Subject extractions in Scandinavian languages

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Abstract

This thesis studies how subject extractions are accepted in Scandinavian (Danish, Norwegian, Swedish and Fenno-Swedish) through an extensive acceptability judgment study. The results from the study were compared with previous research and analyzed against accounts on why subject extraction constraints occur and why the acceptance of subject extractions in Scandinavian vasty varies. The subject extractions studied were non *wh*-subject extractions over a deleted *att*-complementizer, an overt *att*-complementizer, the complementizer *om* and various *wh*-elements (simplex and complex), with and without resumptive pronouns. The results showed that the Swedish informants accepted all subject extractions under the condition that a resumptive pronoun was inserted in the gap. The Fenno-Swedish informants showed the same pattern except for subject extractions over an overt *att*, where a subject gap was preferred. Subject extractions over an overt *att* were also accepted by the Norwegian informants and subject extractions over *om* were accepted by the Norwegian and Danish informants. Norwegian and Danish informants also accepted subject extractions over *wh*-elements where simplex *wh*-elements were accepted to a greater extent than complex *wh*-elements. Informants who accepted subject extractions over complex *wh*-elements most likely also accepted subject extractions over simplex *wh*-elements. Resumptive pronouns were rejected by both Norwegian and Danish informants and subject extractions over a deleted *att* were accepted by all varieties. The results from the study aligned well with previous indications and also contributed with new data on resumption in connection with Fenno-Swedish.

Previous accounts as to why the acceptability of various subject extractions varies in Scandinavian have been either a presence or absence of nominal features in the complementizer (Platzack 1993) or variation in the position of the complementizer (Lohndal 2007). The results from the study were analyzed against these accounts which were judged to insufficiently explain the variation found. A previous account by McFadden and Sundaresan (2018), relating subject extractions to intonational phrases, was subsequently revaluated and analyzed against the results and was later also judged to insufficiently explain the variation. Possible future accounts must take into account the variation found for subject extractions over *att*, *om* and *wh*-elements as well as take into account the role of resumption.

Keywords: Scandinavian, syntax, that-trace effect, subject extractions, acceptability judgment task, generative grammar

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1 Introduction

Constraints on subject extractions from subordinated clauses have puzzled linguists ever since they were first given attention around 50 years ago. Such a constraint can be exemplified with sentence (1):

(1)   *Who$_1$ do you think that _$_1$ met Sue?   (Pesetsky 2017:3)

In sentence (1), the subject of the subordinated clause (*who*) has been extracted to a higher position in the matrix clause with the complementizer *that* left in place, causing an ungrammatical sentence. If an object is extracted in the same manner, the sentence is grammatical:

(2)   Who$_1$ do you think that Sue met _$_1$?

The inability to extract a subject from a subordinated clause like this was initially believed to derive from a universal ban. Data from various languages, among these various Scandinavian varieties, challenge this belief. Presented below are three examples of unconventional subject extractions in Scandinavian languages, (3) from Fenno-Swedish, (4) from Danish and (5) from Norwegian.

(3)   Den matchen$_1$ vet jag säkert att _$_1$ spelas imorgon   (Bentzen 2014)
            this game know I surely that plays tomorrow
            'This game I know for sure that will be played tomorrow'

(4)   Det$_1$ vet jag ikke om _$_1$ gaar an   (Diderichsen 1966:183)
            this know I not if goes alright
            'I don't know if this is alright'

(5)   Krig og Fred$_1$ husker jeg ikke når _$_1$ kom ut i Russland (Engdahl 1982:167)
            War and peace remember I not when came out in Russia
            'War and peace, I don't remember when came out in Russia'

Though the existence of extra-ordinary subject extractions (2 –4) in Scandinavian is confirmed, large-scales studies on how these are accepted across Scandinavian have not yet been performed. This thesis aims to contribute with such a study and thus broaden the knowledge of subject extractions in Scandinavian with reference to extensive empirical data. The results from the study are compared with previous research and analyzed against current analyses on subject extractions in Scandinavian and in general. The varieties examined in the thesis are Danish, Norwegian, Swedish and Fenno-Swedish.

The thesis is organized as follows. In section 2, previous research on subject extractions is presented. In chapter 3, the method for the study is presented followed by the results in section 4. In section 5, a discussion about the results against previous analyzes is presented. Lastly, a conclusion from the results and discussion is presented in section 6.

2 Background

The cause and existence of constraints on subject extractions from subordinated clauses have been discussed widely during the last 50 years. In approaching this phenomenon, the thesis mainly adapts a generative framework, following a theoretical tradition of syntactic research on the Scandinavian varieties (see for instance Bentzen 2014 and Platzack 1993). This thesis thus presupposes knowledge of the generative framework.

In section 2.1, a short summary of the generative analysis of subject extractions is presented followed by a summary of previous research on subject extractions in Scandinavian in section 2.2.

2.1 Subject extractions

In 1968, Perlmutter noted that a subject extracted from a subordinate clause over the complementizer *that* results in an ungrammatical sentence in English (Perlmutter 1968). If another argument is extracted in the same manner, for example an object, this does not have the same effect. Pesetsky (2017:3) illustrates this by contrasting sentences (1) and (2), where the first sentence displays subject extraction over the complementizer *that*, and the second sentence displays object extraction over *that*:

(1)   *Who_1 do you think that _$_1$ met Sue?
(2) Who_1 do you think that Sue met _$_1$?

This phenomenon was described as a *that-trace effect* (Chomsky & Lasnik 1977), referring to the syntax of a complementizer *that* followed by a *trace* from an extracted subject to cause an ungrammatical sentence. This effect would apply to any subject undergoing any type of A-bar movement (Bresnan 1977:178-182):

(3)   This is the $person_1$ who I thought (*that) _$_1$ met Sue   (relativization)
(4) $Mary_1$ we think (*that) _$_1$ met Sue   (topicalization)
(5)   It is $Mary_1$ that we think (*that) _$_1$ met Sue   (cleft)
(6)   More $people_1$ like Mahler than we think (*that) _$_1$ like Bruckner   (comparative)
(7)   ?$Bill_1$ will be easy for us to say (*that) _$_1$ met Sue   (tough-movement)

Examples of the same phenomena occurring in connection with subject extractions over constituents other than *that* were also noticed, for example over *for* (Ross 1967:446) and *wh*-elements (Pesetsky 2017:11), exemplified in sentence (8 – 9):

(8)   *Who$_1$ would you prefer for _$_1$ to meet Sue at the station?

(9)   *Remind me which person$_1$ you were asking whether _$_1$ had invited Sue

In accordance with these findings, the *that-trace effect* was believed to possibly be part of a broader set of constraints on subject extractions (Pesetsky 2017:3). For some of these extractions, the sentences become grammatical when the constituent over which the subject is moved is deleted, while this is not true for all of the mentioned extractions:

(10)   Who$_1$ do you think _$_1$ met Sue?

(11)   Who$_1$ would you prefer _$_1$ to meet Sue at the station?

(12)   *Remind me which person$_1$ you were asking _$_1$ had invited Sue

True for all the mentioned subject extractions, though, is that the syntax caused by the overt constituent positioned in the left periphery and the trace from the extracted subject following it makes an ungrammatical sentence.

2.2 Subject extractions in Scandinavian languages

The Scandinavian languages exhibit various varieties which do not conform to the subject extraction constraints exemplified in the previous section. In section 2.2.1, relevant studies on subject extractions in the Scandinavian varieties Danish, Norwegian, Standard Swedish (further on referred to as only Swedish) and Fenno-Swedish (Swedish spoken in Finland) are presented. A presentation of how subject extractions are presented in the descriptive grammars of each language follows in section 2.2.2.

2.2.1 Previous studies

The occurrence of Scandinavian varieties not conforming to presupposed subject extraction was first acknowledged by Engdahl (1982). Engdahl illustrates some of these unconventional subject extractions with sentence (13–16), written in Norwegian *bokmål* (Engdahl 1982:167):

(13)   Krig og Fred₁ er jeg sikker på at _ ₁ kom ut i Russland

           war and peace am I sure of that came out in Russia

           'I am sure that War and Peace was published in Russia'

(14)   Krig og Fred₁ husker jeg ikke om _ ₁ har blitt oversatt til esperanto

           war and peace remember I not if has been translate into Esperanto

           'I don't remember if Was and Peace has been translated into Esperanto'

(15)   Krig og Fred₁ husker jeg ikke når _ ₁ kom ut

           war and peace remember I not when came out

           'I don't remember when War and Peace came out'

(16)   Krig og Fred₁ husker jeg ikke hva _ ₁ handlet om

           war and peace remember I not what was about

           'I don't remember what War and Peace was about'

These are examples of subject extractions over the complementizer *at* ('that'), *om* ('if'), and the *wh*-elements *når* ('when') and *hva* ('what') occurring in Scandinavian. The acceptance of these varies where Norwegian is reported to accept all these subject extractions while Swedish is reported to reject all of them (Engdahl 1982:167). Fenno-Swedish is reported to accept subject extraction over *att*, also confirmed by Platzack (1993), Lohndal (2007), Bentzen (2014) and Vangsnes (2019). Lastly, Danish is reported to accept subject extractions over *om* and *wh*-elements (Engdahl 1982:167).

For Swedish and Danish, Engdahl also mentions how resumptive pronouns can be used to make a previously rejected subject extraction become accepted. By inserting a resumptive pronoun in the subject gap, conjugated in gender, number and person with the subject, all the subject extractions in (13 – 16) are accepted in Swedish. In Danish, the extraction over *at* correspondingly becomes accepted with the insertion of a resumptive *der* ('there') (Engdahl 1982). A Swedish example of this is presented in sentence (17) and a Danish example is presented in sentence (18):

(17)   Vilken elev$_1$ trodde ingen att han$_1$ skulle fuska   (Engdahl 1982:166)

         which pupil though nobody that he would cheat

         'Which pupil was it that nobody though that he would cheat'

(18)   Hvem$_1$ tror du at der$_1$ har gjort det?   (Diderichsen 1966:183)

         who think you that there have done it

         'Who do you think has done it?'

The use of resumptive pronouns in subject gaps from subject extractions is furthermore reported to be rejected in Norwegian (Engdahl 1982). How resumptive pronouns are accepted in Fenno-Swedish is not mentioned.

