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The size of clausal complements

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Abstract

Drawing mainly—but not exclusively—from data from Germanic, this article compares syntactic, morphological, and semantic approaches to size differences of complement clauses. Focusing on two phenomena that have been related to clause size reduction/truncation—ECM and restructuring—it is shown that their distribution is radically different and that clause size cannot be the main factor regulating both of these phenomena. This article provides a solution to this conflicting state-of-affairs and lays out an approach that builds on a fine-grained CP-structure, including both syntactic and semantic categories, a reduced structure for infinitives, and a syntax–meaning mapping that predicts different minimal clause sizes for different semantic types of complements. Based on the distribution of ECM in Germanic, a tentative ECM-hierarchy is suggested which follows implicational containment relations of an expanded CP.

Contents

1. INTRODUCTION

This article compares approaches to the syntax of complement clauses which attribute differences such as transparency for syntactic dependencies to contrasts in (phrase-structural) size. Approaches differ in whether they take the main factor determining the classification of size differences to be morphological properties (such as finiteness), syntactic properties (such as raising, ECM vs. control) or semantic properties (such as propositions, situations, or events). I show that all of these factors may play a role in the structure of a complement clause in a given language, but that cross-linguistically, only the differences in semantic classifications are robustly observable. Furthermore, comparing the distribution of different phenomena (concretely ECM and restructuring), a major dilemma arises if reduced clause size (such as CP-omission) is the main theoretical tool regulating transparency in both contexts, since the distributions are not coextensive, not even largely overlapping, but rather complementary. I suggest a solution to this dilemma which builds on a finer-grained CP-structure and a predictable syntax–meaning mapping in terms of minimal clause size.

2. SIZE CLASSIFICATION FACTORS

In this section, I lay out three types of classifications that have been proposed for complement clause size differences (I focus on English here). While I present them as separate approaches, it should be noted that many accounts involve combinations of these factors.

2.1. Syntactic classification

A widely accepted approach to complement clause size in most *Government and Binding* as well as *Minimalist* frameworks is to distinguish between full CP complements and reduced IP/TP complements. The distinction is typically based on whether the configuration involves control, on the one hand, (full CP) or *Exceptional Case Marking* [ECM]/raising to subject or object, on the other hand (reduced TP) (Chomsky 1981, 1986). The theoretical reasoning behind this traditional clause size difference, which comes in various implementa-

tions, is to ensure that the embedded subject in ECM/raising is close enough to the matrix predicate to establish a dependency (typically case) with it, and far enough away from it in control (typically to prevent the PRO subject from entering such a dependency).[1] ECM/raising are cross-clausal A-dependencies—case and theta-role come from different predicates—and locality is typically defined in a way that a CP blocks an A-dependency across it. In English both types of configurations (control, ECM/raising) are only possible in non-finite complements. Hence finiteness does not play a direct role in predicting clause size (infinitives can be TPs or CPs), but only an indirect role in that ECM/raising and control are all blocked across a finite clause in English, independent of the clause size of a finite complement.

2.2. Morphological classification

The second approach to classifying/diagnosing clause size differences includes finiteness as a main factor. The main idea of is that finite clauses are (typically) CPs, but non-finite clauses are necessarily smaller. An early proposal along these lines can be found in Bošković (1997) where it is argued that all types of infinitives (ECM/raising and control) are reduced TPs (again with the possible exception of a null C in *want*-type ECM). In that approach, the connection between (non-)finiteness and clause size is not entirely direct, but connected to the licensing of the embedded subject—non-finite T does not assign nominative, which is what is needed for both control and ECM/raising.

A more direct connection between (non-)finiteness and clause size is proposed in Pesetsky's (2019) *exfoliation* approach. According to this view, all clauses start out as full finite CPs, and infinitives are created by removing structural layers from the top, in particular CP and the finite TP-layers. Similarly Satık (2022) suggests that infinitival complements are necessarily smaller than full finite CPs, however, the concrete size may vary across languages, possibly also including certain layers of an expanded cartographic CP (e.g., topic, focus layers). An issue that remains open to some extent is whether the connection between (non-)finiteness and clause size is a one-way implication (if non-finite, then smaller than a full CP; leaving open the size of finite clauses) or a bi-directional one (non-finite entails a smaller structure *and* finite entails a full CP). The main controversy concerns the structure of (embedded) root clauses, such as *that*-less clauses in English (Heycock 2006), for which two basic views exist. Finite complement clauses without a complementizer have been analyzed as bare TPs (see, among others, Hegarty 1991; Webelhuth 1992; Doherty 1993, 1997, 2000; Svenonius 1994; Bošković 1997; Wurmbrand 2014b), or as full CPs with a null complementizer (see Stowell 1981; Pesetsky 1992; Bošković 1997; Bošković & Lasnik 2003). The advantages and disadvantages of these two approaches will be addressed further below (see in particular section 4.1), and I will suggest a third option after we discuss the fine structure of the CP.

[1] An exception to this view is what I will refer to as *want*-type ECM. Matrix verbs like *want* can combine either with a *for* complement or an ECM(-like) configuration (e.g., *I want (for) her to win*). In several works, (apparent) *want*-type ECM is analyzed as involving a null complementizer *for* which assigns non-exceptional case to the embedded subject (see, among others, Pesetsky 1992; Bošković 1997). I will set aside *want*-type ECM, but mention it for completeness when relevant.

2.3. Semantic classification

Clause size differences have also been related to the semantic properties of complement clauses. Note that this view does not entail that syntax is determined by semantics (nor must it 'see' semantics). As suggested in Wurmbrand & Lohninger's (2023) *synthesis* approach, the connections between semantic properties and syntactic size are best characterized as compatibility between the (size of the) complement clause and the requirements imposed by the matrix verb, evaluated by means of output conditions for feeding syntactic structure into semantic concepts. Semantic distinctions are common in approaches delineating *restructuring* (see the next section), but have also been assumed to form the basis for complementation and clause size differences in general, both theoretically and typologically, even when traditional restructuring properties are absent (see Lohninger & Wurmbrand Under revision for a summary of approaches). In this paper, I follow the characterization of semantic properties in Wurmbrand & Lohninger (2023) which track the three conceptual sorts that make up clausal domains as proposed in Ramchand & Svenonius (2014) and illustrated in **Figure 1**.

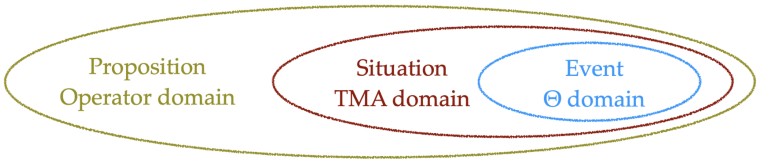


Figure 1

Containment of clausal domains

The lowest domain of a clause (Grohmann's 2003 theta-domain) encodes argument structure, Aktionsart and subevents (such as a *result*), and translates into a (possibly complex) semantic *event*. The next part of the clause is an elaboration of an *event*, specifically, an existentially closed *event* is combined with time/world parameters, i.e., elements from the Tense-modal-aspect [TMA] domain (Grohmann's 2003 phi-domain). This configuration then feeds into semantics as a *situation*. Lastly, a *situation* can be elaborated into a *proposition* (syntactically Grohmann's 2003 omega-domain) by adding operators and speaker-oriented/discourse-linking parameters to an existentially closed *situation*. One important contribution of such work is that the clausal domains are in containment configurations as depicted in **Figure 1**. The main advantage of this view is that it predicts and derives implicational relations among clausal domains.

