

IDENTIFYING AND PROCESSING TOPICALIZATION IN DANISH

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Abstract*

In Danish there is a surprising asymmetry between pronouns and full DPs: pronouns can always be fronted, whereas full DPs are subjugated to more restrictions. This puzzle has not been addressed in the literature, and I argue that the split-CP analysis as presented by Rizzi (1997) cannot distinguish between pronouns and full DPs when they are marked with a topic feature. The analysis I propose is based on the claim that in Danish the purpose of fronting a constituent is to mark it as the main topic, rather than the need or necessity to check a certain feature. It is furthermore based on the observation that the presence of an overt case marked pronoun, an adverb or a modall/auxiliary enables topicalization. In order to account for the data I propose a (PF) processing constraint on dislocation, which ensures that the derivation has an unambiguous interpretation.

1. Introduction

In Danish pronouns can always be fronted, whereas full DPs are subjugated to more restrictions. The full DP-pronoun asymmetry poses problems for any theory dealing with topicalization. The fact that pronouns can always front, whereas topicalization of full DPs is restricted, seems to be an obstacle for a uniform account of full DPs and pronouns. The goal of this paper is to provide an account of topicalization in Danish. The main hypothesis is that there is a strong correlation between information structure, movement, and word order.

I propose an alternative account of movement, in which topicalization is governed by phonological constraints rather than syntactic principles. This analysis is based on the following observations: first, most topicalized sentences are grammat-

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- (5) Q: Tell me about Peter
 a. HAM kender jeg ikke (Danish)
 Him know I not
 b. ?Oto ani lo makir (Hebrew)
 Him I not know
 c. *Him I don't know (English)
 ≈ *I don't know him.*

The answer in Hebrew, however, is possible in a contrastive context (6):

- (6) Q: Tesaper al Peter veSara
 Tell me about Peter and Sara
 A: Oto ani lo makir, aval he meod nexmada
 Him I not know, but she very nice
 ≈ *I don't know him, but she is very nice.*

I have here illustrated that fronting is disallowed in English and only allowed in contrastive contexts in Hebrew. In Danish, on the other hand, fronting of all topics is possible. In the next section, I examine the reasons for fronting in Danish.

2.1. Topic alignment in Danish

Thrane (2003) observes that in Danish 'the topic/comment opposition [is] the favored organization of information' (Thrane 2003: 330).² I claim that this alignment is a result of the preference to place the main topic sentence initially in order to link it to previous discourse. Fronting in Danish can therefore be viewed as a way of marking the main topic of a clause. It follows from this assumption that the sentence initial DP by default will be interpreted as the main topic.

First, I argue that although fronting is often related to contrast, contrast does not, in and of itself, yield fronting.³ As can be observed in (7) stress on contrastive topics is obligatory (Ørsnes 2002) whereas fronting is truly optional.⁴

- (7) Q: Kender du Peter og Sara?
 Do you know Peter and Sara?
 a. SARA kender jeg, men Peter har jeg aldrig mødt
 Sara know I, but Peter have I never met
 b. Jeg kender SARA, men jeg har aldrig mødt Peter
 I know Sara, but I have never met Peter

Furthermore, fronting is not possible when the embedded subject pronoun co-refers to the matrix subject (8). In (8a) the matrix subject is a possible antecedent

² A similar preference can be observed in Spanish.

³ According to Erteschik-Shir (1997: 12) contrast on topics occurs if the context provides a list of possible topics, and a single topic is picked out from that list.

⁴ Stress on topicalized elements is marked with a double underline (STRESS), and contrastive stress is marked with a single underline (STRESS).

ject. Furthermore, I claim that fronting only occurs when the sentence contains two topics and the subject is not the main topic. I have shown that even if the object is the sole topic of the clause it does not move since movement is a matter of last resort.

2.2. The pronoun - full DP asymmetry

In Danish there is a surprising asymmetry between pronouns and full DPs: pronouns can always be fronted.