In a much later study from Lohndal (2007), the observations mentioned by Engdahl are confirmed with the addition that variation needs to be taken into account for Norwegian. Lohndal focuses only on the acceptance of subject extractions over the complementizer *at* ('that') and states that the middle part of Norway (around Trøndelag) prefers the complementizer to be deleted, and that Northern Norway is subject to a lot of variation as to whether the complementizer should be deleted or overt. The Bodø dialect is also reported to use resumptive pronouns in the same manner as Swedish (Lohndal 2007:63-64). A so-called *adverb effect* is also mentioned in connection with Swedish, that is, a subject extraction can become acceptable if an adverb follows directly after *that* (Lohndal 2007:51), exemplified in sentence (19):

(19)   Vem$_1$ är du glad att _ $_1$ inte kunde komma?   (Holmberg 1986:193)

         who are you glad that not could come

         'Who are you glad couldn't come?

Apart from the more general overviews provided by Engdahl (1982) and Lohndal (2007), there are previous studies which have focused more specifically on either a certain kind of subject extraction or a specific variety. Lundin (2014) studied subject extractions over *att*, *om* and *wh*-elements in a small Swedish variety spoken in Halland, where extractions over *wh*-elements were accepted in the dialect but not extractions over *att* and *om* (Lundin 2014:50). Löwenadler compared the *adverb effect* in Swedish and English in two studies and found a low tolerance for the effect in Swedish from which Löwenadler concluded that this effect in general is weak

and perhaps does not exist at all in Swedish (Löwenadler 2007, 2012). Lastly, Bentzen (2014) and Vangsnes (2019) have studied the option to insert a relative pronoun *som* ('that') in the gap of an extracted subject in some varieties of Norwegian. Lohndal (2007:50) mentions that *som* is governed by other, unrelated restrictions, in this context and the usage of *som* with subject extractions will furthermore not be discussed as part of the subject extraction phenomena in this thesis.

Lastly, it is worth noting that the general overviews of subject extraction in Scandinavian presented by Engdahl (1982) and Lohndal (2007) lack extensive material for the observations made. Engdahl (1982) provides no specific source for the observations in Norwegian and Lohndal (2007:63) explicitly states that his observations derive from a "small survey among Norwegian linguists". Lohndal (2007:63) also emphasizes that nobody has studied the acceptance and distribution of subject extractions in Norwegian in detail. Extensive studies on the phenomena in Swedish and Danish and are also absent. Thus, an extensive study on subject extractions in Scandinavian has not yet been conducted.

2.2.2 Subject extractions in descriptive grammars

Unconventional subject extractions in Scandinavian have previously been mentioned in research but the degree to which these are acknowledged in the descriptive grammars of each langue varies. The Norwegian Referential Grammar (Faarlund, Lie & Vannebo 1997:1104) states that subjects are not able to be moved out of sentences as easily as objects or adverbials in Norwegian. However, subject extractions over an overt *at*, *om* and *wh*-elements are acknowledged to occur regionally. The use of resumptive pronouns inserted in the subject gap to make these extractions acceptable in Swedish, Trøndelag and Northern Norway is also mentioned.

The Swedish Academy Grammar (Teleman, Hellberg & Andersson 1999:275) states that a subject which has been extracted from a subordinated clause introduced by a subjunction or a fronted constituent requires a resumptive pronoun in the subject gap in Swedish. Exceptions from a mandatory resumptive pronoun are said to occur regionally, illustrated with examples of subject extractions over *om* ('if') and the *wh*-element *när* ('when').

Dansk Grammatik (Christensen & Christensen 2019:270) only mentions that subject extractions over a deleted *att* complementizer are accepted in Danish. Extractions over *om* ('if') or *wh*-elements are thus not acknowledged.

2.3 Possible explanations

In this section, an overview of the accounts on subject extraction constraints are presented. In section 2.3.1, general accounts on why subject extractions occur are presented, followed by accounts which focus specifically on the variation found in Scandinavian.

2.3.1 General accounts

Pesetsky (2017:11) argues that subject extraction constraints should be understood as restrictions on linear order and/or phrasal structure since constraints on subject extractions commonly have been discussed in connection with languages where the subject is extracted from a site which linearly follows the complementizer and/or is placed in a specifier position right below it. McFadden and Sundaresan (2018:16) instead suggest that the source of subject extraction constraints could be related to intonational phrases. In short, the assumption is that the left periphery of an intonational phrase must always be filled, and that an intonational phrase of a subordinated clause starts with the subject which fills the left periphery of the phrase. If the subject is extracted, then the left periphery of the phrase is missing, hence causing an ungrammatical sentence. However, when a *that*-complementizer is deleted, the edge of the intonational phrase demanding an overt subject is not present, making the subject free to be extracted as it is no longer stuck in the edge.

Since various Scandinavian varieties exhibit various unconventional subject extractions, both these accounts are challenged as these varieties 1) do not conform to presupposed linear order and/or phrasal structure constraints related to the internal positions of the complementizer and the subject and 2) obviously exhibit intonational phrases of subordinate clauses starting with something else than the subject, since unconventional subject extractions occur in Scandinavian.

2.3.2 Accounts dealing with Scandinavian

Accounts dealing specifically with the variation found in Scandinavian have also been presented. These accounts focus on why there are varieties accepting subject extractions over an overt *att* (for example Fenno-Swedish) and why there are varieties which do not (for example Swedish). Platzack (1993) proposes the presence or absence of nominal features in the complementizer *att* to cause either an accepted or unaccepted subject extraction over an overt *att* in Scandinavian. If the complementizer possesses presupposed nominal features in a specific variety, this allows for the complementizer and extracted subject to be co-indexed which in turn

enables for the extraction. This co-indexation is not possible if the complementizer does not possess nominal features, hence, the subject cannot be extracted if the complementizer does not hold nominal features in a certain variety. Platzack argues that empirical instances in favor of this account would be a more nominal distribution of subordinated *att*-clauses in varieties which exhibit subject extractions over an overt *att* in Scandinavian, for instance Fenno-Swedish (and Norwegian). In a preliminary study, Platzack (1993) compared acceptability judgments on sentence (20) below from Fenno-Swedish speakers and Swedish speakers (Platzack 1993:164). Fenno-Swedish speakers, allowing for subject extractions over an overt *att*, preferred to have the *att*-clause preceded by a preposition (*om*) if this preposition was required when the *att*-clause was exchanged for an NP, exemplified with sentence (21). Swedish speakers, on the other hand, did not require the preposition *om* ('if') to be present before the *att*-clause.

(20)   Han underrättade henne (om) att han skulle resa
            he told her about that he would travel
            'He told her about that he would travel'

(21)   Han underrättade henne *(om) beslutet
            he told her about the decision
            'He told her about the decision'

These results were interpreted as an indication that subordinated *att*-clauses behaved in a more nominal manner in Fenno-Swedish than Swedish. Platzack's belief was thus that varieties which exhibit subject extractions over an over *att* in Scandinavian did this due to these nominal features in *att* which enabled for a co-indexation between the subject and the complementizer.

Another account is presented by Lohndal (2007). Lohndal proposes that the complementizer *att* can be lexicalized in two different phrasal heads which hold different grammatical constraints, an idea which was originally proposal by Boeckx (2006).[1] Scandinavian varieties which do not allow for subject extractions over an over *att* are assumed to lexicalize the complementizer in a lower phrase, FinP' where agreement obtains between the subject and the complementizer. This agreement makes the subject unable to move. Varieties which allow for subject extractions instead lexicalize the complementizer in a higher phrase, ForceP', where no agreement obtains between the subject and the complementizer which makes the subject free

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[1] An analysis assuming a split CP structure of ForceP … (TopicP) … (FocusP) … FinP TP

to move. The behavior of Polish complementizers works in favor of this account as two complementizers corresponding to *that* can occur simultaneously in Polish in a low and high position. The lower complementizer agrees with the subject while the higher does not (Boeckx 2006:124-125).

2.4 Aims and research questions

In table (1), subject extractions indicated to be accepted in a variety of Norwegian, Danish or Swedish by previous research is presented. *r.p* is short for *resumptive pronoun*, and *ø* (*att*) indicates an empty *att*-complementizer. A marked box indicates a previously reported acceptance of subject extraction and a question mark marks a lack of previous indications.

Table 1. Distribution of acceptance of subject extractions in Scandinavian

	Norwegian	Danish	Swedish	Fenno Swedish	North Norwegian	Tröndelag Norwegian	Eastern Norwegian	Halland Swedish
Ø (att)	✓	✓	✓	✓	✓	✓	✓	✓
att	✓			✓	✓			
om	✓	✓			✓	✓	✓	
wh-element	✓	✓			✓	✓	✓	✓
att _ r.p			✓	?	✓	✓		✓
om_ r.p			✓	?	✓	✓		✓
wh-element _ r.p			✓	?	✓	✓		✓
at_ r.p (der)		✓						
att _ adv				✓				
om _ r.p adv				✓				

As previously mentioned, extensive empirical data validating the current indications presented in table (1) on how subject extractions are accepted in Scandinavian are missing. To contribute with a large-scale study on subject extractions in Scandinavian to either validate or revaluate

these previous indications and perhaps contribute with new findings to the subject is the main purpose of this thesis.

Another aim with the thesis is to analyze the variation found in Scandinavian against the previous accounts dealing with variation in Scandinavian provided by Platzack (1993) and Lohndal (2007) to furthermore define what a possible future account would have to take into account. In connection with these aims, the research questions for the thesis are:

RQ1   How are subject extractions accepted across Scandinavian?

RQ2   How do the results from the study conform to current accounts aiming to explain the variation on subject extractions in Scandinavian and how can a possible future analysis move forward?

3 Method

To answer RQ1 – 2, empirical data on how subject extractions are accepted was gathered through a digitally launched acceptability judgment task. The motivation for choosing this method is presented in section 3.1 and the content of the acceptability judgment task is presented in section 3.2.

3.1 Motivation for method

As previously mentioned, the aim for this study is primarily to gather extensive data on how subject extractions are accepted across Scandinavian. One option for gathering this data could be through corpora. When searching the Nordic Dialect Corpus (2009) for the sequence "*at +* verb" in Norwegian, only eight examples of an *at* followed by a subject gap before the verb (hence, only eight subject extractions) are found. This indicates that using corpora as a method for gathering the data is not optimal and that subject extractions over *at* are not frequently produced in written Norwegian even though they seemingly are reported to be accepted in the language. Schütze and Sprouse (2013) argue that an acceptability judgment task is a suitable method for studying less frequent phenomena, which the subject extractions investigated in this thesis arguably are. Therefore, an acceptability judgment task was chosen as method in analogy with various previous studies on subject extractions in Scandinavian, see for instance Platzack (1993), Bentzen (2014) and Löwenadler (2007 & 2012). For this acceptability judgment task, a likert scale was also chosen as a suitable grading tool where the informants were given the option to choose between the numbers 1 – 5 for each sentence in the questionnaire. A likert scale can reveal information about the size of the difference between two syntactic conditions and was chosen as this was of relevance for the study (Schütze & Sprouse 2013:33).