Turning to complementation, Wurmbrand & Lohninger (2023) show that complement clauses can also be characterized as *propositions*, *situations*, or *events* (with possibly finer-grained distinctions). It is suggested there that there is no syntactic selection, but the meaning of the embedded clause must be compatible with the meaning of the matrix verb. Adopting the clausal model in **Figure 1** makes an immediate prediction: clauses that correspond to *propositions* must include all clausal domains, whereas clauses corresponding to *situations* may be smaller (missing the operator domain), and clauses corresponding to *events* may be the smallest (missing the operator and TMA-domains). Wurmbrand & Lohninger (2023) formulate implications arising due to syntactic and semantic containment as the *implicational complementation hierarchy* [ICH]. Importantly, the ICH does not fully determine syntactic size—it only predicts that the three semantic types of clauses have

different *minimal* structures. For instance, a *proposition* complement must include (at least some layers of) a CP-domain, and a *situation* complement must have a TMA-domain, but nothing in the ICH excludes semantic *situations* that correspond to syntactic CPs, as long as the composition of the CP is compatible with the meaning of the matrix verb requiring a *situation*.

3. CONFLICTING CLASSIFICATIONS

In section 2.1, we saw that the possibility of ECM is commonly taken as one syntactic diagnostic for clause size. A further diagnostic is the possibility of restructuring. Both types of configurations are subject to semantic restrictions. Importantly, however, the classes of reduced clauses as diagnosed by restructuring vs. the ones diagnosed by ECM are not the same. In fact, it appears that they are largely complementary, which creates a major puzzle for clause size. I will first summarize the distribution of restructuring, followed by the distribution of ECM.

3.1. Restructuring

The term *restructuring* goes back to Rizzi (1976) where it is suggested that certain infinitival complements in Italian are (literally) restructured by (optionally) grouping the infinitive and matrix verb together as a kind of complex verb. The result of such restructuring is a construction which behaves, in many respects, like a single simple clause. Other terms that have been used for this phenomenon are *coherence* (Bech 1955), *clause union* (Aissen & Perlmutter 1976, 1983), *structure pruning* (Evers 1975), *reanalysis* (Manzini 1983, Haegeman & van Riemsdijk 1986), *complex predicate formation* (Haider 1993; Butt 1995), *structure removal* (Müller 2020), *exfoliation* (Pesetsky 2019). From early on, the literature on restructuring has recognized certain semantic deficiencies of restructuring complements—a deficient argument structure (Voice domain), leading to the unification of matrix and embedded argument and event structures (e.g., Napoli 1981; Rochette 1988, 1990, 1999; Rosen 1989, 1990; Haider 1993), deficient embedded temporal domains (e.g., Guéron & Hoekstra 1988; Rochette 1990, 1999; Rutten 1991; Broekhuis 1992; Guasti 1992, 1996; Bok-Bennema & Kampers-Manhe 1994; Rooryck 1994; Roberts 1997; Wurmbrand 2001), and/or deficient CP-domains, leading to (mostly syntactic) complex predicate formation via head-incorporation of various heads (C, T, Agr, V) in the complement clause (e.g., Kayne 1989, 1990, 1991; Bok-Bennema & Kampers-Manhe 1994; Rooryck 1994; Sabel 1994; Terzi 1996; Roberts 1997) or omission/removal of these projections (Wurmbrand 2001; Müller 2020; Wurmbrand & Lohninger 2023).

To illustrate restructuring and the semantic connection, I will use a transparency property, namely *clitic climbing*. Clitics are typically placed within the clause of the predicate they are associated with, but in certain contexts, they may appear in the clause of the higher predicate. As shown in examples 1–2 from Italian for instance, in complements combining with the motion verb *come* (also modals, aspectual verbs like *begin, continue*, or verbs like *try*), the clitic *ti*, associated with the embedded predicate *speak to*, can occur in the matrix clause. However, if the matrix predicate is *decide*, such clitic climbing is not possible (the clitic would need to remain in the embedded clause).

(1) Piero *ti* **verrà** a parlare di parapsicologia.
Piero to.you will.come to speak about parapsychology
'Piero will come to speak to you about parapsychology.'
(Rizzi 1982, p. 1, (1a,b))

(2) *Piero *ti* **deciderà** di parlare di parapsicologia.
Piero to.you will.decide to speak about parapsychology
'Piero will decide to speak to you about parapsychology.'
(Rizzi 1982, p. 1, (1c,d))

One difference between the contexts that allow/do not allow clitic climbing lies in the temporal (possibly also event structure) properties: while in example 2 the time of the decision event and the content of the decision (the talking) are entirely separate (one makes decisions about things that have not happened yet), the times of coming and talking in example 1 overlap and cannot be seen as fully separate. Generally, complements that are transparent for processes such as clitic climbing show more dependence and integration of the embedded predicate, and one implementation of this difference is to encode it via deficient syntactic and semantic structures (e.g., the embedded clause lacks its own tense domain altogether, or if there is one, it is a vacuous one).

This is not the whole story, however. To understand the extent and nature of restructuring, the cross-linguistic distribution needs to be taken into consideration. Based on a survey of close to 30 languages, it can be observed that restructuring is not a binary distinction, but there are in fact three types of languages, which are illustrated by examples 3–9. Type 0 languages do not allow clitic climbing out of any complement clause (examples 3–4). Type 1 languages (like the Italian examples above), do not allow clitic climbing from temporally separate complements as in example 6. Finally Type 2 languages allow it from temporally separate complements as in example 8, but not from propositional complements combining with verbs of communication and belief (example 9).

Brazilian Portuguese—Type 0

(3) João {**te*} **pode/quer/vai** {*te*} ver.
João {*you} can/wants/goes {you} see.INF
'João can/wants to/is going to see you.'
(Renato Lacerda, p.c.; based on Cyrino 2010b, p. 200, (23))

(4) João {**me*} **tentou** {*me*} ver.
João {*me} tried {me} see.INF
'João tried to see me.'
(Cyrino 2010a, p. 18, (38))

European Portuguese—Type 1

(5) O Pedro não *te* **quis** falar de parapsicologia.
the Pedro not you wanted talk about parapsychology
'Peter didn't want to talk to you about parapsychology.'
(Gonçalves 1998, p. 2, (3a))

(6) *O Pedro não *te* **decidiu** falar de parapsicologia.
the Pedro not you decided talk about parapsychology
'Peter didn't decide to talk to you about parapsychology.'
(Gonçalves 1998, p. 2, (3b))

Polish—Type 2

(7) Marek *je* **próbował** napisać.
Mark them tried write.INF
'Mark tried to write them.' [SW corrected]
(Bondaruk 2004, p. 138, (23))

(8) Marek *ją* **zdecydował** się przeczytać.
Mark it decided REFL read.INF
'Mark decided to read it.'
(Bondaruk 2004, p. 154, (57a))

(9) *Piotr *je* **powiedział** że Marek czytał.
Peter them said that Mark read.PAST.IMPERF
'Peter said that Mark was reading them.'
(Wurmbrand 2014a, p. 278, (5a))

The patterns, including non-attested options, are summarized in **Table 1**.