- (11) a. Peter så mig/dig/ham/hende/os/jer/dem ved festen
 Peter saw me/you/him/her/us/you/them at the party
 b. Mig/dig/ham/hende/os/jer/dem så Peter ved festen
 Me/you/him/her/us/you/them saw Peter at the party

Full DPs appear to be more restricted, and, according to my informants, fronting of a full object DP is not possible if the subject is also a full DP:

- (12) *PETER så Sara
 Peter saw Sara
 ≈ Sara saw Peter.

Danish topicalization provides some quite intriguing facts that have not been observed before: topicalization of full DPs is possible if the sentence contains an adverb/negation (marking the left boundary of the VP), a modal or an auxiliary.

- (13) a. PETER så Sara ikke b. PETER kender Sara selvfølgelig
 Peter saw Sara not Peter knows Sara of course
 ≈ Sara didn't see Peter. ≈ Of course Sara knows Peter.
 c. PETER burde Sara kende fra fjernsynet
 Peter ought to Sara know from TV-the
 ≈ Sara ought to know Peter from TV.
 d. PETER har Sara set over hækken
 Peter has Sara seen over fence-the
 ≈ Sara has seen Peter over the fence.

In sentences without these elements fronting is not possible and the topicalized element will by default be interpreted as the subject even though it is stressed, thus (14b) is infelicitous with the intended topicalized interpretation.

- (14) a. Sara kender Peter fra fjernsynet b. *PETER kender Sara fra fjernsynet
 Sara knows Peter from TV-the Peter knows Sara from TV-the
 ≈ Sara knows Peter from TV.

Bobaljik (to appear) points out that the OVS reading could be achieved in sentences such as (12) and (14) without any added elements, the right context and intonation provided. Nevertheless, as Ørsnes (2002: fn. 8) notes, such constructions 'involving nominals with no case marking and common semantic features, [are] strikingly rare' (Ørsnes 2002: 344), since nominals, unlike pronouns, cannot be disambiguated based on their case properties. According to my informants, however,

an initial DP can only be interpreted as the subject, although pragmatics might help disambiguate in certain sentences. This can be observed in sentence (15), in which *Peter* must be interpreted as the subject, since *bogen* ('the book') clearly cannot function as the subject of the verb *læste* ('read') due to the verb's selectional restrictions.

- (15) *Bogen læste Peter*
 The-book read Peter
 ≈ Peter read the book

In this paper, I focus on the examples where pragmatics and the verb's selectional restrictions cannot disambiguate, and explore what other elements might enable full DPs' fronting.

The full DP-pronoun asymmetry poses problems for any theory dealing with topicalization. The fact that pronouns can always front, whereas fronting of full DPs is restricted, seems to be an obstacle for a uniform account of full DPs and pronouns. In what follows, I explore to what extent syntax can account for the topicalization asymmetry in Danish.

3. Syntax and Topicalization

Discourse functions such as topic and focus have been argued to influence word order (e.g. Rizzi 1997, Szendrői 2004, Thrane 2003). These syntactic theories employ feature checking in their account of topicalization. I argue that fronting cannot be constrained by syntax.

Rizzi (1997) argues that a derivation contains two functional layers instead of one CP layer: the Force phrase (ForceP) and the Finite phrase (FinP). In addition to these two functional layers a derivation can also contain a Focus phrase (FocP) and several Topic phrases (TopP). Yet, these phrases, unlike ForceP and FinP, are optionally projected if needed, i.e., if the derivation contains movement of the topic or focus constituent. FinP relates to the tense and mood of the clause, and its head Fin° is assumed to contain the feature [+ finite], which can be checked either covertly by moving the tense feature of the verb, or overtly as in V2 languages where the verb moves from T° to Fin° (Rizzi 1997: 328, fn. 5). Furthermore, if either FocP or TopP is projected the verb in V2 languages is assumed to move to the head of these phrases, in order to conform to the V2 principle.

Rizzi's Split-CP hypothesis differs from the proposal that the topic constituent moves to spec-CP, where the C° contains the strong top-feature (e.g. Christensen 2003, Schwartz and Vikner 1996). However, both approaches employ the top-feature in more or less the same manner. In the next section I explore the properties of the top-feature.

3.1. A syntactic top-feature

If all topicalized DPs are marked with a top-feature (Rizzi 1997, Chomsky 1995, Christensen 2003), the question is what the properties of this feature are.

