

Sentential subjects in English and Norwegian

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Abstract

This paper discusses the structural position of sentential subjects in English and Norwegian. The paper argues that there is variation among English speakers and that the sentential subject sits in the canonical subject position for some speakers whereas it sits in a topic position in the left periphery of the clause for other speakers. In Norwegian, sentential subjects cannot sit in the canonical subject position, something that is tested using the V2 property of Norwegian. Thus sentential subjects have different positions across languages, and only in depth analyses for each language can reveal what the structural position is for each language.

1. Introduction¹

Across languages, subjects tend to be nominal phrases. However, many languages also allow for what appears to be sentential subjects, that is, subjects that would ordinarily be analyzed as sentences. A couple of examples from English and Norwegian are provided in (1)-(2), respectively.²

- (1) [That Mary is late] annoys John.
(2) [At Marie er sent ute,] irriterer Jon.
that Mary is late out annoys John
'That Mary is late annoys John.'

Several questions emerge based on data like (1)-(2): i) where are sentential subjects in the clausal structure, ii) what is the category of sentential subjects, iii) do sentential subjects have the same structural positions across languages, e.g., in English and Norwegian? Questions i) and ii) converge if one were to argue that only a specific category could serve as subjects, that is, if one argues that only nominal phrases can satisfy the subject requirement in English (see Chomsky 1981, Lasnik 1999, and Alexiadou and Anagnostopoulou 1998 for much discussion). In this paper I will focus on questions i) and iii), discussing ii) only in passing.

Over the years, the status of sentential subjects has been debated. This paper will consider the status of sentential subjects in English and Norwegian. It will review the literature on sentential subjects in English, demonstrating variation and gradience in judgments offered by native speakers. Essentially, the paper will argue that the

¹ I am grateful to Artemis Alexiadou, Brad Larson, Bridget Samuels and audiences in Tromsø and at WCCFL 2013 for valuable comments on this material. Special thanks go to Elly van Gelderen, Liliane Haegeman, Hans Petter Helland, Ian Roberts, and two anonymous reviewers for their feedback.

² Norwegian orthography requires a comma after a sentence-initial finite embedded clause. I have chosen to adhere to this rule throughout the paper.

variation among speakers suggests two possible analyses: For some speakers, sentential subjects are structurally subjects, whereas for other speakers sentential subjects are structurally topics. In contrast, in Norwegian sentential subjects are structurally topics as they cannot appear in the subject position if preceded by a verb and a non-subject. That is, using Verb Second as a test, we will see that sentential subjects do not occupy the canonical subject position in Norwegian.

The paper is organized as follows. Section 2 provides some relevant background discussion regarding clausal architecture and sentential subjects. Section 3 surveys the relevant literature regarding sentential subjects in English, presenting evidence for and against both the subject and the topic analysis. Section 4 presents new data from Norwegian, arguing that sentential subjects in Norwegian cannot sit in the canonical subject position. Section 5 offers a brief general discussion before section 6 concludes the paper.

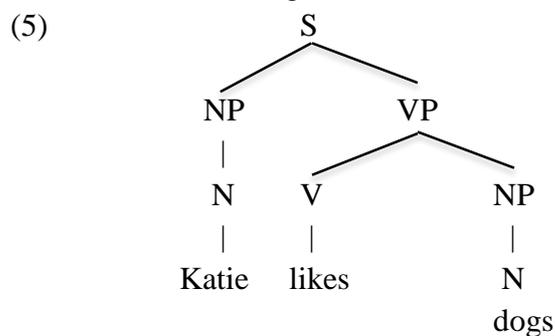
2. Background

In early work in generative grammar, rules such as (3) contributing to building syntactic structure for sentences (Chomsky 1957: 26).

(3) Sentence \rightarrow NP + VP

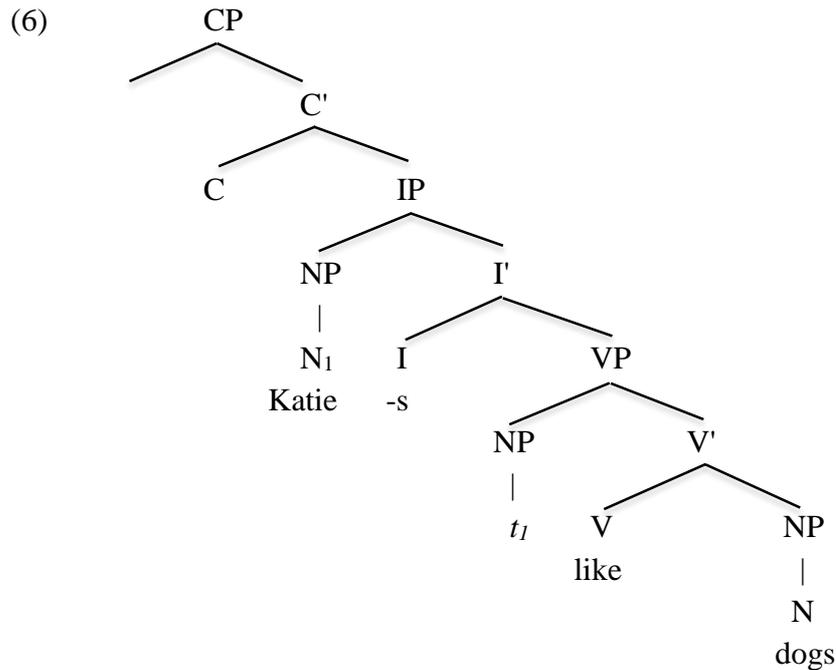
A standard syntactic representation for a sentence like (4) is provided in (5).