3.2 The questionnaire

The acceptability judgment task was presented in the form of a questionnaire, designed in the survey program *Sunet Survey* (Artlogic 2021). Three versions of the questionnaire were created, a Norwegian, Danish and Swedish one. The informants taking part in the Swedish questionnaire were divided into Swedish and Fenno-Swedish informants based upon self-reported information from the informants. By doing so, the varieties were divided based upon the national state in which they occur (Norway, Denmark, Sweden, Finland). A choice to not further

separate the varieties was made in order to obtain a suitable amount of data for the scope of the thesis. This in turn resulted in a study which could not capture variation regarding, for example, resumption in Norwegian but instead could exhibit more general patterns indicated by an extensive amount of data.

The methodical choices for the sentences used in the questionnaire are presented in section 3.2.1 – 3.2.2, the translation and distribution of the questionnaire are presented in section 3.2.3, the instructions are presented in section 3.2.4 and the actual sentences and fillers are presented in section 3.2.5 – 3.2.6.

3.2.1 Variables and variants

The variables and variants were chosen in order to assertively provide results answering to RQ1 and furthermore provide a foundation for discussing RQ2. RQ1 and RQ2 are repeated below:

RQ1 How are subject extractions accepted across Scandinavian?

RQ2 How do the results from the study conform to current accounts aiming to explain the variation on subject extractions in Scandinavian and how can a possible future analysis move forward?

RQ1 required data to be gathered on how subject extractions are accepted in Scandinavian. Both previously studied variables and new ones were of interest to the study. The previously studied variables included in the study were extractions over a deleted *att*, an overt *att*, *om* and simplex *wh*-elements (monosyllabic *wh*-elements), with or without resumptive pronouns conjugated in person, gender and number with the extracted subject (a resumptive *der* and the *adverb effect* were thus not included in the study). The results from these studied variables could furthermore be compared to previous studies. Complex *wh*-elements (disyllabic and longer) were also added as a new, additional variable as only subject extractions over simplex *wh*-elements have occurred in previous studies (see section 2.3). Whether the simplicity of *wh*-element in fact is a required feature of the *wh*-element in order for subject extraction to be accepted has not yet been defined. If a difference in acceptance related to the variable of complexity of the *wh*-element should be present, an assumption presented by Westergaard, Vangsnes & Lohndal (2017:11) claiming that simplex *wh*-elements could have the status of heads while complex *wh*-elements are phrases could also be relevant for RQ2.

The chosen simplex variants were *var* ('where') and *vad* ('what). *Vad* has previously occurred in examples of accepted subject extractions in Norwegian (Engdahl 1982:167) and

var was subsequently added.[2] The complex *wh*-elements chosen were *vilken runda* ('which round'), *vilken tid* ('which time'), *hur stort* ('how big') and *hur mycket* ('how much'). From this, RQ1 more specifically can be divided into the following sub-questions:

RQ1.1   How are subject extractions over a deleted *att*, overt *att*, the complementizer *om* and *wh*-elements accepted in Norwegian, Danish, Swedish and Fenno-Swedish?

RQ1.2   How do these results, based on extensive empirical data, correspond with previous research where empirical data has been limited?

RQ1.3   Is the variable of complexity of the *wh*-element relevant for the acceptance of subject extractions over *wh*-elements in Norwegian, Danish, Swedish and Fenno-Swedish?

The chosen variables and variants are summarized in table (2 – 3). Table (2) presents the set of variables without resumptive pronouns and table (3) the set with resumptive pronouns.

Table 2. Tested variables and variants without resumptive pronouns

Variable		**Variant**		
		SWE	*NO*	*DA*
Deleted complementizer		Ø *(att)*	Ø *(at)*	Ø *(at)*
Complementizer		*att*	*at*	*at*
		om	*om*	*om*
***wh*-element**	**simplex**	*var*	*hvor*	*hvor*
		vad	*hva*	*hvad*
	complex	*vilken runda*	*hvilken vei*	*hvilken runde*
		vilken tid	*hvor langt*	*hvilken tid*
		hur stort	*hvor stort*	*hvor meget plads*
		hur mycket	*hva slags*	*hvor meget*

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[2] Two other variants of simplex *wh*-elements were also added but were not included in the final results as they translated into a complex, and not simplex, variant in either Norwegian or Danish which thus resulted in incomparable results regarding the variable of complexity of the *wh*-element for these variants.

Table 3. Tested variables and variants with resumptive pronouns

Variable		**Variant**		
		SWE	*NO*	*DA*
Complementizer		*att $_{-l}$ r.p*	*at $_{-l}$ r.p*	*at $_{-l}$ r.p*
		om$_{-l}$ r.p	*om $_{-l}$ r.p*	*om $_{-l}$r.p*
***wh*-element**	**simplex**	*var $_{-l}$ r.p*	*hvor $_{-l}$ r.p*	*hvor $_{-l}$ r.p*
		vad $_{-1}$ r.p	*hva $_{-1}$ r.p*	*hvad $_{-1}$ r.p*
	complex	*vilken runda $_{-l}$ r.p*	*hvilken vei $_{-l}$ r.p*	*hvilken runde$_{-l}$ r.p*
		vilken tid $_{-l}$ r.p	*hvor langt $_{-l}$ r.p*	*hvilken tid$_{-l}$ r.p*
		hur stort $_{-l}$ r.p	*hvor stort $_{-l}$ r.p*	*hvor meget plads$_{-l}$r.p*
		hur mycket $_{-l}$ r.p	*hva slags$_{-l}$ r.p*	*hvor meget$_{-l}$ r.p*

Three conditions for a deleted *att*, an overt *att* and *om* were tested, two conditions for each simplex *wh*-element and one condition for each complex *wh*-element. To each condition, a version with a resumptive pronoun was added except for the conditions with a deleted *att* (since resumptive pronouns are not reported to be required for this condition in either variety).

3.2.2 Lexical content and syntactic operations

The lexical content of the sentences in the questionnaire was partly taken from previously used sentences in studies on subject extractions and partly based upon intuition of what a suitable lexical content would be. Since *wh*-subjects could cause multiple questioning when extracted over another *wh*-element, and multiple questioning can appear as odd (Löwenadler 2007:83), the extracted subjects in the sentences were non-*wh*-subjects. The extracted subjects usually had the form of various personal names with similar equivalents in Danish, Norwegian and Swedish. As lexical substitution has been shown to have a fairly small impact on how informants judge sentences in acceptability judgment tasks (Schütze 2016:163), various lexicalizations of the extracted subject was considered justified in order to provide the informants with some variation in the sentences.

Two different operations for the extracted subjects were included in order to vary the sentences where this was possible without interfering with the systematic testing (as no previous research has presented the syntactic operation as a relevant factor for the acceptance of subject extractions). These were topicalizations and relativizations, where 1/3 of the subject extractions

were topicalizations and 2/3 were relativizations. Each variant had at least one subject extracted by topicalization and one by relativization.

The sentences with a topicalized subject were always presented as an answer to a preceding question in order to create a plausible context for the target sentence with the topicalized subject. Schütze (2016:182) argues that providing context in this manner has many advantages. Primarily, between-subject variability among the informants is reduced when providing a context as the informants are not left to create a plausible context for the sentences of their own.

3.2.3 Translation and distribution of the questionnaire

The translation of the Swedish sentences to Norwegian *bokmål* was made by a Norwegian professor in Scandinavian languages at Lund University. The translation to Danish was made by a Danish lecturer at Lund University. Lexical adjustments were made in line with the translator's perceptions on how to make the sentences more idiomatic in their language while maintaining the syntactic properties of the constituents. In one of the Danish sentences (sentence 24), a Danish resumptive *der* also occurred by mistake.

The distribution of the questionnaires went through Facebook and e-mail. Links to the questionnaires were posted on my Facebook-wall which encouraged people with Swedish, Norwegian or Danish as their mother tongue to participate. The post was also made shareable and was shared by a handful of people. The Swedish questionnaire was also posted in the Fenno-Swedish groups *Närpes* (Närpes 2021) and *Österbotten* (2021) on Facebook to reach Fenno-Swedish informants. The Swedish, Norwegian and Danish questionnaires were also distributed through my supervisor to colleagues at universities around Scandinavia. It was also shared as a public announcement at the website of Aarhus University.

3.2.4 Instructions

Before starting the questionnaire, the informants were informed to judge the sentences as spoken language and that no answers were right or wrong. Two anchor items were also provided in the instructions, once which was assigned to the lowest rating 1 on the likert scale and one which was assigned to the highest rating 5. The informants were also given the opportunity to manually give their consent to participate anonymously in the study by answering *yes* to a question in the instructions. In appendix 1, the full text provided in the instructions is presented.

3.2.5 Sentences

The Swedish (including Fenno-Swedish), Norwegian and Danish sets of sentences used in the questionnaire are presented in table (4 – 9). These were all presented in the same randomized order in each questionnaire. The informants were asked to grade these sentences from 1 – 5 and the mean value for each variant from these reports was subsequently calculated. An English translation of the sentences is found in appendix 2, translated from Swedish.