Table 1 Clitic climbing cross-linguistically

Clitic climbing	Type 0	Type 1	Type 2	**not attested**
modals, *try, come, go*	*	✓	✓	*
decide-type	*	*	✓	✓
say-type	*	*	*	✓/*

What is essential is that clitic climbing follows the [ICH], given in **Table 2**. *Propositions* refer to complements that can be assigned a truth value (typically speech and propositional attitude contexts); *situations* to irrealis or modalized complements (typically involving a forward-shifted temporal perspective); and *events* to complements lacking time and world specifications. While languages differ in what types of complements allow clitic climbing, there is nevertheless a clear generalization: if clitic climbing is allowed from a particular type of complement it is also allowed from complements to the right on the ICH (but not vice versa).

Table 2 Implicational complementation hierarchy

say-type ≫ *decide*-type ≫ *try*-type		
most independent		least independent
least transparent	proposition ≫ situation ≫ event	most transparent
least integrated		most integrated

Any theory of restructuring should capture this generalization (it would not be sufficient to simply suggest mechanics for deriving clitic climbing in one specific language). A combination of the ICH with the syntax–meaning mapping in **Figure 1** (Ramchand & Svenonius

2014) does exactly that. The containment relations predict that *propositions* necessarily involve the largest structure and *events* may be the smallest configurations, with *situations* being in-between.[2] Assuming that clitic placement is subject to locality (some closest restriction), it follows that the larger a structure is the harder it is for clitics to escape. To derive the variation across languages, it can then be assumed that the complementation configurations are the same in all three types of languages, i.e., even Type 0 languages may have size distinctions between different types of complements, following the ICH, but that it is the clitic placement operation that shows different restrictions across languages.[3] A specific hypothesis put forward in Wurmbrand (2014a, 2015) is that, depending on the language, clitics target different parts of the clause: in Type 0 languages, clitics are bound to the Voice domain, hence can never escape any embedded clause (as even the smallest complements contain a Voice domain); in Type 1 languages clitics target the (closest) TMA-domain, hence they can only escape clauses that lack that domain (i.e., clauses corresponding to *events*); and finally in Type 2 languages, clitics target the operator domain, which derives that clitics can only escape clauses corresponding to *situations* or *events*, but not *propositions*. The ICH is thus relational and not absolute. It does not demand that all languages have clitic climbing, it only predicts that if a language allows clitic climbing in a particular complementation type, all complement types to the right on the ICH also allow clitic climbing, exactly as has been observed (see **Table 1**).

Lastly, Wurmbrand & Lohninger (2023) suggest that the ICH is not restricted to infinitives or traditional restructuring phenomena (such as clitic climbing). Rather, it reflects a broad range of properties about complementation in general. For instance, Wurmbrand & Lohninger (2023) show that even in languages without infinitives (such as some of the Balkan languages), complementation displays three patterns which can be described in terms of size and complexity exactly as predicted by the ICH.

SUMMARY POINTS

1. Restructuring (reduced clauses, mono-clausal behavior) and non-restructuring (bi-clausal behavior) are not binary oppositions, but there is a scale of (in)dependence of complement clauses (Wurmbrand 2001 et seq.).
2. Restructuring is not a "parameter," but effects of clause size differences can be found cross-linguistically (Wurmbrand & Lohninger 2023).
3. Variation in restructuring and clause size exists across languages, but the attested options nevertheless follow the implicational predictions of the ICH.
4. Semantics does not determine syntax (there is no 1:1 mapping), but only interprets it. The syntactic output must meet minimum clause size requirements: *proposition*—CP-domain; *situation*—TMA-domain; *event*—theta-domain.

[2]Note again that the ICH does not determine the exact structure of a complement clause, but only imposes compatibility conditions on its lowest bounds—e.g., to interpret a clause as a *situation*, it must contain some element of the TMA-domain.

[3]In other words, the absence of clitic climbing is not necessarily a diagnostic for a large, non-transparent complement; size differences can also be diagnosed by other properties. In Wurmbrand (2014a, 2015), it is suggested for Brazilian Portuguese, for instance, that the licensing of negative elements in the embedded clause by matrix negation is transparency-dependent and shows distinctions between different types of complements—*try*-complements allow it, whereas *decide* complements do not, indicating that *try*-complements are more transparent, hence possibly smaller.

3.2. ECM

As mentioned in section 2.1, a common assumption about ECM is that it can only apply out of embedded clauses lacking the CP-domain which would otherwise block A-dependencies across it. Understanding the distribution of ECM is thus important to determine when a CP can/cannot be missing.

3.2.1. English. Starting with English, the contexts that allow ECM have been semantically characterized in two ways. Pesetsky (1992) restricts ECM to complements of non-agentive matrix verbs, such as *believe* or *want*, in contrast to agentive verbs like *announce* or *demand* which block ECM (see the examples in 10–13).

(10) Mary believed Bill to have read the book.
(Pesetsky 1992, p. 15, (54b))

(11) *John announced Mary to have entered the room.
(Pesetsky 1992, p. 16, (57c))

(12) Mary wanted Bill to read the book.
(Pesetsky 1992, p. 17, (63a))

(13) *Mary demanded Bill to read the book.
(Pesetsky 1992, p. 18, (68a))

Moulton (2009b,a) suggests that ECM contexts report attitudes of acceptance/belief and only occur with matrix predicates that are states, whereas non-ECM predicates describe events. Evidence for this claim comes, for instance, from a lie test: while ECM configurations as in the examples in 14 cannot report lies (since they ascribe beliefs), non-ECM contexts as in the examples in 15 can.

(14) ECM possible
He believed, held, fancied, suspected, understood, remembered, assumed... her to be guilty/that she was guilty
... *#but he knew she wasn't.*
(Moulton 2009b, p. 171, (73))

(15) No ECM
He whispered, said, asserted, declared, conjectured, ... that Mary was guilty *...but he knew she wasn't.*
(Moulton 2009b, p. 171, (73))

Overall, the two characterizations yield the same distribution: the core ECM contexts in English involve matrix non-agentive states combining with embedded *propositions*. Given that the majority of *situation*-taking predicates is agentive and eventive (e.g., *demand, decide, plan, promise*), ECM is not possible in those contexts.[4]

[4]Verbs like *want, expect* may be stative, non-agentive predicates (combining with *situation-*

Interesting confirmation for the Pesetsky–Moulton generalization comes from predicates that can be ambiguous between an event or a state, such as *consider*. As shown in examples 16–19, *consider* allows ECM, however, only when the matrix verb is not progressive as in examples 16 and 18 (vs. the examples in 17 and 19). This can be taken as evidence for the stative nature of ECM *consider* (it also correlates with a mental state interpretation of *consider* in these contexts). The eventive version of *consider*, on the other hand, which corresponds to a thought process, must occur with progressive in the present tense, as in examples 20–23. When combining with a clausal complement, control is triggered and we find the complementation pattern typical for *situations*, with the complement triggering a forward-shifted interpretation in example 20.

