

# On Prosody and Focus in Object Shift

Line Mikkelsen, UC Berkeley

September 23, 2009. To appear in *Syntax*

**Abstract** Recent work on object shift in the Scandinavian languages has rejected earlier syntactic analyses in favor of prosodic or information-structural accounts. In this paper I present new evidence from Danish copular clauses that argues against a prosodic analysis of the phenomenon. In particular, I show that specificational copular clauses do not allow object shift and that this fact cannot be accounted for in prosodic terms. I propose that the observed lack of object shift is due to the fixed information structure of specificational clauses: the object is invariably focused and that is what prevents it from shifting. This account dovetails with the focus-based analysis of object shift proposed by Holmberg (1999), and is also compatible with the syntactic analysis developed in Sells (2001).

## 1 Introduction

In the twentysome years since Anders Holmberg's dissertation, the Scandinavian word order alternation known as object shift has received enormous attention within the generative syntax community. It has figured centrally in the development of both Government and Binding theory and the Minimalist program, including the notion of Agreement projections, the understanding of Case-driven movement, and the nature of locality conditions on syntactic operations. It has also been used to probe the internal organization of the grammar, specifically the relationship between interpretation and syntactic movement and the relationship between phonological properties of elements and their syntactic behavior. In the last ten years, the investigation of object shift has moved away from purely syntactic models, and the most influential new works instead develop information-structural (Holmberg 1999) or prosodic (Erteschik-Shir 2005) accounts of the phenomenon.

In this paper I argue that object shift is sensitive to information structure, but not to prosody. I build this argument on a comprehensive investigation of object shift in Danish copular clauses. Certain kinds of copular clauses, so-called specificational clauses, exhibit a fixed information structure, which allows us to tease information structure apart from prosody, and to study their effect on object shift independently.

While the logic of the empirical investigation is fairly simple, the actual work is rather complicated. First, specificational clauses are a marked clause type and place fairly strict requirements on their objects independent of object shift. Secondly, the relevant phonological parameters are stress and prosodic structure, both of which

have complex and variable phonetic manifestations, and while native Danish speakers certainly have an intuitive concept of stress, they might not be able to consistently locate stress in spoken language or reliably judge possible stress placement in written representations. I therefore bring together several different kinds of evidence about the possible realizations of these structures: corpus attestations, introspective judgments from native speaker linguists, and the results of experimental work with naive speakers. All sources of evidence point to the same conclusion: object shift is governed by information structure, and not by prosody.

This result is important, not only for the understanding of object shift in Scandinavian languages, but also for assessing the larger theoretical claims associated with prosodic and information-structural analyses of the phenomenon. The information-structural analysis of Holmberg (1999) posits a special post-syntactic component called Stylistic Syntax in which object shift takes place and Erteschik-Shir (2005) uses object shift as a showcase for her larger agenda of reassessing all movement as phonologically conditioned constituent placement. While the empirical evidence presented here supports the information-structural analysis over a prosodic analysis, it doesn't force the architectural conclusions drawn by Holmberg. Towards the end of the paper, I outline how the empirical findings can be interpreted within the mono-stratal syntactic analysis of object shift developed by Sells (2001).

I start in section 2 by laying out the basic pattern of object shift in Danish and showing how it is accounted for under Erteschik-Shir's (2005) prosodic analysis, as well as Holmberg's (1999) information-structural analysis. Section 3 provides some background on copular clauses and establishes their relevance for distinguishing the two proposals. Section 4 is the empirical core of the paper. It lays out introspective and experimental evidence that specificational clauses allow unstressed and prosodically unincorporated unshifted objects, and on that basis concludes that focus, and not prosody, governs object shift. In section 5, I discuss speaker variation and its implications for prosodic and information-structural analyses of object shift, and in section 6, I show how the focus-sensitivity of Danish object shift can be integrated with the syntactic analysis of object shift in Sells (2001) and suggest that the resulting analysis is more successful overall than Holmberg's focus analysis. In the final section I summarize the main results and claims of the paper and discuss the consequences of my analysis for the relationship between focus and prosody.

## 2 Object shift in Danish

Scandinavian object shift involves an object constituent appearing further to the left in the clause than expected, specifically to the left of negation and adverbials taken to mark the left edge of the verb phrase (sometimes called medial adverbs in the Scandinavian literature). The expected word order is illustrated in (1), where the object *Morten* follows the adverbial *sikkert* and the negation *ikke*. (2) shows object shift: the direct object *ham* appears to the left of the adverbial and the negation. (Unless noted otherwise all examples are from standard Danish.)

- (1) Du husker sikkert ikke **Morten**. [No shift]  
 you remember probably not Morten  
*You probably don't remember Morten.*
- (2) Du husker **ham** sikkert ikke. [Object shifted]  
 you remember him probably not  
*You probably don't remember him.*

Most generative analyses of object shift (including Holmberg 1986, Vikner 1989, Chomsky 1993:18–19, Vikner 1994, Holmberg and Platzack 1995:141–183, Bobaljik and Jonas 1996, Collins and Thráinsson 1996, Platzack 1998:136–8, Holmberg 1999, Josefsson 1999, Broekhuis 2000, Chomsky 2001:26–37, and Bobaljik 2002) assume that the word order in (2) arises from leftward movement of the pronominal object across the negation and adverbial. Non-pronominal objects, like *Morten* in (1), do not undergo object shift but surface closer to or in their base position which is to the right of negation and medial adverbials. In contrast, Erteschik-Shir (2005) (henceforth ES) argues that the difference in word order in (1) and (2) is the outcome of five interacting principles:

- i. Weak object pronouns must prosodically incorporate into an adjacent element; if left unincorporated they are uninterpretable at PF (p. 51, pp. 65–67) .
- ii. Verbs and DPs can host prosodic incorporation of weak pronouns, adverbials and negation cannot (p. 68).
- iii. Medial adverbs and negation can occur VP initially, between VP elements (= VP medially), and VP finally (p. 59).
- iv. Weak VP adverbials and negation must linearize as early (= leftmost) as possible (p. 60).
- v. An adverb cannot intervene between the subject and the finite verb (p. 59).<sup>1</sup>

In (2) the object is a weak pronominal and must therefore prosodically incorporate into the verb (the phonological properties of prosodic incorporation are discussed in section 4.2). The negation must linearize as early as possible, but it cannot linearize to the left of the verb since then it would intervene between the subject and the verb (*\*Du ikke husker ham*), which is prohibited by (v). Nor can *ikke* linearize medially, since that would disrupt the prosodic incorporation of the object pronoun into the verb (*\*Du husker ikke ham*) and, by (ii), the negation cannot itself be a host for prosodic incorporation of the object pronoun. Thus the earliest possible position of the negation is the VP-final position, as in (2). In (1), the object is non-pronominal and hence not required to prosodically incorporate. The intervention constraint in (v) prevents the negation from linearizing to the left of the verb, and *ikke* therefore linearizes in medial position, which is preferred to final position by (iv).

<sup>1</sup>ES suggests (p. 59) that this restriction follows from a more general parsing constraint on the identification of arguments.

Together these five principles predict that weak pronominal objects must exhibit object shift and that non-pronominal as well as strong pronominal objects cannot shift. All three predictions are correct for standard Danish, as (3)–(6) show (Hansen 1984:59ff, Togeby 2001:107, Vikner 1989:143):

- (3) UNSHIFTED WEAK PRONOMINAL:  
 \*Du husker sikkert ikke **ham**.  
 you remember probably not him
- (4) SHIFTED NON-PRONOMINAL:  
 \*Du husker **Morten** sikkert ikke.  
 you remember Morten probably not
- (5) UNSHIFTED STRONG PRONOMINAL:  
 Han husker DIG men du husker sikkert ikke **HAM**.  
 he remembers you but you remember probably not him  
*He remembers YOU, but you probably don't remember HIM.*
- (6) SHIFTED STRONG PRONOMINAL:  
 \*Han husker DIG men du husker **HAM** sikkert ikke.  
 he remembers you but you remember him probably not

One of the accomplishments of ES's analysis is thus that it provides an answer to the question of which objects shift in the different Scandinavian languages and why. As Holmberg (1999:22) points out, this is a question that never found a very satisfying answer under the original case-based analysis proposed by Holmberg (1986) or its descendants. Holmberg (1999) (henceforth H99) also attempts to answer this question, but building on work by Diesing (1992) and Diesing and Jelinek (1993), he suggests that the answer has to do with information structure: unfocused objects, marked by way of a [-Foc] feature, must shift out of the VP because that is the focus domain of the clause (similar proposals are made by Diesing and Jelinek 1995, Platzack 1998:136–8, and Josefsson 1999; see also the accessibility analysis proposed in Andréasson 2008). Weak pronominals are inherently [-Foc] whereas strong pronominals and non-pronominals are not (H99, p. 23). Given these assumptions, Holmberg's analysis too accounts for the data in (1)–(6): a [-Foc] weak pronominal must shift which yields the contrast between (2) and (3). Non-pronominals do not bear the [-Foc] feature and hence cannot shift, accounting for the contrast between (1) and (4). Finally, the strong pronoun *HAM* in (6) is [+Foc] (expressing contrast with *DIG* in the preceding clause) and therefore cannot shift, but must appear in situ, as in (5). The two analyses thus both account for the data but they do so in different ways. The behavior of strong pronominals is a case in point. Under ES's analysis *HAM* cannot shift because it is prosodically strong. Under H99's analysis, *HAM* cannot shift because it is focused and hence incompatible with the [-Foc] feature that triggers object shift.

The analyses also differ in their theoretical assumptions and consequences. H99 posits that object shift takes place in a component of Stylistic Syntax which follows

Narrow Syntax (in Holmberg’s terms ‘Formal Syntax’), but precedes the phonological component. Focus features ([+/-Foc]) are assigned at the end of Narrow Syntax and operations in Stylistic Syntax, such as object shift, may therefore be dependent on focus structure. In contrast, ES argues that object shift is purely phonological and in line with the title of her paper—*Sound patterns of syntax*—she goes on to argue that other displacement phenomena, specifically verb movement and topicalization, are also phonological, at least in the Scandinavian languages.<sup>2</sup> The two analyses also differ in their assumptions about negation and adverbials. H99 adopts the standard generative view that negation and adverbials like *sikkert* are in a fixed position, which for present purposes can be identified as left-adjoined to VP.<sup>3</sup> An object shifts by moving to a leftward position that is higher than this adjoined position. For ES there is no movement of the object in object shift, instead it is the adverb and/or negation that linearizes in different positions: before the object if the object has not prosodically incorporated into the verb, and after the object if it has. The former linearization yields the “unshifted” order in (1), the latter the “shifted” order in (2).

Given the tight correlation between bearing focus and being prosodically prominent in the Scandinavian languages—the shifted object in (2) is neither and the unshifted object in (5) is both—it is difficult to tease apart these two proposals on empirical grounds. If we label the pronouns that shift as WEAK and the pronouns that do not as STRONG, the central question can be articulated as in (7).

