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The Aspectual Meaning of Non-Aspectual Constructions

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Abstract: The distinction between perfective and imperfective aspect has been identified in many languages across the world. This paper shows that even languages that do not have a dedicated perfective—imperfective distinction may endow a verbal construction that is not specifically aspectual with a perfective value. The crucial diagnostic for identifying perfectivity in a given non-aspectual construction is a difference in the temporal interpretation of clauses involving that construction, licensed by the actionality class of the main predicate: while stative verbs have a present interpretation, dynamic verbs yield a non-present (past or future) interpretation. This pattern of interaction is triggered by a phenomenon that has been referred to as the 'present perfective paradox', i.e., the impossibility of aligning dynamic situations with the time of speaking while at the same time conceptualizing them in their entirety. The latter type of construal is argued to be the main function of perfective aspect. The range of non-aspectual constructions with underlying perfective semantics includes 'iamitive' markers, an evidential, an epistemic supposition marker, a focus marker, a polar question marker, and a declarative marker. These constructions come from typologically different and genetically unrelated languages, illustrating the cross-linguistic salience of the category of perfective aspect.

Keywords: perfective aspect; present tense; stative/dynamic; present perfective paradox

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1. Introduction

The semantic category of aspect has been identified in many languages across the world. One fundamental distinction within aspect systems is the one between perfective and imperfective aspect. Over the last fifty years, different definitions of this distinction have been proposed in the literature. One of the most cited characterizations is given by Comrie (1976, p. 16), who states that perfective aspect presents a situation as a single and complete whole, while imperfective aspect focuses on the internal structure of a situation. Later approaches (e.g., Klein 1994, p. 29) rightly criticize this definition as being too vague and metaphorical in nature. In this paper, we will present an alternative and more concrete definition of (im)perfectivity, which is nevertheless based, to some degree, on Comrie's. This approach will be developed in the context of the main objective of this paper, which is to show that even languages that do not have a dedicated perfective—imperfective distinction may endow a verbal construction that is not specifically aspectual with a perfective value. This aspectual import of non-aspectual constructions—which has, to our knowledge, gone unnoticed in the cross-linguistic literature on aspect—can be unveiled through in-depth language-specific analysis.

The crucial diagnostic for identifying perfectivity in a given non-aspectual construction is a difference in the temporal interpretation of clauses involving that construction. This difference is licensed by the actionality class of the main predicate. Actionality refers to the inherent aspectual properties of verbs or verb phrases and has also been termed 'lexical aspect' or *Aktionsart*. In order to avoid confusion, however, we will reserve the term 'aspect' for the grammatical distinction between perfectivity and imperfectivity and refer to lexical aspect/*Aktionsart* as 'actionality'. As we will explain in Section 3, the way actionality

interacts with perfectivity underlies the so-called 'present perfective paradox' (henceforth 'PPP') (Malchukov 2009; De Wit 2017, p. 35), i.e., the impossibility of aligning dynamic situations with the time of speaking while at the same time conceptualizing them in their entirety. We thus present the PPP as a diagnostic tool to identify the perfective import of constructions that are non-aspectual at first sight.

Which construction is assigned a perfective value in a given language depends on a variety of language-specific factors. The fact that other constructions behave like perfectives reflects the highly salient status of perfective aspect in our cognitive apparatus. More generally, by focusing on the aspectual import of non-aspectual constructions, we highlight the role that aspectual semantics can play even in languages that have little to no aspect marking.

The paper is structured as follows: Section 2 will give an overview of prior research on the intertwining of aspectual distinctions with other grammatical categories. Section 3 will present the PPP as a cross-linguistic phenomenon and show how it can serve to identify the aspectual import of non-aspectual constructions. In Section 4, we will introduce some examples of perfective uses of non-aspectual constructions in various languages. We will first present those categories which have a close connection to aspect. These include the so-called 'iamitive' markers in Southeast Asian languages, the evidential in Wadu Pumi (Sino-Tibetan), and the epistemic supposition marker in Sanuma (Yanomaman). The second group of categories are those which are only remotely related to aspect. These include the focus marker in Trumai (isolate; Amazonia), the polar question marker in Kulina (Arawakan), and the declarative markers of Kwaza (isolate; Amazonia). In Section 5, we will briefly discuss the general tendencies underlying the data discussed in Section 4. Section 6 will round off the paper with a conclusion.

2. The Intertwining of Aspect with Other Grammatical Categories

The idea that there is not necessarily a one-on-one correspondence between a semantic category and its formal instantiation is well accepted for a grammatical category that is closely related to aspect, namely tense. There is evidence for both the temporal import of non-tense constructions and the non-temporal import of tenses.

As for the former, the time-referential properties of modal verbs are a prominent example. It is widely accepted that modal verbs are not neutral with respect to time reference, but often imply a temporal perspective (Condoravdi 2002; Boogaart and Trnavac 2011; Rullmann and Matthewson 2018). The relation between tense and modality can also be seen when adopting a diachronic perspective: van der Auwera and Plungian (1998) cite examples both of markers of modality evolving into future markers and future markers evolving into modal markers. Even non-verbal elements like nominals have been claimed to possess time-referential properties (Nordlinger and Sadler 2004; Bertinetto 2020).

Concerning the non-temporal import of temporal categories, it is a common observation that tense markers can appear in contexts where they mark mood. Examples in English are the use of the simple past in counterfactual and conditional constructions (e.g., von Prince 2019) and the use of the future marker *will* in conditional sentences. From a typological perspective, it is often observed that the gram expressing future reference is also the one expressing irreality in a given language, as in counterfactual constructions (Comrie 1985, p. 49). A last example is the use of the present tense in narratives about the past, which is attested in many languages and has been termed 'historical present' (e.g., Langacker 2001; De Wit 2017, p. 57).

With these observations in mind, it comes as no surprise that the relation between aspect, its formal manifestation, and its non-aspectual interpretation has recently received some attention, even though less than the connection between tense and other categories. Once again, we can make a distinction between the non-aspectual import of aspectual constructions and the aspectual import of non-aspectual constructions.

The non-aspectual use of aspect has been investigated most prominently for the progressive (a subcategory of imperfective aspect), which has been argued to convey an

epistemic meaning in various languages (e.g., De Wit et al. 2020). It has also been observed that the Russian imperfective is able to take on a frustrative meaning, i.e., the sense that a situation has not had the intended consequences (e.g., Plungian and van der Auwera 2006; Altshuler 2012).[1] Similarly, a close relationship between (past) imperfectives and the notion of counterfactuality has been observed in, e.g., French, Greek, and Latin (e.g., Allan 2017; Patard 2019). Another less-known example is the interaction between referentiality and perfective aspect, as in the Chadic language Hdi (Frajzyngier 2002, p. 328): this language has a referential morpheme which marks objects as referring to a concrete entity. This marker is incompatible with perfective aspect. The explanation given by the author is that bounded events, as indicated by the perfective, by definition, involve concrete, well-delineated entities. Combining the perfective with the referential morpheme would therefore be redundant, and so, one might say, the perfective has taken on a referential function in Hdi. Apart from these synchronic findings, diachronic evidence for the relation between perfectivity and seemingly unrelated grammatical categories might be detectable in the South American language Mojeno Trinitario (Arawakan); Françoise Rose (2021) suggests that an additive marker might have evolved from a perfective morpheme.