(16) I consider it to be raining right now.

(17) *I am considering it to be raining right now.

(18) I consider my options to be bad.

(19) *I am considering my options to be bad.
(based on Moulton 2009b, p. 166, (64b))

(20) I am considering moving to Norway at some point.

(21) *I consider moving to Norway at some point.

(22) I am considering my options right now.
(based on Moulton 2009b, p. 166, (64a))

(23) *I consider my options right now.

The distribution is summarized in **Table 3**, showing that in English ECM is only possible with certain *proposition* complements (setting aside the unclear status of *expect*).[5]

Table 3 ECM: English

propositions			situations	events
say	*believe*	*consider*	*decide, consider*	*try*
*	✓	✓	*	*

3.2.2. Other Germanic languages. Looking at other Germanic languages, we find interesting micro-variational differences. German and Dutch do not allow any clausal ECM (only small clauses, such as *I saw him swim*, are possible; see Christopoulos & Wurmbrand 2020). I

denoting complements), which, as expected by the Pesetsky–Moulton generalization, allow ECM. However, these verbs also involve at least a belief-component, which may mean that they are in fact select *propositions* (see Wurmbrand 2014a for further discussion of *expect*). Furthermore, it has also been argued that *want*- and *believe*-type ECM configurations are different syntactically. I therefore leave open whether ECM is possible with *situation* complements.

[5]One additional property of ECM in English is that a certain class of propositional verbs, the *say*-class in **Table 3** which is often referred to as the *wager*-class, may lead to ECM-like behavior under A'-movement of the embedded subject (see, among others, Postal 1974, 1993, Kayne 1984, Pesetsky 1992, 2019, Bošković 1997, Moulton 2009a). I have to set *wager*-ECM aside here for space reasons, but refer the reader to the above works for different approaches. While this phenomenon shows that ECM may be rescued in certain ways, it does not invalidate the generalization that ECM is restricted to a subclass of verbs that combine with propositions in English.

return to this in section 3.3. In the Scandinavian languages, Icelandic is the most liberal. In contrast to all other Germanic languages, ECM is possible, in fact required, even in non-finite speech complements.

Speech complements

(24) Jónas sagði *(Garp) hafa farið í bíó.
Jonas said *(Garpur.ACC) have gone to cinema
'Jonas said that Garpur has gone to the cinema.'
(Icelandic; Gísli Harðarson, p.c.)

(25) She claimed (*her) to have gone to the movies.

(26) Jeg hevdet (*henne) å ha fullført oppdraget.
I claimed (*her) to have completed mission.the
'I claimed (*her) to have completed the mission.'
(Norwegain; 3 native speakers)

Icelandic and English require ECM in *believe*-complements, whereas the Mainland Scandinavian languages do not and only allow (if at all) control infinitives.[6]

Strong belief complements

(27) Astrid taldi *(Ottó) ekki hafa vaskað upp diskana.
Astrid believed *(Ottó) not have.INF washed up dishes.the
'Astrid believed Ottó not to have washed up the dishes.'
(Icelandic; Gísli Harðarson, p.c.; based on Christensen 2007, p. 156, (25a))

(28) I believe *(her) to have won the triathlon.

(29) *Jag tror henne (att) vara begåvad.
I believe her (to) be gifted
'I believe her to be gifted.'
(Swedish; Kajsa Djärv, p.c.)

(30) %Jeg tror (*henne) å ha gjort det riktig.
I believe (*her) to have done that right
'I believe her to have done that right.'
(Norwegian; 3 native speakers)

[6]An interesting (apparent) exception, pointed out to me by Kajsa Djärv, p.c., is that contexts such as example (i.) are possible in Swedish when the post-verbal element is a reflexive (see Lundin 2003). I follow Lundin (2003) (p. 114, Figure 6:2), who suggests that these configurations involve a special small clause structure (a reduced vP-complement), with the reflexive occupying the v-head (which is not possible for full DPs). Thus, these configurations are set aside for the comparison of full clausal (non-small clause) ECM.

i. Hon tror sig vara begåvad.
She believes SELF be gifted
'She believe herself to be gifted.'
(Swedish; Kajsa Djärv, p.c.)

Lastly, complements of the verb *consider* allow ECM in Icelandic, English, Swedish, and (with some variation) Norwegian.

Weak belief complements

(31) Ég álít *(Leó) vera kláran.
I consider *(Leo) be clever.
'I consider Leo to be smart.'
(Icelandic; Gísli Harðarson, p.c.; based on Holmberg 1986, p. 159, (60b))

(32) I consider her to have won.

(33) Han måste anse Peter (att) inte vara lika klok som jag.
He must consider Peter (to) not be as clever as I
'He must consider Peter to not be as clever as me.'
(Swedish (*att*: colloquial); Johnson & Vikner 1994, p. 78, (47a))

(34) Internett-brukerne anser dette å være en fordel.
internet-users.DEF consider this to be an advantage
'The internet users consider this to be an advantage.'
(Norwegian; Lødrup 2008, p. 162, (26))

The distribution is summarized in **Table 4**. The important point to take away from this overview is that only *proposition* complements allow ECM (again with the possible caveat of *expect* contexts, see fn. 4). However, there is micro-parametric variation regarding which type of *proposition* complements allow ECM. Lastly, Icelandic does not (or only partially) fall under the generalization that only non-agentive/stative matrix predicates allow ECM. On the one hand, ECM is excluded with *situation* and *event* complements, but on the other hand, ECM is required with verbs of communication.

Table 4 ECM: Germanic

	finite CP	*say*	*believe*	*consider*	*decide, try*
Icelandic	*	✓	✓	✓	*
English	*	*	✓	✓	*
Swedish	*	*	*	✓	*
Norwegian	*	*	*	(✓)	*
German, Dutch	*	*	*	*	*

3.2.3. Finite ECM. As indicated in **Table 4**, Germanic ECM is only possible in non-finite contexts (cf. example 35 for English; the same is the case in all other Germanic languages).

(35) *I believe her (that) won. (cf. I believe her to have won.)

