

Extraction from Adjunct Islands in Swedish

Christiane Müller

This paper investigates restrictions on the reported possibility to extract from adjunct clauses in Swedish. I report results from an acceptability judgement study showing that extraction is constrained by the following factors: (i) the degree of syntactic integration of the adjunct clause, (ii) the internal syntax of the adjunct clause, and (iii) semantic coherence. Regarding factor (i), extraction is degraded when it occurs out of *peripheral adverbial clauses*, which are not sufficiently integrated with their host clause. Factor (ii) constrains extraction from clauses that have a relatively complex internal structure and possess an illocutionary potential. Factor (iii) refers to the observation that extraction is enhanced if the matrix and adjunct clause event are related by a *contingent relation* such as causation or enablement. From a cross-linguistic perspective, Swedish (and presumably also Danish and Norwegian) still stand out in allowing extraction from at least a subset of finite adjunct clauses. This is considered to be impossible in other languages.

Key words: acceptability judgements, adjunct clauses, extraction, island constraints, locality, Swedish, syntax

1 Introduction¹

Adjunct clauses are assumed to be *strong islands* universally, banning extraction of all kinds of elements in all languages. Example (1) (from Boeckx 2012: 16) demonstrates the impossibility to extract arguments (1a) as well as adjuncts (1b) from adjunct clauses in English.

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- (1) a. *Who_i/Which girl_i did John arrive [after Bill kissed _{-i}]?
 b. *How_i/In what way_i did John arrive [after Bill kissed Mary _{-i}]?

However, the Mainland Scandinavian (MSc.) languages have been reported to permit extraction from adjunct clauses. Some examples from the literature are given below.

- (2) a. Sportspegeln_i somnar jag [om/när jag ser _{-i}].
sports program-the fall-asleep I if/when I watch
 ‘I fall asleep if/when I watch the sports program.’
 (Swedish; Anward 1982: 74)

- b. [Den saka]_i ventar vi her [mens de ordnar _{-i}].
this things wait we here while they fix
 ‘We are waiting here while they fix this thing.’
 (Norwegian; Faarlund 1992: 117)

- c. [Den vase]_i får du ballade [hvis du taber _{-i}].
this vase get you trouble if you drop
 ‘You are in trouble if you drop this vase.’
 (Danish; Hansen & Heltoft 2011[3]: 1814)

These constructions thus violate locality constraints that are assumed to apply universally, in particular the *Adjunct Condition* (Cattell 1976; Huang 1982). However, the extractions do appear to be subject to certain restrictions. The Swedish reference grammar (SAG), for instance, marks the example in (3) as ungrammatical. This raises the question: Under which conditions is extraction from adjunct clauses possible in the MSc. languages?

- (3) *Bilbälte, skadade han sig svårt [fastän han hade _{-i}].
seatbelt injured he REFL hard although he had
 ‘He was badly injured even though he had a seatbelt.’
 (SAG 1999[4]: 424)

In this paper I investigate conditions on extraction from adjunct clauses in one of the MSc. languages in question, viz. Swedish, to look for potential patterns in the restrictions on such extractions. I have examined two factors, which I suspect constrain extraction from adjunct clauses: (i) the semantic relation between the adjunct and matrix clause event, and (ii) the degree of syntactic

integration of the adjunct clause. I present these hypotheses in Section 2. The impact of these factors on extraction possibilities was investigated by means of an acceptability judgement study for Swedish, and the results of this study are reported in Section 3. In short, both of the above mentioned factors exhibit roughly the predicted effect on extraction possibilities, and in addition the internal syntax of the adjunct clause was found to play a role. Section 4 summarizes these findings and discusses possible explanations for the effects found.

