Papers from the International Workshop on the Syntax of Predication and Modification 2024

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Preface

The International Workshop on the Syntax of Predication and Modification 2024 (IWSPM 2024) was held at Ichigaya Campus Nihon University, Tokyo, Japan on November 16-17, 2024. The major objective of this workshop was to foster fruitful dialogue between researchers through analyses of a selection of construction types involving predication and modification. The present volume includes 10 papers, which represent the outcome of IWSPM 2024. The workshop was planned in collaboration with a research mobility project between Japan and Hungary. The workshop and the publication of the proceedings are supported by the JSPS Bilateral Joint Research Project (JPJSBP 120243802).

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Modification versus predication and binding:
Prenatal particle verb and prefix verb structures in German*

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Abstract: Before modification of their GOAL prepositional phrase by a directional adverb makes them so, prepositional particle verb structures in German like UMschreiben 'rewrite' or DURCHweben 'weave through' serve to derive in an applicative diathesis prepositional prefix verb structures like umSCHREIBen 'circumscribe' or durchWEBen 'interweave' (where capitals signal word accent). The diathesis creates an extra inner predication structure (Basilico 1998), introducing a GoTH subject of predication and grammatical object that binds in a reflexive-like (lambda-)relation the original GOAL and THEME. The predication counters an offending asymmetry in the coupling of semantic roles and grammatical functions. In the particle verb case, the offense is redressed externally, via upcycling of a feature that remains locally uninterpretable due to the violation of harmonic linking.

Keywords: Prepositional particle verbs, Prepositional prefix verbs, Modification, Predication, Reflexive Binding, Redress

1.   Background and outline

Natural language grammars achieve the interface between syntactic structures and semantic representations, i.e., derive pairs of sound and meaning representations <PF, LF> that can be articulated and assessed with regard to truth and falsity respectively.[1] Important part of the process of generating and pairing syntactic structures and meaning representations is governed by rules strictly followed by the grammar engine. For example, a robust cross-linguistic generalization captures that given a transitive predicate and associated structure, the AGENT is coupled to the grammatical function subject and the THEME or PATIENT is coupled to the grammatical function object. At the same time, the productivity of many types of pairs of form and meaning tells us that these should be automatically derived just as well while we do not know which rules are actually being followed; take, e.g., the often passive or modal meaning of formally reflexive structures in the case of inchoatives or middles. We continue to argue here that what might be called the rule – derivation gap between forms and meanings can be mitigated if we acknowledge that grammar derives structures as well that violate rigorous interface

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[1] In more recent minimalism, this process is genuinely cyclic in that syntax manipulates LFs (and PFs) that are fed to interpretive semantics in phases (Chomsky 1995).

conditions, where the violation gets redressed in a particular manner and the redress becomes part of the automatic derivation (Brandt 2019).

Empirically, the present investigation draws on a collection and taxonomy of about 800 types of prepositional particle and prefix verbs in German that at the same time feature a GOAL-denoting prepositional complement (Brandt 2024). The structure of the investigation is as follows: Section 2 lays out background assumptions concerning the syntax-semantics interface. In particular, semantic roles as well as grammatical functions are 'horizontally' ordered in hierarchies and 'vertically' coupled with linking rules. Harmonic Linking dictates that a higher semantic role be associated with a higher grammatical function. In pairs of roles, possessing the higher role implicates having a certain semantic property that the argument carrying the lower role needn't have.

We then argue that prepositional particle verbs such as UMschreiben 'rewrite' or DURCHweben 'weave through' violate harmonic linking. As a consequence, part of a DIFFerence feature cannot be locally interpreted and upcycles from the computational cycle marked by the verbal projection to the computational cycle marked by the temporal projection. It is interpreted in the terms customary there, giving rise to the typical but hitherto unexplained change of state meaning of particle verb constructions.

Section 3 fleshes out the derivation of prepositional prefix verbs like umSCHREIBen 'circumscribe' or durchWEBEN 'interweave' from prenatal prepositional particle verb structures. An applicative diathesis reintroduces the original GOAL as an inner subject of predication with the semantic role GoTH, that 'bundles' (Reinhart 2002) the original THEME and GOAL. The spatiotemporal inclusion of this subject in the predicate redresses internally the offense occurring in prepositional particle verb structures. Section 4 concludes with a summary of the investigation.

2.   Prepositional particle verbs and upcycling

2.1.   The harmonic role function form switchyard

Let us conceive of the interface between semantic roles and grammatical functions, as identifiable by formal marking, typically, in terms of the two-dimensional Gestalt given in figure 1.
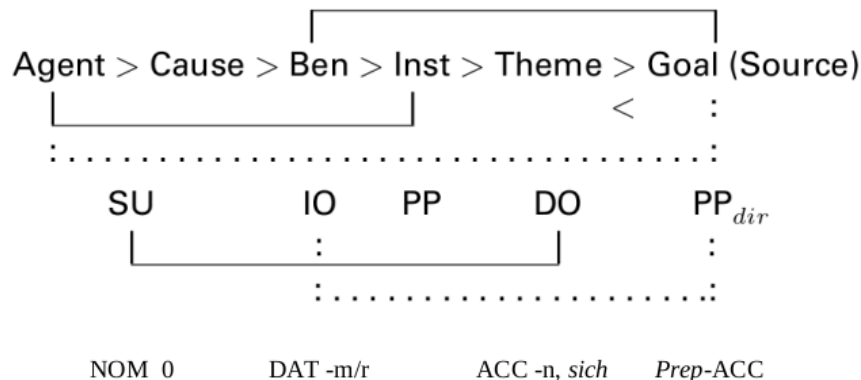

Figure 1: The harmonic role function form switchyard

In the horizontal dimension, semantic roles as well as grammatical functions are ordered by prominence relations. In the vertical dimension, harmonic linking couples semantic roles and grammatical functions respecting (1).

(1)   Higher semantic roles are associated with higher grammatical functions that are marked by lesser means.

In German, indirect objects with dative case would seem to go against (1) in that they are more marked than direct objects with accusative case. As we argued in Brandt (2003), these argument expressions really have the status of inner subjects of predication. In essential analogy, we argue here for the applied objects or THEME arguments of prepositional prefix verbs that they, too, relate to lower GOAL arguments as prototypically introduced by prepositional elements which are more marked than datives (and applied objects) as they should be.

The lines in figure 1 stand for relations within the Gestalt which are associated with means to manipulate the linking. Diatheses can change the association between semantic roles and grammatical functions, e.g., by promoting the THEME to subject function in passive structures. A similar case very pertinent to the discussion here are formally reflexive structures coupled with inchoative, viz. passive-like interpretations of causatives. Building on work by Chierchia (2004), we argue in Brandt (2019) that in relevant structures like *sich ordnen*, 'order' or *sich öffnen* 'open', linking of semantic roles to grammatical functions is "the wrong way around" as the CAUSE is present only as an abstraction over the THEME and therefore semantically weaker or more inclusive than the latter. However, at the same time, it is more prominent in the hierarchy of semantic roles. Very much like in the case of prepositional particle verb structures in focus here, this offending asymmetry leads to uninterpretability of and upcycling of a certain part of the LF of DIFFerence, namely, the negation of the property distinguishing the subject from the object. This effects the change of state or modal (in the case of middles) semantics so typically associated with these structures (cf. Brandt 2019: chapter 4.1).

In the following, we argue that in the case of prepositional particle verbs, material semantics contradicts Harmonic Linking. This is because the GOAL includes from the relevant spatiotemporal perspective the THEME, in violation of the ordering of semantic roles – and grammatical functions, in consequence of harmonic linking – that we take to be based on the condition in (2).

(2) $X > Y$ iff $\exists P \ \Box P(x_X) \wedge \neg \Box P(y_Y)$
      'A role X is higher than a role Y iff the referent of X necessarily has a certain property that the referent of Y need not have.'

2.2.   Uneasy GOALs, accusative case and upcycling for a change

The prepositional particle verb structures discussed here feature structurally low prepositional phrases indicating directionality and realizing GOAL arguments. Such directional locative phrases are singled out in English by exhibiting subject properties in important respects. The hallmark of this subject-like behavior is locative inversion where the directional locative phrase appears in clause-initial position as in (3), the verbal complex of which translates into the directional particle verb *hereinkommen* in German.

(3) "We shall name it after the first person who comes in," and **in through the door** came Father Hippolyte Leduc. (https://www.leduc.ca/history-leduc)

German (4) similarly illustrates the extraordinary options that directional locative phrases have with regard to word order. In particular, these phrases may appear before the direct object although it is clear that they form a constituent with the verb to the exclusion of the direct object as shown by VP fronting in (5).

(4) Der niederländische Kaffeekonzern bestellt **zum neuen**
     the dutch   coffee.company appoints to.the new
     Vorstandsvorsitzenden Rafael Oliveira […]
     chairman   Rafael Oliveira […]
     'The Dutch coffee company appoints Rafael Oliveira new chairman.'
     (Frankfurter Allgemeine Zeitung 21 October 2024)

(5) a. Zum neuen Vorstandsvorsitzenden bestellt   wurde R. O.
        to.the new   chairman   appointed was   R. O.
     b. *R. O. bestellt   wurde zum   neuen Vorstandsvorsitzenden.
         R. O. appointed was   to.the new   chairman.

In (4), the directional phrase takes on the semantics of finality, which in German is regularly expressed by prepositional phrases headed by *zu* 'to' (cf. section 3.2). Beyond exceptional word order properties, directional locative phrases in English show subject properties as well in other respects. Bresnan (1994: 95ff) discusses that they behave like subjects unlike any other grammatical function with regard to raising, *that*-trace effects and *do*-support. We would like to propose that this aspiration to subject in English and its fulfilment in English is a really a reaction to an offense against harmonic linking: the THEME referent is included spatiotemporally in the GOAL referent and therefore has no property that the GOAL wouldn't have as well in contradiction to role ordering, given harmonic linking. The grammar may (but needn't actually) react by promoting the GOAL to a more prominent syntactic position, in the case at hand, to grammatical subject as regularly unmarked and unspecific regarding its semantic role.

The offense of harmonic linking occurs at the level of the VP which we take to code the result state of the event (Givon 1972, cf. below). We assume that at this level, individuals are exclusively identified spatiotemporally. Spatiotemporal location is the basis for our understanding of what it means to be the same or different to begin with according to e.g. Leibniz, who lets Philateles say the following in his *essays on human understanding* (Leibniz 1765, p. 229).

Nous ne trouvons jamais et ne pouvons concevoir qu'il soit possible que deux choses de la même espece existent en même temps dans le même lieu.

We never find and cannot conceive that it is possible that two things in the same space exist at the same time in the same place.

Strawson presents the fundamental quality and importance of spacetime as follows when it comes to thinking about the individuation of particulars (Strawson 1959, pp. 25f):

> [T]he system of spatio-temporal relations has a peculiar comprehensiveness and pervasiveness, which qualify it uniquely to serve as the framework within which we can organize our individuating thought about particulars.

We make reference to ordinary individuals as well as to their spacetimes in the first order representations that we use for semantic representation. (6) asserts that the beaver is in the hunter, e.g., as a result of the hunter having eaten the beaver).

(6) hunter(x) ∧ beaver(y) ∧ x ⊃ y
     'The hunter spatiotemporally includes the beaver.'

Given (6), (7) is true as well as the intersection of hunter and beaver is nonempty.

(7) hunter(x) ∧ beaver(y) ∧ x ∩ y ≠ ∅
     'The hunter and the beaver spatiotemporally overlap.'

Regarding what it means to be different, we adopt the definition of the relation in terms of a generalized quantifier given in Brandt (2019).[2]

(8) DIFF = λSλP ∃x S(x) ∧ P(x) ∧ ∃x S(x) ∧ ¬P(x)
     'The sets S and P such that there is an element of S that
      is in P and there is an element of S that is not in P.'

Quite importantly, DIFFerence is an asymmetric relation, i.e., x may be different from y without y being different from x. Note that a modal version of DIFFerence defines as well the semantic role hierarchy given above (cf. (2)); in section (3.2.4), we use another derivative of DIFFerence to define binding relations which are asymmetric as well in that the binder may have properties the bindee does not have.

The prepositional particle verbs that we investigate – as well as their prepositional prefix verb cousins – feature so-called "Wechselpräpositionen" (for the most part) which can assign both dative and accusative case with consequences for semantic interpretation. If dative is assigned, a stative interpretation results. Only if accusative is assigned, a change of state interpretation results, as in (9b). As is normal in spoken language, the examples do not feature a verb that would signal this.

(9) a. der/den   Leduc in dem   Raum
        the-NOM/ACC   Leduc in the-DAT room
        'Leduc [is] in the room'
     b. der/den   Leduc in den   Raum
        the-NOM/ACC   Leduc in the-ACC room
        '[send/let] Leduc into the room'

The semantics of (9a) corresponds to the result state of (9b) which additionally conveys that before the event, the THEME was not at the GOAL. In other words, (9b) codes a change

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[2] Note that DIFFerence is also part of a well-known Gestalt, namely, it combines the I and O corners of the traditional square of opposition. Cf. Brandt (2019: 39ff) for discussion.

of state unlike (9a) which just codes a state; the accusative case marking thus appears to be responsible for the change of state semantics.

Using Gehrke's (2008) insight that accusative case in German PPs is structural, we recycle DIFFERENCE and formulate the from-function correspondence in (10) for German, which is like principle B (Reinhart 1976) or obviation (Hellan 1988) tied to structural case (nominative and accusative).

(10) In German, two structural cases trigger DIFFerence = the first argument must have a property that the second one doesn't have

In so-called nominative-accusative languages, it is of course these two core structural cases that serve to distinguish the main complements in the clause, and thereby also the referents of these complements.[3] But (10) also captures more complex cases of e.g. prepositional particle verbs with direct objects; here it requires that the referent of the accusative case-marked direct object is different from the referent of the accusative case-marked complement of the preposition (but not necessarily the other way around). It is thus eventually accusative that marks difference of the referents of structurally case-marked argument expressions, making some sense of the fact that what cannot be locally interpreted is the negation of an independently coded property, namely, the property that sets the first argument apart from the second one.

We see the call for such a positive property in certain Gestalt effects associated with accusative case on directional PPs. (11), adopted from Sluckin (2021: 199), shows that adding a directional PP helps license agentive adverbials which appear odd without it.

(11) Johann kam   vorsichtig *?(in den   Raum).
     John   came   carefully   into the-ACC room
     'John came carefully into the room.'

Recalling Burzio's generalization, the accusative in (11) calls for a distinguishing property – agentivity – that is negated for the second argument. With Givón (1972), we contend that the verbal projections of our structures code the result state of the event – a situation where the GOAL includes spatiotemporally the THEME, i.e., there is no spacetime of the THEME which is not as well as spacetime of the GOAL. Assuming the spatiotemporal relations exclusively distinguish referents at this level of representation and interpretation, the material semantics contradicts harmonic linking. Therefore, the negation of the property that distinguishes the higher argument from the lower one cannot be interpreted. The corresponding logical form $\neg P(x)$ goes literally vertical and upcycles from the VP to the TP as the computational cycle that negotiates temporal relations. The property P is identified with the already computed VP meaning and its argument x with a time; the result is the negated VP meaning that corresponds to the pre-state of the change of state.

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[3] Gunkel et al. (2017: 914) write (my translation): The case systems of German and the contrast languages (English, French, Polish, Hungarian) belong to the accusative type, i.e., the distinction of the core complements […] is achieved where it is marked by a patient-specific case (accusative) which is opposed to nominative case that specifies no role.

Figure 2 sketches the analysis of the particle verb structure.[4]

TP
|
VP

NP$_{NOM}$ — Leduc

V

PP/ADVP

PP

P — in
NP$_{AKK}$ — den Raum

ADV — hinein

V — kam

$[[TP]] \supseteq \exists t\, \neg \texttt{LIr(t)}$

$[[VP]] \supseteq \texttt{IN(Leduc,room)}$

$+\ \exists x \neg P(x)$
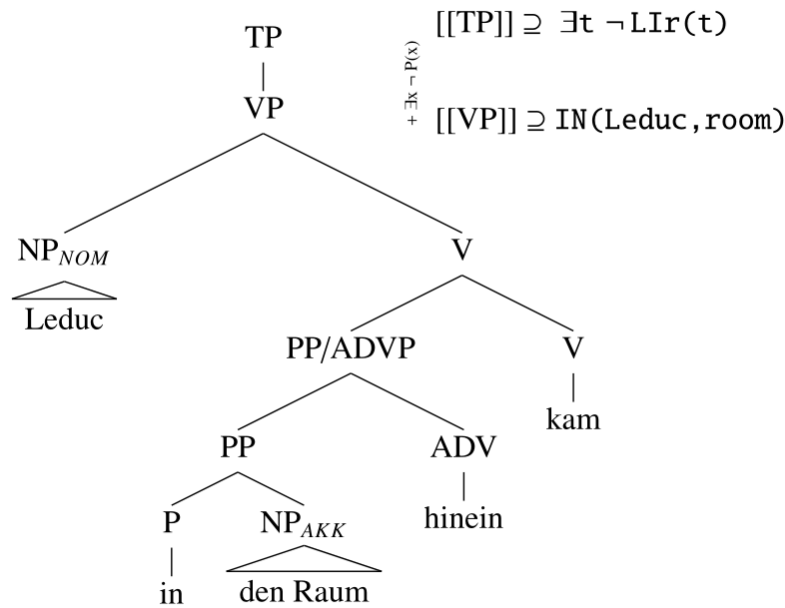
Figure 2: Upcycling in prepositional particle verb structures

Note in anticipation of the derivation of prepositional prefix verbs in terms of head movement that the particle of particle verbs corresponds to a phrasal adjunct to VP which redundantly modifies the prepositional phrase (cf. for an early analysis along these lines Adelung (1971 [1782]) and den Dikken (1994) for a more up to date version). If present, this phrase blocks merger of the prepositional head of the prepositional phrase and the verbal head (Travis 1985). Prepositional prefix verbs must therefore derive from prenatal particle verbs, predicting that particle verb structures proper (with a particle doubling the PP) and prefix verb structures proper exclude each other (cf. section 3.2.2).

3. Prepositional particle and prefix verbs

For prepositional particle verbs featuring one of the prepositional elements *durch* 'through', *um* 'around', *über* 'above, over' or *unter* 'below, under', there are corresponding prefix verb forms, where the divide runs along the superficial formal properties of accentuation and separability. In addition, there are very many prefix verbs with the element *be-* that behave like the prepositional prefix verbs discussed here. However, this is not the case in a good portion of the cases where the derivation (if any) is unclear.[5] For the most part, the prepositional elements occurring in particle verbs are accented and get stranded in verb second, while the prepositional elements occurring in prefix verb

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[4] For ease of presentation, we stay with the simple nominative-accusative structure; the relevant structure is the same though for prepositional particle verb structures featuring as well a direct object, as in, e.g., *John pushed Leduc in through the door*.

[5] According to Grimm and Grimm (1854-1961) and other sources, *be-* relates to the preposition *bei* which has much the same meaning as *at*.

structures are unaccented and inseparable (cf. however section 3.2.4).[6] Also, the prefix *ge-* marks the perfect participle for participle verbs and occurs between the particle and verb stem (e.g., *durchgebohrt*) but is absent in prepositional prefix verbs (e.g., *durchbohrt*). Nonetheless, it looks like the basic ingredients to the two types of structures are the same. Table 1 gives some examples with translations.[7]

Prepositional Particle verbs	Prepositional Prefix verbs
UMfassen 'change grips'	umFASSen 'comprise, clasp'
UMlagern 'relocate'	umLAGern 'beleager'
UMschreiben 'rewrite'	UmSCHREIBen 'circumscribe'
DURCHweben 'weave through'	DurchWEBen 'interweave'

Table 1: Prepositional particle verbs and prepositional prefix verbs

At an abstract level, the prepositional particle verbs code some kind of change of state unspecifically. The prefix verbs however receive a specific 'holistic' interpretation according to which the direct object referent is 'completely affected' in the eventuality. Grimm 1819: 780 (1878: 788) writes the following regarding the makeup and interpretation of the prefix verb *besprenkeln* 'besprinkle' (my translation).

> [...] the prefix verb usually expresses the application of the verb's concept to an object that carries accusative case. If a noncomposed verb were used, the relation would have to be designated by various prepositions or at least a different case.

> the *be-* designates the all-round impact, the whole and complete accomplishment. I do not be-cut the tree yet if I cut something off it, but only if I do it all-round; *be-*sprinkling affects the whole surface

Let us look in more detail at prepositional particle and prefix verb variants respectively that feature the element *durch* 'through'. *Durch* is particularly interesting from a grammatical perspective as it always assigns accusative case to its complement (cf. above). Remarkably as well, *durch* appears more apt to saturate its internal argument slot silently as an alternative to using a pronominal directional element like *hin* 'hither' (such that *hindurch* and *durch* are largely interchangeable, cf. Brandt 2024). The corpus examples in (12) about corrupt social relations ("Klüngel" 'dawdle', 'clique') in Cologne and (13) picturing life as a carpet growing slowly even if the individual weaving moves causing and substantiating the growth are quick.

(12) Die "Klüngel-Fäden"   sind immer bis an die Spitze DURCHgewoben gewesen.
    the "corruption-threads" are always up to the top   through.woven been
    'The threads of corruption have always been woven through to the top.'
    (Nürnberger Nachrichten, 9 March 2002, p. 3)

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[6] Cf. for discussion of exceptions Brandt (2024).

[7] Cf. Olsen 1996 for comprehensive general discussion of particle and prefix verb structures in German and Kühnhold 1973 for an excellent overview and corpus-based collection of particle and prefix verb types in German.

(13) Schnell werden die Fäden DURCHgewoben, und trotzdem wächst der Teppich
quickly are   the threads through.woven   and yet grows the carpet
nur langsam.
only slowly
'The threads are woven through quickly, yet the carpet grows only slowly.'
(Mannheimer Morgen, 14 July 2001)

These examples are prototypical in that they convey that something is done "from beginning to end" or "from top to bottom" or "from one side to the other". Strictly spatiotemporally speaking, an act of *DURCHweben* amounts to replacing a tiny bit of matter out of a larger whole with a tiny bit of a different matter – a thread, as it were.

In contrast, the prefix verb *durchWEBen* conveys that the larger whole is completely if maybe diffusely affected in the eventuality, cf. the corpus examples (14) about the kid's world according to Picasso and (15) about weather-proof tents.

(14) Die Kinder- und Bilderwelt   ist durchWOBen von Mustern und
the kids-   and picture.world is through.woven by patterns and
Binnenstrukturen.
internal.structures
'The kid's world and world of pictures is interwoven with patterns and internal structures.' (Nürnberger Nachrichten, 12 September 1995, p. 17)

(15) Diese [Großzelte] sind mit Glasfasern durchWOBen   und einer
these [big.tents]   are   with glass.fibers through.woven and a
Teflon-Schicht überzogen.
teflon.layer   covered
'These big tents are interwoven with glass fibres and covered with a layer of teflon.' (Vorarlberger Nachrichten, 29 March 1999, p. D8)

The point of (14) is that it is a general trait of the world of kids and pictures that patterns and internal structures are woven throughout them, even if it is not so clear what these patterns and structures are and how exactly the are related to each other or the larger whole of the worlds being described. The point of (15) is that glass fibres are woven throughout all of the cloth making up the big tents and that this cloth is also completely covered by a layer of teflon; indeed if the coverage were only partial, it would make little sense to begin with in the case of tents that better be weather-proof everywhere. The question is how the meaning aspect of complete affection of the THEME that is robustly associated with prepositional prefix verbs comes about.

3.1.   Attempts at internal redress: predication and prepositional prefix verbs

We would like to propose that the 'holistic' semantics is an effect of the grammar's attempt to solve the problem posed by (prenatal) particle verbs "internally", i.e., without the last resort of delaying interpretation of the negative property that cannot be locally represented semantically. Specifically, we contend that in the derivation of prepositional prefix verbs from prenatal prepositional particle verbs, there is, firstly, abstraction over a GOTH variable z and, secondly, its saturation by the subject of predication. The GOTH variable's referent is spatiotemporally included in the intersection the original THEME and

GOAL. Thirdly, the binding relation established in the predication is very much like reflexive binding in that indifferent restrictions appear as subject and part of the predicate, i.e., in different argument positions. (16) and (17) formulate abstraction and saturation of the newly built predicate, which can be conceived of as a function from individuals or rather their spatiotemporal locations into truth or falsity.[8]

(16) λz_{GOTH} ∃x,y thread$_{\text{THEME}}$(x) ∧ shirt$_{\text{GOAL}}$(y) ∧ x ∩ y ≠ ∅ ∧ (x ∩ y) ⊃ z
'the spacetimes z such that there is a thread and a shirt and thread and shirt overlap spatiotemporally and their intersection contains z'

(17) ∃x,y thread$_{\text{THEME}}$(x) ∧ shirt$_{\text{GOAL}}$(y) ∧ x ∩ y ≠ ∅ ∧ (x ∩ y) ⊃ the.shirt
'There is a thread and a shirt and thread is at shirt and thread and shirt overlap spatiotemporally and their intersection contains the shirt.'

The beginning and end of the syntactic derivation of prepositional prefix verbs from prenatal prepositional particle verbs via head movement is given in figure 3.
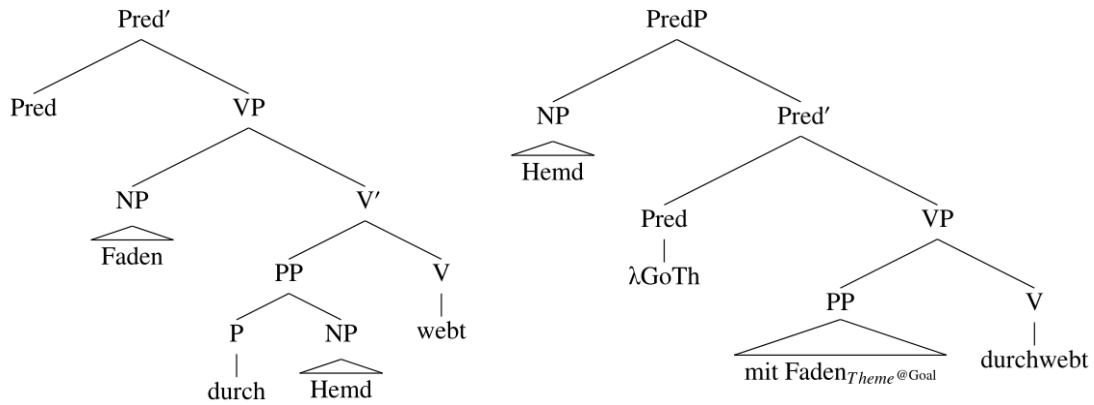
Figure 3: Derivation of prepositional prefix verbs (right hand side) from prenatal prepositional particle verbs (left hand side)

The tree on the left hand side shows the prenatal particle verb structure, i.e., the particle verb structure before adjunction of a directional adverb to the PP (cf. figure 2 above). The local structural relation between P and V allows them to merge via head movement, according with the locality of the reflexive binding relation. Note as well that the GOTH subject of the inner predication occupies a different (higher) syntactic position than the original THEME in the specifier of VP that gets case-licensed (if it is articulated) by the preposition *mit* 'with'.[9] While these are only first steps toward proper formalization, the analysis already makes a range of predictions.

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[8] We assume for concreteness that at the VP level, THEME x and GOAL y are not quantified yet but get bound higher up, entailing existential closure.

[9] German *mit* 'with' is the most grammaticalized preposition in German; it appears that in all of its prominent functions, i.e., as an element introducing an instrument or a comitative (including the discontinuous reciprocal (cf. section 3.2.3), the phrase case-licensed by *mit* depends parasitically on an independently assigned semantic role.

3.2. Extra predication: consequences

The consequences of the analysis range from argument structure realization (including reflexivization and inchoativization) and the irregularity of prepositional particle-plus-prefix and prefix-plus-particle verbs to the scope of adverbs and quantifiers; we discuss them in this order.

3.2.1. Missing GOALs or Purposes

As the GOAL argument is bound to the inner subject of predication, we predict it to be less available for independent operations. Indeed directional phrases that in shallowly metaphorized senses often indicate finality (cf. (4) above) cannot be added to prepositional prefix verb structures, as (18) illustrates.

(18) Die Pflanz-Gefäße müssen dunkelwandig sein. [...] Früher hat man dafür
the plant.containers must dark.walled be. [...] once has one for.that
breite Korken genommen, die [*zu einem Pflanz-Gefäß] durchbohrt wurden.
broad cork used which [to a plant.container] through.drilled were
'...they were drilled through in order to become plant containers.'
(Berliner Morgenpost, 13 November 1999, p. 25)

Even though it is natural for cork to be used as a container for plants and even though it is for this purpose that the cork is drilled through, it is not possible to code this with a GOAL-designating *zu*-PP. Elsewhere, this is perfectly possible, as in (19)

(19) Die TME will das Fett in einer eigenen Verbrennungsanlage zu Strom
The TME wants the fat in a own combustion.facility to power
und Dampf umwandeln.
and steam transform
'The TME wants to transform the fat into power and steam in a combustion facility of its own.' (St. Galler Tagblatt, 11 February 1998)

Note incidentally that even though a PP headed by *zu* denotes a GOAL prototypically and is therefore associated with directedness, it always assigns dative case unlike the Wechselpräpositionen in focus here (cf. above). Having accusative assignment within the PP seems to be ruled out indeed, and arguably so because accusative case is already realized on the inner subject (direct object); it appears that more than two occurrences of structural case in a local structural domain cannot be produced.[10]

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[10] The verb *lehren* 'teach' that can license two accusative objects next to a nominative subject looks like an exception; however, many speakers nowadays choose dative case on the argument expressing the person being taught as in the example in (i).
 (i) Der Geselle lehrte ihm andere nützliche Dinge
the fellow taught him-DAT other useful things
'The fellow taught him other useful things' (Süddeutsche Zeitung, 18 October 1997)

3.2.2. Noncompositional particle+be-prefix verbs and be-prefix+particle verb back-formations

According to an analysis deriving prepositional prefix verbs from prenatal prepositional particle verbs in the manner sketched above (section 3.1), there should be no verbs as of custom that are both particle verb and prefix verb at the same time: The modifying directional adverb adjoined to the VP would block the head movement constitutive for prepositional prefix verbs. When we look at the corpus data we do seem to find a few particle-prefix verbs and fewer prefix-particle verbs. Belonging to the historically more worn out and less transparent *be*-prefix class (cf. above), these verb types still do not mean what we would expect them to, namely, the action coded by the prefix verb modified by a directional phrase. Table 2 gives more frequent, typical examples.

Part+Prf-verb	Actual meaning	Expected meaning
ein+be+ziehen	involve	into+cover.with.cloth
ein+be+rufen	draft	into+cover.with.calls
vor+be+pflanzen	pre-plant	in.front.of+cover.with.plants
vor+be+stellen	Pre-order	in.front.of+cover.with.sth.

Table 2: noncompositional particle+be prefix verbs

Some of the actual meanings appear intuitively close to the expected ones, as in the case of e.g. *einberufen* 'draft', which could translate into sth like *call in by way of covering with calls*; also, a shift from locative to temporal uses is an oft-observed step in meaning change. We may still put down that there are only few actual examples for particle+prefix verbs; the belong to the less transparent and historically loaden *be*-prefix verb type. Still they do not quite mean what we would expect them to given their probable structure and compositionality. The other unpredicted type of Prefix-Particle verbs is still less attested and more obviously irregular in even frequent cases in that there is no verb corresponding to the prefix verb form without the prefix. In table 3, the middle row indicates what this verb would have to look like (*Aufsicht* 'watch' is a noun in German, pointing to a back-formation from a deverbal noun). The third row indicates the putative structure. Again, the putative examples of prefix + particle verb structures belong to the *be*-prefixed type, which may well have been reanalyzed as a simplex verb in many cases.

Verb	regular verb	actual structure
beanspruchen	*beansprechen	[$_V$ be + [$_N$ anspruch]]
beaufsichtigen	*aufsichtigen	[$_V$ be + [$_N$ aufsicht]]

Table 3: Prefix+particle verb backformations

3.2.3. Inherent reflexivization

Regarding prepositional prefix verbs in German, the generalization in (20) appears to hold:[11]

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[11] The generalization emerged in my 2020 spring seminar on "verbs and their arguments" and was tested in Dora Hinderer's (2021) bachelor thesis at the University of Mannheim.

(20) Generalization (German):
   Prepositional prefix verbs are not inherently reflexive.

Looking at inherent reflexivization as a step towards silent reflexivization, we would like to suggest that (20) follows from inherent reflexivization being too similar to the reflexive-like binding relation established in the predication (section 3.1) for both of them to apply in the same local domain. Apparent counterexamples are arguably not derived from prenatal particle verbs by applicativization as sketched above: They either turn out not to be inherently reflexive (but regularly reflexive), or they not receive the passive-like interpretation associated with the (inherently) reflexive structures relevant here (cf. 2.1). Some representative examples with reasonably frequent use are given in table 4; corpus data show that they are (or used to be) derived by regular reflexivization or reciprocalization.[12]

sich mit etwas befassen		regularly reflexive
'concern oneself with sth.'		
Sich mit etwas begnügen	*gnügen	regular reflexive until 17th century
'contend oneself with something'		
Sich mit ewas überbieten		regular reciprocal
'outdo each other with sth.'		
Sich mit etwas/jemand umgeben		regular reflexive/reciprocal
'surround oneself with sth./sb.'		

Table 4: Putative inherently reflexive verbs

A form-based partial corpus search for structures with prepositional prefix verbs together with *sich* produces many cases; the more frequent types are given in table in 5 together with translations and frequency of use in one eighth of the German Reference Corpus (DeReKo).

verb	translation	Frequency
sich umgeben	'surround oneself with sth./sb.'	188
sich umkreisen	'circle one another'	15
sich umschlingen	'clasp each other'	11
sich umgarnen	'beguile each other'	7
sich umspielen	'play around each other'	5
sich umwerben	'court each other'	3

Table 5: Discontinuous reciprocal interpretations of prepositional prefix verbs with *sich*

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[12] Thus *befassen* can be easily found in transitive use in corpus data as in (i).
 (i) Er befaßte   den Senat der   Universität mit   der Causa.
     He concerned the senate of.the university   with the cause
     'He addressed the university senate to deal with the cause.'
The verb *begnügen* seems to be related to the adverb *genug* 'enough'; in present day German, however, there is only a verb *genügen* 'being enough' taking a dative or oblique object, but there is no verb stem *gnügen* from which *begnügen* could be transparently derived via prefixation.

13

These cases and in fact all cases found talk about human beings actively participating in reciprocal actions, and not about a THEME undergoing a change (without an obvious CAUSE) as a derivation akin to the applicative diathesis sketched above would predict.[13] They are derived by the rule deriving productively the so-called discontinuous reciprocal construction (Dimitriadis 2008) and constitute no counterexamples to the generalization in (20).[14]

3.2.4. Inanimate CAUSE but no inchoative structure

Related in an interesting way to the generalization discussed last, the prepositional prefix verbs under discussion here appear to be exceptions to the famous crosslinguistic generalization in (21), cf. Smith (1970), Levin & Rappaport Hovav (1995).

(21) If a verb allows for an inanimate CAUSE in transitive use then it also allows for an (intransitive) ergative/inchoative/unaccusative use.

Like e.g. *öffnen* ('open', taking overt *sich*) or *zerbrechen* ('break', not taking overt *sich*), the prepositional prefix verbs typically allow inanimate causes in their transitive realization. However, an intransitive variant is unavailable with or without *sich*.

(22) a. The wind opened the door.
 b. The door opened.
(23) a. Die Kugel durchbohrte   die Wand.
   the bullet through.drilled the wall
   'the bullet drilled (itself) through the wall.'
 b. *Die Wand durchbohrte   (sich).
    the wall through.drilled (SICH)
   'The wall was drilled through.'

Prepositional prefix verbs which do appear with *sich* constitute potential counterexamples to (21). One type features *sich* in dative position (as can be seen by replacement with visibly case-marked first or second person pronouns) and has an inalienable interpretation; it is not the accusative structure we are looking for; (24) about a young handyman drilling holes with a drilling machine is an example of this kind.

(24) Dabei   kam er gegen 15 Uhr mit der linken Hand zu nahe an die
   in.doing.so got he around 15 hours with the left   hand too close to the
   Maschine und durchbohrte   sich die Handfläche.
   Maschine und durchbohrte   sich die Handfläche.
   '...and pierced his palm.' (Tiroler Tageszeitung, 13 August 1998)

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[13] Interestingly in the case of *sich umgeben*, the reciprocal meaning of *socialize* arises with human referents of the (optional) *mit*-Phrase, while inanimate complements lead to the meaning of *surround*. As elsewhere serving to derive prepositional prefix verbs in the manner sketched above.

[14] Dimitriadis (2008) argues that the discontinuous construction is allowed exactly if the predicate in question is strongly symmetric, i.e. the participants' involvement in the eventuality is exactly the same.

The apparent counterexample in (25) with accusative *sich* from a review of a performance of Romeo and Juliet is yet more interesting.

> (25) Von nun an durchbohrt   sich   Julia mit Romeos Dolch.
>   from now on through.drills SICH Julia with Romeo's dagger
>   'From now on Julia pierces herself with Romeo's dagger.'
>   (Frankfurter Rundschau, 17 June 1998, supplement, p.3)

Even though superficially-formally we are dealing with a prefix verb, (25) is clearly agentive as witnessed by the instrument phrase *mit Romeos Dolch* 'with Romeo's dagger'. Similarly in the example in (26) about a vegetarian party in Phuket, the noun phrases included in the *with*-phrases denote instruments, indicating agentivity.

> (26) Junge Menschen fallen in   Trance und durchbohren sich   dann mit Ankern,
>   young people   fall   into trance and through.drill SICH then with anchors,
>   Harpunen, Sägen, jungen Bäumen oder eben, wie auf dem Bild   zu sehen,
>   harpoons, saws, young trees   or   just   as on the picture to see,
>   mit einem Marlin.
>   with a   marlin. (Süddeutsche Zeitung, 23 October 1996, p. 12)

We submit that (25) and (26) are examples of grammatical mimicry, i.e., they are actually hidden prepositional particle verb structures. In particular, the coordination here is with a GOAL-oriented motion verb, and they do not seem to receive the typical 'holistic' interpretation. Indeed it is hard to see how the young people could have anchors, harpoons, saws, young trees pierced all through and through themselves, and it is hard to imagine how complete affectedness could be achieved with the indefinite singular *mit einem Marlin* 'with a Marlin'. Such examples appear indistinguishable from a truth-conditional perspective from their particle verb cousins, in particular, as soon as the prepositional particle uses encompass reflexive *sich* and repeated *durch* as in (27) and (28).

> (27) Von   nun an bohrt Julia Romeos Dolch durch   sich   hindurch
>   From now on drills Julia Romeo's dagger through SICH hither.through
>   'From now on, Julia drills Romeo's dagger through and through herself.'
> (28) Junge Menschen bohren Anker ... durch   sich   hindurch.
>   young people   drill   anchors... through SICH hither.through
>   'Young people drill anchors...through through themselves.'

Overt *sich* regularly signals reflexivization, i.e., what happens silently in creating the inner predication structure in the prefix verb structure. At rock bottom, reflexivization is a kind of repetition of one and the same variable in different argument slots of the same predicate (understood as an n-ary tuple). What the particle verb structures in (27) and (28) exhibit beyond use of *sich* is exactly repetition of *durch* in different slots, even if to no

obvious semantic avail,[15] mimicking something like reflexivization-as-repetition in a brute force manner.

The exceptional status of prepositional prefix verbs with respect to the generalization in (21) may thus follow from their derivation in terms of reflexive binding, squaring with and giving support to approaches deriving inchoatives (in German) by way of reflexivization (cf. for recent discussion Beavers and Koontz-Garboden 2013).

3.2.5. Frequency adverbs and quantifiers (Basilico 1998)

Let us, finally, address so-called scope-freezing effects associated with the prepositional prefix verbs discussed. Regarding frequency adverbs, Basilico gives the examples in (29) and to show the freezing effect in English that is effective as well in German.

(29) a. During the holdup, the robbers stuffed a wad of cash frequently into a bag.
b. During the holdup, the robbers stuffed a bag frequently with a wad of cash.

Basilico (1998) states the difference in terms of only wide scope of the indefinite *a bag* in object position and positioned before the adverb in the prefix verb structure, but also scope below the adverb in object position and positioned before the adverb (p. 560):

For example, in (37c) [(29b)] we are talking about the same bag which the robbers over and over again stuffed with cash. However, in (37a) [(29a)] we need not be discussing the same wad of cash (although we can be).

Analogously, if two quantified NPs are involved as core argument expressions, the indefinite object must be interpreted with wide scope over the NP in the *with*-phrase, taking Basilico's perspective. Alternatively, the problem may be with quantifying the NP within the *mit*-PP to begin with. This seems to us more likely, observing that relevant examples cannot seem to be found in corpora. In an attempt to construct a plausible context for an invented example, then, suppose that a fashion designer authorizes each one of a set of one hundred shirts by weaving one of a hundred special threads through it. You could then say (30a) but not (30b).

(30) a. Er webte einen (einzelnen) speziellen Faden durch   jedes (einzelne) Hemd.
      he wove one   (single)   special   thread through every (single)   shirt
b. ?Er durchwebte   ein (einzelnes) Hemd mit jedem (einzelnen) speziellen
      he through.wove one (single)   shirt with every (single)   special
      Faden.
      thread

That GOAL arguments viz. directional PPs are generally apt to take wide scope is well attested. Thus in the example in (31), there is distribution over different balls, and (32) appears paradoxical as the authorities appear to outscope the NP modified by *fake*, such that even though they stem from the authorities, they are fake.

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[15] Interestingly in the context of redundancy and repetition regarding *durch*, Gruber (1970: 5ff) notes that if its English cousin *through* does not occur when the verb *pierce* is used, it is still implied, such that expression of *through* is redundant from the start.

(31) A (different) ball rolled into every yard.
(32) gefälschte Dokumente von Behörden.
       'faked documents from authorities'

These facts square with the observation that GOAL arguments more generally aspire to be subject. In locative inversion in English as initially discussed, they do indeed raise into subject position. Quantification of the THEME on the other hand and giving it wide scope appears impossible and appears in fact odd as such. We think that this relates to the nature of the predicate licensing the GOTH in the prepositional prefix structure. As a one place function taking ordinary individual arguments or their spacetimes respectively as arguments, there is just no way to incorporate a distributive quantifier in it that could scope over the subject.

Table 5 summarizes the consequences discussed in the latter part of this section from the perspective of predication – a subject predicate relation involving tense – as characterized by Strawson's (1959) criteria to distinguish subject and predicate.

SUBJECT	PREDICATE	witness
yields itself to quantification	doesn't	Quantifier scope
carries a presupposition of definite empirical fact	doesn't	Quantifier scope
restricts reference time	doesn't	Scope of frequency adverbs
doesn't	carries assertive symbolism	*be-*, *um-*, *durch-*, *über-*, *unter-*

Table 5: Strawson's criteria distinguishing subject and predicate

The only positive feature designating predicates in Strawson's list is that of "carrying assertive symbolism" – indeed we could say that the prepositional forms incorporated in the prefix verb structures take exactly this role.

4. Summary: from external to Internal Redress

4.1. Offending asymmetries

Prepositional particle verb structures are defined by modification of their GOAL prepositional phrases by directional adverbs. We argued that there is a material semantic asymmetry between THEME and GOAL in that the latter spatiotemporally includes the former. This offends harmonic linking given the hierarchy of semantic roles, as the GOAL is realized lower structurally than the THEME at the same time. For convenience, role ordering is repeated in (33).

(33) X > Y iff ∃P □P(x$_X$) ∧ ¬□P(y$_Y$)
       'A role X is higher than a role Y iff the referent of X necessarily has a certain property that the referent of Y need not have.'

In tandem with harmonic linking, (33) requires the referents of higher grammatical functions to be different from those of lower ones but not necessarily the other way around. We proposed that the negation of a property independently given and distinguishing in its positive form the higher argument from the lower one – i.e., ¬P(y$_Y$) in (33) – cannot

be locally interpreted and is upcycled – as a last resort, presumably – to be interpreted as the pre-state of the event coded (section 2).

4.2. Symmetrizing indifference

In the derivation of prepositional prefix verbs, the offending asymmetry is compensated for or redressed by relating the original GOAL and THEME to a GOTH subject of an inner predication in the manner of reflexive-like binding. We define this indifferent binding as in (34) in terms of the general Gestalt of DIFFerence.

(34) x indifferently binds y (= y is indifferent from x)
$$\text{iff} \quad \neg\exists P \, (P(y) \wedge \underline{\neg P(x)}$$
$$(= \quad \forall P \, (P(y) \rightarrow P(x)) \enspace)$$
        'x indifferently binds y iff x has all y's properties'

In legal binding relations, the binder may have properties the bindee does not have. The other way around leads to offenses (or counter-offenses) against (or back to) harmonic linking. We proposed that in the applicative derivation of prepositional prefix verbs, the spatiotemporal intersection of THEME and GOAL includes spatiotemporally the GOTH subject of predication, whence the semantics of complete affectedness. At the level of LF, inclusion amounts to universal quantification over spacetimes, which by the law of quantifier negation entails that there is no spacetime of the included (subject) that is not as well in the including (predicate). Therefore, the relevant LF contains symbolism that describes exactly the negative property that we argue cannot be locally interpreted due to the violation of harmonic linking. It seems nearby then to suppose that in the prepositional prefix verb structure, $\neg P(x)$ opportunistically piggybacks on this symbolism and is gotten rid of technically in this way.[16]

    That the spatiotemporal intersection of THEME and GOAL include the GOTH subject in the applicative diathesis discussed here may seem like a stipulation. It leaves the option though to take datives to constitute the opposite case of spatiotemporal inclusion of the intersection of THEME and GOAL in the GOTH subject, as appears empirically warranted (cf. Basilico 1998 or Brandt 2003). As would seem predicted, prepositional particle verb structures but not prepositional prefix verb structures appear to be regular dative licensors, but we have to leave discussion to another occasion.

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[16] Incidentally, superlative adverbs in German might provide evidence that the uninterpretable property $\neg P(x)$ can be quite directly and literally healed by some form of universal quantification that by the law of quantifier negation translates (in part) into exactly this logical form (as can be seen as well in the definition of indifferent binding). Taking an "A not A" approach to comparatives, the universal quantification picks up the comparandum $\neg P(x)$ that cannot be realized in superlatives generally. Interestingly, expressing the universal meaning aspect of superlatives by means of *aller* 'all' in German may proceed redundantly, yielding infinitely many types like, e.g., *bestens* 'in the best way; *allerbestens* 'in the very best way', *allerallerbestens* 'in the very very best way' etc. Cf. for discussion Brandt 2020: 88ff).

4.3. Backwind from individual level predication

We conceive of the predication licensing the GOTH subject as a function from a spatio-temporally complete ordinary individual into truth or falsity. Such functions instantiate individual level predicates (Carlson 1978) and involve an additional asymmetry that goes from subject to predicate in that its subject includes reference time, i.e., the temporal interval with respect to which the predicate is evaluated. This is seen in so-called lifetime-effects that arise with individual-level predicates, cf. (35) from Musan 1997: 289f).

(35) Gregory was from America.
  The speaker has expressed the proposition that there is a time t* such that t* is a subinterval of Gregory's time of existence, and t* < now, and Gregory is from America at t*.

In tandem with informativity, (35) derives the lifetime effect as in order to convey that Gregory is American now, the speaker would have used present tense. Presumably, this temporal inclusion of the predicate in the subject helps redress the original problem in terms of predication and gives backwind to grammar's attempt to reinstall harmony in the mapping from semantic roles to grammatical functions.

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On the subject of subject-oriented adverbials

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Abstract: This paper focuses on the question of what serves as the subject of subject-oriented adverbials such as *wisely* in *John wisely didn't leave the house*. Direct predication between *wisely* and the nominal subject is ruled out, as is an analysis mobilising control of a PRO-subject local to AP, primarily on the basis of the fact that subject-oriented adverbials do not depend on the presence of an explicit nominal subject in the structural subject position of the clause that contains them. The syntax of subject-oriented adverbials is couched instead in a direct reverse predication relationship between the adverbial and the proposition (TP). The semantic link between the adverbial's experiencer argument and the subject is obtained via θ-binding.

Keywords: subject-oriented adverbial, predication, control, implicit subject, θ-binding

1. Introduction — Subject-oriented adverbials *versus* subject depictives

The primary goal of this paper is to address the question of what serves as the subject of so-called subject-oriented adverbials, exemplified in (1).[1] By way of setting the stage, I will start out by briefly comparing such adverbials to another type of modifier that has a dedicated relationship with the subject of the clause: subject depictives, illustrated in (2).