(4) Katie likes dogs.



More recently, the structure is assumed to consist of three layers: a complementizer layer, an inflectional layer, and a lexical layer. The sentence in (4) will then have the structure in (6) (Chomsky 1986a), where the subject moves from its position in the VP to the inflectional domain (Koopman and Sportiche 1991).³

³ Since I am concerned with the final landing site of the subject, I am setting aside more recent developments where there is a functional vP-layer between IP and VP (cf. Chomsky 1995, Kratzer 1996, and many others).



The subject is a relational notion in this theory (Chomsky 1965), which is to say that it is defined structurally in the tree structure. In (6), the subject is said to occupy SpecIP. This position is often referred to as the canonical subject position (McCloskey 1997), that is, the position in which subjects occur most of the time. As the rule in (3) implies, the subject is generally assumed to be a nominal phrase (Emonds 1972, Chomsky 1973, Koster 1978, Stowell 1981, Grimshaw 1992, Iatridou and Embick 1997, Alexiadou and Anagnostopoulou 1998, Davies and Dubinsky 1998, 2008, Lasnik 1999, Hartmann 2012, Lohndal 2012, Stowell 2013).

However, even though nominal phrases canonically occupy the subject position, there are instances where it at first glance looks like other phrasal categories appear in the subject position. (7) provides examples of PPs. This phenomenon is known as locative inversion.⁴

- (7)
- a. [Among the guests] was sitting my friend Rose.
 - b. [In the corner] was a lamp.
 - c. [Back to the village] came the tax collector. (Bresnan 1994: 75)

There are also other non-nominal phrases that may seem to occur in the subject position, such as the cases in (8) (Hartmann 2012: 32).

- (8)
- a. [Under the bed] is a good place to hide.
 - b. [In August] is too late to have the party.
 - c. [Cheat on my wife] is something I would never do.
 - d. [Strong] is how I like my coffee.

⁴ I am not endorsing an analysis of locative inversion where the PP is a subject, though there are such analyses in the literature. See Roberts (2010: 169 ff.) for an analysis of locative inversion which involves the left periphery.

- e. [Afraid of spiders] is what you are.

These have a fairly limited distribution than sentential subjects: they generally occur with copula verbs. There are instances of what appears to be a finite CP occupying the subject position. I will label these CPs sentential subjects in what follows. Consider the following examples.⁵

- (9) a. That Mary left early disappointed us.
b. That the Giants lost the World Series really sucks.
c. That the Giants lost the World Series surprised me.
d. That the Giants would lose was expected (by most columnists)
(Alrenga 2005: 177)

As (9d) illustrates, sentential subjects occur even in passive sentences. Sentential subjects can also be very long, as the following example from Miller (2001: 688) demonstrates (*italics in the original*).

- (10) [...] But we must never forget, most of the appropriate heroes and their legends were created overnight, to answer immediate needs. [...] Most of the legends that are created to fan the fires of patriotism are essentially propagandistic and are not folk legends at all. [...] Naturally, such scholarly facts are of little concern to the man trying to make money of fan patriotism by means of folklore. *That much of what he calls folklore is the result of beliefs carefully sown among the people with the conscious aim of producing a desired mass emotional reaction to a particular situation or set of situations* is irrelevant (Brown F19 0490-0870).

Furthermore, sentential subjects do not have to be headed by the complementizer *that*: *for*, *whether* and a *wh*-phrase are allowed too, as shown in (11)-(13).

- (11) For the Giants to lose the World Series would be terrible. (Alrenga 2005: 177)
(12) Whether we do it now or later is immaterial. (Huddleston 2002b: 977)
(13) What a blunder it was didn't emerge till later (Huddleston 2002b: 992)

It seems plausible to argue that these CPs are ordinary CPs, since they allow for a range of different elements to appear as the head (complementizer) of the finite sentence (CP).

However, there are two important questions that we need to separate: i) what is the phrasal nature of these subjects, and ii) what is the syntactic position of these

⁵ I will not discuss the relationship between sentential subjects and expletive constructions.

- (i) a. That Mary left early disappointed us.
b. It disappointed us that Mary left early.

See Stroik (1996) and Miller (2001) for a relevant discussion.

subjects? A range of different scholars has taken a stand on these issues, as the following table illustrates.

Table 1: The analysis of sentential subjects

	True CPs	Actually DPs
True subjects	Consistent with the analyses in Holmberg (2000), Bailyn (2004)	Rosenbaum (1967), Davies and Dubinsky (1998, 2008), Han (2005)
Actually topics	Koster (1978), Alrenga (2005)	Takahashi (2010), Moulton (2013)

The table is based on Hartman (2012: 35), but he claims that he is not aware of proposals that say that sentential subjects are DPs and topics. As far as I can tell, that is exactly the proposal in Takahashi (2010), and by and large Moulton (2013), although the latter does not discuss the syntactic details of his analysis at length.

