{H}}))}{2}$ a = 1.2 and he the \mathfrak{p} family of CPyFVs, and $\Omega^{-} = \min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and $\Omega^{+} = \max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$. \mathcal{L} **Periodic and** \mathcal{L} $\mathcal{L}(\mathcal{U})$ $\mathcal{L}(\mathcal{U})$ α $\{x_i(\alpha_0, \alpha_1(\kappa))\}_{i \in \mathbb{Z}}$ $\{x_i(\beta_0, \alpha_1(\kappa))\}_{i \in \mathbb{Z}}$ *union of the given CPyFVs are defined as follows:* sum, product, scalar multiplication and power role. Then, we have: $\sum_{i=1}^{n} \sum_{j=1}^{n} \frac{a_{ij}}{3}$ (a_{nd} $\sum_{i=1}^{n} \frac{a_{ij}}{3}$ and $\sum_{i=1}^{n} \frac{a_{ij}}{3}$ and $\sum_{i=1}^{n} \frac{a_{ij}}{3}$ and $\sum_{i=1}^{n} \frac{a_{ij}}{3}$ sum, product, scalar multiplication and power role. Then, we have: $\sum_{i=1}^{n} \sum_{j=1}^{n} (n)^{c}$ $D_{\mathbf{z}}(\mathbf{x})e^{-\mathbf{z}}$, $E_{\Omega_{\mathbf{z}}}(\mathbf{x})e^{-\mathbf{z}}$, $\beta=1,2,\ldots,0$ be the $\mathcal{L} = \left(1 - \frac{2\pi i(\alpha_{\Omega_{\mathcal{I}}}(x))}{\alpha_{\Omega_{\mathcal{I}}}(x)}\right)$ **Sum, produced in the sum is set of the sum of the sum is set of the power role of the sum is set of the sum of the sum is set of t** ൯ *be any two CPyFVs. The extension of intersection and the* $\ell = 2\pi i(\kappa_{\Omega} - (\nu))$ $2\pi i(\kappa_{\Omega} - (\nu))$ **Sum, produced Theorem 14.** Let $\Omega_{\mathbf{z}} = \prod_{\Omega_{\mathbf{z}}}\left(\chi\right) e^{-\frac{2\pi i}{3}}$ Then, the associated value $CPyFAAWG(\Omega_1, \Omega_2, ..., \Omega_k)$ has that \mathbb{E} and \mathbb{E} and $\left(\mathbb{E}$ (x) $\frac{2\pi i(\alpha_{\Omega}(\mathbf{z}(\mathbf{z}))}{\alpha_{\Omega}(\mathbf{z}(\mathbf{z}(\mathbf{z}(\mathbf{z})))})$ and \mathbb{E} such in product $\mathbb{E}[\mathbb{E}_2] = \left(\frac{1}{2} \mathbb{E}_2[\mathbb{E}_2] \right)$ $\left(\begin{matrix} - & \sqrt{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\mathbf{z}))} & - & \sqrt{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\mathbf{z}))} \end{matrix}\right)$ **1. Acceleration and Products** $\begin{pmatrix} 1 & 0 \ 0 & 1 \end{pmatrix}$ ൯ *and* ଶ = \ddot{a} ൯ *be any two CPyFVs. The extension of intersection and the* $\frac{1}{\sqrt{2}}$ $\sigma = \left(\frac{11_{\Omega_2}(x)e^{-x}}{x} \right)$, $\sigma = \frac{1}{2} \left(\frac{11_{\Omega_2}(x)e^{-x}}{x} \right)$, $\sigma = \frac{1}{2} \left(\frac{11_{\Omega_2}(x)e^{-x}}{x} \right)$, $\sigma = \frac{1}{2} \left(\frac{11_{\Omega_2}(x)e^{-x}}{x} \right)$ family of CPyFVs, and Ω^{-} = $min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and Ω^{+} = $max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$. \equiv ൫, ,…,ῃ൯= ⨁ƺୀ $\Omega_{\mathbf{Z}}(\varkappa)e$ $\qquad \qquad$ $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ $\qquad \qquad$ \qquad \qquad \qquad $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ $\qquad \qquad$ \qquad \qquad $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ $\qquad \qquad$ \qquad $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ \overline{c} $\mathcal{L} = \mathcal{L} \mathcal$ $\begin{cases} 2 \\ 7 \\ 8 \end{cases}$, $\begin{cases} 2 = 1, 2, ..., 106 \\ 10 = 20 \end{cases}$ **Theorem 14.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right)$, $\mathbf{Z} = 1, 2, ..., 1$ be the $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$, $\frac{1}{2}$ $\mathbf{F1}$ **14** $\mathbf{L}(\mathcal{O})$ (\mathbf{F} (α)) $2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$, $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$, \mathbf{F} , \mathbf{F} , \mathbf{F} , \mathbf{F} , \mathbf{F} **EXECUTE 17.** Let $\mathfrak{g} = \begin{pmatrix} n_1 \\ 2 \end{pmatrix}$ ($\mathfrak{g} \neq 0$, $\mathfrak{g} \neq 0$) $\mathfrak{g} = \begin{pmatrix} n_1 \\ n_2 \end{pmatrix}$ $\mathcal{L} = \left(\prod_{\alpha} \frac{2\pi i (\alpha_{\Omega_2}(\mathbf{X}))}{\mathcal{L}^2} \right)_{\alpha=1} = \left(\frac{2\pi i (\beta_{\Omega_2}(\mathbf{X}))}{\mathcal{L}^2} \right)_{\alpha=1} = \mathcal{L}$ *with a matrix* $\frac{1}{2}$ ($\frac{1}{2}$, $\frac{1}{2}$, ∴), $\frac{1}{2}$ ($\frac{1}{2}$, $\frac{1}{2}$) $\frac{1}{2}$ $=\left(\prod_{O}(\boldsymbol{\chi})e^{2\pi i(\alpha_{O}(\boldsymbol{\chi}))},\mathbb{E}_{O}\right)$ $\left(\chi\right)e^{2\pi i(\beta\Omega_{\mathbf{Z}}(\boldsymbol{\varkappa}))}$, 3 I_{Ω} (π) $e^{2\pi i(\alpha_{\Omega}(\mathbf{X}))}$, E_{Ω} (π) $e^{2\pi i(\beta_{\Omega}(\mathbf{X}))}$, 3 = $\left(\frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{H}}))}{2}\right)$, $\mathbf{Z}=1$, $\left(\begin{array}{c} \alpha_{\Omega}(\boldsymbol{\varkappa}) \end{array} \right)$, $\mathbb{E}_{\Omega_{\boldsymbol{\varkappa}}}(\boldsymbol{\varkappa}) e^{2\pi i (\beta_{\Omega}(\boldsymbol{\varkappa}))}, \, \mathfrak{z} = 1, 2$ $\Big)$, $\overline{z} = 1, 2, \ldots, \overline{y}$ be t $2\pi i(\alpha_{\Omega_{\bullet}}(\boldsymbol{\mathcal{H}}))$ $2\pi i(\beta_{\Omega_{\bullet}}(\boldsymbol{\mathcal{H}}))$ $\sum_{k=1}^{\infty}$ $\sum_{k=1}^{\in$ $\mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa) e^{-\frac{1}{2} \sum_{\alpha} \mathbf{z}}$ $\mathbb{E}_{\Omega_{\mathbf{z}}}(\kappa) e^{-\frac{1}{2} \sum_{\alpha} \mathbf{z}}$, $\mathbf{z} = 1, 2, \ldots, 1$ be the family of CPyFVs, and $\Omega^{-} = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and $\Omega^{+} = max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$.
Thus, the consisted value CD: EAANC(Co. 2003) and $\Omega^{+} = max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$. **D** $\left(\begin{array}{ccc} 1 & 2 & 7 & N \\ 1 & 2 & 7 & N \end{array}\right)$ $\ell = 2\pi i (\kappa_0 \cdot (\nu))$ $2\pi i (\beta_0 \cdot (\nu))$ **Theorem 14.** Let $\Omega_{\mathbf{z}} =$ [$\ell = 2\pi i(\alpha_0(\mathcal{U}))$ $2\pi i(\beta_0(\mathcal{U}))$ **Theorem 14.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\mathbf{A}\Omega_{\mathbf{Z}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\mathbf{A}\Omega_{\mathbf{Z}}(\varkappa))}\right)$, $\mathbf{Z} = 1, 2, ...$
family of CPuFVs, and $\Omega^{-} = \min(\Omega_1, \Omega_2, \Omega_3)$, Ω_3 , and $\Omega^{+} = \max(\Omega_1, \Omega_2, \Omega_3)$ fumity of CPyF vs, and $\Omega = min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and $\Omega' = max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$.
Then, the associated value CPyFAAWG($\Omega_1, \Omega_2, ..., \Omega_k$) has that **Table 1.** Symbols and their meanings. **Symbol Mean** $\sum_{i=1}^{n} \frac{1}{2} \binom{n}{i}$ **is the symbol** $\sum_{i=1}^{n} \frac{1}{2} \binom{n}{i}$ **if** $\sum_{i=1}^{n} \frac{1}{2} \binom{n}{i}$ **if** $\sum_{i=1}^{n} \frac{1}{2} \binom{n}{i}$ **if** $\sum_{i=1}^{n} \frac{1}{2} \binom{n}{i}$ **if** $\sum_{i=1}^{n} \frac{1}{2} \binom{n}{i}$ **if \sum_{i=1}^{n} \frac{1}{2** $\mathbf{H} = \mathbf{H} \cdot \mathbf{L} \cdot \mathbf{G} \qquad \left(\mathbf{H} \cdot (\mathbf{L} \times \mathbf{I}^{\mathcal{I}}(\mathbf{H}) \mathbf{G}_{\mathbf{Z}}(\mathbf{H})) \mathbf{H} \cdot (\mathbf{L} \times \mathbf{I}^{\mathcal{I}}(\mathbf{H}) \mathbf{G}_{\mathbf{Z}}(\mathbf{H})) \right)$ **in with 17.** Let $\mathfrak{g} = \begin{pmatrix} \mathfrak{g}(\lambda) e^{-\lambda t} & \mathfrak{g}(\lambda) e^{-\lambda t} \end{pmatrix}$, $e = \mathfrak{g}(\lambda) e^{-\lambda t}$ in $\frac{1}{\sqrt{2}}$ \mathcal{L}_{max} $S_{\mathbf{z}} = \left(\prod_{\Omega} (\mathbf{z})e^{2\pi i(\mathbf{u}_\Omega)}\mathbf{z}^{(\mathbf{z})}\right)$ $\mathbf{E}_{\Omega} (\mathbf{z})e^{2\pi i(\mathbf{p}_\Omega)}\mathbf{z}^{(\mathbf{z})}$ and $\mathbf{z} = 1, 2, \ldots, \mathbf{0}$ be the $\begin{pmatrix} -\frac{1}{2} & -\frac{1}{2$ **14.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\mathbf{Z}(\mathbf{Z}^T)} \mathbf{E}_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\mathbf{Z}(\mathbf{Z}^T)} \right)$, $\mathbf{Z} = 1, 2, ..., N$ be the $T = \frac{2\pi i (x - \mu)}{2\pi i}$ $\int_{0}^{1/2} \frac{1}{2} \int_{0}^{1/2} \frac{1}{2$ $\left(\begin{array}{cc} \n\mu & \frac{2\pi i}{\alpha_{\mathbf{Q}}(\mathcal{H})} \\
\end{array}\right)$ $\frac{11}{2}$ (*n*)*c* = $\frac{1}{2}$ $\frac{1}{\sqrt{2\pi}}$ $\mathcal{L}^{(n)}$ $\begin{pmatrix} 1 & 1 \\ 2 & 1 \end{pmatrix}$ set $\begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}$ family of CPyFVs, and $\Omega^{-} = \min(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$ and $\Omega^{+} = \max(\Omega_1, \Omega_2, \Omega_3, ..., \Omega_n)$. **Theorem 14.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(v))}{\varkappa}}\right)$ **Theorem 14.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\mathbf{Z} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$ Theorem 14. Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right), \ z = 1, 2, \ldots, \mathbb{N}$ $w^2 = \begin{pmatrix} 2 & 3 & 2 \ 0 & 0 & 0 \end{pmatrix}$ and $Q^2 = m_i \begin{pmatrix} 2 & 3 \ 0 & 0 & 0 \end{pmatrix}$ and $Q^2 = m_i \begin{pmatrix} 0 & 0 & 0 \ 0 & 0 & 0 \end{pmatrix}$ $\lim_{\lambda \to 0} 2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $\lim_{\lambda \to 0} 2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $\frac{3}{2}$ represents the membership value (*m*₂) is a membership value (*m*₂) of amplitude *m*₂) of a membership value ()) **orem 14.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{-\frac{(\varkappa + \varkappa)^2}{2}}\right), \mathbf{Z} = 1, 2, ..., 0$ be the $\alpha_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{z}}}(\kappa))}{\sigma_{\mathbf{z}}}}\right), \, \mathbf{z} = 1, 2, \ldots, \mathbf{N}$ be the $\begin{pmatrix} 8 & 8 \\ 2 & 6 \end{pmatrix}$ or $\begin{pmatrix} 2 & 0 \\ 0 & 0 \end{pmatrix}$ and $\begin{pmatrix} -2 & 0 \\ 0 & 0 \end{pmatrix}$ $\langle 2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}})) \rangle$ = $\langle 2\pi i, \beta \rangle$ = $\langle 1, \beta \rangle$ *w*_a and membership value (membership value (membership value (membership value of amplitude $\frac{1}{2}$ of $\frac{1}{2}$ $\left(\prod_{\Omega_{\bm{\sigma}}}(\bm{\chi})e^{-2\pi i(\alpha_{\Omega_{\bm{Z}}}}(\bm{\chi})).\right)$ $\equiv \prod_{\Omega_{\bm{\sigma}}}(\bm{\chi})e^{-2\pi i(\beta_{\Omega_{\bm{Z}}}}(\bm{\chi})).$ $\equiv 1,2,\ldots,\text{where}$ \mathcal{L}^2 $\mathcal{L}^2(\mathcal{A})$, $\mathcal{L}^2(\mathcal$ of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina $2, \ldots$, ⁿ be the \overline{a} and \overline{a} $\mathfrak{p}_{\mathbf{z}}(\mathcal{H})$ $\frac{1}{1}$, $\frac{2}{2}$, $\frac{3}{2}$

$$
\Omega^-\leq CPyFAAWG\bigg(\Omega_1,\,\Omega_2,\,\ldots,\,\Omega_{\pmb 1\pmb 1\gtrdot}\bigg)\leq \Omega^+
$$

Proof. The proof of this theorem is similar to that of Theorem 4. \Box \mathbf{I} *where TNM and TCNM are denoted by* Ŧ *and* Ṥ, *respectively.* **Proof.** The proof of this theorem is similar to that of Theorem 4. \Box **Proof.** The proof of this theorem is similar to that of Theo. *i*. ↑ **Proof.** The proof of this theorem is similar to that of Theorem 4. \Box $=$ \vdots The proof of this theorem is similar to that of Theorem 4. \Box $$ *respectively. Similarly* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude and phase terms* resproof of this theorem is similar to that of Theorem 4. \Box \vdots this theorem is similar to that of Theorem Λ rem is similar to that of Theorem 4. \Box of. The proof of this theorem is similar to that of Theorem 4. \Box **Table 1.** Symbols and their meanings. The proof of this theorem is similar Table 1. Symbols and the theoretical continues to their means of $\frac{1}{2}$ **Proof.** The proof of this theorem is similar to that of Theorem 4. \Box

3. Existing Aggregation Operators

 $=$ $\frac{1}{\sqrt{2}}$

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Theorem 15. If
$$
\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\kappa))}\right)
$$
 and $\Omega_{\mathbf{Z}}' = \left(\Pi_{\Omega'_{\mathbf{Z}}}(\kappa)e^{-2\pi i(\alpha_{\Omega'_{\mathbf{Z}}}(\kappa))}, \Xi_{\Omega'_{\mathbf{Z}}}(\kappa)e^{-2\pi i(\beta_{\Omega'_{\mathbf{Z}}}(\kappa))}\right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ are two CPyFSs, and if $\Omega_{\mathbf{Z}} \leq \Omega'_{\mathbf{Z}}, \forall$, $(\mathbf{Z} = 1, 2, ..., \mathbf{N})$, then, we have:
\n
$$
CPyFAAWG\left(\Omega_{1}, \Omega_{2}, ..., \Omega_{\mathbf{N}}\right) \leq CPyFAAWG\left(\Omega'_{1}, \Omega'_{2}, ..., \Omega'_{\mathbf{N}}\right)
$$

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In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of

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In this part, we recall the existing concepts of A and A and A and A

IFS and PyFs. The PyFs.

 \mathbf{p}_{max} (\mathbf{M}_{max} prove this theorem oscily \Box $\frac{1}{2}$ $\frac{1}{2}$ **Proof.** We can prove this theorem easily. \Box $\frac{1}{\sqrt{2}}$ = (<mark>↑</mark> $\frac{1}{\sqrt{2}}$ = 1,2,3, ω, (← 1,2,3, ω, 1, **Symbol Meaning Symbol Meaning Proof.** We can prove this theorem easily. \Box $\mathbf{u} = \mathbf{v}$, $\mathbf{v} = \mathbf{v}$, **Symbol Meaning Symbol Meaning** \Box $\mathbf{I}_{\mathbf{Y}}$ $\frac{1}{\sqrt{2}}$ = (σ, 1,2,3, ω, 1 **Table 1.** Symbols and their meanings. n prove this theorem Proof. We can prove this theorem e this theorem easily. **Proof.** We can prove this theorem easily. \square

IFS and PyFs. The PyFs.

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3. Existing Aggregation Operators

i. ଵ ⊆ ଶ *if* ଵ ≤ ଶ, ଵ ≤ ଶ, ଵ ≥ ଶ *and* ଵ ≥ ଶ.

Definition 9. *Let* ଵ = ൫ଵ()ଶగ൫ఈభ(త)൯

1,2, ∴… , ∄
1,2, … , ∄ and ∑ <mark>∏</mark> **Example 3.** Consider $\Omega_1 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.99)}), \Omega_2 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.67)})$ $\Gamma_{23} = (0.46e^{-\gamma/2}, 0.43e^{-\gamma/2})$ and $\Gamma_{23} = (0.46e^{-\gamma/2}, 0.43e^{-\gamma/2})$, 0.49e
...:.1.1 componently degree cent $z = (0.20, 0.50, 0.50, 0.50)$. Then, the aggregated of
CPyFAAWG operators is given as $\Upsilon = 3$. **Example 3.** Consider $\Omega_1 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)}), \Omega_2 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.67)}, \Omega_3 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.67)}, \Omega_3 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.67)}, \Omega_3 = (0.46e^{2i\pi(0.67)}, 0$ $\mathcal{O}(\sqrt{2\pi})$ set $\mathcal{O}(\sqrt{2})$ **e 3.** Consider $\Omega_1 = (0.46e^{2i\pi/(0.67)}, 0.45e^{2i\pi/(0.67)}, 0.45e^{2i\pi/($ $\frac{0.40e^{-(1.40e^{-($ $\frac{M}{V}$ of a matter of $\frac{M}{V}$ (cream $\frac{M}{V}$ of a matter of $\frac{M}{V}$ or $\frac{M}{V}$ o 1, 2, G_i , $i!$, Ω , $(9.46 \frac{2i\pi (0.67)}{2 \cdot 9.45}$, $2 \frac{1}{2} \frac{\pi (0.09)}{2 \cdot 9.45}$, $(9.46 \frac{2i\pi (0.67)}{2 \cdot 9.45}$, 2.45 , $2i\pi (0.09)$ $\sigma^{(\infty,67)}$, 0.45 $e^{2i\pi(0.09)}$) and $\Omega_4 =$ ῃ (0.466) $\Omega = (0.462 \text{Hz})(0.67)$ $0.452 \text{Hz}(0.09)$ $\Omega = (0.462 \text{Hz})(0.67)$ $0.452 \text{Hz}(0.09)$ $0.45e^{2i\pi(0.09)}$ and $\Omega_i = (0.46e^{2i\pi(0.67)} - 0.45e^{2i\pi(0.09)})$ are four CP $1,$ Consider $\Omega_1 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)}), \Omega_2 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)}),$
 $1,$ $\Omega_2 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)}), \Omega_3 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)}),$ \mathcal{L}^{\prime} (9.67) \mathcal{L}^{\prime} (9.99). \mathcal{L}^{\prime} (9.67) \mathcal{L}^{\prime} (9.99). $(46e^{2i\pi(\sqrt{3607})}, 0.45e^{2i\pi(\sqrt{3607})}, 1.22 = (0.46e^{2i\pi(\sqrt{3607})}, 0.45e^{2i\pi(\sqrt{3607})}),$ The phase term of phase term $\frac{1}{2}$ (0.20 0.25 0.20 0.15). Then the concept deviation of $\Omega \propto \mathcal{D} = (0.20, 0.35, 0.30, 0.15)$. Then, the aggregated values of \mathcal{N} of phase term \mathcal{N} the phase term \mathcal{N} the phase term \mathcal{N} $(0.46 \frac{2i\pi}{0.67})$ $0.45 \frac{2i\pi}{0.09}$ $0.46 \frac{2i\pi}{0.67}$ $0.47 \frac{2i\pi}{0.09}$ and $\Omega_4 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i})$ ῃ $i\pi(0.09)$ $0.45e^{2i\pi(0.09)}$ $O_1 = (0.46e^{2i\pi(0.67)} \cdot 0.45e^{2i\pi(0.09)})$ $M_{\rm g} = (0.46e^{2i\pi(0.67)} \cdot 0.45e^{2i\pi(0.09)})$ are four CPuFVs N of phase term \mathcal{T}_M of phase term \mathcal{T}_M the phase term \mathcal{T}_M **Example 3.** Consider $\Omega_1 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)}), \Omega_2 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)}),$ $M_3 = (0.46e^{2i\pi/(0.67)}, 0.45e^{2i\pi/(0.67)})$ and $M_4 = (0.46e^{2i\pi/(0.67)}, 0.45e^{2i\pi/(0.67)})$ W_{II} corresponding weight occion $\omega = (0.20, 0.33, 0.01)$ **EXAMPLE 3.** CONSIDER $\Delta z_1 = (0.40e^{-3t})$, $0.43e^{-3t}$ with corresponding weight vector $\mathfrak{D} = (0.20, 0.35, 0.30, 0.15)$. Then, the
CBuEA AMC operators is given as $\mathfrak{D} = 2$ $(0, 0, 0, 1, 2, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0, 0, 0, ..., 2) = (0,$ **EXAMPLE 3.** CONSIDER 1 $Y_1 = (0.46e^{2\pi i/(0.07)}, 0.45e^{2\pi i/(0.02)})$, $Y_2 =$
 $Q = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)})$ and $Q = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.67)})$ **Symbol Mean** $\frac{1}{2} \theta$ \frac **Example 3.** Consider $\Omega_1 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)}), \Omega_2 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.67)})$ $M_3 = (0.46e^{2\pi i (0.07)}, 0.45e^{2\pi i (0.07)})$ and $M_4 = (0.46e^{2\pi i (0.07)}, 0.45e^{2\pi i (0.07)})$ **EXAMPLE S.** CONSIDER $\frac{1}{2} = (0.40e^{\frac{3\pi}{40}} - 0.40e^{\frac{3\pi}{40}})$, $0.45e^{\frac{3\pi}{40}} = (0.46e^{\frac{3\pi}{40}} - 0.45e^{\frac{3\pi}{40}})$ $\frac{123 - (0.40e^{\gamma t} - 7.0.45e^{\gamma t} - 7.04e^{\gamma t} - 7.04e^$ W_{max} of a corresponding weight vector $\infty = (0.26, 0.66, 0.66, 0.16)$. Then, the aggregation $\mathcal{L} = \mathcal{L} \times \mathcal{L} = \mathcal{L} \times \mathcal{L} = 2 \mathcal{L} = (0.67) \times \mathcal{L} = 2 \mathcal{L} = (0.00) \times \mathcal{L} = 0.04 \times 2 \mathcal{L} = 2 \mathcal{L}$ **EXAMPLE 3.** CONSIDER 1 $Y_1 = (0.46e^{2i\pi/(0.67)}, 0.43e^{2i\pi/(0.67)}, 1.42e^{2i\pi/(0.67)}, 0.45e^{2i\pi/(0.67)}, 0.45e^{2i\pi/(0.67)}, 0.45e^{2i\pi/(0.67)}, 0.45e^{2i\pi/(0.67)}, 0.45e^{2i\pi/(0.67)}, 0.45e^{2i\pi/(0.67)}, 0.45e^{2i\pi/(0.67)}, 0.45e^{2i\pi/(0.67)}, 0.45$ $\Omega_3 = (0.46e^{2i\pi\sqrt{6}})$ $x_3 = (0.46e^{-\gamma}, 0.45e^{-\gamma})$ and $x_4 = (0.46e^{-\gamma}, 0.45e^{-\gamma})$ are four Cr yr vs
ith corresponding weight vector $\mathfrak{D} = (0.20, 0.35, 0.30, 0.15)$. Then, the aggregated values of **S** α is α (0.46 $2i\pi(0.67)$ α if $2i\pi(0.09)$) α (0.46 $2i\pi(0.67)$ α if $2i\pi(0.67)$. Consult $\Delta z_1 = (0.766 \times 0.756 \times 0.7$ $\lim_{\epsilon \to 0} \frac{1}{\epsilon} \mathcal{L} \lim_{\epsilon \to 0} O_{\epsilon} = \frac{(0.46 \cdot 2i\pi (0.67)}{2} \mathcal{L} \mathcal{L} \frac{1}{\epsilon} \mathcal{L} \frac{1}{\epsilon} \mathcal{L} \frac{1}{\epsilon} \mathcal{L} \left(\frac{0.46 \cdot 2i\pi (0.67)}{2} \mathcal{L} \mathcal{L} \frac{1}{\epsilon} \mathcal{L} \frac{1}{\epsilon} \mathcal{L} \frac{1}{\epsilon} \mathcal{L} \frac{1}{\epsilon} \mathcal{L} \frac{1}{\epsilon} \$ $\frac{1}{2} = (0.46e^{2i\pi(0.67)} - 0.45e^{2i\pi(0.09)})$ and $\Omega_t = (0.46e^{2i\pi(0.67)} - 0.45e^{2i\pi(0.09)})$ are four CPuFVs $\frac{12}{3}$ (crise) of $\frac{12}{3}$ (crise) $\frac{12}{3}$ (crise) $\frac{12}{3}$ (crise) $\frac{12}{3}$ (crise) $\frac{12}{3}$ Ω_3 $(0.46e^{2i\pi(0.6t)}, 0.45e^{2i\pi(0.6t)})$ and $\Omega_4 = (0.46e^{2i\pi(0.6t)},$ with corresponding weight vector $\mathfrak{D} = (0.20, 0.35, 0.30, 0.15)$. Then, the aggregated values of
CPuEA AWG operators is given as $\mathcal{Y} = 3$ **Example 3.** *Consider* $\Omega_1 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)}), \Omega_2 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)}),$ $\Omega_3=(0.46e^{2i\pi(0.67)}$, $0.45e^{2i\pi(0.09)})$ and $\Omega_4=(0.46e^{2i\pi(0.67)}$, $0.45e^{2i\pi(0.09)})$ are four CPyFVs **Example 3.** Consider $\Omega_1 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)}),$ $\Omega_3 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)})$ and $\Omega_4 = (0.46e^{2i\pi(0.67)})$ **3. Example 3. Consider** $\Omega_3 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)})$ and $\Omega_4 = (0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)})$ are four CPyFVs \mathcal{L} this part, we recall the existing concepts of \mathcal{L}

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 $\frac{1}{2}$ ion. Since we have: for $\frac{3}{2} = 1, 2, 3, 4$ $1-\frac{1}{2}$ Solution. Since we have: for $\overline{z} = 1, 2, 3, 4$ $\textit{have: for } 3 = 1, 2, 3, 4$ \overline{a} **Solution.** Since we have: for $\epsilon = 1, 2, 3, 4$ NMV of amplitude term Weight vector **Solution.** Since we have: for $\overline{z} = 1, 2, 3, 4$ **SOLUTION.** Since we have: for $z = 1, 2, 3, 4$ \int_0^{π} of π term \int_0^{π} of \int_0^{π} of \int_0^{π} of \int_0^{π} of \int_0^{π} or \int_0^{π} or **Solution.** Since we have: for $\overline{z} = 1, 2, 3, 4$ **Solution.** Since we have: for $\overline{z} = 1$, 2, 3, 4 $\frac{1}{2}$ we checked the reliability of our invented approaches, by comparing approaches, by com

Solution. Since we have: for
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3 = 1, 2, 3, 4
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CPyFAAWG(\Omega_1, \Omega_2, ..., \Omega_4) = \begin{pmatrix} e^{-\left(\sum_{\frac{4}{3}=1}^{4} \mathfrak{D}_{\frac{2}{3}}\left(-\ln(\Pi_{\frac{2}{3}})\right)^3\right)^{\frac{1}{3}}}{2\pi i \left(e^{-\left(\sum_{\frac{4}{3}=1}^{4} \mathfrak{D}_{\frac{2}{3}}\left(-\ln(\Pi_{\frac{2}{3}})\right)^3\right)^{\frac{1}{3}}}\right)} \\ \sqrt{\frac{e^{-\left(\sum_{\frac{4}{3}=1}^{4} \mathfrak{D}_{\frac{2}{3}}\left(-\ln\left(1-\Xi_{\frac{2}{3}}^2\right)\right)^3\right)^{\frac{1}{3}}}}}{2\pi i \left(\sqrt{\frac{e^{-\left(\sum_{\frac{4}{3}=1}^{4} \mathfrak{D}_{\frac{2}{3}}\left(-\ln\left(1-\Xi_{\frac{2}{3}}\right)\right)^3\right)^{\frac{1}{3}}}}{1-e^{-\left(\sum_{\frac{4}{3}=1}^{4} \mathfrak{D}_{\frac{2}{3}}\left(-\ln\left(1-\frac{\rho_2^2}{2}\right)\right)^3\right)^{\frac{1}{3}}}}\right)}
$$

$$
e^{-\left(\left(\frac{(0.20)(-In(0.55))^3 + (0.35)(-In(0.17))^3 + (0.17)^3 + (0.17)^4}{(0.30)(-In(0.27))^3 + (0.35)(-In(0.27))^3 + (0.37)^5
$$

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Now, we explored the AOs of the CPyFAAWG operator, and also studied some special cases of the CPyFAAWG operator in the framework of a CPyF Aczel–Alsina ordered weighted geometric
(CPuFAAOWG) operator, based on Aczel–Alsina operations. tne CPyFAAvvG operator in tne framework of a CPyF Aczel–Alsina ordered weignted geometric
(CPyFAAOWG) operator, based on Aczel–Alsina operations. Δ ₁₂, Δp are explored the ΔQ of the C_{PU}EA ΔW coverator and also studied some special cases ³ be explored the AOS of the CryfAAN IFS and PyFs. Now, we explored the AOs of the CPyFAAWG operator, and also studied some special cases of *iii.* In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of AWG operator in the framework of a CPyF Aczel–Alsina ordered weighted {
WG) operator, based on Aczel–Alsina operations. czel–Alsina operations. Now, we explored the NOs of the CI y17121WG operator, and also statical some special cases of
the CPyFAAWG operator in the framework of a CPyF Aczel–Alsina ordered weighted geometric $\frac{1}{a}$ explored the AOs of the CPyFAAWG operator, and also studied some special cases \sum *She CryfAAOWG* because *in the framework* by a Cryp *Ticzer Tisma* bracted weighted geometric
(CPyFAAOWG) operator, based on Aczel–Alsina operations. \mathcal{C} Now, we explored the AOs of the CPyFAAWG operator, and also studied some special cases of Now, we explored the AOs of the CPyFAAWG operator, and also studied some special cases of
the CPyFAAWG operator in the framework of a CPyF Aczel–Alsina ordered weighted geometric
(CPuFAAOWG) operator hased on Aczel–Alsina ⎟ ⎟ \cup N_{QED} and explored the Λ ⎟ ⎟ $\overline{\mathbf{u}}$ $\frac{N_{QCD}}{N_{QCD}}$ and $\frac{N_{QCD}}{N_{QCD}}$ of the ⎟ ⎟ ⎟ Now, we explored the AOs of the CP₁ \mathbb{F}_2 ں
۔ we explored the AOs of the CPyFAAWG operator, and also studied some special cases of explored th (CPyFAAOWG) ope w, we explored <mark>t</mark>h ∂ AOs of the CPyFAAWG operator, and also studied some special cases of the CPyFAAwG operator in the framework of a CPyF Aczel–Alsina oraerea weighted
(CPyFAAOWG) operator, based on Aczel–Alsina operations. *n*, 15, 68

Now, we explored the AOs of the the CPyFAAWG operator in the (CPyFAAOWG) operator, based of
 Definition 15. Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\mathbf{Y}}\right)$ *is particularized as:* Now, we explored the AOs of the CPyFAAWG operator, and also studied some special cases of 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ $\check{}$ AOWG) operator, based on Aczel–Alsina operati ⎟ \cos of the CPyFAAWG operator, and also studied some special cases of \sin the framework of a CPuF A anal. Alging ordered special casementum ƺୀଵ *. Then, the CPyFAAWA operator* ramework of a Cr yr 11c2
n Aczel–Alsina operation a *moma oracica*
c (CPyFAAOWG) operator, based on Aczel–Alsina operations. $\Phi_{\rm eff}(\omega)$ (p. ω and ω captorea the 110s of the CI g1111w0 operator, and also stadied some special ed
AAWG operator in the framework of a CPyF Aczel–Alsina ordered weighted geon
OWC) operator, based on Aczel–Alsina operations. *Symmetry* **2023**, *14*, x FOR PEER REVIEW 4 of 35 na manazar $\frac{1}{\sqrt{2}}$ a Aczel–Alsina operation *family of corresponding weight vectors in a corrections.* ator, based on Aczel–Alsina operations. the CPyFAAWG operator in the framework of a CPyF Aczel–Alsina ordered weighted geometric has the two aspects of MV and NMV in terms of amplitude and phase terms. We develop explored the AOs of the CPyFAAWG operator, and also studied some special case \overline{a} OWG) operator, based on Aczel-Alsina operation operator in the framework of a CPyF Aczel–Alsina ordered weighted geo
prerator, hased on Aczel–Alsina operations *l* the AOs of the CPyFAAWG operator, and also studied some special c rations.
 $2\pi i(\beta_{\Omega_{\boldsymbol{a}}}(\boldsymbol{\mathcal{X}})))$ $\overline{}$ yFAAWG operator, and also studied some special cases of ina ord<mark>e</mark> the CPyFAAWG operator in the framework of a CPyF Aczel–Alsina ordered weighted geometric

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Definition 11. *Consider* ƺ = ቆఆƺ