There are, however, languages, where ECM is possible across finite clause boundaries. In Lohninger et al. (2022), a range of languages are discussed that display A-dependencies (ECM, raising, agreement) spanning across finite embedded clauses. It is shown there that finite cross-clausal A-dependencies [CC𝔄] indeed involve an A-dependency (such as movement or agreement) between an A-element in the matrix clause (such as an A-position, Case or agreement licensor) and an argument originating in an embedded finite CP. CC𝔄 typically co-occurs with prolepsis in the languages investigated, but cannot be reduced to

it. The tests include island-sensitivity, A-movement restrictions, A-Minimality, word order, and various connectivity effects. To illustrate, I give example 36 for finite ECM in Korean and example 37 for Mongolian (see Lohninger et al. 2022 for detailed data, evidence, and cross-linguistic distribution). As shown, both languages involve embedded complementizers (hence a CP), and an argument that is associated with the embedded predicate but bears accusative which can be shown to not be assigned in the embedded clause but to be solely dependent on the matrix predicate (see the works cited for evidence). In the Korean example 36, the accusative argument is also marked with a case/preposition that can *only* be coming from the embedded predicate (the land is *from here*, not the believing). This is a typical connectivity effect which provides evidence for a derivational history of the accusative with the embedded predicate. Similarly, in the Mongolian example 37, the accusative is an NPI-element that needs to be in the scope of negation at some point in the derivation. Given that the only negation in this case is in the embedded predicate, we once again see evidence for an embedded origin position of the ECM-DP. Mongolian also shows that the embedded clause is clearly finite and tense-marked.

(36) Na-nun yeki-pwuthe-lul$_i$ [t$_i$ nay ttang-ila-ko] mitnunta.
I-TOP here-from-ACC$_i$ [t_i my land-COP-COMP] believe
'I believe my land begins from here.'
(Yoon 2007, p. 647, (52b))

(37) Nara [khen(-iig) ch iree-güi gej] khel-sen.
Nara [who(-ACC) CH come.PST-NEG COMP] say-PST
'Nara said that nobody came.'
(Fong 2019, p. 6, (24a))

Finally, like in Germanic, *believe*-type verbs are the most common ones occurring in CC𝔄. However, as the Mongolian example shows, communication verbs are compatible with finite ECM as well, at least in some languages. Other semantic properties that have been associated with finite ECM in different languages are topicality (Şener 2008, 2011), major subject restriction (Yoon 2007)[7], and evidentiality (Alboiu & Hill 2013, 2016), all of which are properties associated with the *propositional* level. While there are many interesting empirical and theoretical things to be said about CC𝔄, the relevant take-home message is that CP-omission and non-finiteness cannot be (universal) conditions for ECM.

SUMMARY POINTS

1. ECM occurs predominantly with *proposition* complements.
2. Languages differ regarding which types of *propositional* meanings are compatible with ECM, with evidential and belief complements being the most common, and complements of verbs of communication less common, but nevertheless possible.
3. In many languages, ECM is restricted to non-finite complements, but finite ECM is not universally excluded.
4. In many languages, ECM is restricted to non-agentive/stative matrix predicates, but agentive/eventive ECM is not universally excluded.

[7]A major subject is the contextually most salient argument of the clause, typically expressing what the complement clause is about.

3.3. The dilemma for clause size

Putting the two phenomena—restructuring and ECM—together, we will now see that a major puzzle arises if both are assumed to be prohibited across CPs.

To begin with, consider scrambling in German (very similar points can be made for Dutch). German, like Polish above, is a Type 2 language regarding restructuring in that both non-finite *event* as well as *situation* complements are transparent for scrambling, as shown in example 38. *Proposition* complements, on the other hand, do not allow cross-clausal scrambling, as in example 39.

(38) Sie hat {einen Frosch} beschlossen / versucht, {einen Frosch} zu küssen.
She has {a frog} decided / tried {a frog} to kiss
'She decided/tried to kiss a frog.'

(39) Sie hat {*einen Frosch} behauptet / geglaubt, {einen Frosch} geküsst zu haben.
She has {*a frog} claimed / believed {a frog} kissed to have
'She claimed to have kissed a frog.'
'She believed herself to have kissed a frog.'

The lack of transparency of propositional complements is typically accounted for by the obligatory presence of a (contentful) CP. Despite differences in the specifics of different approaches to restructuring, one common claim is that restructuring is always blocked in the context of a (real) CP (see, among many others, Bondaruk 2004; Marušič 2005; Dotlačil 2007). Conversely, this means, however, that *situation* and *event* complements lack the CP-domain since no blocking effect arises for scrambling. In other words, German is a language for which CP-omission/reduction/removal must exist, given its extensive restructuring properties (in addition to scrambling, German shows many other clause union effects; see Wurmbrand 2001).

Turning to ECM, it is then interesting to note that German and Dutch do not allow *any* clausal ECM (only small clause AcI)—none of the predicates that trigger ECM in any of the other Germanic languages (*claim* [Icelandic], *believe, expect* [English]), allow ECM in German (see examples 40–41), and only control configurations are possible. A particular puzzle is posed by the lack of ECM in *expect* contexts such as example 42, since these complements are transparent for scrambling and pronoun movement, as in example 43, and thus are reduced complements that do not contain a CP-domain. Nevertheless, these configurations prohibit ECM.

(40) Sie behauptet (*ihn) gewonnen zu haben.
She claims (*him) won to have.
'She claims to have won.'

(41) Sie glaubt (*ihn) gewonnen zu haben.
She believes (*him) won to have.
Lit. 'She believes to have won.'
'She believes herself to have won.'

(42) weil ich (*den Leo) rechtzeitig anzukommen erwartet habe.
since I (*the.ACC Leo) on.time to.arrive expected have
'since I expected (Leo) to arrive on time.'

(43) weil {ihn} Nova [{ihn} zu treffen] erwartet hat.
since {him.ACC} Nova [{him} to meet] expected has
'since Nova expected to meet him.'

One might speculate that the reason for the lack of ECM in German is related to a case deficiency of the matrix verbs which, by some strange coincidence, prevents all potential ECM verbs from licensing accusative case in German and Dutch. However, as shown in example 44, *expect* is perfectly capable of assigning accusative case to the expectee. Furthermore, while *expect* can embed a passivized subject control complement as in example 45, a parallel ECM configuration is entirely impossible, example 46, in contrast to English. If *a package* can get case from *expect* in example 44, nothing should prevent *expect* from assigning case to the exactly same thematic argument in example 46.[8]

(44) Ich erwarte ein Paket / eine Entschuldigung / eine Freundin.
I expect a.ACC package / an.ACC apology / a.ACC friend.FEM
'I am expecting a package/an apology/a girlfriend.'

(45) Ich erwarte, PRO rechtzeitig informiert zu werden.
I expect PRO timely informed to be.PASS
'I expect to be informed in time.'

(46) *Ich erwarte ein Paket geliefert zu werden.
I expect a package delivered to be.PASS
'I expect a package to be delivered.'

More generally, we have seen in the previous sections that the distributions of restructuring and ECM are (largely) complementary. The contexts that resist restructuring cross-linguistically involve *proposition* complements (speech and belief contexts). But these are the main (if not the only) contexts that allow ECM in Germanic and tentatively also cross-linguistically (a full picture of the semantic distribution of ECM outside Germanic is not available yet; it is clear, however, that *believe*-type verbs are very common). This leaves us with a dilemma regarding clause size: if a missing/truncated CP-layer is responsible both for the transparency effects in ECM and those in restructuring, why are the two phenomena not coextensive or at least largely overlapping, rather than complementary?