- (7) Is strength defined in prosodic terms (prosodically prominent pronouns are strong) or information-structural terms (focused pronouns are strong)?

I give evidence from one particular domain (copular clauses) that object shift is not purely prosodically conditioned (contra ES), but rather requires reference to the information structure of the object and clause, supporting the approach taken in H99.

One further issue deserves mention: It is well known that whether an object shifts or not is not exclusively determined by properties of the object itself. Object shift is also conditioned by external factors, in particular whether the main verb moves out of the VP and whether any additional non-adjunct material is realized inside the VP. These external factors are collectively known as Holmberg’s Generalization (for a recent formulation see H99 p. 15). Since I am interested in the properties of the object itself that influence whether it shifts, and not in the external factors

---

<sup>2</sup>While ES’s analysis of object shift seems radical from the point of view of the generative tradition, it is worth noting that it resembles the conception of object shift in the Danish topological grammar tradition (Diderichsen 1968, Hansen 1984, Tøgeby 2001). The topological analysis assumes two object positions: the normal, immediately postverbal (i.e. “unshifted”) position for prosodically non-light objects and a special (i.e. “shifted”) position for prosodically light objects. As in ES’s analysis, no movement is assumed. The two analyses differ, though, in whether it is the adverbial that is assumed to have two possible positions (ES) or the object itself (Diderichsen et al). Insofar as both accounts appeal solely to prosodic properties to characterize which objects shift, the data presented below challenges both, though I will concentrate on the ramifications for ES’s analysis here.

<sup>3</sup>Object shift is only possible in clauses where the main verb has moved out of the VP, as it does in verb second clauses without auxiliaries and in cases of verb topicalization (Holmberg 1999:7–15). In such clauses the main verb therefore surfaces to the left of negation and medial adverbs.

conditioning object shift, I only consider examples where the external conditions for object shift are met, i.e. where no material intervenes between the object and the left edge of VP.

### 3 The relevance of copular clauses

Having laid out two competing analyses of object shift, I turn to the constructions that will allow us to distinguish them empirically, namely copular clauses. I first present the relevant information-structural properties of copular clauses and then, in section 3.2, preliminary observations about object shift in copular clauses.

#### 3.1 Focus in copular clauses

Following Akmajian (1979), Higgins (1979), and much subsequent work, I distinguish PREDICATIONAL copular clauses, as in (8), from SPECIFICATIONAL copular clauses, shown in (9).

- (8)
- a. Rem Koolhaas er arkitekten bag det nye bibliotek i Seattle.  
Rem Koolhaas is architect-the behind the new library in Seattle  
*Rem Koolhaas is the architect behind the new Seattle library.*
  - b. Morten er min nye løbemaker.  
Morten is my new running-partner  
*Morten is my new running partner.*
- (9)
- a. Arkitekten bag det nye bibliotek i Seattle er Rem Koolhaas.  
architect-the behind the new library in Seattle is Rem Koolhaas  
*The architect behind the new Seattle library is Rem Koolhaas.*
  - b. Min nye løbemaker er Morten.  
my new running-partner is Morten  
*My new running partner is Morten.*

Akmajian (1979:162–165) characterizes the difference between the two in the following way: Predicational copular clauses tell us something **about** the referent of the subject (in (8a) that he designed the new Seattle library), whereas specificational copular clauses state **who** the referent of the subject is (in (9a) Rem Koolhaus). Akmajian and Higgins both argue that this intuitive difference is accompanied by a difference in information structure, specifically that predicational clauses have a free focus structure, whereas specificational clauses exhibit fixed focus on the post-copular noun phrase (see also Williams 1997, Partee 2000, Heycock and Kroch 2002, and Mikkelsen 2005, to appear).

Most of this literature does not distinguish different kinds of focus, whereas some work on information structure does separate different kinds of focus. One influential separation is Kiss’s (1998) distinction between information focus and identificational focus. Information focus is used for new information, whereas identificational focus expresses exhaustivity and/or contrast. The classic diagnostic for information focus

is question–answer congruence: in a congruent question–answer pair, the constituent in the answer that corresponds to the *wh*-phrase in the question is the focus (Halliday 1967). This diagnostic is applied to copular clauses in (10) and (11) below. Here I illustrate with English examples, but the Danish data is entirely parallel (Mikkelsen 2002:§4).

- (10) Q: Who is the architect?  
 A1: The architect is Rem KOOLhaas. [specificational]  
 A2: Rem KOOLhaas is the architect. [predicational]
- (11) Q: Who is Rem Koolhaas?  
 A3: #The ARchitect is Rem Koolhaas. [specificational]  
 A4: Rem Koolhaas is the ARchitect. [predicational]

The felicity of both A2 and A4 shows that a predicational copular clause can have subject focus (A2) or object focus (A4).<sup>4</sup> In contrast, a specificational clause is possible with object focus (A1), but infelicitous with subject focus (A3).

The post-copular noun phrase in a specificational clause also shows properties of identificational focus, specifically exhaustivity (Higgins 1979), suggesting that the fixed focus structure of these clauses may be instantiated by either kind of focus on the object. Correspondingly, Hosono (2006) shows that either kind of focus prevents object shift in non-copular clauses. (Hosono’s ‘argument focus’ corresponds to Kiss’s information focus and her ‘contrastive argument focus’ is an instance of Kiss’s identificational focus.)

What we take away from this section is thus that in a specificational clause the object is invariably focused (either information focus or identificational focus), whereas in a predicational clause the object may or may not bear focus, just as is the case in non-copular clauses. As detailed below, it is the fixed focus structure of specificational clauses that enables them to serve as a test case for distinguishing prosodic and information-structural analyses of object shift.

### 3.2 Object shift in copular clauses

It has been noted in the literature that specificational clauses differ from predicational clauses in not allowing object shift. Mikkelsen (2002:§4.3) cites the examples in (12) and (13), inspired by Jespersen (1924:153). In the predicational clause in (12), the object pronoun *det* has shifted across the adverb *igen* (again), and in the specificational clause in (13), the object pronoun *hende* has failed to shift across the adverbial sequence *så afgjort* (so decidedly). Let’s note at the outset that the lack of object shift in (13) cannot be attributed to Holmberg’s Generalization: the copula has moved out of the VP as evidenced by its appearance to the left of the adverbial phrase, and thus no object-external factor would prohibit object shift in (13).

---

<sup>4</sup>Here I use the term ‘object’ rather loosely to refer to the post-copular element of both kinds of copular clauses. The phrase structural position of these nominals is discussed in section 4.3.

- (12) Frk. C. var den smukkeste pige på ballet sidste år og hun er **det** igen  
 Miss C was the prettiest girl at ball-the last year and she is it again  
 i år.  
 in year  
*Miss C. was the prettiest girl at the ball last year and she is that again this year.*
- (13) Den smukkeste pige er (\*hende) så afgjort **HENde**.  
 the prettiest girl is ( her) so decidedly her  
*The prettiest girl is without question HER.*

This contrast is supported by corpus research on Korpus 2000, a corpus of contemporary written Danish containing 50 million words (<http://korpus.dsl.dk/korpus2000/>). A search for 17 combinations of copula, pronoun, and adverb yielded 450 specificational clauses, all of which had the pronoun in the unshifted position.<sup>5</sup> Predicational clauses, on the other hand, are attested with shifted and unshifted order in the same corpus (Andréasson 2008:33).<sup>6</sup>

Predicational clauses invariably involve the pronoun *det*, whereas specificational copular clauses allow the entire range of pronouns, including the third person feminine pronoun *hende* in (13). This is due to a difference in the semantic type of the object in the two sentence types: in (12) the object is semantically predicative (extensionally type  $\langle e, t \rangle$ ), in (13) the object is referential (type *e*) (Mikkelsen 2005:94–107). The contrast between predicational and specificational clauses with respect to object shift cannot, however, be reduced to this difference in the lexical items allowed in object position. Predicative *det* can remain unshifted (14) and all referential object pronouns can shift (15).

- (14) (Forlader du mig bare her?) Selvfølgelig gør jeg ikke **det**.  
 leave you me just here of-course do I not it  
*(Are you just going to leave me here?) Of course I am not (going to do that).*

---

<sup>5</sup>The search queries involved the Danish equivalents of the following combinations: *is/was+not+him*, *is/was+not+her*, *is/was+not+them*, *is/was+you.SG.ACC*, *is/was+you.PL.ACC*, *is/was+not+me*, *is/was+not+us*, *is/was+it.COMMON*, *is/was+not+it.NEUTER*, *is/was+actually+him*, *is/was+actually+them*, *is/was+actually+me*, *is/was+indeed+him*, *is/was+in.fact+him*, *is/was+surely+him*, *is/was+perhaps+him*, *is/was+probably+him*. Two searches were carried out for each combination: one for the unshifted order (adverb > pronoun) and one for the the shifted order (pronoun > adverb).

<sup>6</sup>Andréasson (2008) groups predicational clauses with clauses where the object pronoun has a propositional antecedent. For that group as whole she found 71% shifted occurrences and 29% unshifted occurrences. In personal communication (May 2009), she explains that pronominal objects in predicational copular clauses occurs both in situ and shifted, though she does not have enough instances to report meaningful percentages for each position. I should also note that the percentages reported by Andréasson are corpuswide estimates based on manual inspection of 5000 out of more than 12000 hits for the strings *det ikke* and *ikke det*. See Andréasson (2008:31) for relevant discussion.

- (15) Han kender **hende/ham/den/dem/dig/er/mig/os** ikke.  
 he knows her/him/it/them/you.SG/you.PL/me/us not  
*He doesn't know her/him/it/them/you/you all/me/us.*

Moreover, certain copular constructions involving adjectival predicates and, optionally, an extraposed infinitival complement allow a shifted referential pronoun following the copula:

- (16) Det er **hende** så afgjort muligt at fuldføre opgaven.  
 it is her so decidedly possible to complete assignment.DEF  
*It is absolutely possible for her to complete the assignment.*
- (17) Jeg indvilgede i at deltage i undersøgelsen, og det var **mig** ikke ukært.  
 I agreed in to participate in investigation.DEF and it was me not  
 unwelcome  
*I agreed to participate in the investigation and it wasn't an unwelcome situation for me.*
- (18) Det var **ham** ikke muligt at komme igennem til den nødvendige selvindsigt og fleksibilitet.  
 it was him not possible to come though to the necessary self.insight  
 and flexibility  
*It was not possible for him to break through to the required self-understanding and flexibility.*

In (16), the feminine pronoun *hende* has shifted over the adverbial *så afgjort*, in (17) the first person singular pronoun *mig* has shifted over negation, and in (18) the masculine object pronoun *ham* has shifted over negation. Thus we can set aside the possibility that object shift in specificational clauses is blocked by some idiosyncratic constraint that prohibits referential pronouns from shifting in the context of a copular verb. They do exactly that in (16)–(18), and yet (13) is impossible.

