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From Prolepsis to Hyperraising

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Abstract: Case, agreement, and A-movement dependencies across finite clause boundaries, such as Hyperraising (to subject or object) or Long-Distance Case or Agreement [LDA], are available in many typologically diverse languages. The research on such dependencies typically distinguishes between cross-linguistically restricted true A-dependencies across finite clauses, and generally available binding-like A′-dependencies as found in Prolepsis. In this paper, we investigate both types of configurations in parallel and refer to this as the 𝔄-domain. Since the diagnostics to distinguish 𝔄-configurations vary across languages and often cannot be compared directly, we define four characteristic properties: (A) whether the construction is restricted by matrix predicate selection, (B) whether movement in the embedded clause is involved, (C) whether the dependency shows locality restrictions (in particular, A-Minimality), and (D) whether there are semantic restrictions on the relevant DP. By combining different values of the characteristic properties, we show, differently from previous approaches, that the 𝔄-domain does not simply consist of two types of configurations, but that the empirical landscape represents a continuum of five 𝔄-constructions. We suggest a theoretical implementation of our empirical findings, which is built on a predicational relator phrase above the embedded CP and propose that, in some of the constructions, these two projections fuse into one. We employ a minimalist probing approach which relies on differences in the base-generated position of the relevant DP (matrix clause, high in the embedded clause, argument position in the embedded clause), differences in the feature composition of the embedded C (a plain A′-head, or a bundled predicational C head involving composite A/A′ probes), a composite probe hierarchy yielding three types of feature-dependencies of composite probes, and, resulting from that, different probing mechanisms (conjunctive satisfaction, dependent satisfaction, and independent satisfaction). Lastly, this paper also contributes methodological tools for disentangling constructions of the 𝔄-domain.

Keywords: A-dependencies; Hyperraising; Long-Distance Case/Agreement; Prolepsis; composite probes; probing mechanisms

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1. Introduction: The Empirical Domain of 𝔄

Languages differ in whether A-phenomena—case, agreement, and A-movement dependencies (e.g., Raising-to-Subject/Object)—can span across finite clause boundaries. While this is impossible in English as in (1a), other languages allow such forms of Hyperraising, as illustrated in the Brazilian Portuguese example in (1b). In this paper, we investigate the properties and distribution of different forms of finite A-phenomena and compare them with Prolepsis, illustrated in (1c).[1]

(1) a. *Nova seems (that) likes salad.
b. *Os meninos parecem* [*que viajaram ontem*].
the boys seem.3PL [that traveled.3PL yesterday]
'The boys seem to have traveled yesterday.' [[1]: 145, (3a)]
c. I believe of Nova that *(she) likes salad.

While the difference is easy to see in English(-like languages) (cf. the difference in grammaticality), in other languages, the distinction between the two configurations is not always obvious. One reason is that, in contrast to English, proleptic DPs (such as *of Nova* in (1c)) are not necessarily distinguished from RtO/LDA DPs in terms of case in some languages. Another reason is that, in both configurations, there is an obligatory dependency between the overt DP in the matrix clause and a position in the embedded clause, which, as shown in (1c), must be a pronoun in English, but it may also be a silent element in other languages. Although the syntactic configurations of Prolepsis and Hyperraising, LDA, Major Subject configurations, etc., are clearly distinct, we show in this paper that they nevertheless share one property—a predicational dependency—which allows us to unify Prolepsis and various types of cross-clausal A-dependencies [CC$\mathfrak{A}$]. We therefore define the empirical domain investigated as in (2).

(2) Domain $\mathfrak{A}$: Configurations in which
   a. A matrix A-element (argument (position), case assigner, agreement head) is in
   b. An obligatory dependency (Agree, movement, binding, predication) with another element (operator, argument (position), obligatorily bound pronoun, gap)
   c. Situated in an embedded finite clause.

This definition comprises, among other configurations, both Prolepsis and the traditional CC$\mathfrak{A}$ such as Hyperraising (RtO or RtS) or LDA.[2] In Prolepsis, it is the proleptic DP in the matrix clause (a) which enters into an obligatory binding dependency with an embedded element (frequently a pronoun) (b); in CC$\mathfrak{A}$, it is mostly a matrix functional head (a) which obligatorily agrees with or assigns case to a DP originating in the embedded finite clause (b). Importantly, the definition in (2) excludes dependencies such as *wh*-movement, pure topicalization, or relativization, since these dependencies are not A-, but A′-dependencies, and hence do not comply with clause (a) above (unless, of course, the A′-dependency is fed by a prior $\mathfrak{A}$-dependency). Variable binding also falls outside the scope of domain $\mathfrak{A}$, since it is not obligatory, and hence fails to respect clause (b), e.g., in the sentence *Every bird is convinced that her owner is lazy*, the pronoun *her* can indeed be bound by the matrix quantificational phrase *every bird*, but, crucially, it can just as well refer to a contextually salient female individual with no connection to any of the birds in question. It is, however, important to note that it is not the $\mathfrak{A}$-configurations themselves that are obligatory—on the contrary, they appear to always be optional (cf. (1c) with *I believe that Nova likes salad*)—but if such a configuration arises, then it involves an obligatory $\mathfrak{A}$-dependency. Finally, clause (c) restricts domain $\mathfrak{A}$ to finite contexts. Although the 'classical' raising or ECM configurations which span non-finite clause boundaries may also be subsumed under our analysis, we leave open whether or not such a unified approach should be pursued.

In this paper, we investigate the characterizing properties of configurations encompassed by domain $\mathfrak{A}$, including productivity, embedded movement, A-Minimality, and semantic restrictions such as specificity or topicality. This will lead us to the conclusion that, contrary to the prevailing separation of Prolepsis and CC$\mathfrak{A}$ in the literature, the distinction between these configurations is not binary. Rather, the empirical landscape of $\mathfrak{A}$ is more adequately captured by a continuous scale. In particular, we will show that, once the different values of the characterizing properties are considered, five flavors of $\mathfrak{A}$-dependencies arise, as illustrated in Table 1.[3] We implement this continuum in a theoretical framework consisting of three main points of variation: (i) the base position of the DP entering into an $\mathfrak{A}$-dependency [DP-$\mathfrak{A}$]; (ii) the properties of the projection heading the embedded clause; and (iii) the probing mechanism involved.

Table 1. The empirical landscape of 𝔄.

𝔄 Configurations	①	②	③	④	⑤
Known as	Prolepsis	Hyperraising (RtO or RtS) LDA, High Topic	Major Subject Major Object RtO	Hyperraising (RtO or RtS) LDA	Hyperraising (RtO or RtS)
Restricted matrix predicates (c-/l-selection)	no	yes	yes	yes	yes
Movement of DP.𝔄 within the embedded clause	no	no	yes	yes	yes
A-Minimality (highest A-DP)	no	no	no	yes	yes
Semantic restrictions of DP.𝔄	yes	yes	yes	yes	no
Languages	Buryat Croatian English German Japanese Korean Madurese Mongolian Nez Perce Puyuma Romanian ...	Braz. Portuguese Passamaquoddy	Japanese Korean	Romanian Tsez Turkish	Braz. Portuguese Buryat Mongolian Nez Perce Zulu ?Uyghur

This paper is organized as follows. In Section 2, we start with a summary of the findings regarding Prolepsis which will provide the basis for defining the characterizing properties of domain 𝔄-configurations and establish the syntactic property which, we hypothesize, underlies all domain 𝔄-configurations. Section 3 then illustrates the distribution of the four basic properties—productivity, embedded movement, A-Minimality, and semantic restrictions—for the remaining 𝔄-constructions. Our account is developed in steps, suggesting broad theoretical interpretations of each property including their variation. Finally, Section 4 pulls all properties together and provides an in-depth technical implementation of the observations following a minimalist probing account and the concept of composite probes. Our main conclusions are that the C-domain may involve composite probes consisting of mixed A- and A′-properties, and that the features are structured in three ways, yielding a hierarchy of (in)dependence among them, which lead to three probing mechanisms—conjunctive satisfaction, dependent satisfaction, and independent satisfaction.

2. Prolepsis: ①

2.1. General Properties

Prolepsis refers to configurations in which a DP (often introduced by a preposition) in the matrix clause obligatorily corresponds to a coreferent pronominal or variable in the embedded clause as in (3). (In some cases, a pronoun may be missing if it can be understood implicitly.) We refer to the proleptic DP as DP.𝔄. The bound element is not restricted to certain positions and can bear any grammatical function, as illustrated in (3).

(3) .... V DP.𝔄 [$_{CP}$ OP .... pronoun/gap]

a. Nova knows about Danny that Leo would bring #(him) salad soon.

b. Sheryl thought about/of Tim that the police would never catch him.
[[8]: 654, (34a)]
c. Danny knows about Nova that she likes salad.
d. Danny knows about Nova that her owner likes salad.
e. Danny knows about Nova that Leo adores her.
f. Danny knows about Nova that Leo gave her salad.

Prolepsis is very productive (in particular, as we will see below, compared to the other 𝔄-configurations). As shown by Salzmann [9], Prolepsis is possible in basically any context where a full propositional CP could occur (which, at least in German, can be associated with a verb, adjective or noun). It is generally not restricted to specific matrix predicates (but there may be case restrictions if DP.𝔄 receives structural case in a language, as shown by Horn [10]). The DP.𝔄 is unambiguously in the matrix clause, but does not necessarily receive a theta-role from the matrix verb [8,9]. For instance, as shown in example (4), it is possible with verbs such as *seem* in German. In some languages, for instance Nez Perce or Romanian, DP.𝔄 acquires true object status, which is one point of variation we have encountered.

(4) *Jeder hat einen Traum, von dem es scheint, [dass er nie in Erfüllung geht].*
everyone has a dream of which it seems [that it never in fulfillment goes]
'Everyone has a dream of which it seems that it never becomes true.'
[[9]: 5, (8d); corpus example]
German

A major syntactic property of Prolepsis is that the DP.𝔄/OP–pro(noun) dependency is unbounded and not sensitive to islands, as illustrated in example (5). (See Section 3.3 for further examples.)

(5) a. I believe about Richard [that he and Linda are in trouble]. [[8]: 659, (54a)]
b. I believe about Atin that [the story that she captured the thief is untrue].
[[8]: 659, (54b)]

Prolepsis also imposes semantic restrictions on DP.𝔄 which often resemble restrictions on topics (although the specifics may vary across languages). The general conclusion (see [8,9]) is that DP.𝔄 must be referential, specific, or generic, which is illustrated in (6) for English, (7) for German, and (8) for Nez Perce.

(6) a. I know of firemen that they are available. only generic
b. Nova said of a secretary that she is looking for him. only specific

(7) a. *Von Feuerwehrmännern weiß ich, dass sie verfügbar sind.*
of firemen.DAT know.1SG I that they available be.3SG
'Of firemen, I know that they are available.' [[9]: 15, (30b)]
(*existential; OK generic) German
b. *Von einer neuen Sekretärin sagte Peter, dass er sie suche.*
of a.DAT new secretary said.3SG Peter that he her seek.SUBJ.3SG
'Of a new secretary, Peter said he was looking for her.' [[9]: 15, (30c)]
(∃ > seek; *seek > ∃) German

(8) a. *Mary hi-ckaaw-na 'etke pro hi-neki-se [*
Mary.NOM 3SUBJ-be.scared-TAM because 3SG 3SUBJ-think-TAM [
naaqc-pa-ma lepe'eyepu-pe-me hi-peeleey-ne].
one-from-PL.NOM twins-from-PL.NOM 3SUBJ-go.missing-TAM]
'Mary got scared because she thought one of the twins was missing.'
Context: One twin is missing; Mary does not know which of the twins.
[[16]: 631, (22)]
Nez Perce

b. *Mary hi-ckaaw-na 'etke pro naaqc-pa-ma-na*
Mary.NOM 3SUBJ-be.scared-TAM because 3SG one-from-PL-ACC
pee-nek-se [pro hi-peeleey-n-e].
3/3-think-IPFV [3SG 3SUBJ-go.missing-3P-REM.PST]
'Mary got scared because she thought that one of them was missing.'
In a context where Mary does not know which specific twin is missing.
[[16]: 631, (24)]
Nez Perce

Furthermore, due to the semantic referentiality restriction, DP.𝔄 cannot be part of an opaque idiom, although this property is gradient.

(9) a. #Kelsey believed about the cat that it would be out of the bag. [[8]: 655, (41b)]
b. #John believes of the shoe that it's on the other foot. [[33]: 822, (81a)]
c. *John believes of advantage that it was taken of the workers. [[33]: 822, (82b)]
d. %*Die Rede, von der ich sagte, dass er sie geschwungen habe.*
the speech of which.DAT I said.1SG that he it swing.PTCP have.SBJV.3SG
'The speech of which I said he gave it.' [[9]: 11, (26a)]

2.2. The Syntactic Structure of Prolepsis

The existing accounts of Prolepsis differ in some details; however, they all converge on the assumption that Prolepsis involves a type of predication. For Salzmann, a propositional CP is turned into a predicate by a base-generated operator in Spec, CP, and DP.𝔄 acts as the subject of this predicative CP. The essential dependency is thus predication between DP.𝔄 and CP. For Takano [33], DP.𝔄 may be a Major Object expressing an aboutness relation, and it is speculated that the "matrix predicate selects a 'theme-rheme relation', so that it selects a pair of a proposition and a theme of the proposition" (p. 823). Similarly, Yoon [12], provides evidence that DP.𝔄 in Korean is subject to a Major Subject requirement, which leads to specificity and referentiality restrictions, and excludes DP.𝔄 as part of opaque idioms. Lastly, Landau [34] suggests that the semantic restrictions on DP.𝔄 are the result of its saturating a predicate: only referential elements may saturate predicates, which excludes (non-referential) idiom chunks as well as expletives as subjects of predicates.

Our account follows the above insights, and the structure we propose is given in (10).[4] Table 2 summarizes what we suggest are the characteristic properties of 𝔄-configurations, with the values for Prolepsis as discussed above. Below, we discuss these properties in detail.

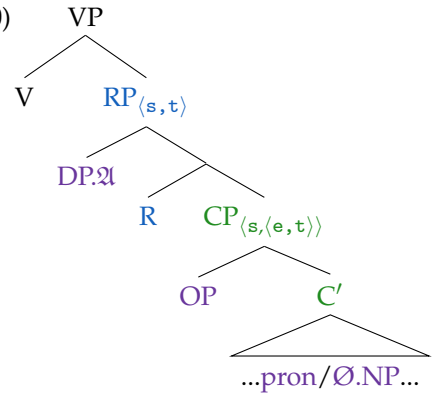
(10)


Table 2. Prolepsis.

𝔄	**Prolepsis ①**	**Properties**
A	Restricted matrix predicates	no
	Complement of V	RP
B	Movement within emb. CP	no
	Origin of DP.𝔄 above emb. C	yes
	DP.𝔄 base position	Spec, RP
	Island-sensitivity	no
	Connectivity effects	no (only via pronoun)
C	A-Minimality (highest A-DP)	no
D	Semantic restrictions of DP.𝔄	referential, specific, generic

As shown, we implement the predication configuration via a R(elator)P(hrase) (relator head) as in [35,36] (similar assumptions about a relator phrase are made in [9,37]; the concept of clauses being built as fundamental subject–predicate relations (which may perseverate up the tree; L. Travis, p.c.) can be seen as going back to [38]). The R head relates its specifier and complement via predication (similarly to argument-introducing heads). Spec, RP is therefore an A-position (we assume that prepositions introducing DP.𝔄, as in English, are semantically vacuous, possibly simple case markers). As indicated in (10), RP is a semantic proposition, but the CP-complement of R is a predicate. The first property in Table 2, productivity (A), follows straightforwardly in a *synthesis* model of complementation, as in [39]. It is suggested there that complement clauses are not syntactically selected, but that there are various semantic requirements imposed by different types of verbs. The verbs relevant for Prolepsis are verbs requiring a semantic proposition. Following, among others, [40] or [41], the canonical structure for propositions is a CP, but given the lack of c-selection, RP is also a possible complement of verbs requiring a proposition, since RP and CP are effectively semantically identical (the only difference may lie in their information-structural properties). CP and RP can thus alternate freely, and as a result, Prolepsis is always optional.

