

# On the Bottleneck Hypothesis of V2 in Swedish

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## 1. Introduction<sup>1</sup>

On the basis of a review of research on the V2 condition Holmberg (2015) put forward the hypothesis that Germanic V2 is a condition on movement, not linear order or structure. More specifically the proposal was as in (1); the statements apply specifically to root clauses.

- (1) a. C attracts the finite verb.
- b. One maximal constituent, which can be any category, must move across C.
- c. Only one maximal constituent can move across C.

This concurs with the view put forward in Roberts (2004). To say that V2 is a condition on movement, not structure, is to say that V2 cannot be satisfied by a category externally merged ('base-generated') in the C-domain. This concerns specifically Germanic. Breton is European V2 language where it seems that V2 may indeed be a condition on linear order, also counting constituents which have not moved; see Borsley and Kathol (2000), Anderson (2000), Legendre (2001), Jouitteau (2005, 2008). (1c) is based on the observation that V-more-than-two orders occur in Germanic V2 languages, but only one of the preverbal constituents is internally merged, i.e. moved to preverbal position; the other constituents are externally merged there. (2) would be a typical example. (All examples in the paper are Swedish unless indicated otherwise.)

- (2) a. Vargen ja, nu är den tillbaka igen.  
     wolf.DEF PRT now is it back again  
     'The wolf, now it's back again.'
- b. Vargen ja, den är tillbaka igen nu.  
     wolf.DEF PRT it is back again now  
     'The wolf, it's back again now.'
- c. \*Vargen ja, är den tillbaka igen nu.  
     wolf.DEF PRT is it back again now

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The initial phrase is a hanging topic, so called. It has a resumptive pronoun in IP, and there is no reason to think that it has moved from within IP. The particle *ja* functions as an optional hanging-topic marker (Eide 2011). In (2a) the adverb *nu* may have moved, and if (1b) holds true, must have moved from IP to the preverbal position. In (2b), the resumptive pronoun has moved to preverbal position. (2c) shows that the hanging topic itself does not satisfy V2.<sup>2</sup> That is to say, the externally merged constituent does not satisfy V2, the constituents which are plausibly moved from within IP do.

The explanation for the generalization (1c) opted for in Holmberg (2015) is the one put forward by Haegeman (1996) and further developed by Roberts (2004). Assuming the articulated CP hypothesis of Rizzi (1997) and much subsequent work, the idea is that Fin(ite), the lowest head in the C-domain, has an EPP-feature in V2 languages which attracts a constituent, which can be any maximal category, to merge with FinP (move to spec of Fin, in terms of X-bar theory). The moved constituent may move on to a higher position in the C-domain such as a wh-position or a topic position, but the copy of the moved constituent in spec of FinP will prevent movement of any other constituent across Fin. This is now commonly referred to as the bottleneck hypothesis: spec of Fin is a bottleneck through which one and only one constituent can enter the C-domain (Haegeman 2012: 109, Wolfe 2016, 2018). Given that Fin in V2 languages, when it does not host a complementizer, also has a feature which attracts the finite verb, this yields V2 order.

We can distinguish between a strong and a weak version of the bottleneck hypothesis. The strong version is that the EPP feature of Fin can only be checked by internal merge/movement. The weak version is that it can be checked by internal or external merge. The research question can thus be formulated as in (3):

- (3) Are all the various items that satisfy V2, including arguments, adjuncts, and a variety of particles and operators, externally merged inside IP and internally merged with FinP (i.e. moved to spec of Fin), in Swedish?

The starting point is that the answer to (3) is negative: the strong bottleneck hypothesis is too strong. There is a class of expressions that I will refer to as as-for phrases, in English including phrases like *as for  $\alpha$* , *concerning  $\alpha$* , *speaking of  $\alpha$* , in Swedish *beträffande  $\alpha$* , *vad  $\alpha$  beträffar*, *apropå  $\alpha$*  (see Egerland 2013). As-for phrases can occur in the V2 position, immediately preceding the fronted finite verb, without the slightest reason to think that they have moved from inside IP. This is consistent with the weak bottleneck hypothesis if the as-for phrase is externally merged with FinP, checking the EPP of Fin, even if it then moves to a higher position, as we will show that it can do (and possibly always does, depending on which model is assumed). Another class of expressions which can be externally merged in the C-domain, yet satisfy V2 is adverbial clauses. Those, too, can be

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<sup>2</sup> The word order is interpretable as a yes-no question, which is irrelevant here. See the text below for a comment on yes-no questions.

externally merged with FinP, checking the EPP of Fin, consistent with the weak bottleneck hypothesis, although they can subsequently move higher in the C-domain.

As will be demonstrated, though, apart from these two exceptions, the following generalization holds true: All the categories in the left periphery that satisfy V2, including various adverbs, particles and operators, can alternatively be spelled out within IP, while no categories that occur in the left periphery and do not satisfy V2 are alternatively spelled out in IP. This is consistent with an analysis where the items that do satisfy V2 are externally merged in IP and move to the C-domain, merging with FinP and checking the EPP feature, possibly then moving on to a higher position – in accordance with the strong bottleneck hypothesis.

Yes-no questions are a potential counterexample to the hypothesis that Fin has an EPP-feature as there is no overt evidence of movement to the C-domain. It has been assumed in much of the literature that an abstract question operator satisfies V2. If (1b) is right, this question operator should have moved from IP to the C-domain, initially merging with FinP. In Holmberg (2016: ch. 2) I argue that the yes-no question operator does, indeed, move from IP to the C-domain. I will put yes-no questions aside in this paper, though; they may constitute a special case. Imperatives are another potential counterexample; they are verb-initial in the Germanic V2 languages. I assume that the C-domain in imperatives has its own properties, which do not include an EPP feature (see Zanuttini 2008)..

I will begin by considering the structure of the left periphery in Swedish, building in particular on Eide (2011). It will be shown that various categories that check V2, including as-for phrases, can undergo movement to a high topic position in the C-domain, meaning that only hanging topics are externally merged in the left periphery. The theory articulated by Wolfe (2016, 2018), according to which the modern Germanic languages have a ‘high V2’, triggered by features of Force rather than Fin, will be considered and rejected. A focus particle argued to be externally merged in the C-domain in the space between the Topic head and Fin provides a crucial argument that Fin, not Force, is the locus of V2. I will then inspect the variety of particles, adverbs, and operators that are found in the C-domain of main clauses, demonstrating that the generalization mentioned above holds true: With the exception of as-for-phrases and adverbial clauses, all of the items that satisfy V2 can alternatively be spelled out within IP, while no items that occur in the left periphery and do not satisfy V2 are alternatively spelled out in IP.