There is a lot of cross-linguistic support for a DP shell analysis (see already Ross 1967), that is, an analysis where there is a potentially null D head that embeds the CP of the sentential subject. We can illustrate it as follows.

(14) [IP [DP D [CP that Mary left early]] I [VP disappointed us]]

Both Takahashi (2010) and Hartman (2012) present a range of evidence in favor of such a structure. For example, Takahashi (2010: 353) points at the fact that many languages realize this determiner overtly. This is illustrated in (15) for Modern Greek, see Picallo (2002) for Spanish data and section 4 for Norwegian data.

(15) [DP to [CP oti ehis filus]] simeni pola (Modern Greek)
the.NOM that have.2SG friends.ACC mean.3SG much
‘That you have friends means a lot.’ (Roussou 1991: 78)

Since the DP surfaces in a range of languages, this shows that this is a possible structure for human language. Although it does not demonstrate conclusively that English has the same underlying structure, together with other evidence in favor of sentential subjects acting like nominal phrases (Alrenga 2005, Takahashi 2010, Hartman 2012, Moulton 2013), we can conclude that the DP shell analysis is plausible for English as well. In the rest of this paper, I will therefore assume the DP shell analysis of sentential subjects.

3. Sentential subjects in English

There is a long-standing debate regarding sentential subjects and their syntactic position in English. Emonds (1976), Koster (1978), Stowell (1981), Safir (1985), Postal (1998), Haegeman and Guéron (1999), Adger (2003), Alrenga (2005),

Takahashi (2010) and Moulton (2013) all argue that sentential subjects are topics and that something else occupies the canonical subject position SpecIP. On the other side, Rosenbaum (1967), Emonds (1972), Delahunty (1983), Miller (2001), Davies and Dubinsky (2009) and Hartman (2012) argue that sentential subjects are real subjects that sit in SpecIP.

In this section, I will review this issue. I will go through a range of tests to try to determine where in the structure sentential subjects sit. Subsection 3.1 will discuss subject-verb agreement. Subject-auxiliary inversion is the topic of subsection 3.2. Subsection 3.3 deals with whether or not sentential subjects pattern with topics. Subsection 3.4 discusses whether or not sentential subjects are an instance of a Main Clause Phenomenon. A summary is provided in subsection 3.5.

3.1. *Subject-verb agreement*

A typical characteristic of real subjects is that they trigger agreement on the verb.

- (16) a. Mary likes/*like cookies.
b. Travis and David live/*lives in Washington D.C.

Topics cannot do the same in English, as (17b) illustrates.

- (17) a. John and Mary, Paul likes.
b. *John and Mary, Paul like them.

Assuming that subject-verb agreement is a clue to identifying the subject of the sentence, we can note that sentential subjects do trigger subject-verb agreement.⁶

- (18) a. [[That the march should go ahead] and [that it should be canceled]] have been argued by the same people at different times. (McCloskey 1991: 564)
b. [[That he'll resign] and [that he'll stay in office]] seem at this point equally possible. (McCloskey 1991: 564)
c. [[That the project has not been properly costed] and [that the manager is quite inexperienced]] are just two of my objections to your proposal. (Huddleston 2002b: 957)
d. [That John is mean] is well-known.

Davies and Dubinsky (2009: 124), discussing the data in (18) showing that sentential subjects display subject-verb agreement, point out that *all* non-NP subjects exhibit similar properties as sentential subjects.

⁶ Davies and Dubinsky (2009) argue that a further indication that these are subjects is provided by the fact that whereas conjoined CPs in subject position can license *equally* (18b), conjoined CPs in non-subject position cannot.

(i) Dale thought that Dana left and that Terry wouldn't come (*equally)
(Davies and Dubinsky 2009: 124)

- (19) a. [Under the bed] appears [to be a good place to hide].
 b. [Very tall] appears [to be just how he likes his bodyguards].
- (20) a. Under the bed and in the fireplace are not the best (combination of) places to leave your toys (Levine 1989: 1015)
 b. Very brawny and very studious are what Cindy aspires to be.
- (21) a. Under the bed and in the closet equally reminded me of that game of hide-and-seek we played.
 b. Very tall and quaintly studious equally bring to mind my sixth-grade science teacher.

As these examples illustrate, PP and AP subjects also undergo obligatory raising, they can trigger verb agreement, and license *equally*.

However, an important question is whether these facts really show that sentential subjects sit in SpecIP? Given current theoretical tools such as agreement at a distance, or ‘Agree’ as in Chomsky (2000, 2001), agreement does not generally tell us much about the position of a phrase (though see Polinsky and Potsdam 2001). Therefore subject-verb agreement is not a reliable diagnostic when it comes to the position of sentential subjects.

In the next subsection, I will discuss subject-auxiliary inversion.

3.2. *Subject-auxiliary inversion*

Ordinary nominal subjects invert with the auxiliary in interrogatives.