Property B specifies whether in 𝔄-configurations, DP.𝔄 undergoes movement from the embedded clause. The sub-properties to determine this are island-sensitivity and connectivity effects. In Prolepsis configurations, there are neither, suggesting that there is no movement crossing the embedded clause. Our structure captures this via RP—DP.𝔄 is base generated between the matrix verb and the embedded clause. To establish the dependency between DP.𝔄 and an embedded pronoun or position, we follow [9,36], who suggest an embedded operator configuration. The operator is base generated in the embedded Spec, CP (hence no island-sensitivity), turning the CP into a predicate. Furthermore, the operator relates to the pronoun/gap via an unselective (unbounded) binding-like dependency. Since there is no movement, we also do not find connectivity effects, i.e., properties that locate DP.𝔄 in a lower position. The only effects that have been observed are certain (apparent) reconstruction effects. As shown in [9], however, these can be attributed to the presence of an underlying full NP structure of pronouns in Prolepsis (similar to the view of pronouns as definite descriptions in [42] or [43]). Distinguishing reconstruction effects that arise through the refined structure of pronouns from true reconstruction effects of DP.𝔄 allows for a more consistent picture of this property.

Property C, whether there are A-Minimality effects, is given for completeness, as it will become relevant later. Since there is no movement in Prolepsis, no form of Minimality is found.

Lastly, regarding property D, one option, similar to [34], is that the semantic restrictions are imposed by R, which, in addition to a basic predication relation, could be specified

for further semantic restrictions. Since, as we will see in the course of this paper, R does not always impose (the same) semantic restrictions, we take the basic function of R to be a simple saturation operation relating the specifier and complement via predication, similar to the relation between a DP and VP, mediated by v (see [44]). Another factor affecting the semantic properties is the possibility of further movement in the matrix clause, which, similar to object shift, locates DP.𝔄 outside the nuclear scope of the matrix VP.

2.3. Possible Variation and Further Distinctions

In the basic structure in (10), DP.𝔄 is base generated in Spec, RP below the matrix verb, which, we propose, is the case in all Prolepsis configurations. Languages differ, however, regarding whether this is a case position and/or whether further movement applies. There is no uniformity across languages (for any 𝔄-construction) regarding the surface position of DP.𝔄 with respect the matrix verb. In some languages, DP.𝔄 is obligatorily below the matrix verb, in some above it, and in yet others it can vary. In all languages, independently of the overt position, DP.𝔄 appears to take scope over the matrix verb, which may, however, be related to the semantic restrictions imposed (cf. the observation in [45,46] that specific interpretations in Germanic typically arise in a position outside the VP, i.e., a position above the verb). Nothing in our account requires nor prohibits further overt or covert A-movement of DP.𝔄, which correctly reflects the cross-linguistic options. For instance, as noted in [14], Madurese and Puyuma differ regarding the position of DP.𝔄 with respect to the matrix verb, which we would relate to language-specific differences regarding further movement of DP.𝔄, but importantly, such word order differences are orthogonal to the typology of 𝔄.

A second point of variation concerns the matrix argument status of DP.𝔄. While, as far as we were able to determine, Prolepsis always shows predicational properties, whether DP.𝔄 also functions as an argument of the matrix verb is subject to variation. The most restricted language in this respect is Nez Perce, which is the only language we have encountered so far where Prolepsis is highly restricted. As noted by Deal [17], 𝔄-configurations, including Prolepsis, occur "with all and only verbs that license a matrix *res* object position within VP" ([17], p. 8). For instance, 𝔄 is found with *think* and *know* ([16], p. 633), but prohibited with all other verbs (e.g., *say*/*tell*, which in other languages allow at least Prolepsis very easily, cannot involve 𝔄-configurations; [16,17]). We follow Deal in that Prolepsis in Nez Perce involves a true semantic argument of the matrix verb, which can be derived in our approach by movement of DP.𝔄 from Spec, RP to a matrix object *res* position. A possible way to derive the difference between languages that require movement from Spec, RP and those that don't would be for R to have different case properties: in languages where movement must apply, R would not be a case licenser and Spec, RP hence not a case position. Since Nez Perce Prolepsis otherwise matches all properties of Prolepsis, we still include it here and assume the same basic RP configuration. We derive Deal's structure from the general Prolepsis structure with one short movement step.

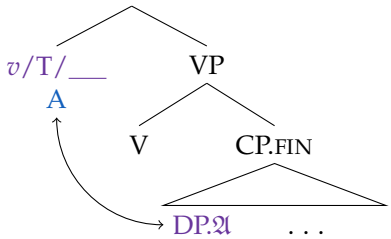
In the next section, we turn to other 𝔄-configurations, using Prolepsis as a baseline and comparing other constructions to it. The four groups of properties (A–D in Table 2) will be established one by one, leading eventually to a five-way split. Our account will be developed step by step by implementing the findings and variation of the empirical distribution.

3. Cross-Clausal 𝔄-Dependencies [CC𝔄]: ②–⑤

3.1. Illustration of Basic CC𝔄-Configurations

We have proposed that, in Prolepsis ①, the DP.𝔄 is base generated in the matrix clause, above the embedded CP, and, somewhat simplified, is associated with an embedded element in an indirect manner, by means of predication and a binding-like dependency. We now turn to the other four types of 𝔄-constructions, ②–⑤ (hereinafter CC𝔄), which, in contrast to Prolepsis, all involve a concrete A-dependency that crosses a finite clause boundary, such as a case dependency, agreement with a matrix head, or A-movement. The common structure of CC𝔄 (to be slightly revised below) can thus be represented as in (11).

(11) ②–⑤ (to be revised below)



Before discussing the CC𝔄 properties in detail, we briefly illustrate the four CC𝔄-configurations. Example (12) shows what we refer to as the High Topic construction in Brazilian Portuguese, a CC𝔄-configuration of type②. The example involves a finite embedded clause, and, at the same time, shows agreement between the matrix verb *seem* and the subject originating in the embedded clause, the DP.𝔄 *the boys*. Note that the DP.𝔄 cannot be a base-generated subject of the matrix predicate since *seem* is a raising verb which does not thematically license a subject. Although it is obligatorily a topic (see Section 3.4.2), it also cannot be a base-generated matrix topic, since topics do not trigger agreement. According to [1], DP.𝔄 originates as a topic base-generated in the left periphery of the embedded clause and undergoes Hyperraising to the matrix clause. The latter step is what constitutes a CC𝔄-dependency.

(12) *Os meninos parecem* [*que eles viajaram ontem*].
the boys seem.3PL [that they traveled.3PL yesterday]
'The boys seem to have traveled yesterday.' [[1]: 145, (3b)]
Brazilian Portuguese High Topic: ②

Example (13) is a case of the Korean Major Subject Raising-to-Object construction (see [12]) and illustrates a CC𝔄-configuration of type ③. The embedded clause is, once again, a finite CP; the embedded subject *Yenghi* receives accusative from the matrix verb *believe* and moves into the matrix clause. Although the example in (13) could also involve a Prolepsis configuration, we show below, following [12,13], that a CC𝔄-configuration exists as well.

(13) *Cheli-nun Yenghi-lul* [*yenglihay-ss-ta-ko*] *mitnun-ta.*
Cheli-TOP Yenghi-ACC [smart-PST-DECL-COMP] believe-DECL
'Cheli believes Yenghi to have been smart.' [[12]: 616, (1b)]
Korean MS RtO: ③

CC𝔄-configurations of type ④ are illustrated in example (14) for Romanian and (15) for Tsez. In Romanian (14a), the embedded subject *Victor* undergoes RtO to the matrix clause where it receives differential object marking. In contrast to Prolepsis, (14b), the object cannot be picked up by an overt pronoun as in (14c), which, following [22], can be taken as evidence that we are dealing with a different configuration, specifically a CC𝔄-derivation (below, we will see that Romanian also allows RtS). The Tsez example in (15) involves LDA between the matrix verb *know* and an absolutive argument embedded in a finite clause, thus clearly showing a CC𝔄-dependency.

(14) a. *L-am mirosit pe Victor* [*că e fericit*].
him-have.1SG smelled DOM Victor [that is.3SG happy]
'I figured out that Victor is happy.' [[22]: 256, (1d)]
Romanian RtO: ④

b. ?*M-a avertizat despre Maria* [*că ea nu acceptă invitaţii*].
me-has warned about Maria [that she not accepts invitations]
'He warned me about Maria that she does not accept invitations.'
[[22]: 269, (32a)]

c. *L-am văzut pe Petre* [*că e (*el) foarte prietenos*].
him-have.1SG seen DOM Petre [that is (*he) very friendly]
'I saw/realized that Peter is very friendly.' [[22]: 269, (32c)]

(15) *eni-r* [*už-ā* *magalu* *b-āc'ru-łi*] *b-iy-xo.*
mother-DAT [boy-ERG bread.III.ABS III-eat-PST.PRT-NMLZ] III-know-PRES
'The mother knows the boy ate the bread.' [[24]: 584, (1b)]
Tsez LDA: ④

Finally, the examples in (16) show instances of the type ⑤ configuration. Brazilian Portuguese Hyperraising (16a) involves RtS and agreement across a finite clause boundary. Superficially, (16a) appears to differ from the High Topic construction in (12) only in the absence vs. presence of an embedded pronoun. However, in the course of the discussion, we will see that the two constructions differ in several properties, warranting distinct derivations. Zulu (16b) invovles RtO across a finite clause boundary, evident from object agreement between the matrix verb *want* and the embedded subject *Sipho*, as well as from the latter's position to the left of the embedded complementizer. Zulu also has RtS as in (16d); again, agreement with the matrix verb *seem* and the position of the embedded subject *Zinhle* indicate that we are dealing with a CC$\mathfrak{A}$-configuration. Lastly, an RtO configuration can also be found in Nez Perce (16d): the example shows agreement between the embedded DP *children* and the matrix verb *think*. In addition, the matrix subject *woman* bears ergative case (if object agreement were missing, the matrix subject would be realized as nominative), which is why Deal [17] argues that the configuration additionally involves covert RtO of the embedded DP.

(16) a. *Os meninos parecem* [*que viajaram* *ontem*].
the boys seem.3PL [that traveled.3PL yesterday]
'The boys seem to have traveled yesterday.' [[1]: 145, (3a)]
Brazilian Portuguese Hyperraising: ⑤

b. *ngi-ya-m-funa* *uSipho* [(*ukuthi*) *apheke* *iqanda*].
1SG-YA.1.O-want AUG.1.Sipho [(that) 1.SBJ.cook AUG.5.egg]
'I want Sipho to cook an egg.' [[30]: 476, (2)]
Zulu RtO: ⑤

c. *uZinhle* *u-bonakala* [*ukuthi u-zo-xova* *ujeqe*].
AUG.1Zinhle 1S-seem [that 1S-FUT-make AUG.1steam.bread]
'It seems that Zinhle will make steamed bread.' [[31]: 124, (3b)]
Zulu RtS: ⑤

d. *'Aayat-onm* *hi-nees-nek-se* [*watiisx* *mamay'ac*
woman-ERG 3.SBJ-O.PL-think-IPFV [1.day.away children.NOM
hi-pa-paay-no']
3.SBJ-S.PL-arrive-FUT]
'The woman thinks the children will arrive tomorrow.' [[17]: 6, (13)]
Nez Perce RtO: ⑤

As will be established more clearly below, the four types of CC$\mathfrak{A}$-constructions share the property that an A-dependency applies across a finite clause boundary. Furthermore, as will be shown presently, they are attested only with a (cross-linguistically variable) subset of matrix predicates. (Recall that Prolepsis, in contrast, is a rather productive configuration.) In the following subsections, we will go through the characteristic properties of domain $\mathfrak{A}$-configurations (A–D in Table 3) and show that CC$\mathfrak{A}$-constructions, together with Prolepsis, form a kind of cline, differing among each other with respect to the locality restrictions they impose on the A-dependency, as well as with respect to the semantic properties required of the DP.$\mathfrak{A}$. It is comparing the CC$\mathfrak{A}$-configurations with respect to these latter properties that results in a scalar typology of CC$\mathfrak{A}$ as in Table 3, yielding the constructions ②–⑤. We illustrate each of the properties differentiating the $\mathfrak{A}$-configurations (Prolepsis and CC$\mathfrak{A}$) and provide a step-by-step implementation of the observed differences, leading to a uniform general theory of $\mathfrak{A}$-configurations which also provides room for the observed points of variation.

Table 3. Properties of 𝔄-configurations.

𝔄-Configurations		①	②	③	④	⑤
Known as		Prolepsis	HyR, LDA High Topic	Major Subject Object, RtO	HyR, LDA	HyR
A	Restricted matrix predicates (c-/l-selection)	no	yes	yes	yes	yes
B	Movement of DP.𝔄 within the embedded clause	no	no	yes	yes	yes
C	A-Minimality (highest A-DP)	no	no	no	yes	yes
D	Semantic restrictions of DP.𝔄	yes	yes	yes	yes	no

3.2. Distinction A: Productivity and Basic Structure of CC𝔄

In this section, we discuss difference between Prolepsis and CC𝔄 in terms of their productivity. We show that this difference correlates with another property, an apparent improper movement/Agree violation, and suggest a structural difference between Prolepsis and CC𝔄 which ties the two properties together.

Starting with productivity, in contrast to Prolepsis, CC𝔄 is restricted both within and across languages. Not only is the set of languages that allow CC𝔄-configurations smaller when compared to the set of languages that allow Prolepsis, CC𝔄 also has a more restricted distribution in languages that allow it in principle. CC𝔄 is typically only compatible with specific verbs—in contrast to Prolepsis, which shows a higher degree of productivity. Even though the set of verbs which allow CC𝔄 shows similarities across languages, the exact distribution varies from language to language. One cross-linguistic tendency we have observed is that verbs of knowledge, belief, and perception are common among the CC𝔄 verbs, whereas speech verbs such as *say* are often not compatible with CC𝔄. Yet, we show below that there are languages where speech verbs can also trigger CC𝔄. Thus, although the tendency may point to a semantic restriction (see, for instance, Deal's requirement that DP.𝔄 functions as a matrix *res* argument in Nez Perce [16]), it is not clear at this point whether this can be extended to all CC𝔄-constructions and languages. Furthermore, the kind of semantic restrictions imposed on CC𝔄 also vary across languages (see Section 3.4.2), which makes a uniform semantic approach unlikely. Instead, we suggest that while Prolepsis only involves semantic selection by the matrix predicate (the complement must be a proposition), CC𝔄 involves both semantic and syntactic selectional restrictions.

Among the languages that do not allow CC𝔄 with speech predicates is Romanian, illustrated in (17). While verbs of knowledge, (17a), or perception verbs, (17b), allow RtO, the same configuration is excluded in (17c) if the matrix verb is changed to the verb *say*. Note that in these cases, the indicative complementizer is used, and the configurations therefore cannot involve clause reduction as is often suggested for finite subjunctives, thus they are true CC𝔄-contexts. Similarly, there are restrictions for RtS: while RtS is possible under *seem*, as in (18a), it is not possible if the matrix verb is *happen*, as in (18b).

(17) a. *L-am mirosit pe Victor* [*că e fericit*].
him-have.1SG smelled DOM Victor [that is.3SG happy]
'I figured out that Victor is happy.' [[22]: 256, (1d)]

b. *Am auzit pe Mihai* [*că repară casa*].
have.1SG heard DOM Mihai [that fixes house.the]
'I've heard that Mihai is fixing the house.' [[22]: 256, (1c)]

c. **L-am zis pe Victor* [*că e fericit*].
him-have.1SG said DOM Victor [that is.3SG happy]
'I said that Victor is happy.' [G. Alboiu, p.c.]

(18) a. *Studenţii păreau* [*că au venit de la plajă*].
students.the seem.IMPF.3PL [that have.3PL come from at beach]
'The students seemed to have arrived from the beach.' [I. Giurgea, p.c.]

b. **Studenţii s-au nimerit* [*că au venit de la plajă*].
students.the REFL-have happened [that have.3PL come from at beach]
Int.: 'The students happened to arrive from the beach.'
[I. Giurgea, p.c., based on [22]: 274, (42)]

On the other hand, there are languages where the incompatibility of CC𝔄 with speech verbs does not hold. For instance, Brazilian Portuguese allows RtS in a *say* context as shown in (19a).[5] CC𝔄 in speech verb contexts is also available in Mongolian, Uyghur, and Buryat RtO/LDA, as illustrated for Mongolian in (19b). That we are looking at a CC𝔄-configuration can be inferred from the accusative case of the embedded subject (which, as argued in [15], can only originate from the matrix verb), as well as the idiomatic interpretation of the DP.𝔄 in (19b). In many languages, the possibility of DP.𝔄 to be interpreted as part of an embedded idiom is indicative of CC𝔄 and contrasts with Prolepsis where idiomatic construals are excluded. (See Section 3.3 for further discussion.)