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Definition 15. Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))}, \Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}})}\right)$ the family of CPyFVs and weight vectors $\mathfrak{D}_\mathbf{Z}=(\mathfrak{D}_1,\mathfrak{D}_2,$ $\mathfrak{D}_3,\ldots,$ $\mathfrak{D}_n)^T$ of $\Omega_\mathbf{Z}(3=1,2,3,\ldots)$ such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., \mathfrak{N}$ and $\sum_{\mathbf{Z}-1}^{\mathfrak{N}} \mathfrak{D}_z = 1$. Then, the associ $CPyFAAOWG operator are particularized as:\n\begin{pmatrix}\n\frac{1}{2} & \frac{1}{2} & \frac{1}{2} \\
\frac{1}{2} & \frac{1}{2} & \frac{1}{2}\n\end{pmatrix}$ **Definition 15.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$, $\mathbf{Z} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi}{3}}\right)$ **Definition 15.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}\right), \ z = 1, 2, ..., \mathbb{N}$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $\mathcal{O}_Z \in [0,1]$, $\mathcal{E} = 1,2,\ldots$, \mathcal{O}_Z and $\sum_{Z=1} \mathcal{D}_Z = 1$. Then \mathcal{O}_Z are non-ticularized as: the family of CPyFVs and weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of Ω_z (3 = 1, 2, 3, 1), $\mathfrak{so}_\mathfrak{Z} \in [0,1], \; \mathfrak{Z} = 1, 2, \ldots, \mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{N}} \mathfrak{D}_{\mathfrak{Z}} = 1$. Then, the associated values of the *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*)) **tion 15.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\omega_{\mathbf{Z}}}{2}}\right), \mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\omega_{\mathbf{Z}}}{2}}\right), \mathbb{Z} = 1, 2, ..., N$ be $\Omega_{\mathcal{Z}} = \left(\Pi_{\Omega_{\mathcal{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathcal{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathcal{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathcal{Z}}}(\varkappa))}{2}}\right), \, \mathcal{Z} = 1, 2, \ldots, \mathcal{W}$ be *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* \ldots , \ldots and $\sum_{z=1} \mathfrak{D}_z = 1$. Then, the associated values is and weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_z (z = 1, 2, 3, \dots, n)$, ῃ $d\sum_{\mathbf{z}=1}^n \mathfrak{D}_{\mathbf{z}} = 1$. Then, the associated values of the \mathbf{s} . $\frac{1}{2}$ and $\frac{1}{2}$ *and* $\frac{1}{2}$ *and* $\frac{1}{2}$ *r* $\left(\prod_{\Omega_{\tau}}(\varkappa)e^{\frac{2\pi i(\alpha_{\Omega_{\zeta}}(\varkappa))}{2}}, \Xi_{\Omega_{\tau}}(\varkappa)e^{\frac{2\pi i(\beta_{\Omega_{\zeta}}(\varkappa))}{2}}\right), \ z=1,2,\ldots,\mathfrak{N}$ be the family of CPyFVs and weight vectors $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $\Omega_3(3 = 1, 2, 3, ...$ ⁿ), ῃ ൫ƺ൯ \int , $\overline{z} = 1, 2, \ldots, \overline{p}$ be Γ *such that* $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,1]$ and $\sum_{i=1}^{\infty} \mathfrak{D}_z = 1$. Then, the associated values of the $\left(\prod_{\alpha} \binom{2\pi i (\alpha_0 - \alpha)}{2} \nabla^2 \left(\alpha_0 - \frac{2\pi i (\beta_0 - \alpha)}{2}\right) \right)$ 3 – 12 = 12 = 14 $\overline{a} = \overline{b}$. The IF $\overline{a} = 1$ $\begin{bmatrix} 0 & 0 \end{bmatrix}$ and $\begin{bmatrix} 0 & 0 \end{bmatrix}$ = 1. Then, the associated values of the such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{U}} \mathfrak{D}_3 = 1$. Then, the associated values of the **Definition 15.** Let $\Omega_{\mathcal{Z}} = \begin{pmatrix} \Pi_{\Omega_{\mathcal{Z}}}(\varkappa) e & e \\ \end{pmatrix}$, $\Xi_{\Omega_{\mathcal{Z}}}(\varkappa) e$ and $\Xi_{\Omega_{\mathcal{Z}}}(\varkappa) e$ **Definition 15.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right)$, $\mathbf{Z} = 1, 2, ..., 10$ be be \overline{a} \overline{b} \overline{c} \overline{d} \overline{c} **In this particular the existing concept of Acceler-Algebra 2014** (\mathcal{A}) \mathcal{A} (\mathcal{A}) \mathcal{B} (\mathcal{B}) \mathcal such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,\mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathfrak{Z}} = 1$. Then, the associated values of the CPuEA AOWC operator are particularized as: $\frac{2\pi i}{\pi}$ **n 15.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{2\pi i}{3}(\kappa_1-\kappa_2-\kappa_3)}\right), \mathbf{Z} = 1, 2, ..., \mathbf{N}$ be $\overline{2}$ $\mathbf{E}^{(\mathcal{H})}$, 3 = 1,2,..., the family of CPyFVs and weight vectors $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_3(3 = 1, 2, 3, \ldots, n)$ భ Ὺ , $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e$ \qquad $\$ ⎜ $\mathbf{g}(\mathbf{x})e^{-\mathbf{i}\mathbf{x}\cdot(\mathbf{r})/\mathbf{x}}\mathbf{g}(\mathbf{x})},$ భ Ὺ Ĭ. $\frac{1}{\sqrt{2}}$ of CPyFVs. By using an induction method, we prove Theorem 1 based on Aczel–Alsina **ii**nition 15. Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{\frac{-\boldsymbol{\varkappa}}{2}}\right)$, $\mathcal{L}_{\mathcal{B}}$ ine family of CPyFVs and weight vectors $\mathfrak{D}_{\mathcal{B}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^\top$ of $\Omega_{\mathcal{B}}(z = 1, 2, 3, 3)$ $W = \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}$ in $W = \begin{bmatrix} 2 & 0 \\ 0 & 0 \end{bmatrix}$ we are an Ac $\begin{bmatrix} 2 & 0 \\ 0 & 0 \end{bmatrix}$ **Definition 15.** Let $Q_B = \left(H_Q(\boldsymbol{\nu})e^{-\frac{2\pi i}{\lambda}(\boldsymbol{\nu})t}F_Q(\boldsymbol{\nu})e^{-\frac{2\pi i}{\lambda}(\boldsymbol{\nu})t}\right)$, $\mathbf{Z} = 1.2$ *i*
 $\frac{1}{2}$ () 6 mily matematic of the section of the IFS and PyFs. $\text{min}_{\mathbf{A}} \mathbf{I} = \begin{pmatrix} \mathbf{H} & \cos \theta \\ \cos \theta & \cos \theta \end{pmatrix} \mathbf{I} = \begin{pmatrix} \cos \theta & \sin \theta \\ \cos \theta & \sin \theta \end{pmatrix} \mathbf{I} = \begin{pmatrix} \mathbf{I} & \mathbf{I} \\ \mathbf{I} & \mathbf{I} \end{pmatrix}$ imily of CPyFVs and weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}(2) = 1, 2, 3, \dots$ [1], \overline{P} , I at $\overline{Q} = \left(\overline{H}_{\pm\epsilon}(\omega)\right)^{2\pi I(\alpha)}\overline{Q}(\overline{X})$ or \overline{P} and $\overline{P}(\omega)\overline{Q}(\overline{X})$ or $\overline{Q}(\overline{X})$ or $\overline{Q}(\overline{X})$ or $\overline{Q}(\overline{X})$ or $\overline{Q}(\overline{X})$ or $\overline{Q}(\overline{X})$ or $\overline{Q}(\overline{X})$ or $\overline{Q$ $\mathcal{C} = 2\pi i (\kappa_{\Omega} - (\boldsymbol{\varkappa}))$ $2\pi i (\beta_{\Omega} - (\boldsymbol{\varkappa}))$ $\Pi_{\Omega_{\sigma}}(\varkappa)e$ and $\Sigma_{\Omega_{\sigma}}(\varkappa)e$ and $\Sigma_{\sigma}(\varkappa)e$ and $\Sigma_{\sigma}(\varkappa)e$ են առաջ (12. <u>2. 6. 18. ան) են գ</u>ամ
12. **Հ** *family of CP₃* \in [0,1], $\bar{x} = 1, 2, ...,$ ⁿ and $\sum_{\bar{z}=1}^{N} \mathfrak{D}_{\bar{z}} = 1$. Then, the associated values of the ⎜ **Definition 15.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right)$, $\mathbf{Z} = 1, 2, ..., 10$ be \sqrt{c} $\frac{1}{2}$ order weight $\frac{1}{2}$ order $\frac{1}{2}$ on $\frac{1}{2}$ \mathcal{C} explore our inventor of \mathcal{C} ω_{m} including by CPyFV suma weight becomes $\omega_{\text{g}} = (\omega_1, \omega_2)$ \mathcal{U} explore our inventor of CP \mathcal{Z} m ejamny of CPyFV sama weight beclors $\omega_3 = (\omega_1, \omega_2, \omega_3)$ $W \subset \mathbb{R}$ for the presented new A \mathbb{R} using and $P \subset \mathbb{R}$ α inclumity by CPyF v suma weight bectors $\omega_2^2 - (\omega_1, \omega_2, \omega_3, \ldots, \omega_n)$ of ω_2 (e $-$ 1, 2, 3, ... the family of CPyFVs and weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_z(3 = 1, 2, 3, \dots)$ $_n$ </sub> n 15. Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right), \ z = 1, 2, \ldots, \mathbb{N}$ be $\text{with the } \Omega \subset [0,1] \times 1 \times 10^{-10}$ $\partial u \cap \partial u \in \mathcal{L}$ $\overline{\mathbf{C}}$ we define $\Omega \subset [0,1]$ and \mathbb{R}^n using \mathbb{R}^n such that $\mathfrak{D}_\mathbf{Z} \in [0,1]$, $\mathfrak{z} = 1, 2, \ldots, 1$ and $\mathfrak{L}_{\mathbf{Z}=1}$ CF $\mathbf{z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of \mathbf{X} $i(\cdot$ $\Omega_{\mathcal{Z}}(\mathcal{X})^e$ $\begin{pmatrix} (a+1) \\ (b+1) \end{pmatrix}$, $\begin{pmatrix} 3 \\ 2 \end{pmatrix} = 1, 2, ..., \begin{pmatrix} 1 \\ 2 \end{pmatrix}$ be associated values of the \overline{a} $\frac{20}{3} = 14.68128$, $\frac{20}{3} = 14.48128$, $\frac{20}{3} = 14.48128$, $\frac{20}{3} = 14.48128$, $\frac{20}{3} = 14.48128$ $\mathcal{L}^{(\mathcal{H})}$, $\mathfrak{Z} = 1, 2, ..., \mathfrak{N}$ be f the ⎛ $1-\frac{1}{2}$ μ *is* $-1, 2, ..., n$ $\begin{align*}\n\mathbf{a} \quad \mathbf{b} \\
 \mathbf{c} \quad \mathbf{c} \quad \mathbf{c} \\
 \mathbf{d} \text{ weight vectors } \mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T \text{ of } \Omega_z \quad (z = 1, 2, 3, \dots, n),\n\end{align*}$ **Theorem 2.** *Consider* ƺ = ቆఆƺ () , ఆƺ () $f_{\mathbf{g}} = \left(\Pi_{\Omega_{\mathbf{g}}}(\boldsymbol{\chi})e^{-2\pi i(\alpha_{\Omega_{\mathbf{g}}}(\boldsymbol{\chi}))}, \Xi_{\Omega_{\mathbf{g}}}(\boldsymbol{\chi})e^{-2\pi i(\beta_{\Omega_{\mathbf{g}}}(\boldsymbol{\chi}))}\right), \; \mathbf{g} = 1, 2, \ldots, \mathbf{0} \; be$ \hat{P}_z are family of CPyFVs and weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of Ω_z (3 $= 1$, $\mathfrak{F} = 1, 2, \ldots, \mathfrak{N}$ and $\sum_{r=1}^{\mathfrak{N}} \mathfrak{D}_{\mathfrak{S}} = 1$. $\frac{1}{2}$ ₂, $\frac{1}{2}$, $\frac{1}{2}$ ῃ $\mathcal{D}_z \in [0,1], \ z = 1,2,\ldots$, *a* and $\sum_{z=1} \mathcal{D}_z = 1$. Then, the associated values of the $\left(\begin{array}{cc}2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}}))&2\pi i(\beta_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}}))\end{array}\right)$ \mathcal{L} family of CPyFVs and weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^\top$ of $\Omega_{\overline{z}}(z = 1, 2, 3, \ldots, n)$, el $\frac{2\pi i(\alpha_0 \cdot (\boldsymbol{\chi}))}{2\pi i}$ ⎟ ⎟ ⎟ ⎟ ⎟ $CPyFAAOWG$ operator are particularized as: $\sum_{\bf \overline 8}=1}^{\bf \overline 1 |} \mathfrak{D}_{\bf \overline 8}$ such that $D_{-} \in [0, 1]$ $\mathcal{I} = \{1, 2, \ldots\}$ and $\sum_{i=1}^{n}$ $D_{-} = 1$. Then the Ω Ţ. ℓ $2\pi i (r_{\Omega}(\kappa))$ $2\pi i (\beta_{\Omega}(\kappa))$ the family of CPyFVs and weight vectors $\mathfrak{D}_{\mathbf{Z}}=(\mathfrak{D}_1,\mathfrak{D}_2,~\mathfrak{D}_3,\dots,~\mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}(2=1,2,3,\dots$ $\mathfrak{l}^n)$, \mathcal{L} we presented some new AOS and fundamental operational laws of \mathcal{L} such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1, 2, \ldots$, ¹¹ and $\sum_{\mathbf{Z}=1}^n \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the associated values of the $\mathcal{L}_{\mathcal{D}}$ we are neglected some new AOS and fundamental laws of CPS s. We also $\mathcal{L}_{\mathcal{D}}$ *a* as: $\frac{e-1}{2}$ $\overline{ }$ $\overline{}$ the family of CPyFVs and weight vectors $\mathfrak{D}_g = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_g (3 = 1, 2, 3, \dots, n)$, \equiv $\sqrt{1}$ $\Omega_{\texttt{Z}}(\varkappa) e^{-2\pi i (\alpha_\Omega \texttt{Z}(\varkappa))}, \Xi_{\Omega_{\texttt{Z}}}(\varkappa) e^{-2\pi i (\beta_\Omega \texttt{Z}(\varkappa))} \bigg), \; \texttt{Z}$ \equiv \int_{α} , $\ln \tan \sum_{\mathbf{z}}^n \mathfrak{D}_{\mathbf{z}} = 1$. Then, the ass sociated ve \overline{A} operative concepts of \overline{A} and \overline{A} ⎟ $2\pi i(\beta_{\Omega}(\boldsymbol{\chi}))$ $C_{\text{max}} \sim \frac{1}{2}$ (b, 1), c = 1, 2, ..., and $L_{\text{max}} = \frac{1}{2}$ $\frac{1}{2}$ = 1. Then, the association oped some innovative concepts of \mathbf{A} such that $\mathfrak{D}_{\mathfrak{Z}} \in [0,1], \ \mathfrak{Z} = 1, 2, \ldots, \mathfrak{N}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathfrak{Z}} = 1$. Then, the associated **on 15.** Let Ω $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ $\sum_{n=1}^{\infty}$ () CPyFAAOWG operator are particularized as: າe fai $\frac{1}{2}$ ini η ଵି ⎝ f CPyFVs and weight vectors $\mathfrak{D}_\mathbf{Z} = (\mathfrak{D}_1, \mathfrak{D}_2)$ **13.** Let $\Omega_{\mathcal{Z}} = \begin{pmatrix} I_{\Omega_{\mathcal{Z}}}(\kappa)e & e \end{pmatrix}$ \overline{a} E_{Ω} ⎟ ⎟ ⎟ the family of CPyFVs and weight vectors $\mathfrak{D}_g = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\overline{\Omega}_g$ ($\overline{\mathfrak{z}} = 1, 2, 3, \ldots$) \equiv (*x*)), *such that* $\overline{2\pi i}$ ∈ (*x*)), \overline{H} \overline{H} \overline{H} \overline{H} $\mathcal{L}_S(\mathcal{H})e$ $\mathcal{L}_{\Omega_S}(\mathcal{H})e$ $\mathcal{L}_{\Omega_S}(\mathcal{H})e$ $\mathcal{L}_{\Omega_S}(\mathcal{H})e$ $\mathcal{L}_{\Omega_S}(\mathcal{H})e$ $\lbrack 1 \rbrack$.
.. CPyFAAOWG operator are particularized as: ⎜ \ldots, \mathfrak{n} a \overline{a} \overline{a} rs D 3 ⃓ ⃓ ⃓ ⃓ ⃓ ⃓⃓ ለ $\zeta - \zeta$ $\qquad \qquad \sum_{\Omega_{\mathbf{Z}}} (\mathbf{x})e \qquad \qquad \sum_{\Omega} (\mathbf{x})e \qquad \qquad \sum_{\Omega} (\mathbf{x})e$ $(\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}(3, 1, 2, 3)$ such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., 0$ and $\sum_{z=1}^{0} \mathfrak{D}_z = 1$. Then, the associated values of the $\ddot{}$ \cdot , \cdot ⎟ the family of CPyFVs and weight vectors $\mathfrak{D}_g = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_g (3 = 1, 2, 3, \dots, n)$, ⎟ ℓ $2\pi i(\alpha_{\Omega}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega}(\boldsymbol{\chi})))$ Definition 15. Let Ω ₃ $\frac{1}{\sqrt{2}}$ $\ddot{}$ $\text{ such that } \mathfrak{D} \subset [0, 1]$ 3 ⎟ భ య ⎟ భ ⎟ \equiv $\sum_{n=1}^{\infty} a_n \ddot{a}_n \cdots a_{n-1} \ddot{a}_n \cdots \ddot{a}_n$ **Definition 15.** Let $\Omega_{\mathbf{Z}} = \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}$ such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} =$ $\ddot{}$ \cdot , \cdot $\begin{array}{rcl} \text{such that } \mathfrak{D} & \subset [0, 1] & \mathfrak{Z} = 1 \end{array}$ ر
بر $\sum_{n=1}^{\infty}$ **Definition 15.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}\right)$ such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1,2$, .
ul
Ω $\ddot{\cdot}$ \cdot , uch that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z}_3 = 1,2,\ldots, \mathfrak{N}$ a $\cos \mathfrak{D}_{\mathfrak{Z}} = (\mathfrak{D})$ \mathcal{H}_{ρ} $\int_{\mathbf{R}} \mathbf{e}^{\mathbf{r}} \cdot d\mathbf{r} d\mathbf{r} d\mathbf{r} d\mathbf{r} = \int_{\mathbf{R}} \mathbf{E} \cdot d\mathbf{r} d\mathbf{r} d\mathbf{r}$ efinition 15. Let $\Omega_{\mathbf{Z}} = \Big(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{2\pi i}{\lambda}(\mathbf{x}_1)}\Big)$ that $\mathfrak{D}_\mathfrak{Z} \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., \mathfrak{N}$ and \sum $\overline{\mathbf{z}}$ \in [0,1], $\mathfrak{z} = 1, 2, ..., \mathfrak{h}$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{h}} \mathfrak{D}_{\mathfrak{Z}} = 1$. Then, the associated v PyFVs and weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_z(3 = 1, 2, 3, \dots, n)$, $\mathcal{L}(\mathcal{H})$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{Z}}}(\mathcal{H}))$ $\mathcal{L}(\beta_{\Omega_{\mathbf{$ **Definition 15.** Let $\Omega_{\overline{g}} = \left(H_{\Omega_{\overline{g}}}(\varkappa)e^{-\varkappa_{\varkappa}} \right)$, $\Omega_{\Omega_{\overline{g}}}(\varkappa)e^{-\varkappa_{\Omega_{\overline{g}}}(\varkappa_{\varkappa})e^{-\varkappa_{\varkappa}}}\right)$, $\varkappa = 1, 2, ..., 4$ be the family of CPyFVs $\ddot{\theta}$ CPyFAAOWG operator are $^{\prime}$ $[0, 1], \; 3 = 1, 2$ μ the family of CPyFVs and weight t $\frac{1}{\sqrt{2\pi}}$ CPyFAAOWG operator are partici $[1]$, $[3] = [1, 2, \ldots, n]$ and $\sum_{\mathbf{Z} = -1}^{\mathbf{\eta}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the associated values of the \overline{a} *family of CPUF* α *and its corresponding weight vectors* α *is* α of α of α , α of α of α of α of α or α or α or α or α or α . cuiues of the **15.** Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\kappa)e^{\frac{2\pi i}{\kappa}}\right)$ భ Ὺ \mathcal{L}) ⎠ $\left(\begin{array}{ccc} & 2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})) & \lambda_{\Omega_{\mathbf{z}}}(\boldsymbol{\beta})\end{array}\right)$ at $\mathcal{D}_- \in [0, 1]$ $\mathcal{I} = 1, 2$ $\mathcal{D}_ \mathcal{D}_- = 1$ Then the associated values of the $\left(\begin{array}{cc} 2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\chi})) \end{array} \right)$ $(\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_{\mathfrak{Z}}$ (3 = 1, 2, 3, ... !), $\frac{1}{2}$ ^(λ) **5. Secondary Complex Pythagorean Complex Averaging Operator** \overline{a} $\binom{2}{3}$ $\binom{2}{3}$, $\binom{3}{4}$, $\binom{1}{2}$, $\binom{1}{3}$ be ⎜ $\binom{1}{2}$, $\binom{3}{2}$ = 1,2,..., $\ln bc$ \mathbf{r} ⎝ ⎜ χ $2\pi i(\alpha_{\Omega_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{-}}(\boldsymbol{\chi})))$ ⎜ ିቀ(అభାఅమ)൫ି()൯ ⎜ ı, Ὺቁ భ Ὺ Then, the associated \overline{v} he associated values of th .
ha $\frac{1}{\sqrt{2}}$ ta ted values of the = 1,2,..., \ln and $\sum_{\mathbf{Z}=1}^{\mathbf{Z}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then, the associated $=$ 1, 2, 3, \ldots \mathfrak{N}), $=$ η and $\sum_{i=1}^{n} \sum_{j=1}^{n}$ Then the associated values of $\ddot{}$ $\overline{1}$ $\mathcal{D}_{\mathcal{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots)$ σ \sqrt{I} σ $(7, 122)$ $\begin{aligned} \epsilon \quad \int f \cdot \delta &= 1,2, \end{aligned}$ \ddots

$$
CPyFAAOWG\left(\Omega_{1},\,\Omega_{2},\,\ldots,\,\Omega_{\parallel}\right)=\frac{\eta}{\zeta_{-1}}\left(\Omega_{b(\zeta)}^{\mathfrak{D}_{\zeta}}\right)=\Omega_{b(1)}^{\mathfrak{D}_{1}}\otimes\Omega_{b(2)}^{\mathfrak{D}_{2}}\otimes\ldots\otimes\Omega_{b(\zeta)}^{\mathfrak{D}_{\parallel}}\tag{11}
$$