2 Restrictions on extraction from adjunct clauses

2.1 *The semantic relation between matrix and adjunct clause*

One major condition on the possibility of extraction from adjuncts has been explored by Truswell (2007, 2011) and concerns the semantic relation between the event described in the adjunct and in the matrix clause. Truswell observes that it is not categorically impossible to extract from adjuncts in English. For example, the extractions in the form of *wh*-movement from the non-finite adjuncts in (4a–c) are considerably better than the one in (4d) (examples from Truswell 2007: 5).

- (4) a. What_{*i*} are you working so hard [in order to achieve _{*i*}]?
 b. Who_{*i*} did John go home [after talking to _{*i*}]?
 c. What_{*i*} did John drive Mary crazy [whistling _{*i*}]?
 d. *What_{*i*} does John work [whistling _{*i*}]?

To account for this contrast, Truswell suggests that *wh*-movement is constrained by event-based locality domains. Specifically, he imposes a *Single Event Condition* (SEC) on extraction from adjuncts, the exact formulation of which is given below:

- (5) The Single Event Condition
 An instance of *wh*-movement is legitimate only if the minimal constituent containing the head and the foot of the chain can be construed as describing a single event.
 (Truswell 2011: 38)

Under this approach, extraction is possible in the sentences in (4a–c) because the matrix VP and the adjunct VP can be subsumed under one single event. The formation of such a single macroevent is only possible if the two events described by the matrix and the adjunct VP are related by a *contingent relation*, i.e. *causation* or *enablement* (as opposed to a purely temporal relation, for example).² Extraction from *in order* clauses such as (4a) is hence predicted to always be well-formed, since the introducing element *in order* linguistically encodes such a contingent relation (namely goal-driven enablement). In (4b), the introducing element *after* specifies merely a temporal relation between the matrix event and the adjunct event; however, a plausible interpretation of this sentence is that John went home as a consequence of talking to a certain person. Real-world knowledge thus permits pragmatic enrichment of this relation in such a way that it can be interpreted as a causal (and hence a contingent) relation, which creates the right conditions for macroevent formation and hence for extraction. Similarly, the bare present participial adjunct *John whistling* in (4c) is most naturally interpreted as being the cause of Mary’s craziness and thus allows the creation of a single macroevent. This possibility is not available in (4d), however, since the matrix and adjunct clause events in this case are interpreted as taking place simultaneously rather than as being causally related. Ill-formed instances of adjunct extraction are according to this approach ruled out by semantic and pragmatic filters applying to the output of syntax.³ Crucially, one constraint on adjunct extraction that has been assumed to hold uniformly, regardless of the interpretation of the adjunct, is that extraction from *tensed* adjuncts is generally ungrammatical. The impossibility to extract from tensed, finite adjunct clauses in English is illustrated below (examples from Truswell 2007: 166–167).

2. I follow Truswell in confining contingent relations to relations of either causation or enablement. See Truswell (2007, 2011), Moens & Steedman (1988) and Wolff (2003) for further discussion of the demarcation of the family of contingent relations.

3. One reviewer points out that individual differences in the capacity to construe two sub-events as a single event may explain the gradient judgements typically obtained from these kind of extractions. Truswell (2011) also notes that the semantic, pragmatic and cognitive factors that according to his model influence the possibility to form macroevents are an expected source of gradient acceptability judgements and of inter- or intra-speaker variation regarding the possibility to extract from an adjunct. In the study reported here, I tried to minimize the impact of these factors on extractability by providing a context for each tested sentence that very clearly triggered either a contingent or a non-contingent reading of the events, but it cannot be entirely excluded that the informants nevertheless varied in their ability to perceive a contingent link between two subevents, which thus may account for some of the variation observed in the resulting judgements.

- (6) a. *Who_i did John go home [after he talked to _{-i}]?
 b. *What_i is John talking to Mary [so that she will understand _{-i}]?

In contrast to English, extraction from finite adjuncts is possible in Swedish and the other MSc. languages, see the examples in (2) above. One possibility is that although Swedish is more permissive with regard to extraction from finite adjuncts, these extractions are still subject to the semantic requirements formulated by Truswell. In that case, extraction is expected to improve if the matrix and adjunct clause events are in a contingent relation.