(19) a. *Ele disse* [*que comprou um carro*].
he said [that bought a car]
'He$_i$ said that he$_i$ bought a car. [[2]: 4, (6)]

b. *Dorj chang-aar* [*Bat-iin nüd(-iig) oree deer-ee gar-san gej*]
Dorj loud-INSTR [Bat-GEN eye(-ACC) top on-REFL.POSS climb-PST COMP]
khel-sen.
say-PST
(Lit.: 'Dorj said loudly that Bat's eyes climbed on top of themselves.')
'Dorj said loudly that Bat was very surprised.' [[15]: 4, (11)]

The restricted distribution of CC𝔄 within languages is further illustrated by RtO in Japanese, a construction of type ③ in our typology. (For a summary of restrictions in other languages, see Appendix A.) The literature involves conflicting claims about the relevant construction in Japanese, which may, at least in part, be due to the fact that Prolepsis and CC𝔄 are not always clearly distinguishable (see also [48]). On the one hand, Hoji [49] and Kobayashi and Maki [50,51] claim that CC𝔄-constructions are highly productive and can basically occur with any CP-complement. In other words, no lexical selection is involved, which would be expected for Prolepsis. Horn [10] and K. Shimamura (p.c.), on the other hand, endorse the view that there are indeed some restrictions, but that the class of verbs that allow RtO in Japanese is clearly larger than the one allowing ECM in English. (In Horn's Appendix, 276 verbs are listed.) Crucially, once a clear RtO-property is used in what looks like a CC𝔄-configuration, many matrix verbs are not allowed anymore. This is illustrated in (20) by means of case stacking, a property where a DP receives two cases, assigned in different positions. A basic example is given in (20a) where the subject *only Taro* receives dative in a potential configuration,[6] which is then topped with nominative, the regular subject case.[7] As shown in (20b), in a 𝔄 context under the verb *think*, dative can (at least marginally) appear in addition to accusative. The possibility of dative is evidence for RtO since dative can only come from the embedded predicate (and, as we argued in Section 2, the proleptic DP.𝔄 is base generated in the matrix clause). Changing the verb to *say* in (20c) decreases the possibility of case stacking significantly. Omitting dative, on the other hand, is possible, which shows that a Prolepsis configuration is available in (20c) (the accusative DP is base generated in the matrix clause and has no connection to the embedded verb). Lastly, in (20d), the verb is changed to *conclude/assert*, which does not allow case stacking (i.e., RtO) at all, and only permits Prolepsis. This can be explained straightforwardly by means of selection—*think* is a verb that allows CC𝔄 (and, consequently, case stacking), but *conclude/assert* does not. Since this latter verb is not a knowledge, belief, or perception verb, and given the cross-linguistically observable tendency that CC𝔄 verbs mostly belong to one of these classes, this is expected.

(20) a. *Taroo-ni-dake*(*-ga*) *eigo-ga* *hanas-e-ru.*
Tari-DAT-only(-NOM) English-NOM speak-can-PRS
'Only Taro can speak English.' [K. Shimamura, p.c.]

b. *Taroo-wa* *Hanako*(*?-ni*)*-dake-o* [(*t*) *eigo-ga* *hanas-e-ru-to*]
Taro-TOP Hanako(?-DAT)-only-ACC [(*t*) English-NOM speak-can-PRS-COMP]
omot-tei-ru.
think-ASP-PRS
'Taro thinks that only Hanako can speak English.' [K. Shimamura, p.c.]

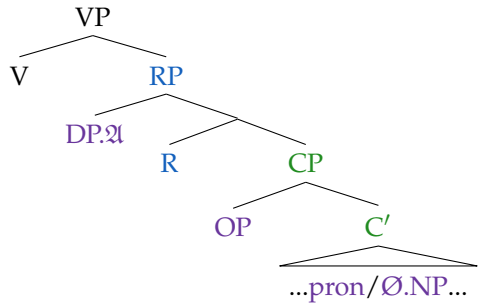
c. *Taroo-wa* *Hanako*(*??-ni*)*-dake-o* [(*??t*) *eigo-ga*
Taro-TOP Hanako(??-DAT)-only-ACC [(*??t*) English-NOM
hanas-e-ru-to] *it-tei-ru.*
speak-can-PRS-COMP] say-ASP-PRS
'Taro says that only Hanako can speak English.' [K. Shimamura, p.c.]

d. *Koji-wa* *Eri*(**-ni*)*-dake-o* [(**t*) *eigo-ga* *hanas-e-ru-to*]
Koji-TOP Eri(*-DAT)-only-ACC [(**t*) English-NOM speak-can-PRS-COMP]
dantei-si-ta.
conclude/assert-do-ASP-PST
'Koji concluded/asserted that only Eri can speak English.'
[K. Shimamura, p.c.]

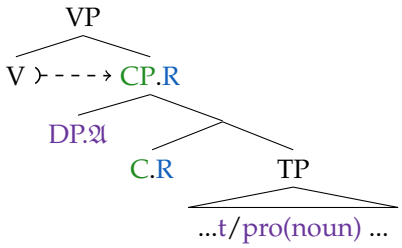
Following this line of reasoning, we assume that, in order for a CC𝔄-configuration to arise, the matrix verb needs to lexically select a special CP, and that the configurations in ②–⑤ thus all involve such a CP. We term this special CP 'CP.R' and propose that it bundles the A-properties of a predicational RP (such as the RP involved in Prolepsis; see Section 2) with the A′-properties of a (regular) CP (similar to a bundled IP, bundling tense, agreement; see [52]). The cross-linguistically restricted distribution of CC𝔄-configurations can then be explained if such a bundled CP.R is not available in all languages—in English, for instance, RP and CP can only occur separately, leading to the possibility of Prolepsis ①, but the impossibility of CC𝔄 (configurations ②–⑤). Moreover, in contrast to RP, whose distribution is fairly unrestricted (both cross-linguistically and with respect to different verbs within a language), CP.R has to be lexically selected and therefore, in languages that allow CP.R, not all verbs can combine with a CP.R complement.[8]

Semantically, C.R combines with a predicate—a complement with an open position. Recall from Section 2 that Prolepsis involves a similar configuration: the R-head combines with a derived CP-predicate. The two configurations (Prolepsis and CC𝔄) are illustrated in (21). Since C.R combines the properties of R and C (e.g., topic or focus), it functions as a mixed A′/A element and constitutes a composite probe in the sense of [55] (see Section 4 for the specific workings of the probing properties of C.R in CC𝔄-configurations). The C-part of C.R may impose A′-flavors, such as (but not limited to) a topic or Major Subject interpretation. The R-part of C.R plays a similar role to the pure R-head in Prolepsis: it establishes a predication relation between the argument in its specifier and its complement, thereby setting up an A-dependency. Note that in our approach, CP.R is not simply an A-projection. The A-nature arises only for the argument that enters the predication relation; any further XPs that do not saturate an argument slot of the complement of C.R remain regular A′ elements (see [54] for examples from Japanese which show that only the DP.𝔄 appears in an A-position, whereas, at the same time, other DPs that move through the embedded CP obligatorily qualify as A′ elements).

(21) a. ①



b. ②–⑤



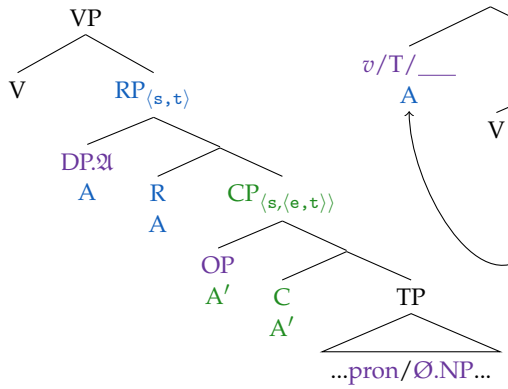
This approach allows us to address one of the major issues CC𝔄 poses for many theories. In Section 3.1, we suggested, following the literature, that in CC𝔄-contexts, an actual A-dependency (case, agreement, or A-movement) crosses a finite clause boundary. In most theoretical approaches, this is typically impossible. To prevent A-dependencies across CPs (e.g., in languages such as English), some form of the constraint in (22) is typically assumed, prohibiting a case, agreement, or thematic dependency involving a DP occupying a pure A′ position.

(22) *Improper A-after-A′*:
An A-dependency involving X cannot follow a pure A′-dependency with X.

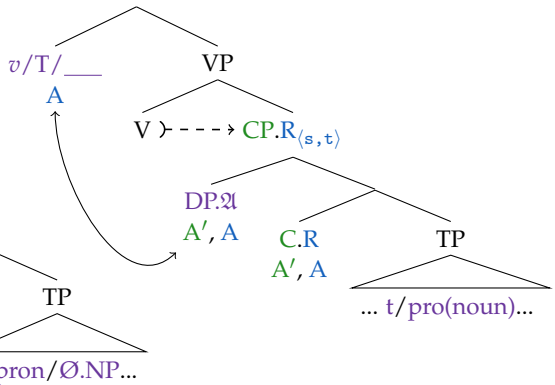
Note that we use constraints such as (22) simply as an additional descriptive tool to diagnose the nature of syntactic positions (in addition to the usual A vs. A′ diagnostics). We neither endorse, derive, nor worry about such a constraint.[9] The important point is that this characteristic distinguishes Prolepsis from CC𝔄. In Prolepsis, no issue arises regarding (22) since no A-dependency crossing a clause boundary is involved. Recall that the proleptic DP.𝔄 is predicated over by the entire embedded clause saturating its open position. CC𝔄-configurations, on the other hand, involve a clear A-dependency between an element in the matrix clause and DP.𝔄, which originates in the embedded clause.

The combined A′/A status of C.R and the specifier position which C′ predicates over has the advantage that the apparent selective behavior of (22) can be derived: while a regular CP is always subject to (22), CP.R is able to 'rescue' violations of (22). This is illustrated in (23). The structure in (a) shows a Prolepsis configuration, where the embedded CP-predicate is a pure A′ domain, and therefore allows no A-dependencies across it. The specifier of CP.R in (b), in contrast, is a mixed position, making the DP in this position an eligible target for matrix A-probes.[10]

(23) a. ①



b. ②–⑤



The state of affairs discussed so far is summarized in Table 4.

Table 4. Properties of 𝔄-configurations: Distinction A.

𝔄		①	②	③	④	⑤
Known as		Prolepsis	HyR, LDA High Topic	Major Subject Object, RtO	HyR, LDA	HyR
A	Restricted matrix predicates (c-/l-selection)	no	yes	yes	yes	yes
	(Apparent) Improper movement/Agree violation	no		yes		
	Complement of V	RP		CP.R		
B	Movement within embedded CP	no	no	yes	yes	yes
C	A-Minimality (highest A-DP)	no	no	no	yes	yes
D	Semantic restrictions of DP.𝔄	yes	yes	yes	yes	no

3.3. Distinction B: Movement

Having provided an account for distinction A, which sets Prolepsis ① apart from CC𝔄 configurations ②–⑤, we now turn to the second characteristic property of our scalar typology of domain 𝔄, namely whether DP.𝔄 undergoes movement within the embedded clause. There are two types of evidence we will use in this section to determine the value of this property: island-sensitivity and connectivity effects. Connectivity refers to a range of morphosyntactic properties that derivationally tie the actual DP.𝔄 to a lower position. Together, these observations will then lead to different structures of the 𝔄-constructions; in particular, to different base positions of DP.𝔄.

In Section 2, we have seen that Prolepsis is not island sensitive, which we took to show that there is no movement involved (from the embedded clause; there may be movement from Spec, RP to a higher position in the matrix clause). Interestingly, among the CC𝔄-constructions, one type also does not show island-sensitivity, nor connectivity effects. As illustrated in Table 5, and as will be shown in more detail presently, this distinction groups the configurations ①–② together, against configurations ③–⑤.

Table 5. Properties of 𝔄-configurations: Distinction B.

𝔄		①	②	③	④	⑤
Known as		Prolepsis	HyR, LDA High Topic	Major Subject Object, RtO	HyR, LDA	HyR
A	Restricted matrix predicates (c-/l-selection)	no	yes	yes	yes	yes
	(Apparent) Improper movement/Agree violation	no		yes		
	Complement of V	RP		CP.R		
B	Movement within embedded CP	no	no	yes	yes	yes
	DP.𝔄 base position	Spec, RP	Spec, CP	gap position		
	Island-sensitivity		no	yes		
	Connectivity effects		no	yes		
C	A-Minimality (highest A-DP)	no	no	no	yes	yes
D	Semantic restrictions of DP.𝔄	yes	yes	yes	yes	no

Connectivity effects vary from language to language and are subject to language-specific properties (such as, for instance, the morphosyntactic case properties of a language). One connectivity effect we have seen already in (20) for Japanese is case connectivity—the case of DP.𝔄 is fully or partially determined in a position below the embedded C. (Other languages include Nez Perce, Korean, and Tsez.)

Nez Perce presents perhaps the clearest case of case connectivity. As shown in (24), in all of these examples, the DP *children* agrees with the matrix verb *think* and acquires matrix object status, as is evident from the ergative marking on the matrix subject. These cases are thus finite RtO configurations, specifically type ⑤ configurations. The case of the agreeing DP.𝔄s, however, depends entirely on the grammatical functions of DP.𝔄 in the embedded clause: if the embedded clause involves a transitive verb as in (24a) or (24c), DP.𝔄 receives ergative or accusative case, depending on whether it is the subject or the object of the embedded verb. If, on the other hand, the embedded clause involves an intransitive verb as in (24b), the DP.𝔄 receives nominative case. Thus, RtO cannot be seen as a case-driven operation—in all of (24), DP.𝔄 is fully (and exclusively) case-licensed in the embedded clause, but it nevertheless induces object agreement on the matrix verb and undergoes covert RtO.

(24) a. *Taamsas-nim hi-nees-nek-se* [*mamay'as-nim poo-payata-six*
Taamsas-ERG 3.SBJ-O.PL-think-IPFV [children-ERG 3/3-help-IPFV.S.PL
Angel-ne].
Angel-ACC]
'Taamsas thinks the children are helping Angel.' [[17]: 5, (11)]

b. *'Aayat-onm hi-nees-nek-se* [*watiisx mamay'ac*
woman-ERG 3.SBJ-O.PL-think-IPFV [1.day.away children.NOM
hi-pa-paay-no'].
3.SBJ-S.PL-arrive-FUT]
'The woman thinks the children will arrive tomorrow.' [[17]: 6, (13)]

c. *'Aayat-onm hi-nees-nek-se* [*watiisx mamay'as-na Angel-nim*
woman-ERG 3.SBJ-O.PL-think-IPFV [1.day.away children-ACC Angel-ERG
hi-naas-wapayata-ya].
3.SBJ-O.PL-help-PERF]
'The woman thinks Angel helped the children yesterday.' [[17]: 6, (16)]

Other connectivity effects discussed in the works on 𝔄-configurations are: tracking a lower trace position via Proper Binding Condition [PBC] violations (Buryat, Japanese, Korean, Mongolian, Romanian; Passamaquoddy[11]); Binding (Buryat, Romanian, Zulu); NPI licensing by embedded negation (Brazilian Portuguese, Japanese, Korean, Mongolian, Uyghur); or idiomatic construals of DP.𝔄 with the lower predicate (Brazilian Portuguese, Buryat, Mongolian, Uyghur, and Zulu). Since connectivity effects vary greatly across languages, a "yes" classification in our Tables should be understood in a way that at least some such connectivity effect can be detected in the relevant configuration. (Additionally, recall the caveat about apparent reconstruction effects in Prolepsis mentioned in Section 2, which may arise due to the refined structure of the embedded pronouns). We provide some illustration here; for further data, see Appendix C.

Among others, case stacking and PBC effects can be used in Korean to test the value of distinction B in 𝔄-configurations. Furthermore, the interaction of these two properties reiterates an important methodological point which we have already raised for the distinction between Prolepsis and RtO in Japanese. Our premise is that in a single language, more than one 𝔄-configuration can be available. In order to conclusively determine the properties of a particular 𝔄-construction, it is then necessary to combine two of the diagnostic, and, in particular, mutually exclusive, properties of different 𝔄-types. Once this is done, clear generalizations emerge, which would otherwise be overlooked.