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[1] Subject-oriented adverbials belong to what Ernst (2002) calls the class of predicationals. They are often referred to with the more specific term 'agent-oriented adverbials'. This latter term suggests that the adverbials in question can only associate to agents. This is in fact not the case. In the example in (i), the subject (while agent*ive*) is not an agent (in the sense of bearing the θ-role 'agent', assigned with the help of 'little *v*'): it is the theme argument of the change-of-location predicate *fall*. That ergative verbs that combine with agentive subjects remain ergative (hence do not take an agent as their external argument) is clear from the fact that, even on their agentive construal, they continue to show the properties characteristic of their ergativity — incl. prenominal attributive use of their past participle and selection of the auxiliary *zijn* 'be' as opposed to *hebben* 'have' in Dutch (iia,b). In view of this, I will not use the term 'agent-oriented adverbial' in this paper.
  (i)   the actors wisely fell exactly at the right time
 (ii)   a.   de [wijselijk precies op het juiste moment gevallen] acteurs
               the wisely precisely on the right moment fallen actors
         b.   de acteurs zijn/*hebben wijselijk precies op het juiste moment gevallen
               the actors are/have wisely precisely on the right moment fallen

(1) John *wisely* didn't leave the house

(2) John didn't leave the house *drunk*

For depictives, the gold standard in the generative approach has been to posit a silent subject for it, with the connection between the depictive and its associate in the containing clause established via the mediation of this silent subject. The nature of this silent subject is PRO, the null pronominal anaphor that also occurs as the subject of control clauses. For the example in (2), this yields the structure in (3) (which employs the RELATOR phrase of den Dikken 2006 to represent the predication relation between the AP of *drunk* and its PRO subject).

(3) John didn't [$_{VP}$ leave the house] [$_{RP}$ PRO [$_{R'}$ RELATOR [$_{AP}$ drunk]]]

Confirmation of the control approach to subject depictives comes from a variety of empirical domains. I will present the two most prominent ones briefly here (see den Dikken 2024 for further discussion). The first is the existence, in depictive secondary predication constructions, of partial and split control phenomena, exemplified by (4) and (5), respectively.[2]

(4) PARTIAL CONTROL WITH SUBJECT DEPICTIVES
I_i'd rather not travel [PRO_{i+} together/drunk]

(5) SPLIT CONTROL WITH SUBJECT DEPICTIVES
$John_i$ broke up/split up with $Mary_j$ [PRO_{i+j} drunk/angry at each $other_{i+j}$]

No single predicate can be predicated simultaneously of the subject and a non-subject (thus, a resultative such as *John sang Mary to sleep* cannot assert that both John and Mary ended up asleep as a result of John's singing), which is what (5) would involve on a direct predication approach to control.[3]

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[2] As in Landau's (2000, 2013, 2015) work, the index 'i+' is used in (4) to indicate that the referent of PRO includes but is not confined to the controller.

[3] Examples of the type in (4) and (5) are restricted. Note, for instance, the sharp contrast between (5) and (i), the latter involving a transitive verb taking a DP complement rather than a PP (as in (5)). Like (i), the example in (ii) is ungrammatical with *Mary* as the verb's direct object (Landau 2013:174); but it improves when the material in parentheses is added. A depictive can take the subject or the direct object as its associate, not both at the same time; when a depictive in principle allows either an object-related or a subject-related construal, it never seems to be possible to have split control. The fact that *Mary* in (5) and the version of (ii) with *up with* included is contained in a PP, which prevents it from serving by itself as the associate of the depictive (i.e., *John split/met up with Mary drunk* does not support an object-depictive reading), appears to be an important factor in opening up the split control interpretation for this sentence. I address this matter in the longer paper on which this short piece is based (den Dikken 2024). Space restrictions prevent me from discussing this further here.

(i) *$John_i$ divorced $Mary_j$ [PRO_{i+j} drunk/angry at each $other_{i+j}$]

(ii) $John_i$ met *(up with) $Mary_j$ [PRO_{i+j} angry at each $other_{i+j}$]

A second piece of support for the control analysis of subject depictives emerges from the grammaticality of insertion of a floating quantifier associated to the subject immediately to the left of a depictive secondary predicate.

(6) a. John and Mary left the party [both stone drunk]
    b. [both stone drunk], John and Mary left the party

Assuming (as is entirely standard: see Sportiche 1988 and Doetjes 1997 for two different ways of deriving this[4]) that the floating quantifier must be local to a subject, we are led to postulate a silent subject for the depictive, analogously to the postulation of a silent subject for a control infinitive. This silent subject is PRO. Placing PRO in the specifier position of the small clause of which the AP is the predicate, we account for the fact that the depictive and the floating quantifier form a constituent together, as shown in (6b). This corroborates the analysis in (3).

For subject-oriented adverbials such as the one illustrated in (1), no proposal exists in the literature, to the best of my knowledge, according to which these adverbials are predicated directly of the subject. Such an analysis might seem attractive in light of the fact that (1) alternates with (7), not featuring *-ly* and involving direct predication between AP and the subject.

(7) John was *wise* not to leave the house

The semantic equivalence of (1) and (7) is the reason why *wisely* in (1) is commonly referred to as a subject-oriented adverbial. But modelling the analysis of (1) on that of (7) would be a mistake. The clearest indication to this effect comes from the fact that subject-oriented adverbials are possible in sentences that lack an explicit subject of which *wisely* is predicable. The examples in (8) are actually occurring sentences taken from various news outlets in the United States.

(8) a. there wisely was nary a mention of the Big Apple
       [*Stratford Today* newspaper]
    b. there wisely was talk of using the empty facility for another community purpose
       [*Vallejo Times Herald* newspaper]
    c. there wisely will be a 3.12-second delay to erase foul language
       [*Democrat and Chronicle* newspaper]

The grammaticality of (8) also shows that obligatory control is not a viable vehicle for the analysis of subject-oriented adverbials — a conclusion strengthened further by (9) and (10). Unlike (9a), (9b) does not support a reading in which both quarrelling sides are said to be wise. For subject depictives, we have seen that split control is possible (recall (5)); that it is not in (9b) tells us that *wisely* does not have a PRO subject. And while (6)

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[4] For a helpful overview of approaches to floating quantification, see Bobaljik (2003). The details of the syntax of floating quantifiers will not be relevant to an understanding of the point that (6) is meant to make in the present context. What matters for us here is that the floating quantifier must be local to a subject.

has shown that subject depictives allow a floating quantifier to their left, subject-oriented adverbials do not: the sentences in (10) are ungrammatical, no matter where the adverbial is placed.

(9) a. John and Mary wisely didn't quarrel during the party
    b. John wisely didn't quarrel with Mary during the party
(10) a. John and Mary [(*both) wisely] didn't leave the party together
    b. [(*both) wisely], John and Mary didn't leave the party together

The unavailability of a split control interpretation for (9b) and a floating quantifier in (10) is unexpected if the subject-oriented adverbial is assumed to harbour in its local entourage a silent subject controlled by a nominal constituent.

In section 2, I will show at greater length that there is no indication of any kind that the subject noun phrase with which the adverbial has a semantic connection is syntactically represented local to the adverbial, and that there are clear indications that it is not. With both direct predication of the subject and control by the subject eliminated as plausible syntaxes for subject-oriented adverbials, section 3 subsequently advocates for an analysis in which the subject of predication for *wisely* and its ilk is the entire proposition (see also Ernst 2003) — the TP of the sentence in (1). More precisely, the relationship between the adverbial and this proposition is argued to be REVERSE PREDICATION (in the sense of den Dikken 2006): the predicate appears in the specifier position of the RELATOR phrase, its subject serving as the RELATOR's complement.

(11) [$_{TP}$ John [$_{RP}$ [$_{AP}$ wisely] [$_{R'}$ RELATOR [$_{TP}$ T=didn't [$_{vP}$ ~~John~~ leave the house]]]]]

In (11), there is a direct syntactic and semantic relationship between the AP and the proposition — the segment of TP which contains T, the negation, and the base copy of the subject. This gives us the desired result that John's not leaving the house is said to have been wise. There is no syntactic relationship between AP and the subject *John*. But because the proposition in the complement of the RELATOR contains the base copy of *John* and since the entire proposition is said to have been wise, John's wisdom can be pragmatically inferred. In section 3, I will show that the connection between the adverbial and *John* can be tightened if modelled in terms of Higginbotham's (1985) relation of θ-binding. Doing so has advantages beyond a rapprochement between the adverbial and *John*, as I will demonstrate.

2. No direct predication of or control by the subject

2.1. Ruling out direct predication of a nominal subject

Adverbials in *-ly* are not otherwise predicable directly of a nominal argument (see (12)), and although (1) alternates with (7) (the version of (12) not containing *-ly*), which is a case of a direct predication relation between the AP and the subject, it would not be advisable to model the syntax of (1) on that of (7).

(12) John was wise(*ly) (not to leave the house)

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The clearest indication that modelling the syntax of (1) on (7) would not be right comes from the fact, already illustrated in section 1, that sentences with a subject-oriented adverbial can be impersonal and have an expletive subject, as shown in (8). Such is impossible in copular sentences of the type in (7): the examples in (13) are ungrammatical. There is nothing mysterious about the ill-formedness of (13): the AP needs a subject to assign a θ-role to. But if the syntax of (1) followed in the footsteps of (7), the same should be true for (1), which would then make the grammaticality of (8) difficult to comprehend.

(13) a. *there was wise (of them) to be nary a mention of the Big Apple
     b. *there was wise (of them) to be talk of using the empty facility for another community purpose
     c. *there will be wise (of them) to be a 3.12-second delay to erase foul language

That the notional subject towards which the adverbial is oriented does not have to be explicit in the sentence that contains the adverbial is clear not only from (8): we see it also in (14), passive sentences (taken from the internet and checked with native-speaker linguists) which feature a subject-oriented adverbial.

(14) a. the work wisely hasn't been tarted up for Broadway
     b. a time-tested plot that wisely hasn't been altered
     c. Nakamura, a Charlie Chan-type character, who wisely hasn't been watered down to fit contemporary ideas of political correctness
     d. Kind [proper name] plays Bing Bong, a character who wisely hasn't been mentioned in the marketing
     e. it (wisely) hasn't been done (on an active carrier) since
     f. Craig wisely hasn't been drawn into the furore that surrounded author Anthony Horowitz's comment

In Dutch (more easily than in English, which uses impersonal passives very sparingly), passives containing a subject-oriented adverbial can also be impersonal, as shown in (15) (examples once again taken from the internet; I myself accept these sentences fully).

(15) a. er is wijselijk gekozen voor een opzet die de gitaren en vocalen van Bear en Bo Rhineheart naar voren schuift
        there has.been wisely chosen for a setup that the guitars and vocals of Bear and Bo Rhineheart to front pushes
     b. er is wijselijk besloten om de nieuwe school veel lager te bouwen, weg uit de gevaarlijke zone
        there has.been wisely decided COMP the new school much lower to build away out.of the dangerous zone
     c. er wordt wijselijk niet bij vermeld dat de betalingen gebeurden op een bankrekening in Jersey
        there gets wisely not with mentioned that the payments happened on a bank.account in Jersey
     d. er is wijselijk niet of nauwelijks op de heftige reacties gereageerd
        there has.been wisely not or hardly on the vehement reactions reacted

  e. er is wijselijk nauwelijks ruchtbaarheid aan gegeven
   there has.been wisely hardly publicity to given
  f. er wordt wijselijk geen poging gedaan om een definitie te geven van
   wanbeheer
   there gets wisely no attempt done COMP a definition to give of
   mismanagement

All of these examples make direct predication of a nominal subject impossible, and since these sentences cannot be 'transformed' into the pattern in (7), they also stand in the way of a structural assimilation of (1) and (7).

  One last thing to be held against direct predication of the subject in the syntax of subject-oriented adverbials is that such adverbials are grammatical in transitive expletive constructions, which do have a subject but locate it further downstream than the adverbial. The following constructed examples from Dutch illustrate this.

(16) a. er heeft wijselijk niemand van die appels gegeten
    there has wisely nobody of those apples eaten
   b. er heeft wijselijk niemand vis gegeten
    there has wisely nobody fish eaten

It would be impossible to create a direct predication relation between *wijselijk* 'wisely' and the occupant of the specifier of the *v*P sitting below the adverbial. Predicates can be predicated of specifiers that are structurally higher than they are (canonical predication) or of the complement of the RELATOR of which they are the specifier (reverse predication). But it is never possible for a predicate to be predicated of a specifier that is lower in the structure than the predicate's base position and which hence is not a sister to (a projection of) the predication RELATOR. No theory of predication countenances the possibility of such predication, for good reasons (e.g., *he proved* [*the theorem false*] disallows a θ-relation between *prove* and *the theorem*). And there is no reason to loosen up the theory just to make it possible to represent (16) in terms of direct predication: we have already seen plenty of other indications that an approach to subject-oriented adverbials wherein the adverbial is predicated directly of a nominal subject is not on the right track.

  It is worth noting about (14)–(16) that even when the subject-oriented adverbial occurs in passives and *there*-sentences and takes an implicit or low external argument as its associate, the adverbial itself still has to be high — between the occupant of the structural subject position (SpecTP) and the (extended) VP. For sentences in which the associate of the adverbial is in the structural subject position, it might reasonably be thought that the adverbial needs to be high in order to be close to the subject's position. But when the associate is an implicit or low external argument, closeness to the subject cannot force the adverbial into a high position. The high structural position of subject-oriented adverbials must therefore be related to something other than the fact that it has some connection to the subject. I will return to this in section 3.

2.2. Ruling out control by a nominal subject

The grammaticality of the passive examples in (14) and (15) in Section 2.1 not only demonstrates that a direct predication approach to subject-oriented adverbials is not tenable. It also casts immediate doubt upon an approach to these adverbials that postulates

a PRO in the adverbial's local entourage and has this PRO controlled by a nominal element. There is some disagreement in the literature as to whether sentences of the type in (17), involving passives with subject depictives, are acceptable or not.[5] But there can be no doubt that (14) and (15) are well-formed.

(17) a. the book was written drunk
     b. at the commune, breakfast is usually eaten nude
     c. this song must not be sung drunk
     d. this issue must have been discussed stoned

What (17) shares with (14)–(15) is the fact that all involve passives with an implicit subject. For depictives, there is good reason to assume that they have a PRO-subject that needs to be controlled. Speakers ostensibly disagree with respect to the ease to which control of this PRO-subject by the implicit external argument of the passive is possible. The fact that (14) and (15) are broadly accepted (i.e., do not give rise to the kind of individual variation in the judgements which sentences like (17) evince) indicates that these examples are unlikely to involve control.

    That postulating a PRO-subject for the adverbial and having it be controlled by the nominal subject would be inadvisable is shown also by the facts in (9) and (10) given in section 1. Split control and floating quantifiers are grammatical with subject depictives, which have a PRO-subject. The fact that (9b) cannot be interpreted in such a way that wisdom is attributed to both John and Mary and the fact that floating *both* in (10) is ungrammatical jointly indicate that control is not involved here.

    Now that both the direct predication analysis and the control analysis have been eliminated for the syntax of subject-oriented adverbials, I will proceed in section 3 to arguing that subject-oriented adverbials are, after all, directly predicated of something — but not of the subject of the clause but of the entire proposition (see also Parsons 1990, Geuder 2002, Ernst 2003 for relevant discussion of the semantics).

3. A reverse predication approach to subject-oriented adverbials

3.1. A propositional subject for subject-oriented adverbials

The relationship between a subject-oriented adverbial and the proposition (TP) involves REVERSE PREDICATION (in the sense of den Dikken 2006): the predicate is the specifier of the RELATOR phrase within which the predication relation is established, and the subject of predication (TP) appears as the RELATOR's complement. The structure in (11), repeated here, summarises the analysis (using the lexical items of the example in (1), above).

(11) [TP John [RP [AP wisely] [R′ RELATOR [TP T=didn't [vP ~~John~~ leave the house]]]]]

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[5] Baker (1988: 318), Collins (2005: 101) and Bruening (2013, fn. 8) are the sources of the examples in (17). They find these sentences acceptable; accordingly, I have reproduced them without any acceptability diacritics. But Jaeggli (1986: 614), Landau (2000: 170, fn. 10), Roberts (1987: 70, sect. 3.2.2) and Watanabe (1993: 334, fn. 56) state that (for them and/or their informants) subject depictives cannot be controlled by the implicit external argument of a passive.

In (11), the AP establishes a direct predication relation (mediated by the RELATOR) with the segment of TP which contains T, the negation, and the base copy of the subject. The AP thus attributes the property that it denotes to John's not having left the house — and indeed, this is exactly what is said to have been wise in (1). The subject eventually makes it onto the outer edge of TP, for licensing purposes; but the predication relation between the AP and the proposition can already be established prior to movement of the subject: the subject is base-merged inside the TP segment that serves as the complement of the RELATOR.

The projection of T in (11) appears at first to be discontinuous: there is an RP 'baked' inside it. What makes this possible is the fact that the RELATOR has no categorial specification of its own (see den Dikken 2006): it is transparent to the categorial features present in its complement. Since the RELATOR's complement in (11) is headed by T, the categorial features of T 'percolate' up to the RELATOR phrase, after which the outermost segment of TP can be merged upon the completion of movement (internal merge) of the subject.

Note that if the predication relation between the AP and the proposition were modelled as a case of CANONICAL predication, it would be the AP's features that 'percolate' to RP, making it impossible for the structure above RP to be part of the extended projection of the V/T complex. This would plainly be problematic. The direct predication relation between AP and the proposition thus has to be modelled as REVERSE predication.

Modelling the relation between AP and the proposition as a case of REVERSE predication has two further empirical benefits. First, the reverse predication structure in (11) delivers the desired linear order (with the AP following the subject and preceding the finite auxiliary in T) on a silver plate. Secondly, (11) correctly rules out clause-final placement of subject-oriented adverbials: though (18) is grammatical, it only supports a manner reading for *wisely*, not a subject-oriented one.[6]

(18) John answered the question wisely

Since the subject-oriented adverbial is directly predicated of the proposition (TP), it must be located high up the tree such that the complement of the RELATOR that mediates its predication relation with the proposition takes as its complement the constituent containing tense, negation (if present), and the VP. It is for this reason that, regardless of whether there is a nominal subject in SpecTP in sentences with a subject-oriented adverbial, the adverbial must always be high in the structure — and, concomitantly (because reverse predication is involved), must always appear quite far to the left in the linear string.

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[6] With comma intonation, a subject-oriented reading can be procured, as in (i).
  (i)   John answered the question, wisely
I take this to be the product of extraposition of the adverbial from its underlying position in (11). Such extraposition is legitimate, as is fronting of the adverbial into the pre-subject field, illustrated in (ii). In principle, nothing prevents AP in (11) from being displaced into sentence-final or sentence-initial position. The result of such displacement will predictably have an effect on interpretation; it cannot procure a neutral output.
  (ii)   wisely, John answered the question

3.2. On the semantic relationship between the subject-oriented adverbial and the subject

From the discussion in section 2.1 we know that in the syntax of subject-oriented adverbial modification, there is no direct syntactic relationship between the adverbial and the subject. In the structure in (11), indeed, *wisely* is not in a predication relation with *John*. But we do get the clear impression that, when a subject is present in the sentence, the adverbial has a semantic connection to this subject. How are we to deal with this impression?

We could in principle leave this entirely to pragmatics, saying that because the proposition in the complement of the RELATOR contains the base copy of the subject and because the entire proposition serves as the subject of predication for the AP, it follows that the perpetrator of the event denoted by this proposition must have acted wisely. For sentences that include a subject-oriented adverbial but no (explicit) subject, this could perhaps be sufficient.

But for sentences that do have an explicit subject, it is possible and indeed advantageous to go a little further than leaving things to a pragmatic inference. An important thing to note is that adjectives that serve as the base for subject-oriented adverbials have two arguments: one is (a proleptic pronoun for) the proposition, and the other is the experiencer of the property denoted by the AP. These two arguments can both be expressed when the AP is headed by an adjective, as is shown in (19) and (20):

(19) John was wise [PRO not to leave the house]
(20) a. it was wise of John [PRO not to leave]/[that he didn't leave]
      b. [PRO not leaving]/[that he didn't leave] was wise of John

In (19), *John*, the experiencer, serves as the subject of the sentence and the proposition occurs to the right of the adjective.[7] In (20), the experiencer is contained in an *of*-phrase while the proposition either occurs in the structural subject position (as in (20b)) or serves as the associate of a proleptic pronoun in the structural subject position (as in (20a)).

Importantly, however, for subject-oriented A+-*ly*, it is impossible to express the experiencer argument in the form of an *of*-phrase, regardless of where the adverbial phrase is placed (sentence-internally or sentence-initially) or which nominal type the experiencer argument is instantiated by (an anaphor, a pronoun or an R-expression):

(21) a. John wisely (*of him(self)) didn't answer the question
      b. wisely (*of him(self)), John didn't answer the question
      c. wisely (*of John), he didn't answer the question

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[7] One might be tempted to represent the proposition as the complement of the adjective, but a complementation approach would be problematic for semantically parallel examples of the type in (i).

(i)   John was a wise man/a fool not to leave the house

The non-relational nominal expressions *wise man* and *fool* do not take a complement. (This argument runs parallel to the argument that in *tough*-movement constructions such as *John is tough to please*, the infinitive is not the adjective's complement: cf. *John is a tough man to please* and *John is a bitch to please*.)

It is not the case that *-ly* adverbials generally resist an *of*-PP: thus, *they acted independently of the government* is fine. No blanket statement about the fact that the AP is adorned with *-ly* in (21a–c) could account for the fact that no *of*-phrase can occur in these examples. One might think that the version of (21a) with the pronoun *him* incurs a binding theory violation. But (21b) and (21c) should be perfectly capable of averting such a violation; and besides, (21) remains bad with *himself*. One might also think that *wisely* in (21) does not allow the experiencer argument to be expressed in an *of*-phrase because the experiencer is already realised in the form of the matrix subject: the *of*-phrase would seem to be redundant. But redundancy is not usually a basis for ungrammaticality in natural language. Moreover, for sentences containing a subject-oriented adverbial that have expletive *there* as the structural subject (such as those in (8)), it would seem potentially very helpful to be able to make the experiencer argument of the AP overt — yet doing so is clearly impossible here, too, again no matter where the adverbial is placed. The examples in (22) and (23) (the latter featuring fronting of the subject-oriented adverbial) illustrate this.

(22) a. there wisely (*of the author) was nary a mention of the Big Apple
    b. there wisely (*of the city council) was talk of using the empty facility for another community purpose
    c. there wisely (*of the programmers) will be a 3.12-second delay to erase foul language
(23) a. wisely (*of the author), there was nary a mention of the Big Apple
    b. wisely (*of the city council), there was talk of using the empty facility for another community purpose
    c. wisely (*of the programmers), there will be a 3.12-second delay to erase foul language

The answer that I would like to give to the question of why no *of*-phrase can harbour the experiencer argument of the AP in subject-oriented adverbial modification constructions is that the experiencer θ-role cannot be *assigned* in these constructions because this θ-role is *bound* (in the sense of Higginbotham 1985) by the θ-role assigned to the subject of the sentence. This is similar to the proposal that Hoekstra & Roberts (1989) have made for middles such as (24).

(24) this book reads easily

Although Hoekstra & Roberts say that the experiencer θ-role of the (usually obligatory) adverbial modifier of middles (*easily* in (24)) is θ-*identified* with the implicit external argument of the medialised verb, Ackema & Schoorlemmer (1995: 179) are right to say that θ-identification is not the right mechanism to link the two because the verb's external θ-role is actually assigned (to a silent argument) on Hoekstra & Roberts' (1989) analysis of middles. But θ-binding is an option that is available in principle in both Hoekstra & Roberts' (1989) analysis of middles and my current analysis of subject-oriented adverbials.[8]

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[8] Hoekstra & Roberts (1989) also tie the verb's event role to the external argument position in the θ-grid of the adjective+*-ly* combination. This is irrelevant to the discussion here.

The interest of middles in the present context lies not just in the fact that Hoekstra & Roberts (1989) resort to a Higginbotham (1985)-style mechanism in the analysis of their syntax. Middles are of interest also because they alternate with constructions in which the adjectival base of the adverbial takes (a placeholder for) a propositional subject:

(25) a. it is easy [PRO to read this book]
    b. [PRO reading this book] is easy

And in (26), just as in (20), it is perfectly straightforward to express the experiencer argument, in the form of a *for*-PP:

(26) a. it is easy for little children [PRO to read this book]
    b. [PRO reading this book] is easy for little children

Now consider what happens with the experiencer in middles. It is sometimes said to be possible for the experiencer argument of the adverbial modifier of middle constructions to be expressed in the form of a *for*-PP (see, e.g., Stroik 1992; but see Ackema & Schoorlemmer 2005 for a critical evaluation):

(27) this book reads easily for little children

But although it is true that (27) works quite well, there can be no generalisation across middle constructions that the experiencer can be expressed in a *for*-phrase: (28a), the negated version of (27), is worse with the *for*-phrase included, and so (indeed, perhaps more so) are (28b–c).

(28) a. this book does not read easily ??(for little children)
    b. a whale does not kill easily ??(even for an experienced whaler)
    c. a big city does not destroy easily ?*(for an average-sized army)

Whatever it may be that makes (27) relatively acceptable,[9] I take the generalisation to be that the experiencer argument of the adverbial modifier of middles cannot be independently expressed in a PP. And I interpret this as being due to θ-binding of the base adjective's experiencer θ-role to the implicit external argument of the medialised verb.

There is a connection as well between the facts in (21)–(23) and *tough*-movement constructions. As Chomsky (1977) points out, *tough*-type adjectives can have an experiencer argument contained in a *for*-PP, and the infinitive, in turn, can have an overt subject preceded by the infinitival complementiser *for* — delivering two *for*+DP strings in sequence, as illustrated by Chomsky's examples in (29). But Chomsky also points out that this possibility of having two *for*+DP strings in sequence falls away when *tough*-movement promotes the direct object of the infinitive to the subject of the copular clause: the sentences in (30) are unacceptable.

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[9] Possibly, the *for*-phrase here is construable as an adverbial, equivalent to *on x's part* or *as far as x is concerned*: cf. the alternation between *for me, this is fine* and *on my part/as far as I'm concerned, this is fine*.

(29) a.   it is pleasant for the rich for the poor to do the hard work
     b.   it is a waste of time for us for them to teach us Latin

(30) a.   *the hard work is pleasant for the rich for the poor to do
     b.   *Latin is a waste of time for us for them to teach us

From (30b), it is particularly clear that the culprit is the *for* introducing the experiencer: (31a), with the experiencer left out but the complementiser+subject sequence retained, is fine while (31b), which preserves the experiencer but turns the subject of the infinitive into PRO, is ungrammatical.

(31) a.   Latin is a waste of time [for them to teach us]
     b.   *Latin is a waste of time for us [PRO to teach us]

What *tough*-constructions, middles, and subject-oriented adverbial modification constructions all share is that in all three cases, the base adjective is predicated of a proposition and in addition has an experiencer argument. In (20), (26) and (29), the propositional argument and the experiencer argument can both be expressed discretely. But when the subject of the clause is an argument of the proposition of which the AP is predicated, as in (21), (27) and (30), the experiencer argument can no longer be expressed in the form of a PP.

Space does not permit me to delve into the depths of these parallels here. What matters right now is quite simply that these parallels are real, and that they confirm that, just as in *tough*-constructions and middles, the AP in subject-oriented adverbial modification constructions is predicated of the proposition, with the additional experiencer argument θ-bound by an argument of the verb and therefore not expressible in the form of a PP-dependent of the base adjective.

3.3.   Some further remarks about experiencer arguments of subject-oriented adverbials

Before I conclude, a few remarks are due in connection with the fact that the experiencer argument of the base adjective of subject-oriented adverbials cannot be expressed in the form of an *of*-phrase even when the containing clause has no explicit subject: recall (22) and (23). For these particular examples, one may reasonably assume that *wisely*'s experiencer role is θ-bound by an implicit argument of the nominalisation (*mention*, *talk*, *delay*). Indeed, this seems to me a plausible approach to ensuring that expression of the experiencer argument of *wisely* as an *of*-phrase is impossible here. But cases such as (32a–b) require more of an effort to block the *of*-phrase. We understand, of course, that the amount of time for questions and discussion was put in place on the programme by the organisers of the event under discussion. But while in (32c) there is a verb (*left*) that introduces a θ-role to which the experiencer role of *wisely* can be bound, there is no predicate in (32a) and (32b) that can reasonably be assumed to introduce this θ-role: *time* is not a relational noun. We can consider allowing ourselves the liberty of setting up an underlying representation for (32a) and (32b) that supplies a binder for the experiencer role of *wisely* (for instance, by postulating an implicit relative clause, *left by the organisers*). But finding a syntactic justification for this will not be a straightforward matter.

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(32) a. there wisely (*of the organisers) was plenty of time for questions and discussion
  b. wisely (*of the organisers), there was plenty of time for questions and discussion
  c. the organisers wisely left plenty of time for questions and discussion

We should therefore remain aware of the fact that radically excluding an *of*-introduced experiencer of subject-oriented adverbials is a matter that may require more than an appeal to θ-binding by an argument of the main predicate of the clause. But it seems to me that such an appeal is beneficial not only as a major step in the right direction regarding the ban on an overt experiencer but also in establishing an insightful connection between subject-oriented adverbial modification constructions and middles and *tough*-movement constructions.

The relationship between the experiencer of the base adjective and an argument of the proposition is brought further into focus by the following empirical observations. From (33) and (34), it emerges that when the adjective heads a copular sentence and takes an overt experiencer in an *of*-phrase, there needs to be a link with an argument of the clause following the adjective: either its subject, as in (34a), or the implicit external argument of the passive, as in (34b). The grammaticality of (34b) may depend on the genericity of the utterance: (35) is much worse than (34b) (and also worse than active *it was wise of John that the question remained unanswered*), apparently due to the fact that the experiencer in (35) is specific, not generic.

(33)   *it is wise of the rich for the poor to do the hard work
(34) a. it is wise of the rich that they make the poor do the hard work
  b. it is wise of the rich for the hard work to be assigned to the poor
(35)   *it was wise of John for the question to have remained unanswered

Note also that sentences of the type in (36) (recall (8)) alternate with (37) and (38), and that in each of these sentences an interpretive link is established between the experiencer of the base adjective and an implicit argument in the subordinate clause (the implicit agent of *talk* in (36)–(38)). This link is not a local (i.e., clausemate) one in the examples in (37) and (38).

(36) there wisely was talk of *x*
(37) it is wise that there was talk of *x*
(38) it is wise for there to have been talk of *x*

This need not be problematic for a θ-binding analysis: θ-binding is almost certainly not to be likened directly to anaphor binding. But it does press home the fact that locality questions regarding the presumed relationship of θ-binding have to be addressed in future research.

4.   Conclusion

This paper has been focused on the question of what serves as the subject of subject-oriented adverbials (exemplified in (1)), framed against the background of the analysis of subject depictives (illustrated in (2)). Direct predication between AP and the nominal

subject was ruled out for both subject depictives and subject-oriented adverbials. For (2), an analysis mobilising obligatory control of a PRO-subject local to AP is standard — an analysis that is supported by facts, briefly discussed in section 1 (see (4)–(6)), involving partial and split control and floating quantification in subject depictive constructions. For (1), a control analysis must be rejected precisely on the basis of the fact that subject-oriented adverbials do not give rise to partial/split control or floating quantifiers — indeed, they do not even depend on the presence of an explicit nominal subject in the structural subject position of the clause that contains them. The syntax of subject-oriented adverbials was couched in terms of a direct reverse predication relation between the adverbial and the proposition (TP). The semantic link between the adverbial's experiencer argument and the subject was obtained via θ-binding.

(1)   John *wisely* didn't leave the house
(2)   John didn't leave the house *drunk*

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Appositives and the limits of predication*

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Abstract: While nominals—particularly definites—typically occur in argument positions, it is well-known that in English and many other languages nominals can also appear in predicate position. Such cases of nominal predication have been classified into a number of different types, but there are influential arguments in the syntactic literature that a single kind of nominal predication underlies the apparent diversity. This paper argues that nominal appositions can provide new evidence concerning the interpretation of nominals in non-verbal constructions, adding to the existing case that at least the simplest type of reduction is not viable.

Keywords: apposition, predication, nominal-predication, specification, ellipsis, English, German, Russian

1. Introduction

An important issue in the study of predication has been the question of how it can be that nominal projections—typically associated with argument positions—can nevertheless function as predicates. As is well known, English allows not only adjectival predicates as in (1a), but also nominal predicates like those in (1b,c). Note in particular that examples like (1c) show that nominals in predicate position—whether in a full copular clause as in (1ci) or in a small clause as in (1cii)—do not have to be indefinite.

(1) a. (i) Anke is intelligent.   (ii) I consider [Anke intelligent].
    b. (i) Anke is an asset.   (ii) I consider [Anke an asset].
    c. (i) Anke is the principal beneficiary.
       (ii) I consider [Anke the principal beneficiary].

Since the seminal work of Higgins (1973) it has become common to classify copular clauses with nominals in "predicate" position into at least three types. In PREDICATIVE/PREDICATIONAL clauses (illustrated above in (1b,c), the postcopular

nominal phrase does not refer to an individual, and instead is generally taken to have the same $<e,t>$ semantic type as an adjective phrase in the same position. It is characteristic of this type that the nominal predicate can appear in a small clause, as in (1b,cii) as well as in a full copular clause with *be*, as in (1b,ci). Nominal predicates of this type can also be coordinated with adjectives as in (2):

(2)   Anke is very intelligent, and {an asset to our company / the best woman for the job.

In EQUATIVE/EQUATIONAL[1] clauses (illustrated in (3a,b)), the traditional analysis is that both the subject and the "predicate'' nominal refer to individuals—that is, they are of semantic type *e*.

(3) a. It's perfectly possible to like Jiroo but dislike Nao!
         Jiroo is not Nao!   [Equative]
     b. You can't really like Richard Bachmann but not like Stephen King.
         Richard Bachmann is Stephen King!   [Equative]

Given this semantic type, an either explicit or implicit part of many analyses is that English has a distinct *be* that occurs in equative clauses like those in (3) that can combine two arguments of type *e* and expresses a relation of identity. On the other hand, the copula that appears in predicational clauses like those in (1) and (2) is a semantically vacuous support for tense and agreement features. It follows from this that there are no equative small clauses, since these by definition lack such a copula, and there is then no way for the two nominals to combine semantically:

(4) a. With [Richard Bachmann the most famous writer in the room], the camera operators all gathered around him.   [Predicational]
     b. *With [Richard Bachmann Stephen King], we only need to set one place at the fiction writers' table.   [Equative]

Finally, SPECIFICATIONAL clauses, illustrated in (5), can have a referring expression in postcopular position (like equatives), but feature a subject that appears to get a different, non-referring interpretation, the exact nature of which has been much disputed (more on this below).[2]

(5) a. The correct phone number for him is 01546 2789.   [Specificational]
     b. The {principal beneficiary/culprit/source of the rumour} is Anke, isn't it?
                                                                     [Specificational]

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[1] The terminology in this area is quite unstable. Both "equative" and "equational" are used in the literature with the same meaning, and the same is true of "predicative" and "predicational." From now on, to avoid redundancy, I will use "equative" and "predicational" for these two types.

[2] Higgins discussed a fourth type, IDENTIFICATIONAL, where the subject is a deictic like *this* or *that*, as in *This is my friend Louise,* but I set these aside here.

For more detailed discussion of these categories and the diagnostics that have been used to justify them, see Higgins (1973), Mikkelsen (2011), Heycock (2021).

Despite the frequent reference to, and use of, this categorization since Higgins' work in the 1970s, there has been a good deal of effort devoted to attempts to simplify it. In particular, in work over the last thirty years, Andrea Moro has argued that fundamentally a single structure and interpretation underlies the three types of copular clause just mentioned (Moro 1997; 2006; 2017).

The examples of predications given above take the form of full clauses featuring the copular verb *be* (as for example in (1bi,1ci), (2) and (3)) or "small clauses" (as in (1bii,1cii)). But Heringa (2011; 2012) has argued, following Doron (1994), that exactly the same types of predication can be observed in nominal appositions, where the predicate nominal is the *appositive expression* (indicated here in italics), and the subject is a (generally covert) pronoun anaphoric to the **anchor** (indicated here in bold face).[3]

(6) a. **Christine**, *the best student* in the class, applied for a patent. [Predicational]
    b. Bo introduced **Ingrid's sister**, that woman at the back. [Equative]
    c. **The culprit**, *in actuality Kim*, was previously thought to be Kay.
                                                        [Specificational]

The aim of this paper is to investigate the extent to which nominal appositives such as the ones in (6) can shed light on the analysis of nominal predication more generally. Specifically, I will argue that appositives provide some evidence that the radical simplification of the categories of nominal predication developed in the work of Moro needs to be revised.

2. Are all copular sentences predicational?

As mentioned above, in Moro's influential work (which builds on some of the ideas in Williams (1983), Partee (1986), Heggie (1988) and has in turn been adopted and adapted by numerous subsequent authors, including Heycock (1991), Mikkelsen (2005), den Dikken (2006)), it is proposed that in fact all copular clauses can be reduced in some sense to the predicational type:

(7)   "one of the two noun phrases involved in a copular sentence always plays the role of a predicate."   (Moro 2006; 2017)

Glossing over many of the details of the analysis, the predicational type of copular clause involves a small clause with a functional head (here designated as Pred, following Svenonius (1994)). This small clause can either appear intact (as in the complement to verbs like *consider* in (1) above), or can be the complement to the copula *be,* which hosts inflectional material but is otherwise semantically vacuous, allowing for the raising of the subject of the small clause to the matrix subject position, along the lines of (8):

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[3] Heringa in fact takes specificational clauses just to be a subtype of equatives, but he does not give examples of appositions that correspond closely to typically cited examples of specification in particular. However, it is possible to construct such examples, as in (6c) in the text here.

(8) a.

We consider ...

```
                    PredP
                   /     \
                 DP       Pred'
               Etsuko     /    \
                       Pred    DP
                        Ø    the winner
```

b.

```
              TP
            /    \
          DP      T'
        Etsuko   /  \
              may    VP
                    /   \
                   V     PredP
                  be    /     \
                      DP       Pred'
                   <Etsuko>    /    \
                           Pred      DP
                            Ø    the winner
```
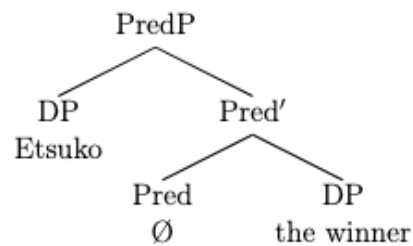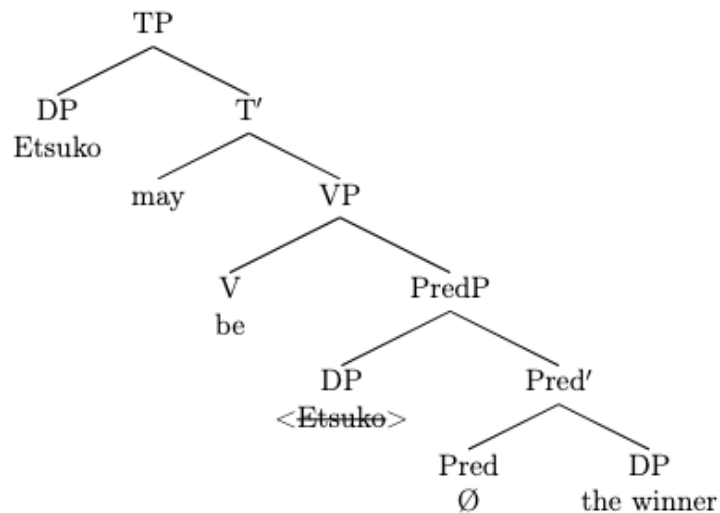
The specificational type has essentially the same ingredients, but as the derivation progresses, instead of the small clause subject raising into the matrix, it is instead the predicate of the small clause that moves to this position, hence Moro's term of INVERSE PREDICATION, rather than Higgins' SPECIFICATION, for this type of copular clause:

(9)

```
                  TP
                /    \
              DP       T'
          the winner  /  \
                   may    VP
                         /   \
                        V     PredP
                       be    /     \
                          DP        Pred'
                        Etsuko     /    \
                                Pred      DP
                                 Ø    <the winner>
```
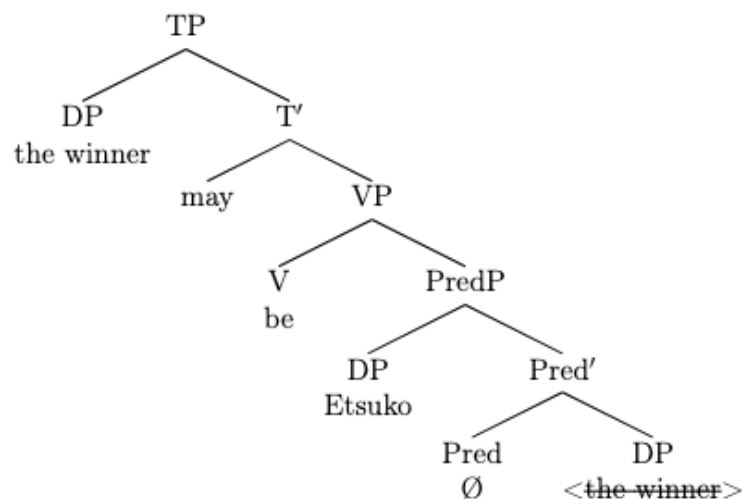
As for equative clauses, Moro's argument is that, despite appearances, actually one of the nominals is always predicative, in line with his claim cited in (7). The evidence for

this position that he gives in Moro (2006; 2017) comes from binding. He cites (10) as a typical exemplar for the equative clause type, and points out that if the second nominal is replaced by a possessed noun phrase as in (11), there is an obviation effect—the pronominal possessor in the second nominal cannot co-refer with the subject of the clause, as shown in (11a); the same effect is seen in (11b).[4]

(10) The morning star is the evening star.
(11) a. *[The morning star]$_i$ is its$_i$ source of energy.
    b. *John$_i$ is his$_i$ cook.

This obviation effect, as Moro points out, is not observed in sentences with similar meanings where the second nominal is in an argument position:

(12) a. [The morning star]$_i$ is one and the same as its$_i$ source of energy.
    b. John$_i$ is identical to his$_i$ cook.

From this Moro concludes that there are no actual equative clauses (copular clauses where both nominals are referring expressions); if the first nominal refers to an individual, then the second nominal is necessarily a predicate.

3. The existence of equatives

As Moro pointed out, given a copular clause featuring one or more definite description, it can be very hard to find clear evidence for the referential or predicative status of either nominal. Here however we may look to appositions, since the interpretation of the anchor has to be appropriate for the role that it plays in the matrix clause. Examples like those in (13), then, provide some evidence that we cannot so easily dismiss the possibility of an equative relation between two referential noun phrases:

(13) a. **His wife**, *that woman who we bumped into yesterday*, turns out to be mayor of Manchester.
    b. **The mayor of London**, *that controversial politician Sadiq Khan*, has just left the building.

The anchors (*his wife* and *the mayor of London*) must be referring expressions. In the case of *his wife* in (13a), it is the (raised) subject of a predicative copular clause, as we can tell since the determinerless phrase *mayor of Manchester* can only be a predicate. In the case of (13b), the anchor *the mayor of London* functions as the subject of the verbal predicate *leave the building* and can therefore also not be predicative in type. The appositional phrases *that woman who we bumped into yesterday* and *that controversial politician Sadiq Khan* are also typical referring expressions, both being introduced by demonstratives. Thus these examples of apposition provide evidence that in fact we need to

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[4] Both examples in (11) can be made fully grammatical with the indicated coreference if *own* is included after the possessive pronoun (*The morning star is its own source of energy; John is his own cook*). Moro does not discuss this explicitly, but presumably the idea is that *its/his own* is some kind of reflexive. See Charnavel (2012; 2020) for discussion of the distribution of a similar item in French.

allow for the possibility of a copular relation where both nominals are referring expressions.[5]

As mentioned earlier, in the analysis of apposition in Heringa (2011; 2012), the subject of the apposition is not the anchor itself, but rather a (generally but not always covert) E-type pronoun relating to it. This of course makes the relation between the anchor and the appositive nominal rather less direct, so we may wonder whether the referential anchor may nevertheless antecede a silent pronoun that is an appropriate subject for a specificational relation with the appositive. There is however some evidence against this possibility. As has been much discussed (see in particular Mikkelsen (2005)), pronominal reference back to specificational subjects in English must be with a neuter pronoun, and pronominal subjects of specificational sentences must be neuter, even when the postcopular nominal is human:

(14) a. The current mayor of London is Sadiq Khan, isn't **it**?
    b. The mayor of London at present is Sadiq Khan. I remember when it was Boris Johnson.

It seems at best infelicitous, however, to use a neuter pronoun in a copular sentence following on from (13a,b):

(15) a. **His wife**, *that woman who we bumped into yesterday*, turns out to be mayor of Manchester. #It is the famous author Joan McCormack.
    b. **The mayor of London**, *that controversial politician Sadiq Khan*, has just left the building. #It was once Boris Johnson.

This suggests, then, that the elliptical copular clauses constituting the appositions in (13) cannot be specificational.

In fact it turns out that the diagnostic of pronominal binding that Moro invoked as evidence for his claim that one of the nominals in any apparent equative always "plays the role of a predicate"—see examples (10)–(12)—actually also points to the existence of equatives, if we consider some further cases. For example, it is indeed the case that on the interpretation *John cooks for* himself, the example in (11b), repeated here as (16), is impossible with co-reference.

(16) * John$_i$ is his$_i$ cook.

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[5] Marcel den Dikken (personal communication) raised the question of whether non-restrictive relativization might show that the covert copular clause that is the basis for the apposition in examples like (15) is actually specificational in nature, rather than equative. This suggestion was based on the supposition that the preferred relative pronoun in the relevant cases would be *which* rather than *who*. However, in my own judgment non-restrictive relatives introduced by *which* in these sentences are unnatural at best:
(i) ?* His wife, which is that woman who we bumped into yesterday, turns out to be mayor of Manchester.
(ii) ?* The mayor of London, which is that controversial politician Sadiq Khan, has just left the building.

But this is not the kind of interpretation that is generally expected for an equative, which prototypically express the speaker's realisation/conclusion that two names or definite descriptions that they had taken to refer to two distinct individuals in fact pick out the same individual (or, in the negative, emphasize the opposite), as in the examples in (3) above. And if we set up the context for such an interpretation, the obviation effect observed by Moro disappears:

(17)   John's cook produces delicious food. But unfortunately, today John himself is cooking for us. And as you can tell, John$_i$ is not his$_i$ cook!

If, as Moro assumes, the obviation effect diagnoses the predicative status of the postcopular nominal, in (17) the postcopular nominal is not being used predicatively, but rather refers to an individual, as expected for an equative under the traditional interpretation.

Note that this is not to say that there is semantic symmetry in such "equative" examples. A slightly different type of example, involving cases of mistaken identity, also involves two referring expressions and, as expected from what we have seen so far, shows no obviation effect:

(18)   When I walked into the badly-lit room, it was hard to make out people's faces, and I kept making mistakes, which was a bit embarrassing. For a moment, for example, I thought that Mary$_i$ was her$_i$ mother!

Nevertheless, as discussed and analyzed in detail in Percus & Sharvit (2024), such examples are semantically asymmetric: from the statement in (18) we cannot conclude that the speaker thought at any point that Mary's mother was Mary. While this particular asymmetry does not obtain in examples like (17), examples like (18) are enough to demonstrate that in a copular clause there must be some way(s) of obtaining a predicate that nevertheless includes a referring expression. Sharvit & Percus analyze the semantics of such a case; it remains to be determined what the syntax is.

4.   The nature of the subject of specificational sentences

We have just seen that evidence from appositions converges with other evidence that not all equative copular sentences can be reduced to the predicational type in the way that was envisaged in Moro's work. In this section I hope to show that appositions can inform our understanding of nominal predication also with respect to the specificational type.

As discussed briefly above, recent syntactic literature largely adopts the proposal that in a specificational sentence the initial nominal is predicative (a function of type <e,t>), and is in fact predicated of the postcopular nominal (see in particular Moro (1997; 2006; 2017), Mikkelsen (2005)). However, there is an alternative view according to which the subject of a specificational sentence instead has the type of an INDIVIDUAL CONCEPT: a function from worlds to individuals (<s,e>). This proposal is due to Romero (2005) and has since been defended in Heycock (2012) and Arregi et al. (2021).

The principal argument in Heycock (2012) against the proposal that the subject of a specificational sentence is a predicate goes back to the observation in Heycock & Kroch (1999: 379) that examples like (19)–(21) show that it is not in fact possible to interpret the initial nominal in a specificational sentence as predicated of the second. That is,

definite nominals headed by *thing* and *kind* can be predicated of individuals (for a semantic analysis of such predications, see in particular Moltmann (2003)):

  (19) a.   John is *the one thing that I want a man to be*. He's honest.
     b.   There are sympathetic nurses and callous nurses. Sylvie is *the second kind of nurse*.