2.2 *The degree of syntactic integration of the adjunct clause*

Another factor which is likely to have an impact on extraction possibilities is the degree of integration of the adjunct clauses with the clause that they modify. Differences in syntactic integration of adjunct clauses have been studied extensively by Liliane Haegeman (2003 *et seq.*). She distinguishes between *central adverbial clauses* (CACs) and *peripheral adverbial clauses* (PACs). In essence, central adverbial clauses modify the event described in the matrix clause (they are event structuring) whereas peripheral adverbial clauses have a discourse structuring function. The difference is demonstrated in (7) by means of clauses introduced by *while*: When used in a CAC, as in (7a), *while* provides a temporal specification for the event described in the matrix clause (meaning roughly ‘during the time that’). In the PAC in (7b), however, *while* is contrastive and can be said to structure the discourse, by providing a context against which the content of the host clause should be processed.

- (7) a. According to Smith, a group of Arkansas state troopers who worked for Clinton while he was governor wanted to go public with tales of Clinton’s womanising. (CAC)
 b. While his support for women priests and gay partnerships might label him as liberal, this would be a misleading way of depicting his uncompromisingly orthodox espousal of Christian belief. (PAC) (Haegeman 2012: 160)

Two readings are also available for *so that*, depending on whether it introduces a purpose clause (central) or a result clause (peripheral), and for *because*, depending on whether the clause at hand provides a cause or reason (central) or a rationale for the speaker to make the claim expressed in the main clause (peripheral). Some conjunctions such as *before*, *after*, and *until* allow only a

temporal (central) reading. Others always introduce a peripheral clause and thus have no central counterpart (e.g. *although*).

CACs and PACs differ in their external syntax, since they are merged at different points in the structure. In detail, CACs are merged comparatively low in the structure of the associated clause (at TP or vP) and are hence closely integrated. PACs, by contrast, are merged in parallel with the CP and are hence less integrated with the associated clause (Haegeman 2012; Frey & Truckenbrodt 2015). The difference in syntactic integration between CACs and PACs has consequences for coordination possibilities and scope phenomena. For instance, PACs cannot have focus and cannot be clefted. Unlike CACs, they are outside the scope of operators inside TP or CP, since they are merged external to TP and therefore cannot be c-commanded by elements in the associated clause.

The two types of adverbial clauses differ also in their internal syntax. The differences can mainly be derived from the presence or absence of independent illocutionary force. While CACs lack illocutionary force and are part of the speech act performed with the main clause, PACs have their own illocutionary potential. One consequence of this is that speaker-oriented modal markers such as speech act modals, evaluative, evidential and epistemic modals are compatible with PACs, but not with CACs, as illustrated with the CAC in (8).

- (8) ??*If **frankly** he's unable to cope, we'll have to replace him.
(Haegeman 2012: 173)

Finally, there are reasons to assume that the distinction between central and peripheral adverbial clauses is relevant to extraction possibilities. As noted by Haegeman (2004: 70), extraction from CACs is sometimes reported to be acceptable for a few speakers of English, whereas extraction from PACs is unattested and leads to a considerably stronger degradation in constructed examples. Two relevant examples in case are given in (9): Whereas extraction from the CAC in (9a) is reported as possible, extraction from the PAC in (9b) is degraded.