Rizzi accounts for the optionality of topicalization by stating that the TopP and

FocP are only projected if needed (Rizzi 1997: 288). Thus movement of a topic constituent is a matter of last resort and ‘it is triggered by the necessity of properly interpreting certain expressions’ (Rizzi 1997: 287) rather than by the need to check a certain feature. Hence Rizzi’s analysis differs from the general assumption of the Minimalist Program (Chomsky 1995) (henceforth MP) in which movement is motivated by the need to check morphological features. I argue that neither the need to check a certain feature nor the ‘necessity to interpret’ can account for the topicalization facts in Danish.

Rizzi’s interpretation of the top-feature by and large follows the suggestion made by Chomsky (1995) and it is argued to be equal to the wh-feature. Moreover, ‘[t]opicalization and focus could be treated the same way [as wh-operator on C^o]. If the operator feature of C is strong, the movement is overt’ (Chomsky 1995: 199). Assuming that the top-feature can be treated on a par with the wh-feature, it is then understood to be uninterpretable on the C^o or whatever head carries the top-feature and thus trigger movement. Yet, it is not clear on what ground the top-feature is assigned. Besides, if all topics are assigned a top-feature, a problem arises in sentences with more than one topic, in which at the most one is fronted.

- (16) Jeg_[TOP] så ham_[TOP] igår
I_[TOP] saw him_[TOP] yesterday

If both topics move, the derivation would render the following word order assuming that the verb moves to the second position.

- (17) *Jeg så ham
I saw him

If on the other hand only one of them projects, the question is which one of them will move. Only if the object moves, will the desired topicalized word order be obtained.

Yet another issue remains unsolved: if a sentence contains more than one top-feature marked DP: which DP should move? Another problem is posed by sentences containing more than one wh-word:

- (18) Who_i saw t_i what?

In sentences containing two wh-marked words as well as in sentences containing two top-marked DPs one element is left with an interpretable feature that cannot be checked. Notwithstanding this problem, the main predicament of treating the top-feature on a par with the wh-feature is that the two features differ with respect to the Minimal Link Condition⁵ (Chomsky 1995: 296). If a sentence contains more than one wh-word the first one will move in order not to violate the Minimal Link Condition (hereinafter MLC).

- (19) *What_i saw who t_i

⁵ The Minimal link Condition: “ α can raise to target K, only if there is no legitimate operation Move β targeting K, where β is closer to K” (Chomsky 1995: 296).

If wh-features and top-features are equivalent in other matters, the prediction is that if the sentence contains more than one top-feature, the closest one, i.e., the subject will move in order not to violate the MLC. However, this prediction does not hold with topicalization, since either one of the topic marked elements can move.

- (20) a. Jeg_[TOP] så ham_[TOP]
I saw him
- b. HAM_[TOP] så jeg_[TOP]
Him saw I

According to the MLC the sentence in (20b), should be ruled out, since movement of the object will violate this condition given that the subject is closer. The discrepancy between the top-feature and the wh-feature needs further investigation, and I conclude that the two features should not be treated as being equivalent.

Even if merging the topicalized DP sentence initially instead of moving circumvents the MLC,⁶ the question still remains which one of the top-marked DPs should be merged sentence initially. Moreover, as it stands one would have to assume different top-features for full DPs and pronouns, since pronouns can always front whereas full DPs are restricted to constructions containing an adverb, a modal, or an auxiliary (13).

I conclude that the split-CP hypothesis as it stands cannot adequately explain the topicalization facts in Danish, and I claim that it is unlikely that any feature based syntactic analysis can account for these data.

3.2. A syntactic constraint on topicalization

One of the major problems for syntactic theories is how to allow for optionality. First of all, morphological case cannot be the feature that constraints topicalization, since full DPs, which are not overtly marked for case in Danish, can also topicalize. Moreover, 3rd person pronouns ('den/det' *it*) do not exhibit a case distinction between nominative and accusative case, yet they do topicalize (21).