Table 4. Swedish sentences without resumptive pronouns

Nr	Variable	Variant	Sentence
1	Deleted complemenizer	Ø (att)	Vet du om någon av boken eller filmen är bra? Boken vet jag är bra
2		Ø (att)	Visste du att rektorn kommer? Nej, rektorn visste jag inte kommer
3		Ø (att)	Var det koffein som du visste fanns i kaffe?
4	Complementizer	att	Vet du om någon av boken eller filmen är bra? Boken vet jag att är bra
5		att	Visste du att rektorn kommer? Nej, rektorn visste jag inte att kommer
6		att	Var det koffein som du visste att fanns i kaffe?
7		om	Vet du om någon av boken eller filmen är bra? Boken vet jag inte om är bra
8		om	Vet du om rektorn kommer? Nej, rektorn vet jag inte om kommer
9		om	Var det koffein som du undrade om fanns i kaffe?
10	simplex *wh*-element	var	Vet du var Kalle eller Anna brukar springa? Kalle vet jag var brukar springa
11		var	Är det Olle som ingen vet var bor?
12		vad	Vet du vad Martin eller Olle tjänar? Martin vet jag inte vad tjänar
13		vad	Var det stationen som du glömt vad heter?
14	complex *wh*-element	vilken runda	Vet du vilken runda Anna eller Kalle brukar springa? Anna vet jag vilken runda brukar springa
15		vilken tid	Vet du vilken tid Kalle eller Anna brukar springa? Anna vet jag vilken tid brukar springa
16		hur stort	Vet du hur stort Anna eller Kalle bor? Anna vet jag hur stort bor
17		hur mycket	Vet du hur mycket Martin eller Olle tjänar? Martin vet jag inte hur mycket tjänar

Table 5. Swedish sentences with resumptive pronouns

Nr	Variable	Variant	Sentence
18	**Complementizer**	**att** $_{-1}$ **r.p**	Vet du om någon av boken eller filmen är bra? Boken vet jag att den är bra
19		**att** $_{-1}$ **r.p**	Visste du att rektorn kommer? Nej, rektorn visste jag inte att hon kommer
20		**att** $_{-1}$ **r.p**	Var det koffein som du visste att det fanns i kaffe?
21		**om** $_{-1}$ **r.p**	Vet du om någon av boken eller filmen är bra? Boken vet jag inte om den är bra
22		**om** $_{-1}$ **r.p**	Vet du om rektorn kommer? Nej, rektorn vet jag inte om hon kommer
23		**om** $_{-1}$ **r.p**	Var det koffein som du undrade om det fanns i kaffe?
24	*simpe wh*-element	**var** $_{-1}$ **r.p**	Vet du var Kalle eller Anna brukar springa? Kalle vet jag var han brukar springa
25		**var** $_{-1}$ **r.p**	Är det Olle som ingen vet var han bor?
26		**vad** $_{-1}$ **r.p**	Vet du vad Martin eller Olle tjänar? Martin vet jag inte vad han tjänar
27		**vad** $_{-1}$ **r.p**	Var det stationen som du glömt vad den heter?
28	**complex *wh*-element**	**vilken runda** $_{-1}$**r.p**	Vet du vilken runda Anna eller Kalle brukar springa? Anna vet jag vilken runda hon brukar springa
29		**vilken tid** $_{-1}$ **r.p**	Vet du vilken tid Kalle eller Anna brukar springa? Anna vet jag vilken tid hon brukar springa
30		**hur stort** $_{-1}$ **r.p**	Vet du hur stort Anna eller Kalle bor? Anna vet jag hur stort hon bor
31		**hur mycket** $_{-1}$ **r.p**	Vet du hur mycket Martin eller Olle tjänar? Martin vet jag inte hur mycket han tjänar

Table 6. Norwegian sentences without resumptive pronouns

Nr	Variable	Variant	Sentence
1	**Deleted complementizer**	**Ø (at)**	Vet du om boka eller filmer er bra? Boka vet jeg er bra
2		**Ø (at)**	Visste du at rektor skulle komme? Nei, rektor visste jeg ikke skulle komme
3		**Ø (at)**	Var det kaffe du visste inneholder koffein?
4	**Complementizer**	**at**	Vet du om boka eller filmen er bra? Boka vet jeg at er bra
5		**at**	Visste du at rektor skulle komme? Nei, rektor visste jeg ikke at skulle komme
6		**at**	Var det kaffe du visste at inneholder koffein?
7		**om**	Vet du om enten boka eller filmen er bra? Boka vet jeg ikke om er bra
8		**om**	Vet du om rektor kommer? Nei, rektor vet jeg ikke om kommer
9		**om**	Var det kaffe du lurte på om inneholder koffein?
10	simplex *wh*-element	**hvor**	Vet du hvor Per eller Anne skulle gå? Per vet jeg hvor skulle gå
11		**hvor**	Er det Ole som ingen vet hvor bor?
12		**hva**	Vet du hva Martin eller Ole gjør? Martin vet jeg ikke hva gjør
13		**hva**	Var det stasjonen du hadde glemt hva heter?
14	complex *wh*-element	**hvilken vei**	Vet du hvilken vei Anne eller Per skulle gå? Anne vet jeg hvilken vei skulle gå
15		**hvor langt**	Vet du hvor langt Per eller Anne skulle gå? Anne vet jeg hvor langt skulle gå
16		**hvor stort**	Vet du hvor stort Anne eller Per bor? Anne vet jeg hvor stort bor
17		**hva slags**	Vet du hva slags jobb Martin eller Ole har? Martin vet jeg ikke hva slags jobb har

Table 7. Norwegian sentences with resumptive pronouns

Nr	Variable	Variant	Sentence
18	**Complementizer**	**at** $_{-1}$ **r.p**	Vet du om boka eller filmen er bra? Boka vet jeg at den er bra
19		**at** $_{-1}$**r.p**	Visste du at rektor skulle komme? Nei, rektor visste jeg ikke at hun skulle komme
20		**at** $_{-1}$ **r.p**	Var det kaffe du visste at det inneholder koffein?
21		**om** $_{-1}$ **r.p**	Vet du om enten boka eller filmen er bra? Boka vet jeg ikke om den er bra
22		**om** $_{-1}$ **r.p**	Vet du om rektor kommer? Nei, rektor vet jeg ikke om hun kommer
23		**om** $_{-1}$ **r.p**	Var det kaffe du lurte på om det inneholder koffein?
24	**simplex *wh*-element**	**hvor** $_{-1}$ **r.p**	Vet du hvor Per eller Anne skulle gå? Per vet jeg hvor han skulle gå
25		**hvor** $_{-1}$ **r.p**	Er det Ole som ingen vet hvor han bor?
26		**hva** $_{-1}$ **r.p**	Vet du hva Martin eller Ole gjør? Martin vet jeg ikke hva han gjør
27		**hva** $_{-1}$**r.p**	Var det stasjonen du hadde glemt hva den heter?
28	**complex *wh*-element**	**hvilken vei** $_{-1}$ **r.p**	Vet du hvilken vei Anne eller Per skulle gå? Anne vet jeg hvilken vei hun skulle gå
29		**hvor langt** $_{-1}$ **r.p**	Vet du hvor langt Per eller Anne skulle gå? Anne vet jeg hvor langt hun skulle gå
30		**hvor stort** $_{-1}$ **r.p**	Vet du hvor stort Anne eller Per bor? Anne vet jeg hvor stort hun bor
31		**hva slags** $_{-1}$ **r.p**	Vet du hva slags jobb Martin eller Ole har? Martin vet jeg ikke hva slags jobb han har

Table 8. Danish sentences without resumptive pronouns

Nr	Variable	Variant	Sentence
1	**Deleted complementizer**	**Ø (at)**	Ved du om bogen eller filmen er god? Bogen ved jeg er god
2		**Ø (at)**	Vidste du at rektoren kommer? Nej, rektoren vidste jeg ikke kommer
3		**Ø (at)**	Var det koffein som du vidste var i kaffe?
4	**Complementizer**	**at**	Ved du om bogen eller filmen er god? Bogen ved jeg at er god
5		**at**	Vidste du at rektoren kommer? Nej, rektoren vidste jeg ikke at kommer
6		**at**	Var det koffein som du vidste at var i kaffe?
7		**om**	Ved du om bogen eller filmen er god? Bogen ved jeg ikke om er god
8		**om**	Ved du om rektoren kommer? Nej, rektoren ved jeg ikke om kommer.
9		**om**	Var det kaffe du var usikker på om indeholder koffein?
10	**simplex *wh*-element**	**hvor**	Ved du hvor Karl eller Anna plejer at løbe? Kalle ved jeg hvor plejer at løbe
11		**hvor**	Er det Valdemar som ingen ved hvor bor?
12		**hvad**	Ved du hvad Abdel eller Valdemar tjener? Abdel ved jeg ikke hvad tjener
13		**hvad**	Var det stationen som du havde glemt hvad hedder?
14	**complex *wh*-element**	**hvilken runde**	Ved du hvilken runde Anna eller Karl plejer at løbe? Anna ved jeg hvilken runde plejer at løbe
15		**hvilken tid**	Ved du hvilken tid Karl eller Anna plejer at løbe? Anna ved jeg hvilken tid plejer at løbe
16		**hvor meget plads**	Ved du hvor meget plads Anna eller Karl har? Anna ved jeg hvor meget plads har
17		**hvor meget**	Ved du hvor meget Abdel eller Valdemar tjener? Abdel ved jeg ikke hvor meget tjener

Table 9. Danish sentences with resumptive pronouns

Nr	Variable	Variant	Sentence
18	**Complementizer**	**at $_{-1}$ r.p**	Ved du om bogen eller filmen er god? Bogen ved jeg at den er god
19		**at $_{-1}$ r.p**	Vidste du at rektoren kommer? Nej, rektoren vidste jeg ikke at hun kommer
20		**at $_{-1}$ r.p**	Var det koffein som du vidste at der var i kaffe?
21		**om $_{-1}$ r.p**	Ved du om bogen eller filmen er god? Bogen ved jeg ikke om den er god
22		**om $_{-1}$ r.p**	Ved du om rektoren kommer? Nej, rektoren ved jeg ikke om hun kommer
23		**om $_{-1}$ r.p**	Var det kaffe du var usikker på om den indeholder koffein?
24	**simplex *wh*-element**	**hvor $_{-1}$ r.p**	Ved du hvor Karl eller Anna plejer at løbe? Kalle ved jeg hvor han plejer at løbe
25		**hvor $_{-1}$ r.p**	Er det Valdemar som ingen ved hvor han bor?
26		**hvad $_{-1}$ r.p**	Ved du hvad Abdel eller Valdemar tjener? Abdel ved jeg ikke hvad han tjener
27		**hvad $_{-1}$ r.p**	Var det stationen som du havde glemt hvad den hedder?
28	**complex *wh*-element**	**hvilken runde $_{-1}$ r.p**	Ved du hvilken runde Anna eller Karl plejer at løbe? Anna ved jeg hvilken runde hun plejer at løbe
29		**hvilken tid $_{-1}$ r.p**	Ved du hvilken tid Karl eller Anna plejer at løbe? Anna ved jeg hvilken tid hun plejer at løbe
30		**hvor meget plads$_{-1}$ r.p**	Ved du hvor meget plads Anna eller Karl har? Anna ved jeg hvor meget plads hun har
31		**hvor meget $_{-1}$r.p**	Ved du hvor meget Abdel eller Valdemar tjener? Abdel ved jeg ikke hvor meget han tjener

3.2.6 Fillers

21 fillers were also included in the questionnaire and presented in a randomized order. The fillers were lexically identical to the target sentences but differed in syntax. Half of the fillers were good and half of the fillers were bad as this practice has been shown to provide mutual reference points to a high and a low score among informants (Schütze and Sprouse 2013:39). The scores from these sentences could furthermore be used as an indication of what a good and bad score represents. An example of one good filler (32) and one bad (33) is presented in table (10) (see appendix 3–4 for a full list of the fillers).