As a point of terminology, I will use the expression ‘check V2’ interchangeably with ‘check the EPP-feature of Fin’. I will also occasionally use the X-bar term ‘move to spec of F’ interchangeably with ‘internal merge with FP’.

## **2. The structure of the left periphery**

The following account owes much to Eide (2011), discussing Norwegian, which patterns exactly like Swedish in relevant respects. In Norwegian and Swedish, as in the other Germanic V2 languages, there is an outer and an inner topic position. In the outer topic position we have hanging topics (never more than one, according to Eide 2011), in the inner

topic position there may be a topicalised constituent moved from IP (never more than one, as dictated by the V2 condition), or there may be a copy-left dislocated phrase, so called, that is a topic phrase immediately preceding (what looks like) a resumptive pronoun.

- (4)
- |    |  |                         |
|----|--|-------------------------|
| a. | Vargen (ja), den har vi inte sett ännu.<br>wolf.DEF PRT it have we not seen yet                    | (hanging topic)         |
| b. | Vargen den har vi inte sett ännu.<br>wolf.DEF it have we not seen yet                              | (copy-left dislocation) |
| c. | Vargen har vi inte sett ännu.<br>wolf.DEF have we not seen yet<br>'The wolf, we haven't yet seen.' | (topicalization)        |

The hanging topic construction can have the resumptive pronoun in the IP (as in (2)), but the pronoun may equally well be fronted, as in (4a), in which case the distinction between hanging topic and copy-left dislocation may not be immediately obvious, and the two have indeed not always been kept distinct. The hanging topic can be set off by a topic-marking particle, making the distinction sharper.<sup>3</sup> Even without the particle, the hanging topic is set off by an intonational 'comma break', while the copy-left dislocated is not. I have indicated it in (4) by leaving out the comma in the copy-left dislocation case (in violation of standard punctuation conventions). See Eide (2011: 194-196). One piece of evidence that the two are distinct categories is that they can co-occur, in the order hanging topic > copy-left dislocation.

- (5) Vargen ja, grannen (\*ja) han såg spåren av den i skogen.  
wolf.DEF PRT neighbour.DEF PRT he saw tracks of it in forest.DEF  
'The wolf, you know, my neighbour saw its tracks in the forest.'

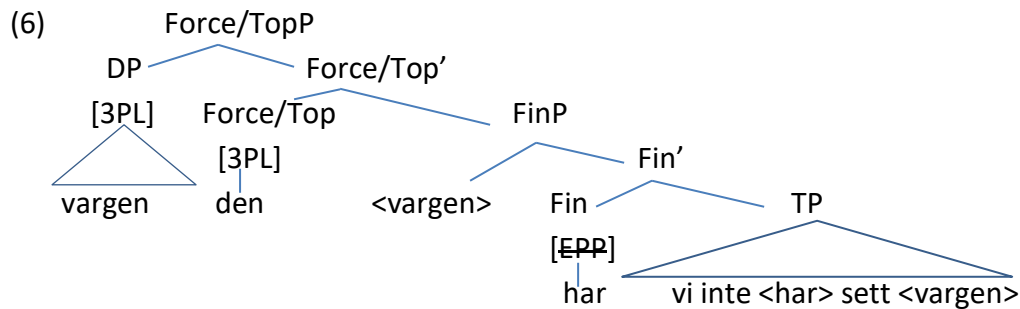
Two hanging topics is not an option, hence the ungrammatical particle. A hanging topic followed by copy-left dislocation is natural enough.

The analysis of hanging topic is, standardly, that it is externally merged in a high peripheral position. The traditional analysis of copy-left dislocation is also that the initial DP is externally merged in a high peripheral position, with a resumptive pronoun moved to spec of C (Holmberg 1986: 102-103). The two constructions have traditionally not been kept distinct (but see Faarlund 1980: 121, cited in Eide 2011). Eide argues at length that copy-left dislocation is instead derived by movement of a phrase, a DP or a PP, to the specifier position of a Topic head, spelled out as a weak pronoun by virtue of  $\phi$ -feature agreement

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<sup>3</sup> Eide (2011) refers to the particle as a 'response particle'. It is indeed a homonym of the response particle meaning 'yes' and furthermore it is typically not used when initiating a conversation with a hanging topic. There are other topic-marking particles that would be used in that case, such as *alltså*, which can replace *ja* in (4a).

with the fronted DP or PP. The structure of (4b) would be (6), under the bottleneck hypothesis.



Eide (2011) considers several models for the Norwegian left periphery, including one where Force and Topic are a single head. Eide argues, furthermore, that the Topic feature is more specifically A-topic, in Frascarelli and Hinterhölzl's (2007) sense. The Force/Topic head is, by assumption, a head in the C-domain of declarative clauses encoding declarative (or 'assertive') illocutionary force (cf. Haegeman 2012: 190-192). One exponent of the head has an A-topic feature coupled with [uφ]-features, attracting a topical argument from FinP, deriving copy-dislocation. There are other exponents of the head, as will be discussed. I will use the label FoTop for Force/Topic.

That is to say, copy-left dislocation, as in (4b), is closely related to topicalisation, as in (4c). Both are derived by movement of a constituent from IP, by hypothesis stopping over in spec of Fin, checking the postulated EPP feature of Fin (more on this later) before moving to the spec of Top. The difference would be that the head in the case of copy-left dislocation has unvalued φ-features which are assigned values by the attracted DP and are spelled out as a pronoun.

(7) shows three more examples of copy-left dislocation. (7b,c) illustrate the fact that the Topic head can agree with place and time-denoting topics as well. In the absence of prosodic marking, the strings (7a,b,c) are ambiguous between a reading where the initial phrase is a copy-left-dislocated topic and one where it is a hanging topic combined with a topicalized proform. In (7d), the latter reading is made explicit by adding prosodic marking and disambiguating particles; the stressed proform would be copy-dislocated, the unstressed proform would be the agreeing FoTop head (see Eide 2011 for discussion).

- (7)
- a. Elsa hon bor i London.  
Elsa she lives in London  
'Elsa lives in London.'
  - b. Nästa vecka då far vi till London.  
next week then go we to London  
'Next week we'll go to London.'
  - c. I London där bor Elsa.  
in London there lives Elsa  
'London is where Elsa lives.'