- (21) A: Hvad med bogen
What about the book?
- a. Sara læste den b. Den læste Sara
Sara read it It read Sara

I argue that at least in Danish the top-feature is not limited to contrastive topics, contrary to Rizzi's (1997) definition of fronted DPs. In (22) the object pronoun is contrastive and if it remains in situ, as in (22a), the word order is awkward. Fronting is preferred (22b).

- (22) a. ?Jonas kender HAM (men han kender ikke hans nabo)
Jonas knows HIM (but he knows not his neighbor)
- b. HAM kender Jonas (men han kender ikke hans nabo)
HIM knows Jonas (but he knows not his neighbor)
≈ Jonas knows him but he doesn't know his neighbor.

⁶ See Platzack (2004) for an analysis of initial merging and the MLC.

The split-CP hypothesis and the assumption that contrastive topics have to move can explain the preference for (22b), as the contrastive pronoun *ham* ('him') is topic marked, and thus predicted to front. Nonetheless, recall that full DPs cannot topicalize even though they are contrastive, thus (23b) is infelicitous with the topicalized interpretation although according to Rizzi the full DP *Peter* should be able to move.

- (23) a. Jonas kender PETER (men han kender ikke hans nabo)
 Jonas knows PETER (but he knows not his neighbor)
 b. *PETER kender Jonas (men han kender ikke hans nabo)
 PETER knows Jonas (but he knows not his neighbor)
 ≈ *Jonas knows Peter but he doesn't know his neighbor.*

Rizzi would wrongly predict (23b) to be possible since the topic object has to move in order to check the strong top-feature on Top^o. On the other hand, topicalization of full DPs is possible if the sentence contains a modal.

- (24) a. Jonas burde kende PETER (men ikke hans nabo)
 Jonas should know PETER (but not his neighbor)
 b. PETER burde kende Jonas (men ikke hans nabo)
 PETER should know Jonas (but not his neighbor)
 ≈ *Jonas should know Peter but not his neighbor.*

As it stands, Rizzi's approach cannot account for these facts. Another problem with the top-feature assignment is the fact that non-contrastive topics can front as well. In (25), the object is the topic in both answers, however once again movement is optional.

- (25) Q: Hvad med Jonas?
 What about Jonas?
 a. Sara så ham over hækken b. HAM så Sara over hækken
 Sara saw him over the-fence Him saw Sara over the-fence

According to Rizzi the two answers in (25) will have different derivations, and despite the fact that one must assume that in both cases the object is the topic, it can only have been assigned this feature in (25a). The only way out would be to assign a strong top-feature in the former case and a weak one in the latter, yet such assignment is arbitrary. I therefore conclude that contrast does not constrain topicalization in Danish, and other constraints are needed in order to account for the Danish topicalization data.

4. The syntax and phonology of topicalization

Having established that syntactic feature checking approaches fail with respect to the data presented here, I turn to an alternative account of movement, in which topicalization is governed by phonological constraints rather than syntactic principles. The argument that movement is related to the phonology is not new (e.g. Holmberg 1999, 2000, Zubizarreta 1998). However, my proposal differs essentially from that of e.g. Holmberg (2000).

Holmberg introduces phonology into narrow syntax in connection with Stylistic Fronting. I adopt his view that '[s]yntactic categories enter syntactic derivation in the form of words, that is triples of formal, semantic and phonological features' (Holmberg 2000: 16). In the analysis presented here the top-feature is incorporated into the grammar and assigned optionally as a part of merge after being selected freely from the lexicon. Given that top-features are available in the lexicon, the derivation does not violate the Condition of Inclusiveness (Chomsky 1995: 288).

The main problem with Holmberg's approach, as I see it, is the fact that phonology is incorporated into narrow syntactic processes; a suggestion that entails syntactic processes still constrain phonological features. Thus nothing is gained with respect to the problems outlined in the previous section concerning the top-feature and the restrictions on fronting that a syntactic analysis presents. As an alternative I propose that movement is not constrained by syntax but is rather believed to take place in p(honological)-syntax (Erteschik-Shir 2003). Consequently, movement is subject to phonological restrictions rather than syntactic principles, that is, movement is either to the left or to the right edges of sentences (Erteschik-Shir, to appear). I propose that all optional reordering processes take place in the phonology and I argue that topicalization is displacement in the phonology on a par with object shift (Erteschik-Shir 2001, 2003, to appear, Holmberg 1999).