For some speakers of Korean, RtO examples such as (25a) allow case stacking—the accusative marked RtO object *from here* also realizes the case/preposition assigned in the embedded predicate (*from*). Since the *from* marking cannot come from the matrix predicate, such constructions represent a CC𝔄-configuration involving movement of DP.𝔄 from within the embedded predicate where the *from* relation is realized. This conclusion is further supported by PBC effects, which arise when a remnant XP containing a trace, such as the embedded CP in (25b) from which DP.𝔄 has been extracted first, moves across the

extracted element. If, on the other hand, DP.𝔄 is base generated in the matrix clause, as in the Prolepsis configuration in (25c), no movement takes place (hence the embedded CP does not contain a trace), and no PBC violation arises. Korean thus allows both Prolepsis ① and RtO, specifically, a type ③ configuration in our typology. Summarizing, (25c) is a case of Prolepsis, which is not subject to the PBC and does not show case connectivity; and (25a) is a case of RtO, which is subject to the PBC and may show case connectivity. That we are indeed dealing with two distinct derivations and not an 'anything goes' scenario is shown by the fact that mixing and matching of the properties is not possible. (25b) is excluded because case stacking is incompatible with Prolepsis, and remnant movement is incompatible with RtO, leaving no possible derivation for such a configuration.

(25) a. *Na-nun yeki-pwuthe-lul$_i$* [t_i *nay ttang-ila-ko*] *mitnunta.*
I-TOP here-from-ACC$_i$ [t_i my land-COP-COMP] believe
'I believe my land begins from here.' [[12]: 647, (52b)]

b. *[t_i *nay ttang-ila-ko*]$_j$ *yeki-pwuthe-lul$_i$* *na-nun* t_j *mitnunta.*
[t_i my land-COP-COMP]$_j$ here-from-ACC$_i$ I-TOP t_j believe
'I believe my land begins from here.' [[12]: 647, (52a)]

c. ?[*Ku-uy apeci-ka pwuca-yessta-ko*] *na-nun Cheli-lul kiekhanta.*
[he-GEN father-NOM rich-was-COMP] I-TOP Cheli-ACC remember
'I remember Cheli's father as (being) rich.' [[12]: 648, fn. 30, (i)]

The final set of data we summarize in this section illustrates the interaction of island-sensitivity and idiomatic connectivity in 𝔄-configurations in Brazilian Portuguese. Once again, the comparison will show that by combining two properties, two configurations can be disentangled and a clear and predictable picture arises. In Section 3.1 we suggested, following [1], that Brazilian Portuguese has two, at first sight very similar, configurations, repeated here in (26). Superficially, the two constructions only differ in the presence vs. absence of an overt embedded pronoun coreferent with DP.𝔄. However, as shown convincingly in [1], the differences between the two configurations go much deeper.

(26) a. *Os meninos parecem* [*que eles viajaram ontem*].
the boys seem.3PL [that they traveled.3PL yesterday]
'The boys seem to have traveled yesterday.' [[1]: 145, (3b)]
Brazilian Portuguese High Topic: ②

b. *Os meninos parecem* [*que viajaram ontem*].
the boys seem.3PL [that traveled.3PL yesterday]
'The boys seem to have traveled yesterday.' [[1]: 145, (3a)]
Brazilian Portuguese Hyperraising: ⑤

The construction with an overt pronoun, which we classify as CC𝔄-type ②, obligatorily involves a topic interpretation of DP.𝔄 (we return to this in Section 3.4.2), whereas non-topic DP.𝔄s can occur in construction of type ⑤. Martins and Nunes [1] suggest that the topic restriction goes hand in hand with DP.𝔄 showing embedded A′-properties, whereas a type ⑤ DP.𝔄 has only A-properties. One difference which reflects this, as well as the presence/absence of a connection to a lower position in the embedded clause, is the possibility (type ⑤) vs. impossibility (type ②) of DP.𝔄 as part of an opaque idiom with the embedded predicate. As shown in (27), an idiomatic reading is possible only when no overt pronoun is used. Since idiomatic construals are lost under topicalization (see (27c)), but not under A-movement, Martins and Nunes conclude that the embedded dependencies in (27a) and (27b) differ: in the former, RtS, an A-dependency, takes place (indicated via the trace), whereas the latter involves an embedded A′ dependency. More specifically, they suggest that in (27b), the raised subject originates as a topic in the left periphery of the embedded clause and associates with a position hosting a pronoun or *pro*. This topic association is incompatible with an idiomatic interpretation, but still allows further RtS to the matrix clause.

(27) a. *A vaca parece* [*que t foi pro brejo*].
the cow seems [that *t* went to.the swamp]
Idiomatic: 'It seems that things went bad.' [[1]: 146, (6c)]
Lit.: 'It seems that the cow went to the swamp.' Hyperraising ⑤

b. **A vaca parece* [*que ela foi pro brejo*].
the cow seems [that it went to-the swamp]
Int.: 'It seems that things went bad' (No idiomatic reading) [[1]: 150, (13)]
High Topic ②

c. *A vaca, o João disse* [*que foi pro brejo*].
the cow the João said [that went to-the swamp]
Idiomatic: *'John said that things went bad.'
Lit.: 'John said that the cow went to the swamp.' [[1]: 146, (6b)]

This distinction, which we basically adopt (see Section 4 for a formal account), is supported by a difference in locality. The High Topic construction ② does not show island-sensitivity and is possible for both subjects and objects. (We return to this in Section 3.4.1.) As shown in (28a), the matrix subject can be associated with a pronoun (in this case a covert *pro*) in an island. This is only possible, however, if the DP.𝔄 is a topic. DPs such as *only three cars* in (28b) cannot be topics and hence cannot appear in this construction. Although non-topics could appear in a type ⑤ configuration, this configuration is not possible in (28b) due to locality.

(28) a. *Esses carros$_i$ parecem* [*que* [*as pessoas que compraram pro$_i$*] *se*
these cars$_i$ seem.3PL [that [the people who bought *pro$_i$*] REFL
arrependeram].
repented]
'It seems that people who bought these cars regretted it.' [[1]: 155, fn. 11, (ib)]
High Topic ②

b. **Só três carros$_i$ parecem* [*que* [*as pessoas que compraram pro$_i$*] *se*
only three cars$_i$ seem.3PL [that [the people who bought *pro$_i$*] REFL
arrependeram].
repented]
'It seems that people who bought only three cars regretted it.' [R. Lacerda, p.c.]

The same point can be made by combining an idiomatic DP.𝔄 with an island configuration. In the topic construction with an overt pronoun as in (29a), the literal interpretation is possible, but, as expected, the idiomatic interpretation is not, since DP.𝔄 is never in a local configuration with the embedded other parts of the idiom. Leaving out the pronoun as in (29b) results in ungrammaticality altogether. The position marked as *t*/*pro* can, in fact, be neither a *pro* nor the base position of DP.𝔄. Brazilian Portuguese is not a regular *pro*-drop language but shows several restrictions (see [47]). While *pro* is possible in object position, it cannot occur in subject position for many speakers. The literal interpretation is thus only available with an overt pronoun as in (29a). Finally, the impossibility of the idiomatic interpretation of (29b) shows that the A-movement option needed to license an idiomatic construction is not available, from which it can be concluded that type ⑤ configurations are subject to island restrictions.

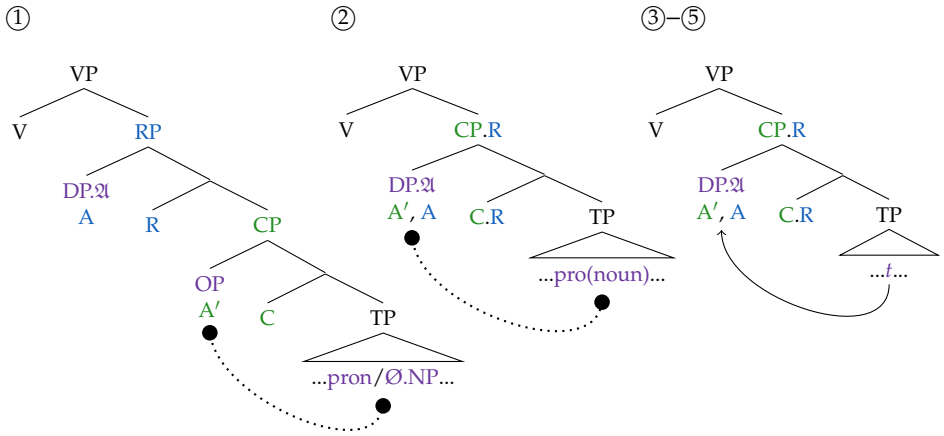
(29) a. *A vaca parece* [*que* [*o fato de que ela foi pro brejo*] *incomodou o*
the cow seems [that [the fact of that it went to.the swamp] disturbed the
Renato].
Renato]
Idiomatic: *'It seems that the fact that things went bad disturbed Renato.'
Lit.: 'It seems that the fact that the cow went to the swamp disturbed
Renato.' [R. Lacerda, p.c.]

b. **A vaca parece* [*que* [*o fato de que t/pro foi pro brejo*] *incomodou*
the cow seems [that [the fact of that *t/pro* went to.the swamp] disturbed
o Renato].
the Renato]
Idiomatic: 'It seems that the fact that things went bad disturbed Renato.'
Lit.: 'It seems that the fact that the cow went to the swamp disturbed Renato.' [R. Lacerda, p.c.]

The same pattern arises in other languages when constructions of types ① or ② are compared with constructions of types ③–⑤. We refer the reader to Appendices B and C for data from all types of constructions: ①–② systematically do not, and ③–⑤ systematically do show island-sensitivity and connectivity effects.

Our approach to the observed contrasts is built on different base positions of DP.𝔄, as illustrated in (30). In Prolepsis ①, as laid out in Section 2, DP.𝔄 is base generated in Spec, RP in the matrix clause, outside the embedded CP, which accounts for the lack of both island-sensitivity and connectivity effects. Furthermore, we suggested that the dependency between the operator in Spec, CP and the embedded pronoun is unbounded unselective binding (indicated by a dotted line), which is not subject to islands.

(30)



In configurations of type ②, which, as argued in the previous section, involve a selected CP.R, we suggest, following [1–3], that DP.𝔄 is base generated in the embedded Spec, CP.R, as a topic.[12] Given that Spec, CP.R is, by hypothesis, a mixed A/A′ position (see Section 4), DP.𝔄 can enter into further A-dependencies with elements from the matrix clause. Like in Prolepsis, there is no movement dependency, hence no connectivity or island effects, but DP.𝔄 associates with the embedded pro(noun) via unbounded unselective binding.

Finally, for configurations ③–⑤, which behave differently from ①–② with respect to property B, we suggest that DP.𝔄 is base generated in the gap position (inside the embedded TP), and undergoes movement to Spec, CP.R (indicated by an arrow in (30)). Since DP.𝔄 originates low in the embedded clause, connectivity effects are expected, and, since it moves to Spec, CP.R before entering into an A-dependency with elements from the matrix clause, and movement is subject to island restrictions, we also expect island effects to arise (see also [58]).

3.4. Distinctions C and D (Illustration)

The previous sections have established that there are three types of 𝔄-configurations—Prolepsis ①, High Topic CC𝔄 ②, and movement CC𝔄. In this section, we show that the movement CC𝔄-constructions do not form a homogeneous class but split into three subgroups ③–⑤, as shown in Table 6. The two properties yielding the three-way split are C, whether or not movement of DP.𝔄 is restricted to the closest DP in an A-position, and D, whether or not DP.𝔄 shows semantic restrictions. We discuss these properties in turn,

and then, in Section 4, provide the full theoretical account laying out the exact probing mechanisms responsible for A-Minimality and the three-way split.

Table 6. Properties of 𝔄-configurations: Distinctions C and D.

𝔄		①	②	③	④	⑤
Known as		Prolepsis	HyR, LDA High Topic	Major Subject Object, RtO	HyR, LDA	HyR
A	Restricted matrix predicates (c-/l-selection)	no	yes	yes	yes	yes
	(Apparent) Improper movement/Agree violation	no	yes			
	Complement of V	RP	CP.R			
B	Movement within embedded CP	no	no	yes	yes	yes
	DP.𝔄 base position	Spec, RP	Spec, CP	gap position		
	Island-sensitivity	no		yes		
	Connectivity effects	no		yes		
C	A-Minimality (highest A-DP)	no	no	no	yes	yes
D	Semantic restrictions of DP.𝔄	yes	yes	yes	yes	no

3.4.1. Distinction C: Embedded A-Minimality

A-movement configurations such as RtS or passive are typically characterized by the restriction that the moving DP has to be the highest argument. We follow a structural approach, rather than, for instance, a subject restriction, since, as we show below, in languages where embedded A-Minimality holds, it can also be met by an object, as long as the object occurs in a a derived A-position above the subject. We postpone the technical details to Section 4, and simply assume here that embedded A-Minimality holds if in a CC𝔄 context a DP (such as DP2 in (31)) cannot enter into a CC𝔄 relation across another c-commanding DP (DP1 in (31)) which could also enter the CC𝔄-dependency.

(31) CC𝔄 element [$_{CP}$ DP1 [DP2]]

As shown in Table 6, A-Minimality sets constructions of types ①–③ apart from ④–⑤. The lack of A-Minimality in ①–③ is illustrated in (32). In Section 2, we showed that in proleptic constructions ①, DP.𝔄 can refer to any element in the embedded clause. In (32a) (repeated from (3)), the embedded 𝔄-element (*him*) is the embedded object, not the higher subject (*police*); thus no A-Minimality obtains in the embedded clause regarding the pronoun. The same is the case for the High Topic construction ② in (32b): DP.𝔄 is not restricted to a pronoun associate in the embedded subject position in (32b), but can also associate with the embedded object. Given that DP.𝔄 in constructions of types ① and ② is base generated above the embedded subject (either in the matrix clause or in the high periphery of the embedded clause), the lack of A-Minimality (in the embedded clause) is perhaps not surprising. The only dependency that holds in the embedded clause in these configurations is an unselective binding relation, which is not subject to locality, except c-command. More interesting is therefore configuration ③, which does involve movement within the embedded clause (see Section 3.3). As shown in (32c), the Korean RtO configuration ③ is nevertheless not subject to embedded A-Minimality: in (32c), it is not the closest DP (*water*) that feeds into RtO, but the structurally lower *Mt. Pwukhan*.

(32) a. Sheryl thought about/of Tim that the police would never catch him.
[[8]: 654, (34a)]
English ①

b. *Esses professores parecem* [*que a Maria gosta deles*].
these teachers seem.3PL [that the Maria likes of.them]
'It seems that Maria likes these teachers.' [[1]: 152, (21)]
Brazilian Portuguese ②

c. *Na-nun Pwukhansan-ul* [*mwul-i manhi nanta-ko*] *sayngkakhanta.*
I-TOP Mt. Pwukhan-ACC [water-NOM a.lot flow-COMP] think
'I believe that there are a lot of springs flowing from Mt. Pwukhan.'
[[12]: 618, (4c)]
Korean MS RtO ③

In contrast to types ①–③, configurations of types ④ and ⑤ show embedded A-Minimality effects—only the highest embedded DP can serve as DP.𝔄. In Romanian RtO (class ④), for example, only the embedded subject (*Gelu*) can serve as DP.𝔄 in (33a), and RtO of the embedded object (*Mioara*) as in (33b) is excluded.[13]

(33) a. *L-am auzit pe Gelu* [*c-a invitat-o pe Mioara*].
him-have.1SG heard DOM Gelu [that-has invited-her DOM Mioara]
'I heard Gelu (say) that he invited Mioara.' [[22]: 268, (30b)]
b. **Am auzit-o pe Mioara* [*c-a invitat Gelu*].
have.1SG heard-her DOM Mioara [that-has invited Gelu]
Int.: 'I heard Gelu (say) that he invited Mioara.' [[22]: 268, (30c)]

Another type ④ configuration is LDA in Tsez.[14]. In Tsez, embedded absolutive arguments that are interpreted as topics (see also Section 3.4.2) trigger agreement with the matrix verb. As shown in (34a), an embedded absoultive object can trigger matrix agreement across an embedded subject, but only when the subject is not a possible agreement target. Since generally only absolutive arguments can agree in Tsez, ergative DPs never count as interveners, and hence (34a) does not constitute a violation of A-Minimality in the sense we defined above. That A-Minimality does indeed hold for absolutive topics in Tsez, the precondition for LDA, is evident from bi-aboslutive constructions (see [25]). In these constructions, the lower element can neither be a topic (in contrast to the higher one), as in (34b), nor can it agree with the verb, as shown in (34c). Although these configurations are not LDA contexts, they nevertheless may be taken to show that there is an A-Minimality condition in effect. The fact that only the highest element is accessible as a topic suggests that, in this type of language, topic association is subject to A-Minimality. Our account in Section 4 develops a mechanism that links topic and A-features in type ④ languages, in contrast to the more general case, where topic association shows only A′ properties.