- d. I London (ja), DÄR (där) bor Elsa.  
 in London PRT there there lives Elsa  
 'In London, that's where Elsa lives.'

The following is an argument that copy-left dislocation is derived by movement. Swedish, and Scandinavian more generally, makes a difference between anaphoric/bound possessives and pronominal/free possessives (Hellan 1989).

- (8) Han<sub>i</sub> tar alltid sina<sub>i</sub> / hans\*<sub>i/j</sub> hundar med sig.  
 he takes always his.REFL his dogs with SELF  
 'He always takes his dogs along.'

The reflexive possessive must be locally bound, the pronominal possessive must be locally free. (9) shows quite unequivocally that the fronted DP has moved, being subject to reconstruction for binding.

- (9) Sina<sub>i</sub> / hans\*<sub>i/j</sub> hundar (dom) tar han<sub>i</sub> alltid med sig.  
 his.REFL his dogs them takes he always with SELF

Compare (9) and (10), featuring a hanging topic.

- (10) Hans<sub>i/j</sub> hundar ja, dom tar han<sub>i</sub> alltid med sig.  
 his dogs PRT them takes he always with SELF  
 'His dogs, he always takes them along.'

Here the pronominal possessor of the hanging topic can be coreferential with the subject, because at no point is it locally bound by the subject: the hanging topic is externally merged in the outer topic position.<sup>4</sup> That is to say, copy-left dislocation patterns with topicalization, not with the hanging topic, as predicted under Eide's analysis.<sup>5</sup>

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<sup>4</sup> The prediction is that a reflexive possessive would be excluded in the hanging topic construction. That is not always the case, though (which is why the test has to be used with caution). For instance in the context of the following conversation, B's utterance, which corresponds to (9), sounds natural enough:

- (i) A: Han har ju sina hundar.  
       he has PRT his.REFL dogs  
       'He has his dogs, after all.'  
       B: Sina hundar ja, dom har han alltid med sig.  
       his.REFL dogs PRT them has he always with SELF

Here, A's use of *sina hundar*, locally bound as it should be, seems to license the use of the expression in the response, where it is not locally bound.

<sup>5</sup> If Frey (2004) is right, German copy-left dislocation does not have this derivation. Frey defends (against Grewendorf 2002 and Grohmann 2000) the traditional idea that the topic constituent is externally merged in the C-domain, and only the resumptive pronoun undergoes movement. For German, too, there are arguments from reconstruction for binding, similar to the ones presented in the text. Frey (2004) gets around

Mainland Scandinavian, including Swedish, has a construction strongly reminiscent of copy-left dislocation, where a fronted non-argument constituent immediately precedes a particle *så*. (11) is an example.

- (11) I morgon *så* har vi öppet som vanligt.  
 tomorrow *SÅ* have we open as usual  
 ‘Tomorrow we are open as usual.’

Eide (2011) argues that *så* is a head, occupying the same position in the CP as the agreeing Topic head, taking the non-argument constituent as a specifier; see also Nordström (2010).<sup>6</sup> I concur with this analysis. This predicts correctly that *så* cannot be immediately preceded by a hanging topic; compare (12) and (2c).

- (12) \*Vargen (ja), *så* är den tillbaka igen.  
 wolf.DEF PRT *SÅ* is it back again

I will not deal with the syntax of this particle in any detail in the present paper, but I will use it as a test for movement: The claim is that a constituent in the spec of the head realized as *så* has moved to that position. External merge is not an option, as indicated by (12). Compare also (11) and (13).

- (13) a. I morgon (ja), då *så* har vi öppet som vanligt.  
 tomorrow PRT then *SÅ* have we open as usual  
 ‘Tomorrow, we’re open as usual then.’  
 b. \*I morgon (ja), *så* har vi öppet som vanligt då.  
 tomorrow *SÅ* have we open as usual then

In (13a), the proform that resumes the hanging topic precedes *så*, consistent with the analysis that it has moved there from IP-internal position. (13b), where the proform remains in IP is ill-formed: *så* needs a specifier. The externally merged hanging topic is of no avail.

Eide (2011) proposes to regard the hanging topic “not as part of the CP but as a sentence fragment outside of the clausal structure proper” (Eide 2011: 198). There is indeed reason to think that the boundary between the inner and the outer topic is qualitatively different from the boundaries further down the tree. To begin with, the inner topic position can be included in an embedded root clause, the outer position cannot.

- (14) a. Dom sa att vargen (den) har dom inte sett på länge.

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them by assuming that Chain formation between the externally merged topic, the pronoun, and the trace of the pronoun in IP licenses reconstruction. No such formal complication is needed under the movement analysis.

<sup>6</sup> Eide (2011) refers to a talk and a handout from 2006 by Christine Bjerkan Østbø on *så* as a precursor.

- they said that wolf.DEF it have they not seen in long.time  
 ‘They said that the wolf they haven’t seen in a long time.’
- b. \*Dom sa att vargen (ja), grannen såg den förra helgen.  
 they said that wolf.DEF PRT neighbour.DEF saw it last weekend.

The embedded root clause, exhibiting V2 order in the manner of root clauses, is introduced by the complementiser *att*, a homonym of the complementizer introducing ordinary declarative complement clauses (Vikner 1995). In the spirit of Haegeman (2006), and following Eide (2011), I take this complementizer to be an exponent of a root-clause subordinator Sub, taking FoTopP as complement (thus not an exponent of Force, as in Rizzi’s 1997 account of high complementizers). Another distinction between the inner and outer topic position is that the inner topic position is as far as a category can move. It defines the movement range of the constituents of the CP. I will use the term Frame, familiar from Beninca and Poletto (2004) and much related work, for the position of the hanging topic. The structure of the left periphery of an independent root clause would thus be (15a) and the structure of an embedded root clause would be (15b).

- (15) a. [Frame [FoTopP FoTop ... [FinP Fin IP ]]]  
 b. [SubP Sub [FoTopP FoTop ... [FinP Fin IP ]]]

‘Frame’ does not name a head, but a position or ‘field’ outside the inner topic position. I will come back to the structure of the space between FoTop and Fin below.<sup>7</sup>

### 3. External merge with FinP

As-for phrases can be construed either as hanging topics or as inner topics.