Given the observations about focus structure above, Holmberg's analysis of object shift provides a straightforward explanation of the contrast between predicational and specificational clauses with respect to object shift: in a predicational clause the object need not be focused (as indicated by the wellformedness of A2 in (10) above) and hence it may bear [–Foc], which triggers object shift. In contrast, a specificational clause requires object focus (A1 vs. A3), hence the object cannot bear the [–Foc] feature and object shift is not licensed. However, the data cited so far are also compatible with a prosodic analysis. The object pronoun in (12) might very well be prosodically weak, in which case it prosodically incorporates into the verb, which in turn forces the adverbial *igen* (again) to occur to the right of the pronoun. In (13), however, the pronoun is stressed, as indicated by the capitals, hence it need not prosodically incorporate and the adverbial *så afgjort* (decidedly) is free to linearize medially, resulting in the observed unshifted order. As for the corpus data, the alternation between shifted and unshifted pronouns in predicational clauses could be

accounted for by an alternation between prosodically weak and prosodically strong realizations of the object pronoun. Similarly, the lack of object shift in specificational clauses could be due to a lack of prosodically weak object pronouns in these clauses. Since the corpus consists of written texts and Danish orthography does not reliably represent prosody, we simply have no way of knowing how these pronouns would be pronounced.

The next section reports on two investigations of the pronunciations of object pronouns in copular clauses. Both show that specificational clauses allow a weak pronunciation of unshifted objects, whereas predicational clauses do not. This is decisive evidence that object shift is not governed by prosody, *contra* ES.

## 4 Separating prosody and focus

The two investigations share the following logic: if object shift is governed by focus, such that unfocused objects shift and focused objects do not shift, and if the object of a specificational clause is invariably focused, object shift should be impossible in specificational clauses independent of the pronunciation of the object. If object shift is governed by prosody, such that prosodically incorporated objects shift and prosodically unincorporated objects do not shift, then the possibility of object shift in specificational clauses should depend on the pronunciation of the object: unshifted incorporated objects should be impossible, as should shifted unincorporated objects and shifted incorporated objects should be grammatical, as should unshifted unincorporated objects. These predictions about object shift in specificational clauses are summarized in (19).

(19) Factor	[incorporated, unshifted]	[incorporated, shifted]	[unincorporated, unshifted]	[unincorporated, shifted]
Prosody	*	✓	✓	*
Focus	✓	*	✓	*

As the table makes clear, the crucial empirical question is whether incorporated objects shift in specificational clauses (two left-most columns). A prosody account predicts that they must shift; a focus account that they cannot. The empirical work reported below supports the focus account: specificational clauses do allow incorporated object pronouns, but they must surface *in situ*.

### 4.1 Questionnaire data

The first indication that specificational clauses do not allow object shift irrespective of pronunciation comes from the grammaticality judgments of native speaker linguists. I conducted a questionnaire survey of eleven native Danish speakers, who are all trained as linguists. They were asked to judge twenty sentences with the explicit instruction

that I was interested in determining the effect of stress on object shift in these structures. I framed the question in terms of stress rather than prosodic incorporation to avoid confusion with the unrelated phenomenon of UNIT ACCENTUATION (Da. *enhedstryk*), in which a stressless verb forms a prosodic unit with a following stressed element (Wiwel 1901, Jespersen 1934, Rischel 1983, Thomsen 1992, Thomsen 1995, Scheuer 1995a, Scheuer 1995b, Grønnum 1998:206, Asudeh and Mikkelsen 2001). On the relationship between prosodic incorporation and stress, ES writes (p. 66) that “Word stress rules will ignore elements that are not prosodic words within these [incorporation] strings so that only the verb itself is stressed and the weak pronouns are pronounced as stressless syllables.” However, as a reviewer points out, one cannot equate unstressed with prosodically incorporated: while incorporated pronouns are necessarily unstressed, ES’s assumptions leave open the possibility of unstressed unincorporated pronouns. The experimental work reported in the next section allows us to address this issue and phonetic analysis of the relevant stimuli indicate that unshifted unstressed pronouns are indeed incorporated, or at least no less incorporated than shifted ones (see Appendix C). I therefore set this issue aside for now and proceed to consider the interaction between stress and object shift.

The questionnaire was administered over email and speakers were instructed to interpret a lowercase pronoun as unstressed and an uppercase pronoun as stressed. To illustrate the task, consider the example in (20) (= (34) in Appendix A), here given without any judgments:

- (20) Den hurtigste spiller på holdet er uden tvivl Morten og ...  
 the fastest player on team-the is without doubt Morten and  
*The fastest player on the team is without a doubt Morten and ...*
- a. \_\_den højeste er faktisk også **ham**. [unstressed, unshifted]  
 the tallest is actually also him  
*the tallest one/player is actually also him.*
- b. \_\_den højeste er **ham** faktisk også. [unstressed, shifted]  
 the tallest is him actually also
- c. \_\_den højeste er faktisk også **HAM**. [stressed, unshifted]  
 the tallest is actually also him
- d. \_\_den højeste er **HAM** faktisk også. [stressed, shifted]  
 the tallest is him actually also

The example consists of two clauses conjoined by *og* (and). The first clause sets up a context and provides an antecedent for the object pronoun in the second clause (here *Morten*). There are four versions of the second conjunct, representing the logical combinations of object shift and object stress. In (20) these are annotated in the right margin; these annotations were not present in the original data set. There were four sets of specificational sentences and one set of predicational clauses included in the survey. The table in (21) represents the prevailing judgments among the eleven respondents (see Appendix A for the full set of questionnaire sentences and judgments). With one exception (discussed in footnote 7), judgments were uniform within each of

the four conditions across all four specificational test items, and judgments on each sentence were generally also fairly consistent across speakers: with the exception of the two items discussed in footnote 7, at least eight of the eleven respondents agreed on the judgment reported in (21).

(21)	a	b	c <sup>7</sup>	d
	[unstressed, unshifted]	[unstressed, shifted]	[stressed, unshifted]	[stressed, shifted]
Specificational	✓	*	✓	*
Predicational	*	✓	✓	*

The conditions that distinguish the two competing analyses are the first two columns for specificational clauses, so I concentrate on those here. Contra ES, object shift is not obligatory with an unstressed pronoun, as shown by the survey yielding ✓ for specificational clauses in column a; in fact object shift is impossible in these as clauses as indicated by the \* in column b. These judgments support H99: [+Foc] objects do not shift, irrespective of stress. There is some variability in the relevant judgments, but it is surprisingly limited:

- i. of 43 judgments on a-type specificational sentences 36 were ✓
- ii. of 44 judgments on b-type specificational sentences 43 were \*

These numbers indicate that the relevant judgments are quite robust, both across speakers and across examples. The survey results thus challenge the phonological account of object shift developed in ES. However, one can question even linguists' abilities to perform this kind of abstract stress judgment. They were presented with a written representation of a particular sentence with a particular word order, and

---

<sup>7</sup>A stressed unshifted object was generally judged to be grammatical, in accordance with the predictions of both analyses (see the judgments on (32c), (33a,b), and (35c) in the appendix). However, (34c) (= (20c)), which has the same form, received rather different judgments: six respondents found it ungrammatical, one found it infelicitous, two reported some degree of ill-formedness, one did not report a judgment, and only one respondent found it fully grammatical. I suspect that the degradedness of (34c) has to do with the parallelism relation between the two clauses and/or the second sentence being affirmative. In all the well-formed examples of an unshifted stressed object, there is either a contrast relation between the two clauses (33a,b), a negation in the clause containing the unshifted pronoun (35c), or both (32c). If this interpretation is on the right track, the deviance of (34c) is independent of object shift considerations; it comes from using a stressed pronoun in a pragmatic context that requires destressing of the pronoun (Neeleman and Reinhart 1998:334ff). This line of analysis seems compatible with either a prosodic or focus approach to object shift, and hence (34c) is irrelevant for distinguishing the two approaches. Similar observations can be made about the single predicational clause with an unshifted stressed pronoun, (36d), which also received a mixed review: six respondents found it grammatical, two gave it a question mark, and three judged it ungrammatical. Again, I suspect that the source of this variation is variation in the ability of the speakers consulted to construe the relationship between the two clauses such that the pronoun may be stressed.

asked to imagine it uttered with a particular prosody, and then provide a judgment on that imagined pronunciation. The next section reports on a listening experiment that elicited judgments on spoken stimuli, and thereby removed the uncertainty associated with using written data sets.

## 4.2 Experimental evidence

The goal of the experimental work was to determine the status of object shift with prosodically weak pronouns in specificational and non-specificational clauses. Two experiments were carried out. (All experimental work was done at UC Berkeley with the assistance of Charles Chang, who also did the statistical work reported in 4.2.2 below and the phonetic analysis reported in Appendix C.) Experiment 1 elicited grammaticality judgments on 96 spoken sentences and Experiment 2 elicited stress judgments on 72 of the stimuli used in Experiment 1. The hypothesis, based on the corpus and survey data, was that specificational clauses should allow unshifted weak pronouns, and disallow shifted ones, whereas non-specificational clauses should exhibit the opposite pattern and disallow unshifted weak pronouns and allow shifted ones. With one interesting twist, the experimental results strongly support this hypothesis.

Before I present the experimental methods and results, I need to return to the relationship between stress and prosodic incorporation and explain the roles of these notions in the design and interpretation of the experimental work. Erteschik-Shir (2005:65) defines prosodic incorporation (PI) as “a phonological process which joins elements of a phonological string to make one prosodic unit. This prosodic unit allows for no prosodic breaks to intervene between its elements ...”. Thus, “pronouncing a pause at the site of PI leads to ungrammaticality” (p. 67). Incorporated pronouns are weak object pronouns, in the sense of Selkirk (1996), that is, “affixal clitics which do not themselves constitute a prosodic word” (ES, p. 65). ES does not provide any phonetic characterization of the phonetic prosodic incorporation in Danish, but in Appendix C we examine the phonetic cues of pronoun incorporation suggested by her phonological descriptions (lack of prepronoun silence, no dramatic pitch movement at the start of the pronoun, and no increased intensity during the pronoun) and conclude that in the experimental stimuli all object pronouns are prosodically incorporated, or at least, have equal incorporation status as judged by their phonetic realization. When recording the stimuli we didn’t use the term prosodic incorporation in our instructions to the person reading the stimuli aloud, since it wasn’t clear to us that she would have any sense of what it meant (she is not a linguist). Instead, we asked her to stress a particular word other than the pronoun (bolded in the written prompt) and to make sure to leave the object pronoun unstressed (see the section on methods below). Judging by the phonetic measurements reported in Appendix C, she consistently pronounced the object pronouns as incorporated, thus allowing us to evaluate the prosodic incorporation hypothesis on the basis of the experimental results.