(34) a. *eni-r* [*už-ā magalu b-āc'ru-łi*] *b-iy-xo.*
mother-DAT [boy-ERG bread.III.ABS III-eat-PST.PRT-NMLZ] III-know-PRES
'The mother knows the boy ate the bread.' [[24]: 584, (1b)]
Tsez LDA ④
b. **Uži aħo-gon y-eč'-xo ø-ič-äsi*
boy.ABS.I tree.ABS.II-CONTR.TOP IV-cut-IPFV.CVB I-stay-RES
zow-s.
AUX.PST-PST.WIT
Int.: 'As for the tree, the boy was cutting it.' [[25]: 173, (243c)]
c. *Uži aħo y-eč'-xo ø-ič-äsi*/**y-ič-äsi*
boy.ABS.I tree.ABS.II IV-cut-IPFV.CVB I-stay-RES/*II-stay-RES
zow-s.
AUX.PST-PST.WIT
'The boy was (in the state of) cutting a/the tree.' [[25]: 168, (226)]

Configurations of type ⑤ also show A-Minimality effects; however, they differ from type ④ in property D—there is no semantic restriction for CC𝔄, such as a topic restriction. We illustrate this first by comparing the two CC𝔄-constructions in Brazilian Portuguese, which differ regarding exactly this respect. In the the High Topic construction ② in (35a), the raised subject can be associated with an object position/pronoun, since topic association, which feeds into RtS, is not restricted by A-Minimality. On the other hand, (35b) illustrates that RtS of type ⑤ cannot apply from an object position. Since the subject is quantificational in this case, which is incompatible with a topic construal, the only possible derivation

would be a pure RtS configuration. The impossibility of (35b) thus shows that non-topic RtS is subject to A-Minimality.

(35) a. *Esses professores parecem* [*que a Maria gosta deles*].
these teachers seem-3PL [that the Maria likes of-them]
'It seems that Maria likes these teachers.' [[1]: 152, (21)]
b. **Alguém parece* [*que a aluna viu t*].
someone seems [that the student saw *t*]
Int.: 'It seems that the student saw someone.' [[4]: 6, (13b)]

Similarly, in Buryat Hyperraising/LDA, also type ⑤, A-Minimality must be observed. As shown in (36a) and (36b), the highest embedded DP (the first person subject) can feed into CC𝔄, whereas the embedded object in (36c) cannot undergo Hyperraising across the embedded subject.

(36) a. *badmə namɜjə sajən-ijə zurə-xə gnamɜžə xnamɜl-namɜ*
Badma 1SG.ACC Sajana-ACC draw-FUT COMP say-PST
'Badma said that I will draw Sajana.' [[6]: 9, (38)]
b. *bi badm-ar sajən-ijə zurə-xə gɜžə xɜlə-gd-ə-b*
1SG.NOM Badma-INSTR Sajana-ACC draw-FUT COMP say-PASS-PST-1SG
Lit.: 'I was said by Badma that (I) will draw Sajana' [[6]: 9, (39)]
c. **bi sajən-ar badmə xar-a gɜžə mɜdə-gd-ɜ-b*
1SG Sajana-INSTR Badma see-PST COMP know-PASS-PST-1SG
Expected: 'Sajana found out that Badma saw me.'
(Lit.: 'I was known by Sajana that Badma saw (me).') [[6]: 12, (44)]

Further supporting evidence for the A-Minimality restriction in type ⑤ is provided by A-movement feeding into CC𝔄, such as A-scrambling prior to the CC𝔄-dependency. We illustrate this for Nez Perce and Mongolian. In (37), the 𝔄-dependency can target the embedded object *children* only after it has been A-scrambled to the highest embedded A-position (see [17] for arguments that scrambling can have A-properties). If, as in (37a), the embedded object has undergone scrambling to the left of the subject, it can subsequently feed into RtO. On the other hand, if the object remains inside the VP as in (37b), it cannot undergo RtO. Thus, A-Minimality is a pure locality restriction (CC𝔄 targets the closest possible DP) rather than a simple subject restriction.

(37) a. *'Aayat-onm hi-nees-nek-se* [*watiisx mamay'as-na Angel-nim*
woman-ERG 3.SBJ-O.PL-think-IPFV [1.day.away children-ACC Angel-ERG
hi-naas-wapayata-ya].
3.SBJ-O.PL-help-PERF]
'The woman thinks Angel helped the children yesterday.' [[17]: 6, (16)]
b. **'Taamsas-nim hi-nees-nek-se* [*Angel-nim hi-naas-wapayata-ya*
Taamsas-ERG 3.SBJ-O.PL-think-IPFV [Angel-ERG 3.SBJ-O.PL-help-PERF
mamay'as-na].
children-ACC]
'Taamsas thinks Angel helped the children.' [[17]: 6, (17)]

The same effect can be observed in Mongolian, as shown in (38): the embedded object (*new house*) can only feed into CC𝔄 if it has been A-scrambled to the left of the subject in a prior step.

(38) a. *Odgerel* [*Dulmaa-d shine baishin(*-g) baigaa gej*] *khel-sen.*
Odgerel [Dulmaa-DAT new house(*-ACC) COP.PRES COMP] say-PST
'Odgerel said that Dulmaa has a new house.' [[15]: 8, (32a)]
b. *Odgerel* [*shine baishin(-g) Dulmaa-d t baigaa gej*] *khel-sen.*
Odgerel [new house(-ACC) Dulmaa-DAT *t* COP.PRES COMP] say-PST
'Odgerel said that Dulmaa has a new house.' [[15]: 8, (32b)]

3.4.2. Distinction D: Semantic Restrictions

The last characteristic property we observe is whether or not a type of 𝔄-configuration is semantically restricted. This property groups type ①–④ together, against ⑤, although the kind of restriction varies across constructions and languages. As we have seen in Section 2, DP.𝔄 in Prolepsis ① must be referential, specific, or generic. Among the restrictions in types ②–④ are that DP.𝔄 must be a topic, a Major Subject, *d*-linked, the source of evidence, and others. Before we summarize some of the data, note that this property together with A-Minimality renders the three-way split of the CC𝔄-configurations involving movement. Type ③ does not require DP.𝔄 to be the closest DP, but requires it to receive a certain semantic interpretation; type ④ imposes both A-Minimality and semantic restrictions; and lastly type ⑤ shows the opposite distribution from type ③ in that it is subject to A-Minimality but does not require DP.𝔄 to receive a certain semantic interpretation.

In several languages, CC𝔄-configurations ②–④ require that the DP.𝔄 be a topic. We have mentioned this property already for Brazilian Portuguese, where one construction, type ②, is subject to a topic requirement, whereas Hyperraising ⑤ is not. Pulling all of the properties of the two Brazilian Portuguese constructions together, we find the distribution in Table 7.

Table 7. 𝔄-configurations in Brazilian Portuguese.

	Property	**High Topic ②**	**Hyperraising ⑤**
i.	DP.𝔄 can correspond to an overt pronoun	yes (26a)	no (27b)
ii.	DP.𝔄 requires a topic interpretation	yes (39)	no (39)
iii.	DP.𝔄 allows idiomatic construals	no (27b)	yes (27a)
iv.	Embedded movement, locality	no (29a)	yes (29b)

Our strategy to disentangle the two constructions has been to combine two of the properties in Table 7, using one with the value for ② and the other with the value for ⑤. In (27), repeated here as (39a), we saw that either an idiomatic interpretation is possible (iii), or an overt pronoun (i), but not both simultaneously. (If the pronoun is used, only a literal interpretation is possible.) In (39b), we combine a non-topic DP.𝔄 (ii) (recall that quantificational DPs such as the one in (39b) cannot be topics) with an overt pronoun associate (i), and we observe again that, although both properties are in principle possible, they cannot co-occur in the same construction. Since (39b) is possible when no overt pronoun is used, a topic interpretation is not a requirement for RtS constructions of type ⑤ (which, as shown in (28b), further correlates with locality, (iv)).

(39) a. *A vaca parece* [*que* (**ela*) *foi pro brejo*].
the cow seems [that (*it) went to.the swamp]
Idiomatic: 'It seems that things went bad.' [[1]: 150, (13)]

b. *Algum aluno parecia* [*que* (**ele*) *ia viajar*].
some student seemed [that (*he) went travel]
'It seemed that some student was going to travel.' [[1]: 150, (14)]

In addition to deriving the contrasts between type ② and type ⑤ contexts as in Table 7, the method of combining two domain 𝔄-properties that diagnose different constructions also allows us to resolve certain conflicts in the literature. For Brazilian Portuguese, for instance, two types of analyses have been argued for: a HyR approach (among others, [3]) and a non-movement Prolepsis-like approach (see [36]). Our strategy reconciles these approaches (and, as we suggested in the course of this paper, also extends to the debates in Korean and Japanese)—both are correct, but the conclusions they reach are about different constructions. Den Dikken [36] points out, for example, that the possibility of idioms does not suffice as a test for movement. We agree that an idiomatic construal alone may not be sufficient to argue for a movement analysis; however, combined with other tests (see above), they render a clear distinction between examples with mutually exclusive properties, which we take as an argument for the presence of at least two CC𝔄-constructions in Brazilian Portuguese.

A similar topic restriction has also been observed for Tsez. Tsez has optional topic and focus markers. As shown in (40), LDA ④ can only be established with an embedded topic, (40a), but not with a focus DP, (40b) (see [24] for further evidence that the DP.𝔄 has topic properties).

(40) a. *eni-r* [*už-ā* *magalu-(go)n* *b-āc'ru-łi*]
mother-DAT [boy-ERG bread.III.ABS-TOP III-eat-PST.PRT-NMLZ]
b-iy-xo
III-know-PRES
'The mother knows the boy ate the bread.' [[24]: 610, (57b)]

b. **eni-r* [*t'ek-kin* *y-igu* *yāł-ru-łi*] *y-iy-xo.*
mother-DAT [book.II.ABS-FOC II-good be-PST.PRT.NMLX] II-know-PRES
'The mother knows that the BOOK is good.' [[24]: 611, (61b)]

Although topic-hood is a common semantic restriction among type ②–④ CC𝔄-constructions, it is not the only restriction we find; other properties of the CP-domain can be associated with CC𝔄 as well. As shown in [18,59], in Passamaquoddy, for instance, focused DPs can also be the target for LDA.

(41) *N-kosiciy-a* [*tehpu* *Susehp* *oc* *menuwa-c-ihi*
1SG-know.TA-DIR [only.FOC Susehp FUT IC.buy-3SG.CONJ-PART.OBV.PL
nuhu *akom*].
three.OBV.PL snowshoe.OBV.PL]
'I know that only Susehp would buy three snowshoes.' [[18]: 282, (737a)]

Another semantic 𝔄-restriction has been observed in Romanian type ④ CC𝔄. In RtO contexts with perception verbs such as (42a) (repeated from (14c)), a restriction which can be described as 'direct evidentiality' holds (see [22,23]): in order for the sentence to be felicitous, the speaker must have concluded that Peter is friendly by observing Peter directly. The direct evidentiality restriction may suggest that in Romanian RtO, the DP.𝔄 undergoes movement to the matrix object position, where it is assigned an additional theta-role (to yield the interpretation that I saw Peter in (42a)). In our approach, matrix argument-hood would be possible for DP.𝔄, but not necessary (see Section 2.3).

Furthermore, DP.𝔄s also display topic(-like) referentiality/specificity restrictions, and, similar to Prolepsis, indefinite, non-specific quantificational DP.𝔄s are excluded from RtO, as shown in (42b). (As pointed out to us by Giurgea, RtO is possible when *someone* is interpreted a a specific DP.) We leave open here what the source(s) of the restrictions are (evidentiality, topic-hood, restrictions imposed by R, or a combination thereof, e.g., only specific entities can be observed directly). These properties clearly overlap, which may be due to the R-component in all 𝔄-contexts, but there are different syntactic components (C, R, *v*) that may combine to yield each construction's specific effects. Example (42c) shows that there is nothing wrong with an indefinite in the embedded clause; it just cannot enter an 𝔄-dependency with the matrix clause.

(42) a. *L-am* *văzut* *pe* *Petre* [*că* *e* *(*el)* *foarte prietenos*].
him-have.1SG seen DOM Petre [that is (*he) very friendly]
'I saw/realized that Peter is very friendly.' [[22]: 269, (32c)]

b. *Am* *mirosit* (**pe* *cineva*) [*că* *ne* *minte*].
have.1 smelled (*DOM someone) [that 1PL.DAT lies]
Int.: 'I/we suspected that someone was lying to us.' [[22]: 276, (46)]

c. *Am* *mirosit* [*că* (*cineva*) *ne minte* (*cineva*)].
have.1 smelled [that (someone) us lies (someone)]
'I/we suspected that someone was lying to us.' [[22]: 276, (45)]

The last type of semantic restriction is found in type ③ constructions in Korean and Japanese. In Korean, the DP.𝔄 has to be a so-called Major Subject ([12]). The Major Subject may, but does not necessarily, correspond to the grammatical subject: it is the most salient

argument, which combines with a sentential predicate. It is interpreted as the subject of a categorical judgement or a characteristic property. The properties of Korean Major Subjects are summarised in (43).

(43) Major Subject (Korean, [12]: 626, (19))
- a. Preference for generic/habitual versus episodic interpretation of the sentential predicate.
- b. Preference for the lexical predicate within the sentential predicate to be an individual-level predicate.
- c. Preference for the Major Subject to be more salient than the grammatical subject.

Some of these restrictions are illustrated in (44). In (44a), the adverbial *now* triggers an episodic, stage-level interpretation of the embedded clause, and, accordingly, the DP *monkey* is interpreted as referring to a particular monkey (and not monkeys in general). As summarized in (43), such an interpretation is incompatible with a Major Subject construal. Since 𝔄-configurations in Korean (both Prolepsis ① and RtO ③) are only possible if DP.𝔄 is a Major Subject, the sentence in (44a) cannot involve a 𝔄-dependency, and, as expected, accusative case on *monkey* is ungrammatical. In (44b), on the other hand, the embedded clause is an individual-level predicate; the DP *monkey* can be construed as generic, and hence as a Major Subject, making Prolepsis/RtO and accusative case possible in this configuration.

(44) a. *Cheli-nun wonswungi-*?lul/ka banana-lul cikum meknunta-ko*
Cheli-TOP monkey-*?ACC/NOM banana-ACC now eat-COMP
sayngkakhanta.
thinks
'Cheli considers a/the monkey to be eating a banana right now.' [[12]: 630, (26a)]

b. *Cheli-nun wonswungi-lul/ka banana-lul cal meknunta-ko sayngkakhanta.*
Cheli-TOP monkey-ACC/NOM banana-ACC well eat-COMP thinks
'Cheli thinks monkeys love to eat banana.' [[12]: 630, (26b)]

In Japanese, Prolepsis and RtO show similar semantic restrictions. (See [10] for a detailed semantic study of Prolepsis/RtO, suggesting that a particular predication relation must hold.) To illustrate, if, as in (45a), no 𝔄-configuration is used (cf. the nominative embedded subject), a non-specific interpretation is possible. In an 𝔄-configuration such as (45b), on the other hand, only a specific interpretation of *someone* is possible. The sentence in (45b) allows either a Prolepsis ① or an RtO ③ configuration, and thus shows that the semantic restriction holds for both types of 𝔄-configuration, pointing again to the R-component as a source for the semantic restrictions.