- (9) a. This is [the watch]_i that I got upset [when I lost _{-i}]. (Truswell 2011: 175, fn.1)

- b. ?? This is [the paper]_i which I enjoyed the conference very much, [whereas I disliked _i]. (Haegeman 2004: 70)⁴

Hence, the expectation is that extraction, to the extent that it is possible in a language, should be restricted to CACs. Peripheral clauses are presumably not sufficiently syntactically integrated with the host clause and hence too independent from it to allow subextraction. More concretely, the lack of integration responsible for the opacity of PACs can be a consequence of their external syntax (attachment height) as well as of their internal complexity (the presence of an independent illocutionary potential). Both factors have been claimed to induce islandhood. An impact of attachment height on the possibility to extract specifically from adjuncts has been detected for instance by Truswell (2007, 2012), Boeckx (2012), and Narita (2011), who all reach the conclusion that only adjuncts that are attached low enough allow extraction. A high degree of internal complexity and the presence of illocutionary force in turn have been suggested to be responsible for the island effects induced by embedded V2 clauses (Bentzen et al. 2007; Bentzen & Heycock 2010; Hrafnbjargarson et al. 2010; Sheehan & Hinzen 2011). Below, I will show that both the external and the internal syntax of an adverbial clause appear to play a role in constraining extraction possibilities.

3 An acceptability judgement study for Swedish

3.1 Method

The impact of these factors on extraction possibilities was tested by means of an acceptability judgement study for Swedish. The study was carried out as a written survey that contained constructed sentences in which a phrase had been subextracted from an adjunct clause. The extracted phrase was topicalized in all instances, i.e. no other types of A'-movement were tested. The informants (19 native speakers of Swedish) were asked to judge the sentences on a 5-point Likert scale (1 = *oacceptabel* 'unacceptable'; 5 = *helt okej* 'completely fine'). Prior to answering the questionnaire, the participants received detailed instructions about the criteria according to which they should judge the sentences, and all sentences were presented with a preceding context in the

4. The judgement for (9b) indicated above, "??", was taken over from Haegeman's paper, but as English native speakers have pointed out to me, the example is more adequately judged as completely ungrammatical.

form of a dialogue or a short description of the situation. An example of one test sentence from the survey with its preceding context is given below – in this case, the informants were asked to judge the last sentence in the dialogue (only the crucial sentence is provided with detailed glosses).

- (10) ‘Two persons are having a preparty and talk about which wine they should drink.’

A: Vilket vin ska vi dricka ikväll? Det vita eller det röda vinet som du har kvar?

‘Which wine should we drink tonight? The white one or that red wine that you have left?’

B: Hellre det vita.

‘Rather the white one.’

Det där röda vinet mådde jag lite illa efter att jag hade druckit sist.

this there red wine-the felt I a-little sick after that I had drunk last-time

‘I felt a little sick after I had drunk that red wine last time.’

All sentences were judged to be acceptable in their non-extracted form by a Swedish native speaker. Extraction was tested from different types of adjunct clauses that triggered either a central or a peripheral reading and that were either compatible with a contingent interpretation or not. Both Truswell’s and Haegeman’s accounts make specific predictions regarding extraction possibilities. According to Truswell’s account, extraction is expected to improve if the matrix and adjunct clause event can be interpreted as contingently related. The prediction following from Haegeman’s observations in connection with my discussion above is that extraction should be restricted to CACs.

In this article I will only present a selection of the clauses tested in the survey. In total, the survey contained 26 sentences involving argument extraction from purpose clauses (3 items), temporal clauses (6), concessive clauses (2), result clauses (2), conditional clauses (4), and causal clauses (4). Out of these adverbial clauses, 13 were CACs and 8 were PACs. 16 clauses encoded a contingent relation and 5 a non-contingent relation with the matrix clause. In addition, the survey contained 5 conditional clauses in which an adjunct had been extracted instead of an argument to see whether the category of the extracted

element has an impact on acceptability of extraction. However, the results of this part of the survey are not reported here.

Below, I will go through the results for a representative selection of the clauses tested in the survey and examine how far the results conform to the predictions just mentioned. I will summarize the results by means of the standard descriptive statistics mode, median and mean (with *mode* being the most frequent value in a sample, i.e. the score that was assigned most often to a test item). It should be noted that the mode and the median are more informative than the mean for the data reported here, since mode and median are less sensitive to outliers than the mean, and since calculating the mean for ordinal data such as those produced by Likert scales is occasionally considered problematic. I will hence focus on the mode and the median in my description of the outcomes.