- (22) a. David likes pasta.
 b. Does David like pasta?
- (23) a. Peter will read the book.
 b. What will Peter read?
 c. *What Peter will read?

If we apply this test to sentential subjects, Koster (1978) presents data such as the following.

- (24) a. *Did [that John showed up] please you?
 b. *What does [that he will come] prove? (Koster 1978: 53)

The following two additional examples are from Adger (2003: 299).

- (25) a. *Did that Medea killed her children upset Jason?
 b. *Has that we have arrived back at our starting point proved that the world is round?

These examples illustrate a claim that has been repeated frequently in the literature, namely that sentential subjects are incompatible with subject-auxiliary inversion.

Delahunty (1983) takes issue with this claim and provides a series of what he claims are acceptable sentences. Consider the following data (Delahunty 1983: 387).

- (26) a. Does [that Fred lied to them] bother all of the people who bought stock in his company?
b. Does [that the world is round] bother as many people now as it did 500 years ago?
c. Does [that quarks have wings] explain their odd behavior?
d. Does [that quarks have wings] explain anything at all?

More recently, Hartman (2012: 77) provides the following judgments where the sentences are not fully acceptable.

- (27) a. ?Does [that your brother earns more than you] bother you?
b. ?Is [that I like you] so obvious?
c. ?When did [that I earn more than you] become an issue?

These examples show that there are cases of subject-auxiliary inversion where a sentential subject appears to occupy SpecIP, assuming that the auxiliary moves to C or a low head in the C domain in a cartographic approach (Rizzi 1997).

In addition, Delahunty (1983: 382-38) provides the following examples where a *wh*-item and an auxiliary precede a sentential subject.

- (28) a. To what extent did [that Fred failed to show up] anger those of his devoted fans who had waited by the stage door since dawn of the previous day?
b. Why does [that Fred wants to marry her] so upset Mary's mother, father, brothers, sisters and four grandparents that they haven't ceased to harangue her about it since they discovered the proposal?
c. Who does [that Fred left early] bother so greatly that he refuses to visit us any more?
d. Who does [that the world is ending] upset so terribly that they have decided to abandon the planet?
e. To whom is [that quarks are green] so well known that he cannot conceive of people who have not heard of the notion?
f. Amongst which people is [that the Earth was once flooded] so often recalled that they refuse to leave their mountain homes for fear they will be trapped in the lowlands if the flood should ever occur again?

From a contemporary perspective, one could argue that the *wh*-item sits in SpecCP and the auxiliary is in C, followed by a sentential subject in what is arguably SpecIP. A couple of additional examples that are claimed to be acceptable are provided in (29), from Davies and Dubinsky (2009: 115).

- (29) a. To whom is [that pigs can fly] most surprising?
 b. Is [that I am done with this homework] really amazing?

Davies and Dubinsky (2009) add some parsing considerations in support of Delahunty's analysis. They argue that prosody and phrasal weight play an important role: In Koster's example (25a), the sentential subject is twice the length (in syllables) compared to the matrix predicate. In Delahunty's example (28a), a six-word sentential subject is followed by a nineteen-word matrix predicate. They conclude that length issues are causing unacceptability in Koster's examples. In addition, the complementizer *that* may also be misparsed as a demonstrative, requiring the parser to reanalyze the structure. For current purposes, the important point is that the grammar does not filter out the above data for Davies and Dubinsky, rather, other mechanisms come into play in determining acceptability and unacceptability.

A problem with this line of argumentation is that native speakers notoriously disagree about the above judgments. Some speakers agree with Delahunty's data, others disagree. Despite asking more than ten speakers, I have not been able to establish any patterns. It may be a question of individual variation, and I doubt that a large-scale study will inform this question, since the variability will probably just be scaled up accordingly (see Phillips 2010). We might, then, be dealing with two different grammars among native speakers of English: one that allows sentential subjects in SpecIP, and one that treats them as topics. The fact that there are speakers who conform to the patterns established for each of the analyses demonstrates that both analyses exist. From the point of figuring out what a possible I-language is (Chomsky 1986b), that is the more interesting question.

In the next subsection, we will look at a major topic when it comes to sentential subjects, whether or not they should be analyzed as topics structurally speaking.

3.3. *Sentential subjects as topics*

Sentential subjects are not prototypical subjects. This is reflected in the following two quotes.

- (30) "Subordinate clauses can also function as subject, as in *That he was guilty was obvious to everyone*, such subjects are, however, non-prototypical, as is reflected in the existence of a more frequent (non-canonical) alternant in which the subject function is assumed by the dummy NP *it* and the subordinate clause is extraposed: *It was obvious to everyone that he was guilty*. Other categories appear as subject under very restrictive conditions" (Huddleston 2002a: 236).
- (31) "Nevertheless, clauses have enough of the distinctive subject properties to make their analysis as subject unproblematic" (Huddleston 2002b: 957)

The latter quote indicates that sentential subjects in English sit in the canonical subject position. However, as Koster (1978) observes, sentential subjects have a more

restricted distribution than nominal subjects (cf. Ross 1967, Emonds 1972, 1976, Hooper and Thompson 1973, Kuno 1973). We will now look at some of the facts that have been used to make this claim, and in addition consider whether or not sentential subjects are structurally topics.