They can also be equated to other properties/kinds, and in this case the two nominals can appear in either order:

  (20) a.   The one thing I want a man to be is honest. /
        Honest is the one thing I want a man to be.
     b.   The hospital nurse is the first kind of nurse I want to mention.
        The community nurse is the second kind of nurse. /
        The second kind of nurse is the community nurse.

In sharp contrast, the predicational examples in (19) cannot be "inverted:"[6]

  (21) a. #The one thing I want a man to be is John.
     b. #The second kind of nurse is Mary.

These cases are important because they are instances where there is a definite predicate but where an analysis involving any kind of equation can be ruled out. For further arguments that the initial nominal in a specificational sentence is not a predicate, see Arregi et al. (2021).

Further, both Heycock (2012) and Arregi et al. (2021) give arguments in favour of analyzing the initial nominal as denoting an individual concept. For example it has been argued (Mikkelsen 2005) that pronominalization with a neuter pronoun as in (14) above, repeated here as (22a), is evidence that the antecedent—the subject of the specificational clause—is a predicate, along the lines of (22b), where *it* is anaphoric to the predicate *clever/a grandmother*:

  (22) a.   The current mayor of London is Sadiq Khan, isn't it?
     b.   She is clever/a grandmother, even though she doesn't look it.

However, if the subject of the specificational clause is a predicate, the obligatory plural pronominal referring back to it in examples like (23a) is unexpected—compare (23b).

  (23) a.   Her favourite composers are Bach and Beethoven, aren't they / *isn't it?
     b.   Those women are clever/grandmothers, even though they don't look it/*them.

---

[6] The example in (21a) can be coerced into grammaticality under a reading where *John* becomes a predicate that is equated with the predicate *the one thing I want a man to be*. I.e. it is (somewhat marginally) acceptable under the reading that the speaker wants all men to be John. But this is clearly a quite different predication than the one in (19a); rather it is an equation of two predicates along the same lines as (20a,b).

That is, while English makes very little use of overt pronominal anaphora to predicates, strongly favoring ellipsis instead (*Ibrahim is annoyed, and I am {Ø/*it} too*), to the extent that it is possible, as in the expression *to look X*, it follows the pattern observed in a number of other languages, including numerous varieties of Germanic, in using the least marked pronoun (neuter singular in the common Germanic three-gender system, masculine singular in Romance). That would make the plural *they* in (23a) an isolated exception if it is to be taken as predicate anaphora.

On the other hand, this pronominalization pattern is exactly what is observed for CONCEALED QUESTIONS, as in (24), where these too have been analyzed as individual concepts (see discussion in Heycock (2012)).

(24) a.   I guessed the winner of the Oscar for Best Actress before you guessed it.
    b.   I guessed the winners of the Oscars before you guessed *it/them.

Another argument in the same direction is that predicates like *rise* as in *The temperature is rising* have been analyzed as selecting individual concepts as their subjects. Such predicates can be coordinated with the VPs in specificational sentences, suggesting—under the assumption that coordination applies to constituents of the same semantic type—that these too must select for individual concepts as subjects.

(25) The temperature is 30 and is rising.

See Arregi et al. (2021) for this and further arguments.

Can we find evidence from apposition in favor of either position? We have already seen that anchors that are themselves the subjects of specificational sentences can host appositions that are also specificational—see (6c) above, repeated here as (26):

(26)   **The culprit**, *in actuality Kim*, was previously thought to be Kay.

This in itself does not distinguish between possible accounts concerning the interpretation of the subject. Importantly, however, it seems that when the anchor is in an unambiguously predicative position, it cannot host a specificational appositive. In my judgment, (27) is severely degraded.

(27)   *Most people considered Kay **the culprit**, *in actuality Kim*.

This is consonant, of course, with the contention that the subject of a specificational relation (**The culprit** *is Kim*) is not the same type as a predicate (*Most people considered [Kay* **the culprit***]*).[7]

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[7] The relation of appositives to non-restrictive relatives, already mentioned in footnote 5, was raised with respect to these examples by Tommy Tsz-Ming Lee and Ian Roberts (personal communications). The question is whether non-restrictive relatives similar to appositives like (27) are grammatical:
  (i) ?Most considered Kay the culprit, which in actuality was Kim.
I find judgments on these cases quite difficult, but (i) does seem to me to be fairly acceptable, and other examples are possibly even better:
  (ii) Most people wrongly consider 10 the correct answer, which in fact is 13.

And in contrast, an anchor that is interpreted as a concealed question (28a,b), or as the subject of a predicate like *rise* (28c), can easily host such an appositive:

(28) a. We failed to guess his phone number, in actuality 01546 2789.
    b. His phone number, in actuality 01546 2789, was not known to me at the time.
    c. The temperature, currently 30, is rising all the time.

Thus appositions provide additional evidence in favour of the analysis of the subject of a specificational sentence as an individual concept, rather than a predicate.

5.   Appositions as fragment answers? Some consequences and considerations

In the discussion so far, I have been assuming an account of nominal apposition along the lines of Heringa (2011; 2012), according to which the appositive nominal is part of a partially covert copular clause. The subject of this appositive clause is a generally covert E-type pronoun; the appositive clause itself is linked to the assertive clause by a special type of relation, distinct from the one arising from "ordinary" Merge.

In the account of nominal appositions set out in Onea & Ott (2022), on the other hand, the apposition is the fragment answer to an implicit POTENTIAL QUESTION. This account, the authors argue, has the virtue of not requiring any special syntactic relation or derivational process. The authors propose that there are essentially two types of potential question that can arise in discourse and be pre-emptively "answered" by an apposition.

On the one hand, what Heringa analyzed as specificational/equative appositions are argued to involve the elliptical answers to potential questions that recapitulate the form of the asserted clause that hosts them. That is, if we take an example like (29), the idea is that the main assertion is as in (30a). This gives rise to the potential question in (30b), which in turn is answered by the fragment answer in (30c).

(29)   I met **an old friend**, *Sam*, at the pub yesterday.
(30) a. I met an old friend at the pub yesterday.   [ASSERTION]
    b. Which friend did you meet at the pub yesterday?   [POTENTIAL QUESTION]
    c. ~~I met~~ Sam ~~at the pub yesterday~~.   [FRAGMENT ANSWER]

An apposition that is based on this type of potential question they refer to as a REFORMULATING apposition.

Heringa's predicative appositions, on the other hand, are argued to be responses to the second type of potential question that can arise: a copular one. Thus the assertion in (31) is the one represented in (32a). This gives rise to the potential question in (32b). Note that unlike the reformulating apposition just discussed, here the potential question does not recapitulate the form of the assertion, but is instead a copular clause. The fragment answer is as in (32c)

I do not as yet have any understanding of why these relative clauses should be much more acceptable than the appositions that they correspond to so closely, but this is clearly a question that merits investigation. It may be relevant to note that non-restrictive relatives based on non-copular structures are also possible in this position:
  (iii) Most people consider 10 the correct answer, which changes every year.

(31)　　I met **Sam**, *an old friend*, at the pub yesterday.

(32) a.　I met Sam at the pub yesterday.　　　　　　　　　[ASSERTION]

　　　b.　Who is Sam?　　　　　　　　　　　　　　[POTENTIAL QUESTION]

　　　c.　~~Sam is~~ an old friend.　　　　　　　　　　　[FRAGMENT ANSWER]

Like Heringa, Onea & Ott call this type a PREDICATIVE apposition. And indeed, here their analysis is much more similar to Heringa's in that in both cases it is proposed that the appositive phrase (*an old friend* in (31)) is the postcopular nominal in an elliptical copular clause.

　　If Onea & Ott's analysis is correct, this has consequences for the discussion of equative appositions in Section 3 above. That is, the examples in (13) above, repeated here as (33), could potentially be analyzed as reformulating appositions along the same lines as (29), (30).

(33) a.　**His wife**, *that woman who we bumped into yesterday*, turns out to be mayor of Manchester.

　　　b.　**The mayor of London**, *that controversial politician Sadiq Khan*, has just left the building.

As a reformulating apposition, the analysis of (33a) would be as follows:

(34) a.　His wife turns out to be mayor of Manchester.　　　　　[ASSERTION]

　　　b.　Who turns out to be mayor of Manchester?　　　[POTENTIAL QUESTION]

　　　c.　That woman who we bumped into yesterday ~~turns out to be mayor of Manchester~~.　　　　　　　　　　　　　[FRAGMENT ANSWER]

As illustrated, under this analysis, at no point is there any copular clause, whether overt or covert, relating the two referring expressions *his wife* and *that woman who we bumped into yesterday*. In consequence, while this analysis does not provide any evidence against the existence of equatives in the sense of copular clauses involving two referring expressions, it no longer provides any argument in favor.

　　On the other hand, the argument concerning the interpretation of specificational subjects set out in Section 4 remains the same under the analysis of apposition by Onea & Ott. Examples of grammatical specificational apposition given above are repeated here:

(35) a.　**The culprit**, *in actuality Kim*, was previously thought to be Kay.

　　　b.　We failed to guess **his phone number**, *in actuality 01546 2789*.

　　　c.　**His phone number**, *in actuality 01546 2789*, was not known to me at the time.

　　　e.　**The temperature**, *currently 30*, is rising all the time.

Such examples could not be analyzed as reformulating appositions within the framework of Onea and Ott, but would have to be included in their category of predicative appositions.[8] To see this, consider the example just given as (35a). If we assume that this

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[8] At this point the terminology becomes potentially quite confusing. Heringa uses "predicative" in the sense of Higgins (1973), as just one of the possible categories of copular clause. Predicative apposition therefore stands in opposition to what he classifies

is an example of Onea & Ott's predicative apposition—that is, an apposition where the potential question is a copular clause—the analysis would be along the lines of (36):

(36) a. The culprit was previously thought to be Kay.   [ASSERTION]
    b. Who was the culprit?   [POTENTIAL QUESTION]
    c. In actuality ~~the culprit was~~ Kim.   [FRAGMENT ANSWER]

Conversely, the "reformulating" potential question + answer would be incoherent, and does not correspond to the interpretation of the original sentence:

(37) a. The culprit was previously thought to be Kay   [ASSERTION]
    b. Who/what was previously thought to be Kay?   [POTENTIAL QUESTION]
    c. #In actuality Kim ~~was thought to be Kay~~.   [FRAGMENT ANSWER]

The specificational appositions discussed above, then, would be analyzed within the framework of Onea & Ott as involving elliptical copular clauses, in essentially the same way—at least for our purposes here—as was the case within the framework of Heringa. In consequence, the arguments in Section 4 are unaffected.

In this short paper I have not been able to pursue to any level of detail questions concerning the syntax of apposition. However, I would like to close with a short observation concerning the accounts on which I have been drawing. As mentioned, the analysis of Onea & Ott does have a conceptual advantage over that of Heringa in that it attempts to derive the properties of apposition without invoking novel syntactic operations; and indeed the authors argue for an account that relies on quite general properties of discourse moves and independently motivated generalizations about ellipsis.

Empirically, perhaps the most striking evidence in favour of Onea & Ott's analysis—in particular their division of nominal appositions into two classes, only one of which involves a copular structure—comes from the pattern of case assignment to appositional nominals observed in German. As they observe, for reformulating appositions (where the potential question recapitulates the form of the asserted clause) there is apparent case-matching with the anchor.[9]

(38)   *Der Präsident gab die Medaille einer brillianten*
        the president gave the medal a.DAT brilliant.DAT
        Mathematikerin, meiner/*meine Schwester Maria.
        mathematician my.DAT /*my.NOM sister Maria
        'The president gave a brilliant mathematician, my sister Maria, the medal.'

This is predicted by their analysis, given the form of the covert potential question and, consequently, of the elliptical answer:

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as "specificational" apposition. For Onea and Ott, on the other hand, what they class as "predicative" appositions would have to include the class of specificational appositions, for the reasons given in what follows.

[9] Note that most nouns in German do not inflect for case, but case morphology does show up on determiners—including possessive determiners—and adjectives.

(39) a. *Der Präsident gab die Medaille einer brillianten*
the president gave the medal a.DAT brilliant.DAT
Mathematikerin.
mathematician
'The president gave a brilliant mathematician the medal.' [ASSERTION]

b. *Welcher brillianten Mathematikerin gab er die Medaille?*
which.DAT brilliant.DAT mathematician gave he the medal
'Which brilliant mathematician did he give the medal?'
[POTENTIAL QUESTION]

c. ~~*Er gab die Medaille*~~ {*meiner / *meine*} *Schwester Maria*
he gave the medal my.DAT /*my.NOM sister Maria.
'~~He gave~~ my sister Maria ~~the medal~~.' [FRAGMENT ANSWER]

Strikingly, for predicative appositions (where the potential question has the form of a copular clause), on the other hand, the appositive nominal appears in the nominative:

(40) *Die Prüfung war sehr leicht für meinen Ehemann,*
the exam was very easy for my.ACC husband
glücklicherweise {ein guter Student / *einen guten
fortunately a.NOM good.NOM student.NOM *a.ACC good.ACC
Studenten}.
student.ACC
'The exam was very easy for my husband, fortunately a good student.'

(41) a. *Die Prüfung war sehr leicht. für meinen Ehemann*
the exam was very easy for my.ACC husband
'The exam was very easy for my husband. [ASSERTION]

b. *Was ist dein Ehemann?*
what is your husband
'What is your husband?' [POTENTIAL QUESTION]

c. *Glücklicherweise* ~~*ist er*~~ *{ein guter Student /*
fortunately is he a.NOM good.NOM student.NOM
*einen guten Studenten}
*a.ACC good.ACC student.ACC.
'Fortunately ~~he is~~ a good student.' [FRAGMENT ANSWER]

The appearance of nominative case here on the appositive nominal *ein guter Student* 'a good student' follows from the Ott & Onea account, given that nominative is the case that would show up in a copular clause:

(42) *Glücklicherweise ist mein Ehemann {ein guter Student /*
fortunately is my husband a.NOM good.NOM student.NOM /
*einen guten Studenten}.
*a.ACC good.ACC student.ACC
'Fortunately my husband is a good student.'

This pattern of case in appositives in German was already noted and analyzed in Heringa's work, but that analysis required specific resolution rules to capture the

observations; on Ott & Onea's account no such rules are required, and this is a strong argument in favor of their approach.

However, Heringa's work includes data concerning case assignment in appositions from other languages, and not all follow the German pattern. In particular, he shows that in Russian, the case on an appositive nominal always matches the case on the anchor, even in the "predicative" type of apposition where in German, as we have just seen, nominative would be required. Thus for example the Russian example (43) corresponds to the German example in (41), but in Russian the case on the appositive 'a good student' has to match the case on the anchor 'my wife' (genitive here, because of the case assigned by the preposition *dlja* 'for').

> (43) *Dlja moej   ženy   k ščast'ju   {priležnoj   studentki /*
>   for   my.GEN wife.GEN to happiness good.GEN student.GEN
>   **prileznaja studentka}, ekzamen   proshel legko*
>   *good.NOM   student.NOM exam   went easily
>   'For my wife, fortunately a good student, the exam was easy.'

In sharp contrast to German, this is of course not consistent with the nominative case that would appear in the copular sentence that is, by hypothesis, the basis for the fragment answer constituting the apposition. That is, the Russian counterpart of (42) would, like the German example, have nominative on the predicate nominal:

> (44) *K ščastju,   moja žena {prileznaja   studentka   /   *prileznoj*
>   to happiness my   wife good.NOM   student.NOM   *good.GEN
>   *studentki}.*
>   student.GEN
>   'Fortunately my wife is a good student.'

For Heringa, it was possible to postulate distinct resolution rules for the two languages, even though these may appear *ad hoc* to a greater or lesser extent. A major strength of the account of Onea & Ott is that it rests on a theory of discourse that aims to rely on independently motivated and quite general constraints on discourse moves, ellipsis, and question-answer congruence. Here, though, this approach makes it harder to see, in principle, how it could be that the relation between fragment answers and apposition might vary from one language to another, as seems to be the case when we contrast Russian to German. I leave this as an open question for further research.

6. Conclusion

This paper has attempted to show that a closer study of nominal appositions can shed some light on long-standing questions concerning the nature of nominal predication. In particular, I have argued that appositions in English lend some additional support to theories that do not attempt to reduce Higgins' class of specificational copular clauses to inverted predications, but rather assimilate the subject of such clauses to other instances of individual concepts. Appositions may further provide additional evidence for the existence of nominal predications where both of the nominals are—or at least contain— referring expressions (so-called "equatives"). As discussed, however, the force of this latter argument depends on the particular analysis of apposition that is adopted. There

clearly remain many open questions here that are worth pursuing in further research, including the relation between constraints on apposition and those on non-restrictive relatives, and the cross-linguistic variation in the morphosyntax of apposition

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We thought and thought, and eventually solved this: One predicate modifies the other*

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Abstract: In this paper, we discuss V_i-V_i verb reduplication patterns in several languages. We argue that these patterns are, in essential respects, structurally identical in all cases, but that interpretative differences arise as a function of the position of the compound in the clause, which varies significantly from language to language, partly as a function of differences in verb movement, which in certain cases is narrow-syntactic head movement, as we show. Crucially, one verb in a V_i-V_i reduplication modifies another, yielding an iterative and/or intensive predication.

Keywords: verb-reduplication, head-movement, intensification, Romance, German, Albanian, English, Mandarin

1. Introduction

Many languages have a V_i-V_i verb reduplication pattern, which depending on the language, can be full, as illustrated in (1) through (3) for Albanian, English and German (G), respectively, or partial, as illustrated in the examples in (4) and (5) for Italian and French, respectively.[1]

(1) *Lexova   e   lexova   dhe   s'kuptova   gjë.*   (Albanian)
    read.I   and   read.I   and   not'understood.I   thing
    'I read and read and didn't understand a thing.'

(2) *We thought and thought about this.*   (English)

(3) *Das Land   kommt   und   kommt   nicht   aus   der   Schwächephase.* (G)
    the country   comes   and   comes   not   out   the   weak phase
    'The country just won't come out of the weak phase.'

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[1] The abbreviations used in the glosses of the examples are: GER (gerund), INF (infinitive), OCL (object clitic), P (past tense), PL (plural), PR (present tense), PRT (participle), S (singular).

(4) *Lo leggo   e   rileggo sempre.*   (Italian, Benincà and Cinque 1993)
    OCL read.I   and   reread.I always
    'I always read and reread it.'

(5) *Jean   le   lit   et   relit   sans   cesse.*   (French, Kayne 1975)
    Jean   OCL   reads and   rereads   without   cease
    'John reads and rereads it constantly.'

Starting from these basic data, our proposal is that the patterns in (1) through (5) are, in essential respects, structurally identical in all cases, with the interpretative differences arising as a function of the position of the compound in the clause, which varies significantly from language to language, partly as a function of differences in verb movement, which, as we will show, is narrow-syntactic head movement. Crucially, one verb in a V_i-V_i reduplication modifies another, yielding an iterative and/or intensive predication.

2. V_i-V_i compounds: the specifics

In this section, we discuss in more detail the data presented in section 1 and flesh out our proposal in more depth. We start with the (partial) V_i-V_i reduplication structures in Italian and French, building on the seminal work of Benincà and Cinque (1993) who crucially argue for V-V coordination, and also the so-called "action nouns" in Italian (Thornton 2008), which provide further evidence for this analysis. We then turn to the V_i-V_i reduplication data in German, Albanian, Mandarin Chinese and English, and offer a unified syntactic analysis for all cases.

2.1. Italian and French

2.1.1. Verb reduplication (Benincà and Cinque 1993)

Benincà and Cinque (1993) argue convincingly that in examples like (6) below the two verbs form a single complex head (note that the two verbs in (6) involve only partial reduplication owing to the presence of the prefix *ri-/re-* ('re-')):

(6) a.   *Lo   leggo   e   rileggo sempre.*   (Italian)
        OCL   read.I   and   reread.I always
        'I always read and reread it.'
   b.   *Jean le   lit   et   relit   sans   cesse.*   (French)
        Jean OCL   reads and   rereads   without   cease
        'John reads and rereads it constantly.'

The interpretation in examples such as those in (6) is that of iterated action throughout (comparable to what we also find in English: *I always read and reread the same book*).
    Benincà and Cinque (1993) show that the *V-V* reduplication patterns in (6) have the following properties. First, the V_i-V_i complex undergoes head movement in structures with gerunds and yes-no questions, as is shown in (7) for Italian:

(7) a.   *Leggendo   e   rileggendo Gianni sempre lo   stesso   libro ...*
        reading   and   rereading Gianni always the   same   book
        '(With) Gianni always reading and rereading the same book …'

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b. *Leggi   e   rileggi   sempre lo   stesso   libro?*
   read.you and   reread.you always the   same   book
   'Do you always read and reread the same book?'

Secondly, the two verbs cannot have distinct tenses, or agreement, as shown in (8) for Italian:

(8) a. **Lo   leggevo   e   rileggo   sempre tutto d'un   fiato.*
       CL   read.1S,P   and reread.1S,PR always all   of'one breath
    b. **Lo   leggiamo   e   rileggono   sempre tutto d'un   fiato.*
       CL   read.1PL,PR and reread.3PL,PR always all   of'one breath

Thirdly, the two verbs cannot each have a separate (non-clitic) complement, as the Italian example in (9) shows:

(9) **Lo   leggo   a Gianni   e   rileggo a Piero.*
    OCL   read.I   to Gianni and reread.I to Piero

We assign the structure in (10) to examples like (6):

(10) [TP *pro* [T [D *lo*][T [v [v *leggo*] *e* [v *rileggo*]] [T TPres]]]   *... sempre*   [vP (*leggo & rileggo*) (*lo*)]]

In (10), the complex V raises to T over *sempre* 'always' (see Schifano 2018 for a more refined structure), with the (object) clitic *lo* left-adjoining to the [T [v V&V] T] complex. Both of these operations (i.e., verb movement and clitic movement) also apply with simple verbs (e.g., *lo leggo sempre* 'I always read it').

In (7), the [T [v V&V] T] complex raises to C (Aux-to-Comp in (7a); Q-formation in (7b)). Finally, examples such as (8) show that the V's "share" a single T, and examples such as (9) show that V&V is a head.

2.1.2. Derived "action nouns" in Italian (Thornton 2008)

Italian also has a class of derived "action nouns" (Thornton 2008) of the form *fuggifuggi* (lit. 'flee flee', idiomatic 'stampede'), *l'arraffa arraffa* (lit. 'the grab grab'), *mangia mangia* (lit. 'eat eat') *pigiapigia* (lit. 'push push', idiomatic 'stampede'), etc., as in (11).

(11) a. *fuggifuggi*   b. *arraffa arraffa*
        fleeflee   grabgrab
        'stampede'   'grab'
     c. *mangia mangia*   d. *pigiapigia*
        eat eat   pushpush
        'eat (metaphorically)'   'stampede'

We suggest that these forms consist of two (verbal) roots plus a theme vowel (*-i/-a*) embedded under little *n*. If the theme vowel is an exponent of little *v* (Calabrese 2019), then clearly the compound is little *v* embedded under little *n* rather than an acategorial

root.[2] As noted, the interpretation of these compounds is not always fully compositional, which goes to show that these formations are indeed heads, just as Benincà and Cinque (1993) argue for the *V-V* reduplication patterns in Romance, as discussed in the previous subsection. As is obvious from the examples, the interpretation of action nouns tends to be intensification, e.g., *fuggifuggi* 'stampede'. Internally to Italian, then, we see that the interpretation of the compound depends on its structural position; the cases discussed by Benincà and Cinque (1993) clearly involve inflected verbs capable of moving to higher positions in the clause, as we have seen. These compounds have a characteristic aspectual interpretation, which is a function of their ability to move through the inflectional domain. The verbs forming the nominal compounds on the other hand, are embedded in the so-called lexical domain. The structure that we then assign to these action nouns is given in (12):

(12) $[_n [_v [\text{V\&V}] [_v \text{TV}(\text{-}i/\text{-}a)]] n]$

To conclude, internally to Italian, the interpretation of the compound depends on its structural position. The cases discussed by Benincà and Cinque (1993) seen in the previous subsection involve inflected verbs capable of moving to T and C, as we saw. These compounds have a characteristic aspectual interpretation, which is a function of their ability to move through the inflectional domain, as shown by the fact that the complex Verb moves across *sempre* 'always'. The verbs forming the nominal compounds on the other hand, are embedded in the so-called lexical domain, *n*P in this case.

2.2. German

V_i-V_i compounds are also found in German, as was shown in (3), repeated here for ease of reference under (13);[3] see also Fries (1996) and Engelberg (2022).

(13) *Das Land kommt und kommt nicht aus der Schwächephase*.
the country comes and comes not out the weak phase
'The country just won't come out of the weak phase.'

Notice that the V_i-V_i compound in (13) is in V2 position, showing that, like in Italian, it is able to undergo head movement, as depicted in (14). In fact, as (15a) shows, the V_i-V_i compound in (13) cannot be V-final (note the contrast with (15b) in which the intensification semantics, which as we saw for Romance is typical of the V_i-V_i compound, is provided by the reduplication of the negation word in this case). Furthermore, in (13) this complex (verbal) head precedes the negator *nicht*. Notice also that the latter has scope over the entire complex head, as the interpretation is 'The country just won't come out of the weak phase' and not 'The country will and won't come out of the weak phase'; this

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[2] For evidence and detailed discussion on the fact that roots cannot possibly be exclusively acategorial, as maintained in extreme constructivist approaches such as Arad (2005), Borer (2005) et seq., see Kallulli (2021) and Rasin, Pesetsky and Preminger (2021).

[3] This example is taken from the Austrian daily *Der Standard*, July 1st, 2024 (last accessed December 15th, 2024): https://www.derstandard.at/story/3000000226368/die-heimische-wirtschaft-kommt-nicht-aus-der-krise-was-ist-da-los.

shows that the complex head reconstructs, hence providing evidence for narrow-syntactic head movement. That is, just like in the case of Italian action nouns, here we see again that the semantics of the V_i-V_i compound is intensification.

(14) [CP *Das Land* [C [v *kommt und kommt*] C] [TP ... *nicht* ...]]
(15) a. **dass* *das Land* *nicht aus* *der* *Schwächephase* *kommt* *und* *kommt*.
    that the country not out the weak-phase   comes and comes
    b. *dass das Land* *nicht und* *nicht aus* *der* *Schwächephase* *kommt*.
    that the country not and not out the weak-phase   comes

More specifically, in the V_i-V_i compound case, the intensification is carried by the coordinator and has to be licensed in the *Mittelfeld* as follows. The compound [*kommt* [*und* [*kommt*]]] ('comes and comes') is formed in *v* but requires Asp-licensing in the *Mittelfeld*. The V_i-V_i compound moves to C via the temporal and aspectual fields (obeying the Head Movement Constraint). The fact that final V_i-V_i is ungrammatical suggests that this movement is required for the interpretation to arise; indeed, as seen in (15b), [*nicht und nicht*] ('not and not') is fine in the *Mittelfeld*.

   To conclude, as in Italian, the interpretation of the compound depends on its structural position.[4]

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[4] Many thanks to Patrick Brandt (personal communication) for having provided other corpus data, such as the ones below:
   (i)   *Es geht und geht nicht voran mit der Kölner Zentralmoschee.*
                                    (*Die Kitzinger*, 29.10.2013)
      it goes and goes not forward with the Cologne central mosque
      'There is simply no going forward with the Cologne central mosque.'
   (ii)   *Aber da   geht und geht nix   weiter!*
                          (*Niederösterreichische Nachrichten*, 23.08.2012)
      but   there goes and goes nothing forward
      'There's simply nothing going forward!'
   (iii) *Der Winter geht und geht nicht zu Ende.*
                              (*Schweriner Volkszeitung*, 28.03.2013, S.13)
      the winter   goes and goes not   to end
      'There's just no end to this winter.'
   (iv)   *Russland   kommt und kommt nicht zur Ruhe.*
                                    (*Tages-Anzeiger*, 22.08.1998, S.26)
      Russia   comes and comes not   to peace
      'Russia is just not getting peace.'
Since all these examples contain negation, and the intensification semantics is notably rendered in English via focus particles, such as *just* or *simply* (see also section 2.5. on English), a question might arise as to why negation and other (focus) particles such as *wohl* 'well' in (v) below are so frequent in this construction. We speculate that this is so because intensification seems to involve focusing of aspectual features, and aspect is determined not just by the intrinsic *Aktionsart* of the predicate, but compositionally by the *Aktionsart* of the predicate and predicate-external operators. This would then account for the difference between examples such as (vi) and (vii), which were brought to our attention by Tessa Adams; in (vi) there is gradual pouring out of the water from the

Finally, it is worth pointing out that German and Dutch behave very differently with respect to V_i-V_i reduplication. As Marcel den Dikken (personal communication) points out to us, in Dutch, when the verb takes no particle or PP secondary predicate (i.e., something that cannot be removed from the VP), reduplication of the verb is fine, whereas in the presence of a particle or PP secondary predicate, it is impossible to reduplicate just the verb. Some attested examples of *komt en komt* 'comes and comes' reduplication from the internet, all featuring the verb all by itself, without a complement, and all provided to us by Marcel den Dikken, are given in (16) through (18) below. Crucially, however, as (19) shows, the Dutch analogue of our German example in (13) is ungrammatical.

(16) *Het   komt   en   komt   maar ... ik word er ook soms depressief van*
      it   comes   and   comes   but   I get there also sometimes depressive of
(17) *Het komt en   komt   maar hele hordes wandelen mijn kamer in*
      it comes and comes   but   whole hordes walk   my   room   into
(18) *Hij belooft   altijd verbetering   maar dat   komt en   komt maar niet*
      he   promises always improvement but   that   comes and comes but not
(19) **Het land   komt   en   komt   maar niet uit de problemen*
       the country comes and   comes   but   not   out ofthe problems

Den Dikken's "tentative conclusion about the Dutch state of affairs is that we are probably looking at some form of VP-reduplication, which can give rise to the impression of "bare" verb reduplication only in cases in which the VP can be emptied of everything besides the verb" (email message 15.12.24). As he reminds us, as necessary background to this, particles and PP secondary predicates in directional and resultative constructions cannot be extraposed or scrambled out of the VP, as shown in (20) and (21).

(20) ... dat Jan <*op de plank> [VP het <op de plank>   heft   gezet] <*op de plank>
         that Jan   on the shelf   it   on the shelf   has   put   on the shelf
(21) dat   Jan <*neer> [VP   het <neer> heft   gezet] <*neer>
      that   Jan down   it down has   put   down

(potentially big) bucket, whereas in (vii) the verb *entleeren* entails a complete emptying of the bucket. Similar aspectual differences obtain in (viii) vs. (ix):

(v) *Sie   tanzten   und   tanzten   wohl allzumal.*
       they danced and   danced well all-the-time
       'They danced and danced all the time.'
       (Justinus Kerner: *Der Wassermann* (Borowsky/Werner (eds) 2004, p. 30)
       [D-Ker-a-003], cited in Engelberg 2022: 47)
(vi) *Sie   leert   und leert   den Eimer.*
        she empties and empties the   bucket
        'She empties and empties the bucket.'
(vii) ?/**Sie entleert und entleert den Eimer.*
         she empties and empties the bucket
(viii) *Sie strengt und strengt sich an.*
         she strains and strains self on
         'She just strains and strains.'
(ix) ?/**Sie überanstrengt und überanstrengt   sich (bis sie umfällt / bis zum Umfallen).*
        she overstrains   and overstrains   self (to she falls over / to falling over)

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This is a noteworthy syntactic difference between two very closely related languages. It seems then that not all languages have V_i-V_i compounds of the type we are investigating here, although why these should be absent in Dutch remains a mystery.

2.3. Albanian

We started this paper with an example of V_i-V_i reduplication from Albanian, repeated below for ease of reference:

(1) *Lexova   e   lexova   dhe   s'kuptova   gjë.*
    read.I   and   read.I   and   not'understood.I   thing
    'I read and read and didn't understand a thing.'

As can be seen from this example, Albanian seems to behave very similarly to the Romance languages discussed in section 2.1. As Benincà and Cinque (1993) observe for Italian and French, the same contexts of occurrence and restrictions with respect to tense and agreement obtain in Albanian too, as seen in (22), the exact counterpart of the Italian example in (6a), (23), where the V_i-V_i complex undergoes head movement in structures with gerunds and yes-no questions, and (24), where the two verbs cannot have distinct tenses, or agreement:

(22) *E   lexoj   dhe   rilexoj   gjithnjë.*
    OCL   read.I   and   reread.I   always
    'I always read and reread it.'

(23) a. *Duke (e)   lexuar   dhe   (*e)   rilexuar   Beni   të   njëjtin   libër ...*
          GER   OCL   read.PRT   and   OCL   reread.PRT   Ben   AGR   same   book
          '(With) Ben reading and rereading the same book …'

    b. *Lexon   dhe   rilexon   gjithnjë të   njëjtin   libër?*
        read.you   and   reread.you   always   the   same   book
        'Do you always read and reread the same book?'

(24) a. **E   lexova   dhe   rilexoj   gjithnjë me   një   frymë.*
          OCL   read.1S,P   and   reread.1S,PR   always   with   one   breath

    b. **E   lexojmë   dhe   rilexojnë   gjithnjë me   një   frymë.*
          OCL   read.1S,P   and   reread.1S,PR   always   with   one   breath

Likewise, the two verbs cannot each have a separate (non-clitic) complement, as the example in (25) shows:

(25) **I shkruaj Benit   dhe   rishkruaj   Gimit.*
    CL write.I   Ben.DAT and   rewrite.I   Gim.DAT

As in the case of Italian, we assign the structure in (26) to examples like (22):

(26) [TP *pro* [T [D *e*][T [v [v *lexoj*] *dhe* [v *rilexoj*]] [T TPres]]]   ... *gjithnjë* [VP (*lexoj & rilexoj*) (*e*)]]

In (26), the complex V raises to T over *gjithnjë* 'always', with the (object) clitic *e* left-adjoining to the [T [v V&V] T] complex. As we saw for Italian, both of these operations

(i.e., verb movement and clitic movement) also apply with simple verbs (e.g., *e lexoj gjithnjë* 'I always read it').

In (23a), the analytic gerundive marker *duke* is first merged in C, the participial verb form raises to T, and the clitic adjoins to T just as in (26); Q-formation in (23b) causes the entire V_i-V_i compound to raise to C just like in Italian (and indeed German verb-second clauses). Finally, examples such as (24) show that the V's "share" a single T, and examples such as (25) show that V&V is a head.

2.4. Mandarin Chinese

In Mandarin Chinese we observe the so-called "tentative reduplication" V_i-V_i pattern, which has independently been analysed as *V-V* compounding too (see Chen 2023):

(27) a. *Ni   kan   ta.*
      you   see   him.
   b. *Ni   **kan kann**   ta.*
      you   see-see   him.
      'You have a look at him.'

These examples are reminiscent of a cluster of verb reduplication patterns found in Mandarin, such as A-not-A questions (see Huang, Li and Li 2009):

(28) *nǐ   qù   bú   qù*
    you   go   not   go
    'Are you going?'

The structure of A-not-A questions has been much debated (see the references given in Huang, Li and Li), but one widely held analysis is that they involve V_i-V_i compounding. So here we see a further example of this construction, in a typologically and genetically very different language from the others discussed here and associated with a different semantics. Nevertheless, the V_i-V_i pattern is a constant.

2.5. English

English arguably also has V_i-V_i compounding. This is illustrated in (29):

(29) a. We talked and talked.
   b. We thought and thought.
   c. We walked and walked.

This construction is characteristic of unergative intransitives, as we can see from the fact that the verbs in (29) satisfy all the diagnostics for unergatives:

(30) *Cognate objects*:
   a. He really talks the talk.
   b. I thought a pleasant thought.
   c. He really walks the walk.

(31) The *way*-construction:
    a. We talked our way into the party.
    b. Bertie thought his way into a paradox.
    c. We walked our way across the precarious bridge.
(32) *Out*-prefixation:
    a. John out-talked Bill.
    b. John out-thought Bill.
    c. Bilbo outwalked Frodo.
(33) *Away*:
    a. John talked away.
    b. Bill thought away.
    c. Pete was walking away when he got tired.[5]

The construction is also possible with optional transitives, as shown in (34):

(34) a. We read and read.
    b. We ate and ate.

However, in optional transitives they cannot appear with a direct object other than *it*:

(35) a. *He read the book and read the book.
    b. He read (it) and read it.

This is consistent with the idea that *it* is deficient/clitic-like. In fact, Cardinaletti and Starke (1994, 1999) show that *it* is a weak pronoun on the basis of the fact that it cannot be coordinated and cannot be modified by focus elements such as *only*:

(36) a. *It and the other one are nice.   (Cardinaletti and Starke 1994: 42, note 1)
    b. *John has only seen IT.   (Cardinaletti and Starke 1994: 49, note 10)

English differs from the Romance examples in (4) and (5), repeated here, in that *it* can be, but does not have to be, repeated, as indicated in (35b):

(4) *Lo leggo e rileggo sempre.*   (Italian, Benincà and Cinque 1993)
    OCL read.I and reread.I always
    'I always read and reread it.'
(5) *Jean le lit et relit sans cesse.*   (French, Kayne 1975)
    Jean OCL reads and reread without cease
    'John reads and rereads it constantly.'

This contrast reflects the fact that *v* is the target for optional enclisis of *it* in English while T is the target for obligatory proclisis of *lo/le* in (4) and (5). So the structure of the compound verb in (35b) is (37):

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[5] In *walk away*, *away* naturally has the literal path interpretation rather than the intensifier interpretation which is salient in (33a,b). However, if contextualised, as (33c) attempts to do, the intensifier interpretation is available.

(37) ... [$_{vP}$ [$_v$ [$_v$ V&V] *it*] …

Where *it* is repeated, we take it to be enclitic to V, shown in (38):

(38) ... [$_{vP}$ [$_v$ [$_v$ [V-it & V-*it*]] …

Together, (37) and (38) account for the impossibility of (39):

(39) *We read it and read.

Here, *it* cannot be attached to the whole compound as in (37) and, assuming that multiple enclisis must be "across-the-board", (39) cannot have the structure in (40):

(40) * … [$_{vP}$ [$_v$ [$_v$ V-*it* & V]] …

Compare (10), repeated here, which is the structure we proposed for (4)/(6) in Section 2.1.1:

(10) [$_{TP}$ *pro* [$_T$ [$_D$ *lo*][$_T$ [$_v$ [$_v$ *leggo*] *e* [$_v$ *rileggo*]] [$_T$ T$_{Pres}$]]] … *sempre* [$_{VP}$ (*leggo* & *rileggo*) (*lo*)]]

Strikingly, in English, V_i-V_i cannot be negated or questioned:

(41) a. *We didn't read and read (it).
      b. *Did you read and read (it)?

We take these examples to indicate that English V_i-V_i compounds are incompatible with *do*-support (but see below for a proviso). In turn, we take this to mean that V_i-V_i compounds require Affix-Hopping, which we attribute to the requirement that the verb must be connected to the aspectual field by Affix-Hopping in order to receive the required iterative and/or intensive interpretation. The deviance of the examples in (41) is thus a further consequence of the well-known absence of Verb-movement into the inflectional field in English (Emonds 1978, Pollock 1989).

The proviso to the generalisation that English V_i-V_i compounds are incompatible with *do*-support concerns VP-ellipsis and VP-fronting, where *do*-support is compatible with V_i-V_i compounds, as seen in (42):

(42) a. John worked and worked and Bill did ~~worked and worked~~ too.
      b. We expected John to work and work, and work and work he did (work and work)!

However, these cases fall under Lasnik's (1995) observation that Affix-Hopping in the first conjunct is compatible with VP-ellipsis in the second conjunct:

(43) Emily sang beautifully at the recital and her sister did too.

Here we see that past tense marking has applied in the first conjunct giving rise to the past form *sang*, while in the second conjunct *do* is inserted for past-tense marking since

VP-ellipsis has removed the overt verb. So in this example there is Affix Hopping in one conjunct but not in the other. In (42a) the presence of *did* shows that Tense does not undergo Affix Hopping in the second conjunct, but we can maintain that, since the elided VP in the second conjunct must be licensed as a copy of the VP in the first conjunct, the relevant aspectual features will be associated with the copied VP. The same analysis applies to the copy of the fronted VP in (42b).[6] Aspectual material can undergo Affix Hopping independently of Tense as shown by examples such as the following:

(44) a. Emily has sung beautifully at the recital and her sister has ~~sung beautifully~~ too.
b. Emily is singing beautifully these days and her sister is ~~singing beautifully~~ too.

Examples like (42) are comparable, with the difference that the aspectual marking is non-overt in the first conjunct too.

Why can examples like (41) not be saved by covert Affix-Hopping of the kind that applies in (42)? The reason is that there is a head intervening between T (which is raised to C in (41b)) and the verb in (41). If Affix-Hopping is downward head-movement, then this is a case of the Head Movement Constraint (HMC); see McCloskey (1996) for another such case in Irish. We take this head to be a Pol head, hosting Neg and Q, on the edge of the lower phase. This head also hosts strong assertion (or verum focus) features which trigger *do*-support in examples like (45):

(45) John DID (so) read the book.

So here and in (41) *do*-support is triggered since Affix-Hopping cannot apply for locality reasons: where the Pol head is present, the HMC prevents it. In the VP-ellipsis and VP-fronting cases in (42), on the other hand, the Pol head is not present and the application of Affix Hopping of T is bled, by ellipsis in (42a) and copy-deletion in (42b), but the aspectual affixes can attach to the verb, and this is supported by (44).

However, examples like (46) present a problem for this analysis:

(46) a. Has John eaten the apple?
b. John hasn't eaten the apple.
(47) a. Is John eating the apple?
b. John isn't eating the apple.

Here it is clear that aspectual affixes can be "hopped" onto the Verb in negation and inversion contexts. If so, then why can the abstract aspectual affixes we have proposed to

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[6] The V_i-V_i compound in (42b) is non-finite. This is not a problem as we know independently that non-finite verbs in English can have aspectual marking, and this carries over to V_i-V_i compounds:

(i)   To have read and read and still not understood anything is frustrating.
(ii)   To be reading and reading and not understanding anything is frustrating.

These examples show that Affix Hopping (and associated copying) applies to V_i-V_i compounds.

license V_i-V_i compounds similarly not undergo Affix Hopping here, which would make the examples in (41) grammatical?

To answer this question, we need to clarify our assumptions about the nature of the aspectual participles. First, we take the perfect participle (of main verbs, but not auxiliary *been*) to be the passive participle of main verbs, and as such merged in Voice. There is morphological motivation for identifying these participles, since they never show distinct forms. Following Kallulli and Roberts (2024a), we take it that where Voice has an Accusative feature, the clause must be active. In perfects, *have* introduces the Accusative feature, which Voice inherits, thereby making the clause active (see Haider and Rindler-Schjerve (1987:1041) for a similar idea, which they referred to as "deblocking"). Second, we assume that the phase at whose edge the Pol head containing Neg, Q and "strong" assertion features is located is not *v*P but ProgP (see Harwood 2013 for extensive evidence that ProgP is a phase). Third, we assume that the aspectual features licensing the V_i-V_i compound are merged higher than ProgP. Hence Pol blocks Affix Hopping of these features in (41) but not in (42) (or (i) and (ii) of note 5). Neither is Affix Hopping of progressive *-ing* blocked in (47). In (46), the same may apply to the participial *-en* feature, but we do not exclude the possibility that V moves to Voice in English, forming the perfect/passive participle.

Caroline Heycock (personal communication) draws our attention to the following apparent counterexamples to the claim that V_i-V_i compounds resist *do*-support:

(48) a. Do you just read and read all day without ever going out?
     b. Why do they run and run and never slow down?
     c. Why do you talk and talk and never actually DO anything?

(49) a. We don't just read and read all day; sometimes we go out.
     b. They don't just run and run; sometimes they slow down.
     c. I don't just talk and talk; sometimes I actually do something.

Leaving aside the *why*-questions in (48b,c) for now (see below), the presence of *just* seems to be crucial to these examples. Compare (50) with (49):

(50) We didn't ??(just) eat and eat, we also drank.

Just can appear anywhere in the auxiliary sequence:[7]

(51) a. We have just eaten and eaten.
     b. We are just eating and eating.
     c. They are just adored and adored.
     d. We have been just adored and adored.
     e. We have just been adored and adored.
     f. We have just been eating and eating.
     g. We have been just eating and eating.
     h. We have been being just adored and adored.
     i. We have been just being adored and adored.

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[7] Here the sequence *just been* favours the very-recent-past interpretation, which is not relevant in the present context.

So *just* can't possibly block Affix Hopping; if we analyse it as a non-head then the account of *do*-support based on the Head Movement Constraint given above will explain this.

Contracted negation is also possible in all the examples in (42):

(52) a. We haven't just eaten and eaten, we also drank.
b. We aren't just eating and eating, we're also drinking.
c. They aren't just adored and adored, they're also admired.
d. We haven't been just adored and adored, we've also been admired.
e. We haven't just been adored and adored, we've also been admired.
f. We haven't just been eating and eating, we've also been drinking.
g. We haven't been just eating and eating, we've also been drinking.
h. We haven't been being just adored and adored, we've also been being admired.
i. We haven't been just being adored and adored, we've also been being admired.

One possibility for analysing these facts, consistent with the analysis above, would be to treat *not* as directly negating *just*, that is, in a constituent *[not just]*, with subsequent movement and contraction to the finite auxiliary.

Support for this comes from the fact that *just* can also appear, albeit a little marginally in some cases, between the subject and the finite auxiliary, where the auxiliary is not *do*:

(53) a. I just can't get enough.
b. ?We just haven't eaten and eaten.

Here we clearly have the opposite scope of *just* and negation. But here, *do* is not possible:

(54) ?*We just didn't eat and eat, …

The contrast between (54) and (49) can be explained if *not* raises from *[not just]* in (49): such raising is clearly impossible in (54) since the putative *[not just]* does not c-command the position of *n't* here. If the examples in (49), (51) and (52) are derived in this way, then the generalisation and analysis in the text can be maintained in these cases.[8]

The *why*-questions in (48) have maximally wide scope for *why*, which scopes over both conjuncts. Here we can maintain, following Rizzi (1990, 2001), Shlonsky and Soare (2011) and the papers in Soare (2021) that *why* is first-merged in the left periphery. In such cases, the trigger for *do*-support may be located higher than in other types of interrogative, and hence Affix Hopping of the aspectual features is not blocked.

This concludes our discussion of English. The fact that V_i-V_i compounding interacts with Affix Hopping and *do*-support confirms our general claim in this paper that the

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[8] Caroline Heycock (personal communication) draws our attention to examples like (i), which do not fall under the account of negated clauses with V_i-V_i in English:

(i) I know you hate garden work and you think I'm being unreasonable in how much time I spend out there, but if you don't dig and dig all day, you'll never get it the way you want it.

It seems that further work remains to be done on this topic.

properties of these compounds in a given language are largely determined by independent parameters regulating verb-movement and associated phenomena: the deviance of the examples in (41) is thus a further consequence of the well-known absence of Verb-movement into the inflectional field in English (Emonds 1978, Pollock 1989).

2.6. Restructuring and V_i-V_i compounds[9]

Here we look at the possibility of the formation of V_i-V_i compounds where V_i is a complex verb formed by the combination of a restructuring verb and a lexical verb. We will see that Japanese causatives contrast with Italian restructuring verbs as regards this possibility, a difference we attribute to the fact that Japanese causatives involve head movement of the lexical verb to combine with the restructuring trigger (the causative *sase*) while Italian infinitives do not morphosyntactically combine with restructuring verbs. We will use *v* to indicate the restructuring verb and V to indicate the lexical verb throughout.

Looking first at Japanese, what we see is that there appear to be V_i-V_i compounds, as in examples such as the following:

(55) *Kangae-te, kangae-te, sore-demo wakar-ana-i*
    think-GER think-GER it-even   understand-not-PR
    'I thought and thought but even then I don't understand.'

Causative verbs marked with the restructuring trigger *sase* can also appear in the following construction:

(56) *musuko-ni seisyo-o   yom-ase-te,   yom-ase-te,*
    son-DAT   bible-ACC   read-CAUS-GER   read-CAUS-GER
    benkyoo-sase-ta
    study-CAUS-P
    'I made my son read and read the bible, and I made him study it.'