3.2 Results

3.2.1 Purpose clauses

Purpose clauses express goal-driven enablement and hence a contingent relation according to Truswell's account – cf. the *in order to* clause in example (4a) above, the non-finite version of a purpose clause in English. Moreover, they are classified as CACs by Haegeman (2012) (which can be confirmed for Swedish with scope and clefting tests). Extraction from purpose clauses is hence predicted to be well-formed both under Truswell's and Haegeman's account. This prediction is confirmed by the results of the acceptability study, see Table 1. The sentences involving extraction from a purpose clause in the survey all scored a mode and median value of 4, i.e. they were rated on the upper end of the scale by the majority of the informants.

Table 1. Results for purpose clauses

						Mode	Median	Mean
a.	Det här	berget	måste	man	träna	mycket	för att	man
	<i>this here</i>	<i>mountain</i>	<i>must</i>	<i>one</i>	<i>exercise</i>	<i>a-lot</i>	<i>for that</i>	<i>one</i>
	ska	kunna	bestiga.					
	<i>shall be-able</i>	<i>to-climb</i>						
	'One has to exercise a lot in order to be able to climb that mountain.'							
b.	Den här	fätöljen	fick	vi	åka till	Göteborg	för att	jag
	<i>this here</i>	<i>armchair</i>	<i>must.PAST</i>	<i>we go to</i>	<i>Gothenburg</i>	<i>for that</i>	<i>I</i>	
	skulle	kunna	köpa.					
	<i>would be-able</i>	<i>to-buy</i>						
	'We had to go to Gothenburg so that I would be able to buy this armchair.'							

3.2.2 Temporal clauses

All temporal clauses tested in the survey provide a temporal specification for the matrix clause event and are hence central. Regarding the contingency requirement, temporal adjuncts typically specify a purely temporal (non-contingent) relation between the matrix and the adjunct event. However, as demonstrated above, extraction from temporal adjuncts is possible in English to the extent that the temporal relation can be pragmatically enriched into a contingent relation, e.g. when a causal interpretation of the events described in the matrix and the adjunct VP is plausible. Hence, extraction from temporal adjuncts in Swedish is predicted to be possible under the same conditions, i.e. judgements for the relevant constructions should differ depending on how plausible a contingent reading of the relation between the two events is. This was tested with two pairs of sentences involving extraction from adverbial clauses introduced by *efter att* ‘after’. The context and content of the test sentences were manipulated such that one sentence in each pair could easily be interpreted as describing a causal (hence contingent) relation between the two events, and one sentence made such an interpretation implausible. The results for the two pairs of *efter att*-clauses are reported below:

Table 2. Results for *efter att*-clauses, set 1

	Mode	Median	Mean
a. Den filmen fick jag gå hem efter att vi hade sett. <i>that movie must.PAST I go home after that we had seen</i> ‘I had to go home after we had seen that movie.’ (temporal reading induced by context)	1	1	1.95
b. Den filmen börjar man alltid gråta efter att man har sett. <i>that movie start one always to-cry after that one has seen</i> ‘One always starts crying after having seen that movie.’ (causal reading induced)	4	4	3.84

Table 3. Results for *efter att*-clauses, set 2⁵

	Mode	Median	Mean
a. Det röda kan vi ju gå ut på stan efter att vi har <i>the red can we PTC go out to city-the after that we have</i> druckit. <i>drunk</i> 'We can go out in the city after we have drunk the red wine.' (temporal reading induced)	1	2	2.05
b. Det där röda vinet mädde jag lite illa efter att jag hade <i>this there red wine-the felt I a-little sick after that I had</i> druckit sist. <i>drunk last-time</i> 'I felt a little sick after I had drunk that red wine last time.' (causal reading induced)	5	4	4.05