 $\mathcal{L}^{r}(3)$, $\mathcal{L}(2)$, $\mathcal{L}(3)$, $\mathcal{L}(7)$, is the collection of *with verty verty verty verty a of the verty permanents of* $\binom{1}{2}$ $\binom{2}{-1}$ \leq $\binom{1}{2}$ $\binom{3}{'}$ $\binom{7}{2}$ $\binom{8}{1}$ $\binom{8}{1}$ $\binom{1}{2}$ $\binom{1$ where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ... 1)$ $\alpha \rightarrow \alpha \rightarrow 3, 1, 2, 3, ...$ $\Omega'_{b(2-1)} \geq \Omega'_{b(2)}$, ∇ , $\varepsilon = 1, 2, 3, ...$ ⁱⁱ. $R_{\text{max}} > Q_{\text{max}} \forall$, $\overline{z} = 1, 2, 3, \dots$ $\mathcal{L}(-1)$ b(c) $\Omega_{h(3-1)} \geq \Omega_{h(3)}$, \forall , $3 = 1, 2, 3, ...$ n. $\left(\begin{array}{ccc} \overline{} & \overline{} & \overline{} \\ \overline{} & \overline{} & \overline{} \\ \overline{} & \overline{} & \overline{} \end{array}\right)$ (λ) , (λ) , (λ) , (λ) , (λ) is the set of permutations of $(\lambda) = 1, 2, 3, ...$ $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ... 1)$ and $(1) \leq \Omega_{b(2)}, \forall, \, i=1,2,3,\ldots$ is equal to $\Omega_{b(2)}$. $\Omega_{\mathbf{h}(\mathbf{Z}-1)} \geq \Omega_{\mathbf{h}(\mathbf{Z})}$, \forall , $\mathbf{Z} = 1, 2, 3, \ldots, n$. \ldots , then, the PyF Ac \ldots are \ldots is given as: \ldots is given as **Symbol Meaning Symbol Meaning** is the set of permutations of $(z = 1, 2, 3, \ldots, 4)$ and $W_{\rm c}$ of a contract term $W_{\rm c}$ and $W_{\rm c}$ are a contract to the second term $W_{\rm c}$ *with weight weight weight weight weight vector* $(i=1,2,3,\ldots,9)$ and *the set of permutations of* $(2=1,2,3,\ldots,9)$ and $\begin{pmatrix} 3 & 0 \\ 0 & 1 \end{pmatrix}$ is the collection of permutations by $\begin{pmatrix} 3 & 1 \\ 0 & 1 \end{pmatrix}$ and $\begin{pmatrix} 2 & 1 \\ 0 & 1 \end{pmatrix}$ $\mathfrak{p}(z-1)$ **b** $\mathfrak{p}(z)$ $\begin{bmatrix} 1 & 2 & 3 \end{bmatrix}$ $\begin{bmatrix} 1 & 0 \end{bmatrix}$ ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* \angle , *o_f*…, ^{*w*}, where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ...$ $\mathcal{P}(G-1)$ $\zeta \leq \frac{1}{2} \int_{\delta} (\frac{g}{3})^r v, \, \epsilon = 1, 2, 3, \ldots$ where $(f_0(1), f_0(2), f_0(3), \ldots, f_k(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots)$ ത്തിന്റെ $\begin{bmatrix}2r\end{bmatrix}$ (b(1) b(2) b(3) b(3) is the set of nermutations of $\begin{bmatrix}3=1&2&3&1\end{bmatrix}$ and $\forall 3 = 1, 2, 3, 0$ $\frac{1}{\sqrt{2}}$ θ is a permutation of θ is a permutation of θ where $(\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots, n)$ and $\mathcal{A}_{\mathcal{A}}$, \forall , $\mathfrak{F} = 1, 2, 3, \dots$!!. $re\;$ $(b(1),\;b(2),\;b(3),\;..$ $b(2), b(3), \ldots, b(3)$ $\mathfrak{p}(\varepsilon)$ $\mathcal{L}(\mathbf{z})$, $\mathcal{L}(\mathbf{z})$ is a permutation of $(\mathbf{z}, \mathbf{z}, \mathbf{z}, \mathbf{z}, \mathbf{z})$ where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots, 1)$ and $\Omega_{h(Z-1)} \geq \Omega_{h(Z)}, \forall, Z = 1, 2, 3, \ldots$ ⁿ. ω 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\mathcal{L} = 1, 2, 3, \ldots$ ⁿ. $\label{eq:Omega_bZ-1} \Omega_{b(Z-1)} \geq \Omega_{b(Z)'} \forall, \: \texttt{Z=1, 2, 3, \ldots l}.$ Ω _. where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots, 1)$ and **3.** $\left(\frac{1}{2}\right)$ $\left(\frac{2}{2}\right)$ $\left(\frac{$ where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ...$ ¹¹) \sim \sim \sim \sim \sim \sim $\mathcal{L}(4)$, $\mathcal{L}(2)$, $\mathcal{L}(3)$, $\mathcal{L}(5)$, $\mathcal{L}(7)$, $\mathcal{L}(7)$, $\mathcal{L}(8)$, $\mathcal{L}(9)$, $\mathcal{L}(1)$, $\mathcal{$ $\sum_{i=1}^{n}$ $\Omega_{\mathrm{b}(\mathbf{Z}-1)} \geq \Omega_{\mathrm{b}(\mathbf{Z})}$, \forall , $\mathbf{Z} = 1, 2, 3, \dots$ n. $\mathbf{I}(\mathbf{Z})$ is the ort of normalized \blacksquare where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ...$ ⁿ) and Ὺ where (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(3 = 1, 2, 3, ...$ ⁿ) and $\Omega_{k,2}$, $\Omega_{k,3}$, \forall , $3 = 1, 2, 3, ...$ ⁿ. $\mathfrak{g}(z)$) is the set of permutations of $\Omega_{\mathrm{b}(Z-1)} \geq \Omega_{\mathrm{b}(Z)}^{\mathrm{b}(Z-1)}$, \forall , $Z = 1, 2, 3, \ldots, n$. $rm \ddot a$ $\textit{ions of } \left(\mathbb{3} = 1, 2, 3, \ldots \mathbb{N} \right)$ ι ⎟ e $(\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ is the set of per of new AOS like the CPYFAAWA operator and verified invented invented invented and verified invented and verifie $(\Omega_{\mathbf{k}/\mathbf{Z}-1}) \geq \Omega_{\mathbf{k}/\mathbf{Z}1}$, \forall , $\mathbf{\bar{z}} = 1, 2, 3, \ldots$ $f(z) = f(z)$ deserved properties. The served properties uvh $\Omega_{\text{eff}} \rightarrow \Omega_{\text{eff}}$ \forall , $\ell \equiv 1, 2, 3, \ldots, n$ $\Omega_{b(2-1)} \ge \Omega_{b(2)}$, \forall , 3 = 1, 2, 3, ... ⁿ. at $\text{ions of } (3 = 1, 2, 3, \dots 1)$ $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots, 1)$ and where $(b(1), b(2), b(3), ..., b(3))$ $(3, \pi) > 0$ Furthermore, we also established the definition on the definition $f(x)$ bis $f(x)$ (3) Furthermore, we also established the CPyFAAWAG operator based on the defined $f(z-1) = -\frac{1}{2}(\xi)$, ζ $\Omega_{1,7}$ \rightarrow $\Omega_{\mathrm{b}(\mathbf{Z}-1)} \ge \Omega_{\mathrm{b}(\mathbf{Z})'} \forall$, $\mathbf{\mathbf{Z}} = 1$, 2, 3, ... \mathbf{N} . 1), $b(2)$, $b(3)$, ..., $b(3)$) is the (2) , $b(3)$, \dots , $b(2)$) is the s t of pern $J = \langle \cdot (1), \cdot (2), \cdot (2), \cdot (3) \rangle$ idea of Accelerationalists theory $where (b(1))$ $\mathfrak{h}(\epsilon-1)$ is the CP where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of (3) $\Omega = \Sigma \Omega - \forall 3-1$ 2 3 m $p(s-1)$ is the CP_{yF}A_N operator and verified inventor and verified inventor and verified inventor $p(s)$ with some $p(s)$ (2) \forall \in \mathbb{Z} \neq \mathbb{Z} e se of permutations of $(3 - 1)^t$ permutations of $(3 = 1, 2, 3)$ $\ldots \mathfrak{n}$ a where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of $b(2)$ ^t, \overline{c} and \overline{c} operator and verified inventor and verified inventor \overline{c} Ω by \mathbb{R}^n and \mathbb{R}^n and \mathbb{R}^n $\Delta^2 b(2-1) \leq \Delta^2 b(2)$, $\vee \cdot \cdot \cdot$ = 1, \angle , \circ , (3) , \forall , 3 = $where (b(1), b(2), b(3), ..., b)$ $\Delta^{2}b(3-1) \leq \Delta^{2}b(3)$ $, 3 = 1, 2,$ \overline{a} $where (b(1), b(2), b(3), ..., b(3))$ $\Delta^{2}b(3-1) \leq \Delta^{2}b(3)'$ v c - $1, 2, 3, \ldots$ $\overline{}$ $\text{where } (\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ $b(2-1) \leq b(2)^{\gamma}$ is $b(3)$, is γ , is γ . \mathfrak{y} . et 2), $\mathfrak{b}(3)$, ..., $\mathfrak{b}(3)$ is the set of permutations of $(3 = 1, 2, 3, \ldots, n)$ and 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ା \mathcal{L} ା(. \mathcal{L}) ମାର \mathcal{L} $\binom{b(1), b(2)}{b(1)}$ $\Omega_{\rm b(\vbox{Z}-1)} \ge \Omega_{\rm b(\vbox{Z})'}$ \sim \sim \sim \sim here $(b(1), b(2), b(3), \ldots, b)$ $\Omega_{\mathfrak{b}(\mathbf{Z}-1)} \geq \Omega_{\mathfrak{b}(\mathbf{Z})'} \forall$, $\mathfrak{z} = 1$, 2, $f(x) \ge \Omega_{b(3)}$, \forall , $\bar{z} = 1, 2, 3, ...$, \bar{v} , where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ...$ mand *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = $W(n)$ zulare $(L(1), L(2), L(3))$ $(L(3))$ is the set of normalizations of $(3-1, 2, 3, 1)$ and rmandons c α c $(\pi, 100, n)$ *synere* $\left(\mathfrak{p}(1), \mathfrak{p}(2), \mathfrak{p}(3), \ldots, \mathfrak{p}(s) \right)$ is the set of permutations of $\left\{ \alpha \right\}$ $\left(\begin{matrix} -1 & -1 & -1 \\ 0 & -1 & 0 \end{matrix}\right)$ $multations$ of $(8 = 1, 2, 3, ...$ ¹¹) and 」
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Theorem 16, Let $Q = \begin{pmatrix} \end{pmatrix}$ ly of CPyFVs and weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \, \mathfrak{D}_3)$ *Vs and weight vectors* $\mathfrak{D}_\mathfrak{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3,$ \mathcal{L} \mathcal{L} \mathcal{L} \mathcal{L} CPyFAAOWG operator are also a CPyFV, and we can write them in the following way: Theorem 16. Let $\Omega_{\sigma} = \sqrt{\Pi_{\Omega}}$ $\lim_{\lambda \to 0} \left(\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))}{\lambda} \right)$ $\lim_{\lambda \to 0} \left(\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))}{\lambda} \right)$ $\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n$ ^T \mathcal{L} ily of CPyFVs and weight vectors $\mathfrak{D}_\mathbf{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^\text{T}$ of $\Omega_\mathbf{Z}$ $\left(\mathbf{Z} = 1, 2, \dots, n \right)$ \mathcal{L} **Let** \mathcal{L} ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* **orem 16.** Let $\Omega_{\mathbf{Z}} = \begin{pmatrix} \Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e & e \\ \end{pmatrix}$, $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ \qquad \qquad , $\varepsilon = \Gamma$ ѱ Alternative Ṥ TCNM t that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,$ and $\sum_{3=1}^{\infty} \mathfrak{D}_3 = 1$. Then associated (4) $2\pi i(\alpha_0, (\mathcal{H}))$ $\int_{0}^{\pi} \frac{u_{1}}{2} du \, dv$ $\int_{0}^{\pi} e^{-u} du$ $\mathcal{H}_{\Omega} = \left(\begin{matrix} 2\pi i (\alpha_{\Omega_3}(\boldsymbol{\mathcal{X}})) & 2\pi i (\beta_{\Omega_3}(\boldsymbol{\mathcal{X}})) \\ 0 & \alpha_{\Omega_3}(\boldsymbol{\mathcal{X}}) \end{matrix} \right) \mathcal{H}_{\Omega_3} = \left(\begin{matrix} 2\pi i (\beta_{\Omega_3}(\boldsymbol{\mathcal{X}})) & 0 \\ 0 & \alpha_{\Omega_3}(\boldsymbol{\mathcal{X}}) \end{matrix} \right) \mathcal{H}_{\Omega_3} = \left(\begin{matrix} 0 & 0 \\ 0 & \alpha_{\Omega_3}(\boldsymbol{\mathcal{X}}) \end$ $\sum_{r=2}^{\infty} \binom{r}{r}$ $\sum_{r=1}^{\infty} \binom{r}{r}$ $\sum_{r=1}^{\infty} \binom{r}{r}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 &$ $\mathbf{z} = \left(\prod_{\Omega} \left(\mathbf{y} \right) e^{-2\pi i (\alpha_{\Omega} \cdot \mathbf{z})} \mathbf{z}^{\left(\mathbf{z} \right)} \right)$ $\lim_{\Delta t \to 0} 2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}})) \Big|_{\mathbf{Z}}$ $2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}})) \Big|_{\mathbf{Z}}$ $\lim_{\Delta t \to 0} 0$ of $\Omega_{\frac{7}{3}}(3) = 1, 2, 3, ...$ family of CPyFVs and weight vectors $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^T$ of $\Omega_3 \left(3 = 1, 2, 3, \ldots \mathfrak{N}\right)$, \mathcal{L} **Let** \mathcal{L} ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* $\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ and $\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ and $\int_{\Omega} \varepsilon = 1, 2, ...,$ where the $\mathcal{L} = 1, 2, \ldots, 0$ and $\sum_{\mathbf{Z}_{i-1}}^{\infty} \mathfrak{D}_{\mathbf{Z}_{i}} = 1$. Then associated values of the $2\pi i(\alpha_0 \left(\mathcal{H}\right))$ $2\pi i(\beta_0 \left(\mathcal{H}\right))$ $\int_0^1 e^{-1/2} dx$ $\frac{\pi i}{\alpha_{\Omega}}(\mathbf{x}) = \frac{2\pi i}{\beta_{\Omega}}(\mathbf{x}) \left(\frac{\mathbf{x}}{2}(\mathbf{x}) - \frac{\mathbf{x}}{2}(\mathbf{x}) \right)$ $\frac{1}{2}$ $\left(\frac{n}{2}\right)$ $\frac{n}{2}$ $\left(\frac{n}{2}\right)$ $\frac{n}{2}$ $\mathcal{F} = 1, 2, ..., \mathcal{V}$ and $\sum_{\mathbf{Z}=1}^{\mathcal{V}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then associated values of the $\Omega_{\mathbf{r}}(\boldsymbol{\mathcal{H}})$ $2\pi i(\beta_{\Omega_{\mathbf{r}}}(\boldsymbol{\mathcal{H}}))$ \int **and** \int \int \int $\frac{2\pi i(\alpha_{\Omega_{\boldsymbol{z}}}(\boldsymbol{\chi}))}{\alpha_{\Omega_{\boldsymbol{z}}}}$ \int \int $\frac{2\pi i(\beta_{\Omega_{\boldsymbol{z}}}(\boldsymbol{\chi}))}{\alpha_{\Omega_{\boldsymbol{z}}}}$ $\frac{3}{2}$ ῃ $D_{\mathbf{z}} = 1$. Then assoc $= 1$. Then associated values $\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))}{\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi})} = \frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))}{\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi})}$ $(2, 3, 3)$ $\frac{1}{\sqrt{2}}$ such that $\mathfrak{D}_z \in [0,1], \ z = 1,2,...,1$ and $\sum_{z=1}^{n} \mathfrak{D}_z = 1$. Then associated values of the $2\pi i(\kappa_0 \left(\boldsymbol{\nu}\right))$ $2\pi i(\beta_0 \left(\boldsymbol{\nu}\right))$ $\binom{m}{3}$ $\binom{m}{3}$ $\binom{n}{4}$ $\frac{3}{4}$ $\mathcal{L}(\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{L}|\mathcal{$ **Theorem 16.** Let $\Omega_{\mathbf{z}} = \prod_{n=1}^{n} (\mathbf{z})e^{\mathbf{z}^{(n)}(\mathbf{z})}$ $(\mathbf{z})^{\mathbf{z}}$, $\mathbf{z}_{\Omega_{n}}(\mathbf{z})$ ƺୀଵ *. Then, the PyF Aczel–Alsina weighted averaging operator is given as:* $\frac{1}{2}$ = 1, 2, ..., ... and $\frac{1}{2}$ = 1 $\frac{3}{2}$ = 1 $CPyFAAOWG$ operator are also a $CPyFV$, and we can write them in the following way: **Example 16** $I \circ I \circ I \circ \Omega$ $\left(\prod_{\alpha \in \mathcal{A}} \left(\sum_{\alpha \in \mathcal{A}} \mathcal{I}(\alpha_{\alpha}(\alpha))\right)_{\alpha} \right)$ $\left(\prod_{\alpha \in \mathcal{A}} \left(\sum_{\alpha \in \mathcal{A}} \mathcal{I}(\alpha)\right)\right)_{\alpha}$ 1,2, … , ∄ and ∑ <mark>1</mark> $\int_{-1/2}^{1/2}$ $\int_{0}^{1/2}$ $\int_{0}^{1/2}$ $\int_{0}^{1/2}$ $\int_{0}^{1/2}$ $\int_{0}^{1/2}$ $\int_{0}^{1/2}$ i weigi $\mathbf{L} = \mathbf{L} \mathbf$ **Theorem 16.** Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\frac{2\pi i}{3}(\varkappa t)}\right), \mathbb{E}_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\frac{2\pi i}{3}(\varkappa t)}\right), \mathbb{Z} = 1, 2, \ldots, \mathbb{N}$ be t. 1, **ي**
1, … , ⊿ ⊿ *and* ⊥ ⊥ 1, ⊥ family of CPyFVs and weight vectors $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $\Omega_3 (3 = 1, 2, 3, ... \mathfrak{N})$, ϵ (0.1) $\epsilon = 1.2$ n and ∇^{\parallel} భ \sim $\mathcal{L}(\mathcal{$ **orem 16.** Let $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\mathbf{z}}}(\mathbf{z})e^{-\frac{2\pi i}{(\mathbf{z}+\Omega_{\mathbf{z}})}\mathbf{z}}\mathbf{z}_{\Omega_{\mathbf{z}}}(\mathbf{z})}e^{-\frac{2\pi i}{(\mathbf{z}+\Omega_{\mathbf{z}})}\mathbf{z}}\mathbf{z}_{\Omega_{\mathbf{z}}}(\mathbf{z})}\right), \mathbf{z} = 1, 2, ..., \mathbf{0}$ be the 1.25×1.2 1.2×1.2 1.2 $\begin{bmatrix} 0 & 1 & 7 \\ 0 & 1 & 2 \\ 0 & 0 & 0 \end{bmatrix}$ the following rugge $\int_{\Pi_{\Omega_{\pi}}(\varkappa)e}^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))} e^{-\mathbf{Z}(\varkappa)}$, $\Xi_{\Omega_{\pi}}$ $\left(\boldsymbol{\varkappa}\right) e^{2\pi i \left(\beta_{\Omega_{\mathbf{Z}}}\left(\boldsymbol{\varkappa}\right)\right)},$ 3 ℓ $2\pi i(\alpha_{\Omega_{-}}(\boldsymbol{\mathcal{H}}))$ $2\pi i(\beta_{\Omega_{-}}(\boldsymbol{\mathcal{H}}))$ \mathbb{R}^n and that $\Omega \subset [0, 1]$, $\mathbb{Z} = 1, 2, \dots, n$ and Γ^{II} , $\Omega = 1$, Then associated values $C\left[\begin{matrix}0,1\end{matrix}\right]$, $C = \frac{1}{2}, \frac{1}{2}, \ldots$, with $\frac{1}{2} = \frac{1}{2}$, $\frac{3}{2}$, $\frac{1}{2}$, \ldots i.e. then the contract that $\frac{3}{2}$ \mathbb{R}^{d} \mathbb{R}^{d} \in $[0,1]$, \mathbb{Z} = 1, \mathbb{R} and \mathbb{R}^{d} ∞ = 1. Then associated velues of the *n* that $\mathcal{D}_z \in [0,1]$, $\mathcal{E} = 1,2,...$, it and $\sum_{z=1} \mathcal{D}_z = 1$. Then associated values of the \mathcal{F}^{AA} and \mathcal{D}_{z} and \mathcal{D}_{z} is given associated values of the **Theorem 16.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}\right), \, \mathbf{Z} = 1, 2, \ldots, \mathbf{Z}$ *CPyFAAOWA operator are particularized as:* $\binom{m}{3}$ $\binom{m}{1}$ $\binom{m}{2}$ = 1.2 $\mathcal{L} = \frac{2\pi i (n - \langle \cdot, \cdot \rangle)}{2}$, $\mathcal{L} = \frac{2\pi i (n - \langle \cdot, \cdot \rangle)}{2}$, $\mathcal{L} = \frac{2\pi i (n - \langle \cdot, \cdot \rangle)}{2}$ **Definition 7** ([58])**.** *Let* ƺ = ൬ఆƺ (), ఆƺ ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers w* that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{z} = 1,2,\ldots$, if and $\sum_{3=1} \mathfrak{D}_3 = 1$. Then associated values of the **CPYFY 3** and **ightharpoone is corrected** in $E_{\Omega_{\tau}}(\kappa)$ $e^{2\pi i(\kappa_1/\tau)}$ (κ_2/τ) (κ_3/τ) $(1, 2, ..., 1)$ be the *s* [0,1,2, … , 1,2, … , 1,2, … , 1,2, ∴ , 1,2, ∴ , 1,2, ∴ , 1,2, ∴ , 1,2, ∴ , 1,2, ∴ , 1,2, ∴ , 1, \overline{a} \overline{a} \overline{a} \overline{b} \overline{c} \overline{c} \overline{c} \overline{d} \overline{a} \overline{a} \overline{b} α y α faan verking vectors ω $_{\mathcal{Z}}$ (ω) , *Let* $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\varkappa_1/2\mathbf{z}}(\varkappa))}, \mathbb{E}_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\varkappa_1/2\mathbf{z}}(\varkappa))})$, $\mathbf{z} = 1, 2, \ldots, \mathbf{0}$ be the *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ $\frac{1}{2}$. Then, the associated values of the $\frac{1}{2}$ *CPYFA of the vertices* $\omega_{3} = (\omega_{1}, \omega_{2}, \omega_{3})$ $2\pi i(\kappa_{\alpha}$ ($\boldsymbol{\mu}$) $2\pi i(\kappa_{\alpha}$ ($\boldsymbol{\mu}$)) **Theorem 16.** Let $\Omega_{\mathcal{Z}} = \left(\Pi_{\Omega_{\mathcal{Z}}}(x)e^{-\lambda z}$, $\Xi_{\Omega_{\mathcal{Z}}}(x)e^{-\lambda z}$, $\Xi_{\Omega_{\mathcal{Z}}}(x)e^{-\lambda z}$, $\Xi_{\Omega_{\mathcal{Z}}}(x)e^{-\lambda z}$, $\Xi_{\Omega_{\mathcal{Z}}}(x)e^{-\lambda z}$ σ are σ = $(\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)$ ^T of O_7 (3 = 1,2,3, 0) *CPyFAAOWA operator are particularized as:* family of CPyFVs and weight vectors $\mathfrak{D}_{\mathbf{Z}} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}} \Big(\mathfrak{Z} = 1, 2, 3, \dots \mathfrak{N} \Big)$, such that $\mathfrak{D}_{\mathbf{Z}} \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots,11$ and $\sum_{\mathbf{Z}=1}^{11} \mathfrak{D}_{\mathbf{Z}} = 1$. The *CPyFAAOWA operator are particularized as:* CPyFAAOWG operator are also a CPyFV, and we can write them in the following way: **Theorem 6.** *Let* ƺ = ቆఆƺ **Theorem 16.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\mathbf{X}} \right)$ \sqrt{u} $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\mu)$, $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\mu) e^{2\pi i (\beta \Omega_{\mathbf{Z}}(\mu))}$ ῃ $\binom{7}{3}$ $\ell = 2\pi i (\alpha_0 \quad (\mathcal{U}))$ ቇ , ƺ = 1,2, … , ῃ *be the family of CPyFAAOWC* expector α and α of β of α , β **Theorem 16.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{(\mathbf{x}+\mathbf{x})(\mathbf{x}-\mathbf{y})^2}{2\mathbf{Z}}\mathbf{x}^2}\right)$ \mathcal{J} ،
amilu $[0,1], \ \mathfrak{F} = 1,2,...$ $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$, $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$, $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$ χ **b** $2\pi i(\alpha_0, (\mathcal{H}))$ $2\pi i(α_0, (\mathcal{H}))$ $2\pi i(α_0, (\mathcal{H}))$ χ $\frac{1}{\sqrt{2}}$ family of CPyFVs and we *CPyFAAOMC* enterprise $\mathcal{L}_2 = [0, 1]$, $\mathcal{L}_3 = 1, 2, ..., 1$ and $\sum_{z=1}^{\mathcal{U}}$ *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ **Theorem 16.** Let $\Omega_{\mathbf{Z}} = \left(H_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{1}{2}i\omega_{\mathbf{Z}}(\varkappa)}\right)^{2}$, $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{1}{2}i\omega_{\mathbf{Z}}(\varkappa)}$ $= 1, 2, \ldots, \overline{1}$ and $\sum_{\mathbf{z}}^{n}$ such that $\mathfrak{D}_7 \in [0,1]$, $\mathfrak{Z} = 1,2,...,1$ and $\sum_{r=1}^{10} \mathfrak{D}_7 = 1$. $\sqrt{2}$ = ($\sqrt{2}$), $\sqrt{2}$ of $\sqrt{2}$ **Theorem 16.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}})}{2}}\right)$ family of CPyFVs and weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of Ω_{ζ} ($\overline{z} = 1, 2, 3, ...$), $CPyFAAOWG$ operator are also a CPyFV, and we can write them in the following way: ر با
marator **Theorem 16.** Let $\Omega_{\mathcal{Z}} = \left(\Pi_{\Omega_{\mathcal{Z}}}(\varkappa)e^{-\frac{\omega_{\mathcal{Z}}}{2}}\right), \mathbb{E}_{\Omega_{\mathcal{Z}}}(\varkappa)e^{-\frac{\omega_{\mathcal{Z}}}{2}}\right), \mathbb{Z} =$ such that $\mathfrak{D}_z \in [0,1], \; \mathfrak{Z} = 1,2,\ldots, n$ and $\sum_{i=1}^{n} \mathfrak{D}_z = 1$. Then ass Theorem 16. Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}\right), \ z = 1, 2, \ldots, \mathbb{N}$ *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $f \mathfrak{D}_{\mathbf{z}} \in [0,1], \mathfrak{z} = 1,2,\ldots, \mathfrak{y}$ and $\sum_{\mathbf{z}=1}^{\infty} \mathfrak{D}_{\mathbf{z}} = 1$. *weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *, such that* ƺ ∈ [0,1],ƺ = $\begin{align*}\n\text{that } \mathfrak{D}_\mathfrak{Z} \in [0,1], \ \mathfrak{Z} = 1,2,\ldots, \mathfrak{N} \text{ and } \sum_{\mathfrak{Z}=1}^{\mathfrak{N}} \mathfrak{D}_\mathfrak{Z} = 1. \text{ Then associated values of the}\n\end{align*}$ $2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude*)) **orem 16.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\mathbf{Z}}{2}(\varkappa)}\right), \mathbf{Z} = 1, 2, ..., \mathbf{I}$ be the $\delta t \, \Omega_{\bf \bar{Z}} = \left(\Pi_{\Omega_{\bf Z}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\bf \bar{Z}}(\varkappa))}}{2}, \Xi_{\Omega_{\bf Z}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\bf \bar{Z}}(\varkappa))}}{2}\right)}, \, \Xi = 1, 2, \ldots, \bar{N}$ be the *terms and phase terms of* , *respectively. A CFS must satisfy the condition:* $0, 2, \ldots, 0$ and $\sum_{z=1}^{\infty} \mathfrak{D}_z = 1$. Then associated values of \mathfrak{D}_z $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ **c** $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ $\begin{pmatrix} a & b \\ d & d \end{pmatrix}$ $\begin{pmatrix} a & b \\ d & d \end{pmatrix}$ and $\sum_{\mathbf{Z}=1}^{\mathbf{Q}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then associated values of the $\mathcal{L}_{\mathbf{Z}}$ and $\mathfrak{D}_{\mathbf{Z}}$ are can verte them in the following way: $\langle 2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))\rangle$ = $\langle 2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))\rangle$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents the membership value (MV) of amplitude* $\left(\prod_{\Omega_{\mathbf{z}}(\mathcal{H})e}2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\mathcal{H}))\right)$, $\mathcal{H}=\{1,2,\ldots,\mathfrak{N}\}\;$ be the family of CPyFVs and weight vectors $\mathfrak{D}_3 = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_3 (3 = 1, 2, 3, \dots, n)$, such that $\mathfrak{D}_{\mathbf{Z}} \in [0,1], \ \mathfrak{Z} = 1,2,\ldots,\mathfrak{N}$ and $\ \sum_{\mathbf{Z}=1}^{\mathfrak{U}} \mathfrak{D}_{\mathbf{Z}} = 1$. Then associated valu ∂ , $\mathfrak{z} = 1, 2, \ldots, \mathfrak{h}$ be the In this part, we recall the existing concepts of \mathcal{A} and \mathcal{A} and \mathcal{A} IF and PyFs. $CPuFAAOWG$ or $I = \frac{1}{2}$ this part, we recall the existing concepts of $A \times S$ under the system of $A \times S$ under the system of S $\prod_{\alpha} (\nu) e^{2\pi i (\nu)}$ $\mathcal{R} = 1, 2, \ldots, \mathcal{R}$ and $\sum_{\sigma=1}^{\mathcal{R}} \mathcal{D}_{\sigma} = 1$. Then associated values of the 2, ∠, …, ……
µe also a CPuFV and we ca $2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ and $\begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$ = 1, They associated values of the such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1,2,...,1$ and $\sum_{\mathfrak{Z}=1}^{11} \mathfrak{D}_{\mathfrak{Z}} = 1$. Then associated values of the $\mathcal{L}(\mathcal{A})$ **INFORM 10.** Let $\Delta z_2 = \left(\begin{array}{c} 11/2 \ 2 \end{array} \right)$ (Δz) and Δz and Δz and Δz and Δz and Δz **Theorem 16.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(x)e^{\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(x))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(x)e^{\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(x))}{2}}\right)$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ be the \mathcal{C} , where the family \mathcal{C} $\sum_{i=1}^{n}$ $\sum_{i=1}^{n}$ In the existing $\begin{pmatrix} x_1x_2 \\ y_1x_2 \end{pmatrix}$ the system of $\begin{pmatrix} x_1x_2 \\ y_1x_2 \end{pmatrix}$ and $\begin{pmatrix} x_1x_2 \\ y_1x_2 \end{pmatrix}$ such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1,2,\ldots, \mathfrak{N}$ and $\sum_{z=1}^{\mathfrak{N}} \mathfrak{D}_z = 1$. Then associated values of the \int $2\pi i(\alpha_{\Omega_{\tau}})$ **I.** Let $\Omega_2 = \left(\frac{H_{12}}{2} \times 4\right) e$, $\frac{G_{12}}{2} \times 4\right) e$, $e = 1, 2, ...,$ be the re ⎜ \mathbf{r} 16 $\det \mathbf{Q} = \left(\prod_{\mathbf{c}} \mathbf{Q}(\mathbf{r})\right)^{2\pi i}$ $\frac{(\alpha_{\Omega_{\mathbf{Z}}})}{\mathbf{Z}}$ ⎠ , $\begin{bmatrix} \mathfrak{N} & \mathfrak{and} & \sum_{\mathbf{z}}^{\mathbf{U}} \end{bmatrix}$ $\mathfrak{D}_{\mathbf{z}} = 1$. Then as $\frac{1}{2}$ family of CPyFVs and weight vectors $\mathfrak{D}_\mathbf{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)^\text{T}$ of $\Omega_\mathbf{Z} \Big(3 = 1, 2, 3, \ldots, n\Big)$ ⎟ \mathbf{a} $\frac{2\pi i(\alpha_{\Omega}(\boldsymbol{\chi}))}{\sum_{\Gamma\subset\mathcal{L}}(x)\beta_{\Gamma}}$ $\frac{2\pi i(\beta_{\Omega}(\boldsymbol{\chi}))}{\sum_{\Gamma\subset\mathcal{L}}(x)\beta_{\Gamma}}$ 3 – 1.2 $\sqrt{-1/3}$ $(\sqrt{2})$ $\left(\frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\mathbf{x}))}{2}\right), \mathbf{z} = 1, 2$ \ldots , $\mathfrak h$ be the $\mathcal{L} = 2\pi i (\alpha_{\Omega_{-}}(\boldsymbol{\chi}))$ $2\pi i (\beta_{\Omega_{-}}(\boldsymbol{\chi}))$ $\frac{m}{3}$ $\frac{m}{3}$ $\frac{m}{2}$, $\frac{m}{3}$, $\frac{m}{3}$ **5.** Such that $\mathfrak{D}_7 \in [0,1]$, $\mathfrak{Z}_8 = 1,2,\ldots,1$ and $\sum_{r=1}^{10} \mathfrak{D}_7 = 1$. Then associated in the *associated* **Theorem 16.** Let $\Omega_{\mathbf{Z}} = \begin{pmatrix} \Pi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e & e \end{pmatrix}$, $\Xi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e$ $\limsup_{n \to \infty} \frac{1}{n}$ such that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1, 2, \ldots, 0$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{U}} \mathfrak{D}_3 = 1$. Then associates are also a CPyFM and an aggregation in the following $familiar of CPUFVs and weight vectors \mathfrak{D}_\sigma = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n)$ (4) $2\pi i(\alpha_{\Omega_{\rm m}}(\mathbf{x}))$ $2\pi i(\beta_{\Omega_{\rm m}}(\mathbf{x}))$ **Solution** 16. Let $\Omega_{\mathbf{Z}} = \begin{pmatrix} I I_{\Omega_{\mathbf{Z}}}(\varkappa)e & e \\ \end{pmatrix}$, $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e$ funnity by CPyFA band weight believes $\omega_2^2 = (\omega_1 \omega_2 \omega_3, \ldots, \omega_n)$ CD_1 EA AOMC operator are also a CBuEV and we source with them in t ($\alpha = 2\pi i(\alpha_0(\mathcal{H}))$ $2\pi i(\beta_0(\mathcal{H}))$ **Someoframe specifier specified cases in the correlation** correlation of the C₂ σ ₃ σ ϵ (CP) and CPyFAA ϵ (CP) operators, CPyFAA funtity by CPyFVS and weight bectors $\omega_{\mathbf{Z}} = (\omega_1, \omega_2, \omega_3, ..., \omega_n)$ and such that $\Omega \subset [0, 1]$ $\mathcal{F} = [1, 2]$ and $\nabla^{[1]}$ such that $\mathcal{D}_3 \in [0,1]$, $\mathcal{E} = 1,2,...$, we also a conserved $\mathcal{D}_3 = 1$. Then associated values of the
CDuEA AOWC operator are also a CDuEV and me can write them in the following way: πi \int , $\epsilon = 1, 2, \ldots, 0$ \boldsymbol{b} l. \mathbf{a} **16** Let $\Omega = \left(\prod_{\alpha} \left(\frac{2\pi i (\alpha_{\Omega_2}(\mathbf{z}))}{\sum_{\alpha} \left(\mathbf{z} \right)^2 \right)^2} \right)$ $\mathbb{E}_{\Omega} = \left(\mathbf{z} \right)$ *iii.* = ൫()൫()൯ , ()൫()൯ ൯*.* $\mathcal{R} = \begin{bmatrix} 0 & 1 & 2 \\ 2 & -1 & 2 \end{bmatrix}$ and $\sum_{i=1}^{n} \mathcal{R} = \begin{bmatrix} 1 & 2 \\ 2 & -1 \end{bmatrix}$. Then associated values of the OWG operator are also a CPyFV, and we can write them in the following way: IFS and PyFs. **order** $\Omega_{\mathbf{z}} = \left(\Pi_{\Omega_{\alpha}}(\mathbf{z})e^{-\frac{(\mathbf{z}-\mathbf{z})^2}{2\mathbf{z}}}\right)$ $\mathbb{E}_{\Omega_{\alpha}}(\mathbf{z})e^{-\frac{(\mathbf{z}-\mathbf{z})^2}{2\mathbf{z}}}\right), \mathbf{z} = 1, 2, ..., N$ be the $\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n$ or Ω ₃ (a) that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., \mathfrak{N}$ and $\sum_{z=1}^{\mathfrak{N}} \mathfrak{D}_z = 1$. Then associated values of the $\frac{c}{\sqrt{1-\frac{c}{c}}}$ ($2\pi i(\kappa_{\Omega}(\boldsymbol{\kappa}))$ $2\pi i(\kappa_{\Omega}(\boldsymbol{\kappa})))$ **someofrace in the case of the case of the cases** of $E_{\Omega_7}(\mu)e$ and $\ell^2=\ell^2$, $\ell^2=\ell$ (CP) and CPyFAA ϵ t of CPyFVs and weight vectors $\mathfrak{D}_\mathbf{Z}=(\mathfrak{D}_1,\mathfrak{D}_2,~\mathfrak{D}_3,\dots,~\mathfrak{D}_n)^T$ of $\Omega_\mathbf{Z}\left(3=1,2,3,\dots$ ¹¹), $\frac{1}{2}$ By utilizing our inventor $\frac{1}{2}$ $\frac{1}{2}$ $\frac{2}{3}$ = $\frac{1}{2}$ $\frac{2}{3}$ = $\frac{1}{2}$ $\frac{1}{2}$ AAOWG operator are also a CPyFV, and we can write them in the following way: **o** 16. Let $\Omega_{\mathcal{F}} = \left(\prod_{\Omega} (\mathbf{x})e^{-(\mathbf{x})\mathbf{x}^{(1)} + \sum_{\Omega} (\mathbf{x})e^{-(\mathbf{x})\mathbf{x}^{(2)} + \sum_{\Omega} (\mathbf{x})^{\Omega}}\right), \ z = 1, 2, \ldots, \ z = 0$ (CP) and CP($\frac{11}{2}$ ($\frac{11}{2}$ ($\frac{11}{2}$ ($\frac{11}{2}$ ($\frac{1}{2}$ ($\frac{1}{2}$) or the contract of $\frac{1}{2}$ ($\frac{1}{2}$) or the contract of $\frac{1}{2}$ $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ of $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ of $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ h that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., 0$ and $\sum_{\mathfrak{Z}=1}^n \mathfrak{D}_{\mathfrak{Z}} = 1$. Then associated values of the ₁ \overline{a} $\Omega_{\mathbf{Z}}(u)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(u))}, \Xi_{\Omega_{\mathbf{Z}}}(u)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(u))}$ భ Ὺ (\mathbf{z}) ⎠ , ⎟ భ Ὺ $\overline{1}$ \mathbf{L} $\mathfrak{g}(s) = \int_0^s \rho \, d\mathbf{r} \, d\mathbf{r}$ $(1, 2, 3, \ldots 1)$ $\mathcal{L}_{g}^{\mathbf{z}} = \mathbf{p}(\mathbf{z}, \mathbf{z})$, $\mathbf{z} = \mathbf{z}, \mathbf{z}, \dots, \mathbf{z}$ and $\mathbf{z}_{g-1} \mathbf{z}_g^{\mathbf{z}} = \mathbf{z}$. Then associated called by the CBuEA AOWC operator are also a CPuEV and the can write them in the following way: ŋ۱ th *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 $\frac{2\pi i (x_0 - \mu)}{2\pi i}$ **Theorem 16.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{-\frac{\mathbf{Z}}{2}t} \right)$, $\Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{-\frac{\mathbf{Z}}{2}t}$ funtity by CPyP v s and accept occides $\omega_3 = (\omega_1, \omega_2, \omega_3, \ldots, \omega_n)$ = ω_3 and such that $D_{-}\in [0, 1]$ $\mathcal{F} = \{1, 2, \ldots, n\}$ and $\sum_{i=1}^{n}$ $D_{-} = 1$. Then associated weighted weight *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 fundamental operational laws of Aczel–Alsina TNM and TCNM. *iii.* $CPuFAAOWG$ operator are also a CPuFV. family of CPyFVs and weight vectors $\mathfrak{D}_\mathbf{Z}=(\mathfrak{D}_1,\mathfrak{D}_2,\ \mathfrak{D}_3,\dots,\ \mathfrak{D}_n)^\top$ of \mathfrak{p} $\frac{1}{2}$ and $\frac{1}{2}$ a $CPyFAAOWG operator are also a CPyFV, and we can write them in the following way:$ **Theorem 16.** Let $\Omega_{\mathbf{z}} = \left(\prod_{\Omega_{\mathbf{z}}} (\chi) e^{-\frac{(\chi - \chi)^2}{2}} \right)$, $\mathbb{E}_{\Omega_{\mathbf{z}}} (\chi) e^{-\frac{(\chi - \chi)^2}{2}}$ fundamental operational laws of Aczel–Alsina TNM and TCNM. such that $\Omega \in [0, 1]$, $\mathbb{Z} = 1, 2, \dots, n$ and $\mathbb{Z}^{\left[1\right]}$, $\Omega = 1$, Thus such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., 0$ and $\sum_{z=1}^{\mathfrak{U}} \mathfrak{D}_z = 1$. Then associated values of the ϵ $\sqrt{1}$ \overline{a} (\varkappa)), $\overline{z} = 1, 2, \ldots, \overline{v}$ be the $\frac{2}{3}$, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{3}$ $\mathcal{L}(\mathcal{M}) = \mathcal{L}(\mathcal{M})$ **Theorem 16.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{\mathbf{Z}^T} \right)$, $\Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{\mathbf{Z}^T}$ and $\Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{\mathbf{Z}^T}$ and $\Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{\mathbf{Z}^T}$ family of CPyFVs and weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of $\Omega_{\overline{z}}(z = 1, 2, 3, ...$ ⁿ), $\begin{bmatrix} 0 & 1 & 7 & 4 & 0 \end{bmatrix}$ $\begin{bmatrix} 0 & 1 & 7 & 4 & 0 \end{bmatrix}$ on $\begin{bmatrix} 0 & 1 & 7 & 4 & 0 \end{bmatrix}$ **Definition 12.** *Consider* ƺ = ቆఆƺ $Z_{\overline{z}} = 1^\infty \frac{z}{z}$
also a CDuEV and *zue can zwiste them in the follow* deserved properties. **0.16.** Let $\Omega_{\mathcal{F}} = \left(\prod_{\Omega} (x)e^{2\pi i (\ln(1/3/\lambda))}\right)$, Ξ_{Ω} (x)e² $\left(\frac{\mu}{2}e^{2\pi i (\mu_1/3/\lambda)}\right)$, $\Xi_{\Omega} = 1, 2, \ldots, \mathbb{I}$ be the fundamental operations of \mathcal{S} \mathbb{R} some special cases, like \mathbb{R} ζ [0, 1], ζ = 1, 2, ..., η and $\zeta_{2=1}$ $\zeta_{2=1}$. Then associated values of the deserved properties. 6 Let $O_5 = \left(\prod_{\alpha} (\kappa)^{\rho} \left(\frac{\kappa}{\kappa} \right)^{1/2} \mathbb{E}_{\alpha} (\kappa)^{\rho} \left(\frac{\kappa}{\kappa} \right) \right)$ 3 = 1.2 \prod_{α} be the fundamental operations of $\sum_{i=1}^n$ some special cases, like $\mathfrak{g}=\mathfrak{g}=\mathfrak{g}$ $[0, 1]$, $\epsilon = 1, 2, \ldots$, and $\sum_{z=1}^{\infty} z_z = 1$. Then associated values of the $\cdot t$ \overline{a} such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1,2,..., \mathfrak{N}$ and $\sum_{\mathfrak{Z}_{-1}}^{\mathfrak{N}} \mathfrak{D}_{\mathfrak{Z}} = 1$. Then associated values of the order weighted averaging (CPyFAAOWA) operator based on Aczel–Alsina operations. \overline{a} order weighted averaging (CPyFAAOWA) operator based on Aczel–Alsina operations. I_{ℓ} e^2 $\frac{1}{2}$ order weighted averaging (CPyFAAOWA) operator based on Aczel–Alsina operations. heorem 16. Let $\Omega_{\mathbf{z}} = \left(\frac{2}{H_{O_{\mathbf{z}}}}\right)_{\mathbf{z}}^2$ $\frac{1}{i}$ $\left(\right)$ $\int_{\mathbb{R}^n}$ as $I \cap \left(\sum_{\alpha} \sum_{\alpha}^{2\pi i} (\alpha_{\Omega_{\mathbf{Z}}}(\alpha)) \right)$ and $\int_{\mathbb{R}^n} \sum_{\alpha}^{2\pi i} (\beta_{\Omega_{\mathbf{Z}}}(\alpha)) \right)$ order weighted averaging (CPyFAAOWA) operator based on Aczel–Alsina operations. $\frac{1}{2}$ \mathbf{f} $\mathfrak{D}_{\mathbf{Z}} \in [0,1], \mathfrak{Z} = 1,2,\ldots, n$ and $\sum_{\mathbf{Z}=1}^{n} \mathfrak{D}_{\mathbf{Z}} = 1$. Then associated values of the e Theorem 16. Let Ω \overline{a} Theorem 16. Let C Theorem 16. Let $\Omega_\mathtt{Z}$ $=\left(\Pi_{\Omega_{\mathbf{Z}}}\right)$ \overline{C} \int *i* $\frac{2\pi i}{u}$ $\mathbf{g} = \begin{pmatrix} 1 & \Omega_{\mathbf{Z}} & \mathbf{W} & \mathbf{W} \end{pmatrix}$ $\frac{c}{c}$ $\frac{d}{d}$ $\hat{C} = 2\pi i (\hat{a}_0 - (\hat{a}_1), \hat{c}_2 - (\hat{a}_2))$ n) **Theorem 2.** *Consider* ƺ = ቆఆƺ *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = *is defined as:* (1), $\bar{z} = 1, 2, ..., \bar{z}$ and $\sum_{\bar{z}=1}^{\bar{z}} \mathfrak{D}_{\bar{z}} = 1$. Then associated values of the $f(x) = 2\pi i(\alpha_{\Omega_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{-}}(\boldsymbol{\chi})))$ **m 16.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{1}{2}(\kappa\kappa)}\right), \mathbb{E}_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\frac{1}{2}(\kappa\kappa)}\right), \mathbb{Z} = 1, 2, \ldots, \mathbb{N}$ be the $2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ 2 $\pi i(\beta_{\Omega})$ ן
יי $\sum_{\mathbf{Z}=1}^{\mathbf{\eta}} \mathbf{\mathfrak{D}}_{\mathbf{Z}} = 1$. Then asset family of CPyFVs and weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of Ω_z ($\mathfrak{Z} = 1, 2, 3, ...$) **Theorem 16.** Let $\Omega_{\overline{g}} = \left(\Pi_{\Omega_{\overline{g}}}(\varkappa) e^{\frac{\sum_{i=1}^{n}(\mathbf{k}_i - \mathbf{g})}{2}}\right), \mathbb{E}_{\Omega_{\overline{g}}}(\varkappa) e^{\frac{\sum_{i=1}^{n}(\mathbf{k}_i - \mathbf{g})}{2}}\right), \mathbb{Z} = 1, 2, ..., \mathbb{N}$ be the such that $\mathfrak{D}_z \in [0,1]$, $\mathfrak{Z} = 1, 2, ..., 1$ and $\sum_{\mathfrak{Z}=1}^{\mathfrak{Y}} \mathfrak{D}_{\mathfrak{Z}} = 1$. Then associated values of the
CPyFAAOWG operator are also a CPyFV, and we can write them in the following way:
 $\left(\begin{array}{c} \sum_{\mathfr$ ିତ୍ୟ (କି.ଗ) ଜିଲା (କି.ଗ) ଜି $\int_{\mathbb{R}^n}$ and $\int_{\mathbb{R}^n}$ and $2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$ ł. $\ddot{}$ Theorem 10. Let $\Omega_{\mathcal{Z}} = \begin{pmatrix} \Pi \Omega_{\mathcal{Z}} (\mathcal{U}) e^{i \pi} & \cdots & \Pi \end{pmatrix}$ no $\overline{}$ that $\mathfrak{D}_3 \in [0,1]$, $\mathfrak{Z}_3 = 1,2,...,1$ and ⎟⎞ $\mathfrak{D}_1, \mathfrak{T}$ \sum ⎟ $\mathfrak n$ \mathfrak{D}_2 , \mathfrak{D}_3 , ..., \mathfrak{D}_n)^T of $\Omega_{\mathbf{Z}}$ (3 = 1, 2, 3, \overline{a} $\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))}{\lambda_{\mathbf{Z}}}$ ⎜ $\overline{}$ $\frac{1}{1}$. Then associated to , 2, 0,
values y of CPyFVs and weight vectors $\mathfrak{D}_{\mathbf{Z}}=(\mathfrak{D}_1,\mathfrak{D}_2,$ $\mathfrak{D}_3,\ldots,$ $\mathfrak{D}_n)^T$ of $\Omega_{\mathbf{Z}}\Big($ $\mathbf{\overline{3}}=1,2,3,\ldots$ $\mathbf{I}\Big),$ rem 16. Let $\Omega_{\mathbf{Z}} = \begin{pmatrix} \Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e & e & \mu_{\Omega_{\mathbf{Z}}}(\varkappa)e & e \end{pmatrix}$, $\lambda = 1, 2, ..., N$ be the ⎜ \cdot *y* of CPyFVs and weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \mathfrak{D}_4)$. 16^{-1} $\ell = 2\pi i (\alpha_{\Omega_{\rm cr}}(\boldsymbol{\varkappa}))$ 2π $t \, \mathfrak{D}$ z . Let $\Omega_{\mathfrak{Z}} = \begin{pmatrix} \Pi_{\Omega_{\mathfrak{Z}}}(\kappa) e & e \\ 0 & \Pi_{\Omega_{\mathfrak{Z}}}(\kappa) e \end{pmatrix}$ ଵି ⎝ [0,1], $\overline{z} = 1, 2, \ldots, \overline{y}$ and $\sum_{r=1}^{\overline{y}} \mathfrak{D}_{z} =$ \ldots 3 ∴ $\overline{}$ *I*s and weight vectors $\mathfrak{D}_\mathbf{Z} = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \dots, \mathfrak{D}_n)^T$ of $\Omega_\mathbf{Z}$ $\left(\mathbf{\overline{3}} = 1, 2, 3, \dots \mathbf{\overline{1}} \right)$ β $\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))$, and \mathbf{n} $\ddot{}$ $\frac{1}{2}$ associated values of the $\sum_{z=1}^{N} \sum_{z=1}^{N} z = 1$. Then associated values of the Į. η s and w \cdot t. ⎜ 1− $(2\pi i(\alpha_{\Omega_{\bullet}}(\boldsymbol{\mathcal{H}})))$ $2\pi i(\beta_{\Omega_{\bullet}}(\boldsymbol{\mathcal{H}})))$ $[0, 1],$ $\mathbb{E}\left\{\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\varkappa\omega_{\mathbf{Z}}}e^{-\varkappa\omega_{\mathbf{Z}}}(\varkappa)e^{-\varkappa\omega_{\mathbf{Z}}}e^{-\varkappa\omega_{\mathbf{Z}}}e^{-\varkappa\omega_{\mathbf{Z}}}e^{-\varkappa\omega_{\mathbf{Z}}}e^{-\varkappa\omega_{\mathbf{Z}}}e^{-\varkappa\omega_{\mathbf{Z}}}e^{-\varkappa\omega_{\mathbf{Z}}}e^{-\varkappa\omega_{\mathbf{Z}}}e^{-\varkappa\omega_{\mathbf{Z}}}e^{-\varkappa\omega_{\mathbf{Z}}}e^{-\varkappa\omega_{\mathbf$ \
veigl
ን
ን $[1, 2, \ldots, \mathbb{R}]$ and $\sum_{r=1}^{\mathbb{R}} \mathfrak{D}_z = 1$. Then t vectors $\mathfrak{D}_{\mathfrak{Z}}=(\mathfrak{D}_1,\mathfrak{D}_2,\,\mathfrak{D}_3,\ldots,\,\mathfrak{D}_n)^T$ c of $\Omega_{\rm g}$ \overline{a} s $\mathfrak{D}_3, \ldots, \mathfrak{D}_n$ ^T of Ω_3 ($\overline{z} = 1, 2, 3, \ldots$ ⁿ), $\langle 2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))\rangle$ ⎜ $\frac{1}{x}$ of the *f* $e^{i\theta}$ $e^{i\theta}$ $e^{i\theta}$ $e^{i\theta}$ $e^{i\theta}$ $e^{i\theta}$ $e^{i\theta}$ $e^{i\theta}$ $i\theta$ $i\theta$ ors $\mathfrak{D}_{\mathfrak{Z}}$: λ $\overline{}$ 1−1−1 $2\pi i(\beta_{\Omega}(\boldsymbol{\nu}))$ (a) $\left(\begin{array}{cc} 2\pi i(\beta \Omega_{\mathbf{Z}}(\boldsymbol{\mathcal{X}})) \\ 0 \end{array} \right)$ $\mathbf{Z} = \mathbf{1} \mathbf{Z} \mathbf{Z} \mathbf{Z}$ $\begin{align*}\n\frac{2\pi i(\alpha_{\Omega_2}(\varkappa))}{e}, \mathbb{E}_{\Omega_2}(\varkappa)e^{-2\pi i(\beta_{\Omega_2}(\varkappa))}, \mathbb{E}_{\Omega_3}(\varkappa) &= 1, 2, ..., 10, \ \n\text{and } \sum_{z=1}^{10} \mathfrak{D}_z = 1. \text{ Then associated values of } \n\text{ByFV, and we can write them in the following way: \n\end{align*}$ \cdot , n \overline{a} $\overline{}$ $\sum_{\mathbf{Z}=1}^{\mathbf{l}\mathbf{l}}\mathfrak{D}_{\mathbf{Z}}=1$. Then associated values $(v, \mathcal{L}_2, \mathcal{L}_3, \ldots, \mathcal{L}_n)$ by $\Omega_{\mathcal{Z}}(e) = 1, 2,$ \ldots ^r $\frac{c}{\sqrt{2\pi}}$ c, family of CPyFVs and weight vectors $\mathfrak{D}_g = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of Ω_g $(3 = 1, 2, 3, ...$ ⁿ), $\ddot{}$ \circ f $\pi i (B_0$ (**11**) **family of CPV is corrected in the integral of** $E_{\Omega}(\mu)e$ **is and** \int **,** $\lambda = 1, 2, ...,$ ¹¹ be the *is defined as:* Theorem 16. Let $\Omega_{\mathcal{Z}}=\Big(\frac{d}{d}\Big)$ $\frac{1}{2}$ $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$ CPyFAAOWG operator are ⎟ Theorem 16. Let $\Omega_{\bf \bar{g}}=\left(\Pi_{\Omega_{\bf \bar{g}}}\right)$ $\frac{\partial u}{\partial p} = \frac{\partial u}{\partial y}$ $= 1$ CPyFAAOWG operator are also a ⎟ **Theorem 16.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{(\mathbf{x} - \mathbf{X})^2}{2\sigma^2}}\right)$ $\frac{1}{2}$ $2, \ldots$ PyFAAOWG operator are also a CPyFV, ar $\ddot{}$ $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\frac{1}{2}(\kappa/2)}$, $\mathbf{Z} = 1, 2, ..., \mathbf{N}$ be the $\frac{1}{2}$ ($\frac{1}{2}$, $\frac{1}{2}$ $\frac{1}{d}$ d we \overline{y} such that $\mathfrak{D}_7 \in [0,1]$, $\mathfrak{Z}_7 = 1,2,...,1$ and $\sum_{r=1}^{11} \mathfrak{D}_7 = 1$. Then associated values of the *he followine* $\left(\begin{array}{ccc}2\pi i(\alpha_0,\alpha_1) & \cdots & 2\pi i(\beta_0,\alpha_n)\end{array}\right)$ \mathbf{z} and \mathbf{z} and \mathbf{z} $\begin{pmatrix} -2\frac{3}{2} & -1 \ 1 & 2 \end{pmatrix}$ $\in [0,1], \mathfrak{Z} = 1,2,\ldots, n$ and $\sum_{r=1}^{n} \mathfrak{D}_{r} = 1$. Then associated values of the θ $\pi i(\beta_O(\boldsymbol{\gamma}))\setminus$ $\begin{aligned} \mathcal{L} \quad \text{(1)} \quad \mathcal{L} \quad \text{(2)} \quad \text{(3)} \quad \text{(4)} \quad \text{(5)} \quad \text{(6)} \quad \text{(7)} \quad \text{(8)} \quad \text{(8)} \quad \text{(9)} \quad \text{(1)} \quad \text{(1)} \quad \text{(1)} \quad \text{(2)} \quad \text{(3)} \quad \text{(4)} \quad \text{(5)} \quad \text{(6)} \quad \text{(7)} \quad \text{(8)} \quad \text{(9)} \quad \text{(1)} \quad \text{($ family of CPyFVs and weight vectors $\mathfrak{D}_z = (\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n)^T$ of Ω_z ($\overline{z} = 1, 2, 3, ...$), *IFAAOWG operator are also a CPyFV, and we can write them in the following way:* **5. Complex Pythagorean Fuzzy Aczel–Alsina Weighted Averaging Operators** $\mathcal{A} = 1, 2, \ldots, \mathcal{P}$ be the $\frac{1}{2}$ and $\frac{1}{2}$ in terms of amplitude and phase terms of amplitude and phase terms. We develop the set of amplitude and phase terms of amplitude and phase terms of amplitude and phase terms. We develop the set of)) λ and λ and λ \int , $\epsilon = 1, 2, \ldots$, we use **Definition 11.** *Consider the dissociated values of the family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = $\left(\prod_{\alpha} (\nu)e^{2\pi i (\mu_1/2)} \mathbb{E}^{(\alpha)}\right)$ $\mathbb{E}_{\alpha} (\nu)e^{2\pi i (\nu_1/2)} \mathbb{E}^{(\alpha)}$ $\mathbb{E}_{\alpha} (\nu_2)$ has the two aspects of \mathcal{S} in terms of and phase terms of and phase terms of and phase terms.