4. TOWARDS RESOLVING THE CONFLICT

What we have observed so far leads to the picture in **Table 5**, setting aside further restrictions in different languages regarding both ECM (which types of *proposition* complements) and restructuring (Types 0–2). Assuming that *propositions* must include a CP-domain

[8] A reviewer points out that *expect* appears to be non-stative when taking a nominal complement and stative when combining with a clausal complement. While this makes the comparison not perfect, such a difference should not affect the case licensing properties, however (and it doesn't in English), since stative verbs are otherwise perfectly capable of licensing accusative in German (e.g., *Ich kenne/mag/verstehe... den Aufsatz* 'I know/like/understand... the.ACC essay).

(possibly not all CP-projections, but at least the ones that are responsible for propositional content), the distribution and restrictions are fairly clear for restructuring. An operator domain adds clausal projections (various CP-layers) which constitute locality boundaries for the phenomena associated with restructuring. Locality could be defined in terms of minimality, freezing, or other constraints that close off a clause by adding an A′-domain.

Table 5 ECM & Restructuring

propositions	situations	events
CP	TP (or larger)	*v*P (or larger)
ECM	Restructuring	

The situation is far less clear, however, for ECM and two main questions arise: i) How is an A-dependency possible across an infinitival CP (contra the mainstream CP-omission approach); and ii) Why is ECM (largely) blocked from *situation* (cf. *I decided/planned* (**her*) *to leave*) and *event* complements (cf. *I tried/managed/began* (**him*) *to leave*)? Note again that this restriction also holds in Icelandic, where ECM is not subject to the non-agentive/stative requirement discussed above. In other words, although a non-agentive/stative requirement for ECM may exclude ECM with *situation/event* complements in English, something else would still need to be said about the cross-linguistic pattern. In the next subsections, I will summarize two approaches to the first question. The second question still constitutes a main puzzle which I have to leave open here.

4.1. C-incorporation

Despite CP-omission or reduction being a very common approach to ECM (at least since Chomsky 1981), accounts also exist that treat ECM complements as CPs. To get around the difficulty with CPs blocking A-dependencies, it has been proposed that certain types of C, often referred to as affixal C, incorporate into the matrix predicate, which either makes the CP transparent for case assignment (see Pesetsky 1992, following Baker's 1988 *Government Transparency Corollary*) or effectively removes the CP turning it into a case-transparent TP (Moulton 2009a).[9] More specifically, Moulton (2009a) assumes that there are two types of complementizers—a Content-noun complementizer, which occurs in *believe*-type complements, and a relative complementizer, which occurs in complements selected by an eventive matrix predicate (e.g., communicative verbs). To restrict ECM to non-eventive contexts, Moulton suggests that only the Content-noun complementizer can be affixal in English, whereas the relative complementizer is non-affixal. While successful for English, this semantically-driven approach would not cover the variation we found regarding the distribution of ECM in Germanic as summarized in **Table 4**. Instead the necessary specifications would be as in **Table 6**.

[9]Earlier versions of this general approach are found in Chomsky & Lasnik (1977); Chomsky (1980); Kayne (1984).

Table 6 (Non-)Affixal C

	finite CP	*say*	*believe*	*consider*
Icelandic	non-affixal	affixal	affixal	affixal
English	non-affixal	non-affixal	affixal	affixal
Swedish	non-affixal	non-affixal	non-affixal	affixal
Norwegian	non-affixal	non-affixal	non-affixal	%(non-)affixal
German, Dutch	non-affixal	non-affixal	non-affixal	non-affixal

One may ask whether there is independent evidence for this spectrum, in particular for the implicational relations that exist, at least in Germanic. For instance, why does an affixal C in complements of verbs of communication entail affixal C for *believe* and *consider* complements, but not vice versa? Furthermore, given that many *proposition* verbs can combine with finite or non-finite complements (without a change in meaning of the matrix verb), how does finiteness play into this picture? In this case, the question is particularly important for accounts that assume that *that*-less clauses are not truncated TPs, but CPs headed by a null complementizer (see above for references). In many of these accounts, the null C is also assumed to be affixal, which has the effect that C is required to establish a close relation with the matrix verb. This relation is then responsible, among others, for preventing *that*-less clauses from undergoing movement. Thus the question would be why ECM is not possible in such contexts (*I believe she/*her won*). A possible direction may be to blame case. Since in finite clauses, regular nominative is assigned, the embedded subject has no need to get another case (which can be implemented via a *last resort* principle, Chomsky & Lasnik 1993, 1995, or an *Activity* condition, Chomsky 2001). The difference between languages that allow and those that do not allow finite ECM would then lie in whether case can (finite ECM) or cannot (no finite ECM) be stacked or overwritten.[10] A stacking/no-stacking difference is difficult to model, however, and I will pursue a non-case related approach in section 4.3, employing insights from cartography.

4.2. Composite A/A′-C

Returning to finiteness, one of the conclusions in section 3.2.3 was that ECM is not restricted to non-finite complements in many languages. To solve the locality issue of finite ECM—i.e., the fact that an A-dependency is established into or across the CP-domain, typically a pure A′-domain, the A/A′-distinction has been reconsidered. Concretely, Wurmbrand (2018) and Lohninger et al. (2022), following van Urk (2015), propose that C-heads can have mixed A- and A′-properties. The A′-properties include the usual operators (e.g., *wh*), as well as information-structure properties (e.g., topic). A-properties arise when a DP, which is either base-generated in Spec,CP or moved there, enters a predication configuration with the C head. If this occurs and the language has the potential to have such C-heads, further CCA dependencies are possible since locality is not violated.

Regarding the distribution of ECM in Germanic, this approach would lead to the specifications in **Table 7**.

[10]Note that there is evidence that finite ECM clauses involve regular structural case and cannot simply be treated as case-deficient clauses (see Wurmbrand 2018; Lohninger et al. 2022).

Table 7 (Non-)Composite A/A′-C

	finite CP	*say*	*believe*	*consider*
Icelandic	A′	A/A′	A/A′	A/A′
English	A′	A′	A/A′	A/A′
Swedish	A′	A′	A′	A/A′
Norwegian	A′	A′	A′	%A/A′
German, Dutch	A′	A′	A′	A′

The C-incorporation and the composite A/A′-C views share the goal to derive the (im)possibility of ECM from the feature composition of C. Both are compatible with ECM occurring across a CP and hence allow us to maintain the cross-linguistic picture in **Table 5**: restructuring must lack the entire CP-domain, and hence is only compatible with *situation* and/or *event* complements; ECM is restricted to *propositions* (again, it is left open why this is the case), which must involve at least some part of the CP-domain (see below for more details). This is desirable since it resolves the clause size dilemma regarding ECM vs. restructuring. But neither approach alone says anything about the implicational relation of ECM (i.e., for the composite A/A′-C view, for instance, the question is why the option of A/A′-C in complements of verbs of communication entails the option of A/A′-C in *believe* and *consider* contexts), nor about the necessary difference between finite and non-finite CPs, even when combining with the same matrix verb, in languages that do not allow finite ECM.

In the next section, I will provide a short summary of different approaches to the finer-grained structure of the CP and suggest that certain types of cartographic ordering will help us understand these two puzzles better.