The results largely confirm the expected outcome. In the first pair, one sentence is uttered by a person who has to go home after watching a certain movie. The context provided for this sentence indicated that the speaker had to leave in order to catch a bus, making a causal interpretation of the two events very unlikely and leaving only a temporal (non-contingent) reading of the events. As expected, the sentence received very low scores (mostly not higher than 1). The reading of the second sentence of that pair, by contrast, can very easily be enriched into a causal relation, since 'crying' is very plausibly caused by seeing a sad movie. Macroevent formation (and hence extraction) should therefore be easy, and as expected, the sentence received clearly higher scores than the first sentence of that pair. The same holds for the other pair of *efter att*-clauses. Drinking red wine is probably not the direct cause of going into town, whereas feeling a little sick is a very plausible consequence of the consumption of red wine. As expected, the latter sentence received considerably higher scores than the first sentence.

3.2.3 Concessive clauses

Concessive adjuncts do not express a contingency relation according to Truswell (2007: 164), although it should be noted that there is disagreement in the literature on this point. Concessives are treated as adverbials of contingency e.g. in Bhatt & Pancheva (2006: fn. 2) and Quirk et al. (1985). Kehler (2002) also treats concessives as a subtype of causal relations. However, since conces-

5. The extracted phrases in this set are not identical, which is an effect of the attempts to create test sentences that sound as idiomatic as possible given the preceding context. Future studies of this kind should control for the uniformity of the extracted element.

sive clauses are always peripheral, extraction is nevertheless expected to be bad. This expectation is met, see Table 4.

Table 4. Results for concessive clauses

	Mode	Median	Mean
Men den boken kunde jag inte lösa uppgifterna fastän jag <i>but this book could I not solve assignments-the although I</i> hade läst. <i>had read</i> 'But I could not solve the assignments even though I had read this book.'	1	1	1.63
Det medlet dog mina blommor fastän de hade fått. <i>that fertilizer died my plants although they had got</i> 'My plants died even though I gave them this fertilizer.'	1	1	1.68

In total, eight of the tested sentences in the survey involved peripheral clause extraction, and the other cases (not reported here) received similarly low ratings. Thus it looks like peripheral clauses disallow extraction in Swedish, as expected from their lack of full integration with the main clause.

3.2.4 Causal clauses

Extraction from causal clauses is predicted to be well-formed under Truswell's account, since a contingent relation (causation) is explicitly marked by the introducing element (*eftersom* 'because'). Moreover, the causal clauses reported in Table 5 have a reason reading and are hence central. Surprisingly, the sentences involving extraction from causal clauses received rather low scores (mostly not higher than 2) in the survey.

Table 5. Results for causal clauses

	Mode	Median	Mean
a. Den där låten blir det alltid dålig stämning eftersom ingen <i>this there song gets it always bad mood because nobody</i> gillar. <i>likes</i> 'The atmosphere always gets ruined because nobody likes that song.'	1	2	1.89
b. Mio min Mio grät han eftersom han inte fick låna. <i>Mio my Mio cried he because he not could borrow</i> 'He cried because he could not borrow <i>Mio, My Son.</i> '	2	2	2.68

In order to account for these somewhat surprising results, I want to point out that there is evidence suggesting that *eftersom*-clauses, even if they are central in their external syntax, differ in their internal syntax from other central clauses. Haegeman (2003, 2012) notes that normally, there is a correspondence between the external and internal syntax of adverbial clauses. In other words, the level of attachment (timing of merger) determines the internal syntax of an adverbial

clause (presence of independent illocutionary force). However, Haegeman (2012: 182) also acknowledges the possibility that this is not a one-to-one relation and that the internal syntax of an adverbial clause might to some degree be independent of where it is inserted. Ros (2005), in turn, argues that this is the case for certain causal clauses. For example, some central causal clauses like the one in (11) may contain expressions of epistemic modality, a phenomenon that is usually restricted to peripheral clauses:

- (11) Sue went home because her sister **would probably** visit her.
(Ros 2005: 98, fn. 18)

This suggests that even though these causal clauses are attached at the level of CACs, they may show the complexity of PACs. Example (12) shows that also in Swedish, an epistemic/evidential modal such as *tydliggen* ‘apparently’ is indeed compatible with the central *eftersom*-clause tested in the survey.