where (a(1), b(2), b(3), ..., b(8)) is the set of permutations of
$$
(z = 1, 2, 3, ...)
$$

\n
$$
\Omega_{b(3-1)} \geq \Omega_{b(3)}, \forall, 3 = 1, 2, 3, ...
$$
\n**Theorem 16.** Let $\Omega_2 = \left(\Pi_{\Omega_2} \left(\frac{2\pi i (a_{\Omega_2} (x))}{2\Omega_2 (x)^2}, \frac{2\pi i (b_{\Omega_2} (x))}{2\Omega_2 (x)^2}\right), 3 = 1, 2, ...$, \emptyset be the family of CPyFVs and weight vectors $\Omega_2 = (2_1, 2_2, 2_3, ... , \mathfrak{D}_n)^T$ of $\Omega_2 (\mathfrak{F} = 1, 2, 3, ...)$
\nsuch that $\mathfrak{D}_3 \in [0, 1], 3 = 1, 2, ...$, \emptyset and $\Sigma_{3-1}^{\mathfrak{D}} \mathfrak{D}_3 = 1$. Then associated values of the
\nCPyFAAOWG operator are also a CPyFV, and we can write them in the following way:
\n
$$
\mathcal{D}_{\emptyset} = \left(\frac{\sum_{i=1}^{\mathfrak{D}} (-\ln(\Pi_{\Omega_{i}}(3))^{\vee})^{\frac{1}{\vee}}}{\sum_{i=1}^{\mathfrak{D}} (-\ln(\Pi_{\Omega_{i}}(3))^{\vee})^{\frac{1}{\vee}}} \right) \sum_{i=2\pi i (\mathfrak{D}_{i}} \left(\frac{-\sum_{i=1}^{\mathfrak{D}} (-\ln(\Pi_{\Omega_{i}}(3))^{\vee})^{\frac{1}{\vee}}}{2\pi i (\mathfrak{D}_{i} - e^{-\frac{1}{2}})(-1)^{2}(\mathfrak{D}_{i} - e^{-\frac{1}{2}})(-1)^{2}(\mathfrak{D}_{i} - e^{-\frac{1}{2}})(-1)^{2}(\mathfrak{D}_{i} - e^{-\frac{1}{2}})(-1)^{2}(\mathfrak{D}_{i} - e^{-\frac{1}{2}})(\mathfrak{D}_{i} - e^{-\frac{1}{2}})(\mathfrak{D}_{i} - e^{-\frac{1}{2}})(\mathfrak{D}_{i} - e^{-\frac{1}{2}})(\mathfrak{D}_{i} -
$$

4. Aczel–Alsina Operations Based on CPyFSs

Theorem 6. Let \mathcal{L} = \mathcal{L}

 $e(h(1), h(2), h(3))$ $(2), b(3), \ldots, b(3)$ is the set of permu $\Omega_{\mathrm{b}(\mathbf{Z}-1)} \geq \Omega_{\mathrm{b}(\mathbf{Z})}$, \forall , $\mathbf{Z} = 1, 2, 3, ...$ n. (2) , $b(3)$, ..., $b(3)$) is the set of permutations of (3) where $(b(1), b(2), b(3), ..., b(8))$ is the set of permutations of $(s = 1, 2, 3, ..., 9)$ *f* (2), $\frac{1}{2}$, \frac s the set of permutations of $(3 = 1, 2, 3, ..., n)$ and $F(\beta), \ldots, F(\xi)$ is the set of permutations of $\left(\xi = 1, 2, 3, \ldots, 5^{\alpha} \right)$ and (3)) is the set of nermutations of $(3-1, 2, 3, \ldots, n)$ and α it of permutations of $\left(\frac{a}{b} = 1, 2, 3, ... \right)$ $-$ ିଆ $+$ ିଆ \sim ി where (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(3 = 1, 2, 3, ..., 1)$ and
 $Q \to Q \to 3 - 1, 2, 3, ..., n$ where $(b(1), b(2), b(3), ..., b(3))$ is the s $(\mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ is the set of p where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots, 1)$ α ⇒ α \forall 7, 192, Ⅱ *we* (b(1) b(2) b(3) b(3)) is the set of nermutations of $(3 = 1, 2, 3, \ldots, 1)$ and $\begin{bmatrix} 2, & 0 \\ 0, & 1 \end{bmatrix}$, $\begin{bmatrix} 2, & 0 \\ 0, & 1 \end{bmatrix}$, ..., $\begin{bmatrix} 0, & 0 \\ 0, & 1 \end{bmatrix}$ is the set of permutations of $\begin{bmatrix} 2, & 1 \\ 0, & 1 \end{bmatrix}$ and IJ. $(2_{-1}) \ge \Omega_{b(2)}, \forall, \; 2 = 1, 2, 3, \ldots$ m. ⎜ $\overline{}$ of permutations of $($ \cdot : $\mathcal{L}(\Omega) = \mathcal{L}(\Omega)$, $\mathcal{L}(\Omega) = \mathcal{L}(\Omega)$ *with weight vectorial with weight vectorial permutations of* $(z = 1, 2, 3, ..., 4)$ and $(z = 1, 2, 3, ..., 4)$ ϵ , μ ations of $(3 = 1, 2, 3,$ \mathcal{L} ŋ` $\ddot{}$ _{at} υJ $\binom{3}{4} = 1, 2, 3, \ldots, \binom{7}{4}$ \equiv $\frac{1}{2}$ $\sqrt{1-e}$ $\frac{b(z)}{z}$ $e^{2\pi i (\sqrt{1-e}}$) $\frac{1}{z}$
here (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(3 = 1, 2, 3, ..., 1)$ and ⎠ :)) $1, 2, 3, \ldots$ $\ddot{}$ ١Ì $\overline{6}$ \overline{u} þ(\mathbf{L} $\ddot{}$ ho re (b ⎠ , ⎟ $(L_0(z), \forall, \xi = 1, 2, 3)$ $\Omega_0 \geq \Omega_{b(3)}, \ \forall, \ 3 = 1, 2, 3,$ _.
+h ϵ $mere_{\alpha}$ $\sqrt{2}$ \mathbf{E} (1) , b \mathcal{S}^{\prime} $2t$ $(s_j, \forall, \epsilon = 1, 2, 3, ...$ \forall , $\{3} = 1, 2, 3, \ldots$... \ddot{t} ر
بار و و where $(b(1), b(2), b)$, \ $\ddot{}$ $\mathfrak{g}(\mathfrak{Z})$ (\mathfrak{m} uti $\frac{1}{2}$ $\frac{1}{2}$ ı fı where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of $\Omega_{b(3-1)} \geq \Omega_{b(3)}$, \forall , $\overline{s} = 1, 2, 3, \dots$!!. \overline{a} \overline{b} \overline{c} $\overline{$ \ldots $\overline{}$ ⎟ \overline{a} \mathfrak{n}_{\cdot} $where (b(1), b(2), b(3), ..., b(3))$ is a \overline{a} \mathbf{h} $z-1$ $\binom{b(1)}{b}$ $\langle \bullet \rangle$ $\langle \bullet \rangle$ $\langle \bullet \rangle$ \overline{a} \mathcal{S} th where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permuta where $(b(1), b(2), b(3), ...)$ (3) , $\sqrt{2} = 1, 2, 3,$ where $(\mathfrak{b}(1),\mathfrak{b}(2),\mathfrak{b}(3),\ldots,\mathfrak{b}(3))$ is the set of permutations of $\left(\mathfrak{Z}=1,\,2,\,3,\right)$ $0 \rightarrow 0 \quad \forall \quad 3-1 \quad 2 \quad \mathbb{R}$ $A_{b}(z_{-1}) \leq A_{b}(z)$, \vee , $z = 1, 2, 3, ...$ \mathbf{u}_i , where \mathbf{u}_i $h(2), h(3), ..., h(3))$ is the set of permutations of $(3 = 1, 2, 3, ..., 1)$ $D_{h,\mathcal{F}_1}, \forall, \mathcal{F}_2 = 1, 2, 3, \ldots$ ⁿ. $(\mathfrak{b},...,\mathfrak{b}(3))$ is the set of permutations of $\left(2=1,\,2,\,3,...\,,\,$ $\mathfrak{b}\right)$ and $\Omega_{\rm b(3)}$, \forall , $\lambda = 1, 2, 3, \ldots$!!. $where (b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ..., 1)$ and \mathfrak{m} , \mathfrak{m} where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ...$ $\Omega_{\mathrm{b}(\mathbf{Z}-1)} \geq \Omega_{\mathrm{b}(\mathbf{Z})'} \ \forall, \ \mathbf{Z} = 1, 2, 3, \dots$!]. \ldots , $b(3)$) is the set of permutations of $(3 = 1, 2, 3, \ldots, 1)$ and ൫ଵ, ଶ,…,ῃ൯= ⨁ƺୀଵ , $b(3)$) is the set of permutations of $(3 = 1, 2, 3, ..., 1)$ and $\lim_{t \to \infty} (f(1), f(2), f(2)) \geq f(2)$ is the set of normalize $\frac{m}{2}$ = ($\frac{m}{2}$, $\frac{m}{2}$ *where* (b(1), b(2), b(3), \dots , b(8)) is the set of permutations of (8 $\mathcal{L}_{\text{where}}$ (b(1) b(2) b(3) = b(3)) is the set of nermutations of $(3-1, 2, 3, n)$ and $\alpha \rightarrow \alpha \quad \forall \mathbf{z} \quad \mathbf{1,2,3,3} \quad \mathbf{R}$ $\mathcal{L}(\mathcal{L}(1), \mathcal{L}(2), \mathcal{L}(3))$ is the set of numericians of $(\mathcal{Z}-1, 2, 2, \mathcal{L})$ and $(v(1), v(2), v(3), ..., v(3))$ is the set of permutations of $(3 = 1, 2, 3, ..., n)$ and where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of $(3 = 1)$ $s-p(z-1) = -p(z)$, \cdots $s-p-p$, $(3, \ldots, 5(3))$ is the set of permutations of $(3, \ldots, 5(3))$ $=$ where $(b(1), b(2), b(3), \ldots, b(2))$ is the set of permutations of $\Omega_{\nu}g \rightarrow \Omega_{\nu}g$, \forall , $\xi = 1, 2, 3, \ldots, n$ $\mathcal{P}(\mathbf{c}-1)$ by (\mathbf{c}) where $(\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \ldots, \mathfrak{b}(2))$ is the set of permutations of $($ $\mathfrak{z} = 1, 2, 3, \ldots, \mathfrak{N}$ $)$ $\Omega = \Sigma Q - \forall 3-123$ let $p(s-1) - p(s)$, we introduce concepts of $S-1$ (1) , b (2) , b (3) , ..., b (3)) is the set of permutations of $(3 = 1, 2, 3, ..., 1)$ and $\alpha \times 7 = 1,2,3,1$ $\leq \frac{1}{2}$ _b(3)^{, v}, $\geq 1/2$, \geq , ... \leq $(3,\ldots, 0)$ and where (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(3 = 1, 2, 3, ..., 7)$ and $C_1 \rightarrow C_2$ we studied the concepts of some existing A $\Omega_{\text{b}(\mathbf{Z}-1)} \geq \Omega_{\text{b}(\mathbf{Z})'} \ \forall \ \mathbf{Z} = 1, 2, 3, \dots$]. \mathcal{S} and \mathcal{S} and \mathcal{S} and \mathcal{S} and \mathcal{S} under the differential AOS under the differential \mathcal{S} and \mathcal{S} and \mathcal{S} are differential \mathcal{S} and \mathcal{S} are differential \mathcal{S} and $\mathcal{S$ where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $\Big($ m her $\Omega_{\rm b(2)}$, \forall , 3 = 1, 2, 3, ... where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots, \mathbb{N})$ and ῃ $\Omega_{\rm b(Z-1)} \geq \Omega_{\rm b(Z)}$, \forall , $\bar{z} = 1, 2, 3, \ldots$. $b(2-1)$ in Section 1, we though a large all previous history of our research all previous history of our research in $b(2)$ $\Omega \sim \Omega \quad \forall \quad 3-1 \quad 2 \quad 1$ $\Omega_{b(2-1)} \geq \Omega_{b(2)}, \ \forall, \ 3 = 1, 2, 3, \dots$ n. $t(\mathbf{a})$ $t(\mathbf{a})$ of (\mathbf{z}) is the rest of unumitations of $(\mathbf{z} \quad 1 \quad \mathbf{a} \quad \mathbf{a})$ $T_{\rm eff}$ structure of this manuscript is presented as follows and also displayed in the also displayed in the $T_{\rm eff}$ the results of existing AOs with the results of our discussed technique. $T_{\rm eff}$ structure of this manuscript is presented as follows and also displayed in the also displayed in the $T_{\rm eff}$ where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ..., n)$ and \overline{w} $f_2(z_1) - f_3(z_2)$, $f_4(z_1) - f_5(z_1)$ $\mathcal{L} = 1, 2, 3, \ldots, n$, $\mathcal{L} = 1, 2, 3, \ldots, n$ $\Omega_{\mathrm{b}(\mathbf{Z}-1)} \geq \Omega_{\mathrm{b}(\mathbf{Z})}, \; \forall, \; \mathbf{Z} = 1, 2, 3, \ldots \text{!}.$ Ω_{\parallel} *where* (b(1), b(2), b(3), \dots , b(3)) is the set of permutations of $(2 = 1, 2, 3, \dots, 1)$ and *symmetry* $(L(1), L(2), L(3))$, $(L(3))$ is the set of normalistique of $(3-1, 2, 3, 0)$ and S_{α} (5(1), $S(2)$, $S(0)$, ..., $S(0)$ is the set of permanential S_1 ($S = 1, 2, 3, ...,$) and where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots, \mathbb{I})$ and $\text{ions of } (3 = 1, 2, 3, \ldots, 7)$ $1, 2, 3, \ldots$ ⁿ. \tilde{a} 3), \ldots , $b(3)$ is the set of permutations of $(3 = 1, 2, 3, \ldots, 1)$ a $\mathcal{N}_{\mathcal{A}}$ $\Omega_{\text{tot}} \rightarrow \Omega_{\text{tot}} \times \sqrt{3} = 1.$ ⎜ ⎜ ⎜ θ set of) is the set of permutations of $\,$ ($\bar{\mathrm{z}}=1,\,2,\,3$ $h(5)$ $h(6)$ $h(7)$ $h(8)$ $h(8)$ is the set of nerm t of permutations of $\{3 = 1, 2, 3, \ldots, \mathsf{N}\}$ i 2), $b(3)$, ..., $b(3)$ is the set of permutations of $\left(3 = 1, 2, 3, 3, 3, 3, 3, 3\right)$ **Proof** $(3 = 1, 2, 3, ..., 1)$ and $\frac{1}{2}$ is the set of neuralistic of $\left(7, 1, 2, 3\right)$ $t \in$ where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ..., 1)$ as య $\mathbf{g}_{-1)} \geq \Omega_{\mathbf{b}(\mathbf{Z})}^{\mathbf{b}}$, \forall , \mathbf{z} : $2)$, $b(3)$, $where (b(1), b(2), b(3),$ య $\Omega_{\mathrm{b}(\mathbf{3}-1)} \geq \Omega_{\mathrm{b}(\mathbf{3})'}$ \forall , 3 = 1,2, $(3), \ldots, (5)$ where $(b(1), b(2), b(3), \ldots, b)$ $\Omega_{\mathfrak{b}(\mathbf{Z}-1)} \geq \Omega_{\mathfrak{b}(\mathbf{\bar{3}})'} \ \forall, \ \mathfrak{z} = 1, 2, 3, \ldots$., $b(3)$; \mathbf{a} $D_{b(2-1)} \geq \Omega_{b(2)}, \forall, \, 3 = 1, 2, 3,$ here $(b(1), b(2), b(3), \ldots, b(3))$ య $\Omega_{b(3-1)} \geq \Omega_{b(3)}$, \forall , $3 = 1, 2, 3, ...$ ⁰. s the set $(\{3}, \ldots, \mathfrak{b}(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots)$ $\mathcal{L}_{\mathcal{A}}$ $\binom{n}{k}$ is the set of perm u tations of $(3 = 1, 2, ...)$ $3, .$ $(h(3))$ is the set of permutations of $(3 = 1, 2, 3, ...)$ $\frac{p(z)}{p(z)}$ is the set of permit. utati $\text{ons of } (3 = 1, 2, 3, \ldots)$ $\left(\begin{array}{c} \frac{1}{2} \end{array} \right)$ $\ddot{}$)
;
; z)) is the set of permutul
, n tions of $(3 = 1, 2, 3, \ldots, 1)$ $\big)$ a \mathcal{L} is the set of permutations
n $1-\frac{1}{2}$ s of $(3 = 1, 2, 3, ..., 1)$ a $_{id}$ \overline{a} et of permututions of $\left\{ \epsilon \right\}$ $=1$ $\left(2, 3, \ldots, \overline{1} \right)$ and $\mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ is the set of permutations of $\left(\mathfrak{F}=1, 2, 3, \ldots, \mathfrak{N} \right)$ and $\lim_{t \to \infty}$ of $\left\{ \frac{z-1}{2}, \frac{z}{2}, \ldots \right\}$ $1-\frac{1}{2}$ భ Ὺ \int $\begin{equation*} \begin{array}{ll} \text{if } \mathfrak{sof} \end{array} \left(\mathfrak{d} = 1, 2, 3, \ldots, 1 \right) \end{equation*} \begin{equation*} \begin{array}{ll} \text{if } \mathfrak{sof} \end{array} \end{equation*}$ *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = $= 1, 2, 3, \ldots, "$) and \ldots , \mathfrak{n}) and 2), $b(3)$, ..., $b(3)$) is the set of permutations of $(3 = 1, 2, 3, ..., n)$ and *family of CPyFVs and its corresponding weight vectors* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = $)$, $\geq \Omega_{\mathrm{b}(\mathsf{Z})'}$ $\Omega_{b(\mathbf{Z}-1)} \geq \Omega_{b(\mathbf{Z})}.$ \bullet , ⎟ ζ , $\zeta = 1, 2,$ \forall 3 - 1 2 3 1 $\liminf_{n \to \infty} \frac{1}{n} \int_{0}^{\infty} \frac{1}{n} \int_{0}^{\infty} f(x) \, dx$ ቇ , ƺ = 1,2, … , ῃ *to be the*

 $\mathcal{L}(\mathcal{A})$

Proof. We can prove this theorem easily. \Box **Proof.** We can prove this theorem easily. \Box \mathbf{B} utilizing the notions of \mathbf{B} and TCNM, we explore fundations of \mathbf{B} \mathbf{B} utilizing the notions of \mathbf{A} $\frac{1}{\sqrt{2}}$ ƺస ቁ $\frac{1}{\sqrt{2}}$ is theorem $\ddot{\mathbf{0}}$ \mathbf{r} orem easily
 $\overline{\mathbf{1}}$ \overline{y} Λ _{σ} σ ₂ σ we this theorem easily \mathbf{p}_{max} $\boldsymbol{\epsilon}$, $\boldsymbol{W}_{\text{max}}$ are given this that $\boldsymbol{\epsilon}$ is $\boldsymbol{\epsilon}$ **Proof.** We can prove this theorem easily. □ \mathbf{w} = (\mathbf{w} = 1,2,3, \mathbf{w} = 1,2,3, \mathbf{w} = 1,2,3, \mathbf{w} = 1,2,3, \mathbf{w} = 1,3, \mathbf{w} sny. \Box **Proof.** We can prove this theorem easily. \Box $\ddot{}$ $\ddot{\mathbf{a}}$ can prove this theorem easily **Proof.** We can prove this theorem easily. \Box \Pr $\frac{1}{2}$ is the contract vector $\frac{1}{2}$ is the such that $\frac{1}{2}$ is $\frac{1}{2}$ \overline{a} o Attribute Decision matrix and the contract of the contract of the contract of the contract of the contract o
The contract of the contract o o Attribute Decision matrix and the contract of the contract of the contract of the contract of the contract o eral AOS of CPYFAAWA operators, and some special cases are also present here. In Seceral AOS of Γ Fockive and some special cases Fockive A system of C informations under the system of C information. In Section 5, we develop A **Proof.** We can prove this theorem easily. \Box \Box **Theorem 6.** *Let* ƺ = ቆఆƺ $C = 1$ Γ section 3, we can prove that and concentration $\mathcal{L}_{\mathcal{A}}$ \mathbf{P}_{max} of \mathbf{M}_{max} and fundamental the notions of CFSs \Box **Proof.** We can prove this theorem easily. \Box work; in Section 2, we recall the notions of C_F same notions of C_F and fundamental operations of C_F ῃ eorem easily. \Box **Proof**. We can prove this theorem easily \Box $\overline{11001}$, the carr prove this dictional cash, \Box **Proof**. We can prove this theorem easily \Box **Proof.** We can prove this theorem easily. \Box *, such that* $*∞*$ *, such that* $*∞*$ 1,2, … , _₹
1,2, … , <mark>□ □ □ □ □ □ □ □ □ □ □ □ □</mark>
1,2, … , □ □ □ □ □ □ □ □ □ □ □ □ □ **Proof** We can prove this theorem easily \Box can prove this theorem easily. \Box ve this theorem easily. \square \overline{a} ⎜ **Symmetry 2023**, *Symmetry and prove this theorem easily.* \Box **Proof.** We can prove this theorem easily. \square α are the creative case $\mathbf{r}_{\mathbf{r}}$ $\overline{}$ cases of the framework of CP₃ ϵ (CR), based on Academy. \mathcal{L} We explore our invented AOs and presented new AOs of CPyF using an Aczel–Alsina-We explore our invented AOS and presented and presented and presented new AOS of CPHF using an Ac μ \overline{a} Ϧ(ƺ), ∀, ƺ = 1,2,3, … ῃ*.* _{/e can prov} \overline{a} e this theo α e this theorem easily. □

4. Aczel–Alsina Operations Based on CPyFSs

Now, we explored the AOs of the CPyFAAWG operator, and also studied some spec sum, we explored the roles of the Crytrawy operator, and a
cases of the CPyFAAWG operator in the framework of CPyF Aczel-(CPyFAAHG) operator, based on Aczel–Alsina operations. From the accuracy function is given and power and power of the CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid geome Now, we explored the AOs of the CPyFAAWG operator, and also studied some special *a and the mandework of Cryr Aczel-* ϵ are of the CPvEA AMC operator in the framework of CPvE Aczel–Alsina by brid geometric \langle CPyFA AHC) operator based on \triangle czel–Alsina-operations of the Aczel–Alsina-like Aczel–Alsina-operations of the Aczel–Alsina-operations of the Aczel–Alsina-operations of the Aczel–Alsina-operations of the Aczel–Alsi $\sum_{i=1}^{n}$ multiplier $\sum_{i=1}^{n}$ multiplier $\sum_{i=1}^{n}$ multiplier role. Then, we have: $\frac{1}{2}$ secotion $\frac{1}{2}$ s and $\frac{1}{2}$ lsina-operations of the Aczel–Alsina-like Aczel–Alsinasum, product, scalar multiplication and power role. Then, we have: Now, we explored the AOs of the CPyFAAWG operator, and also studied some special Now, we explored the AOs of the CPyFAAWG operator, and also studied some special
cases of the CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid geometric
(CPyFA AHC) operator based on Aczel–Alsina operations Concerned by the Capital Computation of the Handwork of Crypt Acet-Alshia hybrid geometric
(CPyFAAHG) operator, based on Aczel-Alsina operations. $\frac{1}{\sqrt{N}}$ row, we explored the AOS of the CI yiAAwG operator, and also studied some special
cases of the CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid geometric
(CPyFAAHG) operator, based on Aczel–Alsina operations. P Now, we explored the AOs of the CPyFAAWG operator, and also studied some speci $\frac{1}{2}$ ⎟ ⎟ ⎟ w, w $\frac{1}{\sqrt{2}}$ f the C ⎜ expl $\frac{1}{2}$ $\frac{1}{2}$ **CPyFA** $_{\text{lo}}$ the A \hat{C} $(\hat{a} - \hat{c})$ \widehat{G} oper ed the AOs of the CPyFAAWG operator, and a CPyFAAHG) operator, base \mathcal{L} Now, we explored the AOs of the CPyFAA r yfa*f* Δ F $\overline{\mathrm{d}}$ \overline{G}) operator, based on \overline{A} ⎟ Now, we explored the AOs of the CPyFAAWG operator, and also studied some special
seems of the CPuEA AMC operator in the framework of CPuE Agrel. Alsing bubrid compatible (CP yr AAHG) opera (CPyFAAHG) operator, based on Aczel-Alsina operations. yFAAHG) operator, based on Aczel–Alsina operations. : Ẁൟ, = √−1 \mathbf{a} , \mathbf{b} $\frac{1}{100}$ operations. cases of the CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid geometric
(CPyFAAHG) operator, based on Aczel–Alsina operations. Γ , then, the PyF α \mathcal{L} , \mathcal{L} Now, we explored the AOs of the CPyFAAWG operator, and also studied some sp
cases of the CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid geom VG operator, and also studied some spe Now, we explored the AOs of the CPyFAAWG operator, and also studied some special 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ⎞ NOW, we explored the AOS of the CPyFAAWG operator, and also studied some spe
cases of the CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid geom
(CPvFAAHG) operator, based on Aczel–Alsina operations. $\frac{1}{\sqrt{2}}$ suitable candidate for a multinational company. In Section 8, $\frac{1}{\sqrt{2}}$ w, we explored the AOs of the CPyFAAWG operator, and also studied some special From, the expectation and the computation of product of products. In this condition cases of the CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid geometric ored the AOs of the CPyFAAWG operator, and also studied some special
AWG species is the form model of CP+FA and Alsing hybrid a semistic Now we explored the ΔO_s of the CPyFA AWC energies and also studied some special (CPyFAAHG) operator, based on Aczel–Alsina operations. Now, we explored the AOs of the CPyFAAWG operator, and also studied some special cases of the CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid geometric (a) $e^{2\pi i (\sqrt{1-e})}$

the set of permutations of $(3 = 1,$

ily. \square

CPyFAAWG operator, and also stude

framework of CPyF Aczel–Alsina

el–Alsina operations.
 $\kappa e^{2\pi i (\alpha \Omega_g(\varkappa))}$, $\Xi_{\Omega_g}(\varkappa)e^{2\pi i (\beta \Omega_g(\varkappa))}$

FAAHG $(CPr_{\mathcal{B}}[A \cap B])$ operator hased on $A C2e- A$ sing operations. $\begin{array}{c} 1 \\ 2 \end{array}$ being and introduced some AOS in the form of CPS-SS and introduced some AOS in the form of CPS-SS and introduced some AOS in the form of CPS-SS and introduced some AOS in the form of CPS-SS and introdu ϵ (CPyFA AHC) operators, hered on A szel. Alsing operations, Cases of the CrypAAN Guerrator in the Hamework of Cryp Aczel–Aisina hybrid geometric
(CPyFAAHG) operator, based on Aczel–Alsina operations. W , we explored the AOs of the CPyFAAWG operator, and also studied some special environments of fuzzy systems. In Section 4, we introduced innovative concepts of Aczel– we explored the AOS of the CPyFAAWG operator, and also studied some special Now, we explored the AOs of the CPyFAAWG operator, and a
cases of the CPyFAAWC operator in the framework of CPyFA acade χ ∈ CPy FAAWG operator, and
moverk of CPvF Acz $\frac{1}{2}$ operator, and also studied a
 $\frac{1}{2}$ of CPvE Aczol–Alsina bybr Now, we explored the AOs of the CPyFAAWG operator, and also studied some special
cases of the CPyFA AWG operator in the framework of CPyF Aczol–Alsina hybrid geometric $C = \frac{1}{2}$ and $\frac{1}{2}$ = ($\frac{1}{2}$, $\frac{1}{$ \mathcal{R} m_h *CPyFVs and its corresponding weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ)*,* Now, we explored the AOs of the CPyFAAWG operator, and also studied some special
cases of the CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid geometric
(CPyFAAHG) operator, based on Aczel–Alsina operations. Now, we explored the AOs of the CPyFAAWG operator, and also studied some special IFS and PyFs. $\frac{N_{\text{OW}}}{2}$ we explored the ΔQ_S of the CP_{VEA} ΔW_C eperator and also studied some special **3. EXISTING AGGREGATION OPERATORS OF A CONTRACT OPERATORS** $\frac{1}{\sqrt{2}}$ Now, we explored the AOs of the CPyFAAWG operator, and also studied some special Lases of the CT yrAAWG operator in the Hamework of CT yr² AC2EI–Alsina hybrid geometric
(CPyFAAHG) operator, based on Aczel–Alsina operations. **Property** P erator, and also studied sor Now, we explored the AOs of the CPyFAAWG operator, and also studied some special
Cases of the CPyFA AWC operator in the framework of CPyF Aczal–Alsina bybrid geometric (CPyFAAHG) operator, based on Aczel-Alsina operations. *family of CPyFVs. Then, a CPyFAAHG operator is particularized as:* $\frac{1}{2}$, where the *to be the set of the set family of CPyFVs. Then, a CPyFAAHG operator is particularized as:* Ĵ. plored the AOs of the CPyFAAWG operator, and also studied some special (CPyFAAHG) operator, based on Aczel-Alsina operations. Now, we explored the AOs of the CPyFAAWG operator, and also studied some special $\ddot{\mathbf{r}}$ ƺసభ ቀି൫ƺ൯ቁῪ $\frac{1}{3}$ Se staated some speak cial cases of the CP_{yFA}AWG operator in the framework of CP_{yF} AC₂ cial cases of the CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid cial cases of the CP_{yFA} \sim the framework of CP_{yF} A_P cial cases of the CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid cial cases of the CP_{yFA} \sim the framework of CP_{yF} A_P_F A_C \mathbf{S} Let the Manufacture operator in the Hamework of CP yr Ticker Thoma hydrid geometric
HG) operator, based on Aczel–Alsina operations. p FAAWG operator, and also studied some special cial cases of the CP_{yFA} \sim *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 ne CPyFAAWG operator in the framework of CPyF Aczel–Alsina hybrid geometrand CPyF Aczel–Alsina hybrid geometrand HG) operator, based on Aczel–Alsina operations. $\mathsf{ns.}$ Now, we exple 4 թված մասնական մասնական Now, we explored the AOs of the ⎟ ra
ed bred the AOs of the CPyFA