### 4.2.1 Methods

**Stimuli** Five factors went into the construction of the critical stimuli in Experiment 1 (values in parentheses after each factor): clause type (specificational, non-specificational), pronoun (*mig* ‘me’/*det* ‘it’, *ham* ‘him’), adverbial (*ikke* ‘not’, *jo* ≈ ‘you know’, *sikkert* ‘probably’), context (reason, contrast), and pronoun position (unshifted, shifted). By hypothesis clause type and pronoun position were the only relevant factors for grammaticality, and the other three were chosen as the most likely alternative factors to affect grammaticality: lexical identity of pronoun, lexical identity of the adverbial element that the pronoun shifts over, and the discourse context of the clause containing the candidate for object shift.

Non-specificational clauses included predicational and non-copular clauses. This was done partly to generalize the results beyond copular clauses, partly to provide as close a comparison as possible. Recall from section 3.2 that predicational clauses only allow the pronoun *det* ‘it’ in object position, whereas specificational clauses allow the full range of referential pronouns, including the referential use of the pronoun *det* (‘it.3SG.NEUTER’). However, it was not possible to include specificational stimuli with *det* as the object pronoun, because the verb-second property of Danish word order and the neutralization between the subject and object forms of *det* and of non-pronominal DPs conspire to make such strings structurally ambiguous. Thus the string in (22) is ambiguous between the specificational structure in (22a), where the initial DP is the subject and *det* a shifted object, and the predicational structure in (22b), where the initial DP is a topicalized object and *det* a subject. (The specificational structure translates as *My favorite picture isn’t that one* and the topicalized structure as *My favorite picture it isn’t.*)

- (22) Mit                    yndlingsbillede er det                    ikke.  
my.NEUTER favorite.picture is it.SG.NEUTER not
- a. [TP mit yndlingsbillede er [VP det ikke [VP <er> <det> ]]]
- b. [CP mit yndlingsbillede er [TP det <er> [VP ikke [VP <er> <det> ]]]]

For this reason, one of the two pronoun values differed between clause type: first person singular *mig* in specificational clauses, predicative *det* in non-specificational clauses. The second pronoun value was the third person masculine *ham* in both clause types, i.e. specificational clauses and non-copular clauses. This design was chosen because it allows for comparison between the two kinds of copular clause (predicational and specificational), albeit with different pronouns, and between clauses with identical pronouns (*ham* in specificational and non-copular clauses), albeit with different verbs.

The third factor was the element over which object shift takes place. The goal was to test a representative sample of these and I therefore included negation (*ikke*), which is a high frequency item, as well as two fairly frequent medial adverbs: *jo* ‘you know’ and *sikkert* ‘probably’. *Jo* is special among medial adverbs in not allowing stress, whereas *sikkert* may bear stress.

The fourth factor is context, in particular the rhetorical relation between the clause hosting the antecedent for the pronoun and the target clause containing the pronoun. The reason context is illustrated in (23) and the contrast context in (24)—in both I’ve enclosed the target clause in square brackets:

- (23) Hvis du er interesseret i Thomas Vinterberg, hjælper det ikke at se den  
 if you are interested in Thomas Vinterberg helps it not to see that  
 film [for instruktøren er ikke ham ifølge annoncen].  
 movie since director.DEF is not him according.to ad.DEF  
*If you are interested in Thomas Vinterberg, there is no point in seeing that  
 movie, because the director isn’t him according to the ad.*
- (24) Martin Vingaard blev kåret som kampens bedste spiller, [men  
 Martin Vingård became chosen as match.DEF.POSS best player but  
 publikums favorit var ikke ham], selvom han scorede to gange.  
 audience.POSS favorite was not him even.though he scored two times  
*Martin Vingaard was chosen as player of the match, but the favorite of the  
 audience wasn’t him, even though he scored twice.*

In the reason context, the target clause was invariably introduced by the complementizer *for* ‘since’. In the contrast context, either the target clause was introduced by the contrastive coordinator *men* ‘but’, as in (24), or the subject of the target clause contrasted with the subject of the previous clause (e.g. some X are Y, others are not). The sample stimuli in (23) and (24) also illustrate two general design properties of the critical stimuli. First, to avoid any finality effects, the pronoun whose position and pronunciation is at issue—*ham* in both (23) and (24)—was never utterance final, but always followed by some adjunct phrase or clause. Second, with the exception of the context factor, the locus of factor variation in critical stimuli was always in the latter half of the sentence, which is relevant for how the stimuli were presented to the subject (see under procedure below).

The fifth and final factor in the design of the experimental stimuli is pronoun position with the options unshifted (as in (23) and (24)) or shifted. Crossing the values of these factors produced 48 (2x2x3x2x2) critical stimuli (reproduced in Appendix B). A total of 48 fillers were also constructed, half being grammatical sentences and half being ungrammatical sentences.

The stimuli were recorded in a sound-attenuated recording booth in two sessions by a female native speaker of Danish in her 50s. All recording was done at 44.1 kHz and 16 bps. The speaker wore an AKG C520 head-mounted condenser microphone positioned approximately 2 cm to the side of her mouth in both sessions, during which she was provided with a printout of the sentences to be read and instructed to place stress on a particular word in each sentence (bolded in the printout). During recording, the researcher monitored the speaker’s pronunciation, and the few sentences that were produced with a stressed pronoun were re-recorded until the target stress placement was obtained (this usually took no more than 1-2 more trials).

**Procedure** Both experiments were administered in DMDX 3.3.0.2 (Forster 2008), with all written instructions and prompts provided in Danish.

In Experiment 1 (grammaticality judgment), subjects heard the 96 stimulus items over headphones in a pseudorandomized order and provided a grammaticality judgment for each one. Subjects first judged four filler items (two grammatical and two ungrammatical) and then the remaining 92 items. These 92 stimuli were distributed evenly among four blocks and then randomized; the order of the blocks was furthermore counterbalanced across subjects. The two members of a minimal pair of critical stimuli differing just in pronoun position were assigned to non-adjacent blocks prior to randomization such that no less than 23 items intervened between the two items in any run of the experiment.

Subjects in Experiment 1 were instructed to provide their judgment just on the latter part of each sentence, which was presented on screen simultaneously with the audio to show subjects which part of the sentence to rate. The text for the latter part of the sentence stayed on screen for 1 second past the end of the audio, then disappeared and was replaced by a response prompt. Subjects entered their responses via keyboard and had three choices for each response: ‘1’ for “grammatical” (something a native speaker would say), ‘7’ for “ungrammatical” (not something a native speaker would say), and ‘4’ for “I don’t know”. They were able to replay the sentence more than once before entering a response.

Subjects who participated in Experiment 1 answered five follow-up questions after completing the grammaticality judgment task. For the first three questions, subjects were presented with three critical items drawn at random (one each from the set of specificational unshifted sentences, the set of specificational shifted sentences, and the set of non-specificational unshifted sentences) and asked to identify the location of stress in the latter part of each sentence. For the last two questions, subjects were presented with two critical items they rated ungrammatical and asked to indicate how they would fix the sentence to make it grammatical. They were given three options: fix it by stressing the pronoun, fix it changing the order of the pronoun and adverb, or fix it some other way.

In Experiment 2 (stress judgment), subjects heard the 48 critical stimuli and 24 grammatical fillers from Experiment 1 and indicated which word in the latter part of the sentence was stressed. The stimuli were blocked and randomized exactly as in Experiment 1. The text of the latter part of the sentence again appeared on screen simultaneously with the audio; after the end of the audio, the text stayed on screen, and a response prompt appeared below the text. Subjects entered their responses by typing out the stressed word (or ‘4’ for “I don’t know”).

**Subjects** A total of 18 subjects participated in Experiment 1 (S3–S20); four subjects participated in Experiment 2 (S21–S24). All subjects were native Danish speakers over 18 years of age visiting or residing in the Bay Area at the time of the study. Most speakers reported that they spoke Danish daily; four spoke Danish weekly, and two spoke Danish monthly.

	unshifted	shifted	TOTAL
specificational	190	6	196
non-specificational	44	191	235
TOTAL	234	197	431

Table 1: Number of 1-responses by clause type and pronoun position for all stimuli and all subjects

## 4.2.2 Results

Each of the 48 critical items was judged by 18 subjects, yielding 864 responses. Of these, 431 were 1 (= grammatical), 417 were 7 (= ungrammatical) and 16 were 4 (= don't know). There were so few 4-responses (1.85% of all responses), that the statistical results were the same whether these were grouped with the 1-responses, with the 7-responses, or excluded. Since we had no reason to group 4-responses with either of the other two response categories, 4-responses are excluded from all results reported below.

Using a stepwise logistic regression, and including all items and all subjects, we found a main effect for clause type and for pronoun position, and, crucially, a significant interaction between clause type and pronoun position. Table 1 shows the number of 1-responses (i.e. grammatical) by clause type and pronoun position.<sup>8</sup> The interaction between clause type and pronoun position can be appreciated by comparing the difference between the unshifted and shifted columns for the specificational and non-specificational clause types. For specificational clauses the number of grammatical judgments on the unshifted order is larger than the number of grammatical judgments on the shifted order (190 - 6 = 184). For non-specificational clauses, there is also a difference, but it goes in the opposite direction (44 - 191 = -147). This interaction is significant ( $p < 0.001$ ), supporting the empirical claim that specificational clauses differ from non-specificational clauses in allowing unshifted unstressed pronouns, and moreover requiring such pronouns to stay unshifted.

As mentioned above, we also found two unexpected effects, namely a main effect of clause type (non-specificational clauses were more likely to be judged grammatical than specificational ones) and pronoun position (unshifted pronouns were more likely to be judged grammatical than shifted ones). The effect of clause type stems from the fact that the number of 1-responses on non-specificational clauses (235) is larger than the number of 1-responses on specificational clauses (196) and the regression analysis shows this difference to be significant ( $p < 0.05$ ). Secondly, the number of 1-responses on stimuli with unshifted pronouns (234) is larger than the number of 1-responses on stimuli with shifted pronouns (197) and this difference is also significant ( $p < 0.05$ ). This is the main effect of pronoun position. So other things being equal, a non-specificational clause is more likely to be judged grammatical than a

<sup>8</sup>A further regression analysis within clause type shows that predicational and non-copular clauses behave the same: both show a significant effect for pronoun position ( $p < 0.001$ ) and no other factor is significant for either of them. These are therefore tabulated together as non-specificational clauses in Tables 1 and 2.

specificational clause, and a clause with an unshifted pronoun is more likely to be judged grammatical than a clause with a shifted pronoun.

A closer look at the responses suggests that three subjects (S5, S17, and S19) were responsible for the unexpected main effects of clause type and pronoun position. Like other subjects these three subjects overwhelmingly judged non-specificational clauses with shifted pronouns grammatical, but in contrast to the other 15 subjects, and to grammaticality reports in the literature, they also judged non-specificational clauses with unshifted unstressed pronouns grammatical more often than not. (S5 and S17 each judged 10 of 12 such items grammatical, and S19 judged 8 of these grammatical.) This judgment pattern simultaneously favors non-specificational clauses over specificational ones—because the optionality of object shift is only found in non-specificational clauses—and unshifted position over shifted position, because these speakers allow a pronoun to stay unshifted where it is otherwise required to shift.