- (12) ?Han grät eftersom han **tydliggen** inte fick låna Mio min Mio.
he cried because he apparently not could borrow Mio my Mio
‘He cried because apparently, he could not borrow *Mio, My Son.*’

Another argument in favor of this explanation is that central *eftersom*-clauses are compatible with V2 word order, cf. (13), as opposed to temporal clauses and central conditionals that do not allow V2.⁶ Embedded V2 has been associated with the presence of illocutionary force in Wiklund et al. (2009), Julien (2015), and in many other works.

- (13) Han grät eftersom han fick inte låna Mio min Mio.
he cried because he could not borrow Mio my Mio

Evidence that sentence-final *eftersom*-clauses are adjoined TP-internally and indeed are of the central kind concerning their external syntax comes from Condition C tests. In (14), coreference between the matrix subject pronoun and the subject of the adverbial clause induces a Condition C violation. This suggests that the central causal clauses that were tested are c-commanded by the matrix subject and hence must be adjoined lower than TP; i.e. they attach at the same level as other CACs.

6. There is some variation between speakers regarding the acceptability of (13), which may be attributed to inter-speaker variation with regard to embedded V2 structures more generally.

- (14) *Han_i grät eftersom Peter_i inte fick låna Mio min Mio.
he cried because Peter not could borrow Mio my Mio

As suggested above, the internal syntax of an adjunct clause is likely to be one of the factors that constrain extraction possibilities. For instance, a high degree of internal complexity and the presence of assertive force in embedded clauses have been associated with stronger opacity for extraction in Sheehan & Hinzen (2011). The relatively elaborate internal syntax of reason clauses may hence explain the comparatively low acceptability ratings that extraction from them received in the survey, even though they are attached sufficiently low. Thus, in order to allow extraction, the adjunct clause has to be relatively tightly integrated with the matrix clause, both in terms of its external and internal structure. Simply being attached at a certain height is a necessary but not a sufficient condition for a clause to allow extraction. The adverbial clause also needs to fulfill certain criteria regarding its internal structure, meaning that it must lack an independent illocutionary potential and should be integrated into the speech act of the matrix clause.

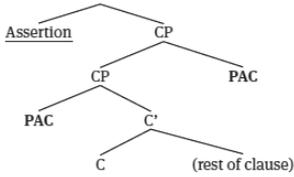
4 Concluding discussion

The results of the acceptability judgement study show that extraction from adjunct clauses in Swedish is constrained at least by three factors: 1) the degree of syntactic integration (in terms of the external syntax of the adjunct clause), 2) the internal syntax of the adjunct clause, and 3) semantic coherence (in terms of contingency).

The first factor constrains extraction in so far as only CACs, which are syntactically integrated into the matrix clause, permit extraction, whereas PACs, such as for instance concessive clauses, disallow extraction. A possible explanation for the opacity of PACs is their attachment height. Haegeman (2012) shows that CACs are adjoined TP-internally, whereas PACs are merged in the CP-domain of their host clause. Also Frey & Truckenbrodt (2015) analyze sentence-final PACs as being adjoined to CP of the host clause, as in (15) (Frey & Truckenbrodt 2015: 88).

Constituents contained in the PAC might hence not be extractable because they are outside of the search domain of the relevant probes in the main clause that trigger the movement in the first place, i.e. the adjunct is attached too high in relation to the target of movement.

(15)



However, syntactic integration is not only dependent on attachment height, but also on the internal syntax of the adjunct clause involved (factor 2). As the examples with causal clauses have shown, the adverbial clause should also not exceed a certain level of complexity with respect to its internal make-up in order to allow extraction, i.e. it must be integrated into the speech act of the matrix clause.

