

Summary of the PhD thesis
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The PhD thesis entitled ‘Object Shift in the Scandinavian Languages - Syntax, Information Structure, and Intonation –’ concerns *Scandinavian Object Shift (OS)*. In almost all the Scandinavian varieties, a weak, unstressed object pronoun moves across a sentential adverb, whereas a full NP object normally does not move. Specifically, the weak pronominal object *henne* moves across the negation (1a), whereas the full NP object *Marit* must remain in situ. OS is obligatory in some of the Scandinavian varieties, optional in others and absent still in others.

- (1) a. Jag kysste (^{OK}henne) inte (^{OK}henne). [Swe.]
I kissed her not her
‘I didn’t kiss her.’
- b. Jag kysste (*Marit) inte(^{OK}Marit).
I kissed Marit not Marit
‘I didn’t kiss Marit.’

There is a condition under which an object pronoun can move. In simple tense forms (2a), a main verb moves to the second position. The object pronoun can move too. In complex tense forms (2b), a past participle main verb does not move due to the presence of the Aux(iliary verb). The object pronoun cannot move either. In embedded clauses (2c), verb movement does not take place. The object pronoun cannot move either. This observation is called *Holmberg’s Generalization* (Holmberg 1986): the object pronoun can move only when verb movement takes place.

- (2) a. Jag kysste (^{OK}henne) inte kysste (^{OK}henne). [Swe.]
I kissed her not her
‘I didn’t kiss her.’
- b. Jag har (*henne) inte kysst (^{OK}henne).
I have her not kissed her
‘I haven’t kissed her.’
- c. ... att jag (*henne) inte kysste (^{OK}henne)
... that I her not kissed her
‘... that I didn’t kiss her’

Holmberg's Generalization indicates that the presence of pronominal movement is dependent on that of verb movement. However, no movement phenomenon other than OS in which movement of a sentential element is dependent on that of another sentential element has been found. Due to this particular property, OS has long been one of the most controversial issues in generative syntax. Despite much literature on OS represented by Chomsky (2001), no comprehensive and decisive account of all aspects of OS has been provided yet.

Hence, the research questions of this thesis are as follows:

- i) What principled account can be provided for Holmberg's Generalization?; and
- ii) What principled accounts can be provided for the obligatoriness, optionality and absence of OS, and how are they related to i)?

It is well known that the Scandinavian languages have specific intonational systems, as represented by Bruce (1977) for Swedish, Kristoffersen (2000) for Norwegian, Grønnum (1998) for Danish, and Árnason (2011) for Icelandic and Faroese. Though these works convincingly show that intonational properties are involved in characterizing the overall aspect of the Scandinavian languages, a thorough study of OS from the viewpoint of intonational properties has not been carried out so far. In the thesis, I discuss the constructions relevant to OS from the intonational perspective, by presenting experimental data on all the Scandinavian varieties concerned. I present a new hypothesis on OS and an account of Holmberg's Generalization on the basis of it. I also present a new generalization on OS from the intonational perspective.

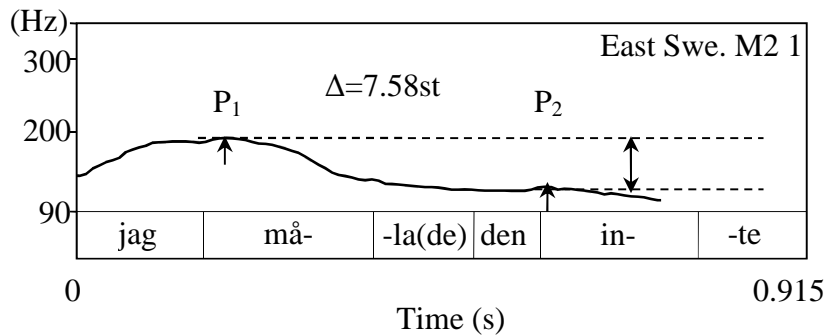
The background chapter conducts a thorough literature survey. I introduce the issues associated with OS that have been discussed in the literature. Much literature on OS exists in (mainly Chomskyan) generative syntax. I introduce the approaches taken to account for OS proposed so far, specifically, the semantico-syntactic, purely syntactic and purely phonological approaches. I show that none of these approaches succeeds in providing a principled account of all aspects of OS.