When we ran a stepwise logistic regression with these three subjects excluded, the main effects of clause type and pronoun position went away ( $p = 0.12$  and  $p = 0.31$ , respectively), and when we ran it with S5/S17/S19 included and three other subjects excluded (first S6/S7/S8 and then S9/S10/S11) the main effects of clause type and pronoun position reappeared. I thus conclude that these main effects are indeed due to the responses of S5, S17 and S19, and I will set them aside until section 5. What is important here is that the interaction between clause type and pronoun position stayed significant for all subject populations for which a regression was run, indicating that the primary issue that we are investigating—whether specificational clauses differ from non-specificational clauses with respect to object shift—is not subject to interspeaker variation.

Recall that we also asked subjects to locate stress in three sentences drawn at random from the 48 critical stimuli. The purpose of this task was to test for potential flaws in the stimuli, in particular to identify stimuli where subjects perceived the stress as falling on the pronoun. 50 stress judgments were obtained this way (S13 did not complete the stress task, and S17 reported ‘don’t know’ for one of the three stimuli). 35 of these matched the stress location targeted by the person recording the stimuli; 15 didn’t. Of these 15 non-matching responses, 6 identified the relevant pronoun as stressed. This raised enough concerns about the validity of the stimuli that we decided to test perceived stress location more systematically in a follow-up experiment, Experiment 2.

As described in the previous section, the four subjects who participated in Experiment 2 were asked to locate stress in all 48 critical stimuli as well as in the 24 grammatical fillers. The responses on the fillers indicated that they were reasonably successful at this task; generalizing across subjects, the correct stress location was identified in 77% of the filler stimuli. Their overall accuracy rate on the critical items was very similar (76%), with the most accurate subject matching 88% of the critical items and the least accurate subject matching 69% of the critical items. Of the non-matching judgments, 13% located stress on some word other than the pronoun, 8% located it on a pronoun, and 3% were ‘don’t know’ responses. Of the 48 critical items, two (A15 and B5) had the pronoun judged stressed by two subjects, and 11 (A2, A5, A7, A16, A20, A21, B3, B7, B9, B11, B13) had the pronoun judged

	unshifted	shifted	TOTAL
specificational	143	2	145
non-specificational	15	144	159
TOTAL	158	146	304

Table 2: Number of 1-responses excluding deviant stimuli and subjects

stressed by one subject. No pronoun was judged stressed by all four subjects or by three of the four. Using these results to reevaluate Experiment 1, we decided to redo the logistic regression, excluding stimuli where the pronoun was judged stressed by two subjects in Experiment 2 (i.e. A15 and B5). To be able to systematically compare shifted to unshifted position, we also had to exclude A16 and B6, leaving us with 44 critical items. Table 2 gives the number of 1-responses (grammatical) for the remaining 44 stimuli, excluding the judgments of S5, S17, and S19. The remaining 15 subjects provided a total of 660 responses. 304 were 1-responses (grammatical), 346 were 7-responses (ungrammatical), and 10 were 4-responses (don't know). In this final, revised tally, there is no main effect of clause type: while the number of grammatical responses on non-specificational clauses is larger than the number of grammatical responses on specificational clauses (159 vs. 145), this difference is not significant. Nor is there an effect of pronoun position: while there were more grammatical responses for stimuli with pronouns in unshifted position than in shifted position (158 vs. 146), this difference is not significant. What remains significant (with  $p < 0.001$ ) is the interaction between clause type and pronoun position: specificational clauses with unshifted pronouns are overwhelmingly judged grammatical, whereas specificational clauses with shifted pronouns are judged ungrammatical and vice versa for non-specificational clauses. The experimental work thus replicates and supports the questionnaire data, strengthening the conclusion that the factors conditioning object shift in Danish are not purely phonological.

At this point, I want to consider the possibility that something independent of either information structure or stress is responsible for the lack of object shift in specificational clauses. If there is an independent explanation, a proponent of a prosodic analysis could appeal to that in accounting for the lack of object shift in specificational clauses but retain a phonological analysis of object shift in non-specificational clauses. The examples of object shift of referential pronouns in non-specificational clauses cited in section 3.2 rule out any kind of restriction against the particular strings resulting from object shift in specificational clauses (compare (13) and (16) which form a minimal pair in this regard). Experiment 1 further rules out that context or lexical identity of the adverbial shifted over could be the source of the lack of object shift in specificational clauses; neither of these factors had any effect on grammaticality judgments. As far as I can tell, this leaves only one other option, namely that the syntactic structure of specificational clauses is what prevents object shift. I examine this possibility below and conclude that it too is unlikely.

### 4.3 Is lack of object shift due to specificational syntax?

It has been argued, e.g. by Moro 1997 and Mikkelsen 2005, that the “object” originates in different structural positions in predicational and specificational copular clauses. According to these authors, the post-copular constituent in a predicational clause originates as the right-hand element of a small clause (= the complement to the functional head Pred in Mikkelsen 2005), whereas the post-copular constituent of a specificational clause originates as the left-hand element of the small clause (= the specifier of PredP). We therefore need to consider whether this structural difference could explain why the latter doesn’t shift. To allow object shift in predicational and non-copular clauses, but disallow object shift in specificational clauses, one could hypothesize that complements (in the structural sense of sister of an  $X^0$ ) can shift, but specifiers (i.e. the sister of an  $X'$ ) cannot.<sup>9</sup>

An immediate problem for this hypothesis is that at least two kinds of DPs which are standardly assumed to occupy specifier positions do undergo object shift, namely indirect objects and subjects of non-finite complement clauses. Object shift of an indirect object pronominal is shown in (25a), which should be contrasted with (25b) where the indirect object occurs unshifted because it is non-pronominal. Similarly, (26a) shows object shift of the subject of a non-finite complement clause across the matrix clause negation *ikke*. The example in (26b) shows the unshifted position of a non-pronominal subject.

- (25) a. Jeg viste **ham** alligevel ikke billederne fra ferien.  
I showed him anyway not pictures-the from vacation-the  
*In the end I didn't show him the pictures from the vacation.*
- b. Jeg viste alligevel ikke **Sten** billederne fra ferien.  
I showed anyway not Sten pictures-the from vacation-the  
*In the end I didn't show Sten the pictures from the vacation.*
- (26) a. De lod **ham** ikke vente alt for længe.  
they let him not wait all too long  
*They didn't let him wait too long.*
- b. De lod ikke **patienterne** vente alt for længe.  
they let not patients-the wait all too long  
*They didn't let the patients wait too long.*

Under standard assumptions, indirect objects originate as the specifier of a verbal projection (Spec-VP according to Holmberg and Platzack 1995:185–221) and the embedded subject in (26a) occupies the specifier of a non-finite TP prior to shifting. Hence, one cannot rule out object shift in specificational clauses by appealing to the object of such clauses originating in a specifier position.

---

<sup>9</sup>Note that this cannot be the right formulation under ES’s analysis, since she assumes that a shifted object is base-generated in its surface position and hence that there is no prior position to refer to. However, one can think of different base positions as expressing different syntactic relationships with the verb, something that ES could appeal to within her movement-free account. For ease of presentation, I discuss the data below in terms of base position and movement of the different candidates for object shift.

Moreover, pronominal locative adverbials, which presumably originate in an adjoined position, also shift, indicating that there is in fact no phrase structural principle restricting which elements may shift:

- (27) a. Han sov **her/der** ikke.  
 he slept here/there not  
*He didn't sleep here/there.*
- b. Han sov ikke **hos os/hos dem**.  
 he slept not at us at them  
*He didn't sleep at our/their place.*

The conclusion I draw from this is that there is no independently motivated structural principle which could be added to ES's analysis in order to account for the pattern of object shift in copular clauses uncovered here. In contrast an information-structural account extends naturally to the data in (25)–(27): the relevant pronouns are all inside the matrix VP and all are capable of bearing a [-Foc] feature, since none of these constructions involves obligatory focus on the object shift candidate.

It is worth noting that the systematic lack of object shift in specificational clauses also challenges earlier case-based analyses of object shift: if object shift is involved in accusative case assignment, we expect to see object shift where we see accusative case (and where Holmberg's Generalization is also met). We do see accusative case on the object in specificational copular clauses (*hende* (her) in (13), *ham* (him) in (20), and *dig* (you-ACC) in (35)), and yet the accusative object never shifts.

## 5 Variation and optionality

The key result of the experimental work reported above is that object shift interacts with clause type: object shift is not possible in specificational clauses, whereas it is possible in non-specificational clauses. As noted in the discussion of this result, three of the 18 subjects that participated in Experiment 1 stood out by accepting unshifted unstressed pronouns in non-specificational clauses, along with their shifted variants. Interestingly, this pattern matches exactly the situation Pedersen (1993) describes for a number of Danish dialects spoken in southern Jylland (Als and the southeastern corner of southern Jylland), on islands south of Fyn (Tåsinge, Langeland, Ærø, Strynø, Hjortø and Lyø), on islands south of Sjælland (Agersø and Omø) and on the southern islands Møn, Falster, Lolland, Fejø, and Askø. In these dialects, object shift is optional with weak pronouns—light pronouns in Pedersen's terminology—with no meaning difference (Pedersen 1993:204). Examples of such unshifted light pronouns are given in (28)–(31).

- (28) han har **inne det** så farlig [Lolland]  
 he has not it so dangerous  
*He isn't feeling too bad.*
- (29) Kender du **ikke ham**? [Falster]  
 know you not him  
*Don't you know him?*

- (30) det gør **itte mig** noget [Southern Jylland]  
 it does not me anything  
*It doesn't harm me.*
- (31) du når **såmænd nok det** [Ærø]  
 you make after.all probably it  
*You'll probably make it after all.*

Of the three subjects in Experiment 1 that displayed this pattern, S5 identified his Danish with the Lolland dialect, which is one of the dialects identified by Pedersen (1993). S19 grew up in Bramming, which is located within the region of Southern Jylland identified by Pedersen, though not mentioned specifically, and S17 grew up in Northern Jylland several hundred kilometers from any of the dialects identified by Pedersen. However, Pedersen argues that allowing unshifted weak pronouns is an innovation and one that is spreading. It is possible that the judgments of S17 represent such spreading from the South or they could represent an independent development.<sup>10</sup>

While Erteschik-Shir (2005) is mostly concerned with Standard Danish, she too notes (p. 70) that object shift of unstressed pronouns is optional in the Ærø/South Fyn dialect of Danish (citing personal communication with Sofie Raviv). She suggests that these structures are licensed by stress-shift from the verb to the adverb, which makes the adverb a possible host for prosodic incorporation of the unstressed pronoun: V+'adv+pronoun. There is some support for this idea in Pedersen's dialect data on unshifted light pronouns: in 58 of 121 cited examples (pp. 205–209), the adverbial preceding the pronoun is marked as stressed. However, there are also 10 examples where the adverb is marked as unstressed and 9 examples where the adverbial is itself an enclitic. (In the remaining 44 examples, there is no indication of the pronunciation of the adverb.) In other words, there is no prosodic unity to these unshifted orders and, therefore, no support for a prosodic analysis. Returning to the experimental data, only 2 of the 12 non-specificational stimuli with unshifted objects (B9 and B11) had stress on the adverb, and yet S5 and S17 accepted 10 of the 12 and S19 accepted 8. Clearly, for these three speakers, stress on the adverb is not a necessary condition for unshifted order with a weak pronoun. Nor is it a sufficient condition: S5 judged B9 ungrammatical and S19 judged B11 ungrammatical.