4.3. Cartography to the rescue

So far, I have simply assumed that *propositions* include a CP-domain. Understanding the finer-grained composition of that domain will allow us to make some further progress on the questions raised by the distribution of ECM. Cartographic arrays of structure are defined by syntactic and/or semantic properties. The original CP-cartography in Rizzi (1997)—the ordering in schema 47—for instance, consists of information-structure projections (topic, focus), as well as the two (mostly) syntactic projections Force and Fin. Complementizers like *that* in English, which occur only with finite clauses, are assumed to be inserted (or at least end up) in Force, whereas non-finite complementizers such as *for* in English or *di* in Italian occur in Fin.

(47) Force » Topic* » Focus » Topic* » Fin

Given the two (or more) positions for complementizers, different properties can be defined for these heads. Using a C-incorporation approach to ECM (section 4.1), one could assume that Fin can be affixal (with further specifications still needed for the variation), whereas Force is always non-affixal in Germanic. Using a composite A/A′-C approach (section 4.2), one could assume that Fin can involve mixed A/A′-features, whereas Force is always a pure A′-head in Germanic. Departing from strict cartography in the sense that not all projections are always present, both approaches derive ECM via some degree of *restructuring*—i.e., omission of certain projections, which has been proposed in Pesetsky (2019) and Satık (2022) for infinitives in general. Specifically, to allow ECM in Germanic, a

structure without the Force projection (and any other CP-layers that are non-affixal/have only A′-properties; see below) is needed. ECM thus involves *some but not all* CP layers. As long as the structure is truncated down to a C-projection with affixal C/A-properties (if the language has such C-heads), ECM is allowed. If all C-heads in a language are non-affixal/only have A′-properties, which would be the case in German and Dutch, ECM is excluded throughout.

The finiteness-based split into Force and Fin makes some headway towards deriving the (im)possibility of finite ECM. In languages that allow finite ECM, Force is affixal/specified for A-properties, whereas in languages that do not allow finite ECM, Force is non-affixal/purely A′. While this is straightforward for finite clauses with complementizers, a question arises once again for complementizer-less finite complements. As mentioned above, a null affixal C would be problematic from the perspective of ECM. The second approach to embedded root clauses, a truncated TP-structure, would be incompatible with the clause mapping approach followed here, where *propositions* require a CP-domain. The best approach therefore appears to be one where embedded root clauses involve null CP-layers, possibly Force (but see below), which are specified as non-affixal/purely A′.

What about the ECM-hierarchy in Germanic? To approach the variation in ECM found with different types of *proposition* complements, semantic cartographic approaches prove useful. As part of an expanded clause structure, Cinque (1999) (et seq.) suggests the categories and order in schema 48 for the structure of the CP. Similarly, Krifka (2023) decomposes the CP-part of assertive clauses into layers of schema 49, where *judgements* correspond to epistemic and evidential attitudes, *commitments* to social commitments related to assertions, and *speech acts* to updates or changes of the common ground.

(48) speech act » evaluative » evidential » epistemic

(49) speech act » commitment » judgement

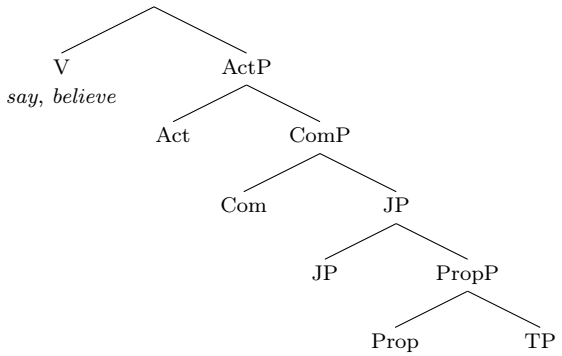
Importantly, Krifka's structure is defined via containment. By adding the syntactic head *Judge* [J] to a *proposition* (in our terms *situation*) a propositional function is created specifying that a judge considers the proposition expressed in the clause to be true; by further adding the syntactic head *Commitment* [Com], the JP function is turned into another propositional function specifying that the speaker is committed to the judged proposition; lastly the syntactic head *Act* includes an operator that determines whether the ComP is a question or assertion. Given these containment relations, the categories suggested by Krifka (but not the ones by Cinque) thus form a syntactic and semantic hierarchy with a predictable order ActP » ComP » JP » TP.

Krifka (2023) also lays out the consequences of this CP-system for the organization of *proposition* complements, which involves differently sized complements for different types of embedded clauses. Thus, again, truncation plays a crucial role in complementation, and I will adopt his system with one modification.

Coming back to *that*-less complements, recall that there are two approaches—a null (affixal) C approach and a bare TP approach— which both faced certain difficulties in excluding ECM. Krifka's (2023) system offers a third way to model embedded root clauses, namely as ActPs. Typically embedded clauses are not independent speech acts, but embedded root clauses show properties of illocutionary acts and have the potential to update the common ground of the conversation. In other words, embedded root clauses embed the full range of CP-projections as in tree 50 (I will discuss PropP below), and are thus the

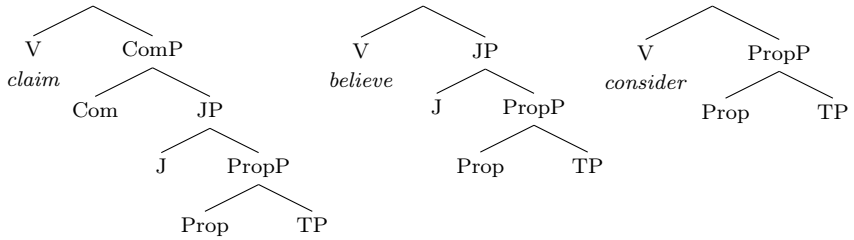
most complex types of complements. The additional ActP-layer can then be blamed for the increased opacity, at least regarding ECM, e.g, by specifying Act as a pure A′-head.

(50)



Non-root complements (i.e., complements with complementizers) typically do not include an ActP (but see Krifka 2023 for some special cases) and are either ComPs or JPs, as in trees 51. Complements of verbs of communication entail a public commitment, hence a ComP (which in turn must include a JP). On the other hand, mental attitude contexts (evidentials and subjective epistemics) do not involve a public commitment, only a (private) judge function, and hence are just JPs. Lastly objective epistemic *propositions*, which do not involve a subjective evidential or epistemic commitment, do not involve a judge function and are, in Krifka's system, bare TPs. Since this does not correspond to their syntactic size, nor the mapping of *propositions* to the CP-domain, I suggest the modified structure in tree 50, where objective *propositions* also include a CP-layer, PropP, which turns a *situation* in a *proposition*, as suggested in Ramchand & Svenonius (2014), but which does not involve any judge parameter. As indicated in trees 51, I propose that clauses combining with *believe* and *consider* differ in this respect.