Table 10. Examples of fillers

Nr	Sentences
32	Vet du var Kalle eller Anna brukar springa? Var Kalle brukar springa vet jag
33	Vet du vilken runda Anna eller Kalle brukar springa? Anna vet jag hon brukar springa vilken runda

The fillers were also used as a "warm-up-trial" for the informants to be familiarized with the task and perhaps stabilize the answering process before judging the actual target sentences

(Schütze 2013:186). This was done by including five of the fillers in the very beginning of the questionnaire. Another purpose with the filler sentences was to disguise the variables being tested.

To use fillers with the purpose of deceiving the informants like this could be considered somewhat problematic due to its dishonest practice. Eckert (2014:15) states that "the extent to which these practices are ethical depends on the potential harm caused by the deception, and the approach taken to debriefing after the experiments". Considering this, the potential harm caused by deceiving the informants of which variable was being tested was not judged to be severe. Thus, the usage of fillers in this way was considered ethically justified. For the informants to have the option of being further debriefed, my e-mail address was added in the end of the questionnaire.

4 Results

209 Norwegian informants, 222 Danish informants, 314 Swedish informants and 159 Fenno-Swedish informants participated in the study. The results are presented in one section for each sub-question of RQ1 and will be presented in the form of mean values. RQ1 and its sub-questions are repeated below.

RQ1   How are subject extractions accepted across Scandinavian?

 RQ1.1 How are subject extractions over a deleted *att*, overt *att*, the complementizer *om* and *wh*-elements accepted in Norwegian, Danish, Swedish and Fenno-Swedish?

 RQ1.2 How do these results, based on extensive empirical data, correspond with previous research where empirical data has been limited?

 RQ1.3 Is the variable of complexity of the *wh*-element relevant for the acceptance of subject extractions over *wh*-elements in Norwegian, Danish, Swedish and Fenno-Swedish?

Before presenting the results from the target sentences, the results from the fillers sentences are presented in table (11). As previously mentioned, the judgment of these can give an indication what represents a good and a bad score.

Table 11. Mean values for good and bad fillers

Variety	Good fillers	Bad fillers
Swedish	4.0	1.0
Fenno-Swedish	3.8	1.0
Norwegian	3.9	1.0
Danish	3.1	1.0

As apparent from table (11), the good fillers receive a mean value at around 4.0 or slightly below 4.0, except for Danish. The lower mean value of 3.1 for Danish occurs due to two less successful good filler sentences in Danish, sentence (40) and (52), which had mean values around 1. Without these two, the mean value for the Danish good fillers is similar to the other varieties.

4.1 Results RQ1.1

In table (12 –13), the results relevant for RQ1 are presented. For a full list of the results for each sentence, see appendix 5.

Table 12. Mean values without resumptive pronouns

Variable		Variant (SWE/NO/DA)			*SWE*	*F.SWE*	*NO*	*DA*
Deleted complementizer		*Ø (att)*	*Ø (at)*	*Ø (at)*	3.9	3.7	4.4	3.8
Complementizer		*att*	*at*	*at*	1.5	3.5	4.0	2.1
		om	*om*	*om*	1.4	2.3	4.0	3.8
wh-element	**simplex**	*var*	*hvor*	*hvor*	1.4	1.8	3.6	3.9
		vad	*hva*	*hvad*	1.3	1.8	4.1	4.5
	complex	*vilken runda*	*hvilken vei*	*hvilken runde*	1.2	1.8	3.0	3.2
		vilken tid	*hvor langt*	*hvilken tid*	1.2	1.8	3.0	2.5
		hur stort	*hvor stort*	*hvor meget plads*	1.3	1.5	1.9	3.9
		hur mycket	*hva slags*	*hvor meget*	1.2	1.7	2.9	2.9

Along with the good fillers, the mean values for the subject extractions over a deleted *att* in table (12) should represent the highest possible mean values, since these should be accepted in all the studied varieties. From the table it is shown that the mean values for the subject extractions over a deleted *att* are around 4.0 for all varieties, equal to the mean values of good fillers. From this, it was decided that a mean value of 3.5 or higher would define a *high mean value*, marked with a grey background. It should also be noted that the results are more difficult to interpret when the mean value is right in the middle, around 3.

Fenno-Swedish and Norwegian receive high mean values for subject extractions without resumptive pronouns over an overt *att*, but not Swedish and Danish. Norwegian and Danish receive high mean values for subject extractions without resumptive pronouns over *om*, but not Swedish or Fenno-Swedish. For the subject extractions over simplex *wh*-elements without resumptive pronouns, Norwegian and Danish receive high mean values but not Swedish or Fenno-Swedish. For the subject extractions over complex *wh*-elements without resumptive pronouns, Danish receives a high mean value for one of them, namely the variant *hvor meget*

plads, and fairly high mean values for the rest of them, compared to Fenno-Swedish and Swedish. Neither Swedish, Fenno-Swedish or Norwegian receive a high mean value for any subject extraction over a complex *wh*-element, however, the Norwegian mean values are much higher than the Fenno-Swedish and Swedish ones which indicate that there are Norwegian informants who might accept subject extractions over these as well.

Table 13. Mean values with resumptive pronouns

Variable		Variant (SWE/NO/DA)			SWE	F.SWE	NO	DA
Complementizer		*att_ r.p*	*at_ r.p*	*at_ r.p*	3.5	3.0	1.6	2.5
		om_ r.p	*om_ r.p*	*om_ r.p*	4.3	3.5	1.6	2.2
wh-element	**simplex**	*var_ r.p*	*hvor_ r.p*	*hvor_ r.p*	4.0	4.0	1.5	2.2
		vad_ r.p	*hva_ r.p*	*hvad_ r.p*	3.6	3.6	1.7	2.1
	complex	*vilken runda_ l r.p*	*hvilken vei_ l r.p*	*hvilken runde_ l r.p*	3.7	3.5	1.5	2.5
		vilken tid_ l r.p	*hvor langt_ l r.p*	*hvilken tid_ l r.p*	4.3	4.0	1.8	2.8
		hur stort_ l r.p	*hvor stort_ l r.p*	*hvor meget plads_ l r.p*	4.1	3.6	2.3	1.3
		hur mycket_ l r.p	*hva slags_ l r.p*	*hvor meget_ l r.p*	4.1	3.6	1.7	2.3

The results from table (13) show that Swedish receives a high mean value for all the studied subject extractions with resumptive pronouns, that is, subject extractions over an overt *att*, *om* and *wh*-elements. Norwegian and Danish, on the other hand, receive low mean values for all the studied subject extractions with resumptive pronouns. Fenno-Swedish receives high mean values for the subject extraction over *om* and *wh*-elements with resumptive pronouns but a mean value of 3.0 for the subject extractions over *att*. An indication that a gap is preferred if the subject extraction can be performed with a gap can be extracted from comparing the results in table (11) and (12). The equivalent mean value for subject extractions over *att* with a gap in Fenno-Swedish was 3.5 (see table 11), that is, higher than 3.0. Subsequently, for all the subject extractions with a gap which received a high mean value in Norwegian and Danish, the equivalent subject extractions with a resumptive pronoun in table (12) receive low mean values.

4.2 Results RQ1.2

The indications on how subject extractions are accepted across Scandinavian from previous research (table 1) and the pattern extracted from the current study are presented in table (14). A marked box represents an indication from previous research that the subject extraction in question is accepted in the variety and a question mark marks a lack of a previous indication. A grey background represents a mean value ≥ 3.5 from the current study for the subject extraction in each variety.

Table 14. Comparison of previous studies and current study of subject extractions

	NO	DA	SWE	F.SWE
Ø (*att*)	✓	✓	✓	✓
att	✓			✓
om	✓	✓		
wh-element	✓	✓		
att _ r.p			✓	?
om _ r.p			✓	?
wh-element _ r.p			✓	?

From table (14), it is clear that the results from the current study align with previous research where empirical data has been limited as most boxes are both grey and have a marked box. The results also contribute with new indications as to how resumptive pronouns are perceived with subject exactions in Fenno-Swedish which has not been clear from previous research. The grey boxes under the question marks in table (13) indicate that Fenno-Swedish accepts subject extractions over *om* and *wh*-elements only in the presence of resumptive pronouns while the white box under the question mark indicates that a gap is preferred for subject extractions over an overt *att* in Fenno-Swedish.

4.3 Results RQ1.3

The number of informants reporting a mean value ≥ 3.5 for simplex as well as complex *wh*-elements in each variety is presented in table (14). The percentage for this category is relative

to the total number of informants. The number of informants reporting a high mean value for complex *wh*-elements also reporting a high mean value for simplex *wh*-elements is also presented in the table. The percentage for this category is relative to the total number of informants reporting a high mean value for complex *wh*-elements. Lastly, the number of informants reporting a high mean value for complex *wh*-elements also reporting a high mean value for simplex *wh*-elements is presented in the table. The percentage for this category is relative to the total number of informants reporting a high mean value for simplex *wh*-elements.

Table 15. Correlation between high mean values for simplex and complex wh-elements

	Total number of informants	Total number of informants reporting a mean value of ≥ 3.5 for complex *wh*-elements	Total number of informants reporting a mean value of ≥ 3.5 for complex *wh*-elements also reporting a mean value of ≥ 3.5 for simplex *wh*-elements	Total number of informants reporting a mean value of ≥ 3.5 for simplex *wh*-elements	Total number of informants reporting a mean value of ≥ 3.5 for simplex *wh*-elements also reporting a mean value of ≥ 3.5 for complex *wh*-elements
Norwegian	209	61 (21%)	55 (90%)	153 (73%)	55 (36%)
Danish	222	142 (63%)	137 (96%)	194 (84%)	137 (71%)
Swedish	314	2 (1%)	0 (0%)	4 (1%)	0 (0%)
Fenno-Swedish	159	6 (4%)	4 (66%)	12 (8%)	4 (33%)

From reading table (15), it is apparent that 73% of the Norwegian informants and 84% of the Danish informants report a high mean value for simplex *wh*-elements and that 21% of the Norwegian informants and 63% of the Danish informants report a high mean value for complex *wh*-elements. These results indicate that subject extractions over simplex *wh*-elements are accepted to a greater extent than complex, but that not only subject extractions over simplex *wh*-elements are accepted, e.g., the simplicity of the *wh*-element is not a required feature for a subject extraction over a *wh*-element to be accepted.