Pedersen (1993) does not discuss specificational copular clauses, so I have no outside data on whether object shift is optional in specificational copular clauses in these innovative Southern dialects. The experimental data, however, is quite clear on this point: S5 rejects 11 of the 12 specificational stimuli with a shifted object;

<sup>10</sup>Pedersen offers three arguments in favor of unshifted weak object pronouns being an innovation, rather than an archaism. First, Old Danish (Da. 'gammeldansk'; 1100-1525) had obligatory object shift of weak pronouns. Thus object shift was obligatory in the earliest known Danish texts. Second, the earliest attestation of the unshifted order in the dialect material is quite recent (from 1834), though it is of course possible that there are older attestations in yet unexamined documents, as Pedersen (1993:210) notes. Finally, while the relevant dialects are not grouped together by significant other isoglosses, there is evidence of contact in the form of lexical and morphological borrowing, suggesting expansion of the unshifted order across the southern part of Denmark from one or more origin sites (pp. 212–213).

S17 rejects 9; and S19 rejects all 12. Thus, while these three subjects differ from the other 18 subjects with respect to the status of object shift in non-specificational clause (it is optional for S5, S17, and S19, but obligatory for the others), there is no split when it comes to specificational clauses. For all speakers object shift is impossible in specificational clauses.

The dialect variation with respect to non-specificational clauses is also somewhat problematic for Holmberg's (1999) information-structural analysis. Optionality of object shift with weak pronouns is also found in Swedish and Norwegian and Holmberg suggests that "the object pronouns are optionally [-Foc] in those dialects" (p. 27 fn. 25). When they bear the [-Foc] feature they shift and when they don't, they stay in situ. This proposal is unsatisfying since the alternation between the two orders with weak pronouns is not associated with any meaning difference. In the next section, I therefore consider an alternative analysis of object shift due to Sells (2001), which accomodates the dialectal variation with respect to object shift in non-specificational clauses, as well as the general lack of object shift in specificational clauses.

## 6 Object shift and projection

In his OT-LFG analysis of Swedish clause structure, Sells (2001) suggests a link between object shift and projection status, building on Toivonen (2001). Specifically, Sells proposes that only non-projecting objects shift (p. 55). The notion of projection is that of X-bar theory: a projecting word is an  $X^0$  that heads an  $X'$  and  $XP$ . In standard X-bar theory, all words project, but Toivonen (2001, 2003) argues that certain classes of words, including Swedish particles, do not project. Importantly, projection status is independent of phonological status. Swedish particles are non-projecting, but phonologically independent—they are invariably stressed. As examples of projecting and phonologically dependent elements, Toivonen (2003:45) cites Kwakwala and Yagua determiners, English reduced auxiliaries, and Finnish, Russian, and Bulgarian question particles.

The projection analysis of object shift readily explains why object shift is limited to bare pronouns in all the Mainland Scandinavian languages. Modified pronouns, coordinated pronouns, and non-pronominal objects are all projecting structures and therefore don't shift. To account for the lack of object shift in specificational clauses within the projection analysis, one would need to posit a connection between focus and projection status, namely that focused pronouns project. At this point I am not in a position to provide independent evidence for this claim, but it does not seem implausible to me on empirical grounds, and, as far as I can tell, nothing in Toivonen's theory of projection or Sells' analysis of object shift rules it out.

Turning to the dialectal variation discussed in the previous section, recall that in Standard Danish and other conservative dialects object shift of weak pronouns is obligatory in non-specificational clauses, whereas it is optional in the innovative Southern dialects identified by Pedersen (1993) and for three of the 21 experimental subjects (S5, S17, and S19). Within the projection analysis this situation can be understood as follows. Speakers of innovative and conservative dialects have different

	weak pronouns	focused, modified, or coordinated pronouns	non-pronominals
Conservative dialects	$\hat{D}$	DP	DP
Innovative dialects	$\hat{D}$ or DP	DP	DP

Table 3: Projection status for various DPs in conservative and innovative Danish dialects

conditions for projection status of pronouns. For speakers of conservative dialects, weak pronouns do not project. Therefore, whenever Holmberg’s Generalization is met, they occur in shifted position. Speakers of innovative dialects allow all pronouns to project, even weak ones. They also allow the latter to not project, yielding optionality of object shift with these forms. Focus, modification, and coordination force projection in all dialects, which rules out shifting of such pronouns in innovative and conservative dialects alike. This analysis is summarized in Table 3, where  $\hat{D}$  represents a non-projecting word of category D.

Pedersen’s (1993) diachronic analysis supports this interpretation. She argues (pp. 209ff) that optionality of object shift is the result of a syntactic change, specifically that unshifted weak pronouns are produced by analogy to the syntactic position of non-pronominal objects (heavy objects, in Pedersen’s terminology). This is a regularizing change, since it unites the placement of light and heavy objects. On the other hand, the innovated unshifted order does not oust the old shifted order: in all dialects the two orders continue to exist in free variation. In terms of the projection analysis, the innovation is to allow weak pronouns to project a DP, on analogy with other nominals, and thereby allow them to stay in situ.

The projection analysis fares better than Holmberg’s focus-based analysis in two respects. First, it provides a more satisfying account of the optionality of object shift in innovative dialects. Second, it unites the lack of object shift of focused pronouns with other known cases of non-shifting objects (modified pronouns, coordinated pronouns, non-pronominals): these objects all project and only non-projecting objects shift. Moreover, the fact that unshifted objects may have an unstressed realization in specificational clauses is unproblematic under the projection analysis, since projection status is independent of phonological status. In particular, a word may project syntactically, yet be phonologically dependent (I cite other examples of such elements from Toivonen’s work on page 37).

## 7 Conclusion

Towards the end of her paper, ES characterizes its purpose as follows:

“My argument is not for or against a particular account of O[bject] S[hift],

but rather for the plausibility of accounting for word order by purely phonological means.” (ES p. 90)

The main empirical claim of the present paper is that word order possibilities in Danish copular clauses demonstrate that a purely phonological account of object shift is not ultimately tenable. The conditions on object shift in Danish require reference to information structure, either directly via a focus feature (as in Holmberg 1999) or indirectly via the syntactic notion of projection (building on Sells 2001). What is unusual about specificational clauses is that they allow a weak prosodic realization of a focused object pronoun. In general, Danish is like English and many other languages in marking focus prosodically, and focused elements are typically prosodically strong (Thomsen 1996:136, Grønnum 1998:161, Basbøll 2005:533–534). So one of the questions raised by the new data presented here is why the focused object of a specificational clause may be realized without stress. In closing I want to suggest that this is because the focus structure of specificational clauses is fixed and hence object-focus is signalled by the clause type itself. A specificational clause is recognizable by its syntax-semantics mapping (predicative subject, referential object; Mikkelsen 2005) and with this mapping comes object focus. The location of focus in specificational clauses is thus identifiable without prosodic marking, and this, I suggest, is what allows object pronouns in these clauses to be realized without stress or other prosodic prominence. In a certain sense, this is the flipside of the phenomenon observed by Prince (1978:898) for English *it*-clefts. The conventional information structure of English *it*-clefts is that the clefted element is focus and the content of the cleft-clause presupposed. However, English speakers sometimes put new information in the cleft clause and hearers readily accommodate this as given information. By analogy the conventional expression of focus is by prosodic prominence; however, Danish speakers sometimes omit prosodic marking of object focus in specificational clauses and listeners accommodate the missing prosody and interpret the object as focus nonetheless. My analysis thus implies that prosody is doubly removed from word order in the domain of object shift: word order is sensitive to focus (either via a syntactic focus feature or via the notion of projection) and focus is relevant for prosody, but there needn't be a prosodic manifestation of focus.

## References

- Akmajian, A. (1979). *Aspects of the Grammar of Focus in English*. New York: Garland.
- Andréasson, M. (2008). Not all objects are born alike - accessibility as a key to pronominal object shift in Swedish and Danish. In M. Butt and T. H. King (Eds.), *Proceedings of the LFG08 Conference*, Stanford, pp. 26–45. CSLI.
- Asudeh, A. and L. Mikkelsen (2001). Incorporation in Danish: Implications for interfaces. In R. Cann, C. Grover, and P. Miller (Eds.), *Grammatical Interfaces in HPSG*, pp. 1–15. Stanford, CA: CSLI.

- Basbøll, H. (2005). *The Phonology of Danish*. Oxford: Oxford University Press.
- Bobaljik, J. D. (2002). A-chains at the PF interface: copies and ‘covert’ movement. *Natural Language and Linguistic Theory* 20, 197–267.
- Bobaljik, J. D. and D. Jonas (1996). Subject positions and the roles of TP. *Linguistic Inquiry* 27(2), 195–236.
- Boersma, P. and D. Weenink (2008). Praat: doing phonetics by computer. version 5.0.26. <http://www.praat.org>.
- Broekhuis, H. (2000). Against feature strenght: The case of Scandinavian object shift. *Natural Language and Linguistic Theory* 18(4), 673–721.
- Chomsky, N. (1993). A minimalist program for linguistic theory. In K. Hale and S. Keyser (Eds.), *The View from Building 20*, pp. 1–52. Cambridge, MA: MIT Press.
- Chomsky, N. (2001). Derivation by phase. In M. Kenstowicz (Ed.), *Ken Hale: A Life in Language*, pp. 1–52. Cambridge, MA: MIT Press.
- Collins, C. and H. Thráinsson (1996). VP-internal structure and object shift in Icelandic. *Linguistic Inquiry* 27(3), 391–444.
- Diderichsen, P. (1968). *Elementær Dansk Grammatik* (3rd ed.). København: Gyldendal.
- Diesing, M. (1992). *Indefinites*. Cambridge, MA: MIT Press.
- Diesing, M. and E. Jelinek (1993). The syntax and semantics of object shift. *Working Papers in Scandinavian Syntax* 51, 1–54.
- Diesing, M. and E. Jelinek (1995). Distributing arguments. *Natural Language Semantics* 3(2), 123–176.
- Erteschik-Shir, N. (2005). Sound patterns of syntax: Object shift. *Theoretical Linguistics* 31(1–2), 47–93.
- Forster, J. C. (2008). Dmdx, version 3.3.0.2. <http://www.u.arizona.edu/~kforster/dmdx/dmdx.htm>.
- Grønnum, N. (1998). *Fonetik og Fonologi: Almen og Dansk*. Copenhagen: Akademisk Forlag.
- Halliday, M. A. K. (1967). Notes on transitivity and theme in English (Part 2). *Journal of Linguistics* 3(2), 199–244.
- Hansen, E. (1984). *Dæmonernes Port* (3rd ed.). København: Reitzel.