- (16) a. Vad vargen beträffar, nu är den tillbaka igen.  
 what wolf.DEF concerns now is it back again  
 ‘As for the wolf, now it’s back again.’
- b. Vad vargen beträffar (så) är den tillbaka igen.  
 what wolf.DEF concerns SÅ is it back again  
 ‘As for the wolf, it’s back again.’

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<sup>7</sup> The model of the left periphery proposed here is different from the model proposed in Beninca and Poletto (2004) and Poletto (2014) for Romance V2 languages in some crucial respects. In particular, they argue that the left-dislocated topic characteristic of Italian and various other Romance languages, which corresponds, at least on the face of it, to the Scandinavian copy-left-dislocated topic, is externally merged in the C-domain. This, we have seen, is not the case in Swedish (or Norwegian).



In (16a), V2 is checked by the adverb *nu* ‘now’. This is consistent with the bottleneck hypothesis if the *as-for* phrase is externally merged in the Frame-field. In (16b), the *as-for* phrase either immediately precedes the finite verb, checking V2, or it precedes *så*. That it would be among the categories that can occur in construction with *så* is expected as it is a non-argument. As it checks V2, it must be merged with FinP by internal or external merge, checking the EPP of Fin. From there, it can be attracted by *så* to the spec of FoTop position. In the inner topic position, the spec of FoTop (see (6)),

Is there any reason to think that it has moved from inside IP? Consideration of the possessors shows that it has not.

- (17) Vad \*sina /hans<sub>i</sub> hundar beträffar (så) har han<sub>i</sub> dom alltid med sig.  
 what his.REFL/his dogs concern SÅ has he them always with SELF  
 ‘As for his dogs, he always takes them along.’

The reflexive possessive is ungrammatical and the pronominal possessive can be coreferential with the subject in IP. This rules out an analysis where the *as-for* phrase has moved from a position where it is locally c-commanded by the subject of IP. That is to say, the *as-for* phrase in (16b) is externally merged in the C-domain, thus it is a genuine counterexample to the strong bottleneck hypothesis. If it is externally merged in spec of Fin, it will be compatible with the weak bottleneck hypothesis. As it can precede *så*, it can move to the spec of FoTop, if this head is merged.

Another case in point is adverbial clauses.

- (18) a. När Anna<sub>i</sub> var klar (så) gick hon<sub>i</sub> hem.  
 when Anna was done SÅ went she home  
 ‘When Anna was done, she went home.’  
 b. Hon<sub>i</sub> gick hem när Anna\*<sub>i/j</sub> var klar.  
 she went home when Anna was done

Reconstruction of the adverbial clause into IP in (18a) yields a binding condition violation, as shown by (18b). The most straightforward explanation is that the adverbial clause in (18a) is externally merged in the C-domain. It checks V2, so it cannot be externally merged in the Frame field. It is thus incompatible with the strong bottleneck hypothesis. If it is externally merged with FinP, checking the EPP of Fin that way, it is compatible with the weak bottleneck hypothesis. As shown by (18a), it can be attracted by *så* to the spec of FoTop position.

Some adjunct clauses can be externally merged in the Frame-field, with an IP-internal category checking V2. Among them are speech act-modifying adverbials such as the one in (19).

- (19) a. Som jag nyss sa, man kan inte gå här.

- as I just said you can not walk here
- b. Som jag nyss sa (så) kan man inte gå här.  
 as I just said SÅ can you not walk here  
 'As I just said, you can't walk here.'

As shown, an alternative is to have the speech-act adverbial check V2, by hypothesis by external merge in spec of Fin, and move to spec of FoTop if *så* is merged. Discussing adjunct clauses would take me too far afield here. The generalization appears to be, though, that there is no kind of adjunct which could not check V2, while external merge in the Frame-field is highly restricted.

#### 4. An alternative theory of Modern Germanic V2

Wolfe (2016, 2018) proposes a reconsideration of the bottleneck hypothesis (following proposals by Poletto 2002 and Walkden 2015). There would be two types of V2 languages, distinguished by whether Fin or Force is the locus of the features responsible for V2, i.e. the feature attracting the finite verb and the EPP feature. If Fin is the locus, it will attract a constituent from IP, blocking further movement to the C-domain. However, assuming an articulated CP-structure à la Beninca and Poletto (2004) this allows external merge of both a topic and a focus in the C-domain, in addition to constituents in the Frame field (see note 6). This is what Wolfe shows is found in various Medieval Romance and Germanic languages (which are nevertheless V2 languages as shown by the word order when a non-subject constituent is fronted and systematically yields the order XP V Subject). If Force, assumed to be a head high in the left periphery as proposed originally by Rizzi (1997), is the locus of the V2 features, the features will trigger V-movement to Force, and movement of an IP-internal constituent to spec of Force. In that case, the moved constituent can be preceded only by constituents externally merged in the Frame-field, mainly hanging topics and in some languages also scene-setting adverbial clauses. This is the situation seen in the modern Germanic V2 languages.

If Eide' (2011) analysis of copy-left-dislocation and the *så*-particle construction is right, then it cannot be the case that the feature attracting the verb is always in Force in Swedish. Consider again (4b,c), repeated here as (20a,b).

- (20) a. Vargen den har vi inte sett ännu. (copy-left dislocation)  
 wolf.DEF it have we not seen yet
- b. Vargen har vi inte sett ännu. (topicalization)  
 wolf.DEF have we not seen yet  
 'The wolf, we haven't seen it yet.'

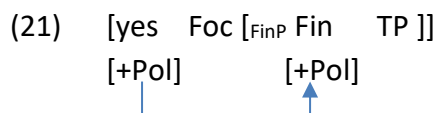
While (20b) can be analysed as having the verb raised all the way to Force, that would not be the case in (20a), where the pronoun is an exponent of FoTop, following Eide (2011).

Presumably the verb is in Fin, in that case, as it still precedes the subject. This allows for the analysis where the verb is in Fin in (20b) as well.

Wolfe's (2016, 2018) theory implies that the modern Germanic languages do not have a Topic and Focus head in the space between Force and Fin hosting clausal constituents as specifiers. In part following Eide (2011) I have assumed that Force and Topic are not distinct heads in Swedish. This means that the only head that would be missing between Force and Fin is Focus. It is interesting to note that Swedish appears not allow fronting of focused phrases to the C-domain, as argued by Holmberg (2015). This suggests that Wolfe may be right, after all. However, in the following I will provide an argument that Swedish does have a Focus projection in the space between FoTop and Fin. This also provides a link in an argument that constituents fronted from IP to the C-domain land in, and at least sometimes remain in, specFinP.