We take *sase* to be a verb with a *v*P* (i.e. a fully transitive *v*P; see Chomsky 2001) as its complement, as in (57), the structure for the second conjunct of (56):

(57) [TP SU [[*v*∗P [VP [*v*∗P IO [[VP DO *benkyoos*] *v*∗]] *sase*]] *ta*]]

Here SU is the Causer subject of *sase*, which raises from Spec*v*∗P to SpecTP. The lexical verb *benkyoos* ("study") raises through the lower *v*∗ and forms a complex head with *sase*; this can be seen from the fact that there is a general phonological rule of Japanese which deletes the initial consonant of the second verb in a complex verb V1+V2, if V1 ends with a consonant and V2 begins with a consonant. Here the initial /s/ of *sase* deletes following this rule. We see the same rule in operation in both occurrences of *yom-ase-te* in the V_i-V_i compound in (56). Hence here we have a V_i-V_i compound where both Vs are complex verbs of the form *v*+V. The compound thus has the form in (58):

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[9] Thanks to Mamoru Saito (personal communication) for raising this question and for invaluable help with the Japanese examples, and to Leonardo Russo Cardona (personal communication) for the judgements on the Italian data.

(58) [$_v$ v+V & v+V]

In (56), each complex verb is also marked with the gerundive suffix *-te*.

In Italian, taking *volere* ('to want') as a restructuring verb, we find the following paradigm with proclisis:

(59) i. *Lo   voglio   leggere e   rileggere sempre.*
     OCL   want.I   read.INF and reread.INF always
     'I always want to read and reread it.'
  ii. *Lo   voglio   leggere e   lo   voglio   rileggere.*
     OCL   want.I   read.INF and OCL want.I   reread-INF
     'I want to read and reread it.'
 iii. **Lo voglio   leggere e   voglio   rileggere.*
     OCL want.I   read.INF and   want.I   reread.INF

In (59i) the clitic *lo* "climbs" to the restructuring *v* and the two lexical infinitives form a compound. Here the restructuring trigger is outside the compound. In (59ii), there is no compound and there are two separate cases of "across-the-board" clitic-climbing in each conjunct. The crucial case for comparison with the Japanese data above is (59iii): here *lo* has climbed and attached proclitically to a putative [v+V & v+V] compound. The ungrammaticality of the result shows that the restructuring trigger cannot be inside the compound. This contrasts directly with what we observe with the Japanese compounds in (56).

Turning now to enclisis, the relevant examples are:

(60) i. *Mi   ritrovo a voler-lo   leggere e   rileggere.*
     myself find.I   C want.INF-OCL read.INF and   reread.INF
     'I find myself wanting to read and reread it.'
  ii. *Mi   ritrovo a voler legger-lo   e   rilegger-lo.*
     myself find.I   C want.INF read.INF-OCL and   reread.INF-OCL
     'I find myself wanting to read and reread it.'
 iii. ?**Mi   ritrovo a voler legger e   voler   rilegger-lo.*
     myself find.I   C want.INF read.INF and   want.INF reread.INF-OCL
  iv. *Mi   ritrovo a voler-lo   leggere e   voler-lo   rileggere.*
     myself find.I   C want.INF-OCL read.INF and   want.INF-OCL reread.INF
     'I find myself wanting to read and reread it.'
  v. **Mi   ritrovo a voler leggere e   voler-lo   rileggere.*
     myself find.I   C want.INF read.INF and   want.INF-OCL reread.INF

In (60i), there is enclisis of *lo* to the restructuring *v*, which is outside of the compound formed by the two lexical infinitives. This is the enclisis analogue of (59i). In (60ii), there is no compound: *lo* encliticises independently to each infinitive across the board. In (60iii) we see that enclisis to a putative [v+V & v+V] compound is ungrammatical; this is the enclisis analogue to (59iii). In (60iv) we have the clitic-climbing counterpart to (60ii), with separate enclisis of *lo* to each occurrence of the restructuring *v*: here there is no compound. Finally, (60v) involves ill-formed enclisis in just one conjunct; in violation of the "across-the-board" requirement, in contrast with (60iv). There is no compound here.

We see that Japanese and Italian differ in the possibility of V_i-V_i compounds where each V_i is complex containing a restructuring verb and a lexical verb. Japanese allows these, as (56) shows, while Italian does not, as the data in (59iii) and (60iii) show. We can account for this difference quite straightforwardly: in Japanese the lexical verb forms a complex head with the causative *sase*, while in Italian the lexical infinitive does not incorporate with the restructuring verb *volere* ('to want'), which we take to represent the class of restructuring verbs. The lack of incorporation in Italian restructuring is shown by the fact that the clitic can intervene between the restructuring verb, to which it has "climbed", and the infinitive in (60iv). We saw above that there is phonological evidence for incorporation in Japanese.

3. Conclusion

In this paper, we have offered a uniform process of V_i-V_i compounding which gives rise to similar interpretations across a range of languages, showing that the V_i-V_i complex occupies different positions across at least English (*v*), German (C), Japanese (causative *v*) and Albanian/Italian (the inflectional field), reflecting independent parameters of verb movement. Most importantly, we have demonstrated that since V_i-V_i must be the input to the C-I interface, both the compounding and verb movement must be narrow syntactic (Roberts 2010, Lechner 2006). If head movement is a reflex of the presence of a defective Goal, as Roberts (2010) argues, and Agree intrinsically involves redundancy of features (see Kallulli and Roberts 2024b), then our study of V_i-V_i compounds contributes to the ongoing typology of redundant and deficient operations in language instigated by Onea et al. (2023).

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Modification in the verbal domain in Hungarian*

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Abstract: In this work I provide novel evidence for an articulated VP structure by examining facts of adverbial modification in Hungarian. In line with prior works such as Borer (2005) and Jung and Choi (2023), I will argue for the dissociation of inner aspect from result states, but also propose that inner aspect be syntactically instantiated, whereas result states are only a semantic/pragmatic effect. I focus on the distribution and interpretive properties of resultative and measure adverbs to support these claims. I also show that result states can be directly encoded by verbal, prepositional and resultative adverbial elements alike, contra the previous claim that resultative adverbs only modify result states (Geuder 2000).

Keywords: results, modification, quantity, inner aspect, resultative adverbs, measure adverbs, Hungarian

1. Introduction

In this paper I provide new evidence for an articulated VP structure by examining facts of adverbial modification in Hungarian. More specifically, I defend the claim that inner aspect and results are to be dissociated from each other in the verbal domain, as has also been argued by scholars such as Borer (2005) and, more recently, by Jung and Choi (2023). These analyses challenge much previous work on event structure, where inner aspect is directly derived from the presence of a result state, represented in the semantics or syntax of verbal expressions (see Dowty 1979, Parsons 1990, Pustejovsky 1991, 1995, Higginbotham 2000, Ramchand 2008, among others).

Jung and Choi (2023) argue that inner aspect is encoded at the level of vP and results are syntactically instantiated below vP as ResP with transitive predicates like *paint the picture colorfully* and *chop the onion finely* and also with their intransitive counterparts, if available. These authors argue for the presence and location of ResP by examining facts of adverbial modification in English, focusing on the distribution and interpretive effects of manner adverbs like *quickly* in *open the door quickly*, resultative adverbs like *elegantly* in *dress elegantly* and measure adverbs like *partly* in *partly paint the picture*. They derive the (a)telicity of predicates from the type of v they are associated with. The presence of

v_DO ensures atelicity, whereas telicity is encoded at the level of v_CAUSE (for more on different flavors of v, see, for example, Folli and Harley 2005).

I show that data from Hungarian warrant a different analysis. I argue that inner aspect is to be represented between vP and VP in the form of an aspectual functional projection, in line with previous analyses such as Travis (1991, 2010) and MacDonald (2008), whereas results are purely a semantic/pragmatic effect. I concur with Jung and Choi (2023) that measure adverbs and resultative adverbs form a natural class, but also take issue with these authors by arguing that measure adverbs and resultative adverbs adjoin to AspP within the verbal domain, and not a result projection.

The structure of this paper is as follows: First, in Section 2, I briefly discuss the link between inner aspect and results based on previous literature. Then, in Section 3, I provide an overview of some key claims and arguments from Jung and Choi (2023) before presenting novel support for the syntactic representation of inner aspect while drawing on data from Hungarian in Section 4. In Section 4.1, I first look into the distributional properties of resultative adverbs, whereas in Section 4.2, I address the distribution and interpretive properties of measure adverbs. Then, in Section 5, I also show how result states are encoded in Hungarian and propose that they be represented as a purely semantic/pragmatic property of verbal predicates. What emerges from the discussion is that verbal, prepositional and resultative adverbial expressions can all directly encode result states, contra the previous claim that resultative adverbs only modify result states (Geuder 2000). In Section 6, I conclude.

2. The link between inner aspect and results

As is well-known, telic interpretations often co-occur with the coming about of a new result state, as in the case of verbal expressions like *hammer the metal flat*, *sweep the floor clean*, *break the vase* and *die*. On decompositional analyses (see Dowty 1979, Pustejovsky 1991, 1995, Rappaport Hovav and Levin 1998, a.o.), the presence of a caused result state ensures telicity. Consider (1).

(1)   a. Phil swept the floor clean in/*for an hour.
       b. [x ACT <SWEEP>] y] CAUSE [BECOME [y <*CLEAN*>]]]
             (adapted from Rappaport Hovav and Levin 1998: 110, (33) and (32))

In the example above, the presence of a caused clean state in the lexical semantic decomposition in (1b) predicts that the string *sweep the floor clean* is telic, as diagnosed by the temporal adverbial test in (1a). A similar view is entertained in Ramchand (2008), where the functional projection resP is directly linked to telic interpretations and the creation of event structure in a syntactified event decomposition. Telicity can also arise without resP on this analysis, but then it is a semantic entailment, as with *eat the apple*. The boundedness of the theme, *the apple*, and a Krifka-style homomorphic mapping between the structure of the event and that of the theme ensures that the predicate *eat the apple* be interpreted telically (Krifka 1998).

Decompositional analyses have been questioned in recent decades by scholars like Borer (2005), in light of data like those in (2), where a telic interpretation arises in the absence of a result state (2a), or the presence of a result state in the verbal predicate is not necessarily accompanied by a telic interpretation (2b).

(2)   a. Kim ran around the corner. (IN-T/*FOR-T)

(Higginbotham 2000)

        b. For years, Bill heated the mixture hotter and hotter.

(Goldberg and Jackendoff 2004: 543, (23a))

Whereas in (2a) the temporal adverbial test shows that the predicate *run around the corner*, which is not associated with a prominent result state, has a telic interpretation, in (2b) an atelic reading is available in the presence of a result state that obtains at the culmination of the mixture-heating eventuality.

On Borer's (2005) analysis, which thus does not invoke result states in the creation of telic structures, telic predicates are quantity (=non-homogeneous) predicates directly linked to a quantity aspectual functional projection, Asp$_Q$P. English resultatives like *flat* in *hammer the metal flat* and *red* in *paint the fence red*, which are taken to instantiate the caused subevent in decompositional analyses, are only modifiers of (a)telic structures. More specifically, they do not assign range to an open variable associated with the Asp$_Q$ head. The telicity of expressions like *hammer the metal flat* and *paint the fence red* is linked to quantity themes like *the metal* and *the fence*. The presence of non-quantity themes like *metal* in *hammer metal flat* and *fences* in *paint fences red* yields atelicity (*ibid.* 220-232).

Jung and Choi (2023) also argue that results are dissociated from the creation of a telic structure. However, as a departure from Borer (2005), these authors directly link the creation of (a)telic structures and that of results to different syntactic projections, vP and ResP below vP, respectively, in the verbal domain. In this paper I take issue with this latter idea in light of the facts of Hungarian, but first discuss Jung and Choi (2023) in some detail in the next section.

3.   Jung and Choi (2023)

Jung and Choi (2023: 24) propose the following analysis for transitive, telic *paint the picture colorfully* and intransitive, atelic *paint colorfully* in the framework of Distributed Morphology (Halle and Marantz 1993, Marantz 1997, Arad 2005):

(3)   a. The artist painted the picture colorfully. (IN-T/*FOR-T)
        b.   …   vP

VCAUSE   ResP   ←   adjunction of result. adverb

                Res   DP
                       the picture
        Res   √*PAINT*

(4)   a. The artist painted colorfully. (FOR-T/*IN-T)
        b.   …   vP

VDO   ResP   ←   adjunction of result. adverb

VDO   √*PAINT* Res   ∅

A central idea that the representations above embody is that inner aspect and results are independent of each other. On the one hand, inner aspectual interpretations are directly derived from v in a way that different types of v give rise to different aspectual interpretations. The presence of vCAUSE in (3b) yields a telic interpretation with examples like *paint the picture colorfully*, where telicity is diagnosed by the *in/for*-test, whereas in (4b) the presence of vDO gives rise to atelicity. On the other hand, telicity is accompanied by a specific result thanks to the result root and the bounded direct object in examples like (3), whereas in (4) atelicity is accompanied by some result with a manner root and no bounded object in the structure. Resultative adverbs like *colorfully* identify a ResP below vP by modifying it.

The first piece of evidence that the authors provide for their central claim concerns the distribution of resultative and manner adverbs: The order of manner and resultative adverbs is fixed, as shown in (5).

(5) a. The artist painted (the picture) colorfullyRES quicklyMAN.
    b. ???The artist painted (the picture) quicklyMAN colorfullyRES.
                                                (Jung and Choi 2023: 11, (19))

With transitive predicates like *paint the picture* and their intransitive counterparts, the resultative adverb *colorfully* must be closer to *paint (the picture)* than the manner adverb *quickly*. This follows if it is assumed that manner adverbs adjoin to the verb phrase higher than resultative adverbs. The former are argued to adjoin to vP, which is the standard assumption, whereas the latter adjoin to ResP below vP.

Another piece of evidence comes from the grammar of ambiguous adverbs like *beautifully*, which can appear twice in a single clause. As illustrated in (6), the adverb closer to the verb must be interpreted as a resultative adverb (i.e. the picture that came about as a result of the painting activity was beautiful), whereas the one further away is a manner adverb (i.e. the painting activity was carried out in a beautiful manner).

(6) a. The artist painted the picture beautifullyRES beautifullyMAN.
    b. *The artist painted the picture beautifullyMAN beautifullyRES.
                                                (Jung and Choi 2023: 12, (25))

This analysis also makes predictions about the possibility and impossibility of resultative adverbs and manner adverbs in the presence of result roots such as √CLEAN and √WARM: On the one hand, resultative adverbs are expected to occur in both adjective and verb phrases, where the root underlying the verb or the adjective is a result root, before the categorizing *a* or *v* is introduced into the structure (*ibid*. 15). This is borne out in (7).

(7) a. Jim cleaned the room spotlessly.
    b. the spotlessly clean room   (Jung and Choi 2023: 15, (33))

On the other hand, manner adverbs are expected to be unable to modify adjectives derived from result roots, in line with the facts of (8).

(8) a. *the quickly clean room
    b. *the quickly warm soup   (Jung and Choi 2023: 16, (37b) and (38b))

The manner adverb *quickly* gives rise to ungrammaticality in the presence of the adjectives *clean* and *warm*, which follows if manner adverbs are assumed to require a verbal structure, which is, however, not available with adjectival *clean* and *warm*.

Jung and Choi (2023) further claim that measure adverbs like *partly*, which "express the degree of the state resulting from the verbal event" (*ibid*. 17), also modify ResP, similarly to resultative adverbs. This is supported by the fact that measure adverbs and resultative adverbs have similar distributional properties, as shown in (9).

(9) a. Jill quickly partly opened the door.
  b. ???Jill partly quickly opened the door.

<div align="right">(Jung and Choi 2023: 19, (45b) and (45c))</div>

In the preverbal section of the sentence above, the measure adverb *partly* must follow the manner adverb *quickly*, or else ungrammaticality arises, as shown in (9b). This is predicted under the assumption that measure adverbs like *partly* adjoin to the verb phrase lower than manner adverbs, similarly to resultative adverbs. Also, as expected on such an analysis, measure adverbs like *partly* can modify adjectives derived from result roots, similarly to adverbs like *spotlessly*, discussed above. This is illustrated in (10), where the adjective *open* is, by contrast, not compatible with the manner adverb *quickly*.

(10) a. the partly open door
  b. *the quickly open door
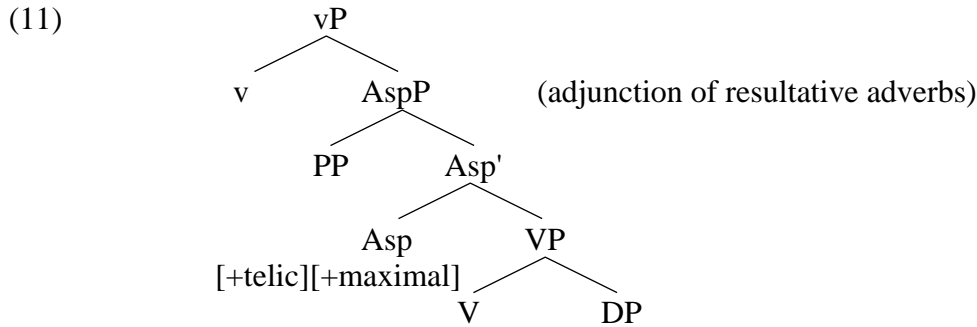
<div align="right">(Jung and Choi 2023: 20, (50a) and (51a))</div>

In summary, then, while drawing on data from English, Jung and Choi (2023) argue for the dissociation of inner aspect from results and also tie inner aspectual interpretations to different instantiations of v, whereas the coming about of results is directly linked to a result projection below vP. In the next section, I wish to show that the facts of Hungarian warrant a different analysis. I propose that it is not a result projection that measure adverbs and resultative adverbs modify, but an inner aspectual projection sandwiched between vP and VP. The coming about of result states is only a semantic entailment or a contextual effect.

4. Novel arguments for AspP in the verbal domain in Hungarian

4.1. Distributional properties of resultative adverbs

In this section I build on the previous claim that the event domain is associated with an inner aspectual functional projection AspP below vP, where verbal particles like Hungarian *meg*, represented as PPs (cf. Hegedűs 2013), check the maximality and telicity features of the Asp head in [Spec, AspP] (Kardos and Farkas 2022). I argue that it is this AspP that resultative adverbs like Hungarian *elegánsan* 'elegantly' in expressions like *elegánsan felöltözött* 'got dressed elegantly' adjoin to. Result states are only a semantic/pragmatic effect. The structural representation I assume is provided in (11).

(11)

```
                    vP
                   /  \
                  v    AspP        (adjunction of resultative adverbs)
                      /    \
                    PP     Asp'
                          /    \
                       Asp      VP
                 [+telic][+maximal]  / \
                                   V   DP
```

The adjunction analysis of resultative adverbs is supported by the fact that they have a fairly free distribution, which also characterizes the behavior of manner adverbs, as discussed in É. Kiss (2009). This is illustrated in (12).

(12) a. Mari (tökéletesen)   be-sötétített   egy szobát   (tökéletesen).
        Mari (perfectly)   PRT-darkened   a   room.ACC   (perfectly)
        'Mari darkened a room (perfectly).'
     b. Juli (tökéletesen)   fel-melegített egy tányért   (tökéletesen).
        Juli (perfectly)   PRT-warmed   a   plate.ACC   (perfectly)
        'Juli warmed (up) a plate (perfectly).'
     c. Anna (elegánsan)   fel-öltözött   (elegánsan).
        Anna (elegantly)   PRT-dressed   (elegantly)
        'Anna got dressed (elegantly).'

The resultative adverbs *tökéletesen* 'perfectly' and *elegánsan* 'elegantly' in the examples in (12) may appear in the preverbal section of the sentence, in sentence-final position, or they may also be omitted. It is also worth noting that resultative adverbs are also similar to manner adverbs regarding their morphological make-up. They are associated with an adjectival stem and the suffix -(*a/e*)*n* or, less typically, the suffix -*ul*/-*ül* (see also Hegedűs and Dékány 2021).

(13) a. János gyors-an   futott.   (manner adverb)
        János quick-ly   ran
        'János ran quickly.'
     b. Mari kegyetlen-ül   meg-verte   Verát.   (manner adverb)
        Mari cruel-ly   PRT-beat   Vera.ACC
        'Mari beat Vera cruelly.'
     c. Sára csinos-an/kényelmetlen-ül   öltözködik.   (result. adverb)
        Sára neat-ly/uncomfortable-ly   dresses
        'Sára dresses neatly/uncomfortably.'

As is clear from the examples above, the manner adverbs *gyorsan* 'quickly' and *kegyetlenül* 'cruelly' in (13a) and (13b) carry the suffixes -*an* and -*ül*, respectively, similarly to the resultative adverbs *csinosan* 'neatly' and *kényelmetlenül* 'uncomfortably' in (13c).

An important property of resultative adverbs is that the presence of a result state in the verbal predicate is not sufficient for their licensing. Inner aspectual particles yielding maximal events (Filip 2008) are required with predicates like those in (14), where the

verbs are derived from the state-denoting adjectives *sötét* 'dark', *meleg* 'warm' and *tiszta* 'clean'.

(14) a. Mari tökéletes-en   *(be)-sötét-ít-ett   egy szobát.
       Mari perfect-ly   *(PRT)-dark-CAUS-PST   a   room.ACC
       'Mari darkened a room perfectly.'
     b. Juli tökéletes-en   *(fel)-meleg-ít-ett   egy tányért.
       Juli perfect-ly   *(PRT)-warm-CAUS-PST   a   plate.ACC
       'Juli warmed (up) a plate perfectly.'
     c. Józsi foltmentes-en   *(ki)-tiszt-ít-ott   egy inget.
       Józsi spotless-ly   *(PRT)-clean-CAUS-PST   a   shirt.ACC
       'Józsi cleaned a shirt spotlessly clean.'

The obligatory nature of the verbal particle in the presence of a resultative adverb also characterizes structures associated with activity-denoting manner verbs like *mos* 'wash' when they appear in episodic sentences (15a). In non-episodic sentences, as in (15b), particleless *mos* 'wash' is possible in the environment of the adverb *foltmentesen* 'spotlessly'.

(15) a. János foltmentes-en *(el)-mosott /mosott   *(el)   egy edényt.
       János spotless-ly   *(PRT)-washed /washed *(PRT) a   dish.ACC
       'János washed a dish spotlessly.'
     b. A   mosógép   foltmentes-en   mos.
       the   washing machine   spotless-ly   washes
       'The washing machine washes clothes spotlessly.'

An alternative structure is one that contains a resultative PP, ending in the sublative case marker *-ra/-re*, which has also been argued to exert its inner aspectual effects in [Spec, AspP] (Kardos and Farkas 2022), yielding maximal events, similarly to verbal particles.

(16) a. János foltmentes-re   mosott/törölt   egy   edényt. (IN-T/*FOR-T)
       János spotless-SUBL   washed/wiped   a   dish.ACC
       'János washed/wiped a dish spotlessly.'
     b. János mosott/törölt   egy edényt. (FOR-T/*IN-T)
       János washed/wiped   a   dish.ACC
       'János washed/wiped/was washing/was wiping a dish.'

As shown above, the base verbs *mosott* 'washed' and *törölt* 'wiped' are both possible with the resultative PP *foltmentesre* 'lit. onto spotless' giving rise to a canonical resultative structure in Hungarian, often illustrated by the string *laposra kalapálta a vasat* 'hammered the metal flat' in the literature (see Dékány and Hegedűs 2021, Kardos and Szávó 2024, among others).

The presence of both a resultative PP and an inner aspectual particle often yields a somewhat unnatural structure, which follows if we assume that resultative PPs and particles like *meg* in (17) and *ki* in (18) create event structure in the same position, [Spec, AspP] (Kardos and Farkas 2022).

(17) ?János foltmentes-re   meg-törölt   egy   edényt.
     János spotless-SUBL PRT-wiped   a   dish.ACC
     'János wiped a dish spotlessly.'
(18) ?János lapos-ra   ki-kalapált   egy   fémlemezt.
     János flat-SUBL   PRT-hammered a   metal sheet.ACC
     'János hammered a metal sheet flat.'

Similarly to the English facts, a manner adverb and a resultative adverb may co-occur in Hungarian in the same clause, where the manner adverb must precede the resultative adverb in a structure like (19a).

(19) a. János gyors-an_{MAN} foltmentes-en_{RES} el-mosott   egy edényt.
         János quick-ly   spotless-ly   PRT-washed a   dish.ACC
         'János quickly washed a dish spotlessly.'
     b.??János foltmentes-en_{RES} gyorsan_{MAN}   el-mosott   egy edényt.
         János spotless-ly   quick-ly   PRT-washed a   dish.ACC

The restriction illustrated in (19) receives an explanation if we assume that the manner adverb adjoins to vP and the resultative adverb is merged lower within the verbal domain, similarly to what has been proposed for English. Here is another pair of sentences illustrating the same restriction:

(20) a. Sári gyors-an_{MAN}   elegáns-an_{RES}   fel-díszítette   a fát.
        Sári quick-ly   elegant-ly   PRT-decorated   the tree.ACC
        'Sári quickly decorated the tree elegantly.'
     b. ??Sári elegáns-an_{RES}   gyors-an _{MAN}   fel-díszítette   a fát.
         Sári elegant-ly   quick-ly   PRT-decorated   the tree.ACC

As pointed out by Chenchen (Julio) Song (personal communication), the hierarchical organization of manner adverbs and resultative adverbs is also reflected in the phonological characteristics of examples like (19a) and (20a): In each case, an intonational pause is necessary between the manner adverb and the resultative adverb for the strings to sound natural.

Finally, resultative adverbs may also appear in the presence of resultative PPs. Consider (21).

(21) a. Mari elegáns-an *(rövid-re)   vágta   Sára   haját. (IN-T/*FOR-T)
        Mari elegant-ly *(short-SUBL) cut   Sára   her.hair.ACC
        'Mari elegantly cut Sára's hair short.'
     b. *Mari rövid-re   elegáns-an   vágta   Sára   haját.
         Mari short-SUBL elegant-ly   cut   Sára   her.hair.ACC

What is shown above is that the resultative adverb *elegánsan* 'elegantly' must precede the resultative PP *rövidre* 'lit. onto short' and the resultative PP is obligatory in the presence of the resultative adverb, similarly to the verbal particles *be*, *fel*, *ki* and *el* in (14) and (15a).

Overall, then, Hungarian resultative adverbs seem to require the presence of an inner aspectual element, a verbal particle or a resultative PP, for their licensing. As I show in

the subsequent discussion, the structures associated with verbal particles are not necessarily accompanied by the coming about of a new result state, thereby serving as evidence for the independence of inner aspect and result states (see also Kardos and Pethő 2024 and Kardos 2024). However, once a particle verb appears with a resultative adverb in the sentence, the coming about of a result state is no longer cancelable. This can be taken as evidence for the claim that resultative adverbs can directly encode result states in addition to serving as modifiers of results in the verb phrase. Before I discuss this in more detail, in the next section, I address the distribution and interpretive effects of measure adverbs in Hungarian.

4.2. The distribution and interpretive effects of measure adverbs

In this section, I provide further support for the claim that measure adverbs form a natural class with resultative adverbs, as also argued by Jung and Choi (2023). At the same time, I propose that measure adverbs like Hungarian *részben* 'partly' and *félig* 'halfway' adjoin to inner aspectual AspP below vP. I show that these adverbial elements require a structure associated with a specific quantity, similarly to resultative adverbs, and not a result state, as proposed by Tenny (2000) and Jung and Choi (2023).

As the examples in (22) show, the presence of a result state encoded in the verbal predicate is, again, not sufficient for the licensing of measure adverbs like *részben* 'partly'. A verbal particle, ensuring a maximal-event interpretation, must appear in the predicate.

(22) a. Az ég rész-ben *(ki)-tiszt-ul-t. (IN-T/*FOR-T)
the sky part-in *(PRT)-clean-INCH-PST
'The sky partly cleared.'
b. A könyv rész-ben *(meg)-sárg-ul-t. (IN-T/*FOR-T)
the book part-in *(PRT)-yellow-INCH-PST
'The book partly became yellow.'

This restriction also characterizes verbal predicates expressing created results, as shown in (23), and a similar pattern characterizes incremental theme verbs, other than verbs expressing a created result, appearing with quantity objects like *egy sört* 'a beer' and *egy banánt* 'a banana' in (24).

(23) a. János fél-ig *(meg)-rajzolt egy autót.
János half-to *(PRT)-drew a car.ACC
'János completed half of the process of drawing a car.'
b. Juli fél-ig *(meg)-festett egy házat.
Juli half-to *(PRT)-painted a house.ACC
'Juli completed half of the process of painting a house.'
(24) a. János fél-ig *(meg)-ivott egy sört.
János half-to *(PRT)-drank a beer.ACC
'János drank half of a beer.'
b. Sára fél-ig *(meg)-evett egy banánt.
Sára half-to *(PRT)-ate a banana.ACC
'Sára ate half of a banana.'

In each example above, the absence of event-maximizing *meg* with the measure adverb *félig* 'halfway' in the sentence gives rise to an ungrammatical string. Yet another structure illustrating *félig* 'halfway' requiring a quantity structure is one without a quantity incremental theme:

(25)   a. János fél-ig   *(meg)-reggelizett/*(meg)-ebédelt.
           János half-to   *(PRT)-ate.breakfast/*(PRT)-ate.lunch
           'János completed half of the breakfast/lunch-eating process.'
       b. Kati   fél-ig   *(be)-csekkolt.
           Kati   half-to   *(PRT)-checked
           'Kati completed half of the check-in process.'

In contrast to the examples above (25) in this subsection, the verbal predicates in (25) are lacking in a theme argument and yet, in the presence of an inner aspectual verbal particle, *meg* in (25a) and *be* in (25b), the licensing of the measure adverb *félig* 'halfway' is possible. In the absence of *meg* or *be*, these examples are unnatural.

As far as the interpretive properties of structures with *félig* 'halfway' are concerned, if we assume that *félig* 'halfway' adjoins to AspP, we also predict that structures with *félig* 'halfway' are compatible with an interpretation where the eventuality of the VP has been half completed without the involvement of a new result state. This seems borne out in (26), adapted from Kardos and Pethő (2024), where the verb *takarít* 'clean' is a manner verb, in contrast to its English counterpart, which is a canonical result verb (Rappaport Hovav and Levin 2010).

(26)   a. János fél-ig   ki-takarított   egy   szobát.
           János half-to   PRT-cleaned   a   room.ACC
           'János completed half of the process of cleaning a room.'
       b. Enikő fél-ig   ki-mosott   egy   függönyt.
           Enikő half-to   PRT-washed   a   curtain.ACC
           'Enikő completed half of the process of washing a curtain.'
                                             (adapted from Kardos and Pethő 2024: (28))

For example, the sentence in (26a) does not mean that the room became half clean or that half of the room became clean, but that the activity of the verbal expression has been half finished, as also pointed out by Kardos and Pethő (*ibid.*). This reading, which also characterizes (26b), is not to be confused with the "messing-around" reading of sentences like that in (27) in English, sometimes available with preverbal measure adverbs like *half*, as discussed in Tenny (2000).

(27)   The doctor half cured the patient.

Tenny (2000: 308) argues that the sentence above has an interpretation "in which we understand that the doctor did a sloppy job of curing the patient". In this case it is not the core event (corresponding to the lower VP expressing a change of state) that the adverb modifies, but the manner of the activity named by the verb. For more on this use of English *half*, see also Bochnak (2013), who argues for verbs compatible with this reading to lexicalize an evaluative scale which *half* targets, in contrast to the quantity scale of

predicates like *half ate the apple*, where *half* can also target the scale associated with the quantity incremental theme *the apple* and not the verb.

The Hungarian facts are different. With predicates like *gyógyít* 'cure', a verbal particle is necessary with *félig* 'halfway' in the sentence and the interpretation of the sentence is such that the curing process has been half completed.

(28) Az   orvos   fél-ig   *(meg)-gyógyította   a   beteget.
      the   doctor   half-to   *(PRT)-cured   the   patient.ACC
      'The doctor completed half of the process of treating the patient.'

Crucially, the reading discussed in the context of the English example in (27) is not available in (28). The only reading that is available in (28) is, as the translation shows, that the doctor started the curing process and went halfway through this process.

To summarize, Hungarian measure adverbs like *félig* 'halfway' and *részben* 'partly', require a quantity structure, where the quantity/maximality interpretation is directly linked to verbal particles like *meg*, *ki* and *be* in the examples of this subsection. As also illustrated by examples such as those in (26), such structures are not necessarily accompanied by the coming about of a new result state. This is further addressed in the next section.

5. The encoding of result states in Hungarian

As the discussion below shows, result states can be directly encoded by verbal, prepositional and adverbial expressions in Hungarian. In (29), for instance, the verb is associated with a result root by virtue of being derived from the state-denoting adjective *szőke* 'blonde'.

(29) #Vera ki-szők-ít-ette   a   haját,
      Vera PRT-blonde-CAUS-PST the her.hair.ACC
      de   az   nem   lett   szőke.
      but   that   not   became   blonde
      '#Vera dyed her hair blonde, but it didn't turn blonde.'

The example above also shows that the cancelation of the coming about of a blonde state with respect to Vera's hair yields a semantic anomaly. This is evidence that (29) entails that Vera's hair ends up being blonde at the termination of the eventuality of the verb phrase.

In another pattern, it is the resultative PP in the sentence that is derived from a state-denoting adjective. Again, the attainment of the state expressed by the adjective is entailed, as shown by the test in (30).

(30) #Vera szőké-re   festette a   haját,
      Vera blonde-SUBL   dyed   the   her.hair.ACC
      de   az   nem   lett   szőke.
      but   that   not   became   blonde
      '#Vera dyed her hair blonde, but it didn't turn blonde.'

The pattern illustrated above also characterizes pseudo-resultatives (Levinson 2010), like those in (31).

(31) a. Anna szoros-ra/*szoros-an   fonta   a   haját.
         Anna tight-SUBL/*tight-ly   braided the   her.hair.ACC
         'Anna braided her hair tight(ly).'
      b. Józsi finom-ra/*finom-an   vágta   a   hagymát.
         Józsi fine-SUBL/*fine-ly   cut   the   onion.ACC
         'Józsi chopped the onion finely.'

The resultative adverbs *szorosan* 'tightly' and *finoman* 'finely' yield ungrammaticality with the activity predicates *fonta a haját* and *vágta a hagymát*. This is expected if we assume that resultative adverbs require the presence of an event structure-building element in the sentence associated with AspP.

This restriction is also illustrated in a third result-denoting pattern in (32), where the element directly responsible for creating a telic event structure is the verbal particle *ki* in a preverbal or postverbal position. (See also (15a).)

(32) a. János foltmentes-en   *(ki)-súrolt /súrolt   *(ki) egy kádat.
         János spotless-ly   *(PRT)-scrubbed /scrubbed *(PRT) a tub.ACC
         'János scrubbed a tub spotlessly.'
      b. János foltmentes-en   *(ki)-mosott /mosott   *(ki) egy inget.
         János spotless-ly   *(PRT)-washed /washed *(PRT) a shirt.ACC
         'János washed a shirt spotlessly.'

In the absence of the resultative adverb, the coming about of a result state is only pragmatically inferred. This is evidenced by (33). Similar examples can also be found in Kardos (2023: 267-268).

(33) a. János ki-súrolt   egy kádat,   de   az nem változott   semmit.
         János PRT-washed a   tub.ACC, but   that not changed   nothing.ACC
         'János scrubbed a tub, but it didn't change.'
      b. János ki-mosott   egy inget,   de az   nem változott   semmit.
         János PRT-washed   a   shirt.ACC, but that   not   changed   nothing.ACC
         'János washed a shirt, but it didn't change.'

In the presence of the resultative adverb, however, the attainment of a result state is not cancelable.

(34) #János foltmentes-en   ki-súrolt   egy   kádat,
        János spotless-ly   PRT-scrubbed   a   tub.ACC
        de   az   nem   változott   semmit.
        but   that not   changed   nothing.ACC
        '#János scrubbed a tub spotlessly (clean), but it didn't change.'

Crucially, this example shows that result states can also be contributed by resultative adverbial elements, contra the assumption that such elements only modify result states

(Geuder 2000). The telicity of the verbal predicate *kisúrolt egy kádat* 'scrubbed a tub' is directly linked to the verbal particle *ki*, as also discussed in Kardos (2023: 267).

6. Conclusion

In light of the data from Hungarian, it seems best to conclude that (i) result states are independent from inner aspect/telicity and (ii) there is evidence for the syntactic representation of the latter category, whereas the coming about of a result state is only a semantic/pragmatic effect. What also emerges is that when encoded outside the verbal root, result states may be contributed by elements directly responsible for creating event structure (i.e. Hungarian verbal particles and resultative PPs) and by elements that serve as modifiers of event structures (i.e. resultative adverbs).

The distinction between elements directly responsible for creating event structure and modifiers of event structure is also important in Borer's (2005, 2023) analysis of resultatives and verbal particles in English. She argues that resultatives like *flat* in *hammer the metal flat* act as modifiers of (a)telic structures, whereas verbal particles like *off* in predicates like *take off* create telic structures by virtue of being range assigners (Borer 2005: 203). Crucially, Hungarian resultatives like *laposra* 'lit. onto flat' in *laposra kalapálja a vasat* 'hammer the metal flat' and verbal particles like *meg* systematically create event structure (see also Kardos and Pethő 2024). By contrast, resultative adverbs like *foltmentesen* 'spotlessly' may only introduce result states. The distinction between event structure-building elements and modifiers is also nicely reflected in the morphology of these elements.

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Predication in disguise:
Which-constructions in Hong Kong Cantonese code-mixing speech*

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Abstract: This paper discusses an understudied, emerging type of relative constructions (RCs) in Cantonese code-mixing speech, featuring the use of the English relative pronoun *which* (*which*-RCs). They apparently constitute a relative construction that introduces an atypical, post-nominal modification of the antecedent in Cantonese. It has been characterized as an instance of lexico-syntactic transference or structural borrowing. Despite its superficial parallels with English RCs, I argue against a modification account, and put forth a predication account on such "relative constructions". I suggest instead that (i) they involve no syntactic borrowing of modification structures, and that (ii) the relative pronoun which is best regarded as a functional morpheme establishing predication relation between a null Topic and a clause. It is lexically borrowed from English to introduce non-at-issue content, on a par with appositives and parentheticals.

Keywords: relative constructions, code-switching speech, parentheticals, post-nominal modification, predication, *which*, Hong Kong Cantonese

1. Introduction

Nominal modification in (Hong Kong) Cantonese is pre-nominal in most cases (indicated by brackets).

(1) a. [liksi   (ge)] gaaufosyu
       history GE   textbook
       'History textbooks'
   b. [Ginhong ge] sailou
       healthy   GE kid
       'Heathly kids'
   c. [Ngo hou   zungji ge] syu
       I   very like   GE book
       'The books that I like'

In code-mixing speech, there appear to be some exceptional cases (Chan 1993; T. C. Leung 2001; K. W. Leung 2010), where a clause introduced by the English relative pronoun *which* modifies a preceding noun, as shown in (2) and (3). The Δ indicates the position where the head noun is interpreted in the modifying clause.

(2) Sailou faangung zau jau munzukgam [**which** keoidei fannhok jatzik
    Kid work then have satisfaction WHICH 3PL study straight
    dak-m-dou Δ].
    gain-not-able
    'The young people at work usually get a sense of satisfaction, which they don't get any at school.'

(3) Keoi zihau sau-dou dai-jat fung seon, [**which** Δ hai seonjungkaat gongsi
    3SG then receive first CL letter WHICH be credit.card company
    gei Δ lei jiu keoi waan cin].
    send come request 3SG pay.back money
    'Then s/he received the first letter, which is sent from the credit card company to request payment.'

Since the signature property of these clausal structures is the usage of *which*, I call this emerging type of relative constructions ***which*-RCs**. Earlier characterizations suggest that *which*-RCs involve a post-modifying structure (e.g., Chan 1993). K. W. Leung (2010) explicitly argues that "[t]he relative construction follows English grammar, forming a post-modifying relative clause with an English relative pronoun which pre-posed to the beginning of the clause" (p.63). It has thus been taken as an instance of *lexico-syntactic transference* (Li 1999; K. W. Leung 2010; Chan 2022). Particularly, the constructions are thought to involve both (i) lexical borrowing of the relative pronoun *which*, and (ii) syntactic borrowing of the post-modifying relative structures of English.

Such a modification account gains some support from a set of restricted cases where post-nominal modification is indeed allowed in Cantonese. It is possible when the head is an indefinite NP (Luke 1998, p.48). One may construe *which*-RCs as an extended usage of post-nominal modification.

(4) Post-nominal modification in Cantonese
    a. Ngo soeng wan go saimanzai [Δ feifei-dei ge].
       I want find CL kid chubby GE
       'I want to find a kid who is chubby'
    b. Ngo tai-gwo jat-bun syu [Δ gong ni-go mantai ge].
       I see-EXP one-CL book talk this-CL question GE
       'I have read a book which talks about this question.'

The goal of this paper is, however, to argue that *which*-RCs do not serve as a post-nominal modifier. Rather, *which*-RCs are best regarded as *clausal parentheticals*, a stand-alone clause syntactically independent of the matrix clause. The expression *which* is lexically borrowed into Cantonese and serves as a functional morpheme, introducing predication on a null topic.

To develop an understanding of *which*-RCs, I briefly trace the discussions on *which*-RCs in the literature, and then focus on the following two properties of *which*-RCs, namely, the non-restrictive meaning (section 3), and the non-integrated syntax (section 4). I sketch a clausal parenthetical analysis on *which*-RCs in section 5. Precisely, I take *which* to be a functional morpheme that introduces predication on a null topic. The predication introduced by *which*-RCs enjoys a special epistemic status (i.e., conventional implicature *à la* Potts (2005, 2007)). In section 6, I further show that *which*-RCs more similar to clausal parentheticals, rather than appositive RCs. I conclude in section 7.

2. Backgrounds

Which-RCs receive very limited attention in the literature, but examples have been noticed no later than 1990s.

(5) a. Ngo m-tungji   keoi ge jigin, [**which**   Δ does not mean   ngo   zang keoi].
        I   not-agree   3SG GE opinion WHICH   does not mean   I   hate 3SG
        'I do not agree to his opinions, which does not mean I hate him.'

(Chan (1993), p.9)

   b. Keoi   gin-dou bou dinwaa   [**which**   keoi   waa   soeng   maai Δ] wo5.
        3SG   see-ASP CL   telephone WHICH   3SG   say   want   buy   SFP
        'He has seen a telephone, which he says he wants to buy.'

(T. C. Leung 2001, p.58)

K. W. Leung (2010) is the first attempt to document *which*-RCs. He collected 20 spontaneous/naturalistic examples in a dairy kept for three months. He also ran a small judgment survey on 8 instances of *which*-RCs. The sentences are judged as 2.24/4 by 22 college students. Speaker variations, and *which*-RCs are most acceptable among college students. As he reports, the sentences may be "rated with low scores in acceptability judgment task even by participants who use this construction" (*ibid.*, p.23). This may be due to the conformity to a prescriptive norm (K. W. Leung 2010).

Recent internet searches reveal that the prevalence of *which*-RCs are underestimated. I collected more than 200 instances are collected in Nov-Dec, 2022, from the internet of different sources, including forums, social network services, blogs, interviews, etc. Most of the reported data in this paper are based on these instances, with or without slight modifications. Unacceptable cases are based on three native speakers who self-identify themselves as users of *which*-RCs.

Two basic properties are worth mentioning. First, while most cases of *which*-RCs are sentence-final, medial positions are possible for *which*-RCs, a position suggested to be unattested in K. W. Leung (2010). In (6), the *which*-RC can be inserted in the middle of the sentence.

(6) Janwai haa-ci   [**which** jatding   wui jau   haa-ci],   moujan zi   zung
      because next-time WHICH for.sure   will have   next-time   no.one   know   still
      wui-m-wui   gam gaandan.
      will-not-will   so   simple
      'Because next time – (I am) sure that there will be next time – no one knows if it will still be simple.'

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Second, the *which*-RC can be separated from its modifying heads, as shown in (7). Such kind of separation is strictly disallowed in Chinese RCs and all other modification structures.

(7) "Loeng Seoi" gaunin zoudak hou sanfu,   [**which** ngo gokdak Δ hoji
   'Leong Seoi' last.year work very exhausting WHICH I think can
   zoi   zou   houdi].
   again do   better
   'Last year it was very exhausting to work on the project "Loeng Seoi", which I think (we) could have done better.' (K. W. Leung 2010, p.74)

   In other words, the distribution of *which*-RCs is considerably flexible in code-switching speech. Anticipating a clausal parenthetical account in section 5, these properties follow straightforwardly, to which we return shortly.

3. Non-restrictive meaning

In terms of interpretation, *which*-RCs behave similarly to non-restrictive RCs rather than restrictive RCs in English in four aspects.

3.1. Proper names

Proper names can serve as the antecedent in *which*-RCs, suggesting that the clause does not further restrict the referent of the head noun. This is illustrated in (8).

(8) Ngo m-mingbak   dimgaai jaujiu coeng dou-ci   "Dinjingjyun Laijikuk"
   I   not-understand why   again sing   once.more "It's time to enjoy the show"
   which nei jiging waan-gwo Δ.
   WHICH you already play-EXP
   'I don't understand why (you) sang "It's time to enjoy the show" again, which you have already sung.'

This property patterns with non-restrictive RCs in English. Only non-restrictive RCs can take proper nouns as their heads.

(9) a. *John Smith [that grows peaches] (Baker 1996)
   b. Ronald Reagan, who began his career as a radio announcer, came to hold the nation's highest office. (Baker 1996)

3.2. Non-nominal relativization

Furthermore, *which*-RCs can be associated with non-nominals, e.g., adjectives and VPs. In (10), the gap corresponds to an adjective/predicate, whereas in (11) it corresponds to the verb phrase.

(10) Ceoifei zanhai housik, **which** sap-gaan dou mou jat-gaan Δ, fauzak
unless really delicious WHICH 10-CL DOU not.have 1-CL otherwise
douhai zoinaan.
be disaster
(Lit.) 'Unless (the dish is) really delicious (which there is none in 10 restaurants),
it would be a disaster.'

(11) Gokdak dongjat go joeng m-houtai, [**which** houdo jan dou wui Δ].
think that.day CL face not-look.good WHICH many person all will
(Lit.) '(One may) think that (s/he) doesn't look good that day, which many people
will (think so).'

Non-restrictive RCs in English allow clausal/predicate relativization.

(12) a. At least Robert is considerate, [which none of his friends seem to be Δ].

(Baker 1996)

b. John helped me move, which Mary avoided despite promising to Δ.

(p.c. Adam Woodnutt)

c. No one showed up on time, [which Alex didn't like Δ very much]. (Baker 1996)

3.3. Exhausitivity

Which-RCs also give rise to an exhaustive, hence stronger, reading, differing from a
canonical RC that restricts the NP and weakens the meaning of the sentence. Compare
the canonical RC in (13) and *which*-RC in (14). Only (14) entails that *all* the letter s/he
received are written in English. (13) does not convey this exhaustive reading.

(13) Restrictive interpretation; non-exhaustive
Keoi sau-gwo m-dou-gwo ng-fung [jung jingman se ge] seon.
3SG get-EXP no-more-than five-CL use English write GE letter
'S/he got no more than five letters that are written in English.'

(14) Non-restrictive interpretation; exhaustive
Keoi sau-gwo m-dou-gwo ng-fung seon, [**which** hai jung jingman se ge].
3SG get-EXP no-more-than five-CL letter WHICH be use English write GE
'S/he got no more than five letters, which are all written in English.'

3.4. Internal heads

Notably, "gap"-less *which*-RCs are attested (e.g., resumptive pronouns, demonstratives).
Furthermore, they may contain an internal head, a head within the RCs that is identical
or co-indexed with the external head. In (15), the clause contains a copy of the head noun.

(15) Keoi giu ngodei tai album, [**which** go album zijau sap-gei zoeng soeng].
3SG ask us look.at album WHICH CL album only ten-several CL photo
'S/he asked us to look at the album, which the album contained only several
photos.'

This is again reminiscent of a property of non-restrictive clauses in English, where they can contain CP-internal heads (Fabb 1990; Citko 2008), as in (16) and (17).

(16) a. The LAGB , which organization meets tomorrow, is based here.

    b. *The LAGB which organization meets tomorrow is based here.

(17) Oxygen and fire are related, which fact I long ago pointed out.

4.   Non-integrated syntax

We have seen that *which*-RCs exhibit parallel behaviors as English non-restrictive RCs. Now we move on to the syntactic properties of *which*-RCs. As we will see below, they have the syntax of root clauses, and show almost no formal dependencies on the host clause.

4.1. *Which* for all antecedents

First of all, the choice of relative pronoun is not grammatically constrained by the head nouns. Unlike English RCs, even the head noun refers to human beings, *which* is allowed.

(18) Keoidei jiu   ceotsin dak B/C   loeng-zou honang dai-fan   gwo keoidei
    they   need   promote only B/C two-group may   low-mark than them,
    [**which**   keoidei gamjat dou   daa].
    WHICH they   today   also   attend
    'If they want promotion (in the match), only Group B and C may have lower marks than them, but they will also attend a match today.'

Indeed, no relative pronoun other than *which* is allowed in *which*-RCs.