man and the second second

Definition 16 Consider $Q_{\tau} = (\prod_{\alpha} (\chi)_{\beta}^{2\pi i (\alpha_{\alpha}(\chi))} \sum_{\beta}^{2\pi i (\alpha_{\beta}(\chi))}$ *union of the given CPyFVs are defined as follows:* $D^{-1}(\alpha, \beta, \alpha)$ and $D^{-1}(\beta, \beta, \alpha)$ **Definition 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi}))}, \Xi_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi}))},$ *union of the given CPyFVs are defined as follows: io be the family of CPyFVs. Then, a CPyFAAHG operator is part*
 $\frac{1}{2}$ $\frac{1}{2$ 2 **Definition 16** Consider $Q = (\prod_{\alpha} (\kappa) e^{2\pi i (\alpha \cdot \alpha} \bar{g}^{(\chi)})$ $\sum_{\alpha} (\kappa) e^{2\pi i (\beta \cdot \alpha} \bar{g}^{(\chi)})$ $\bar{g} = 1, 2$ **Definition 16.** Consider $\Omega_{\mathbf{Z}} = (H_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{-\lambda t})$ $2\pi i(\alpha_0 \left(\mathcal{H} \right))$ $2\pi i(\beta_0$ $\overline{1}$ z
PrepuFAAHG onerate a follows of CPuFC onerate as follows are defined as *e* $2\pi i (r_1 - r_2)$ and $2\pi i (r_2 - r_1)$ and $2\pi i (r_1 - r_2)$ tion 16. Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\mu)e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{z}}}}{2}(\mathbf{z}))}, \Xi_{\Omega_{\mathbf{z}}}(\mu)e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{z}}}}{2}(\mathbf{z}))}}, \mathbf{z} = 1, 2, ..., 0$ to be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as:
 $\frac{1}{2}$
 $\frac{1}{2}$ 2 $2\pi i(\alpha_{\Omega-}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega-}(\boldsymbol{\chi}))$ *usider* $\Omega_{\mathbf{z}} = (H_{\Omega_{\mathbf{z}}}(\varkappa)e^{\varkappa})e^{-\varkappa^2}$, $\Xi_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\varkappa}$ $\ddot{}$ $2\pi i(\beta_{\Omega}(\boldsymbol{\chi}))$ $\begin{bmatrix}2\pi i(\alpha_{\Omega}a)(\alpha)\\-\pi i(\alpha_{\Omega}a)(\alpha)\end{bmatrix}$ $\begin{bmatrix}2\pi i(\beta_{\Omega}a)(\beta)\\R\pi i(\beta_{\Omega}a)(\alpha)\end{bmatrix}$ $\begin{bmatrix}3\pi i(\beta_{\Omega}a)(\beta)\\-\pi i(\beta_{\Omega}a)(\beta)\end{bmatrix}$ **Definition 16.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\rho_{\Omega_{\mathbf{Z}}}(\varkappa))}, \mathbf{Z} = 1, 2, ..., 0$ ൯ *be any two CPyFVs. The extension of intersection and the* to be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as:
n $\mathfrak{g}_{\sigma}(\mathfrak{g}_{\varepsilon})$ **Definition 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega}(\mathbf{x})e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\mathbf{x}))}, \mathbb{E}_{\Omega}(\mathbf{x})e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\mathbf{x}))}, \mathbb{E}_{\Omega}(\mathbf{z})e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\mathbf{x}))}, \mathbb{E}_{\Omega}(\mathbf{z}))$ **Definition 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\frac{1}{2}i\omega_{\mathbf{z}}})^{\mathbf{z}}$, $\Xi_{\Omega_{\mathbf{z}}}(\varkappa)e^{-\frac{1}{2}i\omega_{\mathbf{z}}}$ $s = (s - (st))$ and $s = (st)$ **Definition 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\mathbf{z})e^{-\mathbf{i}\mathbf{z}(\mathbf{z})t})e^{-\mathbf{i}\mathbf{z}(\mathbf{z})t}$ **4. Aczel–Alsina Operations Based on CPyFSs** $\begin{equation} \textbf{a}_1 \textbf{b} \textbf{a} \textbf{b} = (\textbf{a}_2 - \textbf{a}_3 - \textbf{a}_4) \textbf{b} = (\textbf{a}_3 - \textbf{a}_4 - \textbf{a}_5) \textbf{b} = (\textbf{a}_4 - \textbf{a}_5 - \textbf{a}_6) \textbf{b} = (\textbf{a}_4 - \textbf{a}_5 - \textbf{a}_7) \textbf{b} = (\textbf{a}_5 - \textbf{a}_7) \textbf{b} = (\textbf{a}_5 - \textbf{a}_7) \textbf{b} = (\textbf{a}_5 - \textbf{a}_7) \text$ to be the juming of Cr gr v b. Then, a Cr grininic operator to particularized ab. B_{c} in B_{c} and B_{c} an \overline{a} \overline{a} \overline{b} \overline{c} \overline{d} \overline{d} $2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\chi}))$ \sum_{n} \sum_{n $\mathcal{L}_{\mathcal{A}}$ to be the family of CPyFVs. Then, a CPyFAAHG operator **on 16.** Consider $\Omega_{\overline{2}} = (\Pi_{\Omega_{\overline{2}}})$ $\frac{1}{\sqrt{2}}$ **nition 16.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\varkappa_{\mathbf{Z}}t}$
the family of CPvEVe. Then, a CPvEAAHC energy $\mathcal{L}_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\kappa) e^{-\frac{\kappa_{\mathbf{Z}}}{2} \kappa_{\mathbf{Z}}}, \mathbb{E}_{\mathbf{Z}})$ \overline{a} ƺୀଵ *. Then, the PyF Aczel–Alsina weighted geometric operator is given as:* ῃ ƺ $2\pi i(r-(\alpha))$ and $2\pi i(\beta - (n\epsilon))$ ῃ $R_n(x) = \frac{2\pi i (\alpha_0 - \mu_0)}{2\pi i (\alpha_0 - \mu_0)}$ $\sum_{\alpha=0}^{\infty} \frac{2\pi i (\beta_0 - \mu_0)}{2\pi i (\beta_0 - \mu_0)}$, $\alpha = 1, 2, ...$ *respectively. Similarly* $\frac{1}{2}$ $\frac{1}{2}$ = $\frac{1}{2}$ $\frac{1}{2}$ ῃ $(e₁)$ $y = f(x, y)$ **and** $y = f(x, y)$ **a** *represents and phase terms of MV, <i>n r i e*_{*x*} *i n i n i n i n i n i n i n i n i n i n i n i i n i i n i i n i i fion 16. Consider* $\Omega_7 = (\Pi_O \ (\gamma) e^{2\pi i (\alpha \Omega_3 (\gamma))})$ *.* $\Xi_O \ (\gamma) e^{2\pi i (\beta \Omega_3 (\gamma))}$ *.* $\Xi = 1.2$ *......ⁿ of NMV, respectively. A CPyFS must satisfy these conditions:* commoders contract the conditions of the conditions of the conditions of the conditions: \overline{CPyF} of the conditions: \overline{CPyF} and \overline{CPyFA} and \overline{CPyFA} are conditions: $2\pi i(r_1 - r_2)$. $2\pi i(r_2 - r_1)$ $2\pi i(r_1 - r_2)$ *where* $Q = (\Pi - (\mu) \alpha)^2 \pi i (\alpha \Omega_{\mathbf{Z}}(\mathbf{x}))$ $\qquad \qquad \mathbb{R}$ $= (\mu) \alpha^2 \pi i (\beta \Omega_{\mathbf{Z}}(\mathbf{x}))$ $\qquad \qquad \mathbb{R}$ $\qquad \qquad \mathbb{R}$ *result i* $22\frac{g}{g} - (11) \frac{g}{g} (n)^c$, $G = 1, 2, ..., n$
CPuEVs Then a CPuEA AHC operator is particularized as: $(e₁)$ *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV,* $\mathcal{L}(\Pi_{\Omega}(\boldsymbol{\gamma})e^{\mathcal{L}(\mu(\mu_{\Omega}(\mathbf{z})\mathbf{W}))}, \mathbb{E}_{\Omega}(\boldsymbol{\gamma})e^{\mathcal{L}(\mu(\rho_{\Omega}(\mathbf{z})\mathbf{W}))}, \mathbb{E}_{\Omega} = 1, 2, ..., \mathbb{N}$ *of NMV, respectively. A CPyFS must satisfy these conditions:* ῃ ቀƺ ƺ ቁ $2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\chi}))$ **Definition 16.** Consider $\Omega_{\overline{2}} = (\Pi_{\Omega_{\overline{2}}}(\kappa)e^{-\frac{1}{2}i\omega t}, \Xi_{\Omega_{\overline{2}}}(\kappa)e^{-\frac{1}{2}i\omega t}, \Xi_{\Omega_{\overline{2}}}(\kappa)e^{-\frac{1}{2}i\omega t}$ to be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as $2\pi i(\alpha_{\Omega_{\bm{\tau}}}(\bm{\chi}))$ $2\pi i(\beta_{\Omega_{\bm{\tau}}}(\bm{\chi}))$ $\Omega_{\overline{2}} = (\Pi_{\Omega_{\overline{2}}}(u)e^{-\frac{u}{2}i\omega t}, \Xi_{\Omega_{\overline{2}}}(u)e^{-\frac{u}{2}i\omega t}, \overline{3} = 1, 2, ..., n$ $2\pi i(x-(\nu))$ $2\pi i(\ell,(\nu))$ **Definition 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\varkappa))}, 3 = 1, 2, ..., \mathbb{N}$ *to be the family of CP yr vs. Then, a CP yr AATIG operator is particulariz* **WEIGHT VECTOR WEIGHT VECTOR** $\begin{bmatrix} x_1 \\ y_2 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix}$ (*n*) $\begin{bmatrix} x \\ y \end{bmatrix}$ (*n*) $\begin{bmatrix} x \\ y \end{bmatrix}$ $1,2,3,4$ **to Definition 16.** Consider $\Omega_{\overline{g}} = (\Pi_{\Omega_{\overline{g}}}(\varkappa)e^{\frac{2\pi i(\alpha_{\Omega_{\overline{g}}}(\varkappa))}{2}}, \Xi_{\Omega_{\overline{g}}}(\varkappa)e^{\frac{2\pi i(\beta_{\Omega_{\overline{g}}}(\varkappa))}{2}}), \ z = 1, 2, ..., \mathbb{N}$ *e*
io be the family of CPyFVs. Then. a CPyFAAHG operator is particularized as: 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ *vector* and *in the contractor* step of *a* contract *s* is that *in the family of CPuFVs*. Then a CPuFA AHC operator is particularized as: *E jumity of Cryl vs. Then, a Cryl Artil G berator is particularized as.*
∴ 1 $(\kappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))},\mathbb{E}_{\Omega_{\mathbf{Z}}}$ $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i(\alpha \Omega_{\mathbf{Z}}(\varkappa))}{2}},\Xi_{\Omega_{\mathbf{Z}}}(\varkappa))$ s. Then, a CPyFAAHG operator is par \overline{C} $\mathbf{a} = \mathbf{b}$ ି $\frac{2\pi i(\alpha_{\Omega}(\boldsymbol{\varkappa}))}{2}$ ቍ \overline{a} ic ι)' Δ to be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as
n $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{-\frac{\mathbf{Z}}{2}}$ $\mathcal{L}^{(k)}$, $\Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(k))}$ **Definition 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{z}}}(\varkappa))}$ **Eximinal To.** Consults $\frac{1}{2}$ $\frac{1}{2}$ ($\frac{1}{2}$ ($\frac{1}{2}$ ($\frac{1}{2}$) $\frac{1}{2}$ ($\frac{1}{2}$ ($\frac{1}{2}$) $\frac{1}{2}$ article in a single paragraph. It is not a $2\pi i(\alpha_{\Omega_{\boldsymbol{\mathcal{F}}}}(\boldsymbol{\mathcal{H}}))$ $2\pi i(\beta_{\Omega_{\boldsymbol{\mathcal{F}}}}(\boldsymbol{\mathcal{H}}))$ **Definition 16.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\rho_{\Omega_{\mathbf{Z}}}(\varkappa))}$ ${}^{3\Omega}3^{(\mathcal{H})}$, 3 = 1,2,... $\mathcal{L}_{\Omega_{\mathbf{Z}}}(\mu)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa}))},\; \mathbf{\Sigma}_{\mathbf{Z}}=1,2,\ldots,$ o be the family of CPyFVs. Then, a CPyFAAHG operator is pa $)$ $\mathbf{G}_{\mathbf{g}}^{(1)}$ ϵ) ϵ $\frac{2\pi i(\beta \Omega_{\mathbf{Z}}(\mathbf{\mu}))}{2}$ 3 = 1.2 \cdot \mathbf{z} \mathbf{a} $\sum_{i=0}^{N} (\mathbf{x})^i e^{2\pi i (\rho_1 \cdot \mathbf{z}^{(k)})},$ 3 $= 1, 2, \ldots, \mathbb{N}$ $2\pi i(\alpha_{\Omega_{\alpha}}(\boldsymbol{\mathcal{H}}))$ $2\pi i(\beta_{\Omega_{\alpha}}(\boldsymbol{\mathcal{H}}))$ **Definition 16.** Consider $\Omega_{\mathbf{Z}} = (H_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\epsilon}$, $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\epsilon}$, $\zeta = 1, 2, ..., 0$ $2\pi i(\kappa \in (\kappa))$ and $2\pi i(\kappa \in (\kappa))$ **Existing 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\mu)e^{\mu} \qquad \delta \qquad , \Xi_{\Omega_{\mathbf{z}}}(\mu)e^{\mu} \qquad \delta \qquad , \ \mathbf{z} = 1, 2, \ldots, 0$ $2\pi i(\alpha_0 \quad (\boldsymbol{\varkappa}))$ $2\pi i(\beta_0$ B *chintron 10.* Consults to be the family of C PuI ῃ \mathcal{C} ^{2*ri*(α_2} (*x*) \mathcal{C} ^{2*ri*(α_2} (*x*))_{*n*} $\Xi_{\Omega_{\mathbf{Z}}}($ Then, a CPyFAAHG operator is particul to be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as: ℓ **Definition 16.** Consider $Q_{\sigma} = (\prod_{\alpha} (\kappa) e^{2\pi i (\alpha \Omega_{\alpha}(\kappa))}$ $\mathbb{E}_{Q_{\alpha}} (\kappa) e^{2\pi i (\beta \Omega_{\alpha}(\kappa))}$ $\mathbb{E}_{q_{\alpha}} (\kappa)$ $\mathbb{E}_{q_{\alpha}} (\kappa)$ \overline{C} $2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}}))$ and $2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}}))$ **Definition 16.** Consider $\Omega_{\mathbf{Z}} = (H_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\epsilon}$, $\Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\epsilon}$ $2\pi i(\alpha_{\Omega_{-}}(\boldsymbol{\mathcal{H}}))$ $2\pi i(\beta_{\Omega_{-}})$ **Definition 16.** Consider $\Omega_{\mathbf{z}} = (H_{\Omega_{\mathbf{z}}}(\kappa)e^{\mathbf{z}}$ and $\Xi_{\Omega_{\mathbf{z}}}(\kappa)e^{\mathbf{z}}$ $2\pi i(r_1 - r_2/r_2)$. $2\pi i(8 - r_1/r_2)$ $\mathbf{g} = (\mathbf{\Pi}_{\Omega_{\mathbf{Z}}}(\mathbf{x})e^{\mathbf{\Pi}_{\Omega_{\mathbf{Z}}}}$ $(\kappa)e$ $\mathbf{g} = (\Pi_{\Omega_{\widetilde{\mathbf{Z}}}}(\varkappa) e^{2\pi i (\alpha_{\Omega_{\widetilde{\mathbf{Z}}}}(\varkappa))}, \mathbb{E}_{\Omega_{\widetilde{\mathbf{Z}}}}(\varkappa) e^{2\pi i (\beta_{\Omega_{\widetilde{\mathbf{Z}}}}(\varkappa))}, \mathfrak{F} = 1, 2, ..., \mathfrak{N}$ $\frac{1}{\epsilon}$ ($\frac{1}{2}$ $\frac{1}{2}$ ($\frac{1}{2}$) $\frac{1}{\epsilon}$
A AHC operator is nexticularized. ῃ $\frac{1}{2}$ $2\pi i(r_{\Omega}(\mathbf{x}))$ $2\pi i(R_{\Omega}(\mathbf{x}))$ **on 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(x)e^{-(x-x)/2})$, $\Xi_{\Omega_{\mathbf{z}}}(x)e^{-(x-x)/2})$, $\Xi = 1, 2, ..., 0$ $\overline{\mathcal{F}^{\pi i}(\mathcal{E}_{\mathcal{F}}(\mathcal{H}))}$ $\overline{\mathcal{F}^{\pi i}(\mathcal{E}_{\mathcal{F}}(\mathcal{H}))}$ **16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\alpha}}(\boldsymbol{\chi})e^{-\mathbf{i}\mathbf{i}\cdot\mathbf{z}}e^{-\mathbf{i}\mathbf{i}\cdot\mathbf{z}}e^{-\mathbf{i}\mathbf{i}\cdot\mathbf{z}}e^{-\mathbf{i}\cdot\mathbf{i}\cdot\mathbf{z}}e^{-\mathbf{i}\cdot\mathbf{z}}e^{-\mathbf{i}\cdot\mathbf{z}}e^{-\mathbf{i}\cdot\mathbf{z}}e^{-\mathbf{i}\cdot\mathbf{z}}e^{-\mathbf{i}\cdot\mathbf{z}}e^{-\mathbf{i}\cdot\mathbf{z}}e^{-\mathbf{i}\cdot\mathbf{z}}e^{-\mathbf{i}\cdot$ the of CPuEVs Than a CPuEA AHC operator is norticularized as: to be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as:
($2\pi i(\alpha_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}}))$, $2\pi i(\beta_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mathcal{H}}))$ **Definition 16.** Consider $\Omega_{\overline{3}} = (H_{\Omega_{\overline{3}}}(x)e^{i\theta}$ is $\Omega_{\overline{3}}(x)e^{i\theta}$ is equal to Ω $2\pi i(\alpha_{\Omega_{\mathbf{r}}}(x))$ $2\pi i(\beta_{\Omega_{\mathbf{r}}}(x))$ $\mathcal{W}^{def} \Omega_{\mathcal{Z}} = (H_{\Omega_{\mathcal{Z}}}(\varkappa)e \qquad \varepsilon \qquad , \Xi_{\Omega_{\mathcal{Z}}}(\varkappa)e \qquad \varepsilon \qquad , \varepsilon = 1, 2, ..., 5$ $\mathbf{Definition 16}$ Consider $\mathbf{O} = (\mathbf{\Pi}_{\mathbf{S}})(u)e^{-2\pi i(\alpha_{\Omega_{\mathbf{S}}})/2}$ ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* (), ఆƺ ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* \overline{b} to be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as: **Definition 16.** Consider $\Omega_{\overline{2}} = (\Pi_{\Omega_{\overline{2}}}(x)e^{-\frac{(x-\overline{2})^2}{2}}$, $\Xi_{\Omega_{\overline{2}}}(x)e^{-\frac{(x-\overline{2})^2}{2}}$, $\Xi_{\Omega_{\overline{2}}}(x)e^{-\frac{(x-\overline{2})^2}{2}}$ **Definition 16.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}),$ $\mathbf{Z} = 1, 2, ..., \mathbf{Z}$ α be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as:
 $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$ *where computer and a computer the membership value (MV)* computer the membership value (MV) of a model (MV))) **a 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(x)e^{i\theta} + \Pi_{\Omega_{\mathbf{z}}}(x)e^{i\theta} + \Pi_{\Omega_{\mathbf{z}}}(x)e^{i\theta}$, $\mathbf{z} = 1, 2, ..., 1$ $er \Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}), \mathbf{Z} = 1, 2, ..., \mathbf{N}$ *Ns. Then, a CPyFAAHG operator is particularized as:*
n $\frac{2}{8}$ and *a* $\frac{2}{8}$ and $\frac{2}{8}$ of and $\frac{2}{8}$ of and *mixed equal* of an particularized *agu* $(\Pi_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e^{2\pi i(\alpha_{\Omega_{\boldsymbol{\zeta}}}(\boldsymbol{\mu}))}, \Xi_{\Omega_{\boldsymbol{\tau}}}(\boldsymbol{\mu})e^{2\pi i(\beta_{\Omega_{\boldsymbol{\zeta}}}(\boldsymbol{\mu}))}, 3 = 1, 2, \ldots, \mathbb{N}$ to be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as: $\mathcal{L}_{\mathcal{A}}$ $\frac{a_1}{a_2} = \frac{a_1}{a_2}$, $\frac{a_2}{a_3}$, $\frac{a_3}{a_4}$, $\frac{a_1}{a_2}$, $\frac{a_2}{a_3}$, $\frac{a_3}{a_4}$, $\frac{a_1}{a_2}$, $\frac{a_2}{a_3}$ **Propertition 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega} \left(\mathbf{z} \right) e^{-2\pi i (\alpha_{\Omega} \mathbf{z} \cdot (\mathbf{z}))}$, $\mathbb{E}_{\Omega} \left(\mathbf{z} \right) e^{-2\pi i (\beta_{\Omega} \mathbf{z} \cdot (\mathbf{z}))}$, $\mathbf{z} = 1, 2, ..., 0$ **Definition 16.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}),$ $\mathbf{Z} = 1, 2, ..., 10$ **Definition 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{2\pi i(\alpha_{\Omega_{\mathbf{z}}^{\mathbf{z}}}(\boldsymbol{\chi}))}, \Xi_{\Omega_{\mathbf{z}}}(\boldsymbol{\chi})e^{2\pi i(\beta_{\Omega_{\mathbf{z}}^{\mathbf{z}}}(\boldsymbol{\chi}))}$ 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ ƺୀଵ *. Then, the CPyFAAOWA operator is particularized as:* **Definition 16.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{\varkappa}{2}} e^{\frac{\varkappa}{2}} , \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{\varkappa}{2}}$, \mathbf{Z} $t_{\rm G}$ $)$ $)$, $\bar{z}=1,2,...,$ \bar{z} to be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as: $\mathbf{P}_1 \mathbf{G}_2$ it is a 16 G weight vector $\mathbf{G}_2 = \left(\sum_{i=1}^{n} a_i \alpha_i \mathbf{G}_i \left(\mathbf{x}\right)\right)$ of $\mathbf{G}_2 = \left(\sum_{i=1}^{n} a_i \alpha_i \mathbf{G}_i \left(\mathbf{x}\right)\right)$ **Definition 16.** Consider $\Omega_{\overline{g}} = (\Pi_{\Omega_{\overline{g}}}(x)e^{-\frac{x^2}{2}}$, $\Xi_{\Omega_{\overline{g}}}(x)e^{-\frac{x^2}{2}}$, $\overline{g} = 1, 2, ...$ \ldots , \Box *where* ൫Ϧ(1), Ϧ(2), Ϧ(3),…,Ϧ(ƺ)൯ *is the set of permutations of* (ƺ = 1,2,3, … ῃ) *with the weight* $\mathbf{P} \cdot \mathbf{G}$ and \mathbf{G} corresponding $\mathbf{G} = \begin{pmatrix} 2\pi i (\alpha_{\Omega}(\mathbf{x})) & 2\pi i (\beta_{\Omega}(\mathbf{x})) & \cdots & 2\pi i (\beta_{\Omega}(\mathbf{x})) \end{pmatrix}$ **Definition 16.** Consider $\Omega_{\overline{z}} = (\Pi_{\Omega_{\overline{z}}}(x)e^{i\theta}$, $\Xi_{\Omega_{\overline{z}}}(x)e^{i\theta}$, $\Xi_{\overline{z}}(x)$, $\Xi_{\overline{z}}(z)$, $\Xi_{\overline{z$ *family of CP_y = (* Π_{Ω} *(x)e* $\mathcal{Z}^{2\pi i(\alpha_{\Omega}(\mathbf{X}))}$, Ξ_{Ω} (x)e $\mathcal{Z}^{2\pi i(\beta_{\Omega}(\mathbf{X}))}$, $\Xi = 1, 2, ..., n$ $\frac{1}{2}$, $\frac{1}{2}$ $\frac{1}{2}$ to be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as:
CPyFA AHC(Q_2 , Q_3 , Q_4) = $\frac{1}{\infty}$ (g_1 , χ , g_2) = g_3 , χ , g_3 , g_4 , g_5) \approx g_4 , χ **Definition 16.** Consider $\Omega_{\mathbf{Z}} = (\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\lambda \mathbf{R}(\kappa_1/\mathbf{Z}(\kappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-\lambda \mathbf{R}(\kappa_1/\mathbf{Z}(\kappa))}$ $\sum_{i=1}^{n}$ $\sum_{i=1}^{n}$ ⎜ $\overline{(\cdot)}$ $2\pi i(\alpha_{Q_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{Q_{-}}(\boldsymbol{\chi}))$ \ldots to be the family of CPyFVs. Then, a CPyFAAHG operator is particularized as: $\frac{1}{\sqrt{2}}$, $\frac{1}{\sqrt{2}}$ \overline{a} $\pi i(\alpha_{\Omega_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{-}}(\boldsymbol{\chi}))$ ı, $\frac{3}{2} = 1.2$ $2\pi i(\alpha_{\Omega_{-}}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\Omega_{-}}(\boldsymbol{\chi}))$ **Definition 16.** Consider $Q_{\tau} = (\prod_{Q} (x)e^{\frac{2\pi i (\alpha_Q(x))}{2}})$, $\sum_{Q} \frac{2\pi i (\beta_Q(x))}{2\pi i (\beta_Q(x))}$, $\sum_{Z} = 1, 2, \ldots, N$ \ddots **Definition 16.** Consider $\Omega_{\mathbf{z}} = (\Pi_{\Omega_{\mathbf{z}}}(\boldsymbol{\kappa})e^{\sum_{i=1}^{N}(\mathbf{x}_{i})}$, $\Xi_{\Omega_{\mathbf{z}}}(\boldsymbol{\kappa})e^{\sum_{i=1}^{N}(\mathbf{x}_{i})}$ Γ $\kappa)$ $\frac{a}{a}$ $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa)$, $\mathbb{E}_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i}{\varkappa}(\varkappa\Omega_{\mathbf{Z}}}(\varkappa) }$ $\ddot{}$

CPyFAAHG
$$
\left(\Omega_1, \Omega_2, ..., \Omega_{\eta}\right) = \bigotimes_{\mathfrak{F}=1}^{\mathfrak{H}} \left(\mathfrak{H}_{\mathfrak{F}}\mathcal{X}_{\mathfrak{b}(\mathfrak{F})}\right) = \mathfrak{H}_1\mathcal{X}_{\mathfrak{b}(1)} \otimes \mathfrak{H}_2\mathcal{X}_{\mathfrak{b}(2)} \otimes \ldots, \otimes \mathfrak{H}_{\eta}\mathcal{X}_{\mathfrak{b}(\mathfrak{F})}
$$
 (13)
\n
$$
where \left(\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \mathfrak{b}(3)\right) \text{ is the set of permutations of } \left(\mathfrak{F}_{\mathfrak{F}} = \mathfrak{h}_1\mathfrak{F}_{\mathfrak{F}}\right) \text{ with the}
$$