The aspectual import of non-aspectual constructions has received even less attention—which is a gap the present paper attempts to fill. The evidence has mostly rested on diachronic observations. Kranich (2014) argues that the English progressive was originally used to mark focus given that, in Old English, it was also frequently used with stative verbs, which is unusual for progressives across languages. The same process of a focus marker taking on progressive meanings (and eventually evolving into a progressive) has been observed in Bantu languages by Güldemann (2003). If such a process has taken place in unrelated language families, it is tempting to assume that there must be a connection between verbal focus and progressivity. Synchronic evidence of a non-aspectual construction used for aspectual purposes comes from the isolated Amazonian language Kwaza (van der Voort 2004, p. 433): Kwaza has a frustrative marker which, according to the author, sometimes also appears in non-frustrative contexts, where it seems to simply express progressivity. This example of a frustrative being used to express imperfectivity represents an interesting counterpart to the situation in Russian, where an imperfective gram can be used to express frustrativity.[2]

3. Perfectivity Diagnosis via the Present Perfective Paradox

A central objective of this paper is to show how the PPP can be used as a diagnostic tool to identify a perfective component in constructions that appear to be non-aspectual at first sight. The present section is, therefore, divided into three subparts. Section 3.1 elaborates on the PPP itself as a linguistic phenomenon and on the ways its emergence can be explained in cognitive terms. In Section 3.2, we show how perfective aspect as a grammatical category can be understood better through the lens of the PPP, leading to a more nuanced characterization of perfectivity. Section 3.3 brings these subsections together by demonstrating how manifestations of the PPP in individual languages can serve to detect perfectivity.

3.1. The Phenomenon of the Present Perfective Paradox

The term 'present perfective paradox' was coined by Malchukov (2009) and is based on the unusual behavior of the present tense in a number of languages with perfective–imperfective systems. The present tense as a grammatical category is typically considered to be a straightforward concept and appears in an abundant number of descriptive grammars. Yet under closer inspection, it appears that this term is to some extent a misnomer, at least for some languages: depending on the aspectual properties of the verb it combines with, the present tense often turns out to do anything but evoke the time of speaking (see, e.g., Langacker 2001). In Russian, for instance, the present tense can combine with imperfective verb forms to refer to the present (1), but with perfective verb forms, it typically yields a future reading (2) (see, among others, Malchukov 2009)[3]:

(1) On **ø-znaet**.
he IPFV-know.PRS:3SG
'He knows.'

(2) On **u-znaet**.
he PFV-know.PRS:3SG
'He will find out.'

A slightly different yet not unrelated pattern is attested in languages that do not have systematic perfective–imperfective marking (De Wit 2017). In these languages, the determining factor appears to be actionality rather than aspect, at first blush. In Japanese, for instance, dynamic verbs are typically given a future reading in the present tense, whereas present-tense stative verbs are taken to refer to the time of speaking (Ogihara 1992). Something similar happens in English, in which the so-called 'simple present' cannot be used for present-time reference with dynamic verbs:

(3) **I **play** tennis right now.*

In order to align a dynamic verb with the time of speaking, speakers of English make use of the progressive, as in example (4):

(4) *I **am playing** tennis right now.*

Barring some special contexts, such as performatives or narratives, dynamic verbs like *play* combined with the simple present can only have a habitual reading. What is being expressed then is a habit or routine which holds for a certain interval of time but need not be going on at the time of speaking:

(5) *I **play** tennis three times per week.*

It is evident that (5) refers to a habit that holds at the time of speaking, and in this sense, a statement is made about the present. What is crucial here is that (5) cannot refer to an ongoing event that overlaps with the time of speaking—it could be uttered while playing tennis, but this is not part of the denotation of the sentence. It is important to note that we thus use the term 'present-time reference' to refer to the narrowly defined temporal interval formed by the time of speaking ('now') rather than an unbounded interval which includes the time of speaking but goes beyond it (Woisetschlaeger 1976, pp. 93–98; Comrie 1985, pp. 37–39; Langacker 1991, pp. 250–52; De Wit 2017, pp. 13–17).[4] It is true that a sentence such as (4) could also be uttered while the speaker is not actually playing tennis, e.g., to refer to a temporary habit. Yet a pivotal, subjective difference with (5) remains, in that (4) is presented as phenomenal (Goldsmith and Woisetschlaeger 1982) and therefore by definition somehow tied to the 'now'. While speakers of English cannot use the simple present with dynamic verbs to refer to this 'now', there are no such restrictions with stative verbs:

(6) *I **have** my laptop with me right now.*

Similar observations have been made for many African languages, where so-called 'factative' tense–aspect grams typically receive a past interpretation with events and a present interpretation with states (Welmers 1973, pp. 344–47; Suggett 2015). Along the same lines, creole languages, such as Sranan, feature zero-marked present-tense forms that trigger a present interpretation of states and a past interpretation of events (cf. Holm 2000 for an overview; Prescod 2013, p. 74; De Wit and Brisard 2014; see also Dechaine (1991), and Bohnemeyer and Swift (2004) for analogous cases in other languages, and see Caudal and Bednall (2022) in this issue for a particularly nuanced perspective taking into consideration more fine-grained actionality classes).

In other words, states and events may in the present tense have different time-referential properties in different languages. This comes as no surprise, given that these two actional classes contrast in many ways and behave differently in a variety of grammatical contexts. Different semantic properties have been proposed to be responsible for the distinc-

tion between states and events (see, e.g., Vendler 1967; Dowty 1979; Mourelatos 1981; Croft 2012, pp. 31–69). Many of these properties, however, do not make a clear-cut distinction between the two actional classes, with some states exhibiting event-like properties and vice versa (see, e.g., Croft 2012, pp. 33–37), and they critically rely on objective parameters, such as boundedness or heterogeneity, which we believe are in fact derived from a more encompassing subjective property, i.e., identifiability (Langacker 1987, pp. 258–62; Michaelis 2004, pp. 10–11; De Wit et al. 2018; see also Section 3.2). This term refers to the temporal interval needed to identify a situation as being of a certain kind. In this respect, states are considered to be instantly identifiable, while events are not. This means that any temporal subinterval of a state can be regarded as a valid instance of that state. The temporal interval needed to identify a state as such thus has minimal extension. Events, by contrast, typically consist of several subprocesses that only together make up the process as denoted by the verb. They are, therefore, construed as not fully and instantly identifiable on the basis of only a subinterval of the situation they denote.