## 5. A focus particle externally merged in the C-domain

In Holmberg (2016) I have argued that answers to yes-no questions employing answer particles like 'yes' and 'no' are complete sentential expressions, but which are frequently elliptical, a variety of fragment answers (Merchant 2004). More specifically, I have proposed that the answer particle is externally merged in the spec of FocP taking as complement a sentential projection headed by Polarity. For the purposes of this paper, we may take the head hosting the Polarity feature to be Fin. The polarity feature is assigned negative value by a negation or negative adverb lower down in the sentence, or else gets affirmative value as a default (see Holmberg 2013, 2016: 38-40). In a yes-no question, the Polarity feature is unvalued, [ $\pm$ Pol]. In the answer, the focused answer particle assigns a value to the Polarity feature, either + or -Pol, which yields a positive or negative answer. This is shown schematically in (21), where the externally merged, focused answer particle assigns positive value to the polarity feature of the FinP, which yields a positive answer.



Frequently all of the sentence save the focused answer particle is deleted (not spelled out).

Consider the following paradigm:

- (22) a. Har du sovit?  
have you slept
- b. \*Ja har jag sovit./\*Nej har jag inte sovit.  
yes have I slept no have I not slept
- c. Ja jag har sovit./Nej jag har inte sovit.  
yes I have slept/no I have not slept
- d. Ja det har jag./Nej det har jag inte.  
yes that have I / no that have I not

- e. **Ja./Nej.**  
 ‘Yes (I have (slept))./No (I haven’t (slept)).’

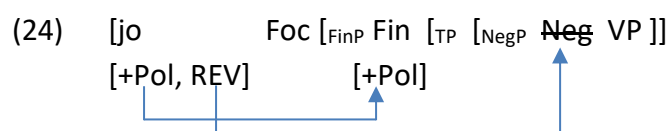
There is next to no reason to think that the answer particle has moved from IP, so the EPP of Fin cannot be checked that way (Holmberg 2016: 52-55).<sup>8</sup> (22b) shows that the answer particle does not satisfy V2, as predicted by the (strong) bottleneck hypothesis if the particle has not moved through spec of FinP. The EPP of Fin, therefore, must be checked by something else, a constituent moved from within FinP. In (22c) this is the subject, in (22d) it is the pronoun pronominalizing VP. In (22e) the entire FinP is deleted.

If this analysis of the syntax of answers is right, it must be the case that Fin has the verb-attracting feature and the EPP-feature attracting the subject or the VP-pronoun.

An alternative analysis is that the answer particle is externally merged in the Frame field, with the subject or the VP-pronoun moving to the spec of FoTop, under a version of Wolfe’s (2016, 2018) theory of V2 in Germanic. The reason for rejecting that analysis is the operator-variable relation that the answer particle enters into: It assigns a value to an unvalued feature within FinP. Constituents in the Frame-field do not typically have any such relation with constituents/features within FinP. The close relation between the answer particle and features of FinP is seen even more clearly in the case of the polarity-reversing particle *jo* characteristic of the Scandinavian languages (corresponding to *doch* in German and *si* in French; see Farkas and Bruce 2009, Holmberg 2016: 167). The particle is used to convey disagreement with the negative alternative of a negative yes-no question, as in (23):

- (23) a. Har du inte sovit?  
 ‘Have you not slept.’  
 b. Jo.  
 ‘Yes I have.’

This particle has a ‘negative-reversing’ feature, which neutralises or eliminates the negation of the question. In terms of the feature theory of Farkas and Bruce (2009) combined with the theory in Holmberg (2016) this can be expressed schematically as in (24):



The positive polarity of the answer particle assigns positive value to Pol, while the reversing feature eliminates the negation inherited from the question, resulting in a positive answer. This kind of feature-assignment and feature-modification relation does not hold between constituents in the Frame-field and features deep down within IP, but is characteristic of the relation between an operator in the lower left-periphery and a variable within IP.

<sup>8</sup> This is not to deny that other forms of answers to yes-no questions may be derived by movement (see Holmberg 2016: 55 and *passim*, Haegeman and Weir 2015).

Summing up, there is a focus particle which is externally merged in the inner C-domain, but does not satisfy V2, as predicted by the strong bottleneck hypothesis. Instead, the EPP-feature of Fin is checked by a constituent moved from within IP. We will see some more evidence in section 6 that the answer particle is externally merged in the inner C-domain in a position higher than spec of FinP.

This lends plausibility to an analysis where wh-movement in Swedish targets a focus-position in the inner C-domain which is below FoTop (*pace* Wolfe 2016, 2018) but may be higher than specFin, provided that it stops over in spec of FinP checking the EPP-feature. Wh-movement does not co-occur with the pronominal topic head, as expected since it is not a topic, but also not with the head *så*, even in the case of adjunct wh-movement.

- (25) När (\*så) dog Karl XII?  
 when SÅ died Karl XII  
 'When did Karl XII die?'

This follows if wh-movement does not target the highest spec-position, spec of FoTop, but a lower spec of Foc position, checking the EPP of Fin along the way.

## 6. Particles, adverbs, and V2

### 6.1 Brythonic C-particles and heads that do satisfy V2

The idea that Germanic V2 is a matter of movement was motivated in Holmberg (2015) by a comparison between Brythonic Celtic V2 and Germanic V2. The 'linear' as opposed to 'structural' nature of V2 in Breton has been well documented and discussed in the literature (see Borsley and Kathol 2000, Anderson 2000, Legendre 2001, Jouitteau 2005, 2008). I will therefore only briefly review some of the pertinent data. Consider (26), from Welsh.

- (26) Mi/fe fydd Gwyn yn yr ardd. [Welsh: Borsley, Tallerman and Willis 2007: 35]  
 PRT be.FUT.3SG Gwyn in the garden  
 'Gwyn will be in the garden.'