(45) a. *Ooku-no nihonzin-wa [dareka-ga rosiago-ga dekiru to]*
Many-COP Japanese-TOP [someone-NOM Russian-NOM be.able COMP]
omou.
think
'Lots of Japanese think that (there is) someone (who) can speak Russian.'
[[10]: 232, (37a); based on [11]: 23–24, (74)]

b. *Ooku-no nihonzin-wa dareka-o [rosiago-ga dekiru to] omou.*
Many-COP Japanese-TOP someone-ACC [Russian-NOM be.able COMP] think
'Lots of Japanese think that someone specific can speak Russian.'
[[10]: 232, (37b); based on [11]: 23–24, (74)]

Summarizing, we have shown that configurations ①–④ impose semantic restrictions on DP.𝔄, and that these restrictions may vary from language to language and from configuration to configuration. Importantly, if the semantic interpretation needed is, for whichever reason, unavailable, the 𝔄-configuration in question cannot be instantiated. Diagnostic D also sets apart configuration ⑤—the only 𝔄-configuration imposing no semantic re-

strictions on DP.𝔄—from the other 𝔄-configurations, which goes hand in hand with other characteristic properties of the respective 𝔄-configurations. In the next section, we combine all findings so far and provide a detailed account of the properties of C.R, which derives the possibility of an A-dependency targeting Spec, CP as well as the remaining pieces, in particular the three-way split of movement CC𝔄-constructions.

4. Composite Probes and Their Probing Properties

In this section, we return to and develop our basic proposal that ties together all 𝔄-configurations: the R component. In Prolepsis ①, it is a separate syntactic head which mediates predication and may impose semantic restrictions. In CC𝔄-configurations ②–⑤, we suggested that R is part of a composite head, together with C, and that semantic restrictions arise from the combination of the two properties. We first discuss the nature of such composite heads in more detail, and then return to the remaining open issue—the three-way split of movement CC𝔄-constructions ③–⑤.

To begin with, we need to make a short excursus to composite probing. In recent approaches to the A′/A-distinction and how it is related to features (rather than structural positions alone), the call for composite probes grew stronger. Composite probes, as van Urk [55] labels them, are two probes located on a single head, forming a probe conglomerate—an assumption that has been made for TMA-features on T or Infl already for a while (e.g., the combination of tense and ϕ-features on a single head; see also the more fine-grained approaches to ϕ-probes in, among many others, [60–65]). Although the CP has traditionally been treated as a pure A′ domain, more recently, it has been suggested that not only the inflectional domain can combine features on a single head, but that the C-domain can do so, too, in particular that A′-features and A-features can form composite probes on C (among others [55,66–72]). If a head carries such a composite A′/A-probe, it triggers agreement (and movement) of mixed A′/A-quality and therefore exhibits mixed A′/A-properties. Composite A′/A-probes resolve the assumption that the A′/A-distinction is tied to structural positions (argument versus non-argument positions) alone and lead towards the view that it is tied to features instead.

Following this direction of research, we suggested that CC𝔄 is enabled by a composite probe on C.R. The A′/A-probe on C.R is derived through the fusion of RP and CP, rendering the combined phrase CP.R. In the fusion process, the relator-phrase RP, whose head carries A-features, combines with the embedded C-head, hosting A′-features. The resulting phrase CP.R has a head C.R which carries both the A-features of RP and the A′-features of CP, and thereby becomes a composite probing head.[15] We suggest that the A-part of the composite probe again triggers a predication relation (the embedded clause predicates over DP.𝔄), whereas the A′-part is responsible for semantic restrictions such as DP.𝔄 being interpreted as a topic, focus, Major Subject, *d*-linked, and others, as summarized in Section 3.4.2. The A-features on C.R, on the other hand, make it possible to merge an argument, the DP.𝔄, in the left periphery of the embedded clause, where it then becomes visible to the matrix element triggering an 𝔄-dependency.[16] Note that without an A-feature on C, Spec, CP would be a pure A′-position and DPs occurring there could not feed into a further matrix 𝔄-dependency. Such configurations are possible, of course, but they then are not 𝔄-contexts. (Recall that 𝔄-configurations always alternate with non-𝔄-configurations.)

To sum up, configurations ②–⑤involve a head C.R, carrying a composite A′/A-probe, attracting DP.𝔄 (via external or internal Merge) and further enabling CC𝔄. Similar analyses, i.e., proposals of a connection between certain CC𝔄-configurations and composite probing (or at least A-features inside CP) have been suggested, among others, in [6,15,22,58,59,75,76].

In addition to allowing DPs which satisfy both parts of C.R to undergo further 𝔄-dependencies upwards, C.R also has consequences for how downward-looking dependencies are established. In particular, the assumption that CC𝔄 is triggered by a composite probe on C.R leads to the question of how the two parts of the probe interact with each other and how the probing mechanism(s) are performed. Partly following [63,77], we propose that cross-linguistically, composite probing can be established in three different

ways, depending on whether the two parts of the composite probe are able to probe separately and if so, how dependent they are from each other in terms of satisfaction. Three options for composite probing emerge, which we will go through in detail below: conjunctive probing/satisfaction [A′+A], separate dependent probing/satisfaction [A′/A], and separate independent probing/satisfaction [A′][A]. As shown in (46), these relations can be described via a decreasing degree of dependence between the A′- and A-parts of the composite probe, rendering the hierarchy in (46).[17]

(46) dependent ⇐ [A′+A] — [A′/A] — [A′][A] ⇒ independent

Returning to our final open issue, the three-way split of movement CC𝔄-configurations yielded by properties C and D, we propose that these classes arise from exactly the three probing mechanisms, specifically, from different degrees of dependence between the [A′]- and [A]-probes on C.R. As summarized in Table 8, the three configurations reflect three ways of how composite probing can be established: conjunctive, separate dependent, or separate independent. In the remainder of this section, we illustrate the different mechanisms and structures.

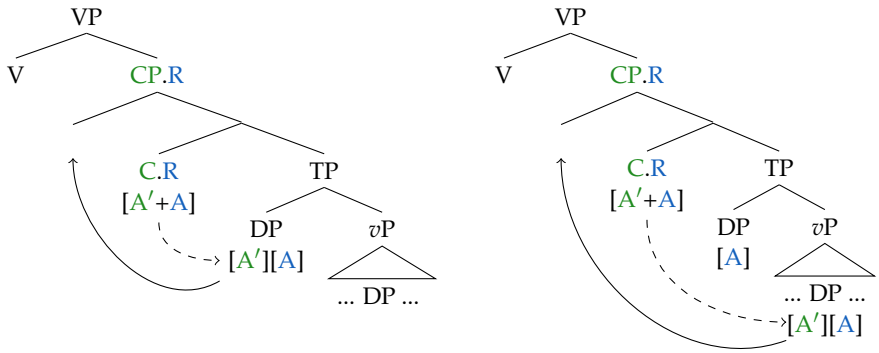
Table 8. Properties of 𝔄-configurations: Distinctions A–D.

𝔄		①	②	③	④	⑤
Known as		Prolepsis	HyR, LDA High Topic	Major Subject Object, RtO	HyR, LDA	HyR
A	Restricted matrix predicates (c-/l-selection)	no	yes	yes	yes	yes
	(Apparent) Improper movement/Agree violation	no	yes			
	Complement of V	RP	CP.R			
B	Movement within embedded CP	no	no	yes	yes	yes
	DP.𝔄 base position	Spec, RP	Spec, CP	gap position		
	Island-sensitivity	no		yes		
	Connectivity effects	no		yes		
C	A-Minimality (highest A-DP)	no	no	no	yes	yes
	Conjunctive A/A′ probing	N/A		yes	no	
	Separate A/A′ probing	N/A		no	yes	
D	Semantic restrictions of DP.𝔄	yes	yes	yes	yes	no
	Dependent A/A′ probing	N/A			yes	no

Let us start with the difference between configuration ③ versus ④ and ⑤. ③ requires a certain semantic interpretation of DP.𝔄 but no A-Minimality. The probing mechanism of the composite probe in construction ③ and its level of satisfaction are established in a conjunctive manner. Following [63,77], conjunctive satisfaction describes a composite probe which can only target a goal if the latter carries both matching features. In a way, it behaves like a single probe which is only satisfied by a completely matching goal. For the [A′+A]-probe on C.R, this means that it can only Agree with a DP that carries both a matching A′-feature and a matching A-feature, as shown in (47). Conjunctive probing accounts for the lack of A-Minimality in class ③: the composite probe has to find a goal which satisfies both its A- and A′-features; the closest DP that satisfies the entire probe is moved, regardless of whether there is a higher element carrying a subset of matching features. In other words, all partly fitting goals are skipped in the probing process and therefore no (pure) A-Minimality arises.[18] Since conjunctive probing closely ties together the A- and A′-features, it explains why there are semantic restrictions on the DP.𝔄. The probe can successfully only target an element which has both the suitable A- and A′-features. The A′-part of the composite probe is associated with semantic features such as topic, focus, and others, and thus the DP attracted by a conjunctive composite C.R probe has to involve such a semantically related A′-feature. As for the variation in the semantic restrictions, we suggest that this is a lexical difference with respect to the types of C that the R head can

merge with: in Tsez, for instance, it is only C heads with a topic feature, whereas in other languages it may also be focus C heads, and possibly others (see also [58,59]).

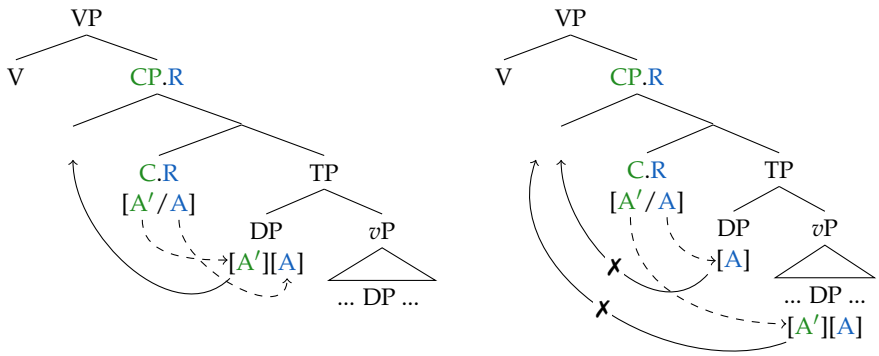
(47) a. Conjunctive satisfaction b. No A-Minimality



Type ③ CC𝔄 thus shows the highest degree of dependence of the two parts of the C.R probe: the two probes only do what is best for both of them and the requirements of the single parts may be ignored for the good of the whole. This is what allows the apparent A-Minimality violations as in (47). Configurations ④ and ⑤ differ from ③ in exhibiting strict A-Minimality, which, as we detail below, follows from the lack of conjunctive probing. The two constructions differ, however, in their requirement of semantic restrictions. DP.𝔄 has to receive a certain discourse-related interpretation in ④ but not in ⑤ (see Table 8). We propose that in ④ and ⑤ (in contrast to ③), C.R carries a separate composite probe. This means that the two parts of the probe are not conjoined as they are in ③, but stand in a less tight connection to each other. We first discuss configuration ④, and then ⑤.

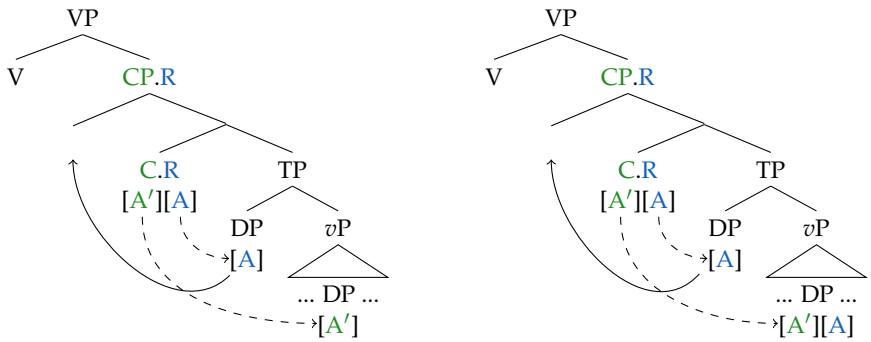
We propose that type ④ CC𝔄 involves an [A′/A]-probe, and following [63,64,72,78], that an [A′/A]-probe performs a separate, but dependent probing process, labeled here as dependent satisfaction. As a consequence of separate probing, the two segments, [A′] and [A], find fitting goals individually. However, the two probes are still dependent on each other in that they cannot trigger feature satisfaction separately from each other. Like in conjunctive probing, feature agreement can only be established if both segments are satisfied, which is only possible if the closest fitting goals are located on the same element, i.e., an element that carries both the matching A- and A′-features, as shown in (48). Similarly to type ③, the mutual dependence of the probes (despite being separate) accounts for the semantic restriction observed in construction ④: only elements which carry both the suitable A- and A′-features can undergo feature agreement, with the A′-part of the composite probe being responsible for the semantic restrictions again. The main difference between conjunctive satisfaction and independent satisfaction is that the two segments probe individually, and hence find the closest goals that match only their own needs, and not necessarily the needs of the other part of the probe. As a consequence, partly fitting goals may be found, and if these goals do not match the features of the entire probe, they block further feature agreement. Coon and Keine [64] call this scenario Feature Gluttony, describing the situation of a higher-than-required number of (partially) fitting goals and as a consequence, failure of feature agreement. The A-Minimality requirement of construction ④ thus follows from this dependent probing mechanism. Only such derivations in which the closest DP carries both a fitting A- and A′-feature are felicitous. If there is a closer DP which carries a subset of matching features, e.g., a fitting A- but no A′-feature, the A-segment of the composite probe will find this goal. However, the single segment alone is not strong enough to establish feature satisfaction. In contrast to a composite probe, a partly fitting goal thus blocks further agreement of the entire composite probe. Either the derivation will crash or no agreement will be established (depending on the specific requirements of the construction and language).

(48) a. Dependent satisfaction b. A-Minimality



Finally, the third type of probing leads us to construction ⑤, which shows A-Minimality, but no semantic restrictions (i.e., the opposite properties to ③). We propose that this is the result of complete independence and separation of the two features of the composite probe on C.R, and notate this as [A′][A]. The C.R head in construction ⑤ carries the two probes [A′] and [A] which probe separately and independently from each other and can establish feature satisfaction with two different goals. This assumption follows Bossi and Diercks [70] who propose that in Kipsigis, a single head can carry two independent probes which can trigger agreement and movement independently of each other and with different goals. Following the nomenclature in [77,78], we call this probing process independent satisfaction. Independent satisfaction accounts for the observed A-Minimality in construction ⑤, as illustrated in (49): the [A]-probe finds the highest element with A-features, i.e., the closest DP and Agrees with it, regardless of whether it additionally has A′-features or not.

(49) a. Independent satisfaction b. A-Minimality



The lack of semantic restrictions in type ⑤ CC𝔄 goes hand in hand with independent probing. Since the DP.𝔄 is attracted by the A-feature of C.R alone and semantic properties such as topic and focus come from the A′-part of the composite probe, probing solely by the A-feature does not impose semantic requirements, beyond predication (which, as noted in Section 2, is assumed to be a simple saturation operation). The A′-part probes separately and has no influence on the agreement relation between C.R and DP.𝔄, and thus no discourse-related restrictions (such as topicality and *d*-linking) arise. Movement of the DP.𝔄 resembles pure A-movement or A-agreement, with the sole difference that it targets CP.R due to the A-feature part of the composite probe on C.R. This raises the question of what happens to the [A′]-part of the composite probe in type ⑤ configurations. There are at least two options and languages may differ regarding which of them is available. One option is that the [A′]-probe triggers independent movement of another element. This could be the case in Mongolian, where topicalization of an independent DP can occur simultaneously with CC𝔄, as shown in (50). The DP *buuz* is topicalized in addition to LDA of *Dorj*. Independent satisfaction predicts the possibility of such a construction: [A] is responsible for CC𝔄, [A′] for topicalization.