The non-instant-identifiability of events is what makes it difficult to align them with the very short time span which is the time of speaking. Michaelis (2013) frames this interaction as the manifestation of a 'say and see' problem: in order to report a situation as ongoing at the time of speaking, one must also be able to instantly identify this situation (see also Michaelis 2004). Similar reasoning underlies Smith and Erbaugh's (2005) 'Bounded Event Constraint', which states that situations that are construed as temporally bounded cannot be located in the present (see also the Temporal Schema Principle discussed in Caudal and Bednall (2022)). As a resolution to the incompatibility of the present tense with bounded situations, a non-present (i.e., not 'now') interpretation is assigned to the clause (De Wit 2017, pp. 185–86). In the case of English, this interpretation is a habitual or generic one. In Sranan, on the other hand, the alternative, non-present reading is past.

As mentioned above, aspect languages like Russian originally gave rise to the term 'present *perfective* paradox', yet De Wit (2017) has extended the term to also comprise languages like English where the paradox emerges from the actional profile of stative/dynamic verbs rather than from overt marking of perfectivity. At this point, one might wonder to what extent this term is also suited for these languages—especially given the received opinion that it is actionality rather than aspect that is the determining parameter in English (Taylor 1977; Dowty 1979; Giorgi and Pianesi 1997; Bohnemeyer and Swift 2004). We will come back to this issue in Section 3.2; for now, it will suffice to mention that there are good reasons to believe that perfectivity is equally relevant for a language like English. As can be seen by comparing the data from Russian, English, Sranan and other languages, the basic pattern of the present tense expressing non-present time in dynamic/perfective contexts is the same, but the alternative non-present interpretation that is chosen is different. On the basis of work by De Wit (2017, pp. 192–94), we can identify three cross-linguistic patterns in the way the PPP manifests itself:

(1) The 'retrospective strategy': the construction that is used as a present tense with stative/imperfective situations is given a past interpretation with dynamic/perfective situations. This strategy has been attested in (Atlantic) English-based creole languages, such as Sranan (De Wit 2017: Chapter 6), the Bantu language Lingala (Brisard and Meeuwis 2009), the Benue-Congo languages Igbo and Yoruba (Welmers 1973), the Samoyedic languages Nenets (Nikolaeva 2014; Tatevosov 2021) and Nganasan (Wagner-Nagy 2019), and the Tungusic languages (Malchukov 2000).

(2) The 'prospective strategy': the construction that is used as a present tense with stative/imperfective situations is given a future interpretation with dynamic/perfective situations. Apart from Russian, this strategy occurs in other northern Slavic languages (De Wit 2017, chp. 7), the Dravidian language Kannada (Bhat 1999), and Japanese (Ogihara 1992).

(3) The 'structural strategy': the construction that is used as a present tense with stative/imperfective situations is given a general-validity (habitual or generic) interpretation with dynamic/perfective situations. Besides English, other languages in which this strategy

is used are southern Slavic languages (De Wit 2017, chp. 7) and the Cushitic language Somali (Saeed 1999).

3.2. A New Approach to Aspect

Now that the PPP has been described in sufficient detail, we can return to the question of whether the term 'present *perfective* paradox' is appropriate for languages like English which, at first sight, do not appear to have a dedicated perfective construction. This question brings up a more general issue, which is central to this paper: how do we define (im)perfectivity? In the following, we will present a novel, epistemically oriented characterization of aspect, which will lead us to the conclusion that languages like English do express perfectivity grammatically, albeit in a different way compared to languages like Russian. It follows from this discussion that speaking of a 'present perfective paradox' is also appropriate in the context of English.

We will use the seminal Comrian definition of perfectivity as the starting point for our analysis. Recall that Comrie (1976, p. 16) defines the difference between perfectivity and imperfectivity as follows: "perfectivity indicates the view of a situation as a single whole, without distinction of the various separate phases that make up that situation, while the imperfective pays essential attention to the internal structure of the situation". A similar, but more concrete definition is given in Klein (1994, p. 108) (see also Hatav 2019). In the tradition of Reichenbach (1947), Klein identifies three concepts relevant to the semantics of tense–aspect grams: utterance time, situation time, and topic time, whereby the latter refers to the time for which a certain claim about a situation is made. Klein then defines the difference between perfective and imperfective aspect as follows: perfective aspect denotes situations whose situation time is included in the topic time, while imperfective aspect denotes situations whose topic time is included in the situation time (see also Corre (2022)). In the same vein, Tournadre (2004, pp. 29–32) describes perfective situations (*situations accomplies*) as those whose starting and end points are included in the topic time (*repère temporel*). Comrie, Klein, and Tournadre thus all relate perfectivity to a notion of totality, though their formalizations differ.

Reformulating these totality-based approaches in more epistemic terms, we can posit that perfective constructions entail full and instant identifiability of a situation (based on the knowledge set of the speaker or how s/he conceives of the knowledge set of the hearer), while imperfective constructions indicate a lack of full and instant identifiability (De Wit et al. 2018). As can be inferred from our characterization of the PPP, where identifiability plays a crucial role, it is this knowledge-based approach that we adopt in this paper.

Apart from the various 'totality'-oriented approaches mentioned above, there is another line of thought in the definition of (im)perfectivity, which is more concerned with the notion of (un)boundedness.[5] Bybee et al. (1994, pp. 54, 125), for example, argue that perfective aspect construes situations as temporally bounded, while imperfective aspect construes situations as temporally unbounded (see also Smith 1997). Croft (2012, pp. 169–71) reasons in a similar way, positing that perfective aspect construes situations as bounded on both the temporal and the qualitative dimension in his two-dimensional approach to actionality. We partly agree with these positions but think that they require more nuancing: boundedness is indeed relevant for the semantics of many aspect grams but does not capture (im)perfectivity as such. It rather denotes a semantic value corresponding to a concept we will refer to as 'transition-sensitivity' in the following.

Apart from the epistemic characterization of perfectivity, the second ingredient of our analysis is the selectional approach to aspect and actionality presented in Bickel (1996, pp. 18–19). Bickel views differences in actionality as differences in the (lexically specified) temporal representation of verbs, which we will refer to as 'TRs' from now on. TRs consist of regular alternations of transitions (τ) and phases (φ) and are presented between square brackets. Transitions represent the starting and endpoints of a situation, i.e., its temporal boundaries, while phases represent those parts of a situation in between temporal boundaries. The essential difference between stative and dynamic verbs, on Bickel's

account, is that the TRs of the former correspond to a single phase only—[φ] –, while those of events feature at least one transition, e.g., [τ φ τ]. One might object to this account in terms of temporal boundaries that there are certain states that are objectively bounded in time (e.g., *Alice is in the bathroom*), while certain events involve little to no temporal boundedness (e.g., *The universe is constantly expanding*). Yet these are objective differences, and what matters to our aspectual choices is our subjective perception of states of affairs and their development. This again brings us back to our epistemic approach in terms of full and instant identifiability. As Michaelis (2004, pp. 10–11) points out in her analysis of the difference between states and (homogeneous) events:

> [. . .] events are those situations whose existence cannot be verified on the basis of a momentaneous sample [. . .] Verification of a homogeneous activity like holding a broom, standing in a corner, or sleeping, requires access to points of inception and termination, as well as several contiguous frames between those endpoints. Sleeping is distinct both from being comatose and from nodding off for a second, and staying at one's sister's house is distinct both from popping in on one's sister and living with her. While states like being tall endure in the same way that the events of sleeping and standing in a corner do, states do not take time: any subinterval of a state counts as an instance of that same state.