Although processing is often assumed to be extra-grammatical I argue here that processing is an integral part of the grammar. In Danish, no syntactic principles constrain topicalization; therefore all topicalized sentences are grammatically well-formed sentences. In spite of this, the intended interpretation is not always attainable in topicalized sentences, and I argue that the only way to account for this is by incorporating processing into the grammar. Moreover, topicalization is optional, a fact that cannot be accounted for in traditional syntactic theories. I argue that processing is phonological, since it is subject to restrictions on pronunciation, stress, and intonation. In what follows, I argue that the processing constraint I introduce accounts for the Danish data.

Recall that the presence of a pronoun (26), negation (27a), adverb (27b), modal (27c) or auxiliary (27d) enables topicalization in Danish:

- | | | | |
|---------|--|----|---|
| (26) a. | <u>HAM</u> så Sara
Him saw Sara | b. | <u>SARA</u> så han
Sara saw he |
| (27) a. | <u>PETER</u> så Sara ikke
Peter saw Sara not
≈ <i>Sara didn't see Peter.</i> | b. | <u>PETER</u> kender Sara selvfølgelig
Peter knows Sara of course
≈ <i>Of course Sara knows Peter.</i> |
| c. | <u>PETER</u> burde Sara kende fra fjernsynet
Peter ought to Sara know from TV-the
≈ <i>Sara ought to know Peter from TV.</i> | | |
| d. | <u>PETER</u> har Sara set over hækken
Peter has Sara seen over fence-the
≈ <i>Sara has seen Peter over the fence.</i> | | |

I propose that what overt case and the added elements in (27) have in common is that they force the OVS interpretation on fronted objects. Furthermore, topicalization in Danish is allowed only when the resulting OVS structure is unambiguous. These two facts together argue for an account of topicalization that involves disambiguating factors. In order to formalize this idea, I propose a processing constraint (28) adapted from Erteschik-Shir (2003).⁷ This constraint is part of UG, however disambiguating factors are language specific and can even vary across dialects with differing morpho-phonological features.

(28) ID(entification)

In a string X...Y, ID the X as the subject and the Y as the object if neither is identified otherwise.

(Erteschik-Shir 2003)

This constraint applies to the final output of phonological strings of words and not to syntactic structures. The string of words (order irrelevant) allows for intervening material [a X b V c Y d], where a,b,c,d are non-arguments. In what follows I outline several “identifiers” related to topicalization in Danish.

First of all morphological case functions as an identifier: In Danish, all subject pronouns in canonical subject position are nominative. All other pronouns, (disregarding genitive case) are accusative. Therefore, all fronted objects are accusative (29b).⁸

- (29) a. Peter så mig/dig/ham/hende/os/jer/dem ved festen
 Peter saw me/you/him/her/us/you/them at the party
 b. Mig/dig/ham/hende/os/jer/dem så Peter ved festen
 Me/you/him/her/us/you/them saw Peter at the party

Surprisingly, extracted subjects are also accusative (30b).

- (30) a. Peter tror jeg/du/han/hun/vi/I/de vinder løbet
 Peter thinks I/you/he/she/we/you/they (will) win the race
 b. Mig/dig/ham/hende/os/jer/dem tror Peter vinder løbet
 Me/you/him/her/us/you/them thinks Peter (will) win the race

Accusative case on the sentence initial pronoun identifies it as a fronted object (Ørsnes 2002). If the sentence initial DP were nominative it would be the subject.

⁷ The idea that such a processing constraint is imposed on the grammar has been around since.

⁸ Norwegian differs from Danish in that morphological case on pronouns cannot function as an identifier. I ascribe this to the fact that the Norwegian pronoun paradigm differs from the Danish paradigm in that pronouns do not differ in their nominative and accusative forms. Thus the following sentence (i) is potentially ambiguous between a fronted and non-fronted interpretation:

- (i) Han så Peter
 He saw Peter
 ≈ He saw Peter/ Peter saw him

I suggest that intonation might play a disambiguating role in these sentences, but further studies are needed in order to solve this problem.