(19) Ngo sik   Lei-lousi   [*****who/^O^**^K^**which**   Δ   jicin   hai ngo ge mentor].
    I   know Lee-teacher WHO/WHICH   in.the.past be I   GE   mentor
    'I know Mr. Lee, who is my former mentor.'

    The use of *which* is thus insensitive to the head in the matrix clause and is free from the grammatical requirement observed in English.

4.2. Genuine "gap"-less relative structures

We have seen that *which*-RCs can be used without a gap (e.g., with internal heads). Indeed, *which*-RCs allow the head and the RC to be merely semantically associated. In these cases, *which*-RCs are genuinely "gap"-less. For example, in (20), the embedded subject *go singgwo* 'the outcome' can be construed as being semantically related to the matrix subject *heoi hok coenggo* 'go learn singing'.

(20) Heoi hok   coenggo zangkoeng zigei   coenggo ge nanglik [**which**   go
    go   learn singing improve   self   singing GE ability WHICH   CL
    singgwo zanhai hou minghin].
    outcome really very significant

(Lit.) '(I) go learn singing to improve my singing ability, which the outcome is really significant.'

More importantly, there are also cases where the host clause and the *which*-RC are merely discourse-related, as if they are two separate clauses. In (21), it is impossible to identify the head in the host clause that is modified by the *which*-RC.

(21) Keoi m-hai hou sik   cyulei ni-di si   [**which**   keoi wui gei
     3SG   not-be very know handle this-CL thing WHICH   3SG will quite
     sitdai].
     disadvantaged
     (Lit.) 'S/he doesn't handle these things well, which s/he would be quite disadvantaged.'

Such cases are not found in English RCs, nor in Cantonese RCs. *Which*-constructions have thus developed usages that are not typical of relative structures in the two languages.

4.3. Island insensitivity

Furthermore, *which*-RCs allows a gap to be associated with the head noun from within a syntactic island, suggesting that the gap and the head are not related by syntactic dependencies (e.g., movement). For example, the gap in (22) is embedded in a complex NP island, whereas the gap in (23) is embedded in an adjunct island, but neither of them gives rise to unacceptability.

(22) Complex NP islands
     Ngo tung keoi dou zungji sik laaulin [**which**   ngo jatzou zau   teng-gwo
     I   and 3SG also like eat durian WHICH I   already then hear-EXP
     [NP keoi bei ngo gang   zungji Δ ge   gongfat]].
         3SG than I   more like   GE saying
     (Lit.) 'We both like eating durians, which I already heard the saying that he like (durians) more than me.'

(23) Adjunct islands
     Sailou faangung zau jau   munzukgam [**which** [Adj janwai keoidei faanhok
     youth at.work   then have satisfaction WHICH   because they   at.school
     jatzik dak-m-dou   Δ], soji keoidei tungsoeng dou hou jau dunglik].
     long gain-not-able   so   they   usually   DOU very have motivation
     (Lit.) 'The young people at work usually get a sense of satisfaction, which because they cannot obtain (it) at school, they are usually self-motivated.'

These observations support a base generation of *which*-RCs, and the gap inside is not syntactically dependent on the host clause.

4.4. Cross-sentential association

Interestingly, K. W. Leung (2010) (p.35) reports a case of co-construction, allowing cross-sentential usage of *which*-RCs. In (24), Speaker B utters a *which*-RC after Speaker A's utterance, and the gap in the *which*-RC is associated with the clause *jung-gwo jatci* 'using it once'.

(24) a. A: Ngo teng-gwo nei jung-gwo jatci wo3.
       I hear-EXP you use-EXP once SFP
       'I heard you using (it) once...'
     b. B: [**which** is Δ mou honang ge3].
        WHICH IS not possible SFP
        '…which is impossible.'

Also, clausal intervention is tolerated. The head noun and the gap can be intervened by another full clause, as shown in (25).

(25) Keoi sik saangcoi si hou ginghei, man ngo dimgaai hang lok gam-dou
     3SG eat lettuce time very surprised ask me why will use that-much
     jau ge, [**which** keoi gokdak Δ houhousik].
     oil SFP WHICH 3SG think delicious
     'S/he was surpried when s/he ate lettuce, and asked me why I will use that much oil, which s/he thinks (it is) very delicious.'

Which-RCs are far more syntactically independent than canonical RCs.

4.5. The occurrence of SFPs

A final property concerns sentence-final particles (SFPs). Not only can *which*-RCs occur after SFPs, but more importantly, they can also contain a different SFP than the host clause. This can be illustrated with (26) and (27). *Which*-RCs should thus be regarded as independent utterances.

(26) Nei di sausai m-gongzeng wo5 [**which** nei zigei jiging singjing-zo Δ **laa1**].
     You CL skill not-clean SFP WHICH you self already admit-ASP SFP
     (Lit.) 'Your skills are not good enough. Which you also admitted already.'
(27) Keoi zanhai hou zungsi keoi ge sijip **lo1** [**which** is Δ hai ngo hou
     3SG really very treasure 3SG GE career SFP WHICH IS be I very
     jansoeng **ge2**].
     praise SFP
     (Lit.) 'S/he really treasures his/her career. Which is I really praise.'

5. Analysis

All the observations in section 3 and 4 speak against a (post-nominal) modification account (K. W. Leung 2010; Chan 1993, 2022). The *which*-RCs bear minimal relations

to their antecedents (if any). Also, the *which* does not fully function as a relative pronoun as it does in English. The desiderata are two-fold: we need an analysis that capture both the non-restrictive meaning and the non-integrated syntax.[1] I propose that *which*-RCs are indeed *clausal parentheticals*.[2] In particular, I suggest that *which* in *which*-RCs is lexically borrowed from English, but it is semantically bleached, and is used as a functional morpheme that introduce predication. To illustrate this idea, consider (28), repeated from (5b).

(28) Keoi gin-dou bou dinwaa [which   keoi waa soeng mai]   wo5.
3SG   see-ASP CL telephone WHICH 3SG say   want   buy   SFP
'He has seen a telephone which he says he wants to buy.'

I suggest that (28) involves a predication structure as in (29b), rather than a modification structure as in (29a). The *which*-RC represents a separate clause and is not syntactically integrated into the preceding clause. In (29b), *which* can be regarded as (i) a topic head or (ii) a relator (den Dikken 2006). Since Cantonese allows null topics, the topic can be realized as a *pro*. The "gap" (if any) can be another *pro* that is co-indexed with the topic or derived via Argument Ellipsis.

(29) a. ✗ Modification:
He has seen [NP a telephone [CP OP$_i$ **which** he says he want Δ_i]].
b. ✓ Predication:
He has seen a telephone$_i$ [TopP *pro*$_i$ [**which** [he says he want ø$_i$]].

This suggestion finds support from the **clausal size** of *which*-RCs. Given the root clause syntax of *which*-RCs and the peripheral status of *which*, we expect that they can accommodate CP-level elements, such as Focus projection. This is indeed the case, as shown in (30). The which-RC can contain a Focus construction involving *lin* 'even'.

(30) Haa-jat-bou zauhai maai daancong, [TopP *pro*$_i$ [**which** [FocusP lin   daancong
Next.step be   buy   jumping.bed   WHICH   even jumping.bed
dou jau   review]]].
also have   review
(Lit.) 'The next step is to buy jumping bed, which even jumping bed has reviews.'

Additionally, speaker-oriented adverbs, presumably heading the EvalP in the CP periphery, can appear within *which*-RCs as well.

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[1] It should be noted that *which*-RCs involve borrowing of a particular lexical item, rather than a whole paradigm of relative pronouns in English (see also section 4.1.). There are indeed some variants in *which*-RCs, e.g., *in which*, *which is*. But all of them contain *which*, and appear to be lexicalized as one item, and there is no variant involving other prepositions or plural agreement such as **by which*, **which are* (see also Lee 2024 for examples).

[2] See section 6 for reasons not to treat them as conjoined clauses (T. C. Leung 2001) or appositive RCs (Schlenker 2023).

(31) Di namjan ciudaai   dungzok fing   sau, [TopP *pro*i [**which** [EvalP houzoi
     CL.PL man   great.extent motion   wave hand   WHICH   luckily
     keoidei mou   lo-zyu   penlight]]].
     they   not.have holding   penlight
     (Lit.) 'The men are waving their hands at full, which luckily they are not holding
     any penlight.'

It should be remarked that the Topic-head-initial utterance might seem implausible, but it is indeed attested in some languages. One example comes from Particle Stranding Ellipsis in Japanese (Sato 2012; Sato and Maeda 2019). In (32b), the topic followed by the topic marker *wa* is allowed to be elided, and *wa* appears sentence-initially. While further comparison is in need to determine the precise nature of *which* and *wa*, at least on the surface, both *wa* in Japanese and *which* in Cantonese are similar as they must (i) be sentence-initial, (ii) be in root clause, and (iii) occur only once.

(32) a. A: John-wa   kyoo   nani-o   siteiru-no?
            John-TOP today what-ACC doing-Q
            'What is John doing today?'
     b. B: ø-**wa**, Mary-ni d aigaku-de   atteiru-ne.
            TOP Mary-DAT university-LOC meeting-TAG
            'Intended: (John) is meeting Mary at a university.'

There are, admitted, a few loose ends in this analysis. First, the native topic marker *ne* in Cantonese does not serve this purpose. Second, the null topic in *which*-RCs can never be recovered/overt, unlike the Japanese case. Third, T. C. Leung (2001) indeed hints at a possibility to take *which* to be a coordinator. He suggests that the closest translation of *which* is *ji* 'and'. (33) below is truth-conditionally the same as (28).

(33) Keoi gin-dou bou dinwaa [**ji**   keoi waa soeng mai] wo5.
     3SG   see-ASP CL   telephone and 3SG   say want   buy SFP
     'He has seen a telephone and he says he wants to buy.'

In the next section, I specifically address this possibility, and argues that *which* differs from *ji* 'and' in that the former expresses *non-at-issue* content. I further speculate that the other restrictions are linked to the epistemic status of the predication introduced by *which*.

6. Epistemic status

I argue that the role of *which* is to introduce semantic content best characterized as conventional implicatures (Potts 2005, 2007). This function is also noted in Chan (2022): *which*-RCs "[introduce] a personal assessment on a situation or entity expressed in the first/matrix clause" (p.7). The content so introduced displays the following three properties: (i) not-at-issue, (ii) scope-less properties, and (iii) the triviality condition.

6.1. Not-at-issue content

The proposition introduced in a *which*-RC is non-at-issue in discourse, as it exhibits non-deniability. Only the proposition in the host clause can be felicitously negated. (34) introduce two propositions, one in the matrix clause, and the other in the *which*-RC.

(34) A: Cyun-coeng   dak jat-zoeng toi   hai ji-jan-toi,   [**which**   keoidei
        whole-venue only one-CL   table be   two-person-table WHICH   they
        zung sik-gan zyucoi].
        still   eating   main.course
    (Lit.) A: 'There is only one table for two people in the venue, which they are still having the main course.'

Importantly, only the former can be denied in an immediately following continuation of the discourse.

(35) (Im)possible continuations
    a. #B: M-hai aa3. Keoidei sik-gan timban. (Denying the proposition in *which-RC*)
        not-be SFP   they   eat-ASP dessert
        'No, they are having deserts.'
    b. B: M-hai aa3. Go-dou jau   leong-zeong toi. (Denying the matrix proposition)
        not-be SFP   there   have two-CL   table
        'No, there are two such tables.'

6.2. Scope-less properties

When embedded under intensional contexts with an epistemic agent, the propositions introduced by *which*-RCs are still oriented to the speaker, but not the matrix subject. This can be shown in (36). (36) involves attitude reports of the matrix subject *Aaming*. Within the intensional context, a *which*-RC introduces a proposition that contradicts the attitude report, i.e., Aaming's worry would not be reasonable if he is committed to the proposition in the *which*-RC. However, (36) turns out to be felicitous. It still indicates that the speaker thinks that Peter won't be elected as chairperson. The *which*-RC is interpreted beyond the scope of *daamsam* 'worry'. In other words, the proposition introduced by *which* takes widest scope even when embedded under intensional contexts.

(36) Aaming   daamsam jyugwo Peter zou-zo wuizoeng, [**which**   keoi m-wui
     Aaming   worry   if   Peter be-ASP   president WHICH 3SG   not-will
     syun-dou], wui   ling   go zouzik   mou-saai zicize.
     elect-able will   make CL group   lose-all   supporter
     'Aaming worries that if Peter is elected president, which he will not be elected, will make the group lose all its supporters.'

Regarding this scope-less property, *which*-RCs also find a subtle difference with *ji* 'and' conjunction when embedded in *counterfactuals*. (37) below is modelled after Schlenker (2021). It involves a counterfactual event in the speaker's future. However,

only *ji* 'and' but not *which* can be used to introduce the proposition 'he then called the Boss'. This contrast can be attributed to the fact that *which* involves matrix scope, and fails to be interpreted under the counterfactual contexts. It is thus different from the clausal conjunction introduced by *ji* 'and'.

(37) [Context: someone made a big mistake at the department.]
Jyugwo ngo tengjat daa-zo bei Aatau, [#**which**/ ^{OK}**ji** keoi ganzyu
If I tomorrow call-ASP to Head WHICH and he then
daa-zo bei Loubaan], gamzau daaiginsi.
call-ASP to Boss then in.trouble.
(Lit.) 'If I called the Head tomorrow, #which/ ^{OK}and he then called the Boss, then (we are) in trouble.'

The embeddability is reminiscent of the contrast between clausal parentheticals and appositive RCs in English (cf. Schlenker 2021, 2023).

6.3. The triviality condition

Last but not least, *which*-RCs obey a triviality condition, which allows us to differentiate the propositional content introduced by *which* from presupposition. Note that presupposition allows the presupposition to be trivially true, as shown in (38). Although the presupposition is trivially true in (38) (as it is already part of the knowledge of the speaker), it is still felicitous.

(38) *[Context: The speaker said that Mr. Wong is a linguist.]*
Ji tunghok dou **zidou** Wong Lousi hai jat-go jyujinhokze.
and student all know Mr. Wong be one-CL linguist
'And all students know that Mr. Wong is a linguist.'

However, when the proposition introduced by *which*-RCs is trivially true in (39), it results in infelicity or give a sense of redundancy.

(39) *[Context: The speaker said that Mr. Wong is a linguist.]*
#Dong geize fongman Wong Lousi, [**which** hai jat-go jyujinhokge],
when reporter interview Mr. Wong WHICH be one-CL linguist
geize ge taaidou hou jausin.
reporter GE attitude very friendly
(Lit.) 'When the reporter interviewed Mr. Wong, which is a linguist, the attitude of the reporter is pretty friendly.'

Although more need to be said on the difference of the epistemic status between preposition and the propositional content in *which*-RCs, the above at least make clear that the two should not be conflated.

7. Concluding remarks

In this paper, I report empirical properties of *which*-RCs in code-switching speeches in Hong Kong Cantonese. I have discussed their non-restrictive meaning, and non-integrated syntax. I then argued for a clausal parenthetical analysis on *which*-RCs. I suggest that they are standalone clauses, and they do not involve modification, but rather predication. As such, *which* is lexically borrowed as an overt functional head, introducing not-at-issue content.

There are two relevant implications. First, there is no evidence of syntactic borrowing in Hong Kong Cantonese code-switching speech, at least not from *which*-constructions. The relative pronoun *which* is lexically borrowed, with considerable degree of semantic bleaching or grammaticalization, and serves as a functional morpheme that introduces predication (*pace* K. W. Leung 2010; Chan 2022). Second, neither English-style relative structures nor post-modification gets into Cantonese grammar. It does not defy the Matrix Language Frame Model (Myers-Scotton (1993, 2002)), contra Chan (2022).

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Comparative syntax of genitive subjects in Standard Japanese and Hichiku Japanese*

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Abstract: In Standard Japanese (SJ), the nominative case marking on subjects can be replaced by the genitive case marking when the clauses are embedded under nominals. Genitive subjects are also found in Hichiku Japanese (HJ) but they are allowed even in the matrix context. It is argued that in both SJ and HJ, genitive subjects undergo A-movement to structural positions higher than *v*P rather than staying within *v*P, but that their moved positions differ between SJ and HJ.

Keywords: genitive subject, *ga-no* conversion, adnominal clause, edge features, Japanese

1. Introduction

In Standard Japanese (SJ), the nominative case *ga* on subjects can be replaced by the genitive case *no* when they appear in adnominal clauses, which include relative and noun-complement clauses (Harada 1971). This phenomenon, known as *ga-no* conversion, has been discussed extensively in the literature on Japanese (Miyagawa 1993; Watanabe 1996; Hiraiwa 2001, 2005, among others). Genitive subjects are also found in Hichiku Japanese (HJ)—a dialect of Japanese spoken in northern Kyushu (Kato 2007).[1]

(1) a.   ame-{ga/no}   hut-ta   hi   (√SJ, √HJ)
          rain-{NOM/GEN}   fall-PST   day
          'the day when it rained'
     b.   Ame-no   hut-ta.   (*SJ, √HJ)
          rain-GEN   fall-PST
          'It rained.'

Notably, *ga-no* conversion is restricted to adnominal clauses in SJ, but this restriction does not hold in HJ. Thus, the acceptability of (1b), where the genitive subject appears in the matrix clause, differs between SJ and HJ.

[1] "Hichiku Japanese" is the cover term for the dialects spoken in the regions of Hizen (Saga and Nagasaki Prefectures), Higo (Kumamoto Prefecture), and Chikuzen and Chikugo (Fukuoka Prefecture) (Kamimura 1983).

One perennial issue surrounding *ga-no* conversion in Japanese is where genitive subjects are located in clause structure. The recent prominent view is that in both SJ and HJ, genitive subjects remain in *v*P, where they are base-generated (Watanabe 1996, Hiraiwa 2001, 2005, Ochi 2009, Miyagawa 2011 for SJ; Kato 2007, Nishioka 2018, Ochi and Saruwatari 2018 for HJ[2]). On the contrary, we argue that in both SJ and HJ, the genitive subjects are raised to higher structural positions than *v*P rather than staying within *v*P, but that their moved positions differ between SJ and HJ.

We argue that the genitive subject moves to Spec,CP from Spec,*v*P in SJ, while the genitive subject in HJ moves to AspP, which lies between TP and *v*P.

(2) a. $[_{DP} [_{CP} [_{TP}$ SUBJ-NOM $[_{AspP} [_{vP}$ ~~SUBJ-NOM~~ V-*v*] Asp] **T**] C] D]   (SJ, HJ)
    b. $[_{DP} [_{CP}$ SUBJ-GEN $[_{TP} [_{AspP} [_{vP}$ ~~SUBJ-GEN~~ V-*v*] Asp] T] C] **D**]   (SJ)
    c. $[_{CP} [_{TP} [_{AspP}$ SUBJ-GEN $[_{vP}$ ~~SUBJ-GEN~~ V-*v*] **Asp**] T] C]   (HJ)

We claim that in both SJ and HJ, nominative subjects are moved into Spec,TP, while the EPP and Case features assigned to CP are inherited by T. On the other hand, it is argued that genitive subjects in SJ are licensed by the Case feature of D after they are attracted to Spec,CP which bears an EPP feature, while genitive subjects in HJ move to Spec,AspP since EPP and Case features in C are inherited by Asp. We will provide new empirical evidence for our claims.

The discussion in the present paper proceeds as follows. Section 2 takes a look at some *v*P-in-situ analyses of genitive subjects in SJ and HJ. Section 3 argues that genitive subjects are displaced from *v*P and raised to different syntactic positions between SJ and HJ, contrary to the standard hypothesis that the genitive subjects in SJ and HJ stay within *v*P. Section 4 shows that the Case-licensing process for genitive subjects varies between SJ and HJ, with D serving as the licenser in SJ and Asp in HJ. Section 5 is a conclusion.

2.   Some previous analyses

In this section, we will look at some previous analyses of the locus for genitive subjects in SJ and HJ. In the literature, it is widely assumed that genitive subjects remain within *v*P in both SJ and HJ, as illustrated in (3).

(3) a. $[_{TP} [_{vP}$ SUBJ-GEN   V-*v*] T] … D   (SJ)
    b. $[_{TP} [_{vP}$ SUBJ-GEN   V-*v*] T] C]   (HJ)

For SJ, Watanabe (1996), Hiraiwa (2001, 2005), Ochi (2009), and Miyagawa (2011) claim that genitive subjects reside in Spec,*v*P. For HJ, Kato (2007), Nishioka (2018), and Ochi and Saruwatari (2018) claim that genitive subjects remain in *v*P.

Miyagawa (2011) argues that the genitive subject in SJ appears in the low position because of the clause size of the genitive subject position, and is Case-licensed by D due to the absence of the CP projection, which constitutes a phase. (Note that Miyagawa sustains the D-licensing analysis, although two different views are available in the literature as to whether the licenser of genitive Case in SJ is D or C. We will turn to this issue in section 4.) Miyagawa provides three main reasons for sustaining the smaller clause size analysis for the genitive-subject construction: (i) pronominal coreference, (ii)

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[2] For different views, see e.g. Saito (2004) for SJ and Moriyama et al. (2022) for HJ.

incompatibility with speech-act, evaluative and evidential adverbs, and (iii) the absence of a complementizer.

Nevertheless, the example in (4) suggests that the CP projection is present in the genitive-subject construction.

(4) [(tabun) John-no   ka-u   (de aroo)] ano   hon
       probably John-GEN buy-PRS COP will   that   book
      'that book, which John would probably buy'

Example (4) represents a case of non-restrictive relative clause (cf. Kuno 1973). In (4), a modal *de aroo* 'will' appears to the right of the tense, and a modal adverb, which is placed above TP, occurs in the relative clause. Crucially, the genitive subject is still allowed in the clause. The acceptability of (4) shows that a CP projection (to be positioned higher than TP whose head is filled by the tense) is available in the genitive-subject construction, which in turn suggests that the genitive subject is licensed in SJ even if its clause includes a CP-projection.

Kato (2007) claims that in the Kumamoto dialect of HJ, genitive subjects stay in Spec,vP, on the basis of the observation that the genitive subjects can occur in OSV order, but not in SOV order, as shown by the contrast shown in (5).

(5) a.   Mary-ga/*no   John-ba   home-ta   bai.
          Mary-NOM/GEN John-ACC   praise-PST PRT
          'Mary praised John.'   (HJ: Kumamoto dialect)
     b.   John-ba   Mary-ga/no   home-ta   bai.
          John-ACC   Mary-NOM/GEN praise-PST PRT
          'Mary praised John.'   (HJ: Kumamoto dialect)

Kato (2007) attributes the word order restriction on genitive subjects to their inability to participate in checking the EPP feature of T. To be concrete, the nominative subject is possible in (5a), because the EPP feature can be checked via its raising to Spec,TP. In contrast, the genitive subject cannot occur in the SOV order because it is not raised to Spec,TP. In this case, the EPP requirement must be satisfied via scrambling the object to Spec,TP. For Kato (2007), scrambling can be motivated by the EPP feature (Miyagawa 2001). Then the expected OSV order is obtained for the genitive-subject construction. The nominative subject remains in Spec,vP if the object is scrambled to Spec,TP, and hence, OSV word order is possible in the nominative-subject construction.[3]

Note, however, that speaker variation is found in the acceptability judgments of examples like (5). Yoshimura (2007) accepts (6a) for the Kumamoto Yatsushiro dialect of HJ, and Maeda and Maki (2021) accept (6b) for the Nagasaki dialect of HJ.

(6) a.   Taro-no   uso-ba   tuk-asi-ta.
          Taro-GEN   lie-ACC   tell-HON-PST
          'Taro told a lie.'   (HJ: Kumamoto Yatsushiro dialect)

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[3] Although the details of the analysis vary among researchers, some studies assume that genitive subjects remain in a vP-internal position, following Kato (2007) (Nishioka 2018, Ochi and Saruwatari 2018).

  b. Kinoo Masasi-no baiorin-ba hiki-yot-ta.
    yesterday Masasi-GEN violin-ACC play-ASP-PST
    'Masashi was playing the violin yesterday.'   (HJ: Nagasaki dialect)
  c. *Yoka tubo-ba Taro-no wat-te   simoo-ta.
     good vase-ACC Taro-GEN break-GER accidentally.do-PST
    'Taro accidentally broke a good vase.'   (HJ: Fukuoka Hakata dialect)

Furthermore, Sakai (2022) reports that her informant born in the Fukuoka-Hakata region does not accept the genitive subject in transitive predicate sentences with the OSV order, as in (6c). A small-scale survey of the Nagasaki and Fukuoka dialects conducted by Moriyama et al. (2022) shows that Nagasaki dialect speakers tend to accept genitive subjects more readily than Fukuoka dialect speakers.[4]

   The discrepancy in judgments noted above suggests that explaining the structural position of the genitive subject in HJ based solely on word order restrictions may not be adequate for assessing the position of genitive subjects. Given this fact, it would be desirable to determine the structural position of the genitive subject by the heuristics which do not rely on word order. In the next section, the structural position of the genitive subject is assessed based on several diagnostics.

3. Structural positions of genitive subjects

In this section, we provide three diagnostics to assess the structural positions of genitive subjects in SJ and HJ. Before going into this discussion, let us remark on the clausal architecture and how nominative and genitive subjects are licensed.

   For the clause structure, we assume that it includes AspP between vP and NegP/TP, as illustrated in (7).

  (7) [CP [TP [NegP [AspP [vP   V-v] Asp] Neg] T] C]

The presence of AspP is confirmed by way of the aspectual markers *te/de ir* and *yor*, which follow the verb but precede the negative and tense markers.
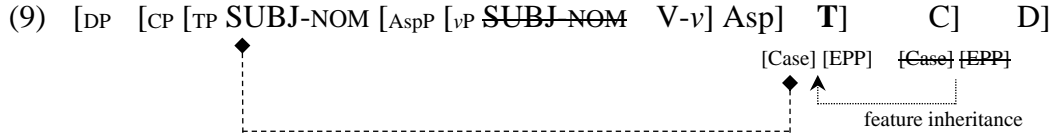
  (8) a. John-wa hon-o   yon-**de i**-nakat-ta ne. (SJ)
     John-TOP book-ACC read-GER ASP-NEG-PST PRT
     'John wasn't reading a book.'
    b. John-wa hon-ba yomi-**yor**-anyat-ta ne.   (HJ)
     John-TOP book-ACC read-ASP-NEG-PST PRT
     'John wasn't reading a book.'

This word order suggests that *te/de ir* and *yor* occupy the head of a projection located between vP and NegP/TP.

   We suggest that subjects occupy distinct syntactic positions due to the difference in the locus and composition of edge features. Nominative subjects move into the canonical

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[4] The survey results also indicate that among younger generations of Fukuoka dialect speakers, there is a cline for the acceptability of genitive subjects, which increases in the order of unaccusative verbs > unergative verbs > transitive verbs.

position of Spec,TP in both SJ and HJ, as a result of the EPP and Case features in CP being inherited by T.
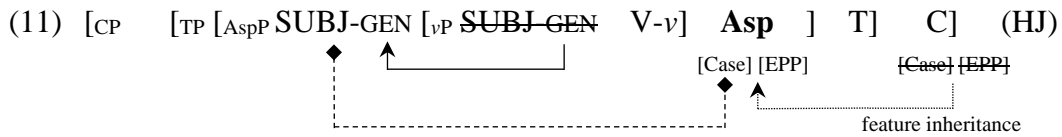
(9) [DP [CP [TP SUBJ-NOM [AspP [*v*P ~~SUBJ-NOM~~ V-*v*] Asp] **T**]   C]   D]

[Case] [EPP]   ~~[Case] [EPP]~~
feature inheritance

The nominative subject is Case-licensed by T under Agree, so that it bears nominative case. The genitive subject moves to Spec,CP from Spec,*v*P in SJ, and to a projection lying between TP and *v*P in HJ. We argue that genitive subjects move out of *v*P in SJ and HJ, contrary to the standard hypothesis that in both SJ and HJ, genitive subjects reside in *v*P, where their predicate relation to the verbal head is determined.

CP is projected in the genitive-subject construction. As we will see from the discussions that follow, D is the Case-licenser of genitive subjects in SJ. Thus, the genitive subjects must be moved to the edge of CP phase for its Case licensing. We suggest that C is assigned an EPP feature to attract the genitive subject, but not a Case-feature, and that the genitive subject is licensed by the Case feature of D after it is attracted to Spec,CP. Accordingly, the occurrence of *no*-marked subjects is restricted to adnominal clauses in SJ.

(10) [DP [CP SUBJ-GEN [TP [AspP [*v*P ~~SUBJ-GEN~~ V-*v*] Asp] T]   C]   **D**]   (SJ)

[EPP]   [Case]
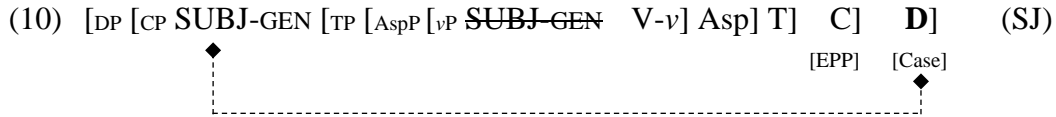
By contrast, genitive subjects in HJ can occur in matrix clauses, where no DP is projected above CP. Note that *ga* was a nominal marker at the earlier stages of Japanese but has developed into a verbal Case marker to license a nominative subject in the matrix clause in Modern Japanese (Frellesvig 2010). Apparently, a similar process has taken place on *no* in HJ. If so, it is reasonable to postulate that in HJ, *no* can be used as a verbal marker to Case-license a matrix subject. In light of this consideration, we suggest that in HJ, C is assigned both EPP and Case features but they are inherited by Asp rather than T; consequently, the genitive subject moves to Spec,AspP.

(11) [CP   [TP [AspP SUBJ-GEN [*v*P ~~SUBJ-GEN~~ V-*v*] **Asp**] T]   C]   (HJ)

[Case] [EPP]   ~~[Case] [EPP]~~
feature inheritance

In the proposed analysis, the genitive *no* is assigned to the subject in HJ when its Case feature is valued by Asp. In this respect, it is plausible to view that in HJ, the case marker *no* is utilized to indicate that the subject appears in Spec,Asp, a structural position distinct from Spec,TP filled by the *ga*-marked subject.[5]

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[5] Under this analysis, since the *no*-marked subject is licensed by the Case feature assigned to C in a way similar to the *ga*-marked subject, it might not be unreasonable to see that *no* is a disguised nominative case marker.

In the subsequent sections, we show that genitive subjects are subject to A-movement out of *v*P by presenting novel data pertaining to the *koto*-cleft construction with *v*P-focus, indeterminate pronoun binding within AspP, and indeterminate pronoun binding in a semi-modal construction.

3.1. The *koto*-cleft construction with *v*P-focus

One piece of new empirical evidence that subjects occupy distinct positions depending on their case marking in SJ and HJ comes from the pseudo-cleft construction with *v*P focus, in which both the presuppositional and focus components are introduced by the nominalizer *koto* 'thing', as exemplified in (12).

(12) John-{ga/no}   si-ta   koto-wa   [*v*P hasir-u] koto-da^{SJ}/bai^{HJ}.
     John-{NOM/GEN}   do-PST thing-TOP   run-INF   thing-COP/PRT
     'What John did is run.'

The pseudo-cleft sentence in (12) involves *v*P focusing. This fact can be confirmed by embedding various constituents.
    In the first place, the past tense marker *ta*, which is generally assumed to fill the tense head, cannot be embedded in the focus position, as in (13).

(13) *John-{ga/no}   si-ta   koto-wa   [*v*P hasit-**ta**] koto-da^{SJ}/bai^{HJ}.
      John-{NOM/GEN}   do-PST thing-TOP   run-PST   thing-COP/PRT
     'What John did is run.'

This fact illustrates that the verb *hasir-u* 'run' in the focus position of (12) appears in the bare form, i.e. the tense morpheme occurring in *hasir-u* lacks a tense feature.
    In the pseudo-cleft construction with *v*P-focusing, a temporal adverb like *kinoo* 'yesterday' can occur in the presuppositional clause but not in the focus component, as illustrated in (14).

(14) a. **Kinoo** John-{ga/no}   si-ta   koto-wa   [*v*P hasir-u]
        yesterday John-{NOM/GEN}   do-PST thing-TOP   run-INF
        koto-da^{SJ}/bai^{HJ}.
        thing-COP/PRT
        'What John did yesterday is run.'
     b. *John-{ga/no}   si-ta   koto-wa   [*v*P **kinoo**   hasir-u]
         John-{NOM/GEN}   do-PST thing-TOP   yesterday run-INF
        koto-da^{SJ}/bai^{HJ}.
        thing-COP/PRT
        'What John did is run yesterday.'

The temporal adverb *kinoo* is adjoined to TP. This assumption is plausible since *kinoo* can occur when the verb is in the past tense, i.e. T is finite and bears a past tense feature.

(15) Kinoo   John-ga   *ku-ru/$^{\surd}$ki-ta.
     yesterday John-NOM   come-PRS/come-PST
     'John comes yesterday. /John came yesterday.'

The verb appearing in the focus component in (12) is a bare verb which lacks a tense feature. The impossibility of embedding the temporal adverb *kinoo* in (14b) follows given that the focus component consists of *v*P.

Negative markers are not allowed to occur in the focus component, whereas they are permitted in the presuppositional clause, as in (16).

(16) a. John-{ga/no}   si-**nakat**-ta^SJ/se-**nyat**-ta^HJ koto-wa [*v*P hasir-u]
          John-{NOM/GEN}   do-NEG-PST   thing-TOP   run-INF
          koto-da^SJ/bai^HJ.
          thing-COP/PRT
          'What John didn't is run.'
      b. *John-{ga/no}   si-ta koto-wa   [*v*P hasira-**nai**^SJ/hasira-**n**^HJ]
           John-{NOM/GEN} do-PST thing-TOP   run-NEG
          koto-da^SJ/bai^HJ.
          thing-COP/PRT
          'What John did is not run.'

This restriction can be attributed to the structural position of NegP. NegP is projected above *v*P. Thus, the example in (16b), where the negative marker appears in the focus position, is not acceptable.

Furthermore, aspectual markers such as *te i* and *-yor* exhibit a distribution similar to tense and negative markers, as shown in (17).

(17) a. John-{ga/no}   si-**te**   **i**-ta^SJ/**yot**-ta^HJ   koto-wa [*v*P hasir-u]
          John-{NOM/GEN}   do-GER   ASP-PST/ASP-PST   thing-TOP   run-INF
          koto-da^SJ/bai^HJ.
          thing-COP/PRT
          'What John was doing is run.'
      b. *John-{ga/no}   si-ta koto-wa [*v*P   hasit-**te i-ru**^SJ/hasir-**iyor**-u^HJ]
           John-{NOM/GEN} do-PST thing-TOP   run-GER ASP-INF/run-ASP-INF
          koto-da^SJ/bai^HJ.
          thing-COP/PRT
          lit. 'What John did is being running.'

These aspectual markers are restricted to the presuppositional clause, as they occupy the head of AspP, which is projected between *v*P and (finite) TP.[6] This view is corroborated by the aspectual adverb *moo* 'already' since the adverb shows the same distribution as the aspectual markers in the pseudo-cleft construction.

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[6] The aspectual construction in HJ has a mono-clausal structure, where *yor(u)* directly attaches to the verb morphologically. The corresponding aspectual construction in SJ is bi-clausal. The morpheme *-te* in SJ indicates that the aspectual verb *i(ru)* embeds an infinitival (or gerundive) clause, but the generalization that Asp intervenes between *v*P and finite TP still holds.

(18) a.   John-{ga/no}   **moo**   si-ta   koto-wa   [$_{vP}$ hasir-u]
          John-{NOM/GEN}   already   do-PST   thing-TOP   run-INF
          koto-da^{SJ}/bai^{HJ}.
          thing-COP/PRT
          'What John already did is run.'

      b.   *John-{ga/no}   si-ta   koto-wa [$_{vP}$ **moo**   hasir-u]
          John-{NOM/GEN} do-PST thing-TOP   already   run-INF
          koto-da^{SJ}/bai^{HJ}.
          thing-COP/PRT
          lit. 'What John did is run already.'

The examples in (18) suggest that *moo* appears in AspP, whose head is filled by the aspectual markers in (17).

In contrast, agent-oriented adverbs are allowed in the focus component, as well as in the presupposition clause, as shown in (19).

(19) a.   John-{ga/no}   si-ta   koto-wa   [$_{vP}$ **iyaiya**   hasir-u]
          John-{NOM/GEN}   do-PST   thing-TOP   reluctantly run-INF
          koto-da^{SJ}/bai^{HJ}.
          thing-COP/PRT
          'What John did is run reluctantly.'

      b.   John-{ga/no}   **iyaiya**   si-ta   koto-wa   [$_{vP}$ hasir-u]
          John-{NOM/GEN}reluctantly   do-PST   thing-TOP   run-INF
          koto-da^{SJ}/bai^{HJ}.
          thing-COP/PRT
          'What John did reluctantly is run.'

(19a) suggests that the agent-oriented adverb *iyaiya* 'reluctantly' is adjoined to *v*P and hence is permitted to appear in the focus position. When the adverb is adjoined to *v*P, two layers of *v*P are created: [$_{vP}$ *iyaiya* [$_{vP}$]]. Thus, the adverb *iyaiya* appears in the presupposition clause when the lower layer of *v*P, which does not contain the adverb, is placed in the focus component. When the upper layer of vP is placed in the focus position, *iyaiya* appears in the focus component.

With this much in mind, let us consider whether nominative and genitive subjects can appear in the focus component. As (20) shows, neither nominative nor genitive subjects can occur in the focus component although they can occur in the presuppositional component.

(20) a.   **John-{ga/no}**   moo   si-ta   koto-wa   [$_{vP}$ hasir-u]
          John-{NOM/GEN}   already do-PST   thing-TOP   run-INF
          koto-da ^{SJ}/bai^{HJ}.
          thing-COP/PRT
          'What John did already is run.'

      b.   *Moo   si-ta   koto-wa   [$_{vP}$ **John-{ga/no}**   hasir-u]
          already do-PST   thing-TOP   John-{NOM/GEN}run-INF
          koto-da ^{SJ}/bai^{HJ}.
          thing-COP/PRT
          lit. 'What did already is John run.'

The unacceptability of the genitive and nominative subjects in HJ in (20b), which contrasts with the acceptability of (20a), suggests that both nominative and genitive subjects are not allowed to remain in *v*P, where they are base-generated.

Obviously, the *v*P-in-situ hypothesis, which posits that genitive subjects appear in *v*P, falls short of accounting for the facts of genitive as well as nominative subjects, discussed in this section. In SJ and HJ, genitive and nominative subjects display the same behavior in the pseudo-cleft construction with *v*P-focusing, in that they are not allowed in the focus component. The fact suggests that in both HJ and SJ, subjects are extracted from *v*P, regardless of whether they are marked with nominative case or genitive case.

3.2. Indeterminate pronoun binding within AspP

Even though genitive and nominative subjects undergo A-movement out of *v*P in both HJ and SJ, the syntactic positions to which genitive subjects are moved differ between HJ and SJ. Crucial evidence in support of this claim comes from data pertaining to indeterminate pronoun binding within AspP.

To make this point, observe first that indeterminate pronouns such as *nani* 'what' and *dare* 'who' can take on a variety of interpretations—interrogative, free choice, existential, and negative polarity—depending on the particle that is associated with them (Kuroda 1965; Kishimoto 2001; Hiraiwa 2005; Shimoyama 2006).

(21)	a.	John-wa	nani-o	tabe-ta	**no**?	(interrogative)
		John-TOP	what-ACC	eat-PST	Q	
		'What did John eat?'				
	b.	John-wa	dare-**demo**	home-ru.		(free choice)
		John-TOP	who-PRT	praise-PRS		
		'John praises anyone.'				
	c.	Dare-**ka**	ki-ta.			(existential)
		who-PRT	come-PST			
		'Someone came.'				
	d.	Dare-**mo**	ko-nakat-ta.			(NPI)
		who-PRT	come-NEG-PST			
		'Nobody came.'				

When bound by the adverbial particle *mo* 'also', as in (21d), indeterminate pronouns typically behave as negative polarity items (NPIs). Thus, (22), where *dare-mo* appears in an affirmative sentence, is ungrammatical.

(22)	*Dare-**mo**	ki-ta.
	who-PRT	come-PST
	'Anybody came.'	

The adverbial particle *mo* is not required to occur contiguous with indeterminate pronouns, as shown in (23a), where the particle follows the verb stem *tabe* 'eat' rather than the indeterminate pronoun *nani* 'what'.

(23) a. John-wa   nani-o   tabe-**mo**-si-nakat-ta.   (SJ)
          John-TOP   what-ACC   eat-PRT-do-NEG-PST
          'John didn't eat anything.'
      b. *Dare-ga   sore-o   tabe-**mo**-si-nakat-ta.   (SJ)
          who-NOM   that-ACC   eat-PRT-do-NEG-PST
          'No one ate that.'

(23a) is grammatical because the indeterminate pronoun in object position is licensed under the scope of *mo*. In (23b), in contrast, the indeterminate pronoun *dare* 'who' in the subject position cannot be licensed, indicating that it lies outside the scope of *mo*. Kishimoto (2001) argues that the particle *mo*, which attaches to the verb, is adjoined to *v*P and takes *v*P as its scope. In the light of the subject-object asymmetry observed for indeterminate pronoun binding, Kishimoto (2001) claims that nominative subjects in Japanese undergo A-movement to Spec,TP by virtue of the EPP feature on T, i.e. they cannot remain within *v*P.

Turning to HJ, the same subject-object asymmetry in indeterminate pronoun binding is observed for accusative objects and nominative subjects, as shown in (24a,b).

(24) a. John-wa   nan-ba   tabe-**mo**-se-nyat-ta.   (HJ)
          John-TOP   what-ACC   eat-PRT-do-NEG-PST
          'John didn't eat anything.'
      b. *Dai-ga   ki-**mo**-se-nyat-ta.   (HJ)
          who-NOM   come-PRT-do-NEG-PST
          'Nobody came.'

Given that the subject indeterminate pronoun cannot be bound by *mo* in (24b), it is reasonable to state that nominative subjects in HJ move to Spec,TP on a par with the nominative subjects of SJ.

Nevertheless, genitive subjects in HJ can be bound by *mo* attached to the verb, as seen in (25) (Saruwatari 2015, Moriyama et al. 2022).

(25) Dai-no   ki-**mo**-se-nyat-ta.   (HJ)
      who-GEN   come-PRT-do-NEG-PST
      'Nobody came.'

In view of this fact, one might be tempted to state that the genitive subject in HJ resides in Spec,*v*P (Saruwatari 2015). The analysis taking the genitive subject to remain in *v*P is called into question, however, since genitive subjects as well as nominative subjects cannot be placed in the focus position of the pseudo-cleft construction with *v*P focus, as discussed in section 3.1.

The facts of the pseudo-cleft construction with *v*P focus illustrate that the genitive subject in HJ undergoes A-movement out of *v*P. On the other hand, the data in (24b) and (25) suggest that the genitive subject does not move to Spec,TP. The syntactic behaviors of genitive subjects in the two types of construction indicate that genitive subjects in HJ are dislocated from Spec,*v*P, but are not raised to Spec,TP, to which nominative subjects are raised. In light of these considerations, we propose that the genitive subject in HJ moves to Spec,AspP—a projection lying between *v*P and TP.

(26) [CP   [TP [AspP **SUBJ-GEN** [vP ~~SUBJ-GEN~~ V-*v*] Asp] T] C]   (HJ)

the scope of -*mo* (= AspP)

While Kishimoto claims that *mo*, which follows the verb, takes scope over *v*P by virtue of its adjunction to *v*P, we posit that the particle *mo* placed to the right of the verb is adjoined to AspP, taking AspP as its scope, as (26) illustrates (Moriyama et al. 2022).[7]

In HJ, genitive subjects are located in Spec,AspP, i.e. they occupy a lower structural position than nominative subjects, falling under the scope of *mo*. Accordingly, *mo* can bind the genitively-marked indeterminate pronoun subject in (25). By contrast, nominative subjects cannot be bound by *mo*, as shown in (24b). This fact follows straightforwardly if they fill in Spec,TP, which falls outside the scope of *mo*.

At this point, it is worth noting that some previous works observe an interpretive difference between nominative and genitive subjects in HJ. Nominative subjects can receive an exhaustive-listing interpretation, which has the presupposition that no other alternatives available in the context can satisfy the proposition, and a neutral-description interpretation which has no such presupposition. In contrast, genitive subjects can only have the neutral-description interpretation (Kato 2007; Nishioka 2018; cf. Kuno 1973). Accordingly, the particle *dake* 'only' is admissible on the nominative subject but not the genitive subject, as (27a) and (27b) illustrate. In SJ, both interpretations are allowed on genitive subjects in SJ, and thus, (27c) is acceptable regardless of whether or not *dake* appears on the genitive subject (cf. Akaso and Haraguchi 2011).

(27) a. Kodomo(-dake)-ga   atumat-ta.   (HJ)
          child-only-NOM   gather-PST
          '(Only) the children gathered.'
      b. Kodomo(*-dake)-no   atumat-ta.   (HJ)
          child-only-GEN   gather-PST
          '(Only) the children gathered.'
      c. [kodomo(-dake)-no atumat-ta] riyuu   (SJ)
            child-only-GEN   gather-PST   reason
          'the reason why (only) the children gathered'

The interpretive difference in (27a) and (27b) in HJ may come from structural reasons. The nominative subject is located in Spec,TP, so that it can have an exhaustive-listing interpretation, as well as a neutral-description interpretation. The genitive subject appears in a less prominent position of Spec,Asp, which is in the verbal domain where only a neutral description is possible. In SJ, both genitive and nominative subjects are located above *v*P, so that they can receive exhaustive-listing and neutral-description interpretations.

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[7] The particle *mo* attached to aspectual markers such as *yor* is expected to bind a genitive subject. Nevertheless, for reasons that are not clear to us, *mo* cannot be added to the aspectual marker *yor*, as shown in (i).

(i)   *John-wa   hon-ba   yomi-yori-mo-sen.   (HJ)
          John-TOP   book-ACC   read-ASP-PRT-NEG.PRS
          'John isn't even reading a book.'

SJ genitive subjects that are allowed only in adnominal clauses appear in a higher structural position than genitive subjects in HJ. This fact can be confirmed by the examples in (28).

(28)   a.   [dare-o   sikari-**mo** si-nakat-ta] sensei   (SJ)
                who-ACC scold-PRT do-NEG-PST   teacher
                'a teacher who didn't scold anyone.'
       b.   *[dare-ga   aruki-**mo** si-nakat-ta] haikingu-koosu   (SJ)
                who-NOM   walk-PRT do-NEG-PST   hiking-trail
                'a hiking course where no one walked.'
       c.   *[dare-no   aruki-**mo** si-nakat-ta] haikingu-koosu   (SJ)
                who-GEN   walk-PRT do-NEG-PST   hiking-trail
                'a hiking course where no one walked.'

The particle *mo* can bind an object but not a nominative subject, as shown in (28a,b). If the particle *mo* is adjoined to AspP, the data suggest that in SJ, both nominative and genitive subjects are located in a position higher than AspP. Moreover, since the HJ example in (25) is acceptable, as opposed to the SJ example in (28c), it must be the case that genitive subjects in SJ occupy a higher structural position than genitive subjects in HJ.[8]

The construction used for evaluating the position of subjects in this section shows that in SJ, nominative and genitive subjects are both moved out of *v*P, but their relative positions outside *v*P cannot be measured by this construction. In the next section, we show that the genitive subject in SJ moves to Spec,CP, which is higher than the position occupied by the nominative subject, drawing on data from indeterminate pronoun binding in a semi-modal construction.

3.3.   Indeterminate pronoun binding in a semi-modal construction

In this section, it is argued that a semi-modal construction containing the expression *te okasiku-nai* 'it could be that …' can provide a confirmation on the difference in the structural position of genitive and nominative subjects in SJ, as well as the difference in the position of genitive subjects between SJ and HJ. (29) is a representative example of the semi-modal construction from SJ and HJ.

(29)   Boodoo-ga   okot-te(-**mo**)   okasiku-na-i[SJ]/okasyuu-na-ka[HJ].
       riot-NOM   occur-GER-PRT strange-NEG-PRS
       'Riots could occur.'

In (29), the adverbial particle *mo* can optionally attach to the gerundive marker *te*. Following Kishimoto (2012) and Nakatani (2013), we posit that the gerundive marker *te* serves as the head of non-finite TP in (29). Whether subjects are located in CP or below

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[8] Some speakers control the link of an indeterminate pronoun to *mo* prosodically and other speakers do not. The judgments are based on the latter group of speakers. It seems, however, that even for speakers belonging to the former group, the relevant judgements are obtained if the prosodic strategy is not used.

TP can be assessed according to whether the particle *mo* appearing after *te* can bind indeterminate pronoun subjects in the semi-modal construction.