The initial particle, *fe* or *mi*, depending on dialect and other factors (Borsley Tallerman and Willis 2007: 35,) is a declarative-marking particle, analysed as an exponent of C, in most recent works (Roberts 2005, Jouitteau 2005, 2008, ). It is well established that Old and Middle Welsh was a V2 language (Willis 1998, Borsley, Tallerman and Willis 2007). It is more controversial whether it still is at least a partial V2 language. Jouitteau (2008) argues that it is, and that the function of the declarative particle is to ensure V2 order. If so, V2 order is here ensured by a spelled out head in the C-domain, with no movement to spec of CP. Welsh has movement to the C-domain; a focused argument or adverbial, for example, can move, but not in the presence of the initial particle, as expected if the particle is there to satisfy the V2 condition, and if this blocks movement to the C-domain, as it does in Germanic and Breton.

(27) Desket he deus    Anna he   c’hentelioù.                      [Breton: Jouitteau 2008]  
learnt have.3SG.F Anna her lessons  
‘Anna has learnt her lessons.’

(28) E-mañ Maijo el levraoueg. [Breton: Jouitteau 2008]  
C-is Maijo in.the library  
'Maijo is in the library.'

(29) a. **Hag** eo gwir an dra-se. [Breton: Jouitteau 2008]  
 QPrT is true the thing-here  
 'Is that true?'  
 b. **N'** em eus ket kousket un dakenn gant Pouchka.  
 NEG PRT have NEG slept a drop with Pouchka  
 'I haven't slept at all because of Pouchka.'

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condition on movement. The finite verb needs to be preceded by one and only one constituent in the C-domain, which can be a moved constituent but can also be an externally merged constituent, often a head.

## 6.2 Swedish C-particles and heads that do not satisfy V2

Does Swedish have any particles merged in the C-domain which would satisfy the V2 constraint?

The usual complementizers (*att* ‘that’, *som* ‘that’ in relatives, *om* ‘if’, *eftersom* ‘because’, etc.) are irrelevant because they are themselves exponents of Fin, blocking verb movement to Fin (Holmberg 1986, Holmberg and Platzack 1995, Vikner 1995), but Swedish and the other Mainland Scandinavian languages have a complementiser which is merged high enough to allow V2 in its complement. This is the complementiser *att* discussed in section 2, exemplified in (14), which introduces embedded root clauses (Holmberg 1986: 109-113, Vikner 1995), an exponent of Sub (following Haegeman 2010, 2012, rejecting the idea that it is an exponent of Force). The point is that it does not count for V2. (30a) is ill-formed, by hypothesis because the EPP feature of Fin is not checked, while (30b), where the EPP feature is checked by the subject is fine.

- (30) a. \*Jag vet **att** kommer han inte. [Swedish embedded root CP]  
           I know that comes he not  
       b. Jag vet **att** han kommer inte.  
           ‘I know that he isn’t coming.’

This follows if the EPP of Fin in Swedish cannot be checked by a head, in particular a head merged with a C-projection higher than FinP.<sup>10</sup>

Swedish has two C-domain items which are merged higher than Fin, permitting verb movement to Fin: concessive *så* and causal *för*. They, too, do not check V2.

- (31) a. Det regnar, **så** vi kan inte vara ute.  
           It rains so we can not be outside  
           ‘It’s raining, so we can’t be outside.’  
       b. \*Det regnar, **så** kan vi inte vara ute.

<sup>10</sup> Some varieties of Mainland Scandinavian, including Danish (Vikner 1995: 45-46) and Fenno-Swedish have a question particle introducing speculative questions, that is questions which do not call for an answer. This question particle does not check V2 (unlike the Breton question particle in (29a)).

(i) a. \*Männe är han sjuk? [Fenno-Swedish]  
           QPrt is he sick  
       b. Männe han egentligen är sjuk?  
           ‘Is he really sick, I wonder?’

This particle is irrelevant, though because it is an exponent of Fin, shown by the word order in (ib); the finite verb follows the sentence-medial adverb, so it has not moved to Fin.

- (32) a. Vi kan vara ute, **för** nu regnar det inte.  
 we can be outside for now rains it not  
 'We can go outside, because it's not raining now.'
- b. \*Vi kan vara ute, **för** regnar det inte nu.

The word order in the (a)-examples, the finite verb preceding the negation, shows that the verb has moved to Fin. The word order in the (b)-examples shows that *så* and *för* do not check the EPP feature of Fin. This is explained if these words are externally merged heads, and the EPP of Fin can only be checked by a phrasal constituent in spec of FinP, internally or externally merged there, as we have seen.

Swedish has some discourse or speech-act-related particles, typically in utterance-initial position. One, characteristic of Fenno-Swedish, is *nå*, often translatable as 'well'. As demonstrated in (33), it does not check V2.

- (33) a. **Nå** det kommer nog flera tillfällen. [Fenno-Swedish]  
 Nå there comes PRT more occasions  
 'Well, there will be other occasions.'
- b. \***Nå** kommer det nog flera tillfällen.

Finally, another category which is merged high enough in the left periphery to allow verb movement to Fin is coordinating conjunctions.

- (34) a. ...**och/men** han kommer inte tillbaka  
 and but he comes not back  
 '...and he won't come back.'
- b. ...**och/men** i morgon kommer han tillbaka  
 and but tomorrow comes he back  
 '...and tomorrow he'll be back.'
- c. \*...**och/men** kommer han inte tillbaka

As the examples show, they do not check V2, which follows if they are externally merged heads, and only (phrasal) categories, internally or externally merged with FinP, can check the EPP of Fin.

Interestingly there is one Swedish conjunction that does, apparently, check V2, namely *eller* 'or'.

- (35) Kom med nu, **eller** blir du utan mat.  
 come along now or become you without food  
 'Come along now or you will get no food.'




I will come back to this case in section 6.5 below, after discussing a range of other particles in the C-domain that do check V2.

### 6.3. Swedish C-particles that do satisfy V2: Conjunctive adverbs

In this section I will list a variety of ‘particles’, some of them considered to be adverbs, in the C-domain which do check V2. According to the strong bottleneck hypothesis this means that they have all moved from within IP, merging with FinP and checking the EPP. Alternatively they are externally merged with FinP.

The criterion I will employ for telling whether a category spelled out in the C-domain originates inside IP or not is this: If the category can be alternatively spelled out inside IP with no effect on the interpretation, or at most an information-structural or stylistic effect, then it *is* externally merged within IP and has moved to the C-domain. Conceptual motivation for this principle will be offered after having considered a number of case-studies.

There is a wide range of particles in Swedish, in addition to concessive *så* and causal *för* discussed in the previous section, which link a sentence/proposition to a preceding sentence/proposition. They are traditionally called conjunctive adverbs, and that is what I will call them. In view of their function, there is no obvious reason why they would not be externally merged in the C-domain. However, they do count for V2. They are exemplified in (36) (which is not an exhaustive list).