 $where (b(1), b(2), b(3), \ldots, b(3))$ is the set of permutation weight vector $\bm{q} = (q_1, q_2, q_3, \ldots, q_{n})^T$, such that $q_{n} \in [0, 1]$, $n = 1, 2, \ldots, n$ and $\sum_{i=1}^{n} q_i$ i *line* $\left(\frac{9(1)}{7}, \frac{9(2)}{7}, \frac{9(0)}{7}, \ldots, \frac{9}{7}\right)$ *i. If* A˘(ଵ) < ˘(ଶ), *then* ଵ < ଶ, *ii. balancing coefficient is aenotea* $\mathfrak{p}(z-1)$ $\mathfrak{p}(z)$ $\mathcal{L}(2)$ ($\mathcal{L}(3)$) is the set of negativitation *where* $\mathcal{P}(1)$, $\mathcal{P}(2)$, $\mathcal{P}(0)$, ..., $\mathcal{P}(6)$ *b* and set of permutting $\binom{1}{b}$ $\binom{1}{c}$, $\binom{1$ *i*. *If* $\mathbf{r} \left(\mathbf{r} \right)$, $\mathbf{r} \left(\mathbf{$ *ii.* α ¹ α , β and α = β $\geq \mathcal{X}_{b(3)}$, \forall , $\bar{z} = 1, 2, 3, \dots$ ⁿ. $\mathfrak{b}(1)$, $\mathfrak{b}(2)$, $\mathfrak{b}(3)$, ..., $\mathfrak{b}(3)$ is the set of permutations of $\left(3 = 1, 2, 3, ... \right)$ $J(0)$, ..., $J(0)$ *is the set of permit* ι is aenotea by k ana $\kappa_{\mathbf{Z}}$ $\;$ = $\;$ k $\frac{1}{3}$ and $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{2}{3}$ $\frac{1}{3}$ $w(x)$, $w(x)$ *we denote denote by permanents by* $\left(e - 1/2, 0\right)$. $\tilde{B}(3)$ *is the set of nermutations of i If* $\frac{1}{2}$ **i** $\frac{1}{2}$ **f** $\frac{1}{2}$ *n* A helancing coefficient is denoted by k and $Y = kG \bigcap (7-1.2.3 \text{ m})$ $\mathcal{X}_{b(3-1)} \geq \mathcal{X}_{b(3)}, \forall, 3 = 1, 2, 3, ...$ ⁿ. A ^{ermutations of $(3 = 1, 2, 3, 0)$ with the} *where TNM and TCNM are denoted by* Ŧ *and* Ṥ, *respectively.* weight vector $\mathbf{q} = (q_1, q_2, q_3, ..., q_n)^T$, such that $q_3 \in [0, 1]$, $\mathbf{z} = 1, 2, ..., n$ and $\sum_{3=1}^{n} q_3 = 1$. (2) , $b(3)$, ..., $b(3)$) is the set of permuta $F_{\mathbf{b}}(\mathbf{z})$ is the set of permutations of $(\mathbf{z} = 1, 2, 3, \dots, \mathbf{z})$ with \mathcal{F} (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(3 = 1, 2, 3, ...$ (1) with the $\mathcal{E} = \mathcal{E} \left[\mathcal{E} \right]$ \overline{u} $\frac{1}{\sqrt{1-\frac{1$ $\lim_{(9,1)} \frac{9(4)}{9(4)}$ $where (b(1), b(2), b(3), \ldots)$ A balancing coefficient is denoted by k and $\chi_{\mathbf{z}} = k \mathbf{z}_1 \Omega_{\mathbf{z}}$, $(3 = 1, 2, 4)$ $where (b(1), b(2), b(3), \ldots, b)$ $where (b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $\frac{1}{\sqrt{1}}$ weight vector $\mathbf{g} = (g_1, g_2, g_3, \dots, g_{\eta})^T$, such that $g_{\xi} \in [0, 1]$, $\mathbf{g} = 1, 2, \dots, 0$ and $\sum_{\xi=1}^{\eta} g_{\xi} = 1$. \ldots , $\frac{1}{2}$ $\binom{3}{1}$ is the set of permitting ν where (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(3 = 1, 2, 3, ...$ m with balancing coefficient is denoted by k and $\mathcal{X}_{\mathbf{Z}} =$ $\mu_1(x(1), y(2), y(3)) = \mu_2(x(3), y(4), z(4), z(5), z(6))$ and $\mu_3(x(4), y(3), y(4)) = \mu_3(x(4), y(5))$ \mathbb{R} (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(3 = 1, 2, 3, ...$ ¹) with the $\frac{m}{3}$ $k \pi_{\mathbf{z}} \Omega_{\mathbf{z}}$ *i* c (−) *union of the given CPyFVs are defined as follows: balancing coefficient is denoted by k and* $X_{\overline{3}} = kX_{\overline{3}} \Omega_{\overline{3}}$ *,*
> $X \longrightarrow X - 1$ 2 3 a n subgua $(1/1)$ (2) (3) (2) (3) (4) (3) (4) (5) (7) (8) (10) (2) $s(n)$ scalar product $s(n)$ multiplier multiplier multiplier multiplication and power role. $\frac{1}{2}$ \overline{a} balancing coefficient is denoted by *K* and $\lambda_{\mathbf{Z}} = \kappa_{\mathbf{X}_{\mathbf{Z}}^{\mathbf{X}}}\lambda_{\mathbf{Z}}^{\mathbf{Z}}$, $\lambda_{\mathbf{Z}} = \lambda_{\mathbf{Z}}$ $s(f(7))$ is the set of normalizations of $(7-1, 2, 2, \ldots, n)$ suith the sum, $p(x)$, scalar multiplication and power roles. The normalisation and power roles. $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ **b** $\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$ **c** $\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$ **c** $\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$ κ is denoted by κ and κ ₃ = κ κ ₃ κ ₃, $\left($ ϵ = 1, 2, 5, ... \cdot ¹) with $\mathcal{L}(\mathcal{L}(\mathcal{L}, \mathcal{L}, \mathcal{$ where $(\mathfrak{p}(1), \mathfrak{p}(2), \mathfrak{p}(3), \ldots, \mathfrak{p}(2))$ is the set of p sum, product, scalar multiplication and power role. Then, we have: sum, product, scalar multiplication and power role. Then, we have: $\mathfrak{p}(\mathfrak{c}-1)$ by (\mathfrak{c}) $B = \frac{1}{2}$ utilizing the notions of \overline{A} and \overline{A} \overline{B} and $\overline{B$ where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of (3) \mathcal{X}_{α} \rightarrow \mathcal{X}_{α} \rightarrow \mathcal{X}_{α} \rightarrow \forall , \mathcal{X}_{α} = 1,2,3,..., \mathbb{I} $\mathfrak{p}(\mathbf{c}-\mathbf{1})$ by \mathbf{c} . weight vector $\mathbf{g}=(\mathbf{g}_1,\mathbf{g}_2,\ \mathbf{g}_3,\dots, \ \mathbf{g}_\mathbf{q})$, such t $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{2}$ and $\frac{1}{2}$ $\Lambda_{\rm b}(Z_{-1}) \leq \Lambda_{\rm b}(Z)$, \vee , \geq $=$ 1, 2, 3, ... weight vector $A = (A_1, A_2, A_3, \dots, A_n)$, such that $A_3 \in [0, 1]$, $\varepsilon =$ A balancing coefficient is denoted by k and $\mathcal{X}_{\mathbf{Z}}$ = k $\mathbf{R}_{\mathbf{Z}}\Omega_{\mathbf{Z}}$, $\left(\mathbf{\mathbf{\mathit{\mathit{S}}}=1\right)$ \mathcal{P} by \mathcal{P} and \mathcal{P} and \mathcal{P} and \mathcal{P} $\mathfrak{b}(\mathfrak{F}-1) = \mathfrak{b}(\mathfrak{F})'$ is an analyzer role. **4. Aczel–Alsina Operations Based on CPyFSs** B_{max} and B_{max} $\left(\text{min}$ min \text $\mathcal{X} = \times \mathcal{X} = \mathcal{X} = 123$ $\mathfrak{p}(\mathsf{S}-1)$ multiplies. $\overrightarrow{H} = \overrightarrow{H} = \overrightarrow{H} = \overrightarrow{H} = \overrightarrow{H} = \overrightarrow{H}$ *tion is time to the tector* $\mathbf{A} = (\mathbf{A}_1, \mathbf{A}_2, \mathbf{A}_3, \dots, \mathbf{A}_{n})^T$, such that $\mathbf{A}_3 \in [0,1]$, $\mathbf{B} = 1, 2, \dots, n$ and $\sum_{3=1}^{n} \mathbf{A}$ $\mathcal{X}_{\mathsf{b}(3, 1)} \geq \mathcal{X}_{\mathsf{b}(3)}$, \forall , $3 = 1, 2, 3, ...$ 1. $\mathcal{L}_{\mathcal{A}}$ where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ...$ ¹¹) with the mental operations of $\frac{1}{2}$ study the generalization of union and inter-A balancing coefficient is denoted by k and $\mathcal{X}_z = k \mathfrak{A}_z \Omega_z$, $(3 = 1, 2, 3, \dots, 0)$ with \mathcal{X}_{α} , $\geq \mathcal{X}_{\alpha}$, $\forall \alpha$, $z = 1, 2, 3, \dots, 0$. \overline{a} and \overline{a} is given as: \overline{a} i $B_{s=1}$ using the notions of N_s and N_s and N_s and N_s $\mathcal{S} \times \mathcal{S} = \{ \mathbf{0} \mid \mathbf{0} \leq \mathbf{0} \}$ $(s-1)$ by (s) $\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 &$ weight vector $\bm{q}=(\bm{q_1},\bm{q_2},\,\bm{q_3},\ldots,\,\bm{q_q})^T$, such that $\bm{q_3}\in[0,1]$, $\bm{\bar{z}}=1,2,\ldots,$ n and $\sum_{\bm{\bar{z}}=1}^\textsf{N}\bm{q_3}=1$. (1), b(3), ..., b(3)) is the set of permutations of $(2 = 1, 2, 3, \ldots \mathbb{I})$ with the m_{ν} operational laws of CPyFSs. We also study the generalization of union and interefficient is denoted by k and $\mathcal{X}_{\mathbf{\tilde{Z}}}=$ k $\bm{{\mathfrak{R}}}_{\mathbf{\tilde{Z}}}\Omega_{\mathbf{\tilde{Z}}'}$ $\left(\texttt{X} = 1, 2, 3, \ldots \bar{\texttt{N}} \right)$ with $\mathcal{X}_{b(2-1)} \geq \mathcal{X}_{b(2)}, \forall z = 1, 2, 3, ...$ n $s_{\text{reduction}}$ of $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ of permutations of $(3 = 1, 2, 3, ...)$ **4. Aczel–Alsina Operations Based on CPyFSs** \mathcal{B} and \mathcal{B} and \mathcal{B} \mathcal{B} and \mathcal{B} ons of $\left(\mathbb{Z}=1,2,3,\ldots ,\mathbb{N}\right)$ with the **4. Aczel–Alsina Operations Based on CPyFSs** A balancing coefficient is denoted by k and $\mathcal{X}_{\mathbf{Z}} = k \mathbf{A}_{\mathbf{Z}} \Omega_{\mathbf{Z}}$, $(2 = 1, 2, 3, \dots, n)$ with $\lim_{\epsilon \to 0} \frac{\epsilon}{\epsilon}$
where (b(1), b(2), b(3), ,,,,, b(3)) is the set of nermutations of $(3 \le 1, 2, 3, \ldots, 0)$ with the $\frac{1}{2}$ vector $\boldsymbol{\mathsf{g}} = (\mathfrak{g}_1, \mathfrak{g}_2, \mathfrak{g}_3, \dots, \mathfrak{g}_\mathfrak{g})^T$, such tha $p(s)$ is the set of permutation $\mathcal{L}_{\mathcal{L}}$ the notions of $\mathcal{L}_{\mathcal{L}}$ \cdot , $\mathbf{A}_{\mathbf{p}}$)^T, such that $\mathbf{A}_{\mathbf{z}} \in [0, 1]$ $b(2-1)$ b(2)['], we explore the notions of A_n $\mathfrak{c}(2), \mathfrak{c}(2), \ldots, \mathfrak{c}(7)$ is the set of name \in \mathcal{O}^T , such that $\pi_{\mathcal{B}} \in [0,1]$, $\mathfrak{d} = 1,2,\ldots,\mathfrak{N}$ and $\sum_{\mathcal{B}}^{\mathfrak{N}}$ I $\mathcal{X}_{b(Z-1)} \geq \mathcal{X}_{b(Z)}, \forall$, $z = 1, 2, 3, \dots$ ⁿ. $\left.\right]$, $\mathfrak{F} = 1, 2, \ldots, \mathfrak{N}$ and $\sum_{\mathbf{Z}_{i=1}}^{\mathbf{N}_{i}}$ $\mathbf{A}_{\mathbf{Z}_{i}}$ $\mathcal{L}_{\mathcal{L}}$ where $(\mu(1), \mu(2), \mu(3))$ is the set of normalizing of $\left(3\right)$ $1,2, 3, 4$ and $2, 7, 7, 8$ μ $\sum_{i=1}^n \sum_{j=1}^n \sum_{j$ $\frac{1}{2}$ $=$ $\frac{1}{2}$ -1 2 3 $\overline{}$ $h(3)$ is the set of per \cdot , β į $(\mathbf{x}_1)^T$, such that $\mathbf{q}_3 \in [0, T]$ uwns v ⎟ ⎞ valancing coefficient is denoted by k and $\mathcal{X}_{\mathbf{Z}} = k \mathbf{Z}_{\mathbf{Z}} \Omega$ ⎟ $\frac{1}{2}$ ω where (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(3 = 1, 2, 3, \ldots, n)$ *anere* (p(1), p(. ƺୀଵ *. Then, the PyF Aczel–Alsina weighted geometric operator is given as:* ῃ $ext{ent}$ is denoted by k and $\mathcal{X}_z = k$ g \mathcal{L} = (↑, and \mathcal{L} , and \mathcal{L} , \mathcal{L} $p(1)$, $p(2)$, $p(3)$, \dots , $p(3)$) is the set of permutations of $\left(3=1,2,3,\dots$ ^[1]) with the ϵ $\frac{1}{2}$ \overline{a} tutations of $(3 = 1, 2, 3, \dots, n)$ with th $, \frac{3}{5}$ Γ $\begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$ and $\sum_{n=1}^{n}$ ⎠ $\sqrt{2}$ ⎟ ⎟ ⎞ A balancing coefficient is denoted by k and $\mathcal{X}_{\mathbf{Z}} = k \mathbf{R}_{\mathbf{Z}} \Omega_{\mathbf{Z}}$, $(\mathbf{Z} = 1, 2, 3, ...$ ⁿ) with \bar{a} ⎟ $\mathcal{L}(2)$ = $\mathcal{L}(7)$ is the set of *neuralitions* of $(7, 1, 2, 3, \mathbb{R})$ suith the where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ...$ ^{[1}] with the $\sum_{k=1}^{\infty}$ and $\sum_{k=1}^{\infty}$ σ_k σ_k A balancing coefficient is denoted by k and $\mathcal{X}_{\mathbf{\mathbf{Z}}}\ =\ k\mathbf{H}_{\mathbf{\mathbf{Z}}}\Omega_{\mathbf{\mathbf{Z}}}\,,\ \big($ ῃ ⎜ $\overline{1}$ s
complete \ddagger ⎜ $(\cdot, \, \mathfrak{b}(3))$ is the set of permutations of \mathbf{q}_1)^T, such that $\mathbf{q}_3 \in [0, 1]$ $[1], \overline{z} =$ \dots $(2-1) \leq \alpha_{b(2)}, \forall, \, i=1,2,3,\ldots$ $\ddot{}$ $=$ κ ^N₃¹²₃ $\frac{u}{d}$ = $\frac{u}{d}$ = $\frac{u}{d}$ = $\frac{u}{d}$ $\frac{u}{d}$ = $\frac{v}{d}$ = $\frac{u}{d}$ ($\frac{u}{d}$ = $\frac{v}{d}$ = $\frac{u}{d}$) the substrate $\mathbf{g} = (g_1, g_2, g_3, \dots, g_n)^T$, such that $g_7 \in [0, 1]$, $\mathbf{g} = 1, 2, \dots, 0$ and $\sum_{n=1}^{n} g_n = 1$. $h(3)$ is the set of permutations of A balancing coefficient is denoted by k and $\mathcal{X}_{\mathbf{Z}}$ = $k \mathfrak{A}_{\mathbf{Z}} \Omega_{\mathbf{Z}}$, $\left(\mathbf{\overline{z}} = 1, 2, 3, \ldots \mathbf{I} \right)$ with $\mu = (g_1, g_2, g_3, \ldots, g_{\eta})^T$, such that $g_3 \in [0, 1]$, $\bar{z} = 1, 2, \ldots, \bar{w}$ and $\sum_{3=1}^{\infty} g_3 = 1$. \sim \int $(\mathbf{a}_1, \ldots, \mathbf{a}_{n})^T$, such that $\mathbf{a}_3 \in [0, 1]$, $\mathbf{a}_2 = 1, 2, \ldots, \mathbf{a}_n$ and $\sum_{3=1}^{n} \mathbf{a}_3 = 1$. where $(b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ...$ ⁿ) with the denoted by k and $\mathcal{X}_z = k q_z \Omega_z$, $(2 \in 1, 2, 3, \ldots!)$ with *s₁* ..., n_{\parallel} , $\frac{1}{2}$, $\$ balancing coefficient is denoted ϵ $h(1) h(2) h(3)$ b(3
.., ⎟ ⎟ $\frac{3}{4}$ $\chi > \chi_{1,2}$, \forall , $\overline{z} =$ $\ddot{}$ \mathbf{a}^{\dagger} $)$ here $(b(1), b(2), b(3), \ldots, b(3))$ eight vector $\boldsymbol{\mathsf{q}} = (\mathfrak{q}_1, \mathfrak{q}_2, \mathfrak{q}_3, \dots, \mathfrak{q}_{\textsf{q}})^T$, such ⎜ ⎜ $\overline{}$ balancing coefficient is denoted by $e^{(b)}$ \blacksquare $h(2) h(3) = h(3)$ $\ddot{3}$ \leq $\mathcal{X}_{1,2}$, \forall , $\mathbf{\overline{z}} = 1,2,3$ $\frac{1}{2}$ $^{\rm th}$ $b(1), b(2), b(3), ..., b(3))$ is the vector $\bm{\mathsf{g}} = (\mathsf{g}_1, \mathsf{g}_2, \ \mathsf{g}_3, \ldots, \ \mathsf{g}_{\bm{\mathsf{\eta}}})^T$, such that $\bm{\mathsf{g}}_3$ $)$: $\overline{}$ ι ncing coefficient is denoted by k and \int , $\frac{1}{2}$ \mathcal{L}), $h(3)$ $h(3)$ is the se $\overline{\mathcal{E}}$ \forall , \forall , $\vec{a} = 1, 2, 3, \ldots$, \vec{a} $\frac{1}{2}$ \mathbf{a} $\frac{1}{2}$ į, $(\texttt{A}_1, \texttt{A}_2, \texttt{A}_3, \ldots, \texttt{A}_\texttt{M})^T$, such that $\texttt{A}_\texttt{Z} \in [0]$ ⎜ \overline{t} ⎜ ⎜ ⎝ ⎠ , $(\mathfrak{q}_1, \mathfrak{q}_2, \mathfrak{q}_3, \ldots, \mathfrak{q}_{\eta})^T$, such that $\mathfrak{q}_{\mathfrak{Z}} \in [0,1]$ $\frac{1}{2}$ $3)$, ... \cdot \cdot $h(3)$ is the set of nero u 7 $\mathcal{X}_{b(2-1)} \geq \mathcal{X}_{b(2)}, \forall, \, 3 = 1, 2, 3, \ldots$ ⁿ. nd $\mathcal{X}_{\mathbf{Z}}$ = Ļ, tai (2) , $b(3)$, ..., $b(3)$) is the set of permutal weight vector $\mathbf{q} = (q_1, q_2, q_3, \dots, q_{\eta})^T$, such that $q_{\mathbf{z}} \in [0, 1]$, $\mathbf{z} = 1$, of permutations of $($ $(\mathfrak{z}_0,\ldots,\mathfrak{z}_n)$ is the set of permutations of $\left(2=1,2,3,\ldots$ $\mathfrak{y}_0\right)$ with the A balancing coefficient is denoted by k and $\mathcal{X}_{\mathbf{Z}} = k \mathbf{A}_{\mathbf{Z}} \Omega_{\mathbf{Z}}$, $(3 = 1, 2, 3, \dots \mathbf{N})$ with e ight vector $\mathfrak{g} = (\mathfrak{g}_1, \mathfrak{g}_2)$ ⎟ ⎟ ⎞ $y, y, z = 1,2$ \cdot μ \ddot{a} $\frac{1}{2}$ $(\sqrt{2})(1)$ $(\sqrt{2})(2)$ balancing coefficient is aenotea by $weight$ vector $\bm{{\mathsf{g}}} =$ $(g_1, g_2, g_3, \ldots, g_n)^T$ eight vector $\mathbf{q} = (\mathbf{q}_1, \mathbf{q}_2, \mathbf{q}_3, \dots, \mathbf{q}_n)^T$, ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* ⎜ \mathcal{A} $\mathcal{L}_{\mathcal{I}} \geq \mathcal{X}_{\mathcal{I}}$, \forall , $\mathcal{I} = 1, 2, 3, \ldots, \mathcal{I}$ helencino coefficient is denoted by $\ddot{}$ ⎜ t vect $\ddot{\mathbf{c}}$ $A = (A_1, A_2, A_3, \ldots, A_n)$ $\sum_{i=1}^{n}$ T \overline{y} $\Lambda_{\mathfrak{b}(2-1)} \leq \Lambda_{\mathfrak{b}(2)}$, \vee , $z = 1, 2, 3, \ldots$ \mathbf{a} \mathcal{S} weight vector $\mathbf{q} = (\mathbf{q}_1, \mathbf{q}_2, \mathbf{q}_3, \dots, \mathbf{q}_{\eta})^T$, s *A* balancing coefficient is denoted by *K* and $X_2 = k X_2 \Omega_2$, $(2 = 1, 2, 3, \ldots)$ \ldots , $\mathbf{A}_{\mathfrak{y}}$)^T, such that \mathbf{g} $\begin{align*}\n\text{(S(2))} & \text{(S)} \quad \text{(S(3))} \quad \text{(S(4))} \quad \text{(S(5))} \quad \text{(S(6))} \quad \text{(S(6))} \quad \text{(S(7))} \quad \text{(S(8))} \quad \text{(S(8))} \quad \text{(S(9))} \quad \text{(S($ \mathbf{D} ן צו ((ש), (ס), ..., (כ) פ) א ז (..).
⊤ the set of permutation భ Ὺ ere (b(1), b(2), b(3), ..., b(3)) is the set of permutations of $(3 =$ $\mathcal{V} = \begin{bmatrix} 0 & \mathcal{Y} \\ \mathcal{Y} & \mathcal{Y} \end{bmatrix}$ \forall **7** = 1.2 $w_{b}(\xi_{-1}) = w_{b}(\xi)$, $y_{b}(\xi_{-1}) = \xi_{b}(\xi_{-1})$ A balancing coefficient is denoted by k and $\mathcal{X}_{\mathbf{Z}} = k \mathbf{H}_{\mathbf{Z}} \Omega_{\mathbf{Z}}$, $\left(\mathbf{Z} = 1, 2, 3, \dots \mathbf{I} \right)$ with $\mathcal{X}_{\mathbf{b}(\mathbf{3}_{n-1})} \geq \mathcal{X}_{\mathbf{b}(\mathbf{3}_{n})}$ \forall , $\mathbf{3} = 1, 2, 3, \ldots$ ⁿ. $P(\mathbf{v})$ is of $(3 = 1, 2, 3, \ldots)$ $b(3), \ldots, b(3)$ is the set of permutations of $(3, 3, \ldots, n)$ with $\mathcal{X}_{b(2-1)} \geq \mathcal{X}_{b(2)}, \forall, \; 3 = 1, 2, 3, \dots$ ¹¹. ƺୀଵ *. Then, the PyF Aczel–Alsina weighted averaging operator is given as:* $T_A = \frac{N_I}{n_2}, \frac{N_I}{n_3}, \dots, \frac{N_I}{n_I}$ \dots , $\mathfrak{b}(3)$) is the set of permutations of $(3 = 1, 2, 3, \dots, 0)$ with the $\sum_{i=1}^{n}$ and the following $\sum_{i=1}^{n}$ and the symbols a $\begin{array}{ccc} \circ & \circ & \circ \\ \mathcal{V} & \forall & z = 1, 2, 2 \end{array}$ $w_{b(2)}'$, $w_{2} = p_{3}$, p_{4} , p_{5} , p_{6} t is denoted by k and $\mathcal{X}_{\mathbf{Z}}$ = $k\mathbf{H}_{\mathbf{Z}}\Omega_{\mathbf{Z}}$, $\left(\mathbf{\overline{z}}=1,2,3,\ldots$ $\mathbf{I}\right)$ with $\mathcal{B} = 1, 2, 3, \ldots$ ⁿ. T_1 , show that $T_2 \subset [0,1]$, $C = 1,2,...$ $\mathcal{L}_{\text{where}}(b(1), b(2), b(3)) = b(3)$ is the set of permutations of $(3-1, 2, 3, 1)$ *zuith that* ι e α , ∴, n_, and α , β , β , β , β , β , α , β 1,2, … , _{1,2,}µ and ∑ ∑ ∑ <mark>and</mark> ∑ <mark>i</mark> ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\mathcal{A}_{\mathcal{A}}$ balancing coefficient is denoted by k and $\mathcal{X}_{\mathcal{B}} =$
 $\mathcal{X}_{\mathcal{A}}$, $\mathcal{A}_{\mathcal{A}}$, $\mathcal{A}_{\mathcal{A}}$, $\mathcal{A}_{\mathcal{B}}$, $\mathcal{B} = 1, 2, 3, ...$ [1] ῃ weight vector $\mathbf{g} = (\mathbf{g}_1, \mathbf{g}_2, \mathbf{g}_3, \dots, \mathbf{g}_{\eta})^T$, such that $\mathbf{g}_3 \in [0, 1]$, $\mathbf{g} = 1, 2, \dots, \mathbf{n}$ and $\sum_{3=1}^{\mathbf{n}} \mathbf{g}_3 = 1$. $\mathcal{X}_{\mu_1, \mu_2, \mu_3} \geq \mathcal{X}_{\mu_2, \mu_3} \forall \mu, \xi = 1, 2, 3, \ldots, n,$ 3), \ldots , b ⁽ T_{2} , T_{1} , T_{2} , T_{3} , T_{4} , T_{5} , T_{6} , T_{7} , T_{8} , T_{9} , T_{10} , T_{11} , T_{12} , T_{13} , T_{14} *COPyFICIENT is denoted by K and* $\lambda_{\mathbf{Z}} = \kappa_{\mathbf{Z}} \lambda_{\mathbf{Z}} \lambda_{\mathbf{Z}}$ *,* $\lambda_{\mathbf{Z}} = 1, 2, 3$ *,* where $(\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ is the set of permutations of $(3 = 1)$ k and $\mathcal{X}_{\mathbf{z}} = k \mathbf{z}_{\mathbf{z}}$ A balancing coefficient is denoted by k and $\mathcal{X}_{\mathbf{z}} = k \mathbf{z}_{\mathbf{z}} \Omega_{\mathbf{z}}$, $($ $p(s-1) - p(s)$, $n \geq 1$ where $(\mathfrak{b}(1), \mathfrak{b}(2), \mathfrak{b}(3), \ldots, \mathfrak{b}(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots, 0)$ d $\mathcal{X}_{\mathbf{z}} = k \mathbf{z}_{\mathbf{z}} \Omega_{\mathbf{z}}$ T_1 , $T_2 = [0, 0]$, $T_1 = (0, 0)$ and $T_2 = (0, 0)$ *CPyFVs. Then, the CPyFAAHG operator is particularized as:* $where (b(1), b(2), b(3), ..., b(3))$ is the set of permutations of $(3 = 1, 2, 3, ...$ ⁿ) with the $\begin{bmatrix} \text{Tr}(M_1, M_2), \text{Tr}(M$ $\mathcal{X}_{\mathcal{F}} \longrightarrow \mathcal{X}_{\mathcal{F}} \longrightarrow \forall, \ \mathcal{Z} = 1, 2, 3, \dots, \mathcal{V},$ $\cdot \mathfrak{e}_b(2-1) = \cdot \mathfrak{e}_b(2)$, $\cdot \cdot \cdot \cdot = -1$, $\cdot \cdot \cdot \cdot \cdot$. $($ *CPyFVs. Then, the CPyFAAHG operator is particularized as:* where $(\mathfrak{b}(1),\, \mathfrak{b}(2),\, \mathfrak{b}(3),\, \ldots,\, \mathfrak{b}(3))$ is the set of permutations of $\left(\mathfrak{Z}=1,2,3,\ldots \mathfrak{N} \right)$ with the T_{max} , T_{max} , T_{max} , T_{min} , T_{min} , T_{max} , T_{min} , T_{max} , T_{\text $\mathcal{X}_{\nu} = \sum \mathcal{X}_{\nu}$ ₃, \forall , $\overline{z} = 1, 2, 3, \ldots, \overline{v}$, \vdots $\mathcal{X}_{b(2-1)} \geq \mathcal{X}_{b(2)}, \forall, \, 3 = 1, 2, 3, ...$ "..." F *Cient is denoted by k and* $\mathcal{X}_{\mathbf{Z}} = k \mathbf{Z}_{\mathbf{Z}} \Omega_{\mathbf{Z}}$ *,* $(3 = 1, 2, 3, \dots, n)$ *with* where $(b(1), b(2), b(3), \ldots, b(3))$ is the set of permutations of $(3 = 1, 2, 3, \ldots^n)$ with the weight vector $\mathbf{s} = (\mathbf{s}_1, \mathbf{s}_2, \mathbf{s}_3, \dots, \mathbf{s}_n)^T$, such that $\mathbf{s}_z \in [0, 1]$, $\mathbf{s} = 1, 2, \dots, 0$ and \overline{u} $\overline{\mathcal{A}}$ ቇ , ƺ = 1,2, … , ῃ *be the family of* weight vei $\begin{pmatrix} \frac{1}{2} & \frac{1}{2$ ული:
კაკა $\frac{1}{\sqrt{2}}$ $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ $\overline{u} = \overline{a}$ $\overline{u} = \overline{a}$, \overline{u} and \overline{u} $\overline{u} = \overline{a}$, $\overline{u} = \overline{a}$, $\overline{u} = \overline{a}$, $\overline{u} = \overline{a}$ weight vector $\mathbf{g} = (\mathbf{g}_1, \mathbf{g}_2, \mathbf{g}_3, \dots, \mathbf{g}_{\eta})^T$, such that $\mathbf{g}_{\mathbf{g}} \in [0, 1]$, $\mathbf{g} = 1, 2, \dots, 0$ and $\sum_{\mathbf{g}=1}^{\mathbf{g}} \mathbf{g}_{\mathbf{g}} = 1$. $T_1^{1/2}$, $T_2^{1/2}$, $T_3^{1/2}$, $T_4^{1/2}$, $T_5^{1/2}$, $T_6^{1/2}$, $T_7^{1/2}$, $T_8^{1/2}$, $T_9^{1/2}$ m_1 m, n_2 m_3 ῃ $\frac{3}{3}$ $\mathcal{L}(\mathbf{a}) = \mathcal{L}(\mathbf{a}) \mathcal{L}(\mathbf{a})$ $P(X, Y) \leq P(X, Y) \leq P(X, Y)$, now $P(X, Y) \leq P(X, Y) \leq P(Y) \leq P$ α *coefficient is denoted by k* and χ = kg Ω $(3-1,2,3,\dots,1)$ α 1,2,3, … ῃ*.* $\mathcal{L}(\mathbf{a}) = \mathcal{L}(\mathbf{a}) \mathcal{L}(\mathbf{a}) = \mathcal{L}(\mathbf{a}) \mathcal{L}(\mathbf{a}) = \mathcal{L}(\mathbf{a}) \mathcal{L}(\mathbf{a}) = \mathcal{L}(\mathbf{a}) \mathcal{L}(\mathbf{a})$ *where* ൫Ϧ(1), Ϧ(2), Ϧ(3),…,Ϧ(ƺ)൯ *is the set of permutations of* (ƺ = 1,2,3, … ῃ) *with the weight* $\text{coefficient is denoted by } k \text{ and } Y = k \in \Omega$, $(3 - 1, 2, 3, \dots)$ with $\sum_{i=1}^{n}$ \mathcal{L} $\frac{1}{\sqrt{2}}$, $\frac{1}{\sqrt{2}}$ *coefficient is denoted by k* and $X = k$ **q** O $(3 - 1, 2, 3, \ldots, n)$ *zwith* 1,2,3, … ῃ*.* $\mathcal{L} = \sum_{i=1}^{n} a_i$ $\begin{pmatrix} n & n \\ n & n \end{pmatrix}$, $\begin{pmatrix} n & n \\ n & n \end{pmatrix}$ \int *iont* is denoted by *k* and χ = k **q** Ω $(3-1,2,3,1)$, \int χ χ χ χ χ 1,2,3, … ῃ*.* $\frac{1}{2}$ $\begin{array}{ccc} \n\text{A} & \text{B} \\
\text{C} & \text{C} \\
\text{D} & \text{D} \\
\text{D} & \text{A} \\
\text{E} & \text{D} \\
\text{D} & \text{A} \\
\text{E} & \text{D} \\
\text{E} & \text{D} \\
\text{E} & \text{E} \\
\text{E} & \$ d *enoted by k* and $\mathcal{X} = k$ **q** Ω $(3-1,2,3, \mathbb{I})$ with 1,2,3, … ῃ*.* (3) $h(3)$ is the set of nermutations of $(3-1, 2, 3, \ldots, n)$ with the of \mathcal{F} is an induction method, we prove Theorem 1 based on Ac \mathbf{f} vector $\mathbf{g} = (g_1, g_2, g_3, ..., g_n)^T$, such that $g_g \in [0, 1]$, $\mathbf{g} = 1, 2, ..., 1$ and $\sum_{3=1}^{11} g_3 = 1$. *where* ൫Ϧ(1), Ϧ(2), Ϧ(3),…,Ϧ(ƺ)൯ *is the set of permutations of* (ƺ = 1,2,3, … ῃ) *with the weight* $\begin{array}{rcl}\n\text{and} & \mathcal{X} & = & k \mathfrak{a} \quad \text{O} \qquad (\mathfrak{Z} = 1, 2, 3, \ldots, n) \quad \text{with}\n\end{array}$ 1,2,3, … ῃ*.* $\mathfrak{b}(1)$, $\mathfrak{b}(2)$, $\mathfrak{b}(3)$, ..., $\mathfrak{b}(3)$ is the set of permutations of $(3 = 1, 2, 3, \ldots, 1)$ with *ightarrow ight vector is denoted by k and* $\mathcal{X}_z = k g_z \Omega_z$ *,* $(3 = 1, 2, 3, ...)$ *with* w_i $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ $\mathcal{X}_{\mathfrak{b}(2)} \geq \mathcal{X}_{\mathfrak{b}(2)}, \ \forall, \ 3 = 1, 2, 3, \ldots$ ^[1]. $\begin{array}{rcl} \text{ficient is denoted by } k \text{ and } \mathcal{X}_{\mathbf{Z}} & = & k \mathbf{H}_{\mathbf{Z}} \Omega_{\mathbf{Z}}, \ \left(\mathbf{Z} = 1, 2, 3, \ldots \mathbf{I} \right) \ \text{with} \end{array}$ ns of $(e = 1, 2, 3, \ldots$ ¹¹) with the $\mathfrak{b}(1)$, $\mathfrak{b}(2)$, $\mathfrak{b}(3)$, ..., $\mathfrak{b}(3)$ is the set of permutations of $\left(2 = 1, 2, 3, \ldots \mathfrak{h}\right)$ with the ight vector $\bm{{\mathsf{g}}} = (\bm{{\mathsf{g}}}_1, \bm{{\mathsf{g}}}_2, \ \bm{{\mathsf{g}}}_3, \ldots, \ \bm{{\mathsf{g}}}_{\bm{{\mathsf{p}}}})^T$, such that $\bm{{\mathsf{g}}}_{{\bm{\mathsf{g}}}} \in [0,1]$, ${\bm{\mathsf{g}}} = 1,2,\ldots,$ ${\bm{\mathsf{N}}}$ and $\sum_{{\bm{\mathsf{g}}}=1}^{\bm{\mathsf{N}}} \bm{{\mathsf{g}}}_{{\bm{\mathsf{g}}}} = 1.$ 1,2, ∴ and
2, … , 1 <mark>∑</mark> ∑ <mark>∶</mark> ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\frac{1}{\sqrt{2}}$ $\frac{1}{n}$ η) η η η η η 1,2,3, … ῃ*. wight* \mathcal{X}_{z} *= kg_z* Ω_{z} , $\left(2=1,2,3,...,1\right)$ *with* A balancing coefficient is denoted by k and $\mathcal{X}_{\mathbf{Z}} = k \mathbf{Z}_{\mathbf{Z}} \Omega_{\mathbf{Z}}$, $\left(\mathbf{Z} = 1, 2, 3, \dots \mathbf{Z}_{\mathbf{Z}} \right)$ with ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $(2, 1)$ ∕(3) $\mathcal{L}_{[0,1]}$, $\mathcal{L}_{[2,1]}$, $\mathcal{L}_{[2,1]}$ is the set of permutations of $\mathcal{L}_{[2,1]}$ $\mathcal{H}_{[2,2]}$ $b(3), \ldots, b(3)$ is the set of permutations of $(3 = 1, 2, 3, \ldots 0)$ with the If $\left(1 - \frac{1}{2} + \frac{1$ $\mathcal{V}_{p_1}(z) \cdot \forall, \, z = 1, 2, 3, \ldots$ ^{[1}], $(2, 2)$, ∴ *where The TNM and* $X_2 = kA_2 \Omega_2$ *,* $(2 - kB_3 \Omega_2)$, \forall , $2 = 1, 2, 3, ...$ *n*. $v, \forall, \, \mathbf{z} = 1, 2, 3, \ldots$ ^{[1}], $\mathcal{B} = 1, 2, 3, \ldots, n$, such that $\mathcal{B} = 1, 2, 3, \ldots, n$, such that $\mathcal{B} = 1, 2, 3, \ldots, n$ $\mathcal{X}_{b(Z-1)} \geq \mathcal{X}_{b(Z)}, \forall, \, Z = 1, 2, 3, \ldots \mathbb{n}.$ weight vector $\mathbf{q} = (\mathbf{q}_1, \mathbf{q}_2, \mathbf{q}_3, \dots, \mathbf{q}_{n})^T$, such that $\mathbf{q}_3 \in [0, 1]$, $\mathbf{z} = 1, 2, \dots, 0$ and $\sum_{3=1}^{n} \mathbf{q}_3 = 1$. \sim $\frac{1}{2}$ and $\frac{1}{2}$ (b) $\frac{1}{2}$ (h) $\frac{1}{2}$ (h) $\frac{1}{2}$ (h) $\frac{1}{2}$ (h) is the set of net to be the family of CPyFVs. Then, a CPyFAAHG op

CPyFAAHG $\left(\Omega_1, \Omega_2, ..., \Omega_{\text{R}}\right) = \sum_{3=1}^{\text{R}} \left(\text{H}_3 \mathcal{X}_{\text{b}(3)}\right) = \text{H}_1 \mathcal{X}_{\text{b}(1)}$

where $(\text{b}(1), \text{b}(2), \text{b}(3), ..., \text{b}(3))$ is the set of p

weight vector $\textbf{A} =$ weight vector $\mathbf{g} = (\mathbf{g}_1, \mathbf{g}_2, \ \mathbf{g}_3, \dots, \ \mathbf{g}_{\eta})^T$, such that $\mathbf{g}_{\mathbf{g}} \in [0, 1]$, $\mathbf{g} = 1, 2, \dots, \mathbf{n}$ and $\sum_{\mathbf{g}=1}^{\mathbf{n}} \mathbf{g}_{\mathbf{g}} = 1$. α where $(\beta(1))$ \mathcal{L} $\sqrt{2}$, such that $\sqrt{2}$ of $\sqrt{2}$

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1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ

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of CPyFVs. By using an induction method, we prove Theorem 1 based on $\mathcal{A}_\mathcal{A}$

IFS and PyFs. The PyFs.

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deserved properties. The served properties of the served properties of the served properties of the served pro

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Proof. Consider ƺ = ቆఆƺ

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Now, we explored the AOs of the CPyFAAWG operator, and also studied some spe-

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Theorem 17. Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{\varkappa}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(v))}{\varkappa}}\right)$ family of CPyFVs. Then, the CPyFAAHG operator is particularized as: **Theorem 17.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right), \, \mathbf{Z} = 1, 2, \ldots, \mathbf{Z}$ family of CPyFVs. Then, the CPyFAAHG operator is particularized as: ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\frac{1}{2}$ $\frac{1}{2}$)) **orem 17.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\alpha_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa) e^{\frac{2\pi i (\beta_{\Omega_{\mathbf{Z}}}(\varkappa))}{2}}\right)$, $\mathbf{Z} = 1, 2, ..., 1$ be the *s*. Then, the CPyFAAHG operator is particularized as: ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\frac{1}{2}$ and $\frac{1}{2}$ and $\frac{1}{2}$ *and* $\frac{1}{2}$ *represents the membership value (MV)* of a moment $\frac{1}{2}$ of a moment $\frac{1}{$ $\left(\prod_{\Omega_{\boldsymbol{z}}(\mathcal{H})e} 2\pi i(\alpha_{\Omega_{\boldsymbol{z}}}(\mathcal{H}))}, \mathbb{E}_{\Omega_{\boldsymbol{z}}(\mathcal{H})e} 2\pi i(\beta_{\Omega_{\boldsymbol{z}}}(\mathcal{H}))\right), \ z = 1, 2, \ldots, \mathbb{N}$ be the family of CPyFVs. Then, the CPyFAAHG operator is particularized as: ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\text{Let } \Omega_{\mathbf{Z}} = \begin{pmatrix} \Pi_{\Omega_{\mathbf{Z}}} \\ \Pi_{\Omega_{\mathbf{Z}}} \end{pmatrix}$ $\left(\pi\right)e^{2\pi i\left(\alpha_{\Omega_{\mathbf{Z}}}\left(\mathcal{H}\right)\right)}$, $\Xi_{\Omega_{\mathbf{Z}}}$ \overline{a} ⎠ $\chi^2 \pi i(\alpha_{\text{O}-}(\boldsymbol{\chi}))$ $2\pi i(\beta_{\text{O}-}(\boldsymbol{\chi}))$ **Theorem 17.** *Let* $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{2\pi i \left(\mu_1\right) \mathbf{Z}(\boldsymbol{\varkappa})}e^{2\pi i \left(\mu_2\right) \mathbf{Z}(\boldsymbol{\varkappa})}e^{2\pi i \left(\mu_1\right) \mathbf{Z}(\boldsymbol{\varkappa})}$ 1,2,3, … ῃ), *such that* ƺ [∈] [0,1], ƺ = 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ $\overline{}$ $\begin{pmatrix} 3.6 & 0.00$ $\left(\begin{array}{cc}2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))&\mathbf{z}\end{array}\right)$ $\left(\begin{array}{cc}2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}}))\end{array}\right)$ $\left(\begin{array}{cc}2\pi i\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{H}})\end{array}\right)$ **Theorem 17.** Let $\Omega_{\mathbf{Z}} = \begin{pmatrix} \Pi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e & e \end{pmatrix}$, $\Xi_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e$ Я
Языка Александр (александр александр александр александр александр александр (александр александр александр а IFS and PyFs. $\left(\begin{array}{cc}2\pi i(\alpha_{\text{O}_{-}}(\mathcal{H}))&2\pi i(\beta_{\text{O}_{-}}(\mathcal{H}))\end{array}\right)$ **geometric (CP)** Theorem 17. Let $\Omega_{\mathbf{Z}} = |H_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{-\lambda_{\mathbf{Z}}t}$ e^{imny} is the suitable candidate to select a suitable candidate for a suitable candidate for a vacant position e^{imx} $\left(\begin{array}{cc}2\pi i(\alpha_{\Omega_{\bm{\tau}}}(\bm{\mathcal{H}}))&2\pi i(\beta_{\Omega_{\bm{\tau}}})\end{array}\right)$ **geometric (CP)** is the operator of $\Omega_{\mathbf{Z}} = \prod_{i} \Omega_{\Omega_{\mathbf{Z}}}(\boldsymbol{\varkappa})e^{i\boldsymbol{\varkappa}}$ f_{amilu} of CPuEVs. Then the CPuEAAHC operator is particularized a family of CPyFVs. Then, the CPyFAAHG operator is particularized as: λ *iii.* = ൫()൫()൯ , ()൫()൯൯*.* **7.** Let $\Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i(\varkappa_{\Omega_{\mathbf{Z}}}}{2}(\varkappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\varkappa)e^{\frac{2\pi i(\varkappa_{\Omega_{\mathbf{Z}}}}{2}(\varkappa))}\right), \, \mathbf{Z} = 1, 2, \ldots, \mathbf{N}$ be the FVS. Then, the CPyFAAHG operator is particularized as: $\frac{1}{\sqrt{2}}$ (iii). **2** 10 $\int_{\mathbf{r}^{\prime}}$ $\int_{\mathbf{r}}^{2}$ $\int_{\mathbf{r}}$ $f_0(\boldsymbol{\mu})$ \overline{a} Π_{Ω} (y)e \mathcal{E} \mathcal{E} \mathcal{E}_{Ω} (y)e $\frac{c}{\sqrt{100}}$ FVs. Then, the CPyFAAHG operator is particularized as: $\mathcal{L} = 2\pi i (x_2 - (12))$ and $2\pi i (\theta_2 - (12))$ $\det Q_{\mathbf{z}} = \left(\prod_{\Omega} (\mathbf{y}) e^{-\frac{\mathbf{x}^2}{2} (\mathbf{y}^2)} \mathbb{E}_{\Omega} (\mathbf{y}) e^{-\frac{\mathbf{x}^2}{2} (\mathbf{y}^2)} \right)$. 3 (Fig.) by utilizing approaches, we solve an \mathcal{S} $\ell = 2\pi i(\kappa_{\alpha}(\mathbf{V}))$ and $2\pi i(\kappa_{\alpha}(\mathbf{V}))$ $\partial_t \Omega_z = \left(\prod_{\Omega} (\chi) e^{-\frac{S}{2}} \right)^z$, $\Xi_{\Omega} (\chi) e^{-\frac{S}{2}} \left(\frac{\chi}{2} \right)$, $\overline{\xi} = \overline{\xi}$ 7. Let $\Omega_{\mathbf{Z}} = \begin{pmatrix} \Pi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e & e \\ 0 & \Pi_{\Omega_{\mathbf{Z}}}(\mathbf{x})e \end{pmatrix}$, $\lambda_{\mathbf{Z}} = \begin{pmatrix} 0 & e \\ 0 & 1 \end{pmatrix}$, where $^{\prime}$ \mathcal{L} $\Omega_{\mathbf{Z}}(\boldsymbol{\varkappa})e$ ε), $s = 1, 2,$ $\frac{2\pi i (8.5 \text{ (B)}}{2\pi i (8.5 \text{ (B)}} \cdot \frac{2\pi i (8.5 \text{ (B)})}{2\pi i (8.5 \text{ (B)})}$ $\frac{1}{2}$, *o*, *o, y*, *r o, inc.* **Theorem 17.** Let $\Omega_{\mathbf{Z}} = \prod_{\alpha} \Omega_{\mathbf{Z}}(x) e^{i \alpha}$ and $\Omega_{\mathbf{Z}}(x) e^{i \alpha}$ family of CPyFVs. Then, the CPyFAAHG operator is particularized as: ℓ **2** $\pi i(\alpha_0 \left(\chi \right))$ **2** $\pi i(\beta_0 \left(\chi \right))$ $\frac{1}{\sqrt{2}}$ \overline{a} λ fundamental operational laws of Aczel–Alsina TNM and TCNM. **Theorem 17** Let $\Omega = \left(\prod_{\substack{c} \in \{1\}^d} \left(\frac{\mu}{2} \right)^2 \right)$ $\Gamma_{\mathcal{L}}(\mu)$ some special cases, $\int_{-\pi/5}^{\pi/2}$ (c), and $\int_{-\pi/5}^{\pi/2}$ (c), fundamental operational laws of \mathbf{A} Theorem 17 Let $O_7 = \left(\prod_{\alpha} \left(\frac{\mu}{e}\right)^{\beta} \right)^{2}$ $\mathbb{E}_{Q_7} \left(\frac{\mu}{e}\right)^{\beta}$ $\mathcal{S} = \left(\begin{array}{c} \mathcal{S} & \mathcal{S} \\ \mathcal{S} & \mathcal{S} \end{array} \right)$ hybrid weighted (CPyFAAHW), average (CPyFAAHWA) and CPyFAAHW ج
d $_{\alpha}$ *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 $\mathcal{L} = \left(\prod_{Q} (\chi) e^{-\frac{\chi^2}{2}} \right)^{1/2}$, $\mathcal{L}_{Q} (\chi) e^{-\frac{\chi^2}{2}}$ using an Alsina-Action index the $\frac{d}{dx}$ order weight $\frac{d}{dx}$ order based on Ac $\frac{d}{dx}$ $\frac{2\pi i}{a}$, $\frac{2\pi i}{b}$, $\frac{1}{a}$, $\frac{1}{b}$, $\frac{2\pi i}{c}$, $\frac{1}{a}$, $\frac{1}{b}$, $\frac{1}{c}$, \frac **Definition 16***. Consider* ƺ = ቆఆƺ en. the CPyFAAHG operator is particularized as: ¹ $\begin{pmatrix} - & \sqrt{2\pi i(\alpha_{\Omega_{\mathbf{z}}(\mathbf{z})})} & \sqrt{2\pi i(\beta_{\Omega_{\mathbf{z}}(\mathbf{z})})} \end{pmatrix}$ $\mathcal{L} = \left(H_{\Omega_{\mathbf{Z}}}(\mathcal{H})e^{-\mathcal{L}_{\Omega_{\mathbf{Z}}}(\mathcal{H})}e^{-\mathcal{L}_{\Omega_{\mathbf{Z}}}(\mathcal{H})}e^{-\mathcal{L}_{\Omega_{\mathbf{Z}}}(\mathcal{H})}e^{-\mathcal{L}_{\Omega_{\mathbf{Z}}}(\mathcal{H})}e^{-\mathcal{L}_{\Omega_{\mathbf{Z}}}(\mathcal{H})}e^{-\mathcal{L}_{\Omega_{\mathbf{Z}}}(\mathcal{H})}e^{-\mathcal{L}_{\Omega_{\mathbf{Z}}}(\mathcal{H})}e^{-\mathcal{L}_{\Omega_{\mathbf{Z}}}(\mathcal{H})}e$ \mathcal{L} $\left(\frac{2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{U}}))}{\sigma_{\mathbf{Z}}} \right)$ and $\left(\frac{2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\boldsymbol{\mathcal{U}}))}{\sigma_{\mathbf{Z}}} \right)$ and we explore η $\left(\begin{array}{cc} 11 \Omega_{\mathcal{Z}} (\mathcal{H})^c & \cdot \\ \cdot & \cdot \Omega_{\mathcal{Z}} (\mathcal{H})^c \end{array} \right)$, $c = 1, 2, ..., \cdot$ be the $\sum_{i=1}^{n}$

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In this part, we recall the existing concepts of Aczel–Alsina AOs under the system of

some special cases, like CPyFAA ordered weighted (CPyFAAWAG), average

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some special cases, like CPyFAA ordered weighted (CPyFAAWAG), average

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\frac{\text{Symmetry 2023, 15, 68}}{\text{Theorem 17. Let } \Omega_{\mathbf{Z}} = \left(\Pi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\kappa))}, \Xi_{\Omega_{\mathbf{Z}}}(\kappa)e^{-2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\kappa))}\right), \mathbf{Z} = 1, 2, ..., \mathbf{I} \text{ be the family of CPyFVs. Then, the CPyFAAHG operator is particularly a.s.}
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$$
CPyFAAHG\left(\Omega_{1}, \Omega_{2}, ..., \Omega_{\mathbf{I}}\right) = \left(\begin{array}{c} 2\pi i(\alpha_{\Omega_{\mathbf{Z}}}(\kappa)e^{-2\pi i(\beta_{\Omega_{\mathbf{Z}}}(\kappa))})\\ e^{-\left(\sum_{\mathbf{Z}=1}^{\mathbf{I}}\left(-\ln(\Pi_{\mathbf{X}_{\mathbf{B}}(\mathbf{Z})}\right)^{\mathbf{q}_{\mathbf{Z}}}\right)^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}}\\ e^{-\left(\sum_{\mathbf{Z}=1}^{\mathbf{I}}\left(-\ln(\Pi_{\mathbf{X}_{\mathbf{B}}(\mathbf{Z})}\right)^{\mathbf{q}_{\mathbf{Z}}}\right)^{\mathbf{Y}}\right)}\\ \sqrt{1 - e^{-\left(\sum_{\mathbf{Z}=1}^{\mathbf{I}}\left(-\ln(1 - \Xi_{\mathbf{X}_{\mathbf{B}}(\mathbf{Z})}^{\mathbf{Y}}\right)^{\frac{1}{\mathbf{Y}}}\right)^{\frac{1}{\mathbf{Y}}}}e^{2\pi i\left(\sqrt{1 - e^{-\left(\sum_{\mathbf{Z}=1}^{\mathbf{I}}\left(-\ln(1 - \beta_{\mathbf{X}_{\mathbf{B}}(\mathbf{Z})}\right)^{\mathbf{q}_{\mathbf{Z}}}\right)^{\mathbf{Y}}}\right)^{\frac{1}{\mathbf{Y}}}}\tag{14}
$$

In this part, we recall the existing concepts of A and A and A and A

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IFS and PyFs. The PyFs.

some special cases, like $\mathcal{L}_{\mathcal{F}}$ and $\mathcal{L}_{\mathcal{F}}$ are averaged weighted (CP). As a set of \mathcal{F}

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Proof. We can prove this theorem analogously. \Box $\frac{1}{2}$. Then, the existing $\frac{1}{2}$ are the averaging operator is given as: $\frac{1}{2}$, $\frac{1}{2}$ 1,001. ∴
∴ ∴ *µ* and ∑ *and* Ẁ Non-empty set ˘ Score function **Proof.** We can prove this theorem analogously. \Box Ẁ Non-empty set ˘ Score function α *. The PyF Acceler-Alsing operator is given as:* α α **such that is the 11001.** We can prove this theo ƺୀଵ *. Then, the associated values of the* $=15$ \bar{a} **Proof.** We can prove this theorem analogously. \Box CPyFSs. In Section 3, we studied the concepts of some existing AOs under the different Γ -cycles this the energy and Γ -cycles \Box **Proof.** We can prove this theorem analogously. \Box \overline{a} \mathbf{m} analogously. \Box F_{rel} 1: F_{rel} is seen previous denoted all previous history of our research F_{rel} \mathbf{v} . \Box The structure of this manuscript is presented as follows and also displayed in the T structure of this manuscript is presented as follows and also displayed in the also d **Proof.** We can prove this theorem analogously. \Box ൯*.* $\overline{1}$ \mathbf{r} **Table 1.** Symbols and their meanings. **Table 1.** Symbols and their meanings. **Table 1.** Symbols and their meanings.