In other words, what matters is whether or not we have sufficient information to identify a situation on the basis of a random sample. With states, this is unproblematic. In order to identify events, however, we need to have some idea of their temporal boundaries, and they can therefore not be identified on the basis of a single sample. Bickel's TRs thus encode the minimal interval needed to fully and instantly identify a given situation.

In line with Bickel, we further assume that markers of aspect select parts or the entirety of TRs. Similar to the totality-based approaches to perfectivity discussed above, Bickel posits that perfective grams select the entire TR of a given verb, including all transitions and phases. In epistemic terms, this definition implies that the situation as denoted by the verb needs to be identifiable in its entirety at the time of speaking. Imperfective grams, on the other hand, select a phasal subpart of a TR and therefore do not require complete identifiability. These definitions of perfectivity and imperfectivity will be the ones adopted in the remainder of this paper.

In our view, Bybee et al.'s and Croft's definitions of perfectivity in terms of (temporal) boundaries can be incorporated into the approach sketched above under the notion of transition sensitivity. This concept is an addition to Bickel's theory but appears to be crucial in the characterization of grammatical aspect markers. Transition sensitivity imposes certain restrictions on the boundedness properties of TRs. Aspect markers sensitive to transitions can only combine with verbs that are construed as featuring transitions in their TR. Such markers are, therefore, either incompatible with states or trigger a dynamic reading of originally stative verbs. (Im)perfectivity and (non-)transition-sensitivity are two independent properties that are both relevant for the description of grammatical aspect markers, entailing that both parameters can be freely combined with each other. In order to illustrate this point, we will go on to present what we consider to be a transition-sensitive perfective and a non-transition-sensitive perfective, respectively.

The Russian perfective is a transition-sensitive perfective gram. This means that it selects the entire TR of a verb, but under the restriction that the selected representation also contains at least one transition. This is why some states are coerced into achievements in the context of the Russian perfective, as in example (4). The TR of the state 'know', [φ], is not a proper input for this gram because no transitions are perceived to be present. To resolve this incompatibility, an initial boundary is added to the TR of the verb, coercing it into an achievement verb meaning 'find out', [τ φ], which then represents the proper input for the transition-sensitive perfective. The English simple present, on the other hand, can be viewed as a non-transition-sensitive perfective gram. It selects the entire TR of a given verb but is indifferent to the presence of transitions. This is why it can be used on states to express present-time reference. Crucially and despite their differences, both grams can be

considered perfectives by virtue of triggering the PPP as a consequence of their semantics of full and instant identifiability: neither gram allows reference to the 'now' with dynamic verbs.

We can, therefore, say that both Russian and English feature grams in their verbal paradigm that express perfectivity. It is the interplay between these perfective grams and actionality that triggers the PPP; as soon as a perfective viewpoint is imposed on an event (whether this is in the form of a transition-sensitive or a non-transition-sensitive gram), we end up with the present-time alignment issues outlined in Section 3.1. We believe this proposal, which recognizes the intrinsically perfective value of constructions such as the English simple present, constitutes an improvement with respect to accounts that focus solely on actionality (see also Caudal and Bednall 2022) and analyze the English simple present as an aspectually sensitive construction that selects only states (e.g., Michaelis 2004; Michaelis 2011; and Altshuler and Schwarzschild 2013). Apart from the fact that it brings together analogous patterns across languages with different grammatical systems in a unified model, our approach also has the advantage that it can account for "special" uses of the English simple present, e.g., in performative or narrative contexts, which are hard to explain in terms of stative selection (De Wit 2017, pp. 48–51).

3.3. Using the Present Perfective Paradox to Detect Perfectivity

If we characterize the English simple present as a perfective gram, we can keep the term 'present *perfective* paradox' as an umbrella term for languages both with and without overt marking of aspect. In other words, we can now state that any present-tense construction which has a non-present interpretation with dynamic verbs expresses a perfective meaning. In the remainder of this paper, we will show that this diagnostic for perfectivity can be extended to grams that are neither (primarily) temporal nor aspectual in nature. More precisely, we propose the following principle in the detection of perfectivity: if a temporally unmarked clause involving a certain construction in a given language has a present-time reference when a stative verb is used and a non-present-time reference (past or future) when a dynamic verb is used, we can identify that construction as possessing perfective semantics. We hold this definition to pertain to both aspect-marking languages like Russian and languages without overt marking of aspect like English. It has to be noted, however, that all constructions presented in the remainder of this paper are non-transition-sensitive perfectives, like the English simple present. This means that the constructions under consideration license present interpretations with states and non-present interpretations with events but do not trigger actional coercion effects, such as those that can be found in the context of the Russian present perfective.

4. Results: Cross-Linguistic Data

In this section, we will present constructions with a perfective meaning component from different languages and different grammatical domains. Section 4.1 discusses those categories which have a rather close connection to aspect, in that they are also verbal constructions. These include the so-called 'iamitive' markers in Southeast Asian languages, the epistemic supposition marker in Sanuma (Yanomaman), and the inferential evidential in Wadu Pumi (Sino-Tibetan). Section 4.2 is concerned with constructions that carry pragmatic and information structural functions and that are therefore only loosely connected to aspect. These include the focus marker in Trumai (isolate; Amazonia), the polar question marker in Kulina (Arawakan), and the declarative markers of Kwaza (isolate; Amazonia).

It is crucial to note that the patterns to be presented, which are all manifestations of the PPP, are only found for the constructions under consideration and do not appear across the entire grammatical system. In other words, they are not indications of the default patterning of stative/dynamic verbs in the respective languages.

Data come from reference grammars and personal communication with experts.[6] It also needs to be noted that we concentrate on a limited number of languages and that we, therefore, do not aim for a typologically adequate study, even though the languages we

selected are geographically and genetically varied. The data presented in the following should therefore be considered as a basis for future typological analyses. Our observations could also feed into the questionnaires used by field workers and help them interpret their data.

4.1. Constructions with a Close Connection to Aspect

4.1.1. Iamitives in Southeast Asian Languages

Southeast Asia (henceforth: 'SE Asia') is a linguistic macroarea stretching from Vietnam and The Philippines in the north to Indonesia in the south. Some prominent languages spoken in SE Asia are Thai (Tai-Kadai), Vietnamese (Austroasian), and Indonesian (Austronesian). Even though the languages found in this region are genetically diverse, some linguistic properties are shared by most languages represented in the area. One such feature is the absence of obligatory marking of tense and aspect. Temporal reference is marked by temporal adverbials or must be inferred from the context, and verbs are not systematically marked for (im)perfectivity. It is, therefore, not surprising that some grams or constructions should take on aspectual overtones over time in order to compensate for the general scarcity of aspectual marking.