(36)		
därefter	‘thereafter’	
däremot	‘but, however, on the other hand’	
därför	‘therefore’	
emellertid	‘though’	
istället	‘instead’	
trots allt	‘after all’	
tvärtom	‘on the contrary’	
ändå	‘still’, ‘nevertheless’	
alltså	‘so/consequently’	
		(så) <u>kommer</u> han inte tillbaka. SÅ comes he not back

Note how they either immediately precede the finite verb or the particle *så*, consistent with the analysis that they are always merged (internally, as I will argue) with FinP, checking the EPP of Fin, but move to spec of FoTop headed by *så*, if this head is merged, as exponent of Force.

Some of them can precede a moved phrase, such as a copy-dislocated object in (37a) or adverbial in (37b). If the bottleneck hypothesis is right, in that case they must be externally merged in the Frame-field, outside FoTopP.

(37) a. **Tvärtom,** den här skjortan den älskar jag.

on.the.contrary this here shirt it love I

‘On the contrary, this shirt I love.’

- b. **Trots allt**, i Newcastle där händer det alltid nånting.  
 after all in Newcastle there happens it always something  
 ‘After all, in Newcastle there is always something going on.’

Other conjunctive adverbs cannot do that; they always immediately precede the fronted finite verb or *så* and the finite verb.

- (38) \***Därför**/ \***emellertid**/\***istället**/\***ändå** den här skjortan gillar jag.  
 therefore/however/ instead/ still this here shirt like I

All of them, including the ones in (37), have an alternative realization, though, in IP-internal position below the subject, hence (presumably) below T, but higher than the negation.

(39)

att han that he	därefter	‘thereafter’	} (inte) kommer tillbaka not comes back
	däremot	‘however’	
	därför	‘therefore’	
	emellertid	‘though’	
	istället	‘instead’	
	trots allt	‘after all’	
	tvärtom	‘on the contrary’	
	ändå	‘still’, ‘nevertheless’	
	alltså	‘so/consequently’	

Concessive *så* and causal *för*, discussed in the previous section, have conjunctive function much like the adverbs in (39), but do not check V2, as we saw. They cannot be realized within IP.

- (40) ...att han (\***för**/\***så**) inte kommer tillbaka  
 that he for / so not comes back

If these two categories are heads, that would be a reason why they cannot be externally merged within IP and then internally merge with FinP, checking V2. However, the speech-act particle *nå* in (33) is not in any obvious way headlike, but also cannot be realized within IP.

- (41) Det kommer (\***nå**) flera tillfällen.  
 there comes NÅ more occasions

This is consistent with the hypothesis that the conjunctive adverbs in (39) are externally merged in IP, but move optionally to the C-domain, in which case they stop in spec of FinP checking the EPP of Fin, moving on to the spec of FoTop if the FoTop head *så* is merged. Some of them also have the option of external merge in the Frame-field, in which case some other constituent must check the EPP of Fin.

Concessive *så* and causal *för* and the discourse particle *nå* only have the option of external merge in the C-domain, too high to check V2. If concessive *så* and *för* are heads, that would be an additional reason why they cannot check V2, but that does not, presumably, apply to *nå*.

As discussed in section 5 the answer particles *ja*, *jo*, and *nej* do not check V2, which follows, given the bottleneck hypothesis, if they do not move from inside IP and are also not externally merged with FinP. Indeed, they do not ever alternatively show up within IP. As noted and discussed by Engdahl (2014) the emphatic answer particle *javisst* (likewise *jovisst*, *nejvisst*) does check V2, though:

- (42) a. **Javisst** har jag sovit.  
           yes.VISST have I slept  
           ‘Yes indeed, I have slept’  
       b. \***Javisst** jag har sovit

As Engdahl notes, *javisst* does not occur as such within IP, so there is little reason to think that it has moved from IP. But the particle *visst*, which forms part of *javisst*, *jovisst*, *nejvisst* does occur as an adverb in IP.

- (43) Jag har \*javisst /visst sovit.  
       I have JAVISST/VISST slept  
       ‘I have indeed slept.’

I propose, therefore, that the particles *javisst*, *jovisst*, *nejvisst* are derived by movement of *visst* from IP merging with FinP, checking V2, and combining morphologically with the particles *ja*, *jo*, *nej* which are externally merged with FocP. It could be noted that until quite recently *javisst*, *jovisst*, *nejvisst* were standardly spelled as two words (Engdahl 2014).

#### 6.4. Sentence adverbs

Epistemic and other sentence adverbs always check V2.

(44)

antagligen	'probably'	}	(så) <u>kommer</u> han inte tillbaka SÅ comes he not back 'he is not coming back'
egentligen	'actually'		
givetvis	'obviously'		
möjligen	'possibly'		
säkerligen	'surely'		
tydligen	'apparently'		
tyvärr	'unfortunately'		
lyckligtvis	'fortunately'		
ärligt talat	'honestly'		

Again, this accords with the strong bottleneck hypothesis if the adverbs are moved to the C-domain, stopping in spec of FinP, optionally moving on to the spec of FoTop.

Speech act adverbs are known to be the highest among sentence adverbs (Cinque 1999). Of all the sentence adverbs, only they can precede a constituent moved to the C-domain, such as the subject in (45). This follows if only they can be externally merged in the Frame field.

- (45)a. Ärligt talat /Uppriktigt sagt /Kort sagt, dom är trötta på vargarna.  
honestly spoken sincerely said briefly said they are tired of wolves.DEF  
'To be honest/Sincerely/Briefly, they're tired of the wolves.'
- b. \*Antagligen/\*Egentligen/\*Lyckligtvis/etc., dom är trötta på vargarna.  
probably actually fortunately they are tired of wolves.DEF

All of the adverbs can alternatively be spelled out within IP.

(46)

att han	antagligen	'probably'	}	(inte) kommer tillbaka not comes back
	egentligen	'actually'		
	givetvis	'obviously'		
	möjligen	'possibly'		
	säkerligen	'surely'		
	tydligen	'apparently'		
	tyvärr	'unfortunately'		
	lyckligtvis	'fortunately'		
	ärligt talat	'honestly'		

This, in turn, is consistent with the hypothesis that they are always externally merged inside IP, at the edge of the predicate, where they can be attracted by the EPP of Fin and move to the C-domain. The speech act adverbs have the additional option of external merge in the Frame field.