The main chapter presents experimental data on the constructions relevant to OS. Data have been collected from almost all the Scandinavian varieties: Swedish (East, West, South, North, Finland Swedish, Dalecarlian and Övdalian), Norwegian (East and West), Danish (East and South), Icelandic and Faroese.

The overall findings in this work are as follows: *downstep*, noticeable lowering of pitch peaks on successive accented words (cf. Gussenhoven 2004), typically occurs in the OS construction of simple tense forms (3a), but it does not occur in complex tense forms (3b) and embedded clauses (3c), which mostly do not have OS, in almost all the Scandinavian varieties investigated. That is, the pitch level on the negation following the shifted object pronoun is lower than that on the main verb in the OS construction. In complex tense forms and embedded clauses, however, the pitch peak occurs on a sentential/clausal element located 'after' the element that cannot be followed by the object pronoun directly, i.e. the Aux and the embedded subject.

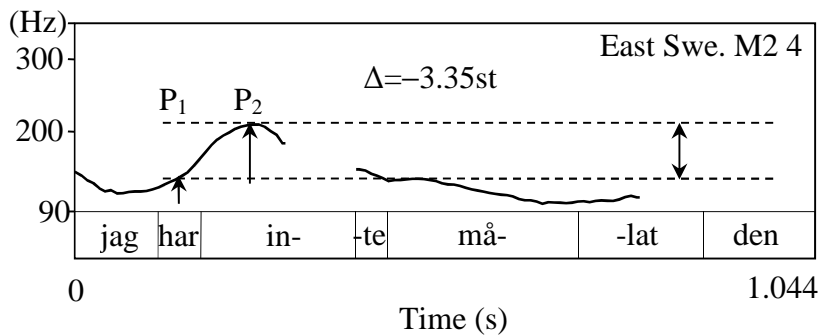
(3) a. Simple tense forms:¹

Jag målade den inte. (I painted it not 'I didn't paint it')



b. Complex tense forms:

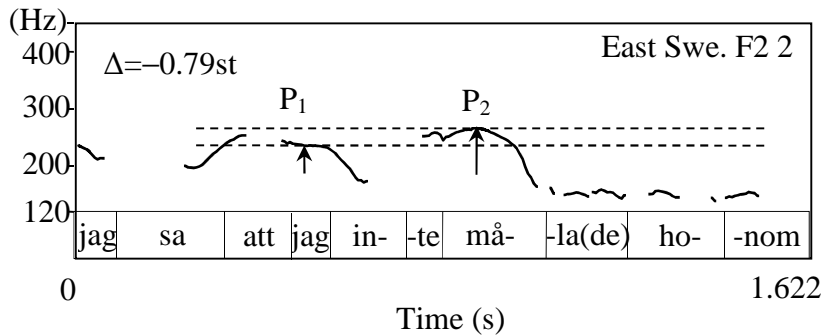
Jag har inte målat den. (I have not painted it 'I haven't painted it')



c. Embedded clauses:

Jag sa att jag inte målade honom.

(I said that I not portrayed him 'I said that I didn't portray him')



I present the statistical analysis of acoustic data on the incidence and magnitude of downstep in all the Scandinavian varieties investigated. The downstep size has been determined by measuring the pitch maximum in two crucial words (one early, one late) in the sentence and expressing the pitch difference between these peaks in semitones (one semitone is one-twelfth of an octave, which is a doubling of the fundamental frequency F₀). The

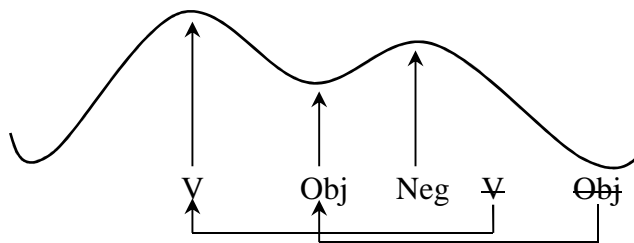
¹ Notations: *East Swe. M2 1* at the upper right stands for the dialectal name, the sex, the informant number and the token number (token number 1 through 5); Δ stands for downstep, the value 7.58 for the downstep size, *st* for semitone, and *P*₁ and *P*₂ for two key pitch points. I turn to the way of computing the downstep size soon below.

observation stated above is confirmed: downstep is more likely to occur in the OS construction, whereas non-downstep/upstep is more likely to occur in the ‘non-OS construction’ such as complex tense forms and embedded clauses.