One possible approach to derive the impact of this factor on extraction possibilities is to attribute the effect to the “closed event” structure that has been suggested for causal clauses by Johnston (1994). Johnston’s account is based on the observation that causal clauses differ from e.g. temporal clauses semantically in expressing a relation between propositions (rather than between events). Therefore, he analyzes causal clauses as having a closed event structure. Larson & Sawada (2012) elaborate on this proposal and suggest a semantic closure account, in which *because*-clauses (and asserted clauses in general) differ from temporal clauses in that they have to undergo existential closure, which binds all variables in them (apart from the main quantificational variable). Possibly, the closed event structure of causal adjuncts is in some way incompatible with the formation of movement dependencies into the adjunct. Another way of stating this might be to say that semantic closure interacts with cyclic Spell-Out and forces Transfer of the relevant structure to the interfaces (which in turn entails that the clause is also syntactically closed).

Another possible explanation is that the feature or projection that encodes illocutionary force in causal clauses and PACs causes an intervention effect with the extracted phrase, similarly to the way extraction is assumed to be blocked from embedded V2 clauses in the Scandinavian languages. Bentzen et al. (2007), Bentzen & Heycock (2010) and Hrafnbjargarson et al. (2010) provide arguments that it is probably not the position of the verb per se that blocks extraction from complement V2 clauses, but rather that some of the features triggering V2 (and licensing illocutionary force) cause an intervention effect.

If that is the case, it is possible that the same features are present in PACs and causal clauses and lead to intervention effects there in the same manner.

Furthermore, it is evident that semantic coherence (in terms of contingency) affects the possibility to extract from CACs in Swedish (factor 3). Extraction from temporal clauses for instance scored better ratings in the survey when a contingent interpretation of the matrix and the adjunct event was available.

Under a syntactic account, contingency is reflected in the internal syntax, e.g. in terms of a syntactic relation of the adjunct clause with the matrix clause (possibly in terms of feature sharing or feature valuation). This in turn can be assumed to enhance extraction. It has been pointed out in various studies that adjuncts become more transparent for extraction when they enter into an Agreement/feature sharing or feature valuation relation (see e.g. Rackowski & Richards 2005; Boeckx 2008; Narita 2011; Oseki 2015 and Bošković 2016). I leave the exact formal implementation of such an account to future research.

Another possibility is to derive the effect of event structure from processing, as suggested by Truswell (2011). In short, he assumes that sentences that are not open to a contingent reading trigger a “multiple-event reading”, with the consequence that an additional event has to be processed while resolving the filler-gap dependency. If events are also discourse referents, this leads to an increased processing load (compared to cases with a single-event reading) according to approaches such as Gibson’s (1998, 2000) *Dependency Locality Theory*, where the complexity of a sentence involving an extraction is measured based on the number of discourse referents that intervene between the extracted element and its source position.

One important finding in this study is that extraction in Swedish – despite being subject to certain restrictions – is not confined to non-tensed adjunct clauses. This makes Swedish different from e.g. English and leaves us with the question what role Tense plays for the possibility to extract from adjunct clauses. Truswell (2011) takes Tense to block the formation of macroevents or contingent relations, but as this investigation has shown, Tense does not seem to have the same effect in Swedish or MSc. in general. There is an interesting parallel in this regard to the acceptability of parasitic gaps in different Germanic languages, as pointed out by Engdahl (1983). Whereas in English, the cut-off point between structures that allow parasitic gaps or not falls between tensed and untensed domains, it appears to be further down on the accessibility hierarchy for parasitic gaps in Swedish and Norwegian. I leave these observations for future research.

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Christiane Müller
Centre for Languages and Literature
Lund University
Box 201
SE-221 00 Lund
christiane.muller@nordlund.lu.se