- Heycock, C. and A. Kroch (2002). Topic, focus, and syntactic representations. In L. Mikkelsen and C. Potts (Eds.), *Proceedings of WCCFL 21*, pp. 101–125. Somerville, MA: Cascadilla Press.
- Higgins, R. F. (1979). *The Pseudo-cleft Construction in English*. New York: Garland.
- Holmberg, A. (1986). *Word Order and Syntactic Features in the Scandinavian Languages*. Ph. D. thesis, University of Stockholm.
- Holmberg, A. (1999). Remarks on Holmberg’s Generalization. *Studia Linguistica* 53(1), 1–39.
- Holmberg, A. and C. Platzack (1995). *The Role of Inflection in Scandinavian Syntax*. Oxford: Oxford University Press.
- Hosono, M. (2006). An investigation of object shift based on information structure. In C. Davis, A. R. Deal, and Y. Zabbal (Eds.), *Proceedings of NELS 36*, pp. 343–356. Amherst, MA: GLSA.
- Jespersen, O. (1924). *The Philosophy of Grammar*. Chicago and London: The University of Chicago Press. [Reprinted in 1992].
- Jespersen, O. (1934). *Modersmaalets fonetik*. København: Det Schubotheske Forlag.
- Josefsson, G. (1999). On the semantics and syntax of Scandinavian pronouns and object shift. In H. van Riemsdijk (Ed.), *Clitics in the Languages of Europe*, pp. 731–757. Berlin: Mouton de Gruyter.
- Kiss, K. É. (1998). Identificational focus versus information focus. *Language* 74(2), 245–273.
- Mikkelsen, L. (2002). Specification is not inverted predication. In M. Hirotani (Ed.), *Proceedings of NELS 32*, pp. 403–422. Amherst, MA: GLSA.
- Mikkelsen, L. (2005). *Copular Clauses: Specification, Predication and Equation*. Amsterdam: John Benjamins.
- Mikkelsen, L. (2007). On so-called truncated clefts. In L. Geist and B. Rothstein (Eds.), *Kopulaverben und Kopulasätze: Intersprachliche und Intrasprachliche Aspekte*, pp. 47–68. Tübingen: Niemeyer Verlag.
- Mikkelsen, L. (to appear). Specification under discussion. In *Proceedings of BLS 34*.
- Moro, A. (1997). *The Raising of Predicates: Predicative Noun Phrases and the Theory of Clause Structure*. Cambridge: Cambridge University Press.
- Neeleman, A. and T. Reinhart (1998). Scrambling and the PF interface. In M. Butt and W. Geuder (Eds.), *The Projection of Arguments*, pp. 309–353. Stanford, CA: CSLI.

- Partee, B. (2000). Copula inversion puzzles in English and Russian. In K. Kusumoto and E. Villalta (Eds.), *Issues in Semantics*, Number 23 in University of Massachusetts Occasional Papers in Linguistics (UMOP), pp. 183–208. Amherst, MA: University of Massachusetts.
- Pedersen, K. M. (1993). Letledsreglen og lighedsreglen. Novation, ekspansion og resistens. In K. M. Pedersen and I. L. Pedersen (Eds.), *Jyske Studier tilegnede Magda Nyberg og Bent Jul Nielsen*, pp. 199–218. København: C. A. Reitzels Forlag.
- Platzack, C. (1998). *Svenskans inre grammatik—det minimalistiska programmet*. Lund: Studentlitteratur.
- Prince, E. (1978). A comparison of WH-clefts and *it*-clefts in discourse. *Language* 54(4), 883–906.
- Rischel, J. (1983). On unit accentuation in Danish—and the distinction between deep and surface phonology. *Folia Linguistica* 17, 51–97.
- Scheuer, J. (1995a). Prosody: meta-communication in authentic spoken Danish. In J. Rischel and H. Basbøll (Eds.), *Aspects of Danish Prosody*, pp. 95–128. Odense: Odense University Press.
- Scheuer, J. (1995b). *Tryk på danske verber*. Odense: Odense Universitetsforlag.
- Selkirk, E. (1996). The prosodic structure of function words. In J. L. Morgan and K. Demuth (Eds.), *Signal to Syntax: Bootstrapping From Speech to Grammar in Early Acquisition*, pp. 187–213. Mahwah, NJ: Lawrence Erlbaum Associates.
- Sells, P. (2001). *Structure, Alignment, and Optimality in Swedish*. Stanford, CA: CSLI.
- Thomsen, O. N. (1992). Unit accentuation as an expression device for predicate formation; the case of syntactic noun incorporation in Danish. In M. Fortescue, P. Harder, and L. Kristoffersen (Eds.), *Layered Structure and Reference in a Functional Perspective*, Amsterdam, pp. 173–230. John Benjamins.
- Thomsen, O. N. (1995). Discourse, grammar, and prosody in a corpus of spoken Danish - a functional-pragmatic account. In J. Rischel and H. Basbøll (Eds.), *Aspects of Danish Prosody*, pp. 129–213. Odense: Odense University Press.
- Thomsen, O. N. (1996). Pronouns, word order, and prosody. *Acta Linguistica Hafniensia* 28, 131–138.
- Togebly, O. (2001). Letledspladsen. In P. Jarvad, F. Gregersen, L. Heltoft, J. Lund, and O. Togebly (Eds.), *Sproglige Åbninger*, pp. 99–108. København: Hans Reitzels Forlag.
- Toivonen, I. (2001). *Non-projecting words: Evidence from verbal particles in Swedish*. Ph. D. thesis, Stanford University.

- Toivonen, I. (2003). *Non-Projecting Words. A Case Study of Swedish Particles*. Dordrecht: Kluwer.
- Vikner, S. (1989). Object shift and double objects in Danish. *Working Papers in Scandinavian Syntax* 44, 141–155.
- Vikner, S. (1994). Scandinavian object shift and West Germanic scrambling. In N. Corver and H. van Riemsdijk (Eds.), *Studies on Scrambling*, pp. 487–517. Berlin: Mouton de Gruyter.
- Williams, E. (1997). The asymmetry of predication. *Texas Linguistic Forum* 38, 323–333.
- Wiwel, H. (1901). Om sammenhængstrykket i dansk. *Dania* 8, 27–39.

## Appendix A: Questionnaire data

Below are the 20 sentences included in the questionnaire. The original presentation of the sentences did not include English glosses and translations. (32), (33a), and (34) involve canonical specificational clauses of the form ‘description BE name’. (33b-d) and (35) involve the Danish counterpart of the English *it*-cleft. Whether these are taken to be specificational clauses, as argued by Mikkelsen (2007:118–130), or a construction in their own right, the post-copular position is one of focus (Kiss 1998), which is the crucial property for present purposes. (36) involves predicational copular clauses (‘name BE description’), which were included to test whether they behave differently from specificational copular clauses with respect to object shift. Finally, note that in two of the five examples, namely (33) and (36), the subexamples giving the four different versions of the second clause are not organized as described in section 4 of the paper. The annotations given on the left-hand side of the final table of the appendix should enable a full comparison with the schematic representation of the survey results in (21) in the main text.

- (32) Min løbemaker i fjor var Simon, men ...  
my running-partner in last-year was Simon, but  
*My running partner last year was Simon, but ...*
- a. min løbemaker i år er ikke ham.  
my running-partner in year is not him.  
*my running partner this year is not him.*
- b. min løbemaker i år er ham ikke.  
my running-partner in year is him not
- c. min løbemaker i år er ikke HAM.  
my running-partner in year is not him
- d. min løbemaker i år er HAM ikke.  
my running-partner in year is him not
- (33) *Context: A & B are looking at an old school picture and A says the following while pointing at a face in the picture:*
- a. Det var Bo jeg sad ved siden af, men den jeg husker bedst er nu  
it was Bo I sat by side-the of but it I remember best is now  
alligevel HENDE.  
anyway her  
*It was Bo that I sat next to, but the one I remember best is nonetheless her.*

- b. Det er nu alligevel HENDE jeg husker bedst.  
 it is now anyway her I remember best  
*It is nonetheless her that I remember best.*
- c. Det er nu alligevel hende jeg husker bedst.  
 it is now anyway her I remember best
- d. Det er hende nu alligevel jeg husker bedst.  
 it is her now anyway I remember best
- (34) Den hurtigste spiller på holdet er uden tvivl Morten og ...  
 the fastest player on team-the is without doubt Morten and  
*The fastest player on the team is without a doubt Morten and ...*
- a. den højeste er faktisk også ham.  
 the tallest is actually also him  
*the tallest one/player is actually also him.*
- b. den højeste er ham faktisk også.  
 the tallest is him actually also
- c. den højeste er faktisk også HAM.  
 the tallest is actually also him
- d. den højeste er HAM faktisk også.  
 the tallest is him actually also
- (35) a. Er det ikke dig der bestemmer her?  
 is it not you that decide here  
*Isn't it you who's in charge here?*
- b. Er det dig ikke der bestemmer her?  
 is it you not that decide here
- c. Er det ikke DIG der bestemmer her?  
 is it not you that decide here
- d. Er det DIG ikke der bestemmer her?  
 is it you not that decide here
- (36) Simon var min løbemaker i fjor, men ...  
 Simon was my running-partner in last-year but  
*Simon was my running partner last year, but ...*
- a. han er det ikke i år.  
 he is it not in year  
*he isn't (that) this year.*
- b. han er ikke det i år.  
 he is not it in year
- c. han er DET ikke i år.  
 he is it not in year
- d. han er ikke DET i år.  
 he is not it in year

**Results** (v = grammatical, \* = ungrammatical, ?/?? = degraded, # = infelicitous, – = no judgment given)

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11
(32) specificational [contrastive, negative]											
a. no stress, no shift	v	?	v	v	v	??	v	*	v	v	v
b. no stress, shift	*	*	*	*	*	*	*	*	*	*	*
c. stress, no shift	v	?	–	v	v	v	v	v	v	v	v
d. stress, shift	*	*	*	*	*	*	*	*	*	*	*
(33) specificational (“cleft”) [contrastive, affirmative]											
a. stress, no shift (no cleft)	v	v	v	v	v	v	v	v	v	v	v
b. stress, no shift	v	v	v	v	v	v	v	v	v	v	v
c. no stress, no shift	v	v	v	v	v	v	*	*	v	v	v
d. no stress, shift	*	*	*	*	*	*	*	*	*	*	*
(34) specificational [parallel, affirmative]											
a. no stress, no shift	v	v	v	v	v	v	v	v	v	?	v
b. no stress, shift	*	*	*	*	*	*	*	*	*	*	*
c. stress, no shift	v(?)	?	–	*	*	*	*	v	*	#	*
d. stress, shift	*	*	*	*	*	*	*	*	*	*	*
(35) specificational (“cleft”) [negative, 2nd, Q]											
a. no stress, no shift	v	v	v	v	v	v	v	*	v	–	v
b. no stress, shift	*	*	*	*	*	*	?	*	*	*	*
c. stress, no shift	v	v	v	v	v	*	v	v	v	v	v
d. stress, shift	*	*	v	*	*	*	?	*	*	*	*
(36) predicational [contrastive, negative]											
a. no stress, shift	v	v	v	v	v	v	v	v	v	v	v
b. no stress, no shift	?/v	*	*	*	*	*	*	*	*	#	*
d. stress, no shift	?/v	v	v	v	v	*	*	?	*	v	v
c. stress, shift	*	*	v	*	*	*	*	*	*	#	*

## Appendix B: Experimental stimuli

The chart in (37) shows how the critical stimuli for Experiments 1 and 2 were constructed to cross the levels of the five factors investigated. Following the chart are English translations of the actual stimuli. One of the three adverbs used, *jo*, has no regular English translation. Sometimes it corresponds to ‘actually’, sometimes to ‘you know’, and sometimes there is no good translation. Thus for some of the relevant stimuli there is no representation of *jo* in the English translations provided below.