The table also presents a potential correlation between the acceptance of complex *wh*-elements and simplex *wh*-elements. A high mean value for complex *wh*-elements correlates with a high mean value for simplex *wh*-elements elements for 90% of the Norwegian informants and 96% of the Danish informants. This correlation does not go both ways, as only 36% of the Norwegian informants and 71% of the Danish informants with a high mean value for subject extractions over simplex *wh*-elements display a high mean value for subject extractions over

complex *wh*-elements. A possible hierarchical relation of acceptance for subject extractions over *wh*-elements can furthermore be formulated as follows:

acceptance of complex *wh*-elements → acceptance of simplex *wh*-elements

5 Discussion

The results from the study provide solid empirical data further indicating an acceptance of various unconventional subject extractions in various Scandinavian varieties. RQ2 aims at interpreting this result against current accounts on subject extractions in Scandinavian to possibly define what future accounts must take into account. RQ2 is repeated below:

RQ2 How do the results from the study conform to current accounts aiming to explain the variation on subject extractions in Scandinavian and how can a possible future analysis move forward?

Previous accounts on why there is variation regarding how subject extractions are accepted in Scandinavian are provided by Platzack (1993) and Lohndal (2007). These accounts have only taken subject extractions over *att* into consideration. If these accounts successfully could explain the occurrence and variation of subject extractions also over *om* ('if') and *wh*-elements in Scandinavian, as well as explain the role of resumption will be evaluated below. Regarding resumption, a successful account must take into account why an inserted resumptive pronoun sometimes enables a subject to be extracted (as in Swedish), why it sometimes has the opposite effect and causes a previously accepted subject extraction to be rejected (as in Norwegian and Danish) and why the preference for resumption can vary depending on the constituent over which the subject is extracted (as in Fenno-Swedish, where the results indicate that a gap is preferred only when the subject is extracted over an overt *att*). The implementations of analogically extending the accounts to also cover these circumstances are presented below.

Platzack (1993) proposes the presence or absence of nominal features in the *att*-complementizer to be the source of variation on subject extractions over *att* in Scandinavian. If the complementizer possesses nominal features, then a successful co-indexation between the complementizer and an extracted subject is enabled which makes the subject free to move. Since the complementizer *om* and adverbial *wh*-elements such as *var* ('where') are not nominal (and no source is at hand arguing for that these could have nominal features), co-indexation between the subject and *om/var* based on nominal features appears impossible. Thus, the account by Platzack faces difficulties when implemented to cover subject extractions also over *om* and *wh*-elements as additional explanations are required to explain the occurrence and variation on acceptance of these. How resumptive pronouns can make a subject extraction either accepted or rejected in also not clear from this account. Perhaps, a co-indexation between the

resumptive pronoun, the subject and the complementizer could be a possible explanation as to why subject extractions with resumptive pronouns are accepted. The absence of nominal features in *om* and certain *wh*-elements has already been mentioned, which makes a co-indexation between a resumptive pronoun and these constituents impossible. As a probable complementary distribution of the acceptance of resumption pronouns and the acceptance of subject gaps also is indicated by the results, nominative features in *att* in the varieties accepting resumptive pronouns too seems unlikely as these nominal features would then also enable for a subject a gap, given the argument. The results indicate that this is not the case for the varieties accepting resumptive pronouns.

Lohndal (2007) instead proposes two different positions of the complementizer *att* to be the source of variation. The higher complementizer is lexicalized in ForceP' and the lower complementizer in FinP'. In FinP', agreement is believed to be obtained between the subject and the complementizer. This agreement holds the subject in place, unable to be extracted. In ForceP', no agreement obtains which makes the subject free to move. The question then comes down to whether it is plausible that the complementizer *om* or *wh*-elements are subject to the same variation regarding phrases of lexicalization. Since *om* is a head, holding an A-bar position, the idea that *om* could be lexicalized in either FinP' or ForceP' is not too far-fetched. Whether the *wh*-elements could be interpreted as holding an A-bar position in the first place, would furthermore depend on the complexity of the *wh*-element. As previously mentioned, Westergaard, Vangsnes & Lohndal (2017) argue that simplex *wh*-elements could be understood as heads. This opens up for the possibility that the simplex *wh*-elements (over which a subject is extracted) could hold an A-bar position and furthermore perhaps be lexicalized either in ForceP' or FinP'. As complex *wh*-elements are phrases and not heads, the account by Lohndal has a harder time explaining why 63% of the Danish and 21% of the Norwegian informants also accept subject extractions over complex *wh*-elements. Thus, this account would need an additional explanation for the subject extractions over complex *wh*-elements. Regarding resumption, perhaps the agreement needed to be obtained in FinP between the subject and the complementizer could be satisfied by the presence of a resumptive pronoun. Why resumptive pronouns would be rejected if positioned in ForceP is not obvious, though. For the accepted subject extractions with resumptive pronouns over complex *wh*-elements, it is also uncertain how and if agreement would obtain between a complex *wh*-element, or any *wh*-element, and a resumptive pronoun.

As the accounts by Platzack (1993) and Lohndal (2007), focusing specifically on variation in Scandinavian, cannot sufficiently explain the full range of subject extractions found in

Scandinavian, an obvious next step towards a sufficient analysis is to revalue previously rejected accounts. An initial start to such a project is presented below, with the revaluation of the more general account presented by McFadden and Sundaresan (2018). In this account, intonational phrases are understood to be the source of subject extraction constraints. The argument for this is based on the following premises:

P) The left-most periphery of an intonational phrase (the start) must always be filled, otherwise this makes an ungrammatical sentence

Q) An intonational phrase starts with the subject in subordinate clauses

   If the subject is missing in a subordinate clause, this makes an ungrammatical sentence

If P is true, then there must be something else filling the left-most periphery of their intonational phrases of a subordinate clause in the Scandinavian grammars accepting subject extractions, since the subject is not there to fill the edge. Possibly, the complementizers *att/om* or a *wh*-element consist of sufficient edge-filling material in these grammars and also marks the start of an intonational phrase of a subordinate clause, which would indicate that Q is not entirely true. If one accepts that an intonational phrase does not have to start with the subject in a subordinate clause, then there is a possibility that the variation on subject extractions found in Scandinavian could be derived from various grammars operating with various understandings of where the intonational phrase starts, either with the subject or the complementizer/*wh*-element. In grammars which require a subject to start the intonational phrase, perhaps the resumptive pronoun could also be understood as substituting the extracted subject in order to create sufficient edge-filling material to the intonational phrase. It is also possible to imagine that some speakers could have acquired the intonational phrases of subordinated clauses with an overt *att* to start with *att*, but intonational phrases of subordinated clauses with *om* or *wh*-elements to start with a subject. This could account for the variation found in Fenno-Swedish where a resumptive pronoun (a copy of the subject) is required with extractions over *om* and *wh*-elements but not over *att*. The rejection of resumptive pronouns in cases where an intonational phrase would begin with *att*, *om* or a *wh*-element would not be accounted for, though, and would need to find its explanation elsewhere. Concluding, if the filling of the left edge of an intonational phrase of a subordinated clause can be satisfied with constituents other than subjects (i.e., start with other constituents than subjects) and if resumptive pronouns are sufficient subject-substitutes, then the variation in Scandinavian concerning subject extractions

could be due to Scandinavians acquiring various patterns as to where various intonational phrases of subordinate clauses start. Why resumptive pronouns are rejected if the intonational phrase starts with another constituent than the subject is not implicated by the logical consequences of this account, though.

Finally, the accounts by Platzack (1993), Lohndal (2007) and a revaluated version of the account by McFadden and Sundaresan (2018) were all judged to insufficiently provide an explanation for the full range of subject extractions found in Scandinavian. Future accounts aiming to explain the variation must take into account subject extractions over *att*, *om* and *wh*-elements (simplex and complex) as well as the role of resumption.

6 Conclusion

In this thesis, the acceptance of subject extractions in Scandinavian has been studied due to a lack of previous extensive studies. An acceptability judgment task was conducted where sentences with subject extractions were judged. The subject extractions included in the study were subject extractions over a deleted *att*, an overt *att*, the complementizer *om* as well as various simplex and complex *wh*-elements, with and without resumptive pronouns. The results showed that the Swedish informants accepted all the studied subject extractions under the condition that a resumptive pronoun was inserted in the gap. The Fenno-Swedish informants showed the same pattern except for subject extractions over an overt *att*, where a subject gap was preferred. Subject extractions over an overt *att* were also accepted by the Norwegian informants and subject extractions over *om* were accepted by Norwegian and Danish informants. Norwegian and Danish informants also accepted subject extractions over *wh*-elements where simplex *wh*-elements were accepted to a greater extent than complex *wh*-elements. A possible hierarchical acceptance of simplex and complex *wh*-elements was further indicated as 90% of the Norwegian informants respectively 96 % of the Danish informants who accepted subject extractions over complex *wh*-elements also accepted subject extractions over simplex *wh*-elements, while the numbers were not as high the other way around. This also indicated that the simplicity of the *wh*-element was not a crucial feature for a subject extraction to be accepted. Resumptive pronouns were rejected by both Norwegian and Danish informants and subject extractions over a deleted *att* were accepted by all varieties. The results from the study aligned well with previous indications and contributed with new data on resumption in connection with Fenno-Swedish.

An analysis of the results against current accounts provided by Platzack (1993) and Lohndal (2007) on why subject extraction constraints occur and why the acceptability of various subject extractions varies in Scandinavian showed that no account sufficiently could explain the variation found in the results. A previously rejected account provided by McFadden and Sundaresan (2018) was also revaluated but was not judged to sufficiently explain the variation either. Future accounts must take into account the variation found for subject extractions over *att*, *om* and *wh*-elements (simplex and complex) as well as take into account the role of resumption.

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Appendices

Appendix 1. Instructions

Här kommer några meningar som jag blir jätteglad om du vill bedöma om du har svenska som modersmål. Svaren kommer användas i en masteruppsats i nordiska språk vid Lunds universitet och temat är ordföljd. Undersökningen tar ca 10 – 15 min.

Bedöm meningarna som om de vore *ditt eller någon annans spontana talspråk*. Inga svar är rätt eller fel, det handlar bara om *din egen språkkänsla*. Denna kan ju variera beroende på t.ex vilken dialekt man pratar eller vilken dialekt man hör runt sig.