One such group of constructions for which this seems to be the case are the so-called 'iamitives', named after Latin *iam* ('already') (Dahl 2001). Iamitives are present in most languages spoken in SE Asia and are used frequently in everyday speech. As the label suggests, these are words or particles that are usually translated into English using the adverb 'already'. Apart from this lexical meaning, however, iamitives also seem to have a specific impact on the temporal properties of the clauses they appear in. Olsson (2013) observes that a shared feature of iamitives across most SE Asian languages is that they have present time reference with states but past time reference with dynamic verbs. This is illustrated for Vietnamese in (7) and (8) (examples taken from Do-Hurinville 2006, p. 6 and Do-Hurinville 2009, p. 119, resp.):

(7)	*Paul*	***đã***	*già.*
	Paul	IAM	old
	'Paul is old.'		

(8)	*Paul*	***đã***	*ăn.*
	Paul	IAM	eat
	'Paul has eaten.'		

Iamitives thus behave like perfective markers when it comes to temporal reference. This makes sense, given that iamitives have also been called 'SE Asian perfects' (which are, in turn, closely related to perfectives) and share many semantic features with this group of grams (Dahl and Wälchli 2016).

This relationship between actionality and time reference appears to be construction-specific, in that it is only attested for iamitives and not for other grammatical constructions in SE Asian languages. For instance, zero-marked clauses seem to have default present-time reference with both states and events in Vietnamese—see (9) for an illustration of the latter (Do-Hurinville 2009, p. 166).

(9)	*Cô-ây*	***Ø***	*hát.*
	she		sing
	'She is singing.'		

It has to be noted, however, that in languages other than Vietnamese, the iamitive present–past pattern does not seem to be strictly categorical for dynamic verbs. David Gil (2021) states that at least in colloquial Indonesian, one can also find examples of iamitive clauses involving a dynamic verb that have a present interpretation:

(10)	*Aku*	***udah***	*makan.*
	I	IAM	eat
	'I'm already eating.'		

However, Gil also mentions that this is a marked example and would require a specific context to be understood as referring to the present. The relation between stative verbs and present time reference seems even stronger. The following example can only be interpreted as referring to the present:

(11) *Dia* ***udah*** *di* *pasar*.
he IAM LOC market
'He is already at the market.'

In order to achieve a past interpretation, an overt past adverbial needs to be used:

(12) *Waktu* *tu* *dia* ***udah*** *di* *pasar*.
PST DEM DIST IAM LOC market
'He has already been to the market.'

In order to evaluate whether the same tendencies and restrictions hold in other SE Asian languages, further research is needed. The fact that, for dynamic verbs, sentences involving iamitives do not always manifest the PPP is not a problem for our analysis. Patterns of interpretation of specific grams always start off as tendencies and only evolve into categorical, conventionalized rules over time. The observation that the relation between past time and dynamic verbs in the context of Indonesian *udah* is a strong tendency rather than a rule might show that the marker is on its way to acquiring a perfective meaning but that this process has not been completed yet. The strictness that can be observed for stative verbs, on the other hand, indicates that this pattern is already quite solid. It will, indeed, be a recurrent observation in the following sections that the relation between states and present time reference is more solid than that between events and non-present time reference.

4.1.2. Epistemicity in Sanuma

Sanuma is a Yanomaman language spoken in Venezuela and Brazil. Sanuma has a complex tense–evidentiality system with temporal reference and source of information being sometimes expressed by the same verbal particle and sometimes through combinations of temporal and evidential particles (Borgmann 1990). It uses suffixes to mark so-called durative, punctual, iterative, and habitual aspect (Borgmann 1990, p. 173); durative and punctual aspect can roughly be equated with the opposition between imperfectivity and perfectivity. Sanuma has a present and several past tenses where an obligatory evidential distinction is made between witnessed, verified, and supposed information. We think that supposition belongs to the domain of epistemic modality, given that its main function is to express a certain degree of knowledge instead of referring to a specific information source. We will therefore gloss the supposition marker as 'EPIST'.

Sanuma cannot be said to have a dedicated future tense; the default strategy to mark future reference is to use the supposition marker *kite* without any other tense or aspect marking. With some verbs, however, *kite* expresses present instead of future time reference. These verbs belong to the class of 'description and emotion' verbs in Borgmann's terminology (Borgmann 1990, p. 172), which can be equated with our use of the term 'stative verb'. *Kite*-marked clauses thus yield a future interpretation with dynamic verbs and a present interpretation with stative verbs and can therefore be considered as instantiations of the PPP (Borgmann 1990, pp. 172 and 60, respectively):

(13) *Ulu* *te* *ohi* *ipö* ***kite***.
child 3SG be.hungry very EPIST
'(I suppose) the child is hungry.'

(14) *Nii* *te* *oa* *hena* *mai* ***kite***.
food 3SG eat early NEG EPIST
'(I suppose) she will not eat early in the day.'

This pattern seems to be quite strong: no counterexamples could be found in the grammar. Furthermore, the relation between actionality and time reference does not

emerge with any other tense–aspect construction in the language. The so-called witnessed present marker, for example, is always interpreted as referring to the present, with both stative and dynamic verbs. An example of a dynamic verb with present-time reference is (15) (Borgmann 1990, p. 167):

(15)	*Pökatö*	*ha*	*thalökö*	*a*	*tha*	***kulali***.
	across.river	LOC	firewood	3SG	do	PRS:WIT
	'He is cutting firewood on the other side of the river.'					

It has to be noted, however, that *kite* does not systematically disallow the presence of other tense or aspect markers in the clause. These markers can therefore override the default semantics of *kite*: a past particle leads to a past interpretation with any type of verb; a durative/imperfective marker yields a present interpretation with dynamic verbs. The case of Sanuma illustrates that a language does not need to lack aspect in order for other markers to take on perfective overtones. The fact that *kite* tends to occur in the absence of overt aspect marking is further evidence of its aspectual import.

4.1.3. Inferential Evidentiality in Wadu Pumi

Pumi is a Sino-Tibetan language spoken in southwestern China. Wadu is a specific dialect of the language. Daudey (2014, p. 10) characterizes Wadu Pumi as "somewhere between agglutinating and analytical, with a few affixes and multiple clitics". Wadu Pumi does not have grammaticalized tense but distinguishes between perfective and imperfective verb stems for verbs denoting controllable actions (Daudey 2014, p. 10). This means that (im)perfectivity is not indicated with affixation (like in Russian or English) but through suppletion: perfective and imperfective verb stems are both monosyllabic words without differences in morphological complexity. They are distinguished by initial or final consonants and by tone. The imperfective stem, however, is considered to be the more basic or neutral one, given that non-controllable verbs (such as 'fall down' or 'know') only have an imperfective stem.

The preceding comments refer to non-evidential contexts where speakers are observing or have observed the situations they are reporting on. The situation is different in evidential contexts where the speaker reports on inferred information. In the inferential–evidential verbal paradigm of Wadu Pumi, (im)perfectivity is further indicated through suffixes attached to the verbal stem. The suffix *=si* expresses perfective inferentiality and stands in paradigmatic opposition with the imperfective inferential marker *=daw* (Daudey 2014, p. 359). Daudey (2014, p. 362) mentions the possibility that "*=si* went through a stage of marking perfective and has now developed into an inferential marker". She further notes that similar processes might have occurred in the neighboring and genetically related languages Niuwozi Pumi and Shixing, referring to Dīng (1998, p. 206) and Chirkova (2009, p. 51), respectively.