Let us first compare nominal subjects to sentential subjects. The following examples from Alrenga (2005: 177) demonstrate an important asymmetry.

- (32) a. *John, that the Giants lost the World Series shouldn't have bothered.
b. John, the story shouldn't have bothered.

(32) show that, at the root level, nominal subjects can appear after sentence-initial topics: *the story* can appear after *John*, but not *that the Giants lost the World Series*. As we saw in section 3.2., a similar asymmetry has been argued to hold for subject-auxiliary inversion too, though the issue is complicated due to variation in judgments among native speakers.

Koster also points at parallels between sentence-initial topics and sentential subjects. The following examples from Alrenga (2005: 177-179) demonstrate that topic phrases and sentential subjects cannot occur after other topic phrases.⁷

- (33) a. *John, the book, I gave to.
b. *John, that the Giants lost the World Series shouldn't have bothered.

In (33), *John* is the topic phrase. However (Kuno 1973: 368, fn. 5) presents the following example.

- (34) To me, [that the world is round] is obvious.

Whether or not *to me* is a free adjunct or a fronted complement (see Miller 2001: 969-697 for discussion), it appears in front of the sentential subject. Another example is the following.

- (35) Descartes claimed that the two lines in figure C were parallel and provided a proof based on his second theorem. This proof was in fact mistaken. From his first theorem on the other hand, [that two lines are parallel] certainly does follow, but remarkably, Descartes apparently never noticed this. (Miller 2001: 697)

Miller (2001) argues that discourse conditions determine whether sentential subjects are available in these cases. The following examples illustrate that fronting of one PP

⁷ In (33a), the original sentence is (i).

(i) I gave the book to John

In Alrenga's example, the preposition is stranded. However, the example is equally bad without stranding:

(ii) *To John, the book I gave.

or a sentential subject is possible, but fronting of both is not possible. The examples are from Miller (2001: 697).

- (36) a. Through a detailed observation of gulls, Lorenz thought he had shown that the image of the mother was acquired. This conclusion turned out to be based on a series of misinterpretations. *On the other hand, from his observations of ducklings, that the image of the mother is innate, we have since learned, though Lorenz himself never noticed this.
- b. Through a detailed observation of gulls, Lorenz thought he had shown that the image of the mother was acquired. This conclusion turned out to be based on a series of misinterpretations. On the other hand, from his observations of ducklings, we have since learned that the image of the mother is innate, though Lorenz himself never noticed this.
- c. Through a detailed observation of gulls, Lorenz thought he had shown that the image of the mother was acquired. This conclusion turned out to be based on a series of misinterpretations. On the other hand, that the image of the mother is innate, we have since learned from his observations of ducklings, though Lorenz himself never noticed this.

This can be explained, Miller argues, if sentential subjects actually are real subjects and not structurally topics. More evidence supporting this conclusion comes from Davies and Dubinsky (2009: 122). They start with Koster's (1978) sentence:

- (37) *Such things, that he reads so much doesn't prove.

Then they provide the following examples illustrating that sentential subjects are not responsible for the incompatibility with topics.

- (38) a. *Such things, the fact that he reads so much doesn't prove.
b. *Such things, it doesn't prove that he reads so much.

Both of these examples contain nominal phrases. Davies and Dubinsky (2009) instead advance a parsing explanation, see their paper for details.

Let us look at more data which are problematic for the view that assimilates sentential subjects and topics.

Delahunty (1983: 384-385) points out that topics and sentential subjects differ in important ways: *Wh*-movement to the right of a topic is possible, but not to the left. The pattern is the opposite for sentential subjects. The following examples illustrate this.

- (39) a. To Bill, what will you give for Christmas?
b. And to Cynthia, what do you think you will send?

In these examples there is a topic in the left periphery and a *wh*-item to the right of the topic. The *wh*-item cannot occur to the right.

- (40) a. *On which shelf, the pots will you put?
b. *For whom, a fur coat will you buy?

For sentential subjects, Delahunty argues that the pattern is the opposite, and he provides the following data.

- (41) a. *[That Fred always leaves early], who does bother?
b. *[That the Earth is coming to an end], who does upset?
- (42) a. Who does [that Fred left early] bother so greatly that he refuses to visit us any more?
b. Who does [that the world is ending] upset so terribly that they have decided to abandon the planet?
c. To whom is [that quarks are green] so well known that he cannot conceive of people who have not heard of the notion?

The data involving subject-auxiliary inversion are also discussed in subsection 3.2, but for speakers who accept these data, it is clear that topics and sentential subjects do not occupy the same structural position.

A further argument provided by Delahunty (1983) is the following. Topics may be moved to a clause internal topic position.

- (43) a. Bill says that he will give a raise to Fred.
b. Bill says that to Fred he will give a raise.

However, a phrase cannot be topicalized in an infinitival sentence:

- (44) a. Bill wants to give a raise to Fred.
b. *Bill wants to Fred to give a raise.