7. Evaluation of an MADM Technique Using Our Proposed Met Numeron of an influent recent que compound reposed intended uation of an MADM Technique Using Our Proposed Methodologies NMW recomplete the complete the memorial complete భ *7*. Evaluation of an MADM Technique Using Our Proposed Methodolc **Definition 7** ([58])**.** *Let* ƺ = ൬ఆƺ ϵ roposed Methodo $-\sigma$ σ Evaluation of an MADM Technique Using Our Proposed Methodologies 7. Evaluation of an MADM Technique Using Our Proposed Methodologies eral AOS of CP \sim CP \sim \sim \sim \sim \sim ⎜ *with weight vector* ƺ = (ଵ, ଶ, ଷ,…,)் *of* ƺ(ƺ = 1,2,3, … ῃ) *such that* ƺ ∈ [0,1],ƺ = uation of an MADM Technique Using Our Proposed Methodologies 7. Evaluation of an MADM Technique Using Our Proposed Methe ϵ is system of fuzzy systems. In Section 4, we introduce ϵ \overline{a} $\overline{\bf f}$ an MADM Technique Using Our Proposed Methodologies an wird is funnique using our Froposea methodologies \mathbf{C} 7. Evaluation of an MADM Technique Using Our Proposed Methodologies Ẁ Non-empty set ˘ Score function m_{V} and m_{V} are the superson m_{V} and m_{V} are term m_{V} Ẁ Non-empty set ˘ Score function *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35 *Symmetry* **2023**, *14*, x FOR PEER REVIEW 7 of 35

An MADM technique may be solved by utilizing our proposed methodologies under
e system of CPyF information. Consider $\psi = {\psi_1, \psi_2, \psi_3, ..., \psi_n}$ is the set of alternative An MADM technique may be solved by utilizing our proposed meth
ne system of CPvE information. Consider $\psi = \{\psi_1, \psi_2, \psi_3, \psi_4\}$ is the select suitable alternatives like $\mathbf{u} = \{\mathbf{u}_1, \mathbf{u}_2, \mathbf{u}_3, \dots, \mathbf{u}_n\}$. Consider that \mathcal{R} $\frac{1}{\sqrt{2\pi i (a_{Y_1} (x))}} =$ $\lim_{\lambda \to \infty} \text{arcsion matrix and } \mathcal{Y}_{\lambda} = \chi_{\lambda} - \mu \chi_{\lambda}(\kappa) e^{-\kappa \kappa}$ NMV of alternatives, sequentially. The following decision maker:
decision maker: ves, seqi *with decision matrix and* $\mathcal{V} = \mathcal{X} = \left(\prod_{n} (\alpha)^{2\pi i (\alpha_{\chi_n}(\mathcal{X}))} e^{-\int_{\mathcal{X}} (\alpha)^2 \pi i (\alpha_{\chi_n}(\mathcal{X}))} e^{-\int_{\mathcal{X}} (\alpha^2 \pi i (\alpha_{\$ the decision matrix and $y_{\lambda} = \chi_{\lambda} = (H\chi_{\lambda}(\kappa)e^{-\frac{1}{2}(\kappa-\kappa)}\xi_{\lambda}(\kappa)e^{-\frac{1}{2}(\kappa-\kappa)}$ NMV of alternatives, sequentially. The following decision matrix is constructed by decision maker: with the associated weight vector of ψ , $\mathfrak{D} = {\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n}$, such that $\mathfrak{D}_\mathfrak{Z} \in [0,1]$, σ at the decision matrix come can be the decision matrix and $\mathcal{Y}_{\lambda} = \chi_{\lambda} = \left(\Pi_{\chi_{\lambda}}(\kappa)e^{2\pi i(\alpha_{\chi_{\lambda}}(\kappa))}, \Xi_{\chi_{\lambda}}(\kappa)e^{2\pi i(\beta_{\chi_{\lambda}}(\kappa))}\right)$ de the CPyF numbers (CPyFVs), where $\Pi_{\Omega_{\mathbf{Z}}}\in [0,1]$ and $\Xi_{\Omega_{\mathbf{Z}}}\in [0,1]$ represent the MV and DM technique may be solved by utilizing our proposed methodologies $\frac{2}{8} = 1.5$ **c** ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* **Select suitable alternatives like** $0 - \{0\}$ **,** 0_2 **,** 0_3 **, ...,** 0_n **}.** Consider that $\kappa = (\nu_{\backslash i})$ ct suitable alternatives like $u = \{u_1, u_2, u_3, \ldots, u_n\}$. Consider that $\mathcal{R} = (\mathcal{Y}_{\setminus i})_{\infty}$ is (1) $\frac{1}{2}$, $\frac{1}{$ where $\liminf_{n \to \infty} \frac{d^n}{n!} = \frac{1}{n} \left(\frac{1}{n} \right)^n$ $\left(\frac{n}{n} \right)^n$ and $\frac{n}{n} = \frac{n}{n} \left(\frac{n}{n} \right)^n$ and $\frac{n}{n} = \frac{n}{n}$ a \mathbf{a} doctor matrix and $\mathcal{V} = \mathcal{X} = \left(\prod_{n=1}^{\infty} (\mu_n)^{2\pi i (\alpha_{\chi_n}(\mathbf{x}))} \right)$ $\mathbb{E} \left((\mu_n)^{2\pi i (\beta_{\chi_n}(\mathbf{x}))} \right)$ denotes decision matrix and $y_{\lambda} = \chi_{\lambda} = (H\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda}(n)e^{-\frac{1}{2}\chi_{\lambda$ ٠, NMV of alternatives, sequentially. The following decision matrix is constructed by the decision maker: NMV of phase term Ŧ TNM = ඨ ^మ ൯ቁ ^ῃ ^Ὺ ƺసభ ൰ Ὺ , ିቀ∑ ƺ൫ି()൯ ^ῃ ^Ὺ ƺసభ ቁ ʊ Attribute Decision matrix atrix and $\mathcal{Y}_{\lambda} = \chi_{\lambda} = \left(\prod_{\chi_{\lambda}} (\chi)e^{2\pi i (\alpha_{\chi_{\lambda}}(\chi))}, \Xi_{\chi_{\lambda}}(\chi)e^{2\pi i (\beta_{\chi_{\lambda}}(\chi))}\right)$ denotes $\mathbb{Z}_{\{5=1\}}^{\infty}$.
 $\mathbb{Z}_{\{5=1\}}^{\infty}$ n, and $\sum_{\mathbf{Z}=1}^{n} \mathfrak{D}_{\mathbf{Z}} = 1$. The decision maker assigns some characteristics to *weithalives like* $0 = \{0_1, 0_2, 0_3, \ldots, 0_n\}$ *.* Consider that $\kappa = (\mathcal{Y}_\lambda)_{\text{max}}$ is An MADM technique may be solved by utilizing our proposed methodologies under $\begin{bmatrix} -2\epsilon & 0 \\ 0 & 1 \end{bmatrix}$. $\begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix}$, $\begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix}$ is $2\pi i(x-(\alpha))$ $2\pi i(8-(\alpha))$ the decision matrix and $\mathcal{Y}_{\lambda} = \chi_{\lambda} = \left(\Pi_{\chi_{\lambda}}(\kappa)e^{2\pi i(\alpha_{\chi_{\lambda}}(\kappa))}, \Xi_{\chi_{\lambda}}(\kappa)e^{2\pi i(\beta_{\chi_{\lambda}}(\kappa))}\right)$ denotes χ_{1n}] \mathfrak{g} $\mathbf{w} = [\mathbf{v}_1, \mathbf{v}_2, \mathbf{v}_3, \dots, \mathbf{v}_n]$. Consider that $\mathbf{w} = [\mathbf{v}_1 / \mathbf{v}_2]$ is $\frac{2}{7}$, $\frac{3}{7}$, $\frac{1}{7}$, $\frac{1}{7}$ $\frac{2}{7}$ $\frac{2}{7}$ $\frac{3}{7}$ $\frac{3}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ $\frac{1}{7}$ 1,2, ∆ and ∑ ∑ ∑ ∑ ∑ <mark>N</mark> $\frac{1}{2}$ the decision matrix $^-$ ⎜ nd $\mathcal{Y}_{\setminus\lambda} = \chi_{\setminus\lambda} = \left(\Pi_{\chi_{\setminus\lambda}}(\kappa)e^{2\pi i(\alpha_{\chi_{\setminus\lambda}})}\right)$ iy eight vector of ψ , $\mathfrak{D} = \{ \mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \mathfrak{D}_4, \mathfrak{D}_5, \mathfrak{D}_6, \mathfrak{D}_7, \mathfrak{D}_8, \mathfrak{D}_8, \mathfrak{D}_9, \mathfrak{D}_9$ like ι ቍ \mathfrak{z}_n . $\mathfrak{D}_{\mathbf{Z}}=1.$ The decision maker assig $\mathcal{L}(\mathcal{L})$ wing deci
 ⎟ NMV of alternatives, sequentially. The following decision matrix is contained as: **∂** $\mathcal{K}_{\setminus i}$ ⎟ ⎟ The associated weight vector of ψ , $\mathfrak{D} = {\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n}$, such the $\frac{1}{2}$, $\mathcal{L}_{\mathcal{U}}(k) = \frac{\mathcal{L}_{\mathcal{U}}(k)}{\mathcal{L}_{\mathcal{U}}(k)}$

the CPvF numbers (CPvFVs), where $\Pi_{\mathcal{U}}(k)$ and $F_{\mathcal{U}}(k)$ is performed. The MADW detunique may be solved by uniforming our proposed memodologies under
the system of CPyF information. Consider $\psi = {\psi_1, \psi_2, \psi_3, ..., \psi_n}$ is the set of alternative
with the associated weight vector of the $\mathcal{D} =$ d $\sum_{\mathbf{Z}=1}^{n} \mathfrak{D}_{\mathbf{Z}} = 1$. The decision maker assigns some chara with the associated weight vector of ψ , $\mathfrak{D} = {\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n}$, such that \mathfrak{D} $\gamma_{\pi i}(\alpha - (\nu))$ $2\pi i(\beta - \nu)$ the CPyF numbers (CPyFVs), where $\Pi_{\Omega_{\mathbf{Z}}}\in [0,1]$ and $\Xi_{\Omega_{\mathbf{Z}}}\in [0,1]$ represent the MV and and the following degision matrix is constructed by the t_{max} , the following accidion matrix is constructed by the $\lceil \gamma_{11} \gamma_{12} \ldots \gamma_{1n} \rceil$ $y = 1, y = 3$ and $y = 3, y = 1$ The decision maker assigns s the decision matrix and $\mathcal{Y}_{\setminus l} = \chi_{\setminus l} = \left(\Pi_{\chi_{\setminus l}}(\kappa) e^{2\pi i (\alpha_{\chi_{\setminus l}}(\kappa))}, \Xi_{\chi_{\setminus l}}(\kappa) e^{2\pi i (\beta_{\chi_{\setminus l}}(\kappa))}\right)$ denotes NMV of alternatives, sequentially. The following decision matrix is constructed by the $\epsilon = 1, 2, 3, ..., n$, and $\sum_{z=1}^{\infty} \frac{z}{z-1}$. The decision maker a \mathcal{L} and $\mathcal{E} = 1, 2, 3, ..., n$, and $\sum_{\mathbf{Z}=1}^{n} \mathfrak{D}_{\mathbf{Z}} = 1$. The decision maker assign $\frac{a}{x}$ n maker assigns some characteris ῃ $\sqrt{\pi}$, $\sqrt{2}$.
∍ and $\Xi_{\Omega_{\textbf{Z}}}\in [0,1]$ represent $\pi i(\alpha_{\chi_{\lambda}}, (\varkappa))$ \qquad \q $\ddot{}$ $\{u_n\}$ Consider that $\mathcal{R} = (\mathcal{V}, \mathcal{V})$ ⎜ $\ddot{}$ nake ssigns some charact $\mathfrak{D}_{\mathbf{Z}}\in% {\textstyle\bigoplus\nolimits_{\alpha\in\mathbb{Z}_{+}}} \left(\mathfrak{D}_{\alpha}\right) ^{\otimes i}$ ⎟ ⎟ ⎞ $_{\rm ent}^{\rm (n))}$ der $_{\rm ent}^{\rm (n)}$ sequentially. The following decision matrix is constructed by the sequentially. (PyFVs) , where $\Pi_{\Omega_{\mathbf{Z}}} \in [0,1]$ and $\Xi_{\Omega_{\mathbf{Z}}} \in [0,1]$ represent the MV and ⎟ $\hat{\mathbb{D}}$ u_n } Consider that $\mathcal{R} = (\mathcal{V}_n)$ ⎟ $\frac{1}{2}$ is the discrepance of $\frac{1}{2}$ and $\frac{1}{2$ α or anche $\mathcal{Z} = 1, 2, 3, ..., n$, and $\sum_{\mathcal{Z}=1}^{n} \mathcal{D}_{\mathcal{Z}} = 1$. The decision maker assigns some characteristics to $\text{Im} \mathcal{L}(\mathcal{U}) = \mathcal{X}(\mathcal{U}) = \begin{pmatrix} H\chi_{\mathcal{U}}(\mathcal{U})e & \cdots & \mathcal{L}\chi_{\mathcal{U}}(\mathcal{U})e \\ \vdots & \vdots & \ddots & \vdots \\ H\mathcal{U} & \mathcal{U}\mathcal{U} & \mathcal{U}\mathcal{U} & \mathcal{U}\mathcal{U} & \mathcal{U}\end{pmatrix}$ denotes MADM technique may be solved by utilizing our proposed methodologies under with the associated weight vector of ψ , $\mathfrak{D} = {\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, \ldots, \mathfrak{D}_n}$, such that $\mathfrak{D}_\mathfrak{Z} \in [0,1],$ $\sum_{i=1}^{n} \mathbb{P}(\mathcal{F}_{i})$ $\mathbf{z} = \mathbf{z}$ $\mathcal{V}_{\lambda} = \mathcal{X}_{\lambda} = \left(\prod_{\kappa} (\kappa) e^{2\pi i (\alpha_{\chi}(\kappa))} \right)$ alenotes \overline{W} where $\overline{H}_Q \in [0, 1]$ and $E_Q \in [0, 1]$ represent the MV and $(3, 1)$, where H_{2} ≤ 10 $\frac{12}{\sqrt{3}}$. Then, the PyF $\frac{1}{\sqrt{3}}$ and the PyF Ac $\frac{1}{\sqrt{3}}$ operator is given as: $\frac{1}{\sqrt{3}}$ and $\frac{1}{\sqrt{3}}$ the reliability and flexibility and flexibility of our proposed included of our invention α , and we gave an invention α th of C_1 yr muotination. Consider $\psi = \{\psi_1, \psi_2, \psi_3, \dots, \psi_n\}$ is the set of anemative select suitable alternatives like $\upsilon = \{\}$ An MADM technique may be solved by utilizing our proposed methodologies under $t_{\rm eff}$ to find the reliability and flexibility ϵ of $t_{\rm eff}$ of $t_{\rm eff}$ is the reliability of ϵ . the system of CPyF information. Consider $\psi = {\psi_1, \psi_2, \psi_3, ..., \psi_n}$ is the set of alternative $\Pr_{\mathcal{N}} = \Pr_{\mathcal{N}}$ cision matrix and $\mathcal{Y}_{\setminus} = \Pr_{\mathcal{N}}$ mumbers (CPvFVs), where $\Pi_{\Omega} \in [0, 1]$ and d $\mathcal{Y}_{\setminus\wr} = \chi_{\setminus\wr} = \left(\varPi_{\chi_{\setminus\wr}}(\varkappa)e^{2\pi i \varpi}\right)$ ()൰ , ƺ = 1,2, … , ῃ *be the collection of PyF numbers* NNV O alternatives, set $\frac{1}{2}$ equentially. The following decisiy ∎ ن
GEVe d $\mathcal{Y}_{\setminus\wr} = \chi_{\setminus\wr} = \left(\Pi_{\chi_{\setminus\wr}}(\kappa)e^{2\pi i}\right)$ $z=1$ ε
res like $\upsilon = \{\upsilon_1, \upsilon_2, \upsilon_3, \dots, \upsilon_n\}$), where $\Pi_{\Omega_{\mathbf{Z}}}\in [0,1]$ and Ξ_{Ω} $x_{\chi_{\setminus\wr}}(x)$ lly. The following decision matrix is constr the CPyF numbers (CPyFVs), where $\Pi_{\Omega_{\mathbf{Z}}}\in [0,1]$ and $\Xi_{\Omega_{\mathbf{Z}}}\in [0,1]$ represent the MV and
NMV of alternatives, equivarially. The following decision matrix is constructed by the \overline{G} ⎟ suitable alternatives like $\mathbf{u} = \{v_1, v_2, v_3, \dots, v_n\}$. $\chi_{\setminus\lambda} = \left(\Pi_{\chi_{\setminus\lambda}}(\kappa)e^{-\frac{(\kappa_{\lambda}\lambda_{\lambda})^2}{2\hbar}}\right)^{1/2}$ $\lceil \gamma_{12}, \gamma_{22}, \ldots \gamma_{n} \rceil$.., υ_n }. Consider that $\mathcal{R} = \left(\mathcal{Y} \right)$ $\mathcal{Z} = 1, 2, 3, ..., n$, and $\sum_{\mathcal{Z}=1}^{n} \mathcal{D}_{\mathcal{Z}} = 1$. The decision maker assigns some characteristics to ⎜ $\mathfrak{D}_3, \ldots, \mathfrak{D}_n\}$, such the system of CPyF information. Consider $\psi = {\psi_1, \psi_2, \psi_3, ..., \psi_n}$ is the set of alternative with the associated weight vector of ψ , $\mathfrak{D} = {\mathfrak{D}_1, \mathfrak{D}_2, \mathfrak{D}_3, ..., \mathfrak{D}_n}$, such that $\mathfrak{D}_g \in [0,1]$, $\Xi_{\chi_{\setminus\wr}}(\kappa)$, $\Xi_{\chi_{\setminus\wr}}(\kappa)e^{2\pi i(\beta_{\chi})}$ μ $\Pi \mathcal{Y}_{\setminus \lambda} = \chi_{\setminus \lambda} = \left(\Pi_{\chi_{\setminus \lambda}}(\kappa) e^{2\pi i (\alpha_{\chi_{\setminus \lambda}}(\kappa))}, \Xi_{\chi_{\setminus \lambda}}(\kappa) e^{2\pi i (\beta_{\chi_{\setminus \lambda}}(\kappa))} \right)$ select suitable alternatives like $\mathbf{u} = \{\mathbf{u}_1, \mathbf{u}_2, \mathbf{u}_3, \dots, \mathbf{u}_n\}$. Consider that $\mathcal{R} = (\mathcal{Y}_{\setminus i})_{\infty}$ is $\pi i(\alpha_{\chi_{\setminus i}}(\varkappa))$, $\Xi_{\chi_{\setminus i}}(\varkappa)e$ the decision matrix and $V = \gamma_1 = \left(\prod_{x \in \mathcal{C}} \mu_x^{\text{2}} \frac{2\pi i (\alpha_{\chi_1}(\mathbf{x}))}{\pi} \right)$ decision maker: ntially. The following decision matrix is construc An MADM technique may be solved by uniform for select suitable alternatives like $v = \{v_1, v_2, v_3, \ldots, v_n\}$. Consi the decision matrix and $y_{\lambda} = \chi_{\lambda} = \prod_{\lambda} I_{\chi_{\lambda}}(x)e^{-\frac{(x-\lambda)^2}{2}}$ environments of fuzzy systems. In Section 4, we introduced innovative concepts of Aczel– An MADM technique may be solved by utilizing our proposed methodologies under technique to find the reliability and flexibility and flexibility of our invented $\frac{1}{2}$ select suitable alternatives like $u = \{v_1, v_2, v_3, \ldots, v_n\}$. Consider that $\mathcal{R} = (\mathcal{Y}_{\setminus i})_{\infty}$ we studied the advantages and verified our invented $(\pi \vee \sqrt{2\pi i}(\alpha_{Y_{\lambda}}(x))$ the decision matrix and $\mathcal{Y}_{\setminus l} = \chi_{\setminus l} = \left(\prod_{\chi_{\setminus l}} (\kappa) e^{-\frac{\chi_{\setminus l}(\kappa)}{\chi_{\setminus l}} (\kappa)} \right)^{2} E_{\chi_{\setminus l}}(\kappa) e^{-\frac{\chi_{\setminus l}(\kappa)}{\chi_{\setminus l}} (\kappa)}$ $\frac{2\pi i(\beta_{\chi_{\setminus i}}(\varkappa))}{\text{denote}}$ $\left(E_{\chi_{\setminus i}}(\kappa)e^{2\pi i(\beta_{\chi_{\setminus i}}(\kappa))}\right)$ denotes **Definition 8** ([58])**.** *Let* ƺ = ൬ఆƺ _{*n*} matrix is constructed by the $^{\prime}$. ⎜ $\mathfrak{D}_3 = 1$. The decision maker assigns some characteristics to sissigns some characteristics to

nsider that $\mathcal{R} = (\mathcal{Y}_{\setminus i})_{\Downarrow \times \setminus}$ is
 $\Xi_{\chi_{\setminus i}}(\kappa)e^{2\pi i(\beta_{\chi_{\setminus i}}(\kappa))})$ denotes
 $\in [0,1]$ represent the MV and

matrix is constructed by the $E_{\chi_{\setminus l}}($ ଵି $e^{2\pi i(\beta_{\chi_{\backslash i}}(\kappa))}$ denot ቍ \mathfrak{v}_2 , \mathfrak{v}_3 , ..., \mathfrak{v}_n }. Consider that $\mathcal{R} = (\mathcal{Y}_{\setminus i})_{\uparrow \downarrow \times \setminus i}$ is $\mathbb{E}_{\mathcal{X}_{\lambda}}(\mathbf{x})e^{2\pi i(\beta \chi_{\lambda}(\mathbf{x}))}$ denotes denotes
MV and **Definition 8** ([58])**.** *Let* ƺ = ൬ఆƺ \overline{a} rist e, \log and \log \log \log \log \log \log me characterist the system of CPyF information. Consider $\psi = {\psi_1, \psi_2, \psi_3, ..., \psi_n}$ is the set of alternative trix and $\mathcal{Y}_{\lambda} = \chi_{\lambda} = \left(\prod_{\chi_{\lambda}} (\kappa) e^{2\pi i (\alpha_{\chi_{\lambda}}(\kappa))}, \Xi_{\chi_{\lambda}}(\kappa) e^{2\pi i (\beta_{\chi_{\lambda}}(\kappa))} \right)$ denotes ternatives like $\bm{\mathsf{u}}=\{\bm{\mathsf{u}}_1, \, \bm{\mathsf{u}}_2, \, \bm{\mathsf{u}}_3, \ldots, \bm{\mathsf{u}}_n\}.$ Consider that $\mathcal{R}=\left(\mathcal{Y}_{\setminus \wr}\right)_{\mathcal{\Downarrow}\times\setminus}$ is NMV of alternatives, sequentially. The following decision matrix is constructed by the decision maker: $\begin{bmatrix} \chi_{11} & \chi_{12} & \cdots & \chi_{1n} \end{bmatrix}$ F_A^R $\Omega = 1$. The design realize exime some above to it is to the $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ in the decision maker assigns some entracted as $\frac{1}{2}$ trix and $\mathcal{Y}_{\setminus l} = \chi_{\setminus l} = \left(\Pi_{\chi_{\setminus l}}(\varkappa) e^{2\pi i (\alpha_{\chi_{\setminus l}}(\varkappa))}, \Xi_{\chi_{\setminus l}}(\varkappa) e^{2\pi i (\beta_{\chi_{\setminus l}}(\varkappa))} \right)$ denotes and $\sum_{n=1}^{n}$ ∞ = 1. The decision maker assigns some characteristics to $\mathcal{I} = 1, 2, 3, ..., n$, and $\sum_{\mathcal{I}=1}^{n} \mathcal{D}_{\mathcal{I}} = 1$. The decision maker assigns some characteristics to $\mathcal{E} = 1, 2, 3, ..., n$, and $\sum_{\mathcal{Z}=1}^{n} \mathcal{D}_{\mathcal{Z}} = 1$. The decision maker assigns some characteristics to select suitable alternatives like $\mathbf{u} = \{u_1, u_2, u_3, ..., u_n\}$. Consider that $\mathcal{R} = (\mathcal{Y}_{\setminus i})_{\mathcal{X} \setminus \setminus i$ ƺୀଵ *. Then, the IF Aczel–Alsina weighted averaging operator is given as:* $\frac{a}{a}$ the decision matrix and $\mathcal{Y}_{\setminus \mathcal{X}} = \chi_{\setminus \mathcal{X}} = \left(\prod_{\chi_{\setminus \mathcal{X}}} (\chi) e^{2\pi i (\alpha_{\chi_{\setminus \mathcal{X}}}(x))}, \Xi_{\chi_{\setminus \mathcal{X}}}(\chi) \right)$ he following decision tives, sequentially. The following decision t the decision matrix and $\mathcal{Y}_{\lambda} = \chi_{\lambda} = \left(\Pi_{\chi_{\lambda}}(\kappa)e^{2\pi i(\alpha_{\chi_{\lambda}}(\kappa))}, \Xi_{\chi_{\lambda}}(\kappa)e^{2\pi i(\beta_{\chi_{\lambda}}(\kappa))}\right)$ denotes lowing decision mat $\frac{1}{2}$ and phase terms and phase terms of $\frac{1}{2}$ and phase terms is constructed by the conditions, sequentially. The following decision matrix is constructed by the $\mathcal{L}_{\mathcal{D}}\left[\mathcal{L}_{\mathcal{D}}\right] \sim \mathcal{L}_{\mathcal{D}}\left[\mathcal{L}_{\mathcal{D}}\right]$ of $\mathcal{L}_{\mathcal{D}}\left[\mathcal{L}_{\mathcal{D}}\right]$ of the set of $\mathcal{L}_{\mathcal{D}}\left[\mathcal{L}_{\mathcal{D}}\right]$ ω_{ξ} = 1. The accision maker assigns some characteristics to there (CPyFVs), where $\Pi_{\Omega_{\mathbf{Z}}} \in [0,1]$ and $\Xi_{\Omega_{\mathbf{Z}}} \in [0,1]$ represent the MV and $\Xi_{\Omega_{\mathbf{Z}}}$ and $\Xi_{\Omega_{\mathbf{Z}}}$ and $\Xi_{\Omega_{\mathbf{Z}}}$ is a constructed by the $\varphi_1 \approx -[\varphi_1, \varphi_2, \varphi_3, \ldots, \varphi_n],$ such that $\varphi_2 \in [0, 1],$ 1. The accision maker assigns some characteristics to $\mathcal{L} = [\mathcal{L}_1, \mathcal{L}_2, \mathcal{L}_3, \dots, \mathcal{L}_n],$
 $\mathcal{L} = \{ \mathcal{L}_1, \mathcal{L}_2, \dots, \mathcal{L}_n \}$ μ alternative *assigns* some characteristics to $\begin{bmatrix} \infty_1, \infty_2, \infty_3, \ldots, \infty_n \end{bmatrix}$, such that $\infty_2 \subset [0,1]$, uccision maker assigns some characteristics to $\mathcal{L}_1 \times \mathcal{L}_2, \dots, \mathcal{L}_n$, such that $\mathcal{L}_2 \subset [0, 1]$, $\mathcal{Z} = 1, 2, 3, ..., n$, and $L_{\mathcal{Z}=1} \mathcal{Z}_{\mathcal{Z}} = 1$. The decision maker assigns some characteristics to $\mathcal{O}(\mathcal{O}(\mathcal{O}))$ FVs), where $\Pi_{\Omega_{\mathbf{Z}}} \in [0,1]$ and $\Xi_{\Omega_{\mathbf{Z}}} \in [0,1]$ represent the MV and \overline{a} NMV of alternatives, sequentially. The following decision matrix is constructed by the
decision makers \overline{a} and \overline{a} and \overline{a} and \overline{a} the CPyF numbers (CPyFVs), where $\Pi_{\Omega_{\overline{3}}} \in [0,1]$ and $\Xi_{\Omega_{\overline{3}}} \in [0,1]$ represent the MV and \overline{a} $\frac{1}{3}$ and PyFs. IFS. IFS. IFS. $\lceil \chi_{11} \ \chi_{12} \ \cdots \ \chi_{1n} \rceil$ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ $\lceil \chi_{11} \chi_{12} \cdots \chi_{1n} \rceil$

 \mathcal{A} operations under the system of CP_{yF} information. In Section 5, we developed several severa

$$
\mathcal{R} = (\mathcal{Y}_{\setminus i})_{\mathcal{J} \times \setminus} = \begin{bmatrix} \chi_{11} & \chi_{12} & \cdots & \chi_{1n} \\ \chi_{21} & \chi_{22} & \cdots & \chi_{2n} \\ \vdots & \vdots & & \ddots \\ \chi_{m1} & \chi_{m2} & \cdots & \chi_{mn} \end{bmatrix}
$$

 \mathbf{m} the above decision matrix, each 2-tuple $\lim_{\alpha \to \infty} \frac{\partial u}{\partial x} \left(\alpha \right)$ and $\lim_{\alpha \to \infty} \frac{\partial u}{\partial x} \left(\alpha \right)$ In the above decision matrix, each 2-tuple
 $\left(\begin{array}{c} \n\frac{\partial z}{\partial x} & \frac{\partial z}{\partial y} & \frac{\partial z}{\partial z} \\
\frac{\partial z}{\partial z} & \frac{\partial z}{\partial z} & \frac{\partial z}{\partial z} \\
\frac{\partial z}{\partial x} & \frac{\partial z}{\partial y} & \frac{\partial z}{\partial z} \\
\frac{\partial z}{\partial x} & \frac{\partial z}{\partial y} & \frac{\partial z}{\partial z} \\
\frac{\partial z}{\partial x} & \frac{\$ In the above decision matrix, each 2-tuple above decision matrix, each 2-tupie $\frac{4}{\pi i}$ (14) $\frac{2\pi i}{\pi}$ (14)) ൫, ,…,ῃ൯= ⨁ƺୀ 1,2, … , ῃ *and* [∑] ƺ = 1 ^ῃ $\lim_{\alpha \to 0}$ Second $\lim_{\alpha \to 0}$ Second $\lim_{\alpha \to 0}$

 $(\Pi_{\chi_{\mathcal{N}}}(x)e^{-\lambda(\mu_{\chi_{\mathcal{N}}}(x))}, \Xi_{\chi_{\mathcal{N}}}(x)e^{-\lambda(\mu_{\chi_{\mathcal{N}}}(x))}$, has two aspect $(T_{\lambda \lambda}(n)e^{i\lambda \lambda})^2$ / $\lambda \lambda \lambda$ / $n \lambda$ / $n \lambda$ as two aspects MV and NMV of Crypts
in the environment of CPyF information. To select a suitable alternative, we utilized our proposed methodologies of CPyFAAWA and CPyFAAWG operators the algorithm. \sim $\left(\frac{H_{\chi_{\chi}}(\varkappa)e^{-\frac{H_{\chi_{\chi}}(\varkappa)e^{-\frac{H_{\chi_{\chi}}(\varkappa \varkappa)}{\varkappa_{\chi}}}}{H_{\chi_{\chi}}(\varkappa)e^{-\frac{H_{\chi_{\chi}}(\varkappa \varkappa)}{\varkappa_{\chi}}}} \right)$, has two aspects MV and Alsina operations. We evaluated the given decision matrix by using the following steps of
the algorithm. $(\pi$ ($\sum_{\alpha} 2\pi i (\alpha_{\chi_{\lambda}}(\boldsymbol{\chi}))$ π ($\sum_{\alpha} 2\pi i (\beta_{\chi_{\lambda}}(\boldsymbol{\chi}))$) begins and inter-SMI and NMI at GCI $\left(\Pi_{\chi_{\setminus i}}(\boldsymbol{\varkappa})e^{2\pi i(\alpha_{\chi_{\setminus i}}(\boldsymbol{\varkappa}))}, \Xi_{\chi_{\setminus i}}(\boldsymbol{\varkappa})e^{2\pi i(\beta_{\chi_{\setminus i}}(\boldsymbol{\varkappa}))}\right)$, has two aspects MV and NMV of CPyFVs \mathbf{m} , and \mathbf{m} $\left(\frac{H_{\chi_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi}}(\mathbf{x})e^{-\frac{H_{\chi$ $\mathbb{E}\pi i(\alpha_{\chi_{\lambda}}(\boldsymbol{\mu}))$ = $(\lambda^2 \pi i(\beta_{\chi_{\lambda}}(\boldsymbol{\mu})))$ has two speaks \mathbf{M} and \mathbf{N} and \mathbf{M} and \mathbf{G} \mathbf{G} \mathbf{F} $\left(\Pi_{\chi_{\backslash i}}(\varkappa)e^{2\pi i(\alpha_{\chi_{\backslash i}}(\varkappa))}, \Xi_{\chi_{\backslash i}}(\varkappa)e^{2\pi i(\beta_{\chi_{\backslash i}}(\varkappa))}\right)$, has two aspects MV and NMV of CPyFVs $\frac{1}{\sqrt{2}}$ our proposed methodologies of CPyFAAWA and CPyFAAWG operators based on Aczel- $\sum_{\lambda} \left(\frac{\Delta A}{\lambda} \right) e^{i \lambda}$ in the environment of CPyF information. To select a suita $\left(\prod_{\chi_{\alpha}} (\chi) e^{2\pi i (\alpha_{\chi_{\alpha}} (\chi))} \right) E_{\chi_{\alpha}} (\chi) e^{2\pi i (\beta_{\chi_{\alpha}} (\chi))}$ has two aspects MV and NM \mathbb{R}^n utilizing the notions of \mathbb{R}^n , we explore fundam the environment of C_1 yF miorination. To select a suitable and interin the environment of CPyF information. To select a suitable alternative, we utilized our proposed methodologies of CPyFAAWA and CPyFAAWG operators based on Aczelsum, proposed memodologies of experimentation and experiments operators saled on
Alsina operations. We evaluated the given decision matrix by using the following s $B_{\chi} \equiv \chi_{\chi}(\mathbf{z})e^{-\mathbf{z} \cdot \mathbf{z}}$, has two aspects MV and NMV of CPyFVs **Definition 9.** *Let* ଵ = ൫ଵ()ଶగ൫ఈభ(త)൯ $\mathcal{L}_{\chi}(\mathcal{U})$ ϵ and χ is the notion of \mathcal{U} and TNM via TNM via \mathcal{U} of \mathcal{U} $\lim_{\lambda \to 0} 2\pi i(\beta_{\chi_{\lambda}}(\mathcal{H}))$ has two aspects MV and NMV of CP-EVs $\Pi_{\chi_{\setminus i}}(\varkappa)e^{-\lambda t(\mathbf{a}_{\chi_{\setminus i}}(\varkappa))}, \Xi_{\chi_{\setminus i}}(\varkappa)e^{-\lambda t(\mathbf{a}_{\chi_{\setminus i}}(\varkappa))}$, has two aspects MV and NMV of CPyFVs $\big(\mathbf{z}_{\chi_{\setminus i}}(\varkappa)e^{2\pi i(\beta_{\chi_{\setminus i}}(\varkappa))}\big)$, has $(\mathbf{z}_\lambda(\mathbf{z}))$, $\mathbb{E}_{\chi_{\lambda}}(\mathbf{z})e^{2\pi i(\beta_{\chi_{\lambda}}(\mathbf{z}))}$, has $\frac{1}{\sqrt{2}}$ utilizing the notions of $\frac{1}{\sqrt{2}}$ and $\frac{1}{\sqrt{2}}$ $m_{\rm g}$ also studies study the generalization of union $\frac{m_{\rm g}}{2}$ $\left(\frac{\partial \chi}{\partial \chi}(\mathbf{X})) \right)$, has two aspects N $\sum_{\mathcal{A}}^{n}$ matrix, each 2 tapic
 $\sum_{\mathcal{A}}^{2\pi i}$ $\sum_{\mathcal{A}}^{n}$ (κ) $\sum_{\mathcal{A}}^{2\pi i}$ (κ)), has two aspects MV a Alsina operations. We evaluated the given decision matrix by using the following steps of \mathcal{O} ts MV and NMV of CPyFV o aspects MV and NMV of CPyFVs , has two aspects MV and NMV of CPyFVs our proposed methodologies of CPyFAAWA and CPyFAAWG operators based on Aczel-
Alsina operations. We evaluated the given decision matrix by using the following steps of $\frac{1}{2}$ $□$ PyFAAVVA and CPyFAAVVG operators based on Aczeι–
the given decision matrix by using the following steps of $\left(\Pi_{\chi_{\setminus i}}(\varkappa)e^{2\pi i(\alpha_{\chi_{\setminus i}}(\varkappa))}, \Xi_{\chi_{\setminus i}}(\varkappa)e^{2\pi i(\beta_{\chi_{\setminus i}}(\tilde{\varkappa}))}\right)$, has two aspects MV and NMV of CPyFVs ൯ *be a CPyFV; then, the score func-*−
f 2 2 $\frac{1}{\sqrt{N}}$ or $\frac{1}{N}$ of $\frac{1}{N}$ of $\frac{1}{N}$ and $\frac{1}{N}$ and $\frac{1}{N}$ and $\frac{1}{N}$ and $\frac{1}{N}$ and $\frac{1}{N}$ and $\frac{1}{N}$ Alsina operations. We evaluated the given decision matrix by using the following steps of $\mathbb{E}_{\alpha}(\varkappa) e^{2\pi i (\beta_{\chi_{\backslash l}}(\varkappa))}$, has two aspects MV and NMV of CPyFVs $\frac{1}{\sqrt{2}}$ of $\frac{1}{\sqrt{2}}$ and $\frac{1}{\sqrt{2}}$ and $\frac{1}{\sqrt{2}}$ and $\frac{1}{\sqrt{2}}$ and $\frac{1}{\sqrt{2}}$ and $\frac{1}{\sqrt{2}}$ $\left(\Pi_{\chi_{\backslash i}}(\varkappa)e^{2\pi i(\alpha_{\chi_{\backslash i}}(\varkappa))}, \Xi_{\chi_{\backslash i}}(\varkappa)e^{2\pi i(\beta_{\chi_{\backslash i}}(\varkappa))}\right)$, has two aspects MV and NMV of CPyFVs