Svarsalternativen är 1 – 5 där 1 är sämst (*låter konstigt*) och 5 är bäst *(låter naturligt).*

Exempel:
1 *Låter konstigt* = Var det Maja din katt som hette?
5 *Låter naturligt* = Var det Maja som din katt hette?

När en fråga och ett svar presenteras så ska bara svaret bedömas, alltså "Hanna tror jag kommer" nedan:

Är det Hanna eller Arvid som kommer? Hanna tror jag kommer

Totalt presenteras 60 meningar. Genom att skicka in svaren godkänner du att de används anonymt i uppsatsen.

English translation (not presented to the informants):

Here are some sentences what I would be really happy if you wanted to judge if you have Swedish as a first language. The answers will be used in a master thesis in Nordic languages at Lund University and the theme is syntax. The survey will take about 10 – 15 minutes.

Judge the sentence as if they were your own of someone else's spontaneous speech. No answer is right or wrong, it is only about your own intuition about the sentences. This intuition can of course vary depending on which dialect you speak or which dialect you hear around you.

The alternatives are 1 – 5, where 1 is the worst alternative (*sounds weird*) and 5 is the best alternative (*sounds natural*).

Example:
1 Sounds weird = Was it Maja you cat that was called?
5 Sounds natural = Was it Maja that you cat was called?

When a question and an answer are presented, judge only the answer, that is "Hanna think I is coming" below:

Is is Hanna or Arvid that is coming? Hanna I think is coming

A total amount of 60 sentence will be presented. By sending in the answers, you approve of that they will be used anonymously in the thesis.

Appendix 2. Full list of target sentences translated to English

Nr	Sentence
1	Know you if any of the book or movie is good? The book i know is good
2	Knew you that the principle comes? No, the principle know I not comes
3	Was it caffein that you knew was in coffee?
4	Know you if the book or the movie is good? The book know I is good
5	Knew you that the principle comes= No, the principle knew I not that comes
6	Was it caffeine that you knew that was in coffee=
7	Know you if any of the book or movie is good? The book know I not if is good
8	Know you if the principle comes? No, the principle know I not if comes
9	Was it caffein that you wondered if was in coffee?
10	Know you where Kalle or Anna use to run? Kalle know I where use to run
11	Is it Olle that no one know where lives?
12	Know you what Martin or Olle makes? Martin know I not what makes
13	Was it the station that you forgot what is named?
14	Know you which round Anna or Kalle use to run? Anna know I which round uses to run
15	Know you which time Kalle or Anna use to run? Anna know I which times uses to run
16	Know you how big Anna or Kalle lives? Anna know I how big lives
17	Know you how mich Martion or Olle makes? Marin know I not how much makes

Appendix 3. Full list of filler sentences

Nr	Sentences
32	Vet du var Kalle eller Anna brukar springa? Var Kalle brukar springa vet jag
33	Vet du vilken runda Anna eller Kalle brukar springa? Anna vet jag hon brukar springa vilken runda
34	Är det var Olle bor som ingen vet?
35	Vet du när Kalle eller Anna brukar springa? Kalle vet jag han brukar springa när
36	Vet du vilken tid Kalle eller Anna brukar springa? Vilken tid Anna brukar springa vet jag
37	Var det gick som vi skulle kolla när den bussen?
38	Vet du hur Anna eller Kalle bor? Hur Kalle bor vet jag
39	Vet du hur stort Anna eller Kalle bor? Anna vet jag hon bor hur stort
40	Var det hur Elin mår som du frågade?
41	Vet du vad Martin eller Olle tjänar? Martin vet jag inte han tjänar vad
42	Vet du hur mycket Martin eller Olle tjänar? Hur mycket Martin tjänar vet jag inte
43	Var det heter som du glömt vad den stationen?
44	Vet du om någon av boken eller filmen är bra? Om boken är bra vet jag inte
45	Vet du om rektorn kommer? Nej, kommer vet jag inte om hon rektorn
46	Var det i kaffe som du undrade om koffein fanns?
47	Vet du om någon av boken eller filmen är bra? Är bra vet jag att den boken
48	Visste du att rektorn kommer? Nej, att rektorn kommer visste jag inte
49	Var det fanns som du visste att det koffein i kaffe?
59	Vet du om någon av boken eller filmen är bra? Boken är bra vet jag
51	Visste du att rektorn kommer? Nej, kommer visste jag inte hon rektorn
52	Var det i kaffe som du visste koffein fanns?

Appendix 4. Full list of filler sentences translated to English

Nr	Sentence
32	Know you where Kalle and Anna use to run? Where Kalle uses to run know I
33	Know you which round Anna or Kalle use to run? Anna know I she uses to run which round
34	Is it where Olle lives that no one knows?
35	Do you know when Kalle or Anna use to run? Kalle know I he uses to run when
36	Do you know which time Kalle or Anna use to run? Which time Anna uses to run know I
37	Was it went that we should check when that bus?
38	Do you know how Anna or Kalle lives? How Kalle lives know I
39	Do you know how big Anna or Kalle lives? Anna know I she live show big
40	Was i how Elin feels that you asked?
41	Know you what Martin or Olle makes? Martin know I not he makes what
42	Know you how much Martin or Olle makes? How much Martin makes now I not
43	Was is named that you forgot what that station?
44	Know you if any of the book or the film is good? If the book is good know I not
45	Know you if the principal comes? No, comes know I not if she principal
46	Was it in coffee that you woneded if coffein was?
47	Know you if any of the book or movie is good? Is good know I that this book
48	Knew you that the principal comes? No, that the principal comes knew I not
49	Was it is that you knew that that caffein in coffee?
59	Know you if any of the book or movie is good? The book is good know I
51	Knew you that the principal comes? No, comes knew I not she principal
52	Was it in coffee that you knew caffeein was?

Appendix 5. Full list of results

Norwegian results without resumptive pronouns

Nr	Variable	Variant	Sentence	Mean
1	Deleted complementizer	Ø (at)	Vet du om boka eller filmer er bra? Boka vet jeg er bra	4.8
2		Ø (at)	Visste du at rektor skulle komme? Nei, rektor visste jeg ikke skulle komme	4.3
3		Ø (at)	Var det kaffe du visste inneholder koffein?	4.1
4		at	Vet du om boka eller filmen er bra? Boka vet jeg at er bra	4.2
5		at	Visste du at rektor skulle komme? Nei, rektor visste jeg ikke at skulle komme	4.1
6		at	Var det kaffe du visste at inneholder koffein?	3.8
7		om	Vet du om enten boka eller filmen er bra? Boka vet jeg ikke om er bra	4.1
8		om	Vet du om rektor kommer? Nei, rektor vet jeg ikke om kommer	3.5
9		om	Var det kaffe du lurte på om inneholder koffein?	4.5
10	simplex *wh*-element	hvor	Vet du hvor Per eller Anne skulle gå? Per vet jeg hvor skulle gå	3.3
11		hvor	Er det Ole som ingen vet hvor bor?	3.9
12		hva	Vet du hva Martin eller Ole gjør? Martin vet jeg ikke hva gjør	4.2
13		hva	Var det stasjonen du hadde glemt hva heter?	4.2
14	complex *wh*-element	hvilken vei	Vet du hvilken vei Anne eller Per skulle gå? Anne vet jeg hvilken vei skulle gå	3.0
15		hvor langt	Vet du hvor langt Per eller Anne skulle gå? Anne vet jeg hvor langt skulle gå	3.0
16		hvor stort	Vet du hvor stort Anne eller Per bor? Anne vet jeg hvor stort bor	1.9
17		hva slags	Vet du hva slags jobb Martin eller Ole har? Martin vet jeg ikke hva slags jobb har	2.9

Norwegian results with resumptive pronouns

Nr	Variable	Variant	Sentence	Mean
18	**Complementizer**	**at __ r.p**	Vet du om boka eller filmen er bra? Boka vet jeg at den er bra	1.6
19		**at __ r.p**	Visste du at rektor skulle komme? Nei, rektor visste jeg ikke at hun skulle komme	1.4
20		**at __ r.p**	Var det kaffe du visste at det inneholder koffein?	1.8
21		**om __ r.p**	Vet du om enten boka eller filmen er bra? Boka vet jeg ikke om den er bra	1.5
22		**om __ r.p**	Vet du om rektor kommer? Nei, rektor vet jeg ikke om hun kommer	1.4
23		**om __ r.p**	Var det kaffe du lurte på om det inneholder koffein?	1.8
24	**simplex *wh*-element**	**hvor __ r.p**	Vet du hvor Per eller Anne skulle gå? Per vet jeg hvor han skulle gå	1.6
25		**hvor __ r.p**	Er det Ole som ingen vet hvor han bor?	1.4
26		**hva __ r.p**	Vet du hva Martin eller Ole gjør? Martin vet jeg ikke hva han gjør	1.6
27		**hva __ r.p**	Var det stasjonen du hadde glemt hva den heter?	1.7
28	**complex *wh*-element**	**hvilken vei __ r.p**	Vet du hvilken vei Anne eller Per skulle gå? Anne vet jeg hvilken vei hun skulle gå	1.5
29		**hvor langt __ r.p**	Vet du hvor langt Per eller Anne skulle gå? Anne vet jeg hvor langt hun skulle gå	1.8
30		**hvor stort __ r.p**	Vet du hvor stort Anne eller Per bor? Anne vet jeg hvor stort hun bor	1.3
31		**hva slags __ r.p**	Vet du hva slags jobb Martin eller Ole har? Martin vet jeg ikke hva slags jobb han har	1.7

Danish results without resumptive pronouns

Nr	Variable	Variant	Sentence	Mean
1	**Deleted complementizer**	**Ø (at)**	Ved du om bogen eller filmen er god? Bogen ved jeg er god	4.0
2		**Ø (at)**	Vidste du at rektoren kommer? Nej, rektoren vidste jeg ikke kommer	3.2
3		**Ø (at)**	Var det koffein som du vidste var i kaffe?	4.3
4		**at**	Ved du om bogen eller filmen er god? Bogen ved jeg at er god	2.4
5		**at**	Vidste du at rektoren kommer? Nej, rektoren vidste jeg ikke at kommer	1.6
6		**at**	Var det koffein som du vidste at var i kaffe?	2.5
7		**om**	Ved du om bogen eller filmen er god? Bogen ved jeg ikke om er god	4.4
8		**om**	Ved du om rektoren kommer? Nej, rektoren ved jeg ikke om kommer.	3.2
9		**om**	Var det kaffe du var usikker på om indeholder koffein?	3.7
10	simplex *wh*-element	**hvor**	Ved du hvor Karl eller Anna plejer at løbe? Kalle ved jeg hvor plejer at løbe	3.2
11		**hvor**	Er det Valdemar som ingen ved hvor bor?	4.5
12		**hvad**	Ved du hvad Abdel eller Valdemar tjener? Abdel ved jeg ikke hvad tjener	4.5
13		**hvad**	Var det stationen som du havde glemt hvad hedder?	4.6
14	complex *wh*-element	**hvilken runde**	Ved du hvilken runde Anna eller Karl plejer at løbe? Anna ved jeg hvilken runde plejer at løbe	3.2
15		**hvilken tid**	Ved du hvilken tid Karl eller Anna plejer at løbe? Anna ved jeg hvilken tid plejer at løbe	2.5
16		**hvor meget plads**	Ved du hvor meget plads Anna eller Karl har? Anna ved jeg hvor meget plads har	3.9
17		**hvor meget**	Ved du hvor meget Abdel eller Valdemar tjener? Abdel ved jeg ikke hvor meget tjener	2.9