Importantly, if sentential subjects are topics, we would not expect them to be possible in an internal position, that is, inside the infinitival clause. This prediction is not borne out:

- (45) Bill wants [that Fred lied] to be obvious to everyone. (Delahunty 1983: 389)

For that reason, Delahunty concludes that sentential subjects are not topics, but rather regular subjects.⁸

Another argument is presented in Hartman (2012), drawing on Lasnik and Saito (1992). Lasnik and Saito observe that topicalization of root subjects is ruled out

⁸ However, see footnote 17 below.

by the Empty Category Principle (Chomsky 1981, 1986a). They claim that this is verified by the following contrast (Lasnik and Saito 1992: 110-111).

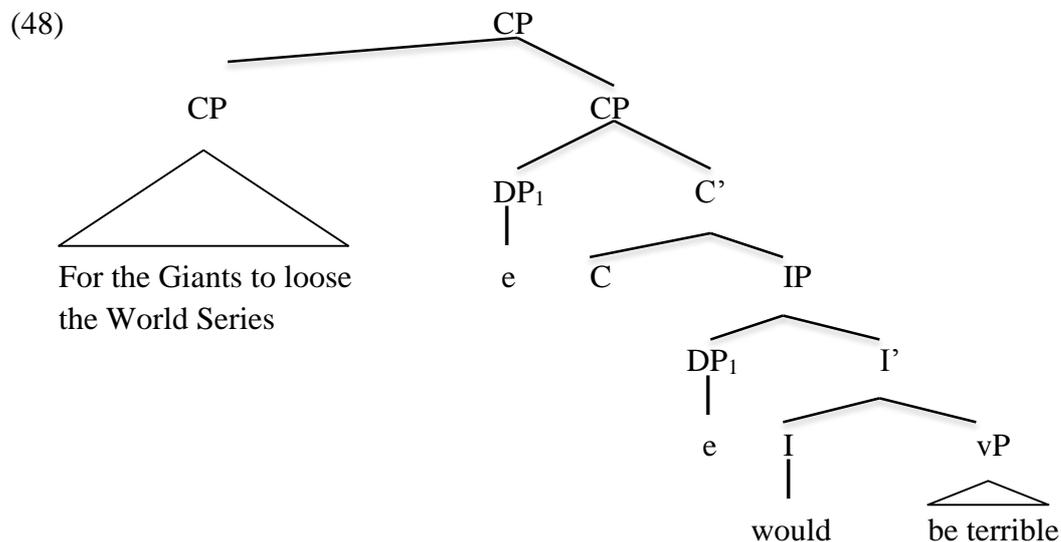
- (46) a. *John thinks that Mary likes himself.
 b. John thinks that himself, Mary likes.
 (47) a. *John thinks that himself likes Mary.
 b. *John thinks that himself, likes Mary.

In (46a), the anaphor *himself* is topicalized and moved to a position in which *John* can bind the anaphor. Lasnik and Saito argue that if vacuous movement of a subject is possible, this should achieve the same effect as in (46b). (47b) shows that this is not the case. Hartmann argues that there therefore cannot be topicalization of sentential subjects either. A problem with this logic is that nominative anaphors are generally disallowed. Thus this is not a very strong argument.

This review of sentential subjects and their possible status as topics has demonstrated that the arguments in favor of these subjects being topics are not particularly strong.

The next argument I will look at is partly more theory-internal: I will show that if one adopts a topic analysis of the kind Koster (1978) suggested, it is easy to capture a range of data.

Koster gave the following analysis of sentential subjects, where I am using the updated structure in Alrenga (2005: 180).



Koster dubs sentential subjects ‘satellites’ because they are outside the sentence proper. These subjects are linked to the subject position by way of a silent nominal phrase which also moved to SpecCP in current terminology (cf. Chomsky 1977 on topic constructions, of which Koster argues sentential subjects are an instance).⁹

⁹ Recent work has illustrated that moved CPs display connectivity effects (see especially Moulton 2013). Consider the following example.

Alrenga (2005) provides an updated and extended analysis of Koster (1978). Alrenga's analysis says that sentential subjects are only possible when a verb subcategorizes for a DP. This relies on an important generalization from Webelhuth (1992: 94).

(49) *The Sentence Trace Universal*

Sentences can only bind DP-traces, i.e. traces with the categorical specification [+N, -V]

This is in part necessary in order to account for the following asymmetry (Alrenga 2005: 175-1766), which was in part already noted by van Gelderen (1985: 139) (see also Webelhuth 1992: 95-96).

- (50) a. It really {sucks/blows/bites/stinks} that the Giants lost the World Series.
 b. That the Giants lost the World Series really {sucks/blows/bites/stinks}.
- (51) a. It {seems/happens/appears/turns out} that the Giants lost the World Series.
 b. *That the Giants lost the World Series {seems/happens/appears/turns out}.¹⁰

Alrenga (2005: 197) also notes these data:

- (52) a. *{This/the Giant's loss} (really) seems.
 b. {This/the Giant's loss} (really) sucks.

The account offered by Alrenga works as follows. The verb *seem* only subcategorizes for a CP complement. This makes it impossible for a null DP to be base generated as a complement and then raise to SpecIP. Since sentential subjects must be linked to a null DP, *seem* cannot have a sentential subject. For *suck* the situation is different: this verb subcategorizes for a DP as well, which makes it possible to link a null DP to the sentential subject.