Nonetheless, there is another interesting fact, which is not captured in Ørnsnes' analysis: subject as well as object pronouns can function as identifiers:

- (31) a. HAM så Sara
Him saw Sara
- b. SARA så han
Sara saw he

In (31a) the accusative pronoun identifies the sentence initial pronoun as object. In (31b) the nominative pronoun in the canonical object position identifies it as subject, and consequently the sentence initial full DP is the fronted object.

The second form of identifiers mentioned above is the left boundary identifier: negation and adverbs (left adjoined to VP)⁹ identify the argument immediately preceding them as the subject independently of topicalization.

- (32) a. Sara så ikke Peter
Sara saw not Peter
- b. PETER så Sara ikke
Peter saw Sara not
≈ Sara didn't see Peter.

In both sentences in (32) Sara is identified as the subject, since it is the first argument preceding negation. The only exception to this generalization is sentences with object shift, in which the first argument preceding the negation is the object.

- (33) Jeg så ham ikke
I saw him not
≈ I didn't see him.

The ID constraint still imposes an OVS interpretation in these cases given that pronouns are always marked for case (Erteschik-Shir, to appear), thus the morphological case on the pronoun functions as an identifier and these sentences are therefore unambiguous.

The final form of identifiers that I will discuss here are modal and auxiliary identifiers. Generally, the occurrence of a modal or an auxiliary enables OVS:

- (34) a. SARA har Peter set
Sara has Peter seen
≈ Peter has seen Sara.
- b. SARA burde Peter have set
Sara ought Peter have seen
≈ Peter ought to have seen Sara.

The general intuition is that the auxiliary and the modal identify the subject because of the agreement marking on the verb/modal/auxiliary. Yet, in Danish there is no overt agreement, and non-overt agreement does not identify the subject: the sentence in (35) is unambiguous despite the fact that the subject and object share the same agreement features. If agreement functioned as an identifier one would expect the sentence in (35) to be ambiguous.

- (35) ANDERS har Peter set
Anders has Peter seen
≈ Peter has seen Anders.

⁹ Holmberg (2000: 16) suggests that the negative element in Mainland Scandinavian is classified as an adverb, thus it is no surprise that left adjoined adverbs and negation function the same way with respect to identification.

Moreover, if agreement could identify the subject, one would predict that full DPs could topicalize with no restrictions, which is not the case: the sentence in (36) has the unambiguous SVO interpretation.

- (36) ANDERS så Peter
Anders saw Peter

As an alternative I propose that the main verb identifies the first argument adjacent to it as the subject in all sentences: in (37) the sentences in the subject *Peter* is the first argument adjacent to the main verb. As a result, (37a-b) have the unambiguous interpretation of SVO, whereas (37c) has the unambiguous OVS interpretation.

- (37) a. Peter så Anders b. Peter har set Anders
Peter saw Anders Peter has seen Anders
c. ANDERS har Peter set
Anders has Peter seen
≈ *Peter has seen Anders.*

The only exception to this generalization is topicalized sentences containing an adverb, in which the first argument preceding the main verb is the object (38). However, I claim the ID constraint still imposes an unambiguous OVS interpretation in these instances since the adverb identifies the first argument preceding it as the subject. Thus, these sentences remain unambiguous.

- (38) SARA så Peter ikke
Sara saw Peter not
≈ *Peter didn't see Sara.*

I have argued for a processing constraint (ID), which constrains topicalization to unambiguous strings. I have furthermore illustrated the different identifiers in cases in which selectional restrictions and pragmatics do not disambiguate. In the following section, I will discuss the p-syntax of topicalization and illustrate how the ID constraint proposed here interacts with the grammar.

4.1. The p-syntax of topicalization

In this section I illustrate the mechanisms of the syntax and the phonology of p-syntax based on the analysis of object shift (Erteschik-Shir, to appear). I argue that the analysis adopted in this paper accounts for all the different topicalization facts presented here. My main point is that in principle topicalization is always possible, if the object or the embedded subject is the main topic. I argue that the reason topicalization is not possible in all constructions is because the ID constraint imposes a SVO interpretation in the absence of markings to the contrary.