The fact that, in Wadu Pumi, perfectivity has merged with another semantic value in a single marker represents a suitable context to test our hypothesis that the PPP can be used to detect perfective overtones in seemingly non-aspectual constructions. The reason is that in this particular case, both perfectivity and another, non-aspectual value have been identified by the expert as forming part of the semantics of the marker. The situation in Wadu Pumi thus corresponds to the phenomenon we are investigating in other languages, where the perfective meaning component of a specific construction has not, as such, been explicitly identified. Given that *=si* has already been described as a perfective morpheme and clearly behaves as such in distributional terms, the question arises whether this marker manifests the PPP.

The available data suggests this to be the case. Interestingly, however, the temporal difference between *=si*-marked clauses involving stative and dynamic verbs goes hand in hand with an additional semantic difference. The default function of an evidential morpheme is to denote a dynamic event whose occurrence in the past has been inferred on the basis of a currently observable state. If a state itself is reported using an inferential, however, *=si* takes on a mirative reading (Daudey 2014, p. 365). This coercion of the

inferential into a mirative meaning comes with a difference in the temporal interpretation of the clause: while =*si* leads to an inferential interpretation with past time reference when attached to dynamic verbs, clauses with stative verbs yield a mirative interpretation with a present time reference. Compare examples (16) and (17) below (Daudey 2014, pp. 360 and 365):

(16)	*Nĭŋ/tə́*	*tɕʰĭ*	*qʰə̀-dzwə́*=***si***.
	you/he	food	outwards-eat:PFV:N.EGO=INF
	'You/he has eaten.'		

(17)	*Əjuju,*	***ɖɐ̀=si***	*mâ*.
	INTJ	be.capable=INF	EMPH
	'Oh, (you're) really capable!'		

Many more such examples can be found in the grammar (Daudey 2014, pp. 360–66). The same pattern can be observed for the inferential marker -*k* in the related Sino-Tibetan language Qiang (LaPolla 2003, pp. 200–4), even though Randy LaPolla (2021) does not consider this tendency a categorical rule in Qiang. At least for Wadu Pumi, however, we can confirm that our approach to using the PPP as an indicator of perfectivity seems to be an appropriate diagnostic tool. Further evidence for the perfective value of =*si* comes from the fact that the related language Puxi Qiang has a change of state marker =*si*/=*so* (which patterns largely as a perfective) that is not used as an evidential (yet) (Huang 2007, p. 137).

4.2. Constructions with a Loose Connection to Aspect

4.2.1. Focus in Trumai

Trumai is a language isolate spoken in Amazonia. As a language with little inflectional morphology, it does not have grammaticalized tense and does not distinguish systematically between perfectivity and imperfectivity. There are, however, two frequently occurring focus markers in Trumai, viz. *chï_in* and *ka_in*, which seem to come with certain temporal and aspectual connotations. According to Guirardello (1999, p. 170), the main function of these markers is to draw the attention of the listener to the predication it is attached to. This might be due to the recency or relevance of the information contained in the predication or to the fact that the information was previously requested by the listener.

Apart from their influence on information structure, the two markers have specific time-referential properties: while *chï_in* is used for the distant past, *ka_in* can be used for both the immediate past and the present (Guirardello 1999, p. 173). Both markers are often used in the first sentence of a conversation or a narrative to set the time frame for the following utterances. In the following, we will concentrate on the semantics of *ka_in*. Since it allows both a present and a recent past interpretation of the clause it is attached to, the question arises whether there are any linguistic factors influencing the choice for one interpretation over the other. Such a factor seems to be actionality, yet in a slightly different manner than in the other languages discussed thus far. Judging from the examples given by Guirardello, (a)telicity, i.e., the presence or absence of an inherent endpoint or not, seems to be a determining factor for the temporal reference involved. Thus, there appears to be a strong tendency for telic verbs to be interpreted as referring to the recent past, while atelic (both dynamic and stative) verbs are interpreted as referring to the present in the context of *ka_in*. This entails that some dynamic verbs can have present-time reference, yet the overall pattern is reminiscent of other languages that use a retrospective strategy. An illustration of this pattern is given in examples (18), (19), and (20) (Guirardello 1999, pp. 63, 175), featuring a telic, an atelic dynamic, and a stative verb, respectively:

(18)	*Kodechich*	***ka_in***	*hai-ts*	*disi*	*ke*.
	snake	FOC	I-ERG	hit/kill	*ke*[7]
	'I killed the snake.'				

(19) *Di* *herohen* *yi* *pech* ***ka_in***.
woman beautiful *yi*[8] run FOC
'The beautiful girl is running.'

(20) *Ayets* ***ka_in*** *ha* *chi*.
old.woman FOC I COP
'I am an old woman.'

Many more such examples can be found in the grammar by Guirardello (1999, pp. 174–77). *Ka_in*-marked clauses thus manifest the PPP and can be identified as possessing perfective semantics. It is important to note, however, that we are once again witnessing a tendency rather than a strict, grammaticalized pattern of temporal interpretation: according to Guirardello (2021), telic verbs *can* still have a present interpretation when combined with *ka_in*. An example she mentions is given in (21) (Guirardello 1999, p. 170):

(21) *Axos* *yi* ***ka_in*** *dama* *ke* *pifi'k* *asix* *yi-ki*.
child *yi* FOC pull *ke* monkey tail *yi*-DAT
'The boy is pulling the tail of the monkey.'

As in the case of iamitives, this possibility does not hold in the opposite direction. Guirardello (2021) states that she has never come across an example where *ka_in* is used on a stative verb with a past time interpretation.

A final interesting observation concerns the internal morphological structure of *ka_in*. The marker is made up of two different morphemes, *ka* and *in*. The latter, which is the element occurring in both focus markers, is also used as a marker of polar questions (Guirardello 1999, p. 171). This is indicative of a striking parallel with the expression of perfectivity in the language Kulina, which will be discussed in the next section. *Ka*, on the other hand, also functions as a causative morpheme (Guirardello 1999, p. 174)—a meaning that is closely related to that of the perfect (and thus also the perfective) (Bybee et al. 1994, pp. 66–67).

4.2.2. Polar Questions in Kulina

Kulina is an Arawakan language spoken in Amazonia. It is an agglutinating language with grammatical meanings expressed through a great number of suffixes. Kulina does not express aspect but has a tense system distinguishing between past, present, and future, making further distinctions of remoteness in past and future. In some contexts, however, tense morphemes do not have to be present. One such environment is polar questions (Dienst 2014, p. 133). Kulina has a polar question marker *ki/ko* (depending on the grammatical gender of the subject), which can, in the absence of tense marking, refer both to the past and to the present (Dienst 2021). For questions referring to the future, a dedicated marker is used. Once again, actionality serves to disambiguate between present and past time reference: dynamic verbs tend to have a past interpretation, while states license a present interpretation, as illustrated in examples (22) and (23) (Dienst 2021):

(22) *Kapaizo* *hero* *ti-na*=***ki***?
papaya eat you-AUX=Q.f
'Did you eat papaya?'