If the semi-modal construction occurs as an adnominal clause, the subject of the adnominal clause can be marked with either nominative or genitive case in SJ and HJ, as shown in (30).[9]

(30) [boodoo-{ga/no} okot-te-**mo**   okasiku-na-i[SJ]/okasyuu-na-ka[HJ]]
      riot-{NOM/GEN} occur-GER-PRT strange-NEG-PRS
  zyookyoo
  situation
  'the situation that riots could occur'

In the semi-modal construction at issue, the adverbial particle *mo* following the gerundive marker *te* takes scope over the embedded TP, as illustrated in (31).

(31) [TP [TP [vP … V-*v*] -*te*] -**mo**]……
           the scope of *mo*

Given the configuration in (31), it is easy to see that the nominative subject *nani* 'what' can be bound by *mo* in the semi-modal construction, as (32a) shows, and the indeterminate pronoun receives free choice interpretation. An indeterminate pronoun object can also be licensed by *mo*, as in (32b).

(32) a. [nani-ga   okot-te-**mo**   okasiku-na-i[SJ]/okasyuu-na-ka[HJ]]
      what-NOM get.angry-GER-PRT strange-NEG-PRS
    zyookyoo   (√SJ, √HJ)
    situation
    'the situation that anyone could get angry'
  b. [kare-ga   nani-o[SJ]/nan-ba[HJ] ii-dasi-te-**mo**
      he-NOM   what-ACC   say-begin-GER-PRT
    okasiku-na-i[SJ]/okasyuu-na-ka[HJ]] zyookyoo   (√SJ, √HJ)
    strange-NEG-PRS   situation
    'the situation where he could begin to say anything'

The difference in the admissibility of genitive subjects in the semi-modal construction, shown in (33), suggests that the indeterminate pronoun *dare* appearing as a genitive subject cannot be bound by *mo* in SJ, but *dare* serving as a genitive subject can in HJ.

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[9] The complex expression *te okasiku-nai* does not have an affirmative form *te okasii, which suggests that it is grammaticalized as a semi-modal expression filling in CP, although it originally has a bi-clausal structure. Speaker variation is often observed in the degree of the admissibility of genitive subjects in the semi-modal construction in SJ. Some speakers find (30) awkward, though not totally unacceptable, perhaps because the process of grammaticalization which renders *te okasiku-nai* into a modal has not been completed yet.

(33) [nani-no ^{SJ}/nan-no^{HJ} okot-te-**mo** okasiku-na-i^{SJ}/okasyuu-na-ka^{HJ}]
    what-GEN occur-GER-PRT strange-NEG-PRS
    zyookyoo
    situation
    'the situation that anything could occur' (*SJ, √HJ)

Since *mo* is attached to the right of *-te*, which fills the T-head position in the semi-modal construction, it is reasonable to postulate that nominative subjects move into the canonical position of Spec,TP.

(34) [$_{DP}$ [$_{CP}$ [$_{TP}$ SUBJ-NOM [$_{AspP}$ [$_{vP}$ ~~SUBJ-NOM~~ V-v] Asp] **T**] C] D]
                                            [Case] [EPP] ~~[Case]~~ ~~[EPP]~~
                                                  feature inheritance

(32a) is acceptable, since *mo* can bind the indeterminate pronoun subject marked with nominative *ga*. The nominative subject is Case-licensed by T under Agree, and thus bears nominative case.

    Next, the ungrammaticality of (32a) suggests that in SJ the genitive subject occupies Spec,CP, a higher position than the nominative subject, as (35a) illustrates. By contrast, (32b) is acceptable, which shows that in HJ, the genitive subject is located in the binding domain of *mo*, as illustrated in (35b).

(35) a. [$_{DP}$ [$_{CP}$ **SUBJ-GEN** [$_{TP}$ [$_{AspP}$ [$_{vP}$ ~~SUBJ-GEN~~ V-v] Asp] T] C]D] (SJ)

                      the scope of *-mo* (= AspP)

     b. [$_{CP}$ [$_{TP}$ [$_{AspP}$ **SUBJ-GEN** [$_{vP}$ ~~SUBJ-GEN~~ V-v] Asp] T] C] (HJ)

                   the scope of *-mo* (= AspP)

Overall, the data regarding the semi-modal construction ascertain that genitive subjects in SJ undergo movement to Spec,CP, and genitive subjects in HJ are moved to Spec,AspP, contrary to the standard hypothesis that the genitive subjects stay within *v*P with no A-movement in both SJ and HJ.

4. The Case licensers of genitive subjects

In this section, we contend that genitive subjects in SJ are licensed by the Case feature of D after raising to CP whose head carries an EPP feature but lacks a Case feature. We suggest that in the genitive-subject construction in HJ, C is endowed with both EPP and Case features, and that since they are inherited by Asp, genitive subjects are moved to Spec,AspP while their Case is licensed by Asp.

4.1. D-licensing approach vs. C-licensing approach

There are two main approaches to the licensing of genitive subjects in SJ: the D-licensing approach (Miyagawa 1993, 2011; Ochi 2001, 2009; Maki and Uchibori 2008) and the C-licensing approach (Watanabe 1996; Hiraiwa 2001, 2005). The D-licensing approach

posits that the D head is the licenser of genitive Case. The C-licensing approach is advanced by Hiraiwa (2001), who claims that genitive subjects are Case-licensed by the probe φ-feature on C.

Several proposals on how genitive Case is licensed have been advanced in the D-licensing approach. For instance, Ochi (2001) claims that genitive subjects are licensed either by their overt movement into Spec,DP, or by the covert movement of the genitive Case feature to D. Miyagawa (2011) suggests that when an adnominal clause comprises CP, C is assigned a nominative Case feature, which is inherited by T, and accordingly, nominative Case is licensed by T. If an adnominal clause projects only up to TP, the D head licenses genitive Case on the embedded subject. While the details of the analysis vary among the proponents of the D-licensing approach, they share the view that the D head is responsible for the licensing of genitive Case.

Hiraiwa (2001, 2005) argues against the D-licensing approach by presenting a number of examples, in which genitive subjects are allowed despite an apparent lack of a genitive Case licenser. One such example is given in (36).

(36) John-wa   Mary-{ga/no}   ku-ru   **made** heya-ni i-ta.   (SJ)
      John-TOP   Mary-NOM/GEN   come-PRS   until   room-in exist-PST
      'John was in his room until Mary showed up.'

Hiraiwa (2001, 2005) notes that in clauses where *ga-no* conversion can take place, the adjectival noun predicates take *rentaikei* (attributive form). Note that when an adjectival noun is used attributively, the combined copular *da* appears as *na*, as shown in (37).

(37) a.   John-wa   yuushuu-**da**.   (SJ)
           John-TOP   excellence-COP
           'John is excellent.'
      b.   John-{ga/no}   yuushuu-**na**   wake   (SJ)
           John-NOM/GEN   excellence-COP   reason
           'a reason why John is excellent'

According to Hiraiwa (2001), the inflectional form of *na* results from Agree being established between V, *v*, T, and C. Genitive Case on the subject is licensed by C after T's φ-feature being copied onto C through Agree.

Although this analysis looks attractive, Maki and Uchibori (2008) claim that examples like (36) do not necessarily constitute counterexamples to the D-licensing analysis. For example, in light of the fact that the common noun *zikan* 'time' can be inserted before the subordinator *made*, as in (38), it could be argued that (36) has an implicit head noun before *made*. This being the case, the silent D is expected to license genitive marking on the embedded subject.

(38) John-wa   Mary-{ga/no}   ku-ru   zikan **made**   heya-ni
      John-TOP   Mary-NOM/GEN   come-PRS   time until   room-in
      i-ta.   (SJ)
      exist-PST
      'John was in his room until Mary showed up.'

In addition, relational nouns are often grammaticalized into postpositions. Then, another possibility is that *made* is the Case licenser of the genitive Case. This view is plausible since *made* can have a nominal use, as in (39).

(39) a. Itigatu-matu-**made**-o   kigen-to   si-masu.
          January-end-until-ACC   deadline-COP   make-POLITE
          'The deadline is the end of January.'
       b. Sono-toki-**made**-ga   yo-i.
          that-time-until-NOM   good-PRS
          'It is ok until that time.'

The PP headed by *made* can appear in the nominal position, as illustrated in (39). If a postposition grammaticalized from a relational noun (like *made*) retains a syntactic function to license genitive Case, as with ordinary nouns, there is a sense in which the genitive marking should be allowed in (36).

Hiraiwa's examples do not allow us to choose the C-licensing approach over the D-licensing approach, and the issue over the licenser of genitive Case in SJ still remains unsettled. For SJ, we claim that the genitive Case on the genitive subjects is licensed by a D head in accordance with the D-licensing approach. In the next section, we present empirical evidence in support of the D-licensing analysis.

4.2. Evidence from the quasi-modal noun *wake*

How the genitive Case on genitive subjects is licensed differs between HJ and SJ. This can be evidenced by the adnominal clause construction headed by *wake*, which can be used as either a noun expressing the meaning of 'reason' or a quasi-modal noun expressing the meaning of 'no wonder'. In the SJ example in (40a), *wake* is used as a full-blown noun, and the copula combined with the adjective appears in the attributive form (*rentaikei*). The same inflectional pattern is observed when *wake* is used as a quasi-modal noun used as an exclamative or an interrogative marker, as in (40b,c).

(40) a. John-ga   yuumei-**na**   (sono)   wake   (SJ)
          John-NOM   famous-COP   that   reason
          'that reason John is famous.'
       b. Dakara,   John-ga   yuumei-**na**   (*sono)   wake   ka! (SJ)
          that.is.why John-NOM   famous-COP   that   no.wonder   PRT
          'It is no wonder John is famous!'
       c. Dakara,   John-ga   yuumei-**na**   (*sono)   wake?   (SJ)
          that.is.why John-NOM   famous-COP   that   PRT
          'Is that why John is famous?'

When *wake* is a full noun, it can be preceded by a nominal modifier *sono* 'that', as (40a) shows. The addition of the nominal modifier is not possible when *wake* is a quasi-modal, as shown in (40b,c).

Hiraiwa (2001) posits that *na*, the attributive form of the copula *da*, is a morphological manifestation of Agree established in V, *v*, T, and C, and thus the C can license genitive Case. In Hiraiwa's analysis, then *ga-no* conversion is expected to be triggered in both (40a) and (40b), where the adjective appears in the attributive form, i.e. it has the *na-*

ending. Nevertheless, the genitive subject is allowed when *wake* is a full noun, as in (41a), but is not allowed with the quasi-modal noun *wake* even though the copula appears in its attributive form, as in (41b).

(41) a. Sore-ga John-**no** yuushuu-na wake-da. (SJ)
      it-NOM John-GEN excellence-COP reason-COP
      'That is the reason John is excellent.'
   b. *Dakara, John-**no** yuushuu-na wake ka! (SJ)
       that.is.why John-GEN excellence-COP no.wonder PRT
       'It is no wonder that John is excellent!'

In our analysis, the well-formedness of (41a) falls out straightforwardly on the assumption that in the SJ, C is endowed with an EPP feature to attract the genitive subject, but it lacks a Case feature in genitive-subject construction. In (41a), the genitive subject is licensed by the Case feature of D after raising to Spec,CP.

(42)   [DP [CP SUBJ-GEN [TP [AspP [vP SUBJ-GEN V-*v*] Asp] T] C] **D**]   (SJ)
                                                                [EPP] [Case]

The ungrammaticality of (41b) cannot be accounted for under Hiraiwa's (2001) analysis, since the predicate takes the attributive form. Rather, its ungrammaticality is attributed to the quasi-modal noun *wake*'s loss of the categorial status as a full noun. (41b) is not acceptable since *wake* fails to serve as the Case licenser of the genitive subject.

Next, HJ does not have adjectival nouns, and *yuushuu-na* 'excellent', which is categorized as an adjectival noun in SJ, appears as an adjective in HJ, as in (43). No morphological distinction is drawn between the conclusive and attributive forms of adjectives in Japanese, so the suffix attached to *yuushuu* is invariably realized as *ka* in HJ.

(43) a. John-wa yuushuu-**ka** bai. (HJ)
      John-TOP excellence-PRS PRT
      'John is excellent.'
   b. Soi-ga John-ga yuushuu-**ka** wake bai. (HJ)
      it-NOM John-NOM excellence-PRS reason PRT
      'That is the reason John is excellent.'
   c. Yaken, John-ga yuushuu-**ka** wake ka! (HJ)
      that.is.why John-NOM excellence-PRS no.wonder PRT
      'It is no wonder that John is excellent!'

As shown in (44), *ga-no* conversion is permitted in HJ regardless of whether *wake* is a noun or a quasi-modal noun.

(44) a. Soi-ga John-no yuushuu-**ka** wake bai. (HJ)
      it-NOM John-GEN excellence-PRS reason PRT
      'That is the reason John is excellent.'
   b. Yaken, John-no yuushuu-**ka** wake ka! (HJ)
      that.is.why John-GEN excellence-PRS no.wonder PRT
      'It is no wonder that John is excellent!'

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The data in (44) are naturally expected in our proposed analysis since the genitive subject in HJ is moved to Spec,AspP by the EPP feature, and is Case-licensed by the Case feature on Asp, as illustrated in (45).

(45) [CP   [TP [AspP SUBJ-GEN [vP ~~SUBJ-GEN~~ V-v] **Asp**] T]   C]   (HJ)

                                    [Case] [EPP]   ~~[Case] [EPP]~~

                                                    feature inheritance
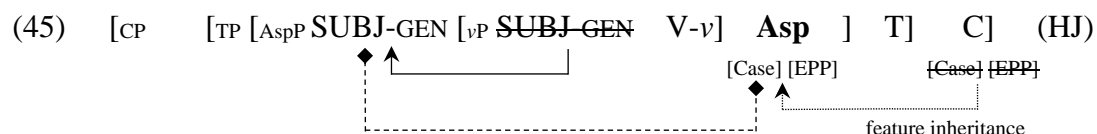
It must be stressed that the differences in the syntactic behavior of genitive subjects in SJ and HJ are derived from a difference in how genitive subjects are Case-licensed. Our analysis taking the licenser of genitive Case to be D in SJ and Asp in HJ can readily account for the fact that genitive subjects are confined to adnominal clauses in SJ, while genitive subjects in HJ are not.

In this section, on the basis of the data regarding the quasi-modal noun *wake* that allows us to access how genitive Case on the genitive subjects in SJ and HJ, we have argued that the D-licensing approach is favored over the C-licensing approach.

5.   Conclusion

Genitive subjects appear in structural positions different from Spec,TP filled by nominative subjects. In SJ, the genitive subject occupies Spec,CP, located at the edge of adnominal clauses. In HJ, the genitive subject occurs in AspP. It has been argued that genitive subjects are displaced from *v*P, but their exact moved positions differ depending on how edge features are assigned within the genitive-subject constructions. The discussion illustrates that the genitive subjects in SJ and HJ possess remarkably different properties despite bearing the same *no* marking.

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Language variation and the labeling of modification structures*

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Abstract: Japanese is known to allow various kinds of adnominal clausal modifiers. Although this is often assumed to be just the nature of the language, this paper shows that it is explained by the labeling mechanism of the language. It is known that English, for example, employs feature-sharing extensively for the labeling of {XP, YP} structures. This paper argues that Japanese, which lacks ϕ-feature agreement, appeals to weak heads for the purpose. More concretely, XP provides the label for {XP, α} if α is a weak head or search into α finds a weak head, and among the weak heads in Japanese are Case markers and predicate inflection. As adnominal clauses accompany prenominal inflection, NP provides the label for {{TP, inflection}, NP}. This makes it possible for the language to label complex NPs in which the embedded clause is neither a complement of N nor a relative clause.

Keywords: labeling, adnominal modifiers, {XP, YP} structure, ϕ-feature agreement, weak heads, attributive adjectives, relative clauses

1. Introduction

It has been known since Kuno (1973) that Japanese allows adnominal clausal modifiers such as those in (1).

(1) a. [sakana-ga yake-ru] nioi
     fish-NOM burn-Pres. smell
    'the smell of fish burning'
  b. [dareka-ga doa-o sime-ru] oto
     someone-NOM door-ACC close-Pres. sound
    'the sound of someone closing the door'

This fact has attracted much attention as their apparent English counterparts in (2) are ungrammatical.

(2) a. *the smell [that fish burns]
  b. *the sound [that someone closes the door]

The properties of examples like (1) are discussed in detail, for example, in Matsumoto (1997) and Murasugi (2000). Matsumoto, Comrie and Sells (2017) consider the contrast between (1) and (2) from a typological perspective. The volume is a collection of papers on several languages and each paper examines whether a particular language belongs to the Japanese type or the English type.

The goal of this paper is to show that the possible forms of adnominal clausal modification are not chosen by a language, but are explained by the syntax of the language. In particular, I argue that whether a particular form is allowed is determined by the labeling mechanism employed by the language. I first go over the labeling mechanisms in English and Japanese in Sections 2 and 3. Section 2 introduces the labeling algorithm of Chomsky (2013, 2015). In Section 3, I outline the labeling mechanisms of Japanese that I proposed in Saito (2016, 2018). Then, I argue in Section 4 that the contrast between (1) and (2) follows from the labeling theory. That is, the examples in (1) are successfully labeled whereas those in (2) are not. The proposed analysis implies that a modification structure as in γ = {modifier, modified} is not automatically labeled by the modified because of adjunction structure, but needs to be labeled through the regular labeling mechanism. This raises the question how structures with adverbial and adjectival modifiers, for example, {AdvP, VP} and {AdjP, NP}, are labeled. I consider the latter case in Section 5. There, I introduce Baker's (2003) theory of adnominal modification and show that it can be readily restated in terms of labeling. Section 6 concludes the paper.

2. Chomsky's (2013, 2015) theory of labeling

Merge is the only operation that builds syntactic structures. It combines two expressions α and β, and builds the constituent γ = {α, β}. Chomsky (2013) assumes that the interpretive components require information on the nature (label) of γ. For example, when Merge combines a verbal element and a nominal element, the interpretive components need to know whether the formed constituent is a verb phrase or a noun phrase. Given this, Chomsky proposes the labeling algorithm that reads off the label of γ = {α, β} by search into γ. He considers the three cases of Merge in (3).

(3) a.   γ = {H, XP} … H is the label of γ.   (E.g., VP = {V, DP})
    b.   γ = {XP, YP}
    c.   γ = {H_1, H_2}

(3a) is the straightforward case. Search into γ finds a unique head H, and H can be assumed to be the label of γ. As a unique head cannot be identified as the label in the cases of (3b) and (3c), these structures are in principle ruled out.

However, the {XP, YP} structure in (3b) is widely observed in actual examples. Let us consider the structure of (4a) in (4b).

(4) a.   The girl solved the problem.

b.

$$\delta <\phi, \phi>$$

```
                δ <φ, φ>
              /\
           DP    TP
           [φ]   /\
               T    γ (v*P)
              [φ]   /\
                  DP    v*P      (The movement of the subject must take place.)
                  [φ]   /\
                      v*    VP
                            /\
                          V    DP
```
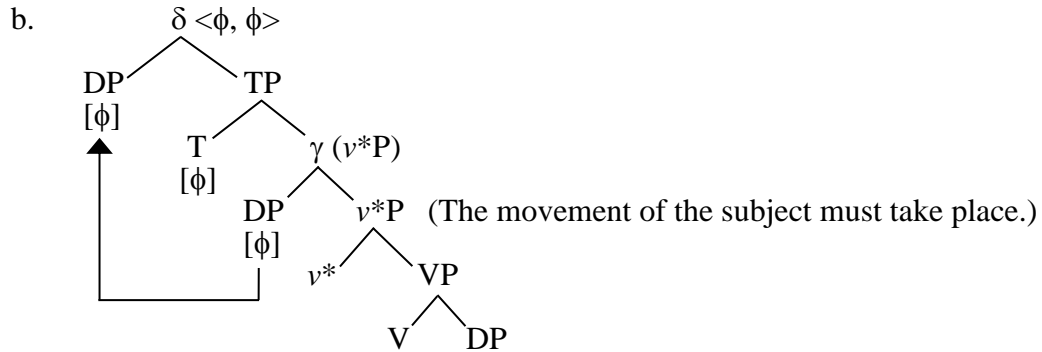
The structure is built bottom-up as {V, DP}, {v^*, VP}. These are instances of (3a). When the external argument is merged, γ = {DP, v^*P}, an instance of {XP, YP} structure, is constructed. But after T is merged, the DP moves out of γ and merges with TP. Chomsky then proposes that v^*P determines the label of γ as it is the only element that γ fully contains. The moved DP forms δ = {DP, TP} at the landing site. In this case, the head D of the DP and T share the same ϕ-features because of agreement. Chomsky proposes that δ is labeled as $<\phi, \phi>$ in this case. Then, {XP, YP} structures are properly labeled in the two contexts in (5).

(5)   The label of γ = {XP, YP} is (i) the label of YP if XP moves out of γ,
                                                    (ii) <F, F> if X and Y share a major feature F.

This theory explains possible forms of phrase structure, stipulated in X'-theory, and the properties of movement. Let us take the latter case for illustration. Phrasal movement always creates an {XP, YP} structure at the landing site. Therefore, (5) predicts that the movement of XP can only terminate in the specifier position of a head Y that shares a major feature with X. This is observed in examples of NP-movement in (6).

(6) a.   [$_\gamma$ Mary is likely [$_{TP}$ to [$_{v*P}$ _ [$_{v*P}$ v^* [$_{VP}$ win the race]]]]].

b. *(It) is likely [$_{TP}$ to [$_\delta$ Mary [$_{v*P}$ v^* [$_{VP}$ win the race]]]].
c. *(It) is likely [$_\sigma$ Mary [$_{TP}$ to [$_{v*P}$ _ [$_{v*P}$ v^* [$_{VP}$ win the race]]]]].

First, if the DP *Mary* stays in the θ-position as in (6b), the example is ruled out as δ = {DP, v^*P} fails to be labeled. In (6b), *Mary* moves to the embedded subject position. This example is also ruled out as there is no ϕ-feature sharing between *Mary* and *to*. Finally, (6a), in comparison with (6a, b), shows that *Mary* has to move to the matrix subject position. This is because *Mary* shares ϕ-features with the matrix T and γ = {DP, TP} can be labeled as $<\phi, \phi>$.

Chomsky points out that the prediction is borne out by wh-movement as well. The contrast in (7) shows that wh-movement must terminate in the specifier position of an interrogative CP.

(7) a. *Do you think [$_\gamma$ which book [$_{CP}$ that [$_{TP}$ John bought _]]]?
   b. [$_\delta$ Which book [$_{CP}$ do [$_{TP}$ you think [$_\sigma$ _ [$_{CP}$ that [$_{TP}$ John bought _]]]]]]?

(7a) is ruled out as γ fails to be labeled as illustrated in (8a).

(8) a.

γ
DP   CP

b.

δ → <Q, Q>
DP   CP
.. which ..   .. C .....
[Q]   [Q]
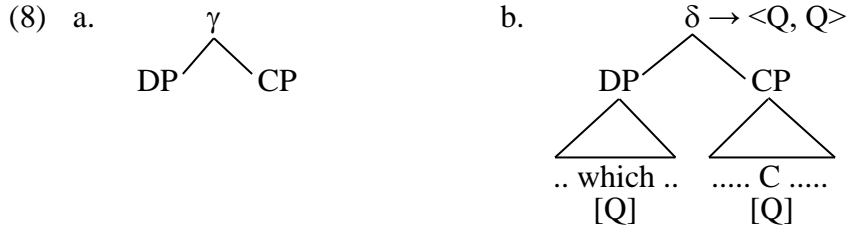
The grammaticality of (7b) is also predicted. σ is labeled by CP because the wh-phrase moved out of σ, and the matrix δ is labeled <Q, Q> because the wh-phrase and the interrogative C share the Q(uestion) feature as illustrated in (8b).

   Although the labeling theory of Chomsky (2013) replaces many syntactic principles of the pre-minimalist era, Chomsky (2015) proposes to extend its empirical coverage further. One of the proposals there is to explain the EPP. It should be clear from the discussion of (4) why an external argument must move to the edge of TP. But as is well-known, the subject position must be filled in passive and unaccusative sentences as well. (9) shows this for an unaccusative sentence.

(9) a. *Sank two ships.
   b. Two ships sank _ .

(10) is the structure of the ungrammatical (9a).

(10)

TP
T   vP
[φ: α]
| v   VP
Past   V   DP
            | [φ: α]
           sink   [Case: NOM]
                  two ships
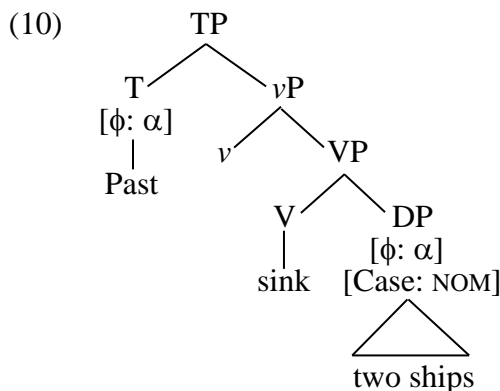
As there are only {H, XP} structures in (10), no problem seems to arise with respect to labeling. Chomsky assumes that the structure is indeed allowed in pro-drop languages like Italian. The Italian counterpart of (9a) is grammatical, as shown in (11).

(11) Affondarono due navi. (See Burzio 1986, for example)
      sank   two ships
      'Two ships sank.'

Chomsky, then, proposes that finite T in English is a weak head that cannot provide a label. The contrast between Italian and English is illustrated in (12).

(12) <Italian> γ (= TP) <English> γ (= ??)

T vP T_{weak} vP

Then, the only way in English to label a finite clause is by ϕ-feature sharing as shown in (13).

(13) δ (= $\langle\phi, \phi\rangle$)

DP γ
$[\phi: \alpha]$

T_{weak} vP
$[\phi: \alpha]$
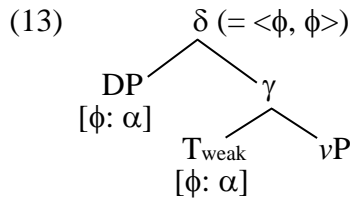
It follows then that a subject is required in English finite clauses.[1] Labeling by a head in (3a) is thus revised as in (14).

(14) $\gamma = \{H, XP\}$ ... H is the label of γ if H is strong.

3. Labeling in a language without ϕ-feature agreement

Chomsky's (2013, 2015) labeling theory replaces many syntax-particular principles and has wide empirical coverage. At the same time, it raises an interesting problem for the analysis of languages that lack ϕ-feature agreement. The labeling of finite clauses in English is made possible by ϕ-feature sharing. Then, how are they labeled in languages like Japanese without ϕ-feature agreement? I outline the hypothesis in Saito (2016, 2018) that was proposed to answer this question.

Although Japanese lacks ϕ-feature agreement, the arguments are accompanied by suffixal Case markers as (15a) and its structure in (15b) show.

(15) a. Hanako-ga   Taroo-o   sikat-ta.
        Hanako-NOM Taroo-ACC scold-Past
        'Hanako scolded Taroo.'

   b.   TP

             TP

          v*P   T

       DP-ga v*P

          VP v*

       DP-o V

---
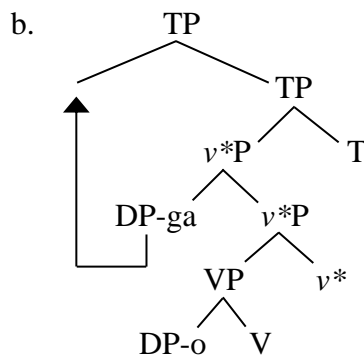
[1] Chomsky assumes that feature-sharing makes T strong and as a result, T serves as the label of γ in (13).
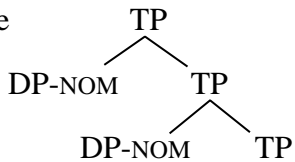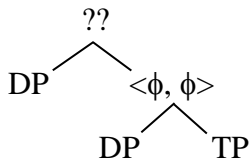
Here, a phrase with suffixal Case never projects. Thus, suffixal Case seems to be functioning as an "anti-labeling device." Thus, (16) is proposed in Saito (2016).[2]

(16) Suffixal Case as an anti-labeling device: In γ = {α-Case, β}, β provides the label for γ.

It is argued there that (16) not only allows finite clauses in Japanese to be labeled but also is in accord with many typological characteristics of the language. For example, it is widely known since Kuno (1973) that sentences with multiple subjects are observed in the language. (17) is one of his examples.

(17) Bunmeikoku-ga   dansei-ga   heikin-zyumyoo-ga   mizika-i.
      civilized.country-NOM male-NOM   average-life.span-NOM   short-Pres.
      'It is in civilized countries that male's average life span is short.'
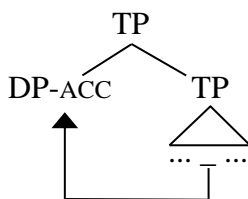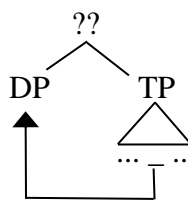
As illustrated in (18), (16) allows examples of this kind to be properly labeled.

(18) Japanese   TP   vs.   English   ??

            DP-NOM   TP   DP   <ϕ, ϕ>

                    DP-NOM   TP   DP   TP

(16) also accounts for why object scrambling is possible in Japanese. (19) is an example.

(19) Taroo-o   Hanako-ga   _   sikat-ta.
      Taroo-ACC Hanako-NOM   scold-Past
      'Hanako scolded Taroo.'
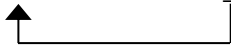
As the scrambled object accompanies suffixal accusative Case, the structure is properly labeled as illustrated in (20).

(20) Japanese   TP   vs.   English   ??

            DP-ACC   TP   DP   TP

                       ... _ ...   ... _ ...

Scrambling applies also to adverbial phrases as shown in (21).

---

[2] It is assumed there that T is a strong head in Japanese. (i) is the proposed mechanism of the Case feature valuation.
   (i) In {DP-Case, α}, the Case is valued by the label of α.

(21) a. Taroo-wa sizuka-ni   kaet-ta.
        Taroo-TOP quietness-Cop. leave-Past
        'Taroo left quietly.'
    b. Sizuka-ni Taroo-wa _ kaet-ta. (adverb scrambling)

The adverb in (21) consists of an abstract noun and the copula *-ni* in preverbal form. (22) lists the other forms of the copula.

(22) a. Kono heya-wa   sizuka-<u>da</u>. (conclusive)
        this   room-TOP quietness-Cop.Pres.
        'This room is quiet.'
    b. sizuka-<u>na</u>   heya (prenominal)
        quietness-Cop.Pres. room
        'a quiet room'
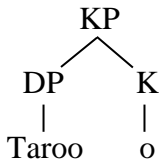
Saito (2016) hypothesizes that predicate inflection serves as an "anti-labeling device" just like suffixal Case. This is stated in (23).

(23) predicate inflection as an anti-labeling device: In γ = {α-Inflection, β}, β provides the label of γ.

Given (23), the structure of (21b) is labeled as T, as in the case of object scrambling.

The analysis proposed in Saito (2016) raises the question why suffixal Case and predicate inflection have the "anti-labeling" property. This question is taken up in Saito (2018). I briefly go over the proposal there in the remainder of this section. I first consider suffixal Case.

Saito (2018) adopts the KP hypothesis proposed by Travis and Lamontagne (1992) and Fukuda (1993). According to this hypothesis, a Case-marked object has the structure in (24).

(24)

```
        KP
       /  \
     DP    K
     |     |
    Taroo  o
```

Then, it is proposed that K is a weak head and at the same time, a slight revision in the function of weak heads in labeling is suggested. Chomsky (2015) states that γ = {H, XP} fails to be labeled if H is weak. The suggested revision is that XP provides the label for γ in this case. The proposal is stated more precisely in (25).

(25) Alternative: Search into γ = {α, β} for a label. If α is a weak head or search into α finds a weak head, then γ inherits the label of β.

This revision does not affect Chomsky's account for the EPP in English. γ is labeled by *v*P in (26a), but the structure is ruled out on independent grounds because *v*P should represent the predicate-argument structure with the exclusion of T.

(26) a.   *γ (= *v*P)   b.   γ (= DP)

```
        *γ (= vP)                           γ (= DP)
        /    \                              /    \
    T_weak   vP                          DP    K_weak
```

(25) also solves a potential problem of the original KP hypothesis. In (24), K takes a DP complement and projects a KP. However, a transitive verb selects a DP and not a KP. In (26b), on the other hand, γ is a DP because K is a weak head.

    Most importantly for the purpose here, (25) explains the "anti-labeling property" of suffixal Case. Let us consider the structure of a finite clause in (27).

(27)

```
              γ                  The label of γ = {DP, TP} is T.
            /   \
          δ     TP              The label of δ = {DP, K} is D.
         / \    / \
       DP   K  v(*)P  T
```

The label of δ = {DP, K} is D because K is a weak head. What about the label of γ = {δ, TP}? As search into δ finds a weak head K, γ inherits the label of TP. Thus, a finite clause is successfully labeled. This analysis extends to examples of multiple subjects and scrambling. Let us consider the example of scrambling in (19), repeated below as (28).

(28) Taroo-o   Hanako-ga   _ sikat-ta. (= (19))
      Taroo-ACC Hanako-NOM   scold-Past
      'Hanako scolded Taroo.'

Its structure is shown in (29).

(29)

```
                γ                The label of γ = {DP, TP} is T.
             /     \
          DP         δ (= (27))
         /  \       /    \
       DP    K    DP      TP
             |   /  \    /  \
             o  DP   K  v*P   T
                     |
                     ga
```

δ is identical to (27) and is a TP. The scrambled object is a DP because K is a weak head. For γ = {DP, δ}, search into DP finds a weak head K. Hence, γ inherits the label of δ, which is T.

    Scrambling of adverbial phrases can be analyzed in the same way on the assumption that predicate inflection is a weak head. The relevant example (21) is repeated below as (30).

(30) a. Taroo-wa   sizuka-ni   kaet-ta. (= (21))
        Taroo-TOP quietness-Cop. leave-Past
        'Taroo left quietly.'
   b. Sizuka-ni Taroo-wa _ kaet-ta. (adverb scrambling)

The structure of these examples is shown in (31).

(31)

```
                    γ
                  /   \
                σ      XP  (XP = VP or TP)
              /   \
          AdvP     F
                [Infl: preverbal]
```
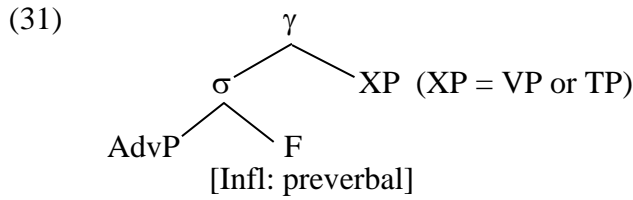
σ inherits the label of AdvP because F is a weak head. The label of γ is that of XP as search into σ finds a weak head F.

Finally, the weak heads K and F are valued as in (32).

(32) In γ = {α, β}, an unvalued feature that is identified by search in α is valued by the label of β.

Some examples are shown in (33).

(33) a.

```
              γ
            /   \
          σ      TP
        /   \
      DP     K
          [Case: NOM]
```

b.

```
              γ
            /   \
          σ      V
        /   \
      DP     K
          [Case: ACC]
```

c.

```
              γ
            /   \
          σ      VP
        /   \
      DP     F
          [Infl: preverbal]
```

d.

```
              γ
            /   \
          σ      NP
        /   \
      DP     F
          [Infl: prenominal]
```
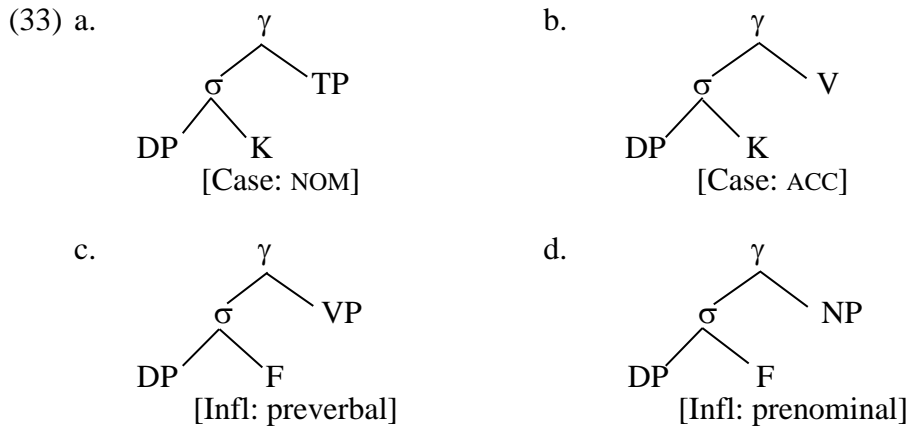
4. Adnominal Clausal Modifiers

This section addresses the question raised at the outset of this paper, that is, why Japanese allows adnominal clausal modifiers such as those in (1), repeated below as (34).

(34) a. [sakana-ga yake-ru]   nioi
          fish-NOM burn-Pres. smell
          'the smell of fish burning'
     b. [dareka-ga   doa-o   sime-ru]   oto
          someone-NOM door-ACC close-Pres. sound
          'the sound of someone closing the door'

The conclusion is straightforward. I propose that this is because the adnominal clauses accompany prenominal inflection.

Let us start the discussion by considering how the English complex noun phrases in (35) are labeled.

(35) a.   the claim that John was asleep
     b.   the claim that John made

The precise analysis for these examples is controversial. But the standard analysis for examples like (35a) is that they contain head-complement structure as in (36a).

(36) a.   NP   b.   DP   (Kayne 1994)

```
(36) a.        NP                  b.          DP              (Kayne 1994)
              /  \                            /  \
             N    CP                         D    γ <R, R>
                                                 /  \
                                               NP    CP
                                               ↑    /  \
                                               |   C    TP
                                               |       /   \
                                               |      … ⊥ …
                                               |_____|
```
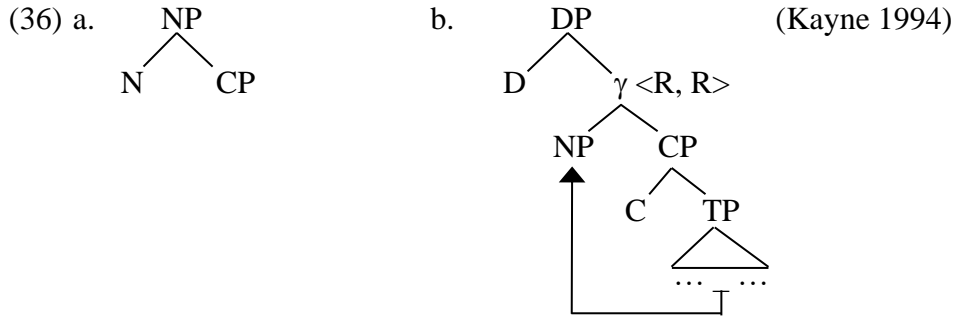
If so, there is no issue with labeling. For the relative clause in (35b), let us tentatively assume Kayne's (1994) analysis in (36b). The NP *claim* moves to Spec, CP as a relative operator. In this case, it can be assumed that the NP and the head C of the relative clause share the relative feature R, and consequently γ is labeled as <R, R>.

The English counterparts of (34) in (2) are repeated below as (37).

(37) a. *the smell [that fish burns]
     b. *the sound [that someone closes the door]

The CPs in these examples are neither complements nor relative clauses. The structure of the examples, then, should be as in (38).

```
(38)          γ
             /  \
           NP    CP
```
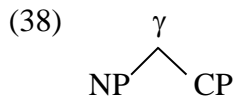
This is an {XP, YP} structure with no feature sharing. (37a, b) are straightforwardly ruled out as examples of failure of labeling.

Then, why are the Japanese examples in (34) allowed? I show in the remainder of this section that the labeling mechanism outlined in Section 3 provides an answer. The distinction between the conclusive and prenominal forms of predicates is largely lost in modern Japanese. For example, the verb *ake-ru* 'open-Pres.' appears in the same form as the main clause predicate in (39a) and as the predicate of an adnominal clause in (39b).

(39) a.   Taroo-ga   doa-o   ake-ru. (conclusive)
         Taroo-NOM door-ACC open-Pres.
         'Taroo opens the door.'
     b. [Taroo-ga   doa-o   ake-ru]   oto (prenominal)
          Taroo-NOM door-ACC open-Pres. sound
         'the sound of Taroo opening the door'

However, as observed in (22), the distinction is retained with the present tense copula. And (40) shows that the conclusive form *da* appears in matrix clauses whereas the prenominal form *na* is required in adnominal clausal modifiers.

(40) a. Sono koosui-wa   Taroo-ga   kaori-ga   kirai-<u>da</u>. (conclusive)
        that   perfume-TOP Taroo-NOM scent-NOM dislike-Cop.Pres.
        'As for that perfume, Taroo dislikes its scent.'
   b. [Taroo-ga   kaori-ga   kirai-<u>na</u>]   koosui (prenominal)
        Taroo-NOM scent-NOM dislike-Cop.Pres. perfume
        'Lit. the perfume which Taroo dislikes its scent'

It can then be maintained that adnominal clauses generally accompany prenominal inflection. Given this, the structure of the examples in (34) will be as in (41).

(41)
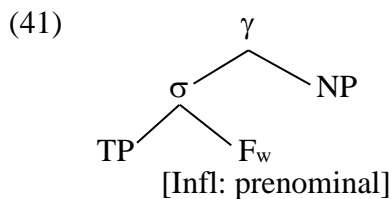
As F is a weak head, σ inherits the label of TP. $\gamma = \{\sigma, NP\}$ inherits the label of NP because search into σ finds the weak head F. Thus, the examples are properly labeled.

    As noted at the outset of this paper, Matsumoto, Comrie and Sells (2017) assume that there are two types of languages; the Japanese type allows adnominal clausal modifiers like (34) and the English type does not. But if the analysis just presented for Japanese is on the right track, it is not clear whether classification of languages in this manner has any significance. The issue instead is whether the counterpart of (34) in the language is properly labeled. Among the languages considered there, Korean, examined by Kim and Sells (2017), is the clearest case of a "Japanese-type" language. A couple of their examples are shown in (42).

(42) a. [sayngsen-i tha-nun]   naymsay
        fish-NOM burn-Adn.Pres. smell
        'the smell of fish burning'
   b. [chayk-ul   pha-n]   ton
        book-ACC sell-Adn.Past money
        'the money from selling books'

Kim and Sells (2017) also note that T in Korean assumes various forms, depending in part on whether it belongs to a main clause or an adnominal clause. Their chart is shown in (43).

(43) Forms of Tense in Korean (Kim and Sells 2017)

	Future	Present	Past
main clause, active	-ul kes-i/-keyss	-n/nun	-ass/ess
main clause, stative	-ul kes-i/-keyss	Ø	-ass/ess
adnominal, active	-ul	-nun	-un
adnominal, stative	-ul	-un	-ass/ess-ten

It seems then that finite clauses in Korean accompany predicate inflection just as in Japanese but only more clearly. If the predicate inflection is a weak head, then the examples in (42) are expected to be grammatical with proper labeling.

Further, it is probably misleading to say that English does not allow the counterparts of (34). Although the examples in (37) are ungrammatical, those in (44) are perfectly fine.

(44) a. the bad smell of fish burning
     b. the big sound of someone closing the door

The analysis proposed in this paper implies that these examples, in contrast with those in (37), are successfully labeled. Although it is beyond the scope of this paper to present their precise analysis, it seems possible that *of* in these examples is a weak head and this allows them to be labeled. This *of* may well be the same *of* as that of "*of*-insertion" in (45).

(45)   the destruction of the city

It makes sense to assume that the *of* in (45) is a weak head. The head noun *destruction* selects a DP object, and if *of* is a weak head, its complement is indeed construed as a DP, as illustrated in (46a).

(46) a.

b.
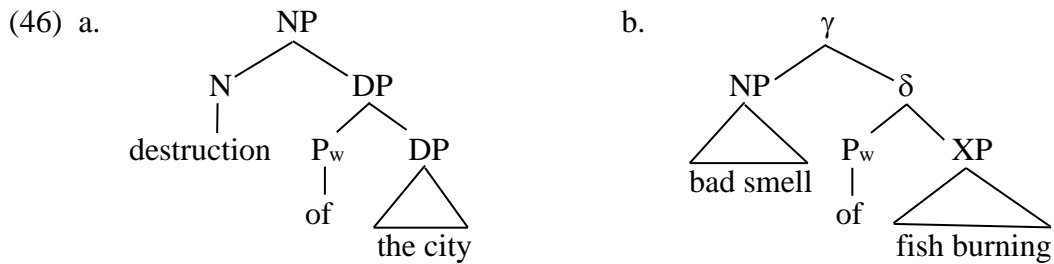
If the same *of* appears in (44), the structure of (44a), for example, is as in (46b). σ inherits the label of XP because P is a weak head. The label of γ is the label of NP as search into σ finds the weak head P. Here, the weak head P serves the same function as prenominal inflection in Japanese. If this analysis is correct, a weak head helps label a noun phrase with clausal modifiers in English as well.

I argued in this section that the possible form of adnominal clausal modifiers is not determined by a language. For each language, an example is grammatical only if it can be properly labeled and is ungrammatical if it cannot be labeled. The analysis proposed in this section implies that γ = {modifier, modified} is not automatically labeled because it is an adjunction structure, but must be labeled through the regular mechanism. This is so because otherwise the ungrammatical examples in (37) cannot be explained in terms of labeling. This raises the question how γ in (47a) and σ in (47b), for example, are labeled. γ is a noun phrase modified by an adjective phrase and σ is a verb phrase modified by an adverb phrase.

(47) a. [DP the [γ [AP very smart] [NP young girl]]]
     b. Mary [σ [AdvP quickly] [VP solved the problem]].

In the following section, I consider the former case and introduce the analysis of Baker (2003), which in effect provides an answer.

5. Baker (2003) on adjectives and relative clauses

Baker (2003) first extends Miyagawa (1987) and Murasugi's (1990) analyses of Japanese adjectives, and argues that the language lacks attributive adjectives. Then, he proposes that attributive adjectives are licensed by ϕ-feature agreement with the modified noun, and that this makes it impossible for languages without ϕ-feature agreement to have attributive adjectives. In this section, I introduce this analysis and show that it can readily be restated in terms of labeling. I show in addition that the analysis of Japanese adnominal clauses in the preceding section serves to make Baker's analysis complete.

(47a) and (47b) are examples of attributive adjective and predicative adjective respectively.

(47) a. the wise old man
    b. The old man is too wise (to make such a mistake).

(48) shows that there are predicative adjectives in Japanese, but it has been unclear whether the language has attributive adjectives.

(48) Sono tosiyori-wa   totemo kasiko-i … predicate adjective
    that   old.person-TOP very   wise-Pres.
    'That old person is very wise.'

When an adjective modifies a noun, it accompanies tense just as predicative adjectives. This is shown in (49).

(49) a. kasiko-i   tosiyori
        wise-Pres. old.person
        'the old person who is wise'
    b. kasiko-katta tosiyori
        wise-Past   old.person
        'the old person who used to be wise'
    c. *kasiko tosiyori
        wise   old.person

The presence of tense in (49a-b) suggests that the modifiers are TPs, that is, relative clauses. Baker takes the ungrammaticality of (49c) with an adjectival stem as evidence that Japanese lacks attributive adjectives. It has been widely assumed that examples like (49c) are ruled out because an adjectival stem is a bound morpheme. This is an accurate description, but the absence of adjectives that are free morphemes suggests that Japanese indeed cannot have attributive adjectives.

Baker (2003), then, proposes (50) to explain why Japanese lacks attributive adjectives.

(50) a. Modifiers can be adjoined to N^x only if they agree with N^x in ϕ-features.
    b. Merge (X, Y) is allowed only if X checks a feature of Y or vice versa.

Let us consider (50a) as (50b) is its generalized version. It states that a modifier of a noun is licensed only if it agrees in φ-features with the noun. Baker points out that this kind of agreement is observed in many φ-feature agreement languages. He provides the following examples from Spanish:

(51) a. este   libro;   estas   mesas
         this (M.SG) book (M.SG)   these (F.PL) tables (F.PL)
     b. el   libro   rojo;   las   mesas   rohas
         the (M.SG) book (M.SG)   red (M.SG)   the (F.PL)   tables (F.PL) red (F.PL)

He assumes that there is agreement of this kind in English too, although it is covert. He also shows that the head of a relative clause agrees with the modified noun in Kinande.

(52) Maria anz-ire   eri-tunda ery-o   Kambale a-gul-a.
      Mary   like-ASP   CL5-fruit CL5-that Kambale 3sS/T-buy-FV
      'Mary likes the fruit that Kambale bought.'

In this example, the noun *tunde* and the complementizer *o* both appear with the Class 5 prefix.

(50a) predicts that attributive adjectives cannot be licensed in Japanese because the language lacks φ-feature agreement. In this context, Baker (2003) lists Slave and Ika as languages that pattern with Japanese. They too lack both φ-feature agreement and attributive adjectives. Although Baker (2003) was published ten years prior to Chomsky's (2013) proposal of the labeling theory, (50a) can readily be restated in terms of labeling. This is illustrated in (53).