$\mathcal{A}(\mathcal{A})$, $\mathcal{A}(\mathcal{A})$, $\mathcal{A}(\mathcal{A})$ ൯ *be any two CPyFVs. The extension of intersection and the u*.i. Algorithim 7.1. Algorithim *union of the given CPyFVs are defined as follows:* ൯ *be any two CPyFVs. The extension of intersection and the* 71 Al \overline{a} 7.1. Algorithim \overline{z} 1 Also is the Acceler some operations of the Ac \overline{z} –Alsina-like Aczel–Alsina-like Aczel–Alsina-like Aczel–Alsina-like Aczel–Alsina-like Aczel–Alsina-like Aczel–Alsina-like Aczel–Alsina-like Aczel–Alsina-like $\sum_{i=1}^{n}$ $(1, 2, 4, 1, 1)$ $\mathfrak m$

Step 1: Collect the information in t
using the decision maker. Step 1: Collect the information in the form
using the decision maker. Step 1: Collect the information in the form of in the form of CPyFVs ε *where* ˘ () ∈ [−1, 1] *and* ˘ () ∈ [0, 1]*. union of the given CPyFVs are defined as follows: i*. Collect the information in the form of CPyFVs and display ig the decision maker. the form of CPyFVs and display in a decistion-Step 1: Collect the information in the form of CPyFVs and display in a decision mat
using the decision maker. α \mathbf{r} , \mathbf{r} *union of the given CPyFVs are defined as follows:* $\frac{1}{\sqrt{1 + \frac{1}{\sqrt{1 +$ *union of the given CPyFVs are defined as follows:* formation in the form of CPyFVs and display in a decision
ker. sum, product, scalar multiplication and power role. Then, we have: , ଵ()ଶగ൫ఉభ(త)൯ ൯ *and* ଶ = 7.1. Algorithm
Step 1: Collect the information in the form of CPyFVs and display in a decision matrix $\frac{1}{1}$ using the decision maker. \overline{a} α

The set of attributes is of two types
attributes. A normalized matrix of a decision
 $T' = (Y'_{\text{max}})$ is the sep obtain them in the $\mathcal{R}' = (\mathcal{Y}_{n,o}')_{m \times n}$. We can obtain them in the followi using the decision maker.
Step 2: The set of attributes is of two types: beneficial factor attributes and cost factor Step 2. The set of attributes is of two types. Denencial factor attributes. A normalized matrix of a decision matrix $\mathcal{R} = (\mathcal{Y}_{n_o})$
 $\mathcal{P}' = (\mathcal{Y}'_n)$. We see obtain them in the following way: V') *We can obtain them if* $(\mathcal{Y}_{n,o}')_{m \times n}$. We can obtain them in the following way: *ii.* ଵ ∩Ŧ,Ṥ ଶ = ൝൭ step 2. The set of attributes is of two types. Defiendal factor attributes and cost factor
attributes. A normalized matrix of a decision matrix $\mathcal{R} = (\mathcal{Y}_{n\phi})_{m \times n}$ is denoted by the
 $\mathcal{R}' = (\mathcal{Y}')$ We can obtain the *If Then in the following way: ii. If* ˘(ଵ) = ˘(ଶ), *then we need to find out the accuracy function:* using the decision maker.
Step 2: The set of attributes is of two types: beneficial factor attributes and cost fa attributes. *A* hormanzed matrix of a decision matrix $\kappa = (\mathcal{Y}_{n\sigma})_{m \times n}$ is denoted $\mathcal{R}' = (\mathcal{Y}'_{n\sigma})_{m \times n}$. We can obtain them in the following way: t of attributes is of two types: bene attributes. A hormalized matrix of a decision matrix $\kappa = (\mathcal{Y}_{n\phi})_{m \times n}$ is de
 $\mathcal{R}' = (\mathcal{Y}_{n\phi}')_{m \times n}$. We can obtain them in the following way: asing the decision maker.
Step 2: The set of attributes is of two types: beneficial factor attributes and co Step 2: The set of attributes is of two types: beneficial factor attributes a f attributes is of two types: beneficial factor attributes and cost factor *u*_P_Z. The get of authories is of two *malized matrix of a decision matrix* $R =$ \sim $\frac{1}{\sqrt{1-\frac{1}{\sqrt{$ *union of a decision matrix* $\mathcal{R} = (\mathcal{Y}_{n} | \mathcal{P}_{n \times n})$ *is denoted by the* α *in the following way*: Step 2: The set of attributes is of two types: beneficial factor attributes and cost factor
attributes. A normalized matrix of a decision matrix $\mathcal{R} = (\mathcal{Y}_{n\sigma})_{m \times n}$ is denoted by the the utes is of two types: beneficial factor attributes and cost factor $\frac{1}{\sqrt{2}}$ $\mathcal{R}' = (\mathcal{Y}_{n,o}')_{m \times n}$. We can obtain them in the following way:
 $\mathcal{Y}_{n,o}$ for benefit attributes d matrix of a decision matrix $\mathcal{R} = (\mathcal{Y}_{n_0})_{m \times n}$ is denoted by the attributes. A normalized matrix of a decision matrix $\mathcal{R} = (\mathcal{Y}_{n\theta})_{m \times n}$ is denoted by the $\mathcal{R}' = (\mathcal{Y}'_{n\theta})_{m \times n}$ Step 2: The set of attributes is of two types: beneficial factor attributes and cost factor

$$
\mathcal{Y}'_{n\,o} = \begin{vmatrix} \mathcal{Y}_{n\,o} & \text{for benefit attributes} \\ (\mathcal{Y}_{n\,o})' & \text{for cost attributes} \end{vmatrix}
$$

 $\left(\frac{\sigma_{RQ}}{RQ}\right)_{m \times n}$
 $\left(\frac{\sigma_{RQ}}{RQ}\right)_{m \times n}$
 $\left(\frac{\sigma_{RQ}}{RQ}\right)_{m \times n}$ $\left(\frac{\Delta_{\chi_{n_o}}(t)}{\Delta_{\chi_{n_o}}(t)}\right)$ or *ing the complement of the 2-tuple* $(\Pi_{\chi_{n\phi}}(\varkappa))$ the complement of the 2-tuple $\left(I_{\chi_{n\sigma}}(\chi) e^{-\langle \chi_{n\sigma}, \chi \rangle} \right)$. There is
no need to transform the decision matrix into a normalized matrix if all attributes are of We can obtain a normalized matrix \mathcal{R}' = normalized matrix $\mathcal{R}' = (\mathcal{Y}_{n,o})_{m \times n} =$ $\left(\alpha \right)^{n} e^{2\pi i (\beta_{Xn\sigma}(\mathbf{x}))} \cdot \prod_{\mathbf{x}} (\mathbf{x}) e^{2\pi i (\alpha_{Xn\sigma}(\mathbf{x}))} \cdot \text{ of a decision matrix } \mathcal{R} = (\mathcal{Y}_{n\sigma})_{n\times n}$ us*i*. *niver i i i a*nd *s* i *a*_n *a*nd *s* i *a*_n *a*nd *s* i *a*_n *a*_n *a*_n *a*_n *a*_n *a*_n *a*_n *i* complement of the 2-tuple $\left(\prod_{\chi_{n,o}} (\varkappa) e^{2\pi i (\alpha_{\chi_{n,o}}(\varkappa))}, \Xi_{\chi_{n,o}} (\varkappa) \right)$ $\left(\frac{\partial}{\partial t} \mathbf{h}_{\alpha}(t) \right)$ or a decision matrix \mathbf{K} $\hat{a} = \hat{a}$ $\left(\Xi_{\chi_{n\circ}}(\varkappa)e^{2\pi i(\beta_{\chi_{n\circ}}(\varkappa))},\Pi_{\chi_{n\circ}}(\varkappa)e^{2\pi i(\alpha_{\chi_{n\circ}}(\varkappa))}\right)$ of a decision matrix $\mathcal{R}=(\mathcal{Y}_{n\circ})_{m\times n}$ us*i*. *j* and *i* and *i* and *s* and *i* and ι -tuple $\iint_{\chi_{n_o}} (\varkappa) e^{2\pi i (\alpha \chi_{n_o}(\varkappa))}$, $\Xi_{\chi_{n_o}} (\varkappa) e^{2\pi i (\rho \chi_{n_o}(\varkappa))}$ ized matrix \mathcal{R}' = $(\mathcal{Y}'_{n\circ})_{m\times n}$ = $\left(\begin{matrix} \mathbf{r} & \mathbf{r} & \mathbf{r} \end{matrix}\right)$ \mathbf{r} and \mathbf{r} and \mathbf{r} and \mathbf{r} and \mathbf{r} $\left(\begin{array}{ccc} \n \frac{1}{\lambda} & \lambda & \lambda & \lambda \\ \n \frac{1}{\lambda} & \lambda & \lambda & \lambda \end{array} \right)$. There is different kinds and there is no involved cost-type attribute. $\mathcal{L}_{\mathcal{W}}$ and $\mathcal{L}_{\mathcal{W}}$ study the generalization of union and intering the complement of the 2-tuple $(\Pi_{\chi_{n,e}}(\kappa)e^{2\pi i(\alpha_{\chi_{n,e}}(\kappa))}, \Xi_{\chi_{n,e}}(\kappa)e^{2\pi i(\beta_{\chi_{n,e}}(\kappa))})$. There is We can obtain a normalized matrix $\mathcal{R}' = (\mathcal{Y}_{n,o})_m$ is $(\varphi_{ho})_{m \times n}$
 $(\varphi_{ho})_{m \times n}$ us-
 $(\varphi_{ho})_{m \times n}$ us-
 $(\varphi_{ho})_{m \times n}$ us $t^{2\pi i(\alpha_{\chi_{n,\sigma}}(\boldsymbol{\varkappa}))}$ of a decision matrix $\mathcal{R} = (\mathcal{Y}_{n,\sigma})_{m \times n}$ us-, α , α $\left(\nabla \cdot (\Delta^2 \pi i (\beta_{\text{X}_{\text{max}}}(\boldsymbol{\gamma})) \mathbf{\Gamma} - (\Delta^2 \pi i (\alpha_{\text{X}_{\text{max}}}(\boldsymbol{\gamma})))\right)$ $\left(\Xi_{\chi_{n\rho}}(\varkappa)e^{2\pi i(\beta_{\chi_{n\rho}}(\varkappa))},\Pi_{\chi_{n\rho}}(\varkappa)e^{2\pi i(\alpha_{\chi_{n\rho}}(\varkappa))}\right)$ of a decision matrix We can obtain a normalized matrix $\mathcal{R}' = (\mathcal{Y}'_{n\sigma})_{m \times n} =$
 $\left(\Xi_{\chi_{n\sigma}}(\varkappa)e^{2\pi i(\beta_{\chi_{n\sigma}}(\varkappa))}, \Pi_{\chi_{n\sigma}}(\varkappa)e^{2\pi i(\alpha_{\chi_{n\sigma}}(\varkappa))}\right)$ of a decision matrix $\mathcal{R} = (\mathcal{Y}_{n\sigma})_{m \times n}$ us- $\frac{1}{2}$ N of phase term T term T term T term T term T ing the complement of the 2-tuple $\left(\prod_{\chi_{n,c}} (\mathcal{H})e^{2\pi i(\alpha_{\chi_{n,c}}(\mathcal{H}))}, \Xi_{\chi_{n,c}}(\mathcal{H})e^{2\pi i(\beta_{\chi_{n,c}}(\mathcal{H}))}\right)$. There is $\frac{1}{3}$ is

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Step 3: Investigate the given information $R = (\mathcal{Y}_{n,o})_{m \times n}$ of the alternatives in the form of a CPyF system, using proposed AOs of CPyFAAWA and CPyFAAWG operators. IFS and PyFs. Os of CPyFAAWA and CPyFAAWG operators. a CPyF system, using proposed AOs of CPyFAAWA and CPyFAAWG operators. 3: Investigate the given information $\mathcal{K} = (\mathcal{Y}_{n\sigma})_{m \times n}$ of the alternatives in the \mathcal{A} To find the feasibility and reliability of our invented methodologies, we explore defined methodologies, we explore \mathcal{A} Step 3: Investigate the given information $\mathcal{R} = (\mathcal{Y}_{n,o})_{m \times n}$ of the alternatives in the form of fundamental operational laws of \mathcal{L} a CPvF system, using proposed AOs of CPvFAAWA and CPvFAAWG operators. fundamental operational laws of Aczel–Alsina TNM and TCNM. $\mathcal{L}_{\mathcal{A}}$ a CPvF system, using proposed AOs of CPyFAAWA and CPyFAAWG operators. generalized the basic idea of Aczel–Alsina TNM and TCNM, with their operational \overline{a} a $CPvF$ system, using proposed AOs of $CPvFAAWA$ and $CPvFAAWG$ operators \overline{a} innovative concepts of \overline{a} 1.25 , 1.3 , 1.3 , 1.3 , 1.3 , 1.4 , 1.3 , 1.4 , 1.4 , 1.4 , 1.5 , 1.4 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , 1.5 , $1.$ ƺୀଵ *. Then, the CPyFAAWA operator*

 $=$ $\frac{1}{\sqrt{2}}$

generalized the basic idea of $\mathcal{A}_\mathcal{A}$ and TNM and TNM and TNM and TNM and TCNM, with the interpretational $\mathcal{A}_\mathcal{A}$

(3) Furthermore, we also established the CP/FAAWAG operator based on the defined on th

 $=$ $\frac{1}{\sqrt{2}}$

mation than F_S and F_S and F_S and F_S and F_S in mind the significance of C_F

(3) Furthermore, we also established the CP/FAAWAG operator based on the defined on th

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laws and illustrative examples.

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Definition 11. *Consider* ƺ = ቆఆƺ

 $\frac{1}{\sqrt{2}}$

()

CPyFAAWA
$$
(y'_{n1}, y'_{n2}, y'_{n3}, ..., y'_{n6}) = \frac{1}{3}
$$

\n
$$
\sqrt{\frac{1}{1 - e^{-\left(\sum_{i=1}^{n} 2_{i} \left(-\ln\left(1 - \Pi_{i2}^{2}\right)\right)^{2}\right)^{\frac{1}{2}}}} - \frac{1}{2\pi i} \sqrt{\frac{1}{1 - e^{-\left(\sum_{i=1}^{n} 2_{i} \left(-\ln\left(1 - \Pi_{i2}^{2}\right)\right)^{2}\right)^{\frac{1}{2}}}} - \frac{1}{e^{-\left(\sum_{i=1}^{n} 2_{i} \left(-\ln\left(\ln\left(1 - \frac{1}{1 - \frac{1
$$

Step 4: After evaluation of the given information by the decision maker, we find
values by using the consequences of CPvFA AWA and CPvFA AWG operators Step 4: After evaluation of the given information by the decision maker, we find the score
values by using the consequences of CPyFAAWA and CPyFAAWG operators.
Step 5: To find out suitable alternative, we have to perform t the score values obtained by the previous step. itep 5: To find out suitable alternative, we have to perform the task of ordering and ranking
he score values obtained by the previous step \overline{r} score values obtained by the previous step. Step 4: After evaluation of the given information by the decision maker, we find the score

Step 4: After evaluation of the given information by the decision maker, we find the score D **C** P *3.* **10** and 0*a*t *suitable attentions, we not* the score values obtained by the previous step. Ω and the set of the contract ϵ of ϵ of α is ϵ of α is α of α $\frac{1}{\sqrt{2}}$ and $\frac{1}{\sqrt{2}}$ ൯ *be any two CPyFVs. The extension of intersection and the* Step 5: To find out suitable alternative, we have to perform the task of ordering and ranking
the score values obtained by the previous step. \mathbf{r} the score values obtained by the previous step. \mathcal{S} multiplier role. Then, we have role is not power role. Then, we have \mathcal{S} $\frac{1}{\sqrt{2}}$ contracted some operations of the Acceler–Alsina-like Acceler–Alsina-like Accel–Alsina-like Accel–Alsina-like Accel–Alsina-like Accel–Alsina-like Accel–Alsina-like Accel–Alsina-like Accel–Alsina-like Accel–Al s_{source} constants to which s_{y} are producted step. have obtained by the previous step. \mathcal{S} and power role. Then, we have role to \mathcal{S} $=$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ \overline{O} \mathcal{L} values by using the consequences of CryptAAWA and CryptAAWG operators.
Step 5: To find out suitable alternative, we have to perform the task of ordering and ranking
the scene values obtained by the previous step. **Dep 5.** To find out suitable afternative *with weight variable vectors of different vectors of equal that is equal that if* $\frac{1}{2}$ the score values obtained by the previous step. $\frac{1}{\sqrt{2}}$ and $\frac{1}{\sqrt{2}}$ of $\frac{1}{\sqrt{2}}$ in $\frac{1}{\sqrt{2}}$ ative, we have to perform Step 5: To find out suitable alternative, we have to perform the task of ordering and ranking we studied the advantages and verified our invented $\mathbf{F}_{\mathbf{r}}$ the score values obtained by the previous step. we studied the advantages and verified our invented $\frac{1}{\sqrt{2}}$ the score values obtained by the previous step. \mathcal{L} Non-empty set \mathcal{L} ency 4. After evaluation of the given information by the decision maker, we find the \mathcal{A} . A fixed the concepts of section 3, we say the concepts of the different theorem existing and fixed the different Step 4: After evaluation of the given information by the decision maker, we find the score

7.2. Exmaple *union of the given CPyFVs are defined as follows:* r manle \mathbf{a} $aple$ $\sum_{i=1}^{\infty}$ Exmande $maple$ \overline{P} *nle* $\mathbf{F} = \mathbf{F} \mathbf{F} \mathbf{F} \mathbf{F}$ t_{t} . Exmaple \mathbf{F} a I t_{ex} to find the reliability of our invention $\frac{1}{\sqrt{2}}$

i. ⊆ *Entimple*
A multinational company want to fill their vacar $\frac{1}{4}$ $\frac{1}{5}$ be the set of fixe different $\bf f$, β) be the set of five different applicant *A* multinational company want to fill their vacant post of a general manage
π = ∞ (1 ∂ ∂ 4 ⋅ 下) let the set of fire different englisede. The decision make at of five different applicants x_n ; $n(1, 2, 5, 4, 3)$ be the set of five different applicants. The dependent A multinational company want to fill their vacant post of a general manage **Definition** 9. *Let and* α and *and* **and** *g* and *g* and *g* and *g* and *g* and *g* A multinational company want to fill their vacant post of a general manager. Co **Definition 9.** *Let* ଵ = ൫ଵ()ଶగ൫ఈభ(త)൯ , ଵ()ଶగ൫ఉభ(త)൯ ൯ *and* ଶ = $\frac{1}{2}$ d $\frac{1}{2}$ be the set of $\frac{1}{2}$ five different evaluation $\frac{1}{2}$ d $\frac{1}{2}$ consider ൯ *be any two CPyFVs. The extension of intersection and the* A multinational company want to fill their vacant post of a general manager. Consider x_n ; $n(1, 2, 3, 4, 5)$ be the set of five different applicants. The decision maker wants to nt to fill their vacant post of a general manager. Co *where* ௸() ∈ [0, 1] *and* ௸() ∈ [0, 1] *represents amplitude terms and phase terms of MV, respectively. Similarly wall to fin their vacally post of a general manager. Consider* 7.2. *Exmaple*
A multinational company want to fill their vacant post of a general manager. Consider

complete the selection process according to the following attributes. *J*₁ represents the qualification of the applicants, J_2 represents the experience of the applicants, J_3 represents the behavior and character of the applicants and J_4 represents the personality of the applicants. The decision maker explored the selection process by using the weight vector $\mathcal{D} = (0.30, 0.25, 0.35, 0.10)$ for the applicants. The decision maker presented information in the form of CPyFVs and depicted in the decision matrix of Table [2.](#page-29-0)

	J_1	J ₂				
x_1	$(0.55e^{2i\pi(0.29)}, 0.46e^{2i\pi(0.71)})$	$(0.46e^{2i\pi(0.67)}, 0.45e^{2i\pi(0.09)})$				
x_2	$(0.46e^{2i\pi(0.33)}, 0.09e^{2i\pi(0.41)})$	$(0.17e^{2i\pi(0.27)}, 0.45e^{2i\pi(0.61)})$				
x_3	$(0.45e^{2i\pi(0.61)}, 0.88e^{2i\pi(0.28)})$	$(0.67e^{2i\pi(0.45)}, 0.62e^{2i\pi(0.45)})$				
x_4	$(0.36e^{2i\pi(0.71)}, 0.46e^{2i\pi(0.67)})$	$(0.36e^{2i\pi(0.68)}, 0.36e^{2i\pi(0.56)})$				
x_5	$\left(0.48e^{2i\pi(0.67)}, 0.19e^{2i\pi(0.37)}\right)$	$(0.56e^{2i\pi(0.67)}, 0.19e^{2i\pi(0.37)})$				
	$\sqrt{3}$	J_4				
x_1	$(082e^{2i\pi(0.27)}, 0.43e^{2i\pi(0.61)})$	$(0.56e^{2i\pi(0.81)}, 0.23e^{2i\pi(0.09)})$				
x_2	$\left(0.39e^{2i\pi(0.36)}, 0.35e^{2i\pi(0.55)}\right)$	$(0.19e^{2i\pi(0.46)}, 0.53e^{2i\pi(0.47)})$				
x_3	$(0.55e^{2i\pi(0.78)}, 0.18e^{2i\pi(0.28)})$	$\left(0.49e^{2i\pi(0.47)}, 0.29e^{2i\pi(0.38)}\right)$				
x_4	$(0.47e^{2i\pi(0.58)}, 0.42e^{2i\pi(0.38)})$	$(0.8e^{2i\pi(0.48)}, 0.53e^{2i\pi(0.45)})$				
x_5	$(0.57e^{2i\pi(0.61)}, 0.38e^{2i\pi(0.63)})$	$(0.47e^{2i\pi(0.57)}, 0.47e^{2i\pi(0.48)})$				

Table 2. Decision matrix using the information of the CPyFVs.

7.3. Method of the Selection Process

The decision maker evaluates given information by using our proposed methodologies based on the following steps in the algorithm

Step 1: Collection of information in the form of CPyFVs and displayed in Table [2](#page-29-0) by the decision maker.

Step 2: In this step, perform the transformation of the decision matrix into the normalizer matrix. There is no need to perform such a task because there is no cost factor involved in the set of attributes/characteristics for the section model.

Step 3: Investigate the given information by using proposed AOs of CPyFAAWA and CPyFAAWG operators. The consequences of such as are displayed in the following Table [3.](#page-30-0) Step 4: Evaluate score values by using the consequences of the CPyFAAWA and CPy-FAAWG operators, using Definition 11 and the Definition14. The results shown in Table [4.](#page-30-1) Step 5: To analyse suitable applicants, we arranged score values and performed ranking and ordering of the score values in Table [4.](#page-30-1) We can see that x_1 and x_5 are suitable applicants obtained by CPyFAAWA and CPyFAAWG operators. We also explored obtained score values in the following graphical representation of Figure [2.](#page-30-2)

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Table 3. Consequences of CPyFAAWA and CPyFAAWG operators. \mathcal{C} . Consequences of Cr y *rn was and Cr* y *rn wo* operators.

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Table 4. Ranking and ordering of the score values.

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Figure 2. The score values of the CPyFAAWA and CPyFAAWG operators.

7.4. Influence Study 7.4. Influence Study geometric (CPyFAAOWG) operators with some basic properties. established an illustrative example to select a suitable candidate for a vacant post at a multinational company. (5) By utilizing our invented approaches, we solved an MADM technique. We established an illustrative example to select a suitable candidate for a vacant post at α

We deploy several parameters Y inside the approaches we have mentioned to characterize the alternatives and to demonstrate the influence of various parameter 'Y magnitudes. Tables 5 and 6 report the ordering consequences of the CPyFAAWA and CPyFAAWG operator-based option selections. It is obvious that as the magnitude `Y for the CPyFAAWA and CPyFAAWG operators increases; the score values of the alternatives continue rising, but the best option stays the same. This suggests that the provided strategies have the property of isotonicity and that the decision makers can choose the most appropriate value ω_{S} section 3, we see that the concepts of some existing ω_{S} marres seem to be consistent, even when the value varies illustrating the stability of the recommended operators. based on their preferences. Furthermore, we see that the results generated by the alter-
setting computed be contituated was advantaged to relax major throughout the day contribution natives seem to be consistent, even when the value varies throughout the demonstration,
illustration the at hilling file account and demonstration working in Statement of the recommended operations.

 \sim Missimily under the system of the system of CP-F \sim Missimilar \sim Missimilar systems. In Section 5, we include the system of CP-F \sim Missimilar systems. In Section 4, we include the system of \sim Missimilar sy ϵ of CPyFAAWA operators, and some special cases are also present here. In Section 2.1, and 4. association of Γ geometrical representation of Figures [3](#page-31-2) and [4,](#page-32-1) respectively. $\frac{1}{\sqrt{2}}$ is the consequence of CP in $\sqrt{2}}$ in $\frac{1}{\sqrt{2}}$ in $\frac{1}{\sqrt{$ We also illustrate the consequences of CPyFAAWA and CPyFAAWG operators as the consequences of CPyFAAWA and CPyFAAWG operators as the

fundamental operational laws of Aczel–Alsina TNM and TCNM.

CPyFSs. The main contributions of this article are in the following forms:

hybrid weighted (CPyFAAHW), average (CPyFAAHWA) and CPyFAAHW

 \mathcal{L}_{max} is the basic idea of \mathcal{L}_{max}

(3) Furthermore, we also established the CP/FAAWAG operator based on the defined the defined on the d

 \mathbb{R}^{n+1} and \mathbb{R}^{n+1} and \mathbb{R}^{n+1}

	$S(x_1)$	$S(x_2)$	$S(x_3)$	$S(x_4)$	$S(x_5)$	Ordering and Ranking
$Y = 1$	0.2169	-0.0383	0.2275	0.1062	0.2082	$x_3 \succ x_1 \succ x_5 \succ x_4 \succ x_2$
$\Upsilon = 3$	0.3942	0.0097	0.3304	0.2130	0.2347	$x_1 \succ x_3 \succ x_5 \succ x_4 \succ x_2$
$\Upsilon = 11$	0.5562	0.0771	0.4259	0.3534	0.2733	$x_1 \succ x_3 \succ x_4 \succ x_5 \succ x_2$
$\Upsilon = 25$	0.6004	0.1024	0.4524	0.3967	0.2874	$x_1 \succ x_3 \succ x_4 \succ x_5 \succ x_2$
$\Upsilon = 75$	0.6228	0.1164	0.4663	0.4222	0.2957	$x_1 \succ x_3 \succ x_4 \succ x_5 \succ x_2$
$Y = 105$	0.6260	0.1184	0.4683	0.4259	0.2970	$x_1 \succ x_3 \succ x_4 \succ x_5 \succ x_2$
$\Upsilon = 155$	0.6285	0.1201	0.4699	0.4288	0.2981	$x_1 \succ x_3 \succ x_4 \succ x_5 \succ x_2$
$Y = 201$	0.6297	0.1209	0.4707	0.4303	0.2986	$x_1 \succ x_3 \succ x_4 \succ x_5 \succ x_2$
$Y = 265$	0.6307	0.1215	0.4713	0.4314	0.2991	$x_1 \succ x_3 \succ x_4 \succ x_5 \succ x_2$
$Y = 313$	0.6311	0.1218	0.4716	0.4320	0.2993	$x_1 \succ x_3 \succ x_4 \succ x_5 \succ x_2$
$\Upsilon = 395$	0.6317	0.1222	0.4719	0.4326	0.2995	$x_1 \succ x_3 \succ x_4 \succ x_5 \succ x_2$
$\Upsilon = 475$	0.6320	0.1224	0.4722	0.4330	0.2997	$x_1 \succ x_3 \succ x_4 \succ x_5 \succ x_2$

Table 5. The ordering and ranking of the obtained consequences of CPyFAAWA operators. Table 5. The ordering and ran $\overline{}$ Table 5. The ordering and ran

Table 6. The ordering and ran ϵ Table 1: C-Type special cases are also present here. In Sec. pres tion 6, the ordering and in Table 6. The ordering and ra $F_{\rm eff}$ is section 1, we though a line \sim 1, we though a line \sim 1, we though a line of our research all previous history of our research all previous history of our research all properties \sim 1, we have the sectio radic of the ordering and fu Table 6. The ordering and ranking of the obtained consequences of CPyFAAWG operators. $\mathbb{R}^{\mathcal{A}}$ and $\mathbb{R}^{\mathcal{A}}$ and $\mathbb{R}^{\mathcal{A}}$ havie d. The ordering and Tar Table 6. The ordering and ran Table 6. The ordering and ra $Y = 475$ 0.6320 0.
Table 6. The ordering and ra α regions and ranking of the obtained consequences of $C_{\rm F}$ and $C_{\rm F}$ operators $\begin{array}{cccccccccccc}\n\mathbf{0} & \mathbf{0} & \mathbf{0} & \mathbf{1} & \mathbf{0}\n\end{array}$

	\cdot	ω				$\overline{}$
	$S(x_1)$	$S(x_2)$	$S(x_3)$	$S(x_4)$	$S(x_5)$	Ordering and Ranking
$\Upsilon = 1$	0.0089	-0.0982	0.0436	0.0485	0.1721	$x_5 \succ x_4 \succ x_3 \succ x_1 \succ x_2$
$\Upsilon = 3$	-0.0904	-0.1481	-0.1015	-0.0067	0.1176	$x_5 \succ x_4 \succ x_1 \succ x_3 \succ x_2$
$\Upsilon = 11$	-0.1653	-0.2190	-0.2223	-0.1033	0.0403	$x_5 \succ x_4 \succ x_1 \succ x_2 \succ x_2$
$\Upsilon = 25$	-0.1911	-0.2487	-0.2566	-0.1474	0.0043	$x_5 \succ x_4 \succ x_1 \succ x_2 \succ x_3$
$\Upsilon = 75$	-0.2070	-0.2666	-0.2760	-0.1724	-0.0208	$x_5 \succ x_4 \succ x_1 \succ x_2 \succ x_3$
$\Upsilon = 105$	-0.2094	-0.2691	-0.2788	-0.1760	-0.0249	$x_5 \succ x_4 \succ x_1 \succ x_2 \succ x_3$
$\Upsilon = 155$	-0.2114	-0.2712	-0.2811	-0.1788	-0.0284	$x_5 \succ x_4 \succ x_1 \succ x_2 \succ x_3$
$Y = 201$	-0.2124	-0.2722	-0.2822	-0.1802	-0.0301	$x_5 \succ x_4 \succ x_1 \succ x_2 \succ x_3$
$\Upsilon = 265$	-0.2131	-0.2730	-0.2831	-0.1814	-0.0315	$x_5 \succ x_4 \succ x_1 \succ x_2 \succ x_3$
$Y = 313$	-0.2135	-0.2734	-0.2836	-0.1819	-0.0322	$x_5 \succ x_4 \succ x_1 \succ x_2 \succ x_3$
$Y = 395$	-0.2140	-0.2739	-0.2841	-0.1825	-0.0330	$x_5 \succ x_4 \succ x_1 \succ x_2 \succ x_3$
$\Upsilon = 475$	-0.2142	-0.2742	-0.2844	-0.1829	-0.0335	$x_5 \succ x_4 \succ x_1 \succ x_2 \succ x_3$

Figure 3. The results of CPyFAAWA operators for 'Y.

Figure 4. The results of CPyFAAWG operators for Y.

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8. Comparative Study. Proposed and *S***. Comparative Study.** α Comparing α and β

To classify the validity and feasibility of our proposed methodologies, we applied sev- α such existing Δ Os to demonstrate information given by the decision m eral existing AOs to demonstrate information given by the decision makers and displayed
∴ T 11.2.11.4 € 2005 F 11.11.11.11.12.12.2005 F 11.11.12.2005 in Table [2:](#page-29-0) the AOs of CPyF-weighted average, (CPyFWA) and CPyF-weighted geometric (CPyFWG) operators by Mahmood et al. [\[25\]](#page-35-5), AOs of CPyF Dombi-weighted average and CPyF Dombi-weighted operators by Akram et al. [\[59\]](#page-36-8), AOs of PyF Aczel–Alsina-weighted $\frac{1}{2}$ α verage (1 y α α) and 1 y α Aczel–Alshid weighted geometric (1 Hussain et al. [\[58\]](#page-36-7), AOs of interval-valued CPyFWA (IVCPyFWA) and interval-valued CPyFWG (IVCPyFWG) operators by Ali et al. [\[60\]](#page-36-9), AOs of PyF-weighted average (PyFWA) and PyF-weighted geometric (PyFWG) operators by Rahman et al. [\[24\]](#page-35-4), and AOs of PyF $\frac{1}{2}$ Einstein weighted $\frac{1}{2}$ \frac $\frac{1}{2}$ = $\frac{1}{2}$ = $\frac{1}{2}$ $\frac{1}{2$ **8. Co[mp](#page-32-2)arative Study** Table 7. average (PyFAAWA) and PyF Aczel–Alsina-weighted geometric (PyFAAWG) given by Einstein-weighted (PyFEW) average (PyFEW) and geometric (PyFEWG) operators by Garg, 2016 [\[61\]](#page-36-10). The results of aforementioned existing AOs operators are shown in the following $Table 7$

To classify the validity and feasibility of our proposed methodologies, we applied Table 7. The results of existing AOs and our proposed methodologies.

> Furthermore, we also illustrate the results of existing AOs as a graphical representation in Figure [5,](#page-33-1) which is shown above Table [7.](#page-32-2)

Figure 5. The results of the comparative analysis. **Figure 5.** The results of the comparative analysis.

9. Conclusions 9. Conclusions

Decision-making problems are widespread throughout multiple sectors, including Decision-making problems are widespread throughout multiple sectors, including marketing, business and technology. There are a lot of difficulties that decision makers face during the aggregation process due to insufficient information. We used an innovative concept of CPyFSs and developed a list of new AOs based on Aczel–Alsina operations: a CPyFS that has extensive information, including two aspects of MV and NMV in the form of amplitude and phase terms. The main purposes of this article are as follows. marketing, business and technology. There are a lot of difficulties that decision makers *Symmetry* **2023**, *14*, x FOR PEER REVIEW 4 of 35

- (1) The main contribution of this article is to present some new AOs and fundamental operational laws of CPyFSs. We generalized the basic idea of Aczel-Alsina TNM and TCNM with operational laws and illustrative examples.
- (2) By using the operational laws of Aczel–Alsina TNM and TCNM, we developed a list of new AOs, like the CPyFAAWA operator, and verified invented AOs with some
deserved proporties deserved properties. deserved properties.
	- (3) Furthermore, we also established the CPyFAAWAG operator based on the defined fundamental operational laws of Aczel-Alsina TNM and TCNM.
- (4) To find the feasibility and reliability of our invented methodologies, we explored some special cases like CPyFAA-ordered weighted (CPyFAAOW), average (CPyFAAOWA) and CPyFAAOW geometric (CPyFAAOWG) operators, and CPyFAA hybrid-weighted (CPyFAAHW), average (CPyFAAHWA) and CPyFAAHW geometric (CPyFAAHWG) operators with some basic properties.
	- (5) By utilizing our invented approaches, we solved an MADM technique. We estab-(5) By utilizing our invented approaches, we solved an MADM technique. We lished an illustrative example to select a suitable candidate for the vacant post of a multinational company. a multinational company.
	- (6) To analyze the effectiveness of different parametric values of γ on the results of our proposed approaches, we discussed an influence study. proposed approaches, we discussed an influence study.
	- (7) We checked the reliability and flexibility of our invented approaches, by comparing (7) We checked the reliability and flexibility of our invented approaches by comparing the results of existing AOs with the results of our discussed technique. the results of existing AOs with the results of our discussed technique.

The aforementioned operators and approaches will be gradually applied to a range of applications, such as networking analysis, risk assessment, cognitive science, recommender systems, signal processing and many more domains in ambiguous circumstances. Additionally, the interrelationships between the pairs of attributes throughout the aggregation process are not taken into consideration in the current study, but they will be in future ones. To better understand the information in our daily lives, we will also try to establish some more generalized information measurements. We will explore our invented methodologies within the framework of multi-criteria development in the system of the fuzzy environment [\[62\]](#page-36-11). We will also explore the concepts of our proposed approaches within the framework of bipolar-valued hesitant fuzzy information [\[63\]](#page-36-12). Moreover, we will also explore our current work within the framework of interval type-2 fuzzy systems with quantized output tools [\[64\]](#page-36-13).

Author Contributions: Conceptualization, H.J., A.H., K.U. and A.J.; Formal analysis, K.U.; Investigation, H.J., A.H., K.U. and A.J.; Software, A.H. and A.J.; Supervision, H.J. and K.U.; Validation, A.H. and A.J.; Visualization, A.H.; Writing—original draft, H.J., A.H., K.U. and A.J.; Writing—review & editing, H.J., A.H., K.U. and A.J. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors have no conflict of interest regarding this paper.

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