(23) *Ti-pemi*=***ki***?
you-be.hungry=Q.f
'Are you hungry?'

We can again see that the tendency illustrated above is stronger for stative than for dynamic verbs. While states only allow a present interpretation when used together with *ki/ko*, there are a few examples of dynamic verbs used together with this marker that refer to the present, as illustrated in example (24) (Cindy and Boyer 2021):

(24) *Passo* *dse* *ti-na*=***ki***?
water drink you-AUX-Q.f
'Are you drinking water?'

Again, the fact that we are witnessing a tendency rather than a rule does not detract from our main line of argument (see Section 4.2.1). Finally, *ki/ko* is not incompatible with tense marking; there are some tense morphemes which can co-occur with it. In these cases, the default temporal semantics of *ki/ko* is overridden; the tense marker then determines the temporal interpretation of the clause.

4.2.3. Declarative Mood in Kwaza

Kwaza is a language isolate spoken in Amazonia. Kwaza is an agglutinating language with a binary tense system distinguishing between future and non-future, future being marked through suffixation (van der Voort 2004). It does not have aspect, even though some morphemes have a secondary function as (facultative) progressives (see Section 2). Kwaza further has a mood system, distinguishing between declarative, interrogative, and imperative clauses. Declarative mood is marked by two suffixes attached to the verb, *ki* and *tse*. van der Voort (2004, p. 288) notes that the difference between the two markers might be one of (im)perfectivity, with *ki* marking imperfective aspect and *tse* marking perfective aspect in the non-future. This assumption is supported by the time-referential properties of *ki* and *tse* in interaction with actionality: dynamic verbs have a present interpretation with *ki* and a past interpretation with *tse* (van der Voort 2004, p. 288):

(25) *Birje'te-**ki**.*
undo.house:3SG-*ki*
'He is undoing the house.'

(26) *Birje'te-**tse**.*
undo.house:3SG-*tse*
'He undid the house.'

Stative verbs, on the other hand, have a present interpretation with both markers. When *ki* is used, however, they are coerced into accomplishments denoting the dynamic preparatory phase preceding the respective state (van der Voort 2004, p. 288):

(27) *He'bo-**ki**.*
be.blind:3SG-*ki*
'He is becoming blind.'

(28) *He'bo-**tse**.*
be.blind:3SG-*tse*
'He is blind.'

This pattern is equivalent to the interaction of actionality and aspect that can be found in many Niger-Congo languages, such as Supyire (Carlson 1994, p. 310). It also shows similarities to the interaction of the simple present and the present progressive with actionality in English (see Section 3.2). We can therefore conclude that Kwaza has an aspect system featuring a transition-sensitive imperfective and a non-transition-sensitive perfective, as we did for English. The direction of grammaticalization between mood and aspect cannot be stated with certainty, but it is plausible to assume that *ki* and *tse* started off as marking aspect only and later came to be used as declarative markers. Otherwise, the question would arise why Kwaza should have had two different declarative markers in the past whose occurrence was not conditioned by any semantic distinctions.

Another interesting observation is that the use of *ki* and *tse* also seems to come with pragmatic overtones: van der Voort (2004, p. 292) states that "verbs are often in the *tse* declarative when the utterance is an answer to a question, or also when a state of affairs is emphasized or described to someone who was not a witness or who was not aware of it". In other words, *tse* as the perfective marker also seems to mark focus. This is an interesting parallel to the case of Trumai where a focus marker also seems to express perfectivity (see Section 4.2.1).

5. Discussion

In this brief discussion, we will address two general questions that arise on the basis of the data discussed in Section 4: (i) why do these specific constructions—having as their primary function marking iamitive, epistemic, inferential, focus, polar interrogative, or declarative meanings—acquire perfective overtones, and (ii) why do these markers resolve the PPP in the way they do (i.e., why do they adopt either the retrospective or the prospective strategy)?

As for the first question, the answer is relatively straightforward for those markers that are more closely related to aspect—i.e., the iamitive, inferential, and epistemic markers—given that they are part of the same semantic space as the perfective. The fact that a perfect-like construction such as iamitive patterns like a perfective is not surprising: as observed by Bybee et al. (1994, p. 105) and many others, perfect constructions are closely related to perfectives on the grammaticalization cline (think of, e.g., the *passé composé* in French which evolved from a perfect into a past perfective). Along the same lines, evidential constructions, such as the inferential marker in Wadu Pumi, are semantically closely related to perfects and thus to perfective constructions (Comrie 1976, pp. 108–10; Malchukov 2000; Aikhenvald 2004, pp. 112–16). Epistemic constructions expressing supposition are, in turn, connected to evidentials (recall that, in Borgmann's (1990) descriptive grammar, the Sanuma supposition marker is analyzed as an evidential).

In sum, the fact that we attest perfective-like behavior of a iamitive, evidential, or epistemic marker is expected. Explaining such behavior for markers that operate beyond the verb phrase is more challenging; in fact, for the perfective value of the polar question marker in Kulina, we could not find a satisfactory explanation. However, the relationship between aspect and information structure has not gone unnoticed in previous work (e.g., De Wit 2016). Focus constructions, in particular, have been associated with the expression of progressive aspect in various languages, e.g., Güldemann's (2003) analysis of present progressive markers in Bantu originating from a focus morpheme (see also Kranich's (2014) observation on Old English, referred to in Section 2). Yet, if there is a semantic relationship between progressivity (i.e., imperfectivity) and focus, it is puzzling to find that, in a language such as Trumai, the focus marker *ka_in* takes on a *perfective* meaning. In our view, the answer to this striking observation lies in the causative origin of *ka*: it is not unlikely that this causative (i.e., perfective-like) meaning still has an effect on the semantics of the focus marker at hand. Language-specific features also seem to be at play in Kwaza, where, as we pointed out in Section 4.2.3, the declarative marker *tse* most likely had a primarily perfective meaning previously. Hence, even though we find that both in Trumai and Kwaza, a marker that can convey focus also takes on perfective overtones, this need not be representative of a systematic pattern (although, of course, future cross-linguistic work might force us to revise this tentative claim). It is not unlikely that language-specific (diachronic) properties also motivate the patterning of the polar question marker *ki*/*ko* in Kulina, but unfortunately, we do not have any hypotheses about the diachronic origins of *ki*/*ko*.