(53) a. <u>English</u>   b. <u>Japanese</u>

In φ-feature agreement languages, γ = {AP, NP} is labeled as <φ, φ> as shown in (53a). On the other hand, γ = {AP, NP} cannot be labeled in the absence of φ-feature agreement.

Although Baker (2003) successfully explains the lack of attributive adjectives in Japanese, there is one problem to be resolved. As is clear from his Kinande example, he assumes that a complex NP with a relative clause needs to be licensed by φ-feature agreement. However, relative clauses are apparently observed in Japanese. (54b) is the Japanese counterpart of (54a).

(54) a. the tasty fruit that John bought
     b. [Taroo-ga   kat-ta]   oisi-i   kudamono
         Taroo-NOM   buy-Past tasty-Pres. fruit

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Then, how are relative clauses licensed without φ-feature agreement? The analysis proposed in Section 4 provides an answer to this question. Relative clauses in Japanese, like other adnominal clauses, accompany prenominal inflection. In (55), the copula of the relative clause is in prenominal form.

(55) [Hanako-ga   suki-na]   tabemono
     Hanako-NOM like-Cop.Pres. food
     'the food that Hanako likes'

Then, the complex NPs in (54a) and (54b) are labeled as in (56) and (57) respectively.

(56)

```
              DP
           /      \
         D          γ  (= <φ, φ>)
         |        /    \
        the     NP       CP
               [φ]      /   \
                |      C      TP
              fruit   [φ]    /\
                      |     /  \
                     that  John bought
```

(57)

```
                            δ  (= NP)
                      /                \
                  TP                     γ  (= NP)
                /    \                 /      \
             TP       F             TP         NP
             /\    [Infl: prenominal]  /  \        |
            /  \                 TP     F     fruit
           /    \               /\   [Infl: prenominal]
       Taroo bought           /  \
                             /    \
                          is tasty
```
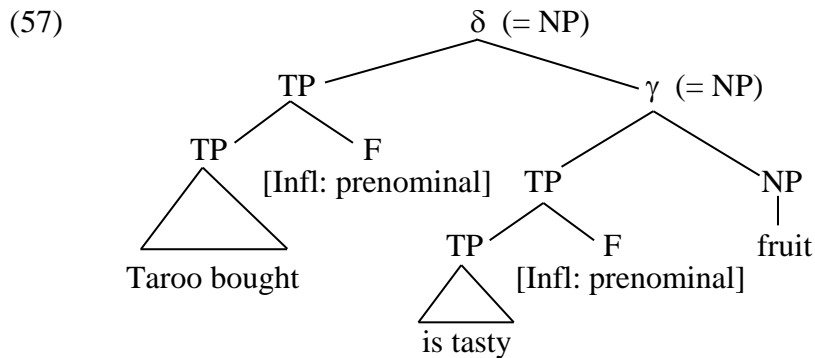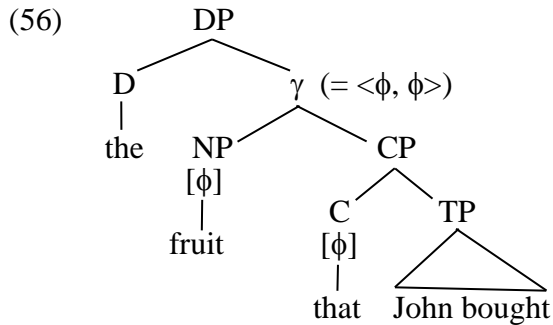
γ = {NP, CP} in (56) is labeled <φ, φ> because of the agreement between N and C. γ = {TP, NP} in (57), on the other hand, inherits the label of NP because search into TP finds a weak head F. δ = {TP, γ} is labeled by NP for the same reason.

   Thus, the analysis proposed in Section 4 explains why Japanese allows relative clauses despite the lack of φ-feature agreement and makes Baker's (2003) analysis complete. The analysis in (57) implies that Japanese relative clauses are licensed in the same way as the adnominal clauses in (34), repeated below in (58).

(58) a. [sakana-ga yake-ru]   nioi
         fish-NOM burn-Pres. smell
         'the smell of fish burning'
     b. [dareka-ga   doa-o   sime-ru]   oto
         someone-NOM door-ACC close-Pres. sound
         'the sound of someone closing the door'

It is worth pointing out here that both Matsumoto (1997) and Murasugi (2000), which investigate examples like (58) in detail, argue that relative clauses in Japanese are just

like adnominal clauses in (58) and they are special only in that they contain a pro that corresponds to the modified noun phrase. The analysis in (57) supports this claim.

I argued in this section that $\gamma = \{$modifier, NP$\}$ in general needs to be labeled through the regular labeling mechanism. Before concluding this section, I would like to point out that this requires a slight revision in the labeling algorithm in (14), repeated below as (59).

(59) $\gamma = \{$H, XP$\}$ ... H is the label of γ if H is strong.

Let us consider (60).

(60) $[_\gamma [_{Adj}$ wise$]$ $[_\delta [_{Adj}$ old$]$ $[_N$ man$]]]$

Given Chomsky's (1995) bare phrase structure theory, δ has the form $\{$A, N$\}$ and γ is $\{$A, XP$\}$. Given Baker's (2003) analysis, both should be licensed through ϕ-feature agreement. Here, γ is problematic because A will be its label according to (59). As far as I know, in all the examples of (59) discussed in the literature, H selects XP. Then, (59) can be revised as in (61).

(61) $\gamma = \{$H, XP$\}$ … H is the label of γ if H is a strong head and selects XP.

As *wise* does not select δ in (60), (61) does not apply in this case and consequently, γ has to be labeled by ϕ-feature sharing as desired.

6.   Conclusion

I argued in this paper that the contrast between Japanese and English in (62) and (63) should be explained in terms of labeling.

(62) a. [sakana-ga yake-ru]   nioi
           fish-NOM burn-Pres. smell
           'the smell of fish burning'
     b. [dareka-ga   doa-o   sime-ru]   oto
           someone-NOM door-ACC close-Pres. sound
           'the sound of someone closing the door'
(63) a. *the smell [that fish burns]
     b. *the sound [that someone closes the door]

I outlined the labeling theory of Chomsky (2013, 2015) in Section 2 and its application to Japanese in Saito (2016, 2018) in Section 3. Then, I showed in Section 4 that the contrast obtains because English labels $\{$XP, YP$\}$ structures mainly by feature-sharing whereas Japanese extensively employs weak heads for this purpose. The prenominal inflection as a weak head makes it possible for the examples in (62) to be labeled. The analysis implies that whether examples like (62) and (63) are allowed is not determined by a language but depends on the labeling mechanism of the language. Feature-sharing and weak heads are universally available as means to label $\{$XP, YP$\}$ structures. What a language determines is how and where to use them.

The account for the ungrammaticality of (63) in terms of labeling implies that a modification structure as $\gamma = \{$modifier, modified$\}$ must be labeled through the regular

labeling mechanism. This raises the question how NPs modified by adjectives and VPs modified by adverbs, for example, are labeled. In Section 5, I introduced Baker's (2003) proposal that {AP, NP} structures are licensed by ɸ-feature agreement and showed that it can be restated in terms of labeling. Baker's analysis accounts for the lack of attributive adjectives in Japanese but left unexplained how Japanese relative clauses are licensed. I argued that they are licensed in the same way as the adnominal clausal modifiers in (62), that is, by prenominal inflection as a weak head. There are a couple of possibilities for the labeling of γ = {AdvP, XP}. If adverbial phrases occupy the specifier position of a designated head as argued in Cinque (1999), γ may be labeled by feature-sharing. Or the labeling of γ may be accomplished by weak heads like *-ly* in (64).

(64) a. John quietly left the room.
     b. Quietly John left the room.

I leave the choice for future research.

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Adjunction as categorization:
On the syntactic quirkiness of word-level modification*

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Abstract: In Minimalism, modification is standardly modeled by adjunction, defined as Pair Merge, but there are alternative approaches to modification and adjunction too. This paper explores a mode of adjunction that is native to the word domain in a single-engine framework like Distributed Morphology. It is not planned but a byproduct of root categorization, more exactly of a co-categorization relation between a defectively categorized modifier and a normally categorized base. This mode of adjunction locks the base or its head in situ without turning the whole construction into an island. Empirically, this is manifested as a quirky phenomenon of head immobility. I explore this scenario with two case studies, respectively on German immobile verbs and Hungarian reduplicated particle verbs, and argue that their quirky behaviors have the same cause: the categorization-based mode of adjunction. The theory in this paper, if on the right track, lends further support to a distinction between word- and phrase-level syntax even in a single-engine framework.

Keywords: adjunction, categorization, Distributed Morphology, immobility, particle verb, compound verb, German, Hungarian

1. Introduction[1]

In generative syntax, syntactic modification is standardly modeled by adjunction, which in the Minimalist Program is defined as Pair Merge (Chomsky 2000). However, neither is adjunction the only way to model modification, nor is (Chomskyan) Pair Merge the only way to define adjunction. Several alternative approaches exist in the literature. Thus, Cinque (1999, 2010) treats adverbs and adjectives as specifiers of functional projections. Hornstein and Nunes (2008) define adjunction by unlabeled concatenation, and Oseki (2015) makes a similar proposal in terms of Set Merge. Meanwhile, Rubin (2003) rethinks Pair Merge and triggers it by a functional head Mod. These alternative approaches are not free from problems (Song 2019: 55), but they are insightful explorations showing that the

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[1] Grammatical labels: ACC=accusative, COMP=comparative, FOC=focus, INF=infinitive, ITE=iterative, NEG=negative, PRF=perfective, PTCP=participle, REFL=reflexive.

mode of adjunction is an issue that can be open to further discussion. This paper presents an exploration in this direction.

Specifically, while the above-mentioned studies all focus on classical adjunction in canonical phrasal syntax, this paper focuses on word-level adjunction. In branches of generative syntax adopting the "single engine hypothesis," like Distributed Morphology (DM; Halle and Marantz 1993), word formation is treated as a syntactic process.

(1) **The single engine hypothesis** (as formulated in McGinnis-Archibald 2016: 390)
A single generative engine governs sound/meaning correspondences, making no distinction between word-level and phrase-level syntax.

However, this formulation is too strong, as the word domain is still a special theoretical domain even in DM. Thus, the word domain, but not the canonical phrasal domain, relies on the root-categorization operation and has "obligatory idiomaticity" (Panagiotidis 2014). Besides, it is in the word domain that interpretable categorial features like [iN]/[iV] are introduced.

In this paper, I claim that word-level adjunction can also proceed in a special mode—via categorization. Moreover, this special mode of adjunction causes quirky word behavior under certain syntactic conditions. I illustrate this with two cases, respectively from German and Hungarian. In both cases, a verb becomes syntactically immobile after what can be analyzed as a step of adjunction via categorization, as in (2).

(2) a. German: *tanzen* 'dance' (mobile) → *bauch-tanzen* 'belly-dance' (immobile)
b. Hungarian: *ki-néz* 'out-look; look out' (mobile) → *ki-ki-néz* 'out-out-look; look out from time to time' (immobile)

I will define the exact meaning of immobility in later sections. In a nutshell, in both cases, a base verb (simple or complex) is modified in a categorization process. Consequently, it is frozen and cannot move to higher zones anymore, leading to a situation of "ineffability" (den Dikken's 2003 term).

My analysis of the immobility phenomena, if on the right track, lends further support to a distinction between word- and phrase-level syntax, because the categorization-based mode of adjunction is "native" to the word domain. Therefore, I revise (1) to (3).

(3) **The single engine hypothesis (revised version)**
A single generative engine governs sound/meaning correspondences. Whatever distinction between word-level and phrase-level syntax can be explained by using formal syntactic tools.

The rest of this paper is organized as follows. In Section 2, I present the new mode of adjunction. In Sections 3–4, I present the two case studies. Section 5 concludes.

2. Adjunction as categorization

In this section, I present my theory of the categorization-based mode of adjunction in the word domain, largely based on Song (2019: 43ff.). I do not claim that word-domain adjunction is always based on categorization. Rather, categorization just makes available an additional adjunction mode.

In DM, the little *x* categorizers are category-defining heads. This is expressed abstractly in (4a) and more concretely in (4b).

(4) a. $x \triangleq [i\text{CAT}{:}\text{X}]$
     b. $n \triangleq [i\text{CAT}{:}\text{N}]$, $v \triangleq [i\text{CAT}{:}\text{V}]$, …

Each categorizer introduces a categorial feature, which by assumption is both interpretable (since it is category-defining) and valued. I leave aside the deeper question of what exactly categorial values are. My proposal is compatible with either an axiomatic approach or an approach where they are given further analysis (e.g., Panagiotidis 2015). Above I have assumed two featural metaproperties: interpretability and valuation. I further assume that these do not have to go together (pace Chomsky 2001)—an idea that has been advocated in a number of places (e.g., Pesetsky and Torrego 2007).

The $[i\text{CAT}{:}\text{X}]$ schema in (4) in principle makes available an additional categorizer type defined by an unvalued (but interpretable) categorial feature $[i\text{CAT}{:}\_\_]$. I call this the *defective categorizer* (Cat). Importantly, the categorial feature on Cat is still interpretable once valued, which is what makes Cat a categorizer. But at the same time, since $[i\text{CAT}{:}\_\_]$ is only interpretable upon valuation, its interpretation depends on a normal categorizer via Agree, as in (5).

(5) $[_\text{X} [_\text{Cat} \text{Cat } \omega_1] [_\text{X} x \, \omega_2]]$
         $\uparrow$ ———Agree——— $\uparrow$

Here, ω_1 and ω_2 represent two roots or root-like chunks. Specifically, ω_1 is a slot for miscellaneous recycled modifiers, which can be simple or prederived. Such units are root-like in that they are inert in the current derivational layer (in the sense of Zwart 2009). The Cat part (hereafter Cat_ω) categorially depends on X, with the two categorial features entering agreement. Then, $[i\text{CAT}{:}\text{X}]$ becomes a shared prominent feature and labels the entire structure. Since $[i\text{CAT}{:}\text{X}]$ is the only active feature on X, Cat-X and X are featurally identical.[2] From a structure-building perspective, Cat_ω ends up adjoined to X, which is a head in the traditional sense, and we essentially obtain a modifier-head compound. Cat is usually null, but potential overt realizations include linking elements in compounds, such as *-(e)s-* in German and *-i-* in Japanese.

(6) a. German: *Arbeit-**s**-zimmer* 'n. work-LK-room', *geist-**es**-krank* 'a. spirit-LK-ill'
     b. Japanese: *nom-**i**-mizu* 'n. drink-LK-water', *fur-**i**-mazeru* 'v. shake-LK-mix'

The Cat-X adjunction is not "planned" but a byproduct of categorization: ω_1 is (re)categorized as a modifier of X. See (7) for an illustration.

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[2] Whether Cat-X and X are also featurally identical to Cat depends on whether Cat carries other, noncategorial formal features. That is, there may be multiple flavors of Cat. Unlike a normal categorizer *x*, where any additional formal features may be viewed as part of the category-defining value, extra formal features on Cat must be treated separately since the categorial feature on Cat is unvalued.

(7) a. *blackboard*[CAT: N]

    Cat[CAT: _]   N[CAT: N]

    Cat[CAT: _]   black n[CAT: N]   √BOARD

b. *dry-clean*[CAT: V]

    Cat[CAT: _]   V[CAT: V]

    Cat[CAT: _]   dry v[CAT: V]   √CLEAN
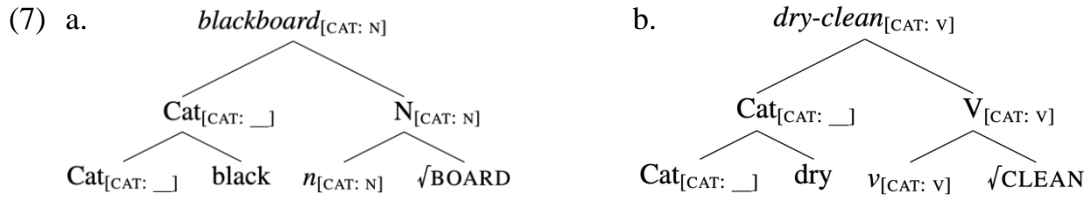
In (7a), ω_1 is a recycled unit *black* (inert in the current derivational layer), and ω_2 is a root √BOARD. The root is nominalized, while *black* is recategorized by Cat into "part of a bigger noun" upon feature valuation. Crucially, this dependent categorization mode, or *co-categorization*, does not yield the phrase *black board*, and the Cat-introduced *black* is categorially different from the homonymous adjective *black*. According to Panagiotidis (2014), each categorization cycle defines a "domain of obligatory idiomaticity." In the case of Cat$_\omega$, this means that the modificational meaning of the Cat-introduced *black* is idiomatic. Similarly, in (7b), ω_1 is an inert recycled unit *dry*, and ω_2 is a root √CLEAN. The root is verbalized, and *dry* is recategorized into "part of a bigger verb," modifying V in an idiomatic way. There are also cases where ω_1 has no independent status, as in (8).

(8) a. *cranberry*[CAT: N]

    Cat[CAT: _]   N[CAT: N]

    Cat[CAT: _]   √CRAN n[CAT: N]   √BERRY

b. *acqui-hire*[CAT: V]

    Cat[CAT: _]   V[CAT: V]

    Cat[CAT: _]   √ACQUI v[CAT: V]   √HIRE
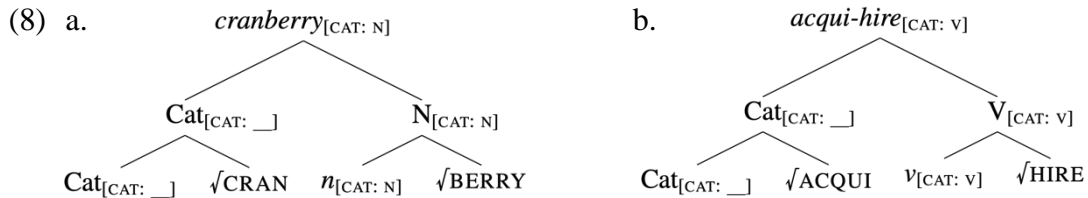
The ω_1 units here are roots. Again, the Cat-introduced material is categorially integrated into X, and the meaning of Cat$_\omega$, as well as that of Cat-X, is up to idiomatic lexicalization.

    The above analysis of modifier-head compounds has several implications (see Song 2019: 66ff.). Here I only highlight one: modifier-head compounds are incompatible with head movement. This is because Cat-X and X are featurally indistinguishable insofar as head movement is concerned, both bearing just a categorial feature [iCAT:X]. Thus, when a higher head targets X for movement, it also targets Cat-X. But the latter cannot go through head movement since it is not a head. Consequently, X is blocked by a minimality condition like (9).

(9) **Minimal link condition** (Chomsky 1995: 311)
    K attracts α only if there is no β, β closer to K than α, such that K attracts β.

Above I have treated X as a head even though it is routinely decomposed in DM. This is necessary if we want to maintain classical head movement in DM at all. I remain agnostic as to how the head status of the *x*-root combination is derived. It could be due to layered derivation (Zwart 2009). The key assumption here is that the apparent phrasal nature of X is not a problem for classical head movement (e.g., V-to-T). Thus, my prediction is that languages with head movement cannot have productive modifier-head compounding. At least in the verbal domain, this seems true. As Table 1 shows, English compound verbs are consistently translated into French/Spanish by periphrasis.

Table 1: Translations of English compound verbs in French/Spanish (Song 2019: 75)

English	French	Spanish
hand-wash	*laver à la main* 'wash by hand'	*lavar a mano* 'wash by hand'
dry-clean	*nettoyer à sec* 'clean in dry'	*limpiar en seco* 'clean in dry'
sleep-walk	*marcher en dormant* 'walk sleeping'	*caminar dormido* 'walk sleeping'
window-shop	*faire du lèche-vitrines* 'do lick-windows'	*ir de escaparates* 'go of windows'

Nevertheless, the above formulation of the prediction is too strong. First, we do not want modifier-head compounding to be totally incompatible with head movement, for V-to-*v* movement does happen in English (Chomsky 1995). Second, languages with head movement may not have it in all contexts. For instance, in German verb movement is only required in verb-second contexts. To address the first issue, we can assume that Cat does not have to attach to a plain lexical head but may attach to any qualified categorial value provider—namely, any host with an interpretable and valued categorial feature. On the assumption that the verbal category is essentially the category of eventuality, this provider could be any (sub)eventive head in the *v*P zone. Indeed, I tentatively propose that modifier-head compounding always happens to lexical heads in the traditional sense—nondecomposed, event-structure-complete big Vs in the verbal case. In modern decompositional models, this means that the modifier only gets attached after the verbal root has integrated all eventuality information. This is in line with the observation that modifier-head compounding sometimes changes the head's argument structure, as in (10).

(10) a. He can *run*_{intransitive} faster than me.
   b. He can *outrun*_{transitive} me.

In (10), *run* is intransitive, but the "prefix" *out-* makes it transitive. This can be explained if we assume that *out-* is attached at the *v* level.

The second issue above is easier to address. To account for languages with mixed head movement requirements, we can reformulate the prediction as follows:

(11) Modifier-head compounds can productively exist in languages with no head movement beyond the lexical zone; they can partly exist in languages with mixed head movement; they cannot exist in languages with consistent head movement.

This reformulation is still simplistic, but it suffices for current purposes. See Song (2020) for a more complete discussion. Below, I will demonstrate how the theory in this section can explain the immobility phenomena in German and Hungarian.

3. German immobile verbs

The two commonly recognized complex verb types in German are separable (aka particle) and inseparable (aka prefixed) verbs. See (12) for an illustration.

(12) a. *Später **fährt** er zusammen mit seinem Freund **weg**.*
   later drives he together with his friend away
   'Later, he drives away with his friend.'   (DWDS corpora)

      b. *Leider*   **verstehe**   *ich*   *kein*   *Französisch.*
         unfortunately understand   I   no   French
         'I am afraid I do not understand French.'   (Cambridge Dictionary)

German is a verb-second language, where the finite V must move to C unless the latter is occupied by an overt complementizer. In the case of separable verbs, only the base verb is moved, while the preverbal element (hereafter preverb) is not, as in (12a). By contrast, inseparable verbs are moved as a whole, as in (12b). Below are more example items.

(13)   a.   **Separable**: *ab-schicken* 'off-send; dispatch', *auf-stehen* 'up-stand; get up', *an-kommen* 'on-come; arrive', *ein-treten* 'in-step; enter'
       b.   **Inseparable**: *be-stehen* 'BE-stand; exist, pass', *ent-stehen* 'ENT-stand; come into being', *ge-stehen* 'GE-stand; confess'

Inseparable preverbs are often semantically bleached, but they are still clearly attached to the V category. In this sense, inseparable verbs are different from the class of "complex" verbs in (14a), which are simple verbs derived from compound nouns (given in (14b)).

(14)   a.   *lang-weile-n* 'long-while-V; bore', *hand-habe-n* 'hand-having-V; handle', *ohr-feige-n* 'ear-fig-V; slap in the face', *wett-eifer-n* 'bet-zeal-V; compete'
       b.   *Lang(e)-weile* 'long-while; boredom', *Hand-habe* 'hand-having; handle', *Ohr-feige* 'ear-fig; slap in the face', *Wett-eifer* 'bet-zeal; competitiveness'

The syntactic behavior of these verbs is just that of simple verbs, and they undergo verb movement normally, as in (15).

(15)   a.   **Langweilst**   *du*   *dich*   *gerade?*
          bore.2SG   you yourself   already
          'Are you already bored?'
       b.   *Kōji*   **ohrfeigt**   *Yūko und verbringt den restlichen Abend mit Ippei.*
          Kōji   slaps   Yūko and spends   the   remaining evening with Ippei
          'Kōji slaps Yūko and spends the rest of the evening with Ippei.'   (DWDS)

    In addition to the three types discussed above, German still has a fourth type of complex verb. Items in this type resemble denominal or particle verbs in makeup but have highly restricted distribution, in that they are syntactically immobile, as in (16).

(16)   a.   ***Bau-spart***   *er / ***Spart** er bau?*
          building-saves he   saves he   building
          'Does he building-save (=save with a building society)?'
       b.   *Er*   *will*   ***bau-sparen***.   /   *... weil*   *er*   ***bau-spart***.
          he   wants building-save   because   he   building-saves
          'He wants to building-save. / … because he building-saves.'
                                         (adapted from Vikner 2005: 88)

The verb *bau-sparen* cannot be used in verb movement contexts at all, as in (16a). It can neither be moved as a whole (unlike prefixed/denominal verbs) nor be split in two (unlike

particle verbs). Thus, it can only be used in contexts with no verb movement requirement, as in (16b). See (17) for another example.

(17) a. *__*Bauch-tanzt*__ *Erna noch /* *__*Tanzt*__ *Erna noch* __*bauch?*__
       belly-dances Erna still   dances Erna still   belly
       'Does Erna still belly-dance?'
   b. *__*Erna*__ __*bauch-tanzte*__ *letzten Sommer /* *__*tanzte*__ *letzten Sommer* __*bauch*__.
       Erna belly-danced last   summer   danced last   summer belly
       'Erna belly-danced last summer.'
   c. *Erna hat sehr viel* __*bauch-ge-tanzt*__.
       Erna   has   very   much belly-GE-danced.PTCP
       'Erna has belly-danced a lot.'   (adapted from Ahlers 2010: 16)

Just like *bau-sparen*, *bauch-tanzen* cannot be moved at all, neither as a whole nor in a split fashion. That said, immobile verbs can be inflected (16b)/(17c), and like separable verbs, their past participles are formed with the infix *-ge-* (17c). The only constraint on their use is that they cannot move. In fact, not just the participle infix *-ge-* but also the infinitive infix *-zu-* can be inserted into immobile verbs.

(18) a. *Die letzte Gelegenheit, vor   den langen Sommerferien*
       the last   chance   before the long   summer.vacation
       __*bauch-zu-tanzen*__, *habt   ihr   am   kommenden Dienstag.*
       belly-to-dance   have   you.PL on.the   coming   Tuesday
       'Your last chance to belly-dance before the long vacation is next Tuesday.'
                                                (Instagram)
   b. *Du … brauchst nie   mehr Bus zu fahren und nie   mehr* __*bau-zu-sparen*__.
       you   need.2SG never more but to ride   and never more building-to-save
       'You no longer need to take the bus or to building-save.'   (DWDS)

In short, immobile verbs are separable provided they are in situ. By contrast, prefixed or denominal verbs cannot be infixed with *ge/zu* (19).[3] See (20) for more immobile verbs.

(19) a. **ver-ge-standen* vs. *verstanden*, **lang-ge-weilt* vs. *ge-langweilt*
   b. **ver-zu-stehen* vs. *zu verstehen*, **lang-zu-weilen* vs. *zu langweilen*
(20) *bauch-reden* 'belly-talk; ventriloquize', *kopf-rechnen* 'head-calculate; do mental arithmetic', *berg-steigen* 'mountain-climb; mountaineer', *wett-rennen* 'bet-run; run a race'

Immobile verbs consist of a base verb and a modifier, so they are like compounds. They typically arise by backformation. The verbs in (20) are coined based on the nouns in (21).

(21) *Bauch-reden* 'belly-talking; ventriloquism', *Kopf-rechnen* 'head-calculating; mental arithmetic', *Berg-steigen* 'mountain-climbing; mountaineering', *Wett-rennen* 'bet-running; race'

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[3] There is interspeaker variation regarding the position of *ge/zu* in certain cases. See Ahlers (2010). I set this issue aside since it is not crucial to my discussion.

But backformation is not a formal derivational process and plays no role in the synchronic representation of immobile verbs. Structurally, immobile verbs are just compound verbs.

German immobile verbs have been studied from various perspectives (see, i.a., McIntyre 2002, Vikner 2005, Fortmann 2007, Ahlers 2010, Song 2019, Forche 2020). Previous accounts usually explain the immobility in terms of structural uncertainty or syntactic conflicts. Thus, Vikner (2005) proposes that immobile verbs are not yet resolved between an inseparable and a separable structure and must fulfill requirements of both, which is impossible. McIntyre (2002) and Fortmann (2007) both resort to syntactic conflicts, respectively using a constraint-based and a rule-based formulation. McIntyre assumes that the conflict is between the constraints MINIMAL V2 and BACKFORMATION INTEGRITY, while Fortmann assumes that it is between the head movement rule and an interpretive chain rule imposed on such verbs, which prohibits the nonhead from being stranded. Ahlers (2010) identifies immobile verbs as compounds but proposes a complex-head representation for them, thus explaining the immobility via the lexical integrity hypothesis (LIH, Di Sciullo and Williams 1987). My account is similar to Ahlers's in that I identify immobile verbs as compounds too. However, I do not analyze them as complex heads but give them a Cat-based co-categorization structure, as in (22).

(22) a. $[_{V^0} [_{X^0} \textit{berg}] [_{V^0} \textit{steigen}]]$ (Ahlers 2010)
    b. $[_V [_{Cat} \text{Cat } \textit{berg}] [_V v \sqrt{\text{STEIG}}]]$ (my analysis)

The Cat-V structure is derived by Set Merge in the main derivational layer. Thus, Cat-V is not a head despite its label V (due to the shared-feature-based labeling). That said, it is intuitively an "augmented head" because of the categorial integration of Cat and V. In this sense, my Cat-V may be considered a minimalist implementation of Fortmann's V*. On my analysis, immobility is not reduced to the LIH but is reduced to minimality. This difference between Ahlers's analysis and mine leads to our different predictions. Ahlers predicts that the entire immobile verb is frozen, while I predict that only the head is, and Cat_ω is still syntactically operable, as it is not affected by the minimality condition on V. In usage, speakers strongly prefer to keep immobile verbs intact, but my informants report that fronting the nonhead is marginally acceptable in the metalinguistic context below.

(23) a. (?)*BAU*   *hat er*   *gespart, nicht*   *„pau"!*
        building has he   saved   not   LISTENER-ERROR
        'He has BUILDING-saved, not "puilding"!'
    b. ?*BAUCH*   *möchte*   *er reden, nicht*   *„pauch"!*
        belly   would.like he talk   not   LISTENER-ERROR
        'He would like to BELLY-talk, not "pelly"!'
    c. (?)*KOPF*   *wird er rechnen, nicht*   *„koff"!*
        head   will   he   calculate not   LISTENER-ERROR
        'He will HEAD-calculate, not "heth"!'

The fact that such sentences are marginally okay for some speakers (who strongly reject the movement of the verb head) is evidence that the mobility conditions on Cat_ω and V are different. Such preverb mobility is only available for immobile verbs but not for prefixed or denominal verbs.

(24) a. *VER hat er standen, nicht „vier"!
     VER has he stood not LISTENER-ERROR
     'He has UNDERstood, not "umber"!' (*ver-stehen* 'understand')
   b. *FRÜH wird er stücken, nicht „fruh"!
     early will he piece.V not LISTENER-ERROR
     'He will have BREAKfast, not "brick"!' ([*früh-stück*]$_N$-*en*$_V$ 'have breakfast')

Further evidence for the syntactic accessibility of the inner structure of immobile verbs comes from the contrastive ellipsis context.

(25) a. *Erna möchte nicht* **bauch-** *sondern hand-tanzen.*
     Erna would.like not belly- but hand-dance
     'Erna doesn't want to belly-dance but wants to hand-dance.'
   b. *Er kann nicht nur* **kopf-** *sondern auch finger-rechnen.*
     he can not only head- but also finger-calculate
     'He can not only head-calculate but also finger-calculate.'

The well-formedness of such sentences is unexpected on Ahlers's analysis, because the LIH strictly bans syntactic operations from targeting word-internal parts.

If my analysis of immobile verbs is on the right track, we can structurally distinguish the four complex verb types in German as follows.

(26) a. particle verb
     wegfahren 'drive away'

b. immobile verb
     bausparen 'building-save'

c. denominal verb
     handhaben 'handle'

d. prefixed verb
     verstehen 'understand'

In (26a), a verb head (routinely decomposed in a separate derivational layer) merges with a particle in its complement, yielding a main-derivational-layer phrasal category. (26b) is the Cat-based derivation of an immobile verb. In (26c), a compound noun is recategorized by a verbalizer into a simple verb. In (27d), a prefix is attached to a verb head, yielding a complex head. I remain agnostic about this procedure (Pair Merge may be useful).

Recall from Section 2 that X in Cat-X may be more complex. In German, X may be a particle verb, which yields a "double-prefixed" verb. Such a verb is immobile regardless

of the mobility of X. Two often-cited examples are *vor-an-melden* 'pre-at-announce; pre-register' and *ur-auf-führen* 'original-up-lead; première'.

(27) a. *Sie **meldete** ihre Tochter zu diesem Kurs **an**.*
 she announced her daughter to this course at
 'She enrolled her daughter in this course.' (PONS Dictionary)

 b. *Du *meldest uns **vor-an** / *an-meldest uns **vor** / ***vor-an-meldest** uns.*
 you announce us pre-at at-announce us pre pre-at-announce us
 'You pre-register us.'

 c. *... wenn du uns **vor-an-meldest**.*
 if you us pre-at-announce
 '... if you pre-register us.' (Haider 2010: 60)

(28) a. *Jedes Jahr zur Weihnachtszeit **führt** die Gruppe ...*
 every year for.the Christmas.time leads the group
 *ein Märchen **auf**.*
 a fairy.tale up
 'Every year, the group performs a fairy tale for Christmastime.' (DWDS)

 b. *Sie *ur-auf-führten das Stück / *auf-führten das Stück ur /*
 they original-up-led the piece up-led the piece original
 führten das Stück ur-auf.*
 led the piece original-up
 'They performed the piece for the first time.'

 c. *... weil sie das Stück **ur-auf-führten**.*
 because they the piece original-up-led
 '... because they performed the piece for the first time.' (Zeller 2001: 77–78)

The particle verbs *an-melden* (27a) and *auf-führen* (28a) are mobile and separable. With the addition of another preverb, they both become immobile (27b)/(28b) and can only be used in contexts with no verb movement requirement (27c)/(28c). On my analysis, these items have the structure below.

(29) a. [v [Cat Cat *vor*] [X=VP [Comp *an*] [v *melden*]]]
 b. [v [Cat Cat *ur*] [X=VP [Comp *auf*] [v *führen*]]]

A prediction of this analysis is that in the metalinguistic correction context, only the outer preverb can go through "corrective movement." This is borne out.[4]

(30) a. *VOR haben sie sich an-ge-meldet, nicht „voll"!*
 pre have they REFL at-GE-announced not LISTENER-ERROR
 'They have PRE-registered themselves, not "pray"!'

 b. **VOR-AN haben sie sich ge-meldet, nicht „vor-ein"!*
 pre-at have they REFL GE-announced not LISTENER-ERROR
 'They have PRE-AT-announced themselves, not "pre-in"!'

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[4] My informants' judgments for *ur-auf-führen* are worse, probably because *ur-* is a true prefix and must attach to a host.

In sum, German immobile verbs are syntactically derived modifier-head compounds. On my adjunction-as-categorization analysis, this has two consequences. First, the head is blocked from movement due to minimality. Second, elements in the compound are still visible to syntax. Both predictions are borne out. This mode of adjunction is native to the word domain and provides a purely derivational account of immobile verbs, without resorting to structural uncertainty, conflicting rules, or the LIH.

4. Hungarian reduplicated particle verbs

In this section, I present another case of immobility caused by word-level modification: the case of Hungarian reduplicated particle verbs (hereafter RPVs). I explain the syntactic quirkiness of such verbal items with the same theoretical method as above, reducing it to a minimality effect caused by co-categorization. The Cat-X structure in this case is more complex in both Cat_ω and X, which demonstrates the technical flexibility of the theory.

Like German, Hungarian has many complex verbs composed of a base verb and a preverb. See (31).

(31) *be-megy* 'in-go; enter', *ki-néz* 'out-look; look outside', *fel-hív* 'up-call; call (by phone)', *meg-hív* 'MEG-call; invite', *el-olvas* 'away-read; read through'

The majority of Hungarian complex verbs are separable, so they are more like German particle verbs than the other types we have seen. I just call them particle verbs following common practice. Hungarian verbal particles mostly have transparent meanings, though once they are combined with verbs, idiomaticity often arises.

Hungarian particle verbs are used in two word orders: Prt≺V in neutral contexts, V≺Prt in nonneutral (i.e., [+NEG], [+FOC], [+WH]) contexts.

(32) a. *János* **el-olvasta** *a könyvet.*
   John away-read.PST the book.ACC
   'John read through the book.' (neutral)

   b. *János nem* **olvasta el** *a könyvet.*
   John not read.PST away the book.ACC
   'John did not read through the book.' (negation)

   c. *János TEGNAP* **olvasta el** *a könyvet.*
   John yesterday.FOC read.PST away the book.ACC
   'It was yesterday that John read through the book.' (focus)

   d. *Ki* **olvasta el** *a könyvet?*
   who read.PST away the book.ACC
   'Who read through the book?' (*wh*-question)

In (32a), the context is neutral, and the particle verb *el-olvasta* is used in normal order. In (32b–d), the contexts are all nonneutral, and the same particle verb is used in the inverted order. This word order variation is well studied (see, i.a., Csirmaz 2004, É. Kiss 2008, Surányi 2009, Hegedűs and Dékány 2017, and references therein). It is generally assumed that in nonneutral contexts the verb head is moved to a higher functional position, leaving the particle behind. For concreteness, I adopt the following derivational analysis adapted from É. Kiss (2008) and Surányi (2009), glossing over some details.

(33) [FP F [TP Spec [T' T … [vP v [PredP Spec [Pred' Pred … [VP V … Prt …]]]]]]]

The particle Prt originates in VP, either in V-complement or as an adjunct.[5] During the derivation, both V and Prt first move into a *v*P-internal functional layer PredP (V to Pred, Prt to Spec-PredP) for semantic incorporation. Next, they both move into TP, which is their surface height in neutral contexts. In nonneutral contexts, V is further attracted to a higher functional head, for which I use the cover label F. Prt stays behind in Spec-TP.

Hungarian verbal particles may be reduplicated to express an irregular iterative (aka erratic, Lipták 2016) aspect, as in (34). This strategy is not often used but is productive.

(34) a. ***Át-át-lebben*** *a fórumnyilatkozaton a néma sokaság fogalma.*
across-across-flutters the forum.declaration.on the mute crowd notion
'The notion mute crowd keeps fluttering across the forum declaration.'
b. *A kismackó* ***meg-meg-állt***, *s körül-nézett.*
the little.bear   MEG-MEG-stood and around-looked
'The little bear stopped occasionally and looked around.'   (Piñon 1991: 4)
c. ***El-el-olvasta*** *az újságot.*
away-away-read.PST the newspaper.ACC
'He read the newspaper from time to time.'   (Kiefer 1996: 181)

A quirky situation arises if we try to use RPVs in nonneutral contexts.

(35) a. *CSAK A NÉMA SOKASÁG FOGALMA* ****lebben át-át*** /
only the mute crowd notion flutters across-across
*át-át-lebben *a fórumnyilatkozaton.*
 across-across-flutters   the forum.declaration.on
'Only the notion mute crowd keeps fluttering across the forum declaration.'
b. *A kismackó nem* ****állt meg-meg*** */* ****meg-meg-állt*** *az erdőben.*
the little.bear not   stood MEG-MEG   MEG-MEG-stood the wood.in
'The little bear didn't stop occasionally in the woods.'   (Piñon 1991: 7)
c. *Ki* ****olvasta el-el*** */ *el-el-olvasta* *az újságot?*
who read.PST away-away away-away-read.PST the newspaper.ACC
'Who read the newspaper from time to time?'   (Kiefer 1996: 43)

As in (35), Hungarian RPVs can neither be used in the inverted nor in the normal order in nonneutral contexts. We encounter ineffability again. Intuitively, the cause of the ineffability is that, for some reason, the verb cannot move across the particle position when reduplication happens. One way to escape the dilemma is through periphrasis.

(36) a. *Péter nem* ****ment át-át*** */* ****át-át-ment*** *a szomszédhoz.*
Peter not   went across-across   across-across-went the neighbor.to
'Peter didn't go over to the neighbor from time to time.'

---

[5] Views differ on Hungarian preverb classification. É. Kiss (2008) treats all preverbs as secondary predicates, Hegedűs and Dékány (2017) classify them into complement- and specifier-types, and Surányi (2009) argues that some preverbs are base-generated as adjuncts. I use an all-encompassing VP in my simplified representation.

b. *Nem igaz, hogy Péter időnként* **át-át-ment** *a szomszédhoz.*
not true that Peter occasionally across-across-went the neighbor.to
'It is not true that Peter went over to the neighbor from time to time.'

(37) a. *JÁNOS* ***nézett be-be / *be-be-nézett*** *hozzá.*
John looked in-in in-in-looked him.to
'JOHN occasionally visited him.'

b. *JÁNOS volt az, aki* **be-be-nézett** *hozzá.*
John was that who in-in-looked him.to
'It was John who occasionally visited him.'

(adapted from Kiefer 1996: 187–188)

Complex verb immobility is a very special (and bizarre) phenomenon in Hungarian. Hungarian complex verbs fall in different structural types as German ones do. Apart from the basic type in (31), there are also recategorized ones, which are denominal verbs with complex noun sources.

(38) [[[*be-foly*]ᵥ-*ás*]ɴ-*ol*]ᵥ '[in-flow]-N-V; influence'
[[[[[*fel-vé*]ᵥ-*t*]ɴ-*el*]ɴ-*i*]ɴ-*z*]ᵥ '[up-take]-N-N-N-V; take an entrance exam'
[[[*ki-von*]ᵥ-*at*]ɴ-*ol*]ᵥ '[out-pull]-N-V; précis' (Hegedűs and Dékány 2017: 3–4)

These verbs are all inseparable, as expected, since their particles are deeply embedded. Recall that there are also denominal "complex" verbs in German (see (14)). As in German, such verbs in Hungarian are mobile.

(39) a. *János* **felvételi-z-ett** *az egyetemre.*
John entrance.exam-V-PST.3SG the university.to
'John took a college entrance exam.' (neutral)

b. *János nem* **felvételi-z-ett / *vételizett fel** *az egyetemre.*
John not entrance.exam-V-PST.3SG the university.to
'John did not take a college entrance exam.' (negation)

c. *JÁNOS* **felvételi-z-ett / *vételizett fel** *az egyetemre.*
John.FOC entrance.exam-V-PST.3SG the university.to
'It was John who took a college entrance exam.' (focus) (ibid.)

The syntactic quirkiness of RPVs has been studied in a number of previous works (see, i.a., Piñon 1991, Kiefer 1996, Lipták 2016, Song 2018, Lipták and Saab 2019). Thus, Piñon (1991) proposes that the particle is copied from its neutral surface position (I⁰ in his model) to an I'-adjunct position. On this account, inversion is impossible because the particle and its copy do not form a unit, and the normal order is ungrammatical since the verb movement requirement is still there in nonneutral contexts. Kiefer (1996) treats particle reduplication as focusing and attributes the inversion failure to the assumption that focused elements must occupy the preverbal position in Hungarian. He then explains the ungrammaticality of the normal word order by assuming that there is only one focus position in a clause. Unlike Piñon, Kiefer treats the reduplicated particle as a unit, putting it in the preverbal focus position as a whole. Lipták (2016) triggers particle reduplication by an Asp[+ERRATIC] head realized at PF by an affixal reduplicative morpheme RED, which copies the particle provided it is adjacent to the verb (an alignment rule). Lipták and Saab (2019) update this proposal in terms of a quantificational head Q_Asp encoding an iterative

operator and selecting an AspP[+PRF], plus a local-doubling-based method of reduplication. Leaving aside details, I summarize this approach as two core ideas: (i) the particle and its copy do not form a unit; (ii) reduplication requires linear adjacency of Prt and V.

However, neither idea is empirically tenable. First, a closer look shows that it is only the verb head that is locked in situ; the particle and its copy can still be moved as a whole. Second, and following the first point, RPVs are separable. Below are the relevant data.

(40) a. *A   kendőt   **meg-meg** *is*   **libbentette**.
          the kerchief.ACC MEG-MEG also   flutter.PST
          'He even fluttered the kerchief from time to time.'
      b. *Péter időnként   **át-át**   akart   **menni** a   szomszédhoz.*
          Peter occasionally across-across wanted go.INF the neighbor.to
          'Peter wanted to go over to the neighbor from time to time.'
      c. *Péter hébe-hóba   **vissza-vissza**   fog   **járni**.*
          Peter now.and.then back-back   will   go.INF
          'Peter will come back now and then.'   (Kiefer 1996: 188–189)

Admittedly, such separated usage is rare (Piñon 1991), and native speakers' judgments vary (Lipták and Saab 2019). Nevertheless, the phenomenon does exist. In fact, it is well attested in corpora.

(41) Hungarian National Corpus (Sass 2008; Oravecz, Váradi and Sass 2014)
      a. *De még   a   lágytojás   is   sok   volt   neki,*
          but even the soft.boiled.egg also much was   to.him
          meg-meg *kellett* **állnia**   *vele.*
          MEG-MEG had.to   stand.INF.3SG with.it
          'But even the soft-boiled egg was too much, and he had to keep pausing.'
      b. ***Meg-meg*** *szeretik* **álmodni**, *hogy az   emberek voltaképpen jók ...*
          MEG-MEG love.3PL dream.INF that   the people   actually   good.PL
          'They occasionally love to dream that people are actually good …'
      c. *Kételkedések még a   forradalmár Petőfiben is   **fel-fel***
          doubts   even the revolutionary Petőfi.in also up-up
          *fognak   **támadni**.*
          will.3PL   arise.INF
          'Doubts will arise now and then even in the revolutionary Petőfi.'
(42) Hungarian Web Corpus 2023 (huTenTen23)
      a. *A   kályha kipróbálását   követő   pár   napban*
          the stove testing.ACC   following several day.in
          be-be *kell* **gyújtani**.
          in-in   must ignite.INF
          'In the days following the stove's initial testing, it must be lit occasionally.'
      b. *Korábban ... **el-el**   lehetett   **csípni**   egy   intimebb*
          previously   away-away was.possible pinch.INF a   intimate.COMP
          beszélgetésfoszlányt   ...
          conversation.snatch.ACC
          'Previously … it was possible to occasionally catch snippets of more intimate conversations.'

    c. *De talán   bármilyen forradalmi   időben   is   **el-el**   fog*
       but perhaps whatever   revolutionary time.in   also away-away will
       *talán   **férni**   itt ...   olykor-olykor   egy-egy   kis   írásom?*
       perhaps fit.INF   here   every.now.and.then one.or.two little writing.my
       'But perhaps one or two little pieces of my writing will perhaps fit in here
       every now and then in whatever revolutionary times?'

Clearly, the reduplicated particle and its base verb can be separated by a range of elements, including modals (*kell* 'must', *lehet* 'possible'), lexical verbs (*szeret* 'love'), auxiliaries (*fog* 'will'), and adverbs (*talán* 'perhaps'). In (42c), the reduplicated particle and the verb are even separated by two elements. Data like the above lead me to conclude that the particle and its copy do form a unit and that the RPV is not a strict island.

    In Song (2018), I proposed an alternative analysis of RPVs in purely syntactic terms, without resorting to morphophonological rules. The proposal here is a revised version of that analysis. I follow the general approach to Hungarian particle verbs in (33) up to PredP. Next, v is merged and V moves to v. Since v is a phase head, objects in its domain that need to raise further must first move to its edge. On the Lexical Array (LA)–based definition of phases (Chomsky 2000), each phase is defined by a subset LA_i of the overall LA, called a subarray, which may contain not just lexical items but also prederived objects (Chomsky 2001: n.22). I further assume that objects being moved to the edge need to go through a step of "renumeration" (Johnson 2003) to become proper citizens of the next phase.[6] Moreover, since the LA-based definition supports parallel derivation (Chomsky 2001), renumeration may target not just the next main phase but also satellite phases (for specifiers/adjuncts). For RPVs, I propose that the particle is renumerated into the subarray for a satellite phase defined by Cat (categorizers are phase heads, Marantz 2001).[7]

    (43) LA_{Cat} = {Cat, Prt}

In Song (2018), I treated particle reduplication as coordination and expanded LA_{Cat}.

    (44) LA'_{Cat} = {Cat, Co, Prt$_2$}

This new subarray contains an abstract conjunction Co and two tokens of the renumerated particle. It gives rise to the satellite object in (45).