(50) *Buuz-iig bol Nara* [*Dorj(-iig)* t *id-sen gej*] *khel-sen.*
buuz-ACC TOP Nara.NOM [Dorj(-ACC) *t* eat-PST COMP] say-PST
'The buuz, Nara said that Dorj ate.' [[15]: 35, fn.29, (iib)]

The second option is that the [A′]-probe could simply be ignored, which we lay out in more detail below.[19] Before doing so, we would like to highlight one property again in the context of our analysis, namely the general optionality of 𝔄-configurations. RtO/LDA configurations illustrate this in a straightforward manner, since the case of the DP distinguishes between 𝔄-configurations and non-𝔄-configurations. As shown in (51), the embedded subject can either occur with nominative (non-𝔄) or accusative (𝔄). This is the case for all 𝔄-contexts, and we do not need to distinguish between Prolepsis and CC𝔄 here.[20]

(51) a. *Cheli-nun Yenghi-ka / Yenghi-lul yenglihay-ss-ta-ko mitnun-ta.*
Cheli-TOP Yenghi-NOM / Yenghi-ACC smart-PST-DECL-COMP believe-DECL
'Cheli believes that Yenghi was smart/Cheli believes Yenghi to have been smart.' [[12]: 616, (1)]
Korean ③

b. *Pelin* [*sen / sen-i Timbuktu-ya git-ti-(n) diye*]
Pelin [you.NOM / you-ACC Timbuktu-DAT go-PST-(2SG) COMP]
bil-iyor-muş.
know-PROG-EVID
'Pelin thought that you went to Timbuktu.' [[27]: 2, (5)]
Turkish ④

c. *Bat* [*margaash Dulmaa / Dulmaa-g nom unsh-n gej*]
Bat [tomorrow Dulmaa.NOM / Dulmaa-ACC book read-N.PST COMP]
khel-sen.
say-PST
'Bat said that Dulmaa will read a book tomorrow.' [[15]: 2, (3)]
Mongolian ⑤

We propose that this is in line with conclusions reached by Preminger in [79,80]. Preminger claims that a probe's failure to Agree does not necessarily lead to a crash of the derivation. What is necessary is that a given probe launch, but if no suitable target is found and, as a result, no agreement relation can be established, the result is not ungrammaticality, but default agreement. In the context of CC𝔄-configurations, we suggest that, if one or more of the probes fail, the derivation (depending on the type of probing, see below) could simply lead to a non-CC𝔄-configuration. The optionality of CC𝔄 is thus a result of the general option for agreement to fail.

Applied to the configurations ③–⑤, the following options emerge, summarized in Table 9. In the conjunctive satisfaction construction, ③, the [A′+A]-probe succeeds when it finds a fitting goal; if this is the case, agreement is established, the targeted element is moved to Spec, CP.R and further feeds into CC𝔄. If the probe fails, no element is moved to Spec, CP.R and no 𝔄-dependency will arise. The sentence remains grammatical, it just does not exhibit CC𝔄. In construction ④, dependent satisfaction, probing succeeds if and only if both segments of the probe succeed independently and find a unique fitting goal. If this is the case, the targeted element is raised to Spec, CP.R and CC𝔄 is established. If the two segments find different elements, the aforementioned Feature Gluttony situation arises ([64]), no element can be moved to Spec, CP.R, and thus no CC𝔄 configuration is derived. Similarly, if one of the two segments does not find a suitable goal at all, CC𝔄 fails, too. Once again, this does not lead to an ungrammatical result, but merely a non-CC𝔄-configuration. Lastly, in independent satisfaction, ⑤, if the [A]-probe successfully targets an element (independently of what the [A′]-probe does), this element is moved to Spec, CP.R and CC𝔄 occurs.[21] If, at the same time, the [A′]-probe fails, it can be ignored. If, on the other hand, the [A]-probe fails, no element will be A-moved to Spec, CP.R, and a non-CC𝔄-configuration arises. The [A′]-probe may nevertheless succeed; in this case, the element it targets can only be A′-moved and thus cannot enter into further A-dependencies,

so again no CC𝔄 would arise. Finally, if both the [A]- and the [A′]-probes fail, no element is moved to Spec, CP.R and again no CC𝔄 is established. The derivation would still succeed, but without CC𝔄.

Table 9. Optionality of CC𝔄.

Embedded Configuration →		**DP[A′][A]**	**DP$_1$[A] DP$_2$ [A′][A]**	**DP$_1$[A] DP$_2$ [A′]**	**no DP**
𝔄 ↓	C.R probe ↓				
③	[A′+A]	CC𝔄	CC𝔄 (DP$_2$)	no CC𝔄	no CC𝔄
④	[A′/A]	CC𝔄	no CC𝔄	no CC𝔄	no CC𝔄
⑤	[A′][A]	CC𝔄	CC𝔄 (DP$_1$)	CC𝔄 (DP$_1$)	no CC𝔄

5. Summary, Conclusions, and Extensions

Table 10 summarizes the distribution of 𝔄-configurations. The table illustrates the continuum of the five configurations of the 𝔄-domain, gives the values of the four characteristic properties A–D in each construction, and lists the ingredients of our approach which are doing the main work. Our main claims are that: (i) CC𝔄 (i.e., types ②–⑤) involves a bundled C-head, C.R, which combines A- and A′-properties; (ii) DP.𝔄s are either base generated in the matrix clause, type ①, in the embedded left periphery, type ②, or moved at least to the embedded CP.R, types ③–⑤; and (iii) the composite C.R head can be structured in three different ways, leading to three types of probing—conjunctive satisfaction, dependent satisfaction, and independent satisfaction.

As the reader will have observed in the course of this article, our picture of CC𝔄-configurations does not include movement to the matrix clause as a general property. Only in type ①, DP.𝔄 is trivially in the matrix clause, since it is base generated there. For most languages, there is evidence that DP.𝔄 occurs above the embedded C when feeding into CC𝔄, and in many languages this is also the position where it is interpreted. For instance, in at least Turkish, Japanese, and Korean, reconstruction to the base position is impossible. On the other hand, evidence for a position in the matrix clause (in types ②–⑤) does not exist for all languages. We have thus concluded that actual movement to the matrix clause is not a characteristic property of CC𝔄.

In this context, we also want to clarify why we have classified Puyuma as a type ① language, and not a type ② language, as in [14]. For one, it shares all properties of Prolepsis—in particular, it shows no restriction of matrix predicates. The main reason for a base-generated high topic structure given by Chen, as opposed to our RP-structure, is that DP.𝔄 cannot occur to the left of the matrix verb, whereas this is possible in other Prolepsis languages, e.g., Madurese. However, as we noted in Section 2.3, whether DP.𝔄 undergoes further movement is language specific and subject to variation, and thus would not be a characteristic property of Prolepsis. Furthermore, Chen notes that a Prolepsis structure would violate the Double Pivot constraint. While this may be the case for Prolepsis structures that assume that DP.𝔄 is a matrix argument, our embedding it in RP circumvents this issue (in the same way as suggested for CP in [14]). Of course, it may be the case that Puyuma allows both a type ① and a type ② configuration, but this would need to be further tested.

The cross-linguistic distribution in Table 10 is thus preliminary in that languages may involve more options. We have also left out constructions for which we were not able to determine their exact classification. One such case is the so-called Copy Raising configuration in English and other languages (see [8,34]). While it clearly shares properties with Prolepsis, it may also allow CC𝔄-configurations, but unfortunately, the distinguishing data, in particular regarding A-Minimality and connectivity, are rather unstable, showing extensive speaker variation. Nevertheless, our work is the first to combine the findings from a range of typologically different languages and show the common features of different types of 𝔄-configurations, as well as the variation across languages. Most pieces of our analysis are not new; rather, we have tried to adopt, at least in spirit, the insights from previous analyses which have engaged in depth with the single languages. What is new,

however, is the singling out of characteristic properties, the specific combination of tools (such as different compositions and probing mechanisms of composite probes), and the emphasis on disentangling different configurations.

Table 10. The empirical landscape of 𝔄-configurations.

𝔄		①	②	③	④	⑤
Known as		Prolepsis	HyR, LDA High Topic	Major Subject Object, RtO	HyR LDA	HyR
A	Restricted matrix predicates (c-/l-selection)	no	yes	yes	yes	yes
	(Apparent) Improper movement/Agree violation	no	yes			
	Complement of V	RP	CP.R			
B	Movement within embedded CP	no	no	yes	yes	yes
	DP.𝔄 base position	Spec, RP	Spec, CP		gap position	
	Island-sensitivity	no			yes	
	Connectivity effects	no			yes	
C	A-Minimality (highest A-DP)	no	no	no	yes	yes
	Conjunctive A/A′ probing	N/A		yes	no	
	Separate A/A′ probing	N/A		no	yes	
D	Semantic restrictions of DP.𝔄	yes	yes	yes	yes	no
	Dependent A/A′ probing	N/A			yes	no
	Languages	Buryat Croatian English German Japanese Korean Madurese Mongolian Nez Perce Puyuma Romanian ...	B. Portuguese Passamaquoddy	Japanese Korean	Romanian Tsez Turkish	B. Portuguese Buryat Mongolian Nez Perce Zulu ?Uyghur

In addition to the theoretical implications of our analysis, one important contribution of this paper is methodological. We have seen that there is significant cross-linguistic variation in the 𝔄-domain, and so far, the literature has been rather inconsistent in terminology and technicalities, which has often led to apparently different theoretical conclusions. To give one example, the structure we propose for type ① configurations adopts features of the structure proposed for Prolepsis in [9] and the one proposed for Major Subjects in Korean in [12]. Both suggest base generation of DP.𝔄 above the matrix CP, a predication relation, and an embedded operator configuration. Following Yoon's structure, we assume that there is a position between the matrix verb and the embedded CP, our RP, hosting DP.𝔄. Following Salzmann's structure, we assume that the embedded dependency in Prolepsis is not a movement dependency. However, by not adopting operator movement for type ① configurations, we do not reject embedded movement in 𝔄-configurations in general, neither across languages, nor within the same language. As suggested by the movement properties discussed for Korean in (25), this appears to clearly be an option (for DP.𝔄, not just an operator), and we have suggested that Korean also allows a CC𝔄-configuration. Where we thus differ from many previous approaches is that we do not adopt the premise that in a single language, there should only be *one* structure for all 𝔄-configurations (whichever of the ones given in ①–⑤ it is). We rather submitted that single languages may allow more than one of theses configurations. The main argument we used to show this is that mixing and matching of characteristic properties is often not

possible. In other words, a particular 𝔄-configuration cannot *simultaneously* have all the characteristic properties observed in a language—it can only have all of the characteristic properties of a specific construction in ①–⑤. The methodological tool we used is to combine two characteristic properties which (i) diagnose (i.e., have different values in) different constructions and (ii) are available individually in the language under consideration. Whenever we have been able to test this, it has led to an impossible outcome. By doing so, we have shown that the variation is in fact quite systematic, and we believe that remaining inconsistencies may be resolved if this strategy is used moving forward and applied to languages not classified yet.

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Abbreviations

The glossing follows the Leipzig Glossing Rules. In addition, the following abbreviations are used in this manuscript:

HyR	Hyperraising (both to subject and object)
RtS	Raising to subject
RtO	Raising to object
LDA	Long-Distance Case or Agreement
ECM	Exceptional case marking

Appendix A. Productivity, Restricted Distribution of CC𝔄

③ Korean:

- "Verbs that govern SOR [Subject-to-Object-Raising] select embedded clauses construable as expressing a categorical judgment" ([12]: 630).
- Used in the literature: *believe*, *think*, *consider/conclude*, and *remember*.

④ Tsez:

- There are several factors which make it difficult to test verb classes.
- CP must be in absolutive position.
- Agreement must be visible on the matrix verb, which is only the case for a subset of vowel-initial verbs which do not have an underlying laryngeal (M. Polinsky, p.c.).
- Within the class of agreeing verbs, LDA is found with "verbs of perception, cognition and some factive predicates" (M. Polinsky, p.c.).

④ Romanian:

- RtO appears with "the entire class of Romanian verbs of knowledge that are compatible with inferential semantics" ([22]: 257).
- Used in the literature: *find out, suspect, guess, and know*; RtS with *seem* (I. Giurgea, p.c.)
- Impossible: *happened* and *say*.

⑤ Brazilian Portuguese:

- Hyperraising "is limited to a subset of unaccusative clause embedding predicates" ([4]: 12).
- Used in the literature: *seem*, *turn out*, *be on the verge of* [3].
- Controversial: Hyperraising with speech verbs such as *say* [2,3].

⑤ Buryat:

- Used in the literature: *say*, *know*, *decide*, *see*, and *hear*.

⑤ Mongolian:

- Used in the literature: *say, think*, and *know* [15,81].

⑤ Zulu:

- RtO: found with *want* and *expect*; prohibited with *ask* [30].
- Hyperraising: *seem* and *be necessary* [32].

Appendix B. Island-Sensitivity

- Puyuma A′ extraction vs. Prolepsis: ①

(52) a. **imanay nu=k<in>aladram* [*na ma-trangis i Isaw anu*
who 2SG.GEN=<PRF.PV>know [LK AV-cry SG.PIVOT Isaw because
m<in>atray]?
AV<PRF>die]
'Who is the person that you knew that Isaw cried because (he/she) passed away?' [[14]: 15, (33)]

b. *ma-tiya=ku kan Isaw$_i$* [*dra m-uka=yu i Tripul*
AV-dream=1SG.PIVOT SG.ACC Isaw$_i$ [C AV-go=2SG.PIVOT LOC Tripul
[*anu kualeng ec.*(PIVOT)$_i$]].
[because AV.sick ec.(PIVOT)$_i$]]
'I dreamt that you went to Tripul because Isaw is sick.' [[14]: 14, (32b)]

- Passamaquoddy Prolepsis ① vs. LDA ②[22]

(53) a. *Tihtiyas kosona Sapet '-kosiciy-uku-l wikuwoss-ol eli psi=te*
Tihtiyas or Sapet 3-know.TA-INV-OBV 3.mother-OBV C all=EMPH
wen macehe [*pro kisi-ntu-htit*].
someone leave.3 [*pro* PERF-sing-3PCONJ]
'Her mother knows (about *Tihtiyas or Sapet*) that everyone left after *they* started singing.' [[19]: 16, (44b)]

b. *N-kosicíy-a-k nikihk-únnu-ki* [*eli Píyel mèc*
1-know-DIR-PROX.PL (1).parent-1PL-PROX.PL [thus Peter still
álk-o-k [*utapákon t kis-onuhmuwew-a-htí-t-pon*]].
drive.around-TH-3AN [(3).vehicle *t* PST-buy.for-DIR-PROX.PL-3AN-PRET]]
'I know about our parents$_i$ that Peter is still driving the car they$_i$ bought for him.' [[20]: 376, (27a)]

- Korean Prolepsis ① vs. RtO ③

(54) a. *Na-nun Yenghi-lul$_i$* [[*pro$_i$/kunye-ka ha-nun*] *il-i*]
I-TOP Yenghi-ACC$_i$ [[*pro$_i$*/she-NOM do-ADNOM] work-NOM]
mopemcek-ila-ko sayngkakhanta.
exemplary-COP-COMP think
'I think of Yenghi that the things she does are exemplary.' [[12]: 619, (5)]

b. ?**Mary-nun Yeonghi-lul* [[*t apeci-ka ha-si-nun*] *sa.ep*]-*i*
Mary-TOP Yenghi-ACC [[*t* father do-HON-ADNOM] business]-NOM
manghay-ss-ta-ko sayngkakha-n-ta.
go.bankrupt-PAST-DECL-COMP think-PRES-DECL
Int.: 'Mary thinks that as for/it is Yeonghi (that) the business her father was running went bankrupt.' [[13]: 9, (17)]

- Romanian Prolepsis ① vs. RtO ④

(55) a. ?*Am auzit despre copii$_i$* [(*pentru*) *că nu vorbesc$_i$ unul cu altul*].
have.1SG heard about children [(because) that not talk.3PL one with other]
'I heard about the children that/because they do not speak to each other.'
[[22]: 269, (33b)]

b. **Ion o mirosise pe Maria* [*faptul* [*că-şi aranja*
Ion CL.3SG.F.ACC smelled DOM Maria [fact.the [that-DAT.REFL arranged
plecarea]].
departure.the]]
'Ion figured out the fact that Maria was arranging her departure.'
[[23]: 7, (15c)]