I propose the constraints in.¹⁰ These constraints are absolute and cannot be violated.

¹⁰ These constraints are adapted from Erteschik-Shir (to appear), nonetheless the versions presented here are my own.

- (39) V2: finite verb is in second position
 TOP(IC) ALIGN: Place main topic sentence initially
 ID: Subject and object must be identified

Sentence (40) illustrates a simple sentence in which no movement takes place, yet all the constraints are satisfied; the verb occurs in second position and the topic is placed sentence initially. The ID constraint is also satisfied since both the subject and the object are marked for case, yielding an unambiguous SVO interpretation.

- (40) Jeg så ham
 I saw him
- a. [jeg_{TOP} så ham_{TOP}]_{FOC}
 b. V2: [jeg_{TOP} så ham_{TOP}]_{FOC}
 c. TOP ALIGN: [jeg_{TOP} så ham_{TOP}]_{FOC}
 d. ID: [jeg_{TOP/SUBJ} [så ham_{TOP/OBJ}]]_{FOC}

Unlike in Optimality Theory the constraints are not ordered, as can be observed in the derivation in (41).

- (41) Jeg så ham
 I saw him
- a. [jeg_{TOP} så ham_{TOP}]_{FOC}
 b. TOP ALIGN: [jeg_{TOP} så ham_{TOP}]_{FOC}
 c. V2: [jeg_{TOP} så ham_{TOP}]_{FOC}
 d. ID: [jeg_{TOP/SUBJ} [så ham_{TOP/OBJ}]]_{FOC}

However, another ordering of the derivation could in certain instances yield uninterpretable results. This is best illustrated in sentences in which movement is obligatory, as is the case for fronted objects (42).

- (42) HAM så jeg
 Him saw I
- a. [jeg_{TOP} så ham_{TOP}]_{FOC}
 b. TOP ALIGN: ham_{TOP} [jeg_{TOP} så]_{FOC}
 c. V2: dna
 d. ID: *ham_{TOP/OBJ} [jeg_{TOP/SUBJ} så]_{FOC}

In (42) the V2 constraint is violated as the verb does not occur in second position because it is prevented from moving as it does not target an edge position, which is necessary in a phonological account (Erteschik-Shir, to appear). The ID constraint still identifies the subject and the object accordingly because the pronouns are marked for case.

It follows from the analysis that in a sentence without any identifiers, topicalization is not possible. So far I have only presented sentences with fronted pronouns. Since these are always marked for case in Danish, they are identified as either the subject if nominative or as the object if accusative. In Danish full DPs, which are not marked for case, cannot topicalize as shown in (43). In these cases the ID constraint imposes a SVO interpretation.

- (43) *PETER så Sara
Peter saw Sara
≈ *Sara saw Peter.*

a.	[Sara _{TOP} så Peter _{TOP}] _{FOC}
b. V2:	[så Sara _{TOP} Peter _{TOP}] _{FOC}
c. TOP ALIGN:	Peter _{TOP} [så Sara _{TOP}] _{FOC}
d. ID:	*Peter _{TOP/SUBJ} [så Sara _{TOP/OBJ}] _{FOC}

The sentence in and of itself is a well-formed sentence. However the intended OVS interpretation is not available.

(44) shows a non-topicalized sentence in which a negative adverb identifies the first argument preceding it as the subject:

- (44) Peter så ikke Sara
Peter saw not Sara
≈ *Peter didn't see Sara.*

a.	[ikke Peter _{TOP} så Sara _{TOP}] _{FOC}
b. V2:	[så ikke Peter _{TOP} Sara _{TOP}] _{FOC}
c. TOP ALIGN:	[Peter _{TOP} så ikke Sara _{TOP}] _{FOC}
d. ID:	[Peter _{TOP/SUBJ} så ikke Sara _{TOP/OBJ}] _{FOC}

In (44b) the verb moves to second position in order to satisfy the V2 constraint. The topic, in this case the subject, moves in order to align the topic with the focus structure and link it to the previous discourse. The negative element identifies *Peter* as the subject, since it is the first argument preceding it. It follows that the derivation has an unambiguous interpretation. However, this derivation poses a slight problem for the analysis presented here, since the subject in topicalized sentences would have to move to a non-edge position, a move that is not possible in the phonology.