Given the similarity between sentential subjects and topics, Koster (1978), Alrenga (2005: 182) and Moulton (2013) equate these structures in a way where both have roughly the following representations.¹¹

(i) [That a student from his_i class cheated on the exam] doesn't seem to [any professor]_i to be captured by this document. (Takahashi 2010: 350)

For reasons of space, I cannot discuss this here, but see Ott (in press: fn. 32) for an alternative that is compatible with the present approach.

¹⁰ These data are reminiscent of the discussion in Chomsky (1986b: 140-141) of evidence that traces of clauses need abstract Case.

(i) a. *What did it seem?
 b. What does John believe?
 c. *What is it believed?

- (53) a. [[That he is silly] Op [IP John knows_{TOP}]].
 b. [[That he is silly] Op [IP TOP is well known]].

In both cases, there is operator movement to SpecCP.

Alrenga points out that *seem* can occur with a sentential subject in raising constructions.

- (54) a. That the Giants lost the World Series seemed to bother him.
 b. That the Giants would lose the World Series seemed obvious.

These are not counterexamples to Alrenga's analysis: "In these examples, the null DP argument is base generated within the infinitival or small clause complement of *seem*; it then raises out of this complement to the matrix Spec, IP position and finally moves to an A'-position" (Alrenga 2005: 197). If true, this predicts that if a DP cannot be base generated, the sentence should be bad. The following data confirm this prediction.

- (55) That the Giants would win the World Series seems to have been {hoped
 (for)/felt/wished(for)/insisted/*reasoned} (by most baseball fans).

The analysis extends to the following case as well, not discussed in the literature.¹²

- (56) a. That the Giants lost the World Series seems unlikely.
 b. *That the Giants lost the World Series seems.

As such, this analysis covers a range of facts.

The topic analysis may also have another virtue. One reason why sentential subjects have been treated as topics in the literature is that these subjects appear to be "topical", pragmatically speaking.¹³ However, note that this is the case also for regular nominal subjects.

- (57) Travis likes pasta.

In (57), *Travis* is the topic. This is very typical: "[...] the correlation between topic and subject is extremely strong on the level of discourse and has important grammatical consequences, in English as well as in other languages" (Lambrecht

¹¹ The base position of the null DP argument as a complement of the verb has been ignored in these representations.

¹² Stowell (1981: 165) discusses cases that are related, involving raising adjectives.

(i) a. [That John likes Susan] is certain.
 b. [That the war is over] is hardly likely.

¹³ Miller (2001) argues that the sentential subject has to be discourse-old and that this is the relevant pragmatic notion. See his paper for arguments in favor of this claim.

1994: 131).¹⁴ Lambrecht further argues that subjects are the unmarked topics. Reinhart (1981) argues that topichood is a pragmatic notion and that it cannot be accounted for solely by way of syntactic position (see also Gundel (1988)). Given that no one argues that *Travis* in (57) sits in a topic position in the syntax, it is not entirely clear that pragmatic topichood as such is an argument in favor of the syntactic topic analysis.

3.4. Sentential subjects and embedded clauses

In this subsection, I will discuss the claim that sentential subjects cannot generally occur in embedded clauses (Alrenga 2005), even for speakers who allow sentential subjects in SpecIP in main clauses.¹⁵ We will see that the situation is rather complicated, and that a more extensive investigation of this issue is in order.

To begin with, it is well-known that nominal subjects can easily occur as subjects of embedded sentences.

- (58) a. John knows that [Amy] will leave late.
 b. Sue fears that [all the students] will fail the exam.

Koster (1978) already pointed out that sentential subjects are much less acceptable in the subject position of embedded clauses than in main clauses.¹⁶

- (59) a. ?*Mary is unhappy because for her to travel to Tahiti is no longer necessary.¹⁷

¹⁴ Hartman (2012: 73-74) argues that sentential subjects lack the information-structural properties that topic phrases have. He provides the following data, showing that if the discourse requirement on topic phrases is not met, topic phrases are not licensed. In contrast, sentential subjects are.

- (i) a. A: Have you ever been to Paris?
 b. B: Paris, I visited last year.
 (ii) a. A: What did you do last year?
 b. B: #Paris, I visited last year.
 (iii) a. A: What's bothering you?
 b. B: That John's not here is bothering me.

When checking these judgments, there are speakers who do not find (iii) well-formed, although some agree with Hartman.

Furthermore, Hartman would predict that the pattern would be the same as in (ii) for a sentential subject embedded in a *the fact*-phrase:

- (iv) a. A: What's bothering you?
 b. B: The fact that John's not here is bothering me.

As the data show, (iv) is fine, contrary to (ii). Arguably this shows that the issue is more complicated and that the argument that sentential subjects lack the relevant informational-structural properties is not entirely water-tight.

¹⁵ There has been a lot of work on Main Clause Phenomena in recent years. See Heycock (2006), Haegeman and Úrögdi (2010), Aelbrecht, Haegeman and Nye (2012) and Haegeman (2012) for discussion.