(37)	ITEM	CLAUSE TYPE	PRONOUN	ADVERBIAL	CONTEXT	POSITION
	A1	specificational	mig	ikke	reason	unshifted
	A2	specificational	mig	ikke	reason	shifted
	A3	specificational	mig	ikke	contrast	unshifted
	A4	specificational	mig	ikke	contrast	shifted
	A5	specificational	mig	jo	reason	unshifted
	A6	specificational	mig	jo	reason	shifted
	A7	specificational	mig	jo	contrast	unshifted
	A8	specificational	mig	jo	contrast	shifted
	A9	specificational	ham	ikke	reason	unshifted
	A10	specificational	ham	ikke	reason	shifted
	A11	specificational	ham	ikke	contrast	unshifted
	A12	specificational	ham	ikke	contrast	shifted
	A13	specificational	ham	jo	reason	unshifted
	A14	specificational	ham	jo	reason	shifted
	A15	specificational	ham	jo	contrast	unshifted
	A16	specificational	ham	jo	contrast	shifted
	A17	specificational	mig	sikkert	reason	unshifted
	A18	specificational	mig	sikkert	reason	shifted
	A19	specificational	mig	sikkert	contrast	unshifted
	A20	specificational	mig	sikkert	contrast	shifted
	A21	specificational	ham	sikkert	reason	unshifted
	A22	specificational	ham	sikkert	reason	shifted
	A23	specificational	ham	sikkert	contrast	unshifted
	A24	specificational	ham	sikkert	contrast	shifted

ITEM	CLAUSE TYPE	PRONOUN	ADVERBIAL	CONTEXT	POSITION
B1	predicational	det	ikke	reason	unshifted
B2	predicational	det	ikke	reason	shifted
B3	predicational	det	ikke	contrast	unshifted
B4	predicational	det	ikke	contrast	shifted
B5	predicational	det	jo	reason	unshifted
B6	predicational	det	jo	reason	shifted
B7	predicational	det	jo	contrast	unshifted
B8	predicational	det	jo	contrast	shifted
B9	non-copula	ham	ikke	reason	unshifted
B10	non-copula	ham	ikke	reason	shifted
B11	non-copula	ham	ikke	contrast	unshifted
B12	non-copula	ham	ikke	contrast	shifted
B13	non-copula	ham	jo	reason	unshifted
B14	non-copula	ham	jo	reason	shifted
B15	non-copula	ham	jo	contrast	unshifted
B16	non-copula	ham	jo	contrast	shifted
B17	predicational	det	sikkert	reason	unshifted
B18	predicational	det	sikkert	reason	shifted
B19	predicational	det	sikkert	contrast	unshifted
B20	predicational	det	sikkert	contrast	shifted
B21	non-copula	ham	sikkert	reason	unshifted
B22	non-copula	ham	sikkert	reason	shifted
B23	non-copula	ham	sikkert	contrast	unshifted
B24	non-copula	ham	sikkert	contrast	shifted

- A1/A2** I have applied for the position but do not expect to get it [because the best qualified applicant isn't me in this round].
- A3/A4** I think your information is faulty. I am a part of the project, [but the person who knows the most about it is not me].
- A5/A6** I want to start on something new, but it might take awhile [because the person responsible for the project abroad is actually me until Christmas].
- A7/A8** I am not entirely sure of the order. I think Mia was in second place and Bo was in third place and [the last in line was me, wasn't it]?
- A9/A10** If you are interested in Thomas Winterberg, there is no point in seeing that movie, [because the director isn't him according to the ad].
- A11/A12** Martin Vingaard was chosen as player of the match, [but the favorite of the audience wasn't him, even though he scored twice].
- A13/A14** Anders enters the competition each year and that is actually impressive [because the loser is him every time].
- A15/A16** As far as I know the movie was not directed by Nikolaj Lie Kaas, [but the lead actor is him, isn't it?]
- A17/A18** I don't really want to put up posters, but you might as well leave them here [because the one who ends up doing it is probably going to be me after all].
- A19/A20** I've never played as coach before, [but the most experienced player on the team is probably me now that Vita has quit].
- A21/A22** If you see Morten at the gym, don't tell him anything about the complaint [because the sender is probably him like last time].
- A23/A24** It wasn't Mikkel's idea to create an electronic membership card, [but the one making the most money from it is probably him in the end].
- B1/B2** Ulla would like to be the host again next time but I think we should ask Vita [because she isn't the host nearly as often].
- B3/B4** Some students are ready for high school after grade 9 [others aren't until after grade 10].
- B5/B6** We need a new team leader, but we can't ask Karsten, [because he was the team leader last year].
- B7/B8** It's hard to find a good time. Some people are most alert in the evening, [others are in the morning].
- B9/B10** I'd like to go traveling with a colleague, but I don't quite know about Jørgen, [because I don't know him very well].

- B11/B12** Lars quit at the kindergarden three months ago. The big kids are talking about him all the time, [but the little ones don't mention him very often].
- B13/B14** They are looking for a new chairperson, but I don't think they'll ask Morten, [because they know him from last time around].
- B15/B16** Danes who like gardening also like Søren Ryge. Some listen to his radio programs, [others follow him on TV].
- B17/B18** I think one has to be cautious when investigating the number of people with dyslexia, [because many people are probably dyslexic without anyone else knowing].
- B19/B20** Palle is extremely excited to meet the exchange student who will be living with them in the fall, [but his parents are probably even more excited].
- B21/B22** I'd like Sune to join the board, but could I get you to ask him, [since you know him better]?
- B23/B24** I haven't given it much thought that Lars has moved out of the dorm, [but Anne probably misses him like crazy].

## Appendix C: Phonetic analysis of stimuli

The goal of the experimental work reported in section 4.2 is to investigate the status of unshifted prosodically weak object pronouns in different clause types. The purpose of the material below is to document that unshifted object pronouns in the experimental stimuli were indeed prosodically weak, or, in Erteschik-Shir’s (2005) terms, prosodically incorporated.

Erteschik-Shir (2005:65) defines prosodic incorporation as “a phonological process which joins elements of a phonological string to make one prosodic unit. This prosodic unit allows for no prosodic breaks to intervene between its elements ...”. Thus, “pronouncing a pause at the site of P[rosodic] I[ncorporation] leads to ungrammaticality” (p. 67). The most direct phonetic evidence of non-incorporation of object pronouns would therefore be a period of silence immediately before the pronoun.

Using Praat 5.0.26 (Boersma and Weenink 2008), spectrograms were created for the 48 critical stimuli. We used wide-band Fourier spectrograms with a Gaussian window shape (window length: 5 ms; dynamic range: 50 dB; pre-emphasis: 6.0 dB/oct). In each spectrogram, the beginning of the object pronoun and the end of the preceding word (an adverb in odd-numbered stimuli and a verb in even-numbered stimuli) were identified using visual and auditory cues. In all but one of the 48 stimuli, there was no silence before the pronoun. In B9, a non-copular clause with an unshifted pronoun, there was a 148ms period of silence between the negation *ikke* and the object pronoun *ham* ‘him’. Given ES’s characterization of prosodic incorporation, this could be taken to indicate that the object pronoun is not prosodically incorporated in B9. This phonetic difference, however, had no effect on grammaticality judgments. The grammaticality judgments on B9 are no different from judgments on the other 11 non-specificational stimuli with unshifted object pronouns. On average, non-specificational clauses with unshifted pronouns were judged ungrammatical by 13 of the 15 conservative subjects (see Table 2) and B9 was judged ungrammatical by 12 of the 15 conservative subjects.

The general lack of pre-pronoun silence is illustrated in the spectrograms for A23, A24, B23 and B24 on the following pages. A23 and A24 are specificational clauses; B23 and B24 are non-copular clauses. These four stimuli all involve the object pronoun *ham* ‘him’. In A23 and B23, *ham* follows the adverb *sikkert* ‘probably’. In A24 and B24, *ham* follows the verb (*er* ‘is’ in A24 and *savner* ‘misses’ in B24). As the word segmentation lines show there is no silence before any of these pronouns, which indicates that the pronouns are all prosodically incorporated, or at least, have the same incorporation status.

In casual speech, however, the kinds of pauses associated with prosodic boundaries in careful speech may be suppressed and the boundary signalled by other means, in particular dramatic pitch movement and/or intensity increase. Since the stimuli were casual speech, we extracted pitch and intensity tracks for each stimulus and examined them visually to determine whether the beginning of the object pronoun was associated with dramatic pitch movement and/or intensity increase. It was not. The pitch and intensity tracks included for A23, A24, B23, and B24 on the following pages are representative in this regard. To contextualize these excerpts, the full

sentences used in these stimuli are given immediately below:

(38) Det var slet ikke Mikkel's ide med at oprette et elektronisk medlemskort  
it was at.all not Mikkel's idea with to create an electronic membership.card  
men  
but

a. den der tjener bedst på det er sikkert ham alligevel. [A23]  
the.one who profits best on it is probably him none.the.less

b. den der tjener bedst på det er ham sikkert alligevel. [A24]  
the.one who profits best on it is probably him none.the.less

*It wasn't Mikkel's idea to create an electronic membership card, but the one who profits from it the most is probably him nonetheless.*

(39) Jeg har såmænd ikke tænkt så meget over at Lars er flyttet fra  
I have in.fact not thought so much about that Lars is moved from  
kollegiet men  
dorm.the but

a. Anne savner sikkert ham helt vildt. [B23]  
Anne misses probably him completely wildly

b. Anne savner ham sikkert helt vildt. [B24]  
Anne misses him probably completely wildly

*I haven't given it much thought that Lars has moved out of the dorm, but Anne probably misses him like crazy.*