When moving on to the second issue—why should a language opt for the retrospective/prospective strategy in the case of a given marker—we would first like to address a more general issue. As we observed at various points in Section 4, the non-present interpretation of dynamic verbs is often a strong tendency, whereas the present interpretation of states constitutes no less than a rule. This observation indicates that previous accounts of these patterns need some nuancing. For instance, in his analysis of so-called 'factative markers', which yield a past interpretation with dynamic verbs and a present interpretation with stative ones, Welmers (1973, pp. 344–47) argues that they express "the most obvious fact about the verb in question, which in the case of active verbs is that the action was observed and took place, but for stative verbs is that the situation obtains at present" (Welmers 1973, pp. 346–47). Similarly, Smith and Erbaugh (2005, p. 716) claim that "bounded events are not located in the present". The default patterning indeed holds for present-time states: a present interpretation is least marked, and overruling it requires substantial contextual

labor (e.g., in the form of overt markers of past- or future-time reference). A non-present (past) interpretation is cognitively more taxing, as it involves a displacement from the here and now, and it is, therefore, not surprising that the non-present interpretation of dynamic verbs—while quite common—is not always obligatory.

Let us now move on to an explanation for the attested strategies in individual languages. In fact, in five out of six cases, we find that languages assign a past interpretation to the markers under consideration when they combine with dynamic verbs. Various explanations can be offered for this observation. For markers that have a meaning connected to the perfect, a past interpretation is obviously most sensible. However, given the cognitive plausibility of a past reading of dynamic verbs (cf. Smith and Erbaugh's so-called 'Simplicity Principle of Interpretation' (Smith and Erbaugh 2005, p. 716)), it may also simply be the case that, all other things being equal, the retrospective strategy is most standard, even for those constructions that are not related to original perfect-like constructions. The only exception to this general tendency in our sample is the epistemic supposition marker *kite* in Sanuma, which instantiates the prospective strategy. Note, first, that we find a very similar pattern for the modal auxiliary *may* in English, which can refer to a supposition about the present with stative verbs (29), but not with dynamic verbs, which take on a future reading (30). In order to arrive at a present interpretation, such dynamic verbs need to be imperfectivized by means of a progressive (31).

(29) *There's a strange noise coming from the kitchen. That **may be** the cat.*

(30) *They **may join** her for dinner (*currently/tomorrow).*

(31) *They **may be joining** her for dinner currently.*

What unites these various uses of both *will* and *kite* is that they involve a sense of prediction, either about a present or a future situation. Offering a prediction about a past situation obviously makes less sense. In the case of Sanuma, there is therefore a strong semantic motivation for adopting the prospective strategy (rather than the cross-linguistically more common retrospective strategy).

A last issue concerns the question of whether the data presented in this paper are an indication of zero-marking of aspect in the respective languages (as has been discussed in, e.g., Bybee 1994; Mo and Le Bruyn 2019; Bogaards 2019). This paper is not concerned with zero-marking of aspect in the strict sense, but rather with indirect aspect marking through various non-aspectual constructions. The term 'zero-marking' might apply to languages like the creole Sranan, where a zero perfective marker stands in obligatory opposition to an overt imperfective marker (De Wit and Brisard 2014). In the present case, however, the respective perfective constructions do not stand in opposition to another construction marking imperfectivity.

6. Conclusions

This paper has discussed the perfective meaning component of non-aspectual constructions in a number of genetically unrelated languages. By using the PPP as a diagnostic tool for perfectivity, we have shown that grams with very different functions may take on perfective overtones. The range of these functions, going from marking modality to encoding information structure, indicates that the distinction between perfectivity and imperfectivity plays a central role in our cognitive apparatus as reflected in language use. This, of course, raises the question of what the exact nature of this distinction is.

In this paper, we have proposed an epistemic approach to aspect, refining the definition given in Comrie (1976). Perfective aspect presents situations in their totality, as had already been observed by Comrie. In opposition to Comrie, however, we define the notion of 'totality' in epistemic terms: present-time situations referred to by perfective grams have to be entirely identifiable at the time of speaking, leading to a specific pattern of interaction with different verb classes. Situations reported by means of stative verbs are instantly identifiable in the ongoing present; dynamic situations, by contrast, can only be identified

in their entirety when located in a non-present time zone. This is why states have a present interpretation when reported by means of perfective grams, while events yield a non-present interpretation. What is innovative about this approach is that it goes beyond the characterization of aspect in solely temporal terms as is done in prior literature, adding an epistemic component to the semantics of aspectual grams.

We can conclude that all non-aspectual constructions discussed in this paper have a perfective meaning component, considering their time-referential properties depending on verb class. Importantly, there are no indications that this present/non-present pattern of stative/dynamic verbs is attested with other constructions in the languages under consideration. We take this as additional evidence for our claim that it is the grammatical construction rather than the actionality of the verb itself that is responsible for the perfective behavior.

The sense of full and instant identifiability thus constitutes a conceptual bridge between non-aspectual and aspectual constructions, accounting for various diachronic processes of grammaticalization which might appear implausible at first sight. Further typological research is needed to come to a systematic overview concerning which types of constructions can possibly evolve to take on perfective overtones, beyond the canonical ones that have been identified by Bybee et al. (1994) and others in their wake, and which cannot.

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Glossary

AUX	auxiliary
COP	copula
DAT	dative
DEM	demonstrative
DIST	distant
EMPH	emphasis
EPIST	epistemic
ERG	ergative
FOC	focus
GOAL	goal marker
INF	inferential
INTJ	interjection

IPFV	imperfective
LOC	locative
N.EGO	non-egophoric marker (denoting lacking involvement of the speaker in an action)
PFV	perfective
PRS	present
PST	past
Q.f	polar question particle inflected for female gender
WIT	present witnessed
3SG	third person singular

Notes

1 This is not to say that the only non-aspectual use of the Russian imperfective is a frustrative one.

2 Our reason for considering the Russian gram an imperfective marker which may also express frustrativity and the Kwaza gram a frustrative marker which may also express progressivity is based on the overall grammatical profile of the two languages: while Russian obligatorily distinguishes between perfective and imperfective verbs, Kwaza does not exhibit systematic marking of aspect.

3 As is also remarked in this issue by Gehrke (2022), the Russian present perfective can also take on a variety of non-future interpretations, which are not rare (see, e.g., Forsyth 1970; Timberlake 2004; Dickey 2017). The future use, however, can be considered the most natural and frequent interpretation.

4 We thereby consider the 'now' to be an extended temporal interval, in contrast to other authors who claim the time of speaking to be a punctual moment in time (e.g., Smith 1997, p. 110)—as Binnick (1991, p. 255) aptly puts it, "it takes time to utter a sentence".

5 It is impossible to do justice to all important works on aspect in this brief section. For instance, for more formal-semantically oriented approaches, we refer the reader to Verkuyl (2005) and Arche (2014).

6 David Gil (Max Planck Institute for the Science of Human History) on Southeast Asian languages (especially Indonesian); Stefan Dienst (unaffiliated) and Cindy and Jim Boyer (Summer Institute of Linguistics) for Kulina.

7 *Ke* is a morpheme that appears in a post-verbal position when the object is not directly adjacent to the verb (Guirardello 1999, p. 179).

8 The semantics of the morpheme *(i)yi* seems to be hard to grasp. Guirardello (1999, p. 70) characterizes it as similar to a resumptive pronoun.

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