It is by no means obvious that the conjunctive adverbs in (36) and the sentence adverbs in (44) have moved to the C-domain rather than being externally merged there. After all, this is their scope position. The function of the conjunctive adverbs is to connect a sentence, which may be an independent sentence, with the preceding sentence in the discourse; clearly a matter for the C-domain. The sentence adverbs, too, have sentential scope as a defining property. Notably, the conjunctive adverbs and the sentence adverbs have exactly the same scope and function whether they are spelled out IP-internally or IP-externally. Why are they ever merged IP-internally? I suggest it is a consequence of the derivational nature of natural language syntax, as follows:

Adopting a version of Chomsky's (1993) notion of numeration, and Chomsky's (2001, 2008) derivation by phase with two sentential phases, vP and CP, once the vP phase is complete, made up of all the categories relevant to argument structure, the categories with wider scope than vP can be merged, including categories which subsequently undergo movement, overt or covert, to the C-domain, their ultimate scope position. Being outside the vP phase they can be probed and attracted by heads in the C-domain. These include conjunctive adverbs and sentence adverbs. They *can* be merged IP-internally and yet move to the C-domain, therefore they *are* merged IP-internally. This would be the consequence of a principle that requires merge of items in the numeration as soon as possible, a special case of the Earliness Principle (Pesetsky 1989).<sup>11</sup>

#### 6.6. A possible counterexample: the conjunction *eller* 'or'

The sentential conjunction *eller* 'or' can check V2, as in (47a), but does not always do so, as in (47b).

- (47) a. Kom med nu, **eller** blir du utan mat.  
           come along now or remain you without food  
           'Come along now, or you won't get any food.'
- b. Du kan komma med, **eller** du kan stanna hemma.  
           you can come along or you can stay home  
           'You can come along, or you can stay home.'

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<sup>11</sup> Two anonymous reviewers both ask the following question: Given that Agree and movement are subject to locality, and given that the trigger for movement to the C-domain is an EPP-feature of Fin, how can any constituent other than the subject ever be attracted? In the case of non-subject wh-phrases and topicalized phrases we may assume that they have an unvalued feature which forces their movement, overriding the locality condition. But the various conjunctive and other adverbs do not have any reason to move; their interpretation seems to be the same whether they are realized in the C-domain or in IP (as is the case for the subject). It is probably significant, though, that their position in the IP-domain is high, even higher than negation, thus well outside even the edge of vP/the predicate. Conceivably locality does not distinguish between items in that domain, between Fin and the edge of the predicate, so an adverb can be attracted by Fin just as well as the subject.

- c. \*Du kan komma med, **eller** kan du stanna hemma.

Does this conjunction undergo movement? Judging by (48) it does not.

- (48) \*..., du blir **eller** utan mat.  
you remain or without food

There is a well formed synonymous alternative to the *eller*-clause in (49), though, employing the alternative-marking IP-internal particle *annars* 'otherwise', 'or else'.

- (49) Du blir **annars** utan mat.  
you remain otherwise without food  
'Otherwise you won't get any food.'

Consider also the Norwegian counterpart to (49), where the alternative-marking particle is morphologically almost identical with the conjunction *eller* 'or'.

- (50) Du blir **ellers** uten mat. [Norwegian]  
you remain otherwise without food  
'Otherwise you won't get any food.'

The particle *annars/ellers* can also occur sentence initially, with V2. Corresponding to (47a) there is (51).

- (51) Kom med nu, **annars** (Norw. **ellers**) blir du utan mat.  
'Come along now, or else you won't get any food.'

It is thus plausible enough that *eller* 'or' in (47a) is externally merged within IP, and moved to the C-domain, with the added condition that the movement is necessarily overt with *eller* but can be covert with *annars/ellers*.

There is a semantic difference between (47a,b). (47a) is a conditional statement, equivalent to 'if not...then'. *Eller* here heads the consequence clause of a conditional statement (hence the translation is 'or else'). *Eller* in (47b), on the other hand, links two or more alternative propositions with no conditional or implicational relation between them. We could take this to mean that *eller* without V2 is a conjunction proper, externally merged in the C-domain, while *eller* with V2 is a conjunctive adverb, externally merged in IP and moved to the C-domain.

## 7. Conclusions

According to the bottleneck hypothesis V2 order is the effect of (a) a feature which attracts the finite verb or auxiliary to Fin, and (b) an EPP feature which requires a maximal constituent to merge with FinP. There is a strong and a weak version of the bottleneck hypothesis. According to the strong version, the EPP of Fin can only be checked by movement, i.e. internal merge of a constituent with FinP. According to the weak version external merge of a constituent with FinP will do.

The question was whether the bottleneck hypothesis, either the strong or the weak version, can be upheld in Swedish, a representative of the Germanic V2-languages. From the outset of this paper it was clear that the strong bottleneck hypothesis cannot be upheld. It was demonstrated that *as-for* phrases that check V2 are externally merged outside IP, and adjunct clauses can be. It was demonstrated, though, that they are plausibly externally merged with FinP, and optionally moved higher up the C-domain, consistent with the weak bottleneck hypothesis. The analysis of copy-left dislocation and the *så*-construction as derived by movement to a high position within the C-domain, the spec of a Force-Topic (FoTop) head (following Eide 2011), was a crucial part of the theory articulated here.

Given that the strong bottleneck hypothesis cannot be strictly upheld anyway, there is no V2-related reason why the various adverbs and particles that check V2 could not be externally merged with FinP, in accordance with the weak bottleneck hypothesis. It is striking though, as demonstrated here, that *all* the adverbs and particles that check V2 can alternatively be realized within IP, while none of the items in the left periphery that do not check V2 can be. A possible counter-example, the Swedish conjunction *eller* ‘or else’, was shown not to be a counter-example after all. An explanation was suggested for this generalization: a universal principle which dictates that any item in the numeration is merged as early as possible.

The research question was motivated in part by the existence of the V2 system in Breton, a language where various items in the C-domain which are clearly not moved there, some of which are heads, can satisfy V2. The question was whether Swedish, a representative of the Germanic V2 languages, would, on closer inspection, exhibit some Breton-like features. The answer is negative. No heads, particles, or operators which are clearly externally merged in the left periphery satisfy V2 in Swedish.

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