(51)



To distinguish *believe* and *consider* it is important to note that the complement size is not strictly selected by matrix predicates but in many contexts, a verb can combine with different types of complements, as suggested in Krifka (2023), as well as under the *synthesis* approach in Wurmbrand & Lohninger (2023). Depending on the size of the complement, however, the interpretation may change. A context that clearly distinguishes between *believe* and *consider* is given in examples 52–53. If the judge of a sentence (in this case the speaker) clearly does not know whether a proposition is true or false, a *believe*-statement as in example 52 would not be appropriate, but the *consider*-statement in example 53 can be used (for example, if the speaker is responsible for deciding whether or not to close the schools for a 'snow' day).

> **Context**: Looking out the window, I see snow in the air, but I cannot tell whether it is snowing or the snow is just swirled up from the ground by the wind.

(52) #I believe it to be snowing.

(53) I consider it to be snowing.

Believe, or a JP, would express the function that the judge takes the proposition to be true, which is not the case in this context since the speaker does not know whether it is true. Assuming that a *consider* complement does not necessarily involve a JP, the possibility of example 53 is expected—*consider* refers to an act of decision about how to classify the current state of affairs and not a true belief.

A similar difference between *believe* and *consider* can be observed in Icelandic. In a context as in examples 54–55, where the subject clearly knows that a proposition is true, a *believe* statement cannot negate that proposition. However, the negated proposition is possible with *consider*, where an additional valuation comes in.

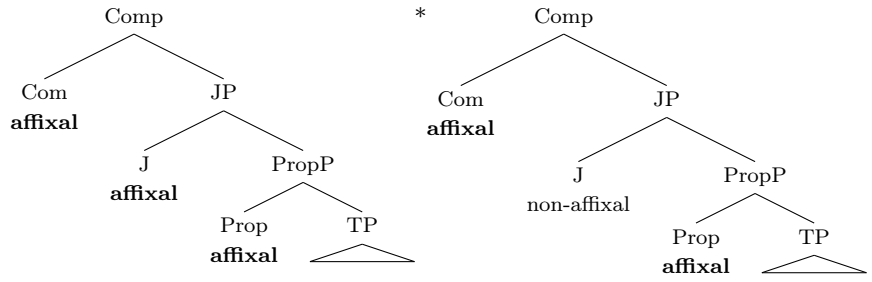
> **Context**: Ottó attempted to do the dishes (or at least has gone through the motions) and Astrid knows that, but he did such a bad job and the dishes are still dirty (or at least in Astrid's opinion).

(54) #Astrid taldi *(Ottó) ekki hafa vaskað upp diskana.
Astrid believed *(Ottó) not have.INF washed up dishes.the
'Astrid believed Ottó not to have done the dishes.'
(Gísli Harðarson, p.c.)

(55) Astrid áleit *(Ottó) ekki hafa vaskað upp diskana.
Astrid considered *(Ottó) not have.INF washed up dishes.the
'Astrid considered Ottó not to have done the dishes.'
(Gísli Harðarson, p.c.)

Although the details of the semantic differences between *believe* and *consider* still need to be fleshed out, I suggest that the distribution of ECM provides motivation for the additional syntactic layer suggested. The containment configuration of the CP-layers allows us to formulate structural restrictions and implicational relations for the distribution of affixal or A-properties. Under a C-incorporation approach, one could assume that C-incorporation starts from the bottom, Prop. It follows from locality that Prop can only incorporate if all higher C-heads are also affixal as in tree 56, left structure; a non-affixal C-head along the way puts a halt to incorporation. For instance, in a speech context, Prop, J, and Com need to be affixal for Prop to reach the matrix V and thereby allow ECM. If Com is affixal but J is not, as in tree 56, right structure, Prop can only move to J.

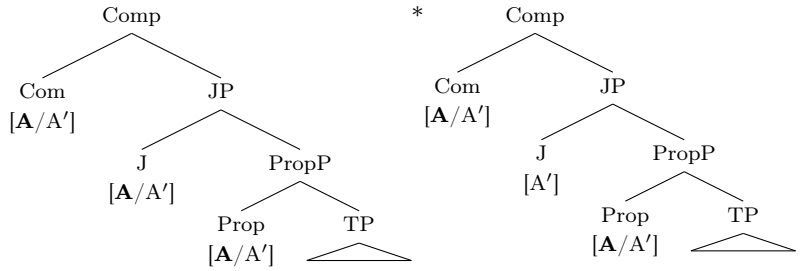
(56)



Under the complex A/A′-C approach, the assignment of A-properties can be seen as an extension of the A-domain of the clause from the TP to however far A-properties are

allowed in a language (Mursell 2020; Lohninger Under review). The implicational relations follow again from locality. In a speech complement, Com and all lower heads need to be specified for A/A′ for ECM to be possible, as in tree 57, left structure. For the DP to reach the top A-position, however, all intermediate heads need to also have A-qualities to not interrupt A-movement of the ECM-DP by a step of A′-movement.[11] Alternatively, one could also pursue a direction in which the A-features in fact travel upwards, in which case skipping a head as in tree 57, right structure, would be excluded.

(57)



This leads us to the specification of the CP-domain in **Table** 8. While the specification of whether a C-head is affixal/has A-properties is language-specific, there are nevertheless restrictions—the implicational hierarchy—which these systems can capture.

Table 8 CP-properties

	Force (finite)	Com	J	Prop
Icelandic	A′ | non-affixal	A/A′ | affixal	A/A′ | affixal	A/A′ | affixal
English	A′ | non-affixal	A′ | non-affixal	A/A′ | affixal	A/A′ | affixal
Swedish	A′ | non-affixal	A′ | non-affixal	A′ | non-affixal	A/A′ | affixal
Norwegian	A′ | non-affixal	A′ | non-affixal	A′ | non-affixal	%A/A′ | %(non)-affixal
German, Dutch	A′ | non-affixal	A′ | non-affixal	A′ | non-affixal	A′ | non-affixal

5. Conclusion

In this overview, we saw that clause size is determined by a combination of morpho-syntactic (finiteness, feature composition of C-heads) and semantic properties (a hierarchy defined via containment). A further take-home message is that views which link clause size differences to syntactic configurations such as ECM vs. control (whether as diagnostics or constraints—this is often not clear in these approaches) may be difficult to maintain. However, combining cartographic orderings involving syntactic (Force, Fin) and semantic properties (Com, J, Prop) allows us to make progress in understanding the cross-linguistic distribution of phenomena that have been taken to relate to clause size, such as restructuring and ECM.

[11] I will not go into details about how to derive the *ban on improper movement*, that is, why A-movement cannot follow pure A′-movement.

FUTURE ISSUES

1. Is the semantic hierarchy of ECM in Germanic detectable cross-linguistically?
2. What is the semantic connection between ECM and *proposition* complements, or in other words, what makes ECM impossible in *situation* and *event* complements (at least in the languages studied in detail so far) where the syntactic context does not provide any obvious locality problem for ECM?
3. What is the size of embedded root clauses (i.e., complementizer-less finite clauses in English, embedded verb-second clauses in German, and matrix clauses in non-verb-second languages)? Can the ActP proposed in Krifka (2023) account for the mixed integration properties of these contexts?
4. How are the syntactic (Force, Fin), information-structural (Top, Foc), and semantic (Com, J, Prop) categories of the CP ordered with respect to each other?

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