    (45) [$_{Cat}$ Cat <Co, Prt, Prt>]

I assume a multidimensional structure for coordinate phrases following Chomsky (2019) and Song (2024). The effect is that neither conjunct c-commands the other, and so neither is identified as a copy of the other. Thus, verbal particle reduplication is like a lexical

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[6] In Chomsky's (2023: 8) new theory, syntactic objects that are moved to the phase edge are "put in a box" and kept "separate from the ongoing derivation." This is arguably distinct from the renumeration situation I am discussing, because "boxed" objects can be accessed at multiple later phase levels, which means that they are not part of any single subarray. Perhaps renumeration and boxing are both useful but serve different purposes.
[7] If there is no particle reduplication, the particle is renumerated into the CP subarray.

process recast in syntactic terms, which involves the coordination of two tokens of the same particle. In this respect, my analysis is similar in spirit to that in Ackerman (2003).

There is independent support for the coordinate structure of particle reduplication. First, the irregular nature of the iterative meaning associated with particle reduplication makes it somewhat resemble the meaning of coordinative repetition, such as *walk and walk* and *look and look*. In fact, when the reduplicated particle has relatively transparent meaning, we can even translate it in this way, as in *ki-ki-néz* 'out-out-look; look out and out (=keep looking out from time to time)'. The irregularity of the iterative reading in both particle reduplication and coordinative repetition distinguishes them both from the dedicated iterative suffix *-gAt-* in the language, whose iterative meaning is regular (Kiefer 1996). This distinction can be demonstrated by the contrast below.

(46) a. *Minden nap el-olvas-**gat**-ta az újságot.*
   every day away-read-ITE-PST the newspaper.ACC
   'He read the newspaper every day.'
  b. **Minden nap **el-el**-olvas-ta az újságot.*
   every day away-away-read-PST the newspaper.ACC
   'He read the newspaper every day every now and then.'
                  (adapted from Kiefer 1996: 182)

In (46a), *el-olvas-gat* means that 'he' read the newspaper quite often at regular intervals, so it is compatible with the regular-reoccurrence adverbial *minden nap*. By contrast, in (46b), *el-el-olvas* means that 'he' read the newspaper every now and then, not at regular intervals, so it is incompatible with *minden nap*.

Second, in particle reduplication, the two identical particles carry equal phonological weight (Song 2018, Lipták and Saab 2019) (47a), so they are more like opposite particles in a coordinate structure (47b) and unlike double particles where the two particles are in different hierarchical positions (47c).

(47) a. `` `el-`el-$^0$olvas`` '[away-away]-read', `` `ki-`ki-$^0$néz`` '[out-out]-look'
  b. `` `fel-`le-$^0$szaladgál`` '[up-down]-run.about', `` `ki-`be-$^0$rakosgat`` '[out-in]-put'
  c. `` `el-$^0$fel-$^0$vételiz`` 'away-[up-take.exam]', `` `el-$^0$fel-$^0$gyógyít`` 'away-[up-cure]'

Sometimes we can even translate reduplicated/opposite particle verbs alike, such as 'look out and out' and 'put out and in'. There are two remaining puzzles: (i) Why can't Co be overt? (ii) Why is particle coordination limited to two tokens? I have no answers but note that these questions apply to both reduplicated and opposite particles. Hence, they require some more general explanation.

I continue the derivation by merging the satellite object from (45) to the clausal spine, more exactly to the *v*P edge.

(48) [v [Cat Cat <Co, Prt, Prt>] [$_{vP}$ V-Pred-*v* PredP]]

Recall that the categorial feature on Cat can in principle be valued at any eventuality layer in *v*P, including *v*P. Thus, Cat-*v*P is labeled by [*i*CAT:V] and ends up featurally identical to V. The verb head is now blocked from further movement, but Cat$_\omega$ can still move. While (48) looks quite different from the basic Cat-X construction in Section 2, the co-categorization mechanism proceeds in the same way, with a phrasal object being labeled

by a shared categorial feature and thereby turned into a "compound." Accordingly, Cat$_\omega$ becomes an adjunct, though in this case it is not adjoined to the entire vP but only adjoined to its [iCAT:V] feature, which amounts to being adjoined to V. This adjunction-to-feature situation may be written as in (49a), which is reminiscent of Chomsky's (2015) notation for shared-feature-based labeling in (49b).

(49) a. <Cat$_\omega$, [iCAT:V]>
 b. <φ, φ>[8] for {Subj, TP}; the subject is in a sense adjoined to the φ part of TP

Also note that even though neither Prt c-commands the other in (48), they both weakly c-command the identical particles in vP. Besides, Cat and Co are both null, so Cat$_\omega$ is just Prt-Prt at PF. I assume that the weak c-command and the phonetic identity together make copy identification possible and lead to the silence of the lower particle copies.

This copy relation also helps us answer another question: How can the reduplicated particle, at vP height, form a θ-connection with the internal argument (IA) in VP or be semantically incorporated into V? We can establish both connections via the copy relation. A similar method, called "base-generated incorporation," is adopted in den Dikken (2003) for Germanic inseparable prefixes. It involves base-generation of a particle as V-adjunct and coindexing it with an identical but silent copy of the particle in V-complement. See (50) for a side-by-side illustration of den Dikken's theory and mine.

(50) a. [$_{VP}$ [$_V$ Prt$_i$ V] [$_{PrtP}$ {NP ~~Prt$_i$~~}]]   (den Dikken 2003, Germanic)
  [$_{VP}$ [$_V$ ver$_i$ *sturen*] [$_{PrtP}$ {*de brieven* ~~ver$_i$~~}]] 'VER-send the letters'
 b. [$_V$ [$_{Cat}$ Cat <Co, Prt$_i$, Prt$_i$>] [$_{vP}$ v [$_{PredP}$ ~~Prt$_i$~~ [$_{Pred'}$ Pred [$_{VP}$ V [$_{SC}$ DP ~~Prt$_i$~~]]]]]]]

  [$_V$ [$_{Cat}$ Cat <Co, *el$_i$*, *el$_i$*>] [$_{vP}$ *olvasta* [$_{PredP}$ ~~*el$_i$*~~ … [$_{SC}$ *a könyvet* ~~*el$_i$*~~]]]]
  'away-away-read the book'   (my theory, Hungarian)

In (50a), den Dikken derives Dutch *ver-sturen* by adjoining *ver* to V and coindexing it with a silent copy in V-complement. Similarly, in (50b), I derive Hungarian *el-el-olvas* by adjoining Cat$_\omega$ to vP (i.e., its categorial feature) and coindexing both conjuncts with the lower copies of *el* in PredP. The four particle copies in (50b) are interpreted differently. The lowest copy is (abstractly) predicated of the IA, the intermediate one forms a complex predicate with V, and the highest two give rise to the irregular iterative meaning. This repetition-induced iterative meaning is an abstract one, which we may as well describe as ideophonic.[9] The semantic contribution of *el-el*, in its high position, is not 'away-away' (which makes little sense) but just something like 'from time to time', applied to the entire vP. This meaning is tied to the coordinate construction and is constant no matter what the specific particle is, even if it is the fully bleached *meg*. Thus, it is really just the *material*

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[8] This pair notation is not used in Chomsky (2013), where {XP, YP}, when involving a shared prominent feature, is just labeled by that feature. Chomsky (2015) does not justify the pair notation either, and in Chomsky et al. (2023: 39) the label in this situation is again described as "a single unique feature set" (e.g., φ). In this paper, I have generally assumed that the shared feature (set) itself serves as the label in this case, but the adjunction-to-feature perspective here may give the pair label notation some motivation too.
[9] Reduplication is commonly used to form vivid ideophones, as in Japanese *kira-kira* 'sparkling (of light)', *doki-doki* 'throbbing (of heartbeats)', etc.

but not the content of the particle that is recycled by Cat, which is exactly how Cat works (recall that the *black* in *blackboard* does not mean 'black'). The more concrete meaning of the particle is contributed by the lower silent copies, to the IA and V.

Finally, note that the cause of immobility in the above analysis is Cat rather than coordination. As mentioned above, Hungarian also has particle verbs with two opposite particles, which are separable and mobile like simple particle verbs.

(51) *Ki* **rakosgatja ki-be** *a kismackót a játékházba?*
who places out-in the little.bear.ACC the playhouse.in
'Who is placing the little bear in and out of the playhouse?' (Piñon 1991: 7)

Assuming that opposite particles like *ki-be* also have a coordinate structure, I attribute the different behaviors of reduplicated and opposite particles to a difference in the position where the coordinate structure is introduced. Opposite particles are introduced in the VP on a par with simple particles, hence their normal behavior.

5. Conclusion

In this paper, I proposed a special mode of adjunction that is native to the word domain and explored its consequences via two case studies. This adjunction mode is not planned (hence no Pair Merge) but a byproduct of a co-categorization construction Cat_ω-X, where Cat is a defective categorizer defined by an interpretable but unvalued categorial feature. In this construction, Cat categorizes a root-like chunk ω as a modifier of X by being categorially dependent on X via agreement. Labeled by the shared categorial feature, Cat_ω-X ends up featurally identical to X, and Cat_ω becomes an adjunct. Meanwhile, X or its head is blocked from further head movement due to minimality. However, nothing bans other elements in the structure, including Cat_ω, from moving out. This situation is observed in both case studies, respectively on German immobile verbs and Hungarian reduplicated particle verbs. In both cases, a word-formation process that can be analyzed as adjunction via categorization takes place. Consequently, the verb head is blocked from movement, while the nonhead (Cat_ω) is still mobile (subject to extra conditions). The results of this paper, if on the right track, suggest that a distinction should still be made between word- and phrase-level syntax even in a single-engine framework like DM.

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Keeping the syntax of predication and modification distinct: The view from Tamil*

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Abstract: There is a prevalent tendency in grammars to keep the syntax of modification and predication distinct – a tendency particularly relevant to adjectives, which are present in both domains. This paper presents the case of Tamil (Dravidian) where adjectives do not have independent categorial status in the lexicon; they are derived using relative clauses in the syntactic component. This paper provides an analysis of the process by which adjectives are formed, while highlighting the role of relative clauses in the structure. Adjectives thus derived can occur in the attributive (modificational) as well as the predicative domains, with agreement and finiteness being the structural facts that keep the two distinct.

Keywords: derived adjectives, relative clauses, attributive, predicative domains

1. Introduction

Natural language syntax generally makes a distinction between predication and (attributive) modification. This distinction is often reflected in terms of structural or morpho-phonemic differences between the two. The current paper covers the case of a language where both, attributive as well as predicative, modifiers are derived using similar strategies, and yet, the grammar strives to make a distinction between the two. The empirical core of the paper is formed by a Dravidian language – Tamil. Tamil is particularly relevant to discussions on attributive modifiers, because the status of adjectives in Tamil has been greatly debated. Section 2 of the paper covers existing literature which claims that Tamil does not have adjectives at all. In section 3, this claim is revised: Tamil does not have adjectives in the lexicon, but the syntactic component recognises them as a distinct category. The structural representation of these derived adjectives is provided in Section 4, with Section 5 focussing on the differences between the attributive (modificational) and predicative versions of the adjective.

2. Existing literature: There are no adjectives in Tamil

There is a consensus within the generative literature that Tamil (among other Dravidian languages) does not recognise adjectives as a distinct category. In this section, we shall review certain accounts which adopt such a position, and then provide an alternate analysis.

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Menon (2013, 2014) adopts the stance that adjectives do not constitute a separate lexical category in Dravidian languages. While the primary empirical support for this claim comes from Malayalam, (a language with close genealogical ties to Tamil), the argument made here spans all major Dravidian languages. Because of this, we consider Menon's account an important one while studying adjectives in Tamil. Menon's analysis of adjectives is framed by the strong claim that adjectives do not form an independent class in Dravidian languages, neither lexically nor in the syntactic component. Such a lack of adjectives forces these languages to create "*ad hoc*" adjective-like structures for the purposes of modification and predication. It is important to note that Menon's account is built on the premise of Distributed Morphology (DM) according to which the lexicon is simply a container of unlabelled roots devoid of any identifying information.

Within this architecture, adjectives (nouns and verbs too) are formed when roots take up certain position in the derivational spine.[1] For instance, merging with the nominaliser *n* results in a root being interpreted as a noun, and merging with the verbaliser *v* leads to the creation of a verb. So, the primary question for Menon is: How are adjectival modifiers formed?

To answer this question, Menon posits that roots come in two kinds: native (to Dravidian) and borrowed (from Indo-Aryan languages at an earlier point in the diachrony). This bifurcation is central to Menon's analysis, as the derivational process by which adjectives are formed out of roots differs significantly for these two types of roots.

Using examples from Malayalam Menon shows that "native" roots, when adjectivalised, contain a relativiser, as shown below in (1). The roots in (1a), (1b) and (1c) are all understood to be native to Dravidian, and adjectives can be formed out of them using a relativiser**.**

(1) Malayalam
 a. ceriy-a   b. pudiy-a   c. pacc-a
  √small-REL   √new-REL   √green-REL
  'small'   'new'   'green'

On the other hand, "borrowed" roots fare differently. Here, the roots are first nominalised. They are then attached to a copula, and finally relativised to form adjectives. This strategy is exemplified in (2) where the nominalised 'happiness' and 'height' have to be attached to a verbal element in order to become adjectives.

(2) Malayalam
 a. sandosham-uLL-a   b. pokkam-uLL-a
  happiness-COP-REL   height-COP-REL
  'happy'   'tall'

Essentially, according to Menon, the idea that adjectives are not an independent category in Dravidian languages is quite appealing, given how there are clearly nominal and verbal elements involved in their formation. Thus, there seems to be no incentive to prop them as a separate category.

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[1] For the purposes of this paper, we shall set aside the formation of nouns, verbs, etc., and focus solely on adjectives.

We raise two objections to Menon's theory of adjective formation: a conceptual and an empirical one. Conceptually, a system such as Distributed Morphology assumes roots in the lexicon to lack any identifying information; they are not labelled in any way whatsoever. However, Menon's theory crucially hinges on roots being labelled as "native" or "borrowed", which is incongruent with the principle of Distributed Morphology. The empirical objection comes from the fact that this analysis cannot be extended to Tamil, another Dravidian language. In Tamil, as we shall see, there is no distinction between native and borrowed adjectives. There are indeed two processes of adjective formation, but these are not sensitive to the native or non-native status of the root. Because of these two reasons we do not accept Menon's account for adjectives in Tamil.

Before going deeper into adjective formation in Tamil, let us review a few other existing accounts of adjectives in Dravidian languages. Another set of arguments against positing adjectives as a distinct category comes from Jayaseelan and Amritavalli (2017). The position adopted here, however, is not as strong as that of Menon's. Jayaseelan and Amritavalli claim that adjectives are not lexically distinct categories in Dravidian languages; applying some derivational processes to nouns is what results in modificational structures in syntax. However, there is still some reluctance to label these structures definitively as adjectives. Jayaseelan and Amritavalli base their position on the fact that most putative adjectives in Dravidian can be traced back to nominal roots, and that the number of indisputable adjectives in these languages is a very low number, approximately 30.

This line of argumentation is further developed by Amritavalli (2019). Amritavalli states that given the paucity of adjectives in Dravidian languages, nouns often take on the role of these modifiers. It is a very productive strategy to "adjectivalise" a noun by adding a suffix to it. This process is illustrated in (3) below, where the noun in (3a) and (3b) becomes a modifier (3c) with the addition of a suffix *-aa*.

(3) Tamil
    a. kastam
       'difficulty'
    b. id-oda   kastam
       it-GEN   difficulty
       'it's difficulty'
    c. idu   kastam-aa   irukku
       this   difficulty-aa   be.PRS.3SG
       'This is difficult'

Amritavalli's position, too, is that modifiers can be productively derived from nouns and other elements, consequently obviating the need for having a separate category for adjectives in this set of languages. Thus, we see that a conventional understanding of adjectives is rooted in them not being a standalone category. In the next section, I provide empirical and conceptual arguments in favour of revising this position. I agree with the existing claim that the lexicon does not recognise adjectives independently in Tamil; derivational operations are crucially needed for their realisation. Nevertheless, the current claim is that the derived structures are indeed adjectives. When we consider the internal syntax of the derived modifiers in Tamil, and the positional/distributional constraints obeyed by them, it becomes evident that they should be analysed as adjectives.

3. The Current proposal: Distinct adjectives in the syntax

Having provided the backdrop on Tamil adjectives, I now proceed to evidence my claim that there are indeed adjectives in Tamil. Essentially, the claim made here is that adjectives may not be defined as a category in the lexicon in Tamil, but they are recognized distinctly by the derivational component. In other words, I agree with the existing claims that adjectives do not form a lexical class, but I disagree with them in terms of whether syntax recognizes them as an independent category. Here I provide the empirical facts that form the basis of my claim.

3.1. Empirical evidence – Krishnamurthy (2003)

Krishnamurthy (2003) provides a comprehensive account of adjectives of Dravidian languages. Krishnamurthy's claim is that there can be some parts of speech that are afforded an independent existence only in the domain of syntax. In the lexicon, they are indistinguishable. Adjectives, adverbs, clitics, etc. belong to this category of items. The empirical evidence for Krishnamurthy's claim is formed by the examples in (4). The lexical items in (4) cannot be traced back to nominal or verbal roots. They are modifiers, or property concepts. A caveat here is that these lexical items are not morphological words. They are concepts/roots that await certain derivational procedures before they can be used in a sentence.

(4) a. *karu*   'black'   b. *mun*   'forward'
     c. *cem*   'red'   d. *mutu*   'old'
     e. *veL*   'white'   f. *pudu*   'new'
     g. *vata*   'north'   h. *iLa*   'young'
     i. *pin*   'behind'   j. *ini*   'sweet'

These examples further strengthen the idea that adjectives ought to be recognized as a separate category. While it is true that nominal and verbal elements productively lend themselves to "adjectivisation", there are also certain modifiers in the language (4) that cannot be traced back to these categories. They are modifiers and must be recognized as such.

3.2. Diagnostic tests

In this section, I present further argumentation to strengthen the claim that modifiers in Tamil should be analysed as adjectives. Essentially, I show that modifiers in Tamil obey all the characteristics of adjectives seen cross-linguistically. There are four major properties that adjectives have: (i) They have a fixed position in the DP; (ii) They can co-occur with other modifiers; (iii) They can be modified by intensifiers; and (iv) They allow for gradability.

(i) **Fixed position in the DP:** Adjectives have a fixed position in the DP. Languages vary in terms of whether the adjective precedes (A - N) or follows (N - A) the noun. Once the order has been decided, it remains fixed. In (5) we can see that the modifiers in Tamil, too, have a fixed pre-nominal position (5a, 5c). It is ungrammatical to move it post-nominally (5b, 5d).

(5) a. *anda nall-a   paiyan*   c. *anda uyaram-aa-na paiyan*
     that √good-REL boy   that height-v-REL boy
     'that good boy'   'that tall boy'
     b. **anda paiyan   nall-a*   d. **anda paiyan uyaram-aa-na*
        that boy   √good-REL   that boy   height-v-REL

(ii) **Co-occurrence with other modifiers:** Another key hallmark of adjectives is that cross-linguistically, they can co-occur with other modifiers such as numerals and quantifiers, iteratively modifying the head noun. The modifiers in Tamil too follow this pattern as (6).

(6) a. *anda naalu nall-a   pasanga*
        that four   √good-REL   boys
        'those four good boys'
     b. *neraya nall-a   pasanga*
        many √good-REL   boys
        'many good boys'
     c. *anda anju uyaram-aa-na   pasanga*
        that five height-v-REL   boys
        'those five tall boys'
     d. *neraya uyaram-aa-na   pasanga*
        many   height-v-REL   boys
        'many tall boys'

(iii) **Modification by Intensifiers:** Adjectives are the only parts of speech that can be modified by intensifiers such as 'very'. This property does not extend to nominal and verbal entities. (7) shows that the modifiers in Tamil behave in this exact way. Intensifiers can be applied to derived adjectives (7a, 7c) but not to nominals (7b, 7d).

(7) a. *anda   romba nall-a   paiyan*
        that   INTF   √good-REL   boy
        'that very good boy'
     b. **anda   romba paiyan*
         that   INTF   boy
        Intended: 'that very boy'
     c. *anda romba   uyaram-aa-na   paiyan*
        that INTF   height-v-REL   boy
        'that very tall boy'
     d. **anda romba   uyaram*
         that INTF   height
        Intended: 'that very height'

(iv) **Degrees of Comparison**: Adjectives are typically gradable: they can be expressed in comparative and superlative terms. The modifiers in Tamil (8) also occur in these forms.

(8) a. *john peter-a*   *vida*   *nall-a-van*
         John Peter-ACC   than   √good-REL-MSG
         'John is better than Peter.'
     b. *john ellarayum*   *vida*   *nall-a-van*
         John everyone   than   √good-REL-MSG
         'John is better than everyone.'
     c. *mary lisa-va*   *vida*   *uyaram-aa*   *iruk-aa*
         Mary Lisa-ACC   than   height-V   be-3FSG
         'Mary is taller than Lisa.'
     d. *mary ellarayum*   *vida*   *uyaram-aa*   *iruk-aa*
         Mary everyone   than   height-V   be-3FSG
         'Mary is taller than everyone.'

3.3. Interim summary: What can we say about Tamil adjectives?

To summarise, what we can say about adjectives in Tamil is that while they may not form lexical primitives in the language, syntax does recognise them as a distinct category. The examples provided above (5-8) clearly demonstrate that modifiers in Tamil follow all the prototypical characteristics of adjectives. They behave exactly the way designated adjectives behave in other languages.

   Three other properties of Tamil adjectives become evident from the examples given above:

   a. The internal syntax of adjectives in Tamil is complex. These units are not unary; they are composite and obtained derivationally.
   b. Adjectives in Tamil occur in the attributive as well as the predicative domains.
   c. There are at least two routes to deriving adjectives in Tamil: the examples in (5c-5d), (6c, 6d), (7c, 7d), and (8c, 8d) have a nominal flavour that is absent in (5a-5b), (6a-6b), (7a-7b), and (8a-8b).

4.   The structure of adjectives in Tamil

4.1. A two-way distinction in Tamil adjectives

By looking at the morphological shape of the adjectives in Tamil, we can infer that there are two different ways of composing adjectives in Tamil; there must be two strategies of derivational adjective formation.

   The first strategy, termed as the 'Root + Relativiser Strategy' begins from uncategorised roots/property-denoting concepts, which attach to a relativiser. The resultant complex is interpreted as an adjective: (9). In (9), the root √good cannot be realised independently; it requires affixation in order to become a morphological word. In the case of property-denoting concepts in Tamil, the crucial affix in this process is the relativising morpheme. Attaching a relativiser to a property-denoting concept renders it an adjective. The adjective thus derived can be used in the attributive (9b) as well as the predicative (9c) positions.

(9) a. *nall-a*
        √good-REL
        'good'
     b. *nall-a*   *paiyan*
        √good-REL   boy
        'good boy'
     c. *anda*   *paiyan*   *nall-a-van*
        that   boy   √good-REL-MSG
        'That boy is good.'

The second strategy to form adjectives in Tamil is termed as the 'N + V + Relativiser Strategy'. In this case, a lexical noun is first verbalised, and then relativised to form an adjective. Adjectives formed via this strategy can be clearly traced back to nominal origins. In (10a) the noun[2] 'height' is first verbalised, then relativised to form the adjective 'tall'. Similar to the previous strategy, the derived adjective can be used attributively (10b) as well as predicatively.

(10) a. *uyaram-aa-na*
         height-V-REL
         'tall'
      b. *uyaram-aa-na*   *paiyan*
         height-V-REL   boy
         'tall boy'
      c. *anda paiyan*   *uyaram-aa(-ga)*   *iru-k-aan*
         that boy   height-V(-REL)   be-PRS-3MSG
         'That boy is tall.'

The verbal element in (10) merits further explanation. In Tamil, the lexical verb *aa* 'to happen' is crucial to the formation of adjectives from nouns. (11) contains examples of regular occurrences of the verb.

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[2] The status of *uyaram* 'height' as a lexical noun can be established by looking at these examples where it can appear as a possessum (i) take case markers and post-positional markers (ii), which are prototypical characteristics of nouns.
   (i)   *avaL-oda uyaram*
         she-POSS height
         'her height'
   (ii) *avaL-oda uyara-tta patti*
         she-POSS height-ACC about
         '…about her height'

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(11) a. *neram aa-chu*
    time happen-PST
    'It's time.' (lit: time happened)

    d. *paisa selavu aa-gum*
    money expense happen-FUT
    'It will cost money.'
    (lit: money spending will happen)

    b. *ena-kku vayasu aa-chu*
    me-DAT age   happen-PST
    'I am old.' (lit: age happened to me)

    e. *onnum   aa-gala*
    NPI   happen-NEG
    'Nothing happened.'

    c. *enna aa-chu*
    what happen-PST
    'What happened?'

The verb in (11) conveys the meaning of something taking place or happening, which when applied to a noun such as 'height' forms 'height-happened'. The resultant adjectival structure is interpreted as 'tall', as in (10).

    Essentially, there are two ways of forming adjectives in Tamil, and they are both very productive paradigms found in the language, as illustrated by (12) and (13).

(12) Root + Relativiser Strategy
    a. *kett-a*
    √bad-REL
    'bad'

    b. *peri-a*
    √big-REL
    'big'

    c. *cinn-a*
    √small-REL
    'small'

    d. *pudi-a*
    √new-REL
    'new'

(13) N + V + Relativiser Strategy
    a. *amaidi-aa-na*
    silence-V-REL
    'silent'

    b. *porupp-aa-na*
    responsibility-V-REL
    'responsible'

    c. *sood-aa-na*
    heat-V-REL
    'hot'

    d. *sogam-aa-na*
    sadness-V-REL
    'sad'

With the empirical paradigm in place, we can now procced to understand the structural representation of derived adjectives in Tamil.

4.2. The derivational structure of adjectives in Tamil

Within the generative paradigm, adjectives are merged as modifiers to NPs within the nominal domain, or the DP (Kayne 1994). Thus, adjectives are part of the nominal spine from where they can modify the noun attributively. Cinque (2010) presents a proposal for the syntax of adjectives wherein, cross-linguistically, there are two ways in which adjectives can come about in a derivation. They can either be phrasal specifiers of dedicated functional projections – AP, or they can be introduced as predicates of reduced relative clauses. Cinque's proposal, further explained by Alexiadou (2014) is represented in (14):

(14)

```
          DP
           \
            D'
           /  \
          D    FP₁
              /  \
          [RC]    F'
                 /  \
               F₁    FP₂
                    /  \
                 [AP]    F'
                        /  \
                      F₂    NP
                             |
                             N
```
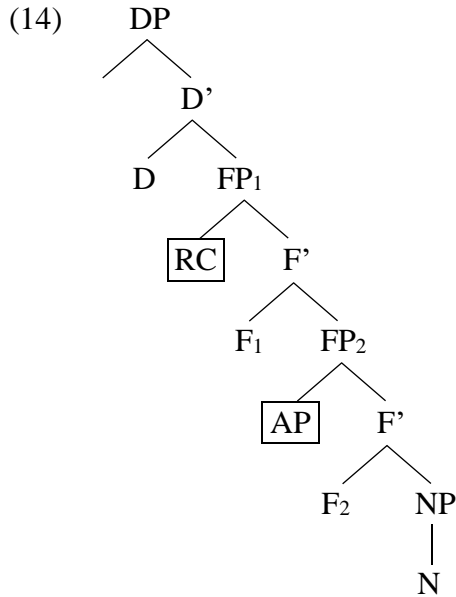
According to Cinque's proposal, these are the two possibilities by which grammars can introduce adjectives into the derivational structure. What is particularly relevant about this proposal is that the two options – AP and Reduced RC need not be obligatorily present in all languages. I interpret Cinque's proposal that the choice between using one of the two possibilities or using both the possibilities is subject to cross-linguistic variation. Germanic and Romance languages, where adjectives form a distinct class of lexical items, make productive usage of both the strategies (Alexiadou 2014).

On the other hand, Dravidian languages like Tamil are cases where the lexicon does not recognise adjectives as an independent category. Consequently, there are no dedicated APs. In these languages, the only way to obtain adjectives is through derivational means. Thus, Tamil makes uses of reduced relative clauses to form adjectives and introduce them into the spine of the DP. The role played by (reduced) relative clauses is further highlightted empirically, when we see that relativiser morphemes feature prominently in all adjectival structures in Tamil. To recall, adjectives in Tamil are formed by relativising either an acategorial root (15) or a verbalised noun (16). The structural representation of both the strategies of adjective formation in Tamil are underlain by CP. The relativiser hosted at C takes either a root (15b) or a VP (16b) as its complement.

(15) a. *nall-a*
    √good-REL
    'good'

b.
```
          CP
         /  \
     √root   C
             |
            REL
```
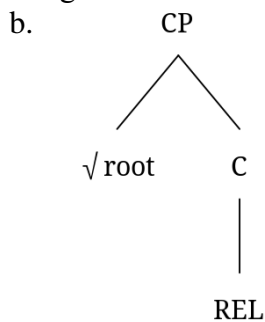
(16) a. *uyaram-aa-na*
    height-happen-REL
    'tall'

b.
```
          CP
         /  \
       VP     C
      /  \    |
    NP    V   REL
```
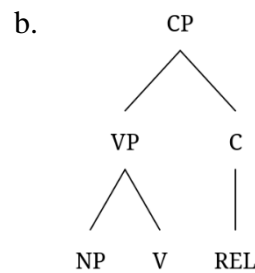
The (reduced) relative clauses thus formed can now be introduced into DP as adjectival modifiers.

4.3. Structural position of derived adjectives in Tamil

The previous section established that adjectives in Tamil are underlyingly CPs, with the relativiser in C being crucial to their formation. Empirically, it has also been established that these derived adjectives can be present as both attributive, as well as predicative modifiers. In this section, the nuances of both the structural positions will be presented.

4.3.1. The Structure of attributive adjectives

Attributive adjectives are defined in terms of their positional distribution. They occur within the nominal domain, either prenominally or post-nominally. In Tamil, their position is prenominal, as established in (5). Attributive adjectives are typically considered to be modifiers of nouns, and as such, they are understood to not have an argument-predicate relationship with the nouns that they modify. In Tamil, both adjective-formation strategies, namely the 'Root + Relativiser Strategy' (17) and the 'N + V + Relativiser Strategy' (18), yield attributive adjectives.

In case of the former, (17) shows that relativizing a property-denoting concept/ root results in an adjective, represented as CP. (17a-c) show that there is no agreement between the noun and the adjective. The shape of the adjective remains constant in the face of varying phi features of the subject. None of the features of the subject (MSG, FSG, PL, etc.) are reflected on the modifying adjective.

(17) a. *anda nall-a   poNNu*
         that √good-REL   girl
         'that good girl'
      b. *anda   nall-a   paiyan*
         that   √good-REL   boy
         'that good boy'
      c. *anda   nall-a   pasanga*
         that   √good-REL   children
         'those good children'
      d.

```
                    DP
                   /  \
                  D    NP
                that   / \
                     CP   NP
                    /  \    |
                √good   C   N
                       REL  Girl.FSg
```
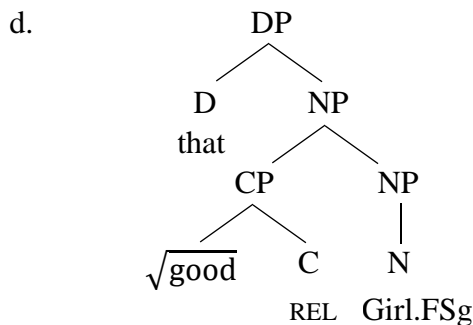
The (reduced) relative clause, functioning as an adjective, is merged as an adjunct to the Noun Phrase in (17d). The representation given here can capture the idea that the adjective 'good', formed within a relative clause, is an attributive modifier of the noun 'girl'.

The second strategy of adjective formation, exemplified by (18), originates from a lexical noun 'height'. The noun 'height' is first verbalised with the help of a verb carrying the meaning of 'to happen'. The composite VP is then relativised in order to form an adjective. Here too, the resultant relative clause is interpreted as an adjective. The attributive adjective 'tall' does not exhibit any agreement with the head noun of the clause. Features of the noun are not reflected in the shape of the adjective (18a-c). Identical to the structure posited for the 'Root + Relativiser Strategy', the relative clause formed from VP is also merged as an adjunct modifier of the head noun 'girl' (18d).

(18) a. *anda*   *uyaram-aa-na*   *poNNu*
     that   height-happen-REL   girl
     'that tall girl'

    b. *anda*   *uyaram-aa-na*   *paiyan*
     that height-happen-REL   boy
     'that tall boy'

    c. *anda*   *uyaram-aa-na*   *pasanga*
     that   height-happen-REL   children
     'those tall children'

    d.

```
                        DP
                      /    \
                    D       NP
                   that    /   \
                         CP      NP
                        /  \      |
                      VP    C     N
                     /  \   REL  girl
                   NP    V
                   |    happen
                   N
                 height
```
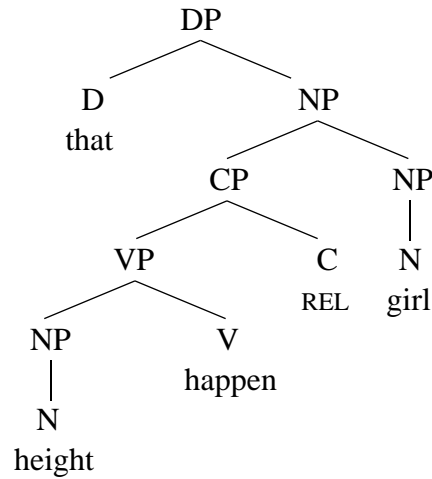
To generalise, both strategies of adjective formation in Tamil can occur as attributive modifiers of the head noun, and they are merged as adjuncts to NP in order to establish this relation. There are no probes in the attributive domain, leading to the absence of agreement relations between the adjective and the noun.

At this stage, it is important to note that the relativiser in (17) is the same as the one in (18), despite them having different phonological exponence: *-a* and *-na*, respectively. The difference arises due to a phonological constraint: *-a* denotes relativisers in Tamil. However, in (18), the verb happen *-aa* and the relativiser *-a* appearing serially would create a situation of vowel hiatus. In order to break this clustering, a consonant *n* is inserted epenthetically, resulting in (18) having a different overt realization from (17). Structurally, however, they are the same morpheme.

4.3.2. The structure of predicative adjectives

Predicative adjectives are located in the verbal domain. They take nouns as their arguments. The argument-predicate relationship between the noun and the adjective is

facilitated structurally – by the functional projection PredP. Pred (Baker 2008, 2011) is a special copular category that houses the noun in its specifier and the adjective in its complement position (19). The semantic function of Pred is to retrieve the thematic role implicit to the adject and transfer it onto the noun, ultimately establishing a structural connection between the two. With a thematic role from the adjective assigned to it, the noun can be structurally identified as the subject of the adjectival predicate.

(19)

```
              PredP
            /       \
         NP          Pred'
         |          /     \
         N        Pred     AP
                            |
                            A
```
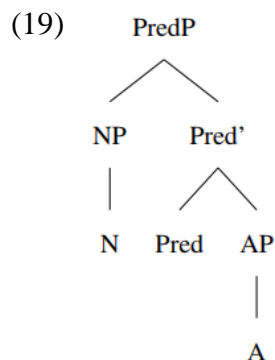
In Tamil, both, 'Root + Relativiser Strategy' and 'N + V + Relativiser Strategy' lead to the creation of predicative adjectives. In case of the former, (20a-c), the CP formed out of the root and the relativiser is merged as complement to Pred. Pred is overtly realised, and it is an active probe in Tamil. Therefore, it agrees with the phi features of the subject. The phi features of the subject are reflected in the morphological shape of the predicative adjective. In the structural configuration in (20d), agreement takes place between the subject and the predicate as a result of Bidirectional Agree (Baker 2008). Bidirectional Agree stipulates that, in order for agreement to take place, either the probe must C-Command, or be C-Commanded by the goal. In (20d), the probe in Pred is C-Commanded by the goal DP, establishing syntactic Agree between the two. As a result, the features of the subject 'that girl' are realised on the predicate. It is important to note that the agreeing head in (20) is Pred and not the adjective itself. Adjectival agreement is seen in Tamil only when the adjective is in the predicative domain, suggesting that the structural context provided by Pred is crucial for agreement to take place.

(20) a. *anda   poNNu   nall-a-va*
        that   girl   √good-REL-FSG
        'That girl is good.'
     b. *anda   paiyan   nall-a-van*
        that   boy   √good-REL-MSG
        'That boy is good.'
     c. *anda   pasanga   nall-a-vanga*
        that   children   √good-REL-PL
        'Those children are good.'

d.

```
                    PredP
                   /     \
               DP          Pred'
            that girl      /    \
               ↑        CP        Pred
                       /  \       3FSg
                   √good   C       ↑
                          REL
```
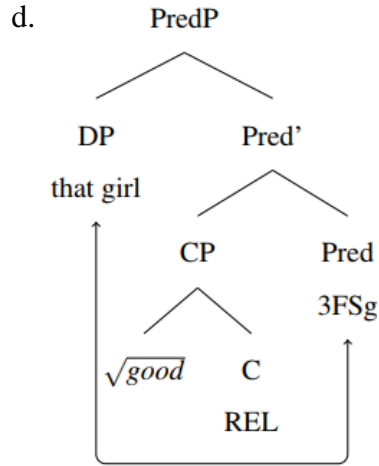
It is important to note that the agreement patterns observed in (20) does not exemplify full phi feature agreement. The predicative adjective agrees with the subject in number and gender, but not in person. In order to provide a clearer characterisation of partial agree, we consider cases with first (21c-d) and second (21e-f) pronouns as subjects. In both these cases, we see that the predicative adjective agrees with the gender and number feature of the subject. The person feature of the subject does not find reflection in the adjective. The empirical evidence in (21) provides further confirmation to the idea that the agreeing head in these derivations is Pred and not T; the involvement of T would imply a full phi feature agreement. The role of T in agreement will be explained in greater detail as we move on to predicative adjectives formed using the 'N + V + Relativiser Strategy'.

(21) a. *ava(n)   nall-a-va(n)*
      she(he) √good-REL-FSG(MSG)
      'She (or he) is good.'

   b. *avanga nall-a-vanga*
      they   √good-REL-PL
      'They are good.'

   c. *naa nall-a-van*
      I   √good-REL-MSG
      'I am good.' (male speaker)

   d. *naa nall-a-va*
      I   √good-REL-FSG
      'I am good.' (female speaker)

   e. *nee nall-a-van*
      you √good-REL-MSG
      'You are good.' (male addressee)

   f. *nee nall-a-va*
      you √good-REL-FSG
      'You are good.' (female addressee)

Using the 'N + V + Relativiser Strategy' to form predicative adjectives in Tamil yields structures such as (22). A noun, such as 'height', is first verbalised with the verb 'to happen' and then relativised. The composite (reduced) relative clause is then realised as complement to the null Pred. Adjectives formed using this strategy are distinct from the Root-relativising strategy in having an overtly realised copula. Agreement is now realised on the copula, and no more on the predicative adjective (22a-c). This agreement configuration is structurally represented in (22d), where T agrees with the subject DP. T C-Commands the subject DP and is therefore capable of entering into a relation of Agree with it.

(22) a. *inda   poNNu uyaram-aa(-ga)   iru-k-aa*
      this   girl height-happen(-REL) be-PRS-3FSG
      'This girl is tall.'

b. *inda   paiyan uyaram-aa(-ga)   iru-k-aan*
   this   boy   height-happen(-REL)   be-PRS-3MSG
   'This boy is tall.'

c. *inda koLandainga uyaram-aa(-ga)   iru-k-aanga*
   this children   height-happen(-REL)   be-REL-3PL
   'These children are tall.'

d.
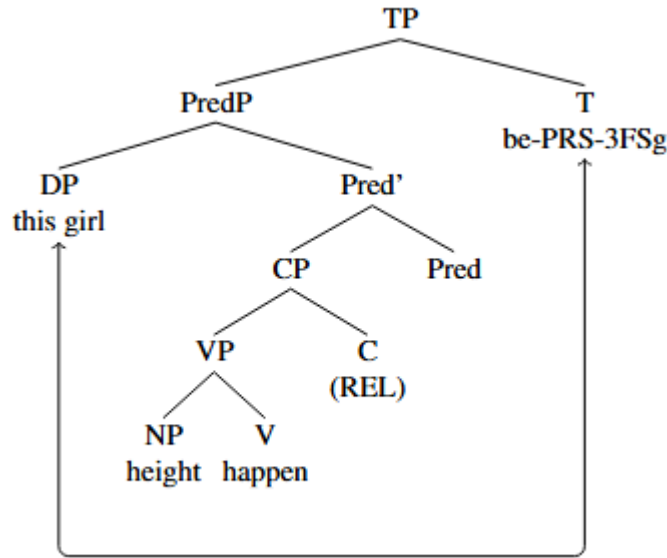
In order to conclusively establish T, and not Pred, as the agreeing head we consider sentences with first (23c-d) and second (23e-f) person pronouns as subjects of the predicative adjectives. In (23c-f) the predicative adjectives agree with the person feature of the subject, inflecting differently for the different person and number features of the subject.

(23) a. *ava   uyaram-aa(-ga)   iru-k-aa*
     she   height-happen(-REL)   be-PRS-3FSG
     'She is tall.'

b. *avan   uyaram-aa(-ga)   iru-k-aan*
   he   height-happen(-REL)   be-PRS-3MSG
   'He is tall.'

c. *naa   uyaram-aa(-ga)   iru-k-en*
   I   height-happen(-REL)   be-PRS-1SG
   'I am tall.' (male or female speaker)

d. *naanga   uyaram-aa(-ga)   iru-k-om*
   we   height-happen(-REL)   be-PRS-1PL
   'We are tall.' (male or female speaker)

e. *nee   uyaram-aa(-ga)   iru-k-a*
   you   height-happen(-REL)   be-PRS-2SG
   'You are tall.' (male or female addressee)

f. *niinga   uyaram-aa(-ga)   iru-k-iinga*
   you.PL   height-happen(-REL)   be-PRS-2PL
   'You are all tall.' (male or female addressee)

It has been well-established (Baker 2008, 2011) that the involvement of T is crucial for the execution of person agreement. Agreeing heads lower than T cannot enable person agreement. The sentences in (23) display person, number and gender agreement on the overt copula, because of which we can infer that T must be involved in this structural configuration. Another phenomenon that merits our attention in these cases is that when a higher functional projection, T, is involved, the lower head, Pred, automatically stops in agreement. Pred does not realise agreement in (23). However, it did in (21), when the higher functional projection was not involved. The morphological exponence of the subject features are seen only once in Tamil; only one head exhibits agreement overtly. When T is involved, it is the copula (23) and in the absence of T, Pred is the agreeing head, with the agreement morphemes hosted on the predicative adjective itself (21).

4.3.3. What is an adjective in Tamil?

To summarise, adjectives in Tamil do not originate as a an independently defined category in the lexicon. The lexicon does contain some property concept denoting roots, but even these need to undergo certain derivational steps in order to be realised as adjectives. Essentially, adjectives in Tamil are formed in the syntactic component. Relative clauses are crucial to the formation of adjectives in Tamil. Relativising either an uncategorised root or a verbalised noun results in the formation of adjectives in Tamil. The adjectives derived in this fashion can be in the attributive/modificational as well as the predicative domain. In the former, the relativised root/verbalised noun (CP) is merged as an adjunct to the Noun Phrase, and in the latter CP is merged as complement to Pred. In both these structural configurations, the relativised structures are interpreted as adjectives in Tamil.

	Attributive	Predicative
Root + Relativiser Strategy	[Root + REL] as adjunct to NP	[Root + REL] as complement to Pred
N + V + Relativiser Strategy	[N +V+ REL] as adjunct to NP	[N + V + REL] as complement to Pred

Table 1: What is an Adjective in Tamil?

5. The distinction between attributive and predicative adjectives

Attributive and predicative adjectives are differentiated based on their structural position: the former occurs as an adjunct to the Noun Phrase, while the latter is the object of the predicate. In Tamil, adjectives in both these positions are derived from the same underlying structure – in both cases, (reduced) relative clauses are crucially involved. It is by relativising property-concept denoting roots and verbalised nouns that adjectives in both positions are composed. Given such a configuration it is of particular relevance that, despite these underlying similarities, the syntax of attributive and predicative adjectives in Tamil are kept distinct.

Essentially, even a grammar without lexically demarcated adjectives (such as that of Tamil) seeks to make structural and principled distinctions between the attributive and predicative versions of adjectives. Both are derived using identical structural mechanisms, but there are two salient features that set them apart: Agreement and Finiteness.

(i) **Agreement:** A major difference between attributive and predicative adjectives in Tamil is that the former is completely devoid of agreement, and the latter has either partial or full phi feature agreement, depending on the head that participates in agreement. As illustrated above, the attributive domain does not contain any probes, and therefore does not display any agreement relations with the noun it modifies. The morphological shape of the adjective remains invariant regardless of the featural make-up of the head Noun Phrase. In contrast, the adjectives in the predicative domain exhibit two patterns of agreement with the subject. When the agreeing head is T, there is full phi agreement with the subject, and when an overt copula is absent, the agreeing head is Pred. In this case, the adjective agrees with the subject in number and gender to the exclusion of person features.

(ii) **Finiteness:** The second key difference between modificational and predicative adjectives is in terms of the expression of finiteness. Attributive adjectives, which only modify the head Noun Phrase, are present inside the DP, and thus, do not carry any tense information. Predicative adjectives, on the other hand, are anchored in time – as indicated by the presence of Pred/T. In these configurations, the predicative adjective exists on a point in the timescale, and tense information is overtly marked on the copula.

These are the two ways in which Tamil differentiates between attributive and predicative adjectives. Using these strategies, adjectives that were derived from the same underlying structure can still be differentiated on the basis of structural properties.

6. Conclusion

This paper provided a sketch of adjectives in Tamil. The springboard for this paper is the existing claim that Tamil does not have any adjectives; there may be some certain modifiers with nominal or verbal origins. However, closer inspection into these modifiers revealed that they follow several characteristic traits exhibited by adjectives cross-linguistically, making it clear that they should be understood as adjectives. Following this reanalysis, the paper also provided the structural representations underlying these derived adjectives in Tamil, and how they occur in attributive and predicative domains.

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Program

International Workshop on the Syntax of Predication and Modification 2024

Meeting Dates: 16-17 November, 2024 (In-person Meeting)
Venue: Ichigaya Campus, Nihon University, Tokyo, Japan

Website: https://sites.google.com/view/iwspm2024

November 16 (Sat)

9:00-9:30	Registration
9:30-9:35	Opening Remarks
9:35-10:35 (Keynote Speech)	**On the subject of subject depictives and subject-oriented adverbials**
	Marcel den Dikken (Hungarian Research Centre for Linguistics, Budapest & Centre of Linguistics of the University of Lisbon)
(10 minute break)	
10:45-11:20	**Issues on adjectives and nouns in predication and modification**
	Isabelle Roy (Nantes Université/CNRS)
11:20-11:55	**Comparative syntax of genitive subjects in Standard Japanese and Hichiku Japanese**
	Kazushige Moriyama (Naruto University of Education) & *Hideki Kishimoto* (Kobe University)
(Lunch Break)	
14:25-15:00	**Adjunction as categorization: On the syntactic quirkiness of word-level modification**
	Chenchen Song (Zhejiang University)
15:00-15:35	**From modification to predication: The development of change of state complex predicates in Old Spanish**
	Margot Vivanco (Universidad de Castilla - La Mancha) & *Cristina Sánchez-López* (Universidad Complutense de Madrid)
15:35-16:10	**Result creation and modification in Hungarian**
	Éva Kardos (University of Debrecen)
(10 minute break)	

16:20-16:55	**Modification versus predication and binding: Prenatal particle verb and prefix verb structures in German**
	Patrick Brandt (Leibniz-Institute for the German Language)
16:55-17:30	**We thought and thought, and eventually solved this: One predicate modifies the other**
	Dalina Kallulli (University of Vienna) &
	Ian Roberts (University of Cambridge)

November 17 (Sun)

9:00-9:35	**Apposition and the limits of predication**
	Caroline Heycock (University of Edinburgh)
9:35-10:10	**Predication in disguise: Which-constructions in Hong Kong Cantonese code-mixing speech**
	Tommy Tsz-Ming Lee (City University of Hong Kong)
(10 minute break)	
10:20-10:55	**Adjectives in an adjective-deficient language: Wolof**
	Victor Acedo-Matellán (University of Oxford) &
	Isabelle Roy (Nantes Université/CNRS)
10:55-11:30	**Keeping the syntax of predication and modification distinct: The view from Tamil**
	Madhusmitha Venkatesan (Indian Institute of Technology Delhi)
(10 minute break)	
11:40-12:40 (Invited Talk)	**Language variation and the labeling of modification structures**
	Mamoru Saito (Notre Dame Seishin University)
12:40-12:45	Closing Remarks

Alternate Paper 1:	**The syntax of relative complement clauses in Persian complex DPs**
	Negin Ilkhanipour (University of Tehran) &
	Ayaka Sugawara (Waseda University)
Alternate Paper 2:	**Predicates-over-modifiers parameter and the syntax of interrogative/quantity verbs in Tsou**
	Henry Chang (Academia Sinica)

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