Danish results with resumptive pronouns

Nr	Variable	Variant	Sentence	Mean
18	**Complementizer**	**at __ r.p**	Ved du om bogen eller filmen er god? Bogen ved jeg at den er god	2.5
19		**at __ r.p**	Vidste du at rektoren kommer? Nej, rektoren vidste jeg ikke at hun kommer	1.7
20		**at __ r.p**	Var det koffein som du vidste at der var i kaffe?	3.5
21		**om __ r.p**	Ved du om bogen eller filmen er god? Bogen ved jeg ikke om den er god	2.3
22		**om __ r.p**	Ved du om rektoren kommer? Nej, rektoren ved jeg ikke om hun kommer	1.9
23		**om __ r.p**	Var det kaffe du var usikker på om den indeholder koffein?	2.4
24	**simplex *wh*-element**	**hvor __ r.p**	Ved du hvor Karl eller Anna plejer at løbe? Kalle ved jeg hvor han plejer at løbe	2.6
25		**hvor __ r.p**	Er det Valdemar som ingen ved hvor han bor?	1.8
26		**hvad __ r.p**	Ved du hvad Abdel eller Valdemar tjener? Abdel ved jeg ikke hvad han tjener	2.2
27		**hvad __ r.p**	Var det stationen som du havde glemt hvad den hedder?	2.1
28	**complex *wh*-element**	**hvilken runde __ r.p**	Ved du hvilken runde Anna eller Karl plejer at løbe? Anna ved jeg hvilken runde hun plejer at løbe	2.5
29		**hvilken tid __ r.p**	Ved du hvilken tid Karl eller Anna plejer at løbe? Anna ved jeg hvilken tid hun plejer at løbe	2.8
30		**hvor meget plads __ r.p**	Ved du hvor meget plads Anna eller Karl har? Anna ved jeg hvor meget plads hun har	2.3
31		**hvor meget __ r.p**	Ved du hvor meget Abdel eller Valdemar tjener? Abdel ved jeg ikke hvor meget han tjener	2.3

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Swedish results without resumptive pronouns

Nr	Variable	Variant	Sentence	Mean
1	**Deleted complementiizer**	**Ø (att)**	Vet du om någon av boken eller filmen är bra? Boken vet jag är bra	4.7
2		**Ø (att)**	Visste du att rektorn kommer? Nej, rektorn visste jag inte kommer	2.5
3		**Ø (att)**	Var det koffein som du visste fanns i kaffe?	4.5
4	**Complementizer**	**att**	Vet du om någon av boken eller filmen är bra? Boken vet jag att är bra	1.7
5		**att**	Visste du att rektorn kommer? Nej, rektorn visste jag inte att kommer	1.3
6		**att**	Var det koffein som du visste att fanns i kaffe?	1.5
7		**om**	Vet du om någon av boken eller filmen är bra? Boken vet jag inte om är bra	1.3
8		**om**	Vet du om rektorn kommer? Nej, rektorn vet jag inte om kommer	1.2
9		**om**	Var det koffein som du undrade om fanns i kaffe?	1.6
10	**simplex *wh*-element**	**var**	Vet du var Kalle eller Anna brukar springa? Kalle vet jag var brukar springa	1.3
11		**var**	Är det Olle som ingen vet var bor?	1.4
12		**vad**	Vet du vad Martin eller Olle tjänar? Martin vet jag inte vad tjänar	1.3
13		**vad**	Var det stationen som du glömt vad heter?	1.3
14	**complex *wh*-element**	**vilken runda**	Vet du vilken runda Anna eller Kalle brukar springa? Anna vet jag vilken runda brukar springa	1.3
15		**vilken tid**	Vet du vilken tid Kalle eller Anna brukar springa? Anna vet jag vilken tid brukar springa	1.3
16		**hur stort**	Vet du hur stort Anna eller Kalle bor? Anna vet jag hur stort bor	1.2
17		**hur mycket**	Vet du hur mycket Martin eller Olle tjänar? Martin vet jag inte hur mycket tjänar	1.3

Swedish results with resumptive pronouns

Nr	Variable	Variant	Sentence	Mean
18	**Complementizer**	**att __ r.p**	Vet du om någon av boken eller filmen är bra? Boken vet jag att den är bra	4.3
19		**att __ r.p**	Visste du att rektorn kommer? Nej, rektorn visste jag inte att hon kommer	2.9
20		**att __ r.p**	Var det koffein som du visste att det fanns i kaffe?	3.4
21		**om __ r.p**	Vet du om någon av boken eller filmen är bra? Boken vet jag inte om den är bra	4.1
22		**om __ r.p**	Vet du om rektorn kommer? Nej, rektorn vet jag inte om hon kommer	3.7
23		**om __ r.p**	Var det koffein som du undrade om det fanns i kaffe?	4.8
24	**simplex *wh*-element**	**var __ r.p**	Vet du var Kalle eller Anna brukar springa? Kalle vet jag var han brukar springa	4.5
25		**var __ r.p**	Är det Olle som ingen vet var han bor?	3.5
26		**vad __ r.p**	Vet du vad Martin eller Olle tjänar? Martin vet jag inte vad han tjänar	4.4
27		**vad __ r.p**	Var det stationen som du glömt vad den heter?	3.7
28	**complex *wh*-element**	**vilken runda __ r.p**	Vet du vilken runda Anna eller Kalle brukar springa? Anna vet jag vilken runda hon brukar springa	3.7
29		**vilken tid __ r.p**	Vet du vilken tid Kalle eller Anna brukar springa? Anna vet jag vilken tid hon brukar springa	4.3
30		**hur stort __ r.p**	Vet du hur stort Anna eller Kalle bor? Anna vet jag hur stort hon bor	4.1
31		**hur mycket __ r.p**	Vet du hur mycket Martin eller Olle tjänar? Martin vet jag inte hur mycket han tjänar	4.1

Fenno-Swedish results without resumptive pronouns

Nr	Variable	Variant	Sentence	Mean
1	**Deleted complemenizer**	**Ø (att)**	Vet du om någon av boken eller filmen är bra? Boken vet jag är bra	4.6
2		**Ø (att)**	Visste du att rektorn kommer? Nej, rektorn visste jag inte kommer	2.3
3		**Ø (att)**	Var det koffein som du visste fanns i kaffe?	4.4
4	**Complemenizer**	**att**	Vet du om någon av boken eller filmen är bra? Boken vet jag att är bra	4.1
5		**att**	Visste du att rektorn kommer? Nej, rektorn visste jag inte att kommer	2.5
6		**att**	Var det koffein som du visste att fanns i kaffe?	3.7
7		**om**	Vet du om någon av boken eller filmen är bra? Boken vet jag inte om är bra	2.3
8		**om**	Vet du om rektorn kommer? Nej, rektorn vet jag inte om kommer	1.7
9		**om**	Var det koffein som du undrade om fanns i kaffe?	2.8
10	**simplex *wh*-element**	**var**	Vet du var Kalle eller Anna brukar springa? Kalle vet jag var brukar springa	1.6
11		**var**	Är det Olle som ingen vet var bor?	1.9
12		**vad**	Vet du vad Martin eller Olle tjänar? Martin vet jag inte vad tjänar	1.8
13		**vad**	Var det stationen som du glömt vad heter?	1.7
14	**complex *wh*-element**	**vilken runda**	Vet du vilken runda Anna eller Kalle brukar springa? Anna vet jag vilken runda brukar springa	1.8
15		**vilken tid**	Vet du vilken tid Kalle eller Anna brukar springa? Anna vet jag vilken tid brukar springa	1.8
16		**hur stort**	Vet du hur stort Anna eller Kalle bor? Anna vet jag hur stort bor	1.5
17		**hur mycket**	Vet du hur mycket Martin eller Olle tjänar? Martin vet jag inte hur mycket tjänar	1.7

Fenno-Swedish results with resumptive pronouns

Nr	Variable	Variant	Sentence	Mean
18		att __ r.p	Vet du om någon av boken eller filmen är bra? Boken vet jag att den är bra	3.8
19		att __ r.p	Visste du att rektorn kommer? Nej, rektorn visste jag inte att hon kommer	2.1
20		att __ r.p	Var det koffein som du visste att det fanns i kaffe?	3.3
21		om __ r.p	Vet du om någon av boken eller filmen är bra? Boken vet jag inte om den är bra	3.6
22		om __ r.p	Vet du om rektorn kommer? Nej, rektorn vet jag inte om hon kommer	2.7
23		om __ r.p	Var det koffein som du undrade om det fanns i kaffe?	4.5
24	*wh*-element simplex	var __ r.p	Vet du var Kalle eller Anna brukar springa? Kalle vet jag var han brukar springa	4.1
25		var __ r.p	Är det Olle som ingen vet var han bor?	3.9
26		vad __ r.p	Vet du vad Martin eller Olle tjänar? Martin vet jag inte vad han tjänar	3.9
27		vad __ r.p	Var det stationen som du glömt vad den heter?	3.3
28	*wh*-element complex	vilken runda __ r.p	Vet du vilken runda Anna eller Kalle brukar springa? Anna vet jag vilken runda hon brukar springa	3.5
29		vilken tid __ r.p	Vet du vilken tid Kalle eller Anna brukar springa? Anna vet jag vilken tid hon brukar springa	4.0
30		hur stort __ r.p	Vet du hur stort Anna eller Kalle bor? Anna vet jag hur stort hon bor	3.6
31		hur mycket __ r.p	Vet du hur mycket Martin eller Olle tjänar? Martin vet jag inte hur mycket han tjänar	3.6