A theoretical account of the findings on OS is then provided. The relation between the presence of OS and that of downstep is described as follows: movement of the object pronoun entails downstep. The relation of ‘entailment’ expresses that whenever OS takes place, downstep occurs (but not vice versa). This descriptive generalization is supported by experimental data collected for totally 13 Scandinavian varieties given above. The entailment relationship is theoretically interpreted as that of ‘causation’. I propose the following new hypothesis on OS:

(4) Scandinavian Object Shift:

The object pronoun moves to cause downstep.




In simple tense forms, the focus and focal accent typically occur on a raised main verb. A possible focal effect on sentential element(s) located after it must be eliminated. In complex tense forms and embedded clauses, the focus typically occurs on the in-situ past participle in the former and on the (in-situ) embedded verb in the latter. The final pitch peak occurs on those main verbs. Then, the theoretical account of Holmberg’s Generalization is provided as follows: When main verb movement takes place, the object pronoun moves and causes downstep to eliminate a focal effect on the sentential element(s) after the main verb. In the environments in which downstep must not occur, i.e. in the constructions where the final pitch peak occurs on the (in-situ) main verb, OS does not occur either.

Whether OS is obligatory, optional or absent depends on whether a relevant Scandinavian variety has an early or delayed pitch gesture: the Scandinavian varieties in which OS tends to be absent, e.g. Övdalian, typically have a delayed pitch gesture, whereas those which have more or less obligatory OS, e.g. East Swedish, have an early pitch gesture. I present the following new generalization on OS:

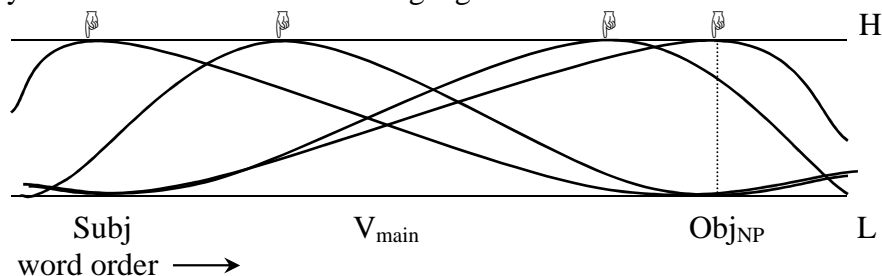
(5) Scandinavian Object Shift:

The earlier the pitch gesture occurs, the more likely is Object Shift to occur; the more delayed the pitch gesture is, the more likely is Object Shift to be absent.

It is argued that OS is not a dichotomous property, i.e. either present or absent, but a gradient phenomenon in the Scandinavian languages.

A new system that accounts for the facts on OS as well as the interaction between the grammatical components in general is proposed. The basic idea is that in theorizing the interaction between syntax, information structure and intonation, only the loci of the sentence focus and the highest pitch peak need to be taken into account, since the locus of the highest pitch peak always indicates that the sentence focus is also there (or quite near it). See (6).² The syntactic word order, here SVO, goes on from the left to the right. The focal point of a sentence is indicated by the focal pointer *fp*, ‘’, which is the indicator of the change in the information flow of a sentence. In transitive constructions, the focus is carried by a (full NP) object in the unmarked case. The *fp* and the pitch peak occur on it. It is cross-linguistically predicted that the farther (e.g. to the left, as illustrated below) the focal point moves from an unmarked position, the more an unmarked intonation pattern is likely to change, and the more an unmarked syntactic word order is likely to be affected, which is confirmed in various languages as argued in the thesis.

(6) The interaction between the changes of the focal point, the pitch peak point and the syntactic word order in SVO languages:



Finally, I discuss in which grammatical component OS occurs. I present the following three possibilities. First, no movement including OS can occur in the semantic component in the current Chomskyan framework. Secondly, OS could occur in the phonological component. Movement in phonology, however, cannot be carried out in a principled way under current theoretical assumptions. Thirdly, OS occurs in syntax, driven by the intonational properties. This movement is feasible in the system as proposed here, in which the grammatical components directly interact with each other.

In conclusion, I suggest that contrary to the traditional ‘interpretive’ phonology in Chomskyan generative grammar, the possibility that the phonological component affects syntax should be seriously taken into account.

² Abbreviations: *H* – high; *L* – low; *Subj* – a subject; *V_{main}* – a main verb; *Obj_{NP}* – a full NP object.

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