- (45) SARA så Peter ikke
Sara saw Peter not
≈ *Peter didn't see Sara.*

a.	[ikke Peter _{TOP} så Sara _{TOP}] _{FOC}
b. V2:	[så ikke Peter _{TOP} Sara _{TOP}] _{FOC}
c. TOP ALIGN:	<u>SARA</u> _{TOP} [så ikke Peter _{TOP}] _{FOC}
d. <u>SUBJ MOVE?</u> :	<u>SARA</u> _{TOP} [så Peter _{TOP} ikke] _{FOC}
e. ID:	<u>SARA</u> _{TOP/OBJ} [så Peter _{TOP/SUBJ} ikke] _{FOC}

In what follows, I revise the analysis slightly to accommodate for the above raised problem as well as to explain the fact that in Danish all fronted DPs are stressed whereas subject topics, however, are not stressed. I argue that the stress discrepancy between subject and topicalized DPs is explained by the TOP ALIGN constraint. Consequently, if a DP moves in order not to violate TOP ALIGN, it receives stress. In (46) no movement of the subject takes place, thus the subject is not stressed.

(46) Jeg så Peter
I saw Peter

- a. [jeg_{TOP} så Peter_{TOP}]_{FOC}
 b. V2: [jeg_{TOP} så Peter_{TOP}]_{FOC}
 c. TOP ALIGN: [jeg_{TOP} så Peter_{TOP}]_{FOC}
 d. ID: [jeg_{TOP/SUBJ} så Peter_{TOP/OBJ}]_{FOC}

Conversely, in the derivation in (47) the object moves in order not to violate the TOP ALIGN constraint, and is accordingly assigned stress. (Erteschik-Shir, to appear, Raviv, in prep)

(47) HAM så jeg
Him saw I
≈ *I saw him.*

- a. [jeg_{TOP} så ham_{TOP}]_{FOC}
 b. V2: [så jeg_{TOP} ham_{TOP}]_{FOC}
 c. TOP ALIGN: HAM_{TOP} [så jeg_{TOP}]_{FOC}
 d. ID: HAM_{TOP/OBJ} [så jeg_{TOP/SUBJ}]_{FOC}

Due to the prosodic discrepancy between subjects DPs and fronted DPs, I suggest that fronted DPs move in order not to violate TOP ALIGN, subjects, on the hand do not move.

Yet, in order to account for the fact that the subject appears to have left its base-generated position within the VP, and occurs to the left of the negation I adopt Erteschik-Shir's (to appear) analysis of adverb projection.¹¹ Following Bobaljik (2002), Chomsky (2001), and Áfarli (1997), Erteschik-Shir proposes that adverbials do not move; instead they are merged on a separate level (in a third dimension), and they can linearize either to the left or the right of the verb depending on processing and pronunciation constraints.

(48) a. Peter så han ikke b. HAM så Peter ikke
Peter saw him not Him saw Peter not
≈ *Peter didn't see him.*

The outcome of the analysis is that adverbs in non-topicalized sentences are projected to the left of the object (48)b whereas in topicalized sentences they are projected to the right of the subject (48)a. Thus, I assume that in non-topicalized sentences the subject does not move, which means that it is not stressed. In topicalized sentences, on the other hand, the object/embedded subject moves and it will therefore receive stress.

In this section I have argued for a phonological account of topicalization. I have demonstrated that although topicalization is always possible, the intended interpretation is not always available. I have imposed a processing constraint on the grammar, which I argue can account for the topicalization facts presented here.

¹¹ See Erteschik-Shir (to appear) for arguments against subject-movement.

5. Conclusion

The goal of this paper was to account not only for the optionality of topicalization but also for the apparent asymmetry of pronouns and full DPs in Danish. I have argued that syntactic feature checking approaches face explanatory difficulties when confronted with this data. Instead I have provided an alternative account in which processing is an integral part of the grammar. I have argued for a processing constraint, which constrains topicalization in Danish and provides a uniform account of this asymmetry. If indeed topicalization is restricted by this constraint, my argument will have repercussions for syntactic theory.

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