- Nez Perce Prolepsis ① vs. RtO ⑤

(56) a. ?*'Aayat-onm mamay'as-na hi-nees-nek-se* [$_{CP}$ [*ke kaa pro*
woman-ERG children-ACC 3.SBJ-O.PL-think-IPFV [$_{CP}$ [when *pro*
hi-pa-paay-no'], *hi-lloy-no' qiiwn*].
3.SBJ-S.PL-arrive-FUT], 3.SBJ-be.happy-FUT old.man.NOM]
'The woman thinks that when the kids arrive, the old man will be happy.'
Lit.: 'The woman thinks the kids that when they arrive, the old man will be happy.' [[17]: 4, (9)]

b. **'Aayat-onm hi-nees-nek-se* [$_{CP}$ [$_{adjunct}$ *ke kaa mamay'ac*
woman-ERG 3.SBJ-O.PL-think-IPFV [[when children.NOM
hi-pa-paay-no'], *hi-lloy-no' qiiwn*].
3SBJ-S.PL-arrive-FUT], 3.SBJ-be.happy-FUT old.man.NOM]
Int.: 'The woman thinks that when the kids arrive, the old man will be happy.'
[[17]: 5, (12)]

Appendix C. Connectivity Effects

- Buryat Prolepsis ① vs. Hyperraising ⑤: Idiom construal

(57) a. *badm-in zürxən sajən-ar* [*t am-ar-a gar-a*
Badma-GEN heart.NOM Sajana-INSTR [*t* mouth-INSTR-REFL go.out-PST1
gɜžə] *mɜdə-gd-*ɜ
COMP] know-PASS-PST1
Idiomatic: 'Sajana saw that Badma got greatly frightened.'
Lit.: 'Badma's heart was known by Sajana that (it) went out of his mouth.'
[[7]: 123, (50)]

b. *badm-in zürxən sajən-ar [pro am-ar-a
Badma-GEN heart.NOM Sajana-INSTR [pro mouth-INSTR-REFL
gar-a-b gʒžə] mɜdə-gd-ɜ
go.out-PST1-1SG COMP] know-PASS-PST1
Idiomatic (expected): 'Sajana saw that Badma got greatly frightened.'
Lit.: 'Badma's heart was known by Sajana that (it) went out of his mouth.'
[[7]: 123, (51)]

- Romanian ④: PBC violation; binding

(58) a. *Am ghicit imediat [că Radu ne trage plasa].*
have.1SG guessed immediately [that Radu us draws net.the]
'I figured out right away that Radu was pulling our leg.' [[22]: 271, (36a)]

b. *L-am ghicit pe Radu [că ne trage plasa].*
him-have.1SG guessed DOM Radu [that us draws net.the]
'As for Radu, I figured out that he was pulling our leg.' [[22]: 271, (36c)]

c. *[*Că ne trage plasa*]$_i$ *l-am ghicit (imediat) pe Radu* t_i.
[that us draws net.the]$_i$ him-have.1SG guessed (immediately) DOM Radu t_i
Int.: 'As for Radu, I figured out (right away) that he was pulling our leg.'
[[22]: 271, (36d)]

d. O_k *aud [pe fiecare mamă*]$_k$ *copii*$_i$ *ei*$_{k/j}$ *[că munceşte mult].*
her$_k$ hear.3PL [DOM each mother]$_k$ children her$_{k/j}$ [that works hard]
Lit.: 'Her$_k$ children hear each of their$_k$ mothers say she$_k$ is working hard.'
[[22]: 273, (40)]
'About each mother, her children hear that she is working hard.' (our paraphrase)

- Mongolian Hyperraising ⑤: Idiom construal; NPI licensing

(59) a. *Dorj chang-aar [Bat-iin nüd(-iig) oree deer-ee gar-san gej]*
Dorj loud-INSTR [Bat-GEN eye(-ACC) top on-REFL.POSS climb-PST COMP]
khel-sen.
say-PST
'Dorj said loudly that Bat was very surprised.'
(Lit.: 'Dorj said loudly that Bat's eyes climbed on top of themselves.')
[[15]: 5, (11)]

b. *Nara [khen(-iig) ch iree-güi gej] khel-sen.*
Nara [who(-ACC) CH come.PST-NEG COMP] say-PST
'Nara said that nobody came.' [[15]: 8, (24a)]

- Uyghur ⑤?: Idiom construal, NPI licensing

(60) a. *Tursun [toqquz qiz-ning tolghaq-ni teng kel-di] di-di.*
Tursun [nine girl-GEN labor-ACC together arrive-PAST.3] say-PAST.3
'Tursun said that times are hard.' [[29]: 388, (15b)]

b. *Ahmet [hichkim-ni ket-mi-di] di-di.*
Ahmet [nobody-ACC leave-NEG-PAST] say-PAST.3
'Ahmet said that nobody left.' [[29]: 388, (17)]

- Zulu Hyperraising ⑤: Idiom construal; binding

(61) a. *iqhina li-bonakala [ukuthi li-phum-ile embizeni].*
AUG.5steinbok 5S-seems [that 5S-exit-PFV LOC.9pot]
'The secret seems to have come out.' [[32]: 36, (53b)]

b. *ku-fanele* [*ukuthi* [*ngo-buhlakana* *bukaSipho*$_i$] *pro*$_i$
17S-necessary [that [NGA-AUG.14wisdom 14ASSOC.1Sipho$_i$] *pro*$_i$
a-m-siz-e *uThemba*].
1SJC-1O-help-SJC AUG.1Themba]
'It's necessary that out of Sipho$_i$'s wisdom, he$_i$ helps Themba.'
[[32]: 36, (54a)]

c. **pro*$_i$ *u-fanele* [*ukuthi* [*ngo-buhlakana* *bukaSipho*$_i$] t_i
pro$_i$ 1S-necessary [that [NGA-AUG.14wisdom 14ASSOC.1Sipho$_i$] t_i
a-m-siz-e *uThemba*].
1SJC-1O-help-SJC AUG.1Themba]
Int.: 'It's necessary that out of Sipho$_i$'s wisdom, he$_i$ helps Themba.'
[[32]: 36, (54b)]

Notes

1 We will use the following terminology and abbreviations for finite A-phenomena: Hyperraising [HyR] (which can be to subject [RtS] or object [RtO]) and Long-Distance Agree(ment) [LDA] (which can involve agreement between an embedded DP and a matrix agreement head, as well as exceptional case marking [ECM] of an embedded DP by a matrix head).

2 The definition in (2) also includes control, *tough*-movement and copy raising, which we consider in our ongoing research. For reasons of space, as well as unresolved data controversies (in particular for copy raising), we have to set these phenomenona aside in this paper.

3 We used the following works and sources to classify the languages:
Brazilian Portuguese: [1–5], R. Lacerda, p.c.; *Buryat:* [6,7]; *English:* [8], J. Bobaljik, p.c.; *German:* [9]; *Japanese:* [10,11], K. Shimamura, p.c.; *Korean:* [12,13]; *Madurese:* [14]; *Mongolian* [15]; *Nez Perce:* [16,17]; *Passamaquoddy:* [18–20]; *Puyuma:* [14,21]; *Romanian:* [22,23], I. Giurgea, p.c.; *Tsez:* [24–26]; *Turkish:* [27,28], S. Şener, p.c.; *Uyghur:* [29]; *Zulu:* [30–32].
Note that the list may not be exhaustive for the languages given, and in some cases, more options may be available. For instance, in Passamaquoddy, a movement configuration (③–⑤) seems to exist as well (see [18,19]). Since, at this point, we are not able to conclusively determine some of the possible further options, we have restricted the table to the configurations for which we have conclusive evidence.

4 See Section 5 for some specific comparisons with other works.

5 Since subject *pro* is typically not available in Brazilian Portuguese (see [47]), a *pro*-drop analysis is unlikely for (19a). One may consider a finite control derivation; however, there are arguments presented in [2,3] against such an analysis which we cannot go into here. (Please see the works cited.)

6 In potential configurations where the object receives nominative, the subject occurs with dative.

7 The property of case stacking is not accepted by all Japanese speakers.

8 This approach, although different in the technical implementation, replicates the main insight of approaches that relate CC$\mathfrak{A}$ to a special CP, which is typically selected. Halpert [31,53], for instance, derives some of the cross-linguistic variation in the distribution of RtS via differences in the status of CPs as eligible ϕ goals. Another approach involves 'deficient' CPs (see, e.g., [1–3]), where CC$\mathfrak{A}$ CPs are assumed to lack phi- and/or case features, which then triggers A-movement of the DP.$\mathfrak{A}$. The main reason why we do not pursue these approaches is that they do not cover the fine-grained variation found among $\mathfrak{A}$-configurations, as well the the selective deficiency CC$\mathfrak{A}$ CPs display (see in particular [54]).

9 In [4], it is argued that the restriction in (22) does not hold in Brazilian Portuguese, since so-called *interleaved movement* constructions may involve A-movement after (pure) A′-movement, as long as there is an additional A′-step after the A-step. We do not provide an account of these configurations here, but we speculate that the approach to separate probing which we develop in Section 4 could be extended to these configurations: movement from a mixed A/A′ position is possible only if both properties are targeted; however, they may be targeted by different elements.

10 Note that not all matrix A-probes can equally engage in CC$\mathfrak{A}$-configurations. It seems to be the case that the featural makeup of matrix *v* plays an additional role in what kind of matrix A-dependencies are possible in CC$\mathfrak{A}$-contexts. For instance, as pointed out by a reviewer and mentioned by Nunes ([3]: 98, (30b)), Brazilian Portuguese HyR is ungrammatical with the passive form of *say*, even though RtS is possible with the active version of the same verb (see (19a)) as well as unaccusatives such as *seem* (see (1b)). A similar restriction holds in Romanian where RtO cannot feed into further matrix passivization. We suspect that there might be a connection between these data and the *interleaved movement* construction proposed by [4] for Brazilian Portuguese (see also note 9) as well as the possibility that *v* could carry a composite probe resembling the C.R it embeds. Including the options for composite probes of *v* and the resulting combinations with C goes far beyond what we can do in this article, and we leave an extension to these constructions for further research.

11 Since Passamaquoddy is a type ② language, PBC effects are predicted to arise for the embedded CP, but not the embedded TP.

[12] See, for instance, [47,56] for arguments that topics can be base generated in the left periphery in Brazilian Portuguese. Base generation and thematic licensing in the CP is also proposed in [57] for related constructions in Mari.

[13] As pointed out to us by I. Giurgea, the example in (33b) improves significantly if there is clitic doubling in the embedded clause. (Movement of specific objects obligatorily triggers clitic doubling.) However, if the matrix verb is changed to *see*, as in (62a), the result is again degraded. Giurgea observes that in cases where the matrix verb is *hear*, an implicit *say*-construction is involved, which we submit would involve a Prolepsis configuration, with the DOM object being base generated in the matrix clause. Although occasional examples such as (62b) can also be found with the matrix verb *see* and DP.𝔄 corresponding to an embedded object, they do not seem to be productive, and may also involve a Prolepsis configuration.

(62) a. *??Am văzut-o pe Maria că o sună mulţi*
have.1 seen-CL.ACC DOM Maria that her call many
Int.: 'I saw that many people call Maria.'

b. *Pe la 8.40 l-am văzut că l-au dus (asistentele, doctorii? nu*
by at 8.40 CL.3MS.ACC-have.1 seen that CL.3MS.ACC-have.3PL brought (nurses-the doctors-the not
ştiu, că nu l-am văzut decât pe el) cu un scaun cu rotile.
know.1SG because not CL.3MS.ACC-have.1 seen but DOM he) with a chair with wheels
'At around 8.40 I saw him being brought in a wheelchair (by the nurses, the doctors? I don't know, because I only saw him).' [I. Giurgea, p.c.]
(http://www.musicislife.ro/e-super-bine/; accessed on 8 November 2021)

Further empirical research is needed to determine whether A-Minimality does indeed hold as suggested in [22], but for now, we classify Romanian as a type ④ language.

[14] In a previous version of this work, we had misclassified Tsez as a type ③ language. Thanks to J. Bobaljik and M. Polinsky for clarifying the status of Tsez.

[15] There are, in principle, two ways in which fusion of C and R could take place: they could get fused into a single head at the lexical level, or the composite head could be formed derivationally via head-movement. While the data presented here do not seem to favor one approach over the other, this, as well as other more technical aspects of the fusion process, are part of our ongoing research. For instance, applying this claim to an extended left periphery [73], one could assume that fusion takes place with one or multiple heads of the CP, depending on language-specific semantic requirements. Related to that are proposals about a hierarchical formation of composite probes inside CP (see [58]) and a typological implicational ordering of CC𝔄-configurations as in [59].

[16] Which concrete A-features, in addition to R, take part in the formation of a CC𝔄-configuration may vary from language to language. Thus, we do not refer to a specific (type of) A-feature (such as ϕ, θ, and D) but leave all these options available for individual languages. We note, however, that ϕ-features may be good candidates for the A-probe on C.R (see, among others, [74]). Additionally, as noted by a reviewer, employing ϕ-features may allow us to make certain fine-grained distinctions in the availability of CC𝔄-dependencies. In Brazilian Portuguese, for example, RtS is not possible with a 1.SG pronoun ([3]: 101, (40a)), which might suggest that, at least in Brazilian Portuguese, ϕ-features are involved in the composite C.R probe. As it would extend the scope of this paper, we cannot present details of all languages, but rather focus on the broad conclusion that some A-features need to be involved. Another reviewer points out that the delta-features proposed in [74] could be an alternative to our composite probe model. We do not consider this to contrast with our approach but we think it may not be sufficient. Delta-features can certainly serve as the required A′-part of the composite probe. However, there are indications that Topic and/or Focus A′-features do not suffice to capture all the attested semantic restrictions in CC𝔄-contexts, and that a richer semantics might be involved at least in some languages (see, e.g., the Major Subject restriction in Korean, or the "life-time effect" observed for Japanese in [10]).

[17] A reviewer asks if the different types of probing might be seen as a result of the specific features involved in the fusion process (e.g., ϕ and θ). The proposal seems to be a promising one, but, since an answer to this question would require an in-depth investigation of the individual CC𝔄 languages, and we mainly focus on the similarities, rather than the differences, among the different languages in this paper, we leave the exploration of the exact relation between the type of probing and the quality of the features involved for our ongoing future work (see also note 15).

[18] As pointed out to us by T. Bondarenko and R. Lacerda, if the embedded clause contained two DPs with both matching A and matching A′ features, the higher DP would be targeted by the composite probe, resulting in a minimality effect. Nevertheless, since this effect would not arise due to C.R's A-feature alone, but due to the requirements of the whole composite probe (including its A′-part), we treat this configuration as a case of (relativized) minimality in a general sense, and not as a case of A-Minimality.

[19] Another possibility would be that the A′-probe is satisfied by means of external merge of a complementizer. Given that in type ⑤ configurations, R can bundle with a plain C-head which does not have semantic features (i.e., it is not tied to specific C values), the only C-element present in such CPs is the complementizer, and it could be assumed that C itself satisfies whatever A′-property such CPs have (e.g., finiteness, force). While, as noted by a reviewer, this option might not be necessary to derive the attested patterns, we leave this possibility open as a theoretical alternative.

[20] Note that this does not mean that case or agreement are necessarily optional. In Tsez, for instance, LDA with the highest absolutive DP is obligatory, in the right syntactic context, if the DP is a topic. Thus agreement may be obligatory in Tsez whenever it is possible (cf. [79,80]). What is optional, however, is whether a given DP is a topic, thus leading to apparent optionality of LDA.

[21] As in Prolepsis, where RP and CP are in free variation, we assume that CP.R can also always alternate with a pure A′ CP. Thus even when suitable DPs are present in an embedded clause, CC𝔄 is not obligatorily derived.

[22] We preliminarily classify Passamaquoddy as configuration ②. However, note that Bruening [18,19] proposes that there are island-sensitive CC𝔄-constructions in Passamaquoddy, such as (63). Since the empirical distribution is not entirely clear, we leave open whether Passamaquoddy also exhibits a CC𝔄-configuration of type ③–⑤.

(63) *N-piluwitaham-a* $kukec_i$ *eli not skitap nipa-kotunke* [*eci* t_i *oli-ya-t Kehlis-k*].
1-suspect-DIR warden$_i$ C that.AN man night-hunt.3 [when t_i there-go-3CONJ Calais-LOC]
'I suspect (of *the warden*) that that man poaches when *t* goes to Calais.' [[18]: 7, (19b)]

Furthermore, the connectivity data given by Bruening are compatible with a Prolepsis or High Topic structure, e.g., in our approach, type ② is predicted to display PBC effects for the CP.R, even though not for the TP, and certain apparent scope and binding reconstruction properties can also be attributed to the pronoun associate of DP.𝔄.

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