¹⁶ Koster also argues that both topics and sentential subjects do not appear in embedded clauses. However, this issue is complicated and there are counterexamples, cf., among others, Authier (1992) and Bianchi and Frascarelli (2010). See also the discussion below.

¹⁷ Kastner (2013) claims that five native speakers judged this sentence as "not all that bad". Some of my informants also find this sentence acceptable.

- b. Mary is unhappy because her trip to Tahiti is no longer necessary.
- (60) a. ?*That for us to smoke would bother her, I didn't expect.
- b. That our smoking would bother her, I didn't expect.

Alrenga (2005: 178) notes significant lexical sensitivity (see also Hooper and Thompson 1973, Kuno 1973):

- (61) a. I {think/said/believe} that for us to smoke really bothers her.
- b. ?*I regret that for us to smoke bothers her so much.
- c. ?*Mary wishes that for us to smoke bothered her more than it did.

Alrenga (2005: 194) argues that bridge verbs have CP recursion and thus enough structure to host sentential subjects (as topic), whereas other verbs do not have enough projections. This is also consistent with the *Penthouse Principle* (Ross 1973), which says that more syntactic operations are allowed in main clauses than in embedded clauses, on the assumption that topics are generally licensed in main clauses.

Sentential subjects cannot appear as subjects of infinitival complements.¹⁸

- (62) a. John believes [_{IP} that to be obvious].
- b. That John believes [_{IP} *t* to be obvious].
- (63) *I {planned/intended/expected/hoped/prayed} for that the cult members cloned a human baby to be discovered. (Alrenga 2005: 178)

Takahashi (2010: 360) argues that sentential subjects have to move to the specifier of a topic phrase and that a silent determiner, which sits on the top of the sentential subject, requires the topic projection to be present. This is ensured by using features, which I won't go into here.

Alrenga (2005: 195) discusses the absence of sentential subjects in the subject position (SpecIP) of an Exceptional Case Marking (ECM) structure. He argues that since clauses that allow sentential subjects are CPs, a sentential subject is not licit in an ECM context. As noted in Webelhuth (1992: 101), movement of sentential subject fixes the problem. Compare (64) with (62).

- (64) a. *John believes [_{IP} [that Bill is sick] to be obvious].
- b. [That Bill is sick] John believes [_{IP} *t* to be obvious].

¹⁸ This is arguably why sentential subjects also cannot occur in *for ... to ...* constructions in English.

- (i) a. He arranged for her to leave early.
- b. *He arranged for [that she could leave early] to be easy.

Since sentential subjects are bad in embedded environments, we expect them to be bad in these cases as well.

Again, this is in accordance with what the Penthouse Principle predicts. However, there are some problematic examples. Kastner (2013) provides the following examples (from Haegeman 2010):

- (65) a. I found [that no one left such a boring party early] remarkable.
b. I thought [that no one would leave such a boring party early] unlikely.

Some speakers do not like these examples, but they seem to improve if certain small changes are made. The following examples were accepted by two informants.

- (66) a. I thought [that no one would leave such an entertaining party early] to be unlikely.
b. I thought[that no one would leave such an entertaining party early] unlikely to have happened.
c. I thought [that no one would leave such an entertaining party early] very unlikely.

Note also that these examples in (65)-(66) are small clauses, lacking *to be*. This may point at a difference between small clauses and ECM infinitives. A more extensive investigation would be required in order to determine whether or not sentential subjects can occur in small clauses but not in ECM infinitives.

Lastly, Zaenen and Pinkham (1976) and Iwakura (1976) observe that embedded sentential subjects block A-bar movement from within their *c*-command domain. The following examples are taken from Alrenga (2005: 191).

- (67) a. John said that {this/for you to stop smoking} would please Sandy.
b. I wonder who {this/*for you to stop smoking} would please.
(68) a. I can't think of anyone that {this/*for you to stop smoking} would please.
b. Who did you expect John to say that {this/*for you to stop smoking} would please?
(69) a. John thinks that {this/*for her to say such things} shows that Kim wants a raise.
b. What does John think that {this/?*for her to say such things} shows that Kim wants?

Alrenga argues that the failure of A-bar movement is due to the additional phrasal projections that host topics. That is, since the sentential subject is in an A-bar position, the *wh*-phrase would have to move across another A-bar expression, essentially creating an island configuration. For speakers who accept the Delahunty (1983: 385) data discussed earlier, A-bar movement across sentential subjects is acceptable in main clauses.

- (70) a. Who does that Fred left early bother so greatly that he refused to visit

- us any more?
- b. Who does that the world is ending upset so terribly that they have decided to abandon the planet?

For these speakers, it seems that there is an asymmetry between main clauses and embedded clauses when it comes to the availability of A-bar movement, in line with the Penthouse principle. For speakers who do not accept the data in (70), the analyses proposed by Alrenga and Takahashi work.

All of the above examples involve the complementizer *for*. Kastner (2013) argues that we should also look at examples containing *that*. He provides the following two sentences as examples.

- (71) a. I wonder who [that the Mayor resigned his post yesterday] surprised.
 b. I wonder who [that the Mayor resigned his post] caught off guard.

He provides these sentences with two question marks. Some of my informants find both of them bad, whereas others find that they are not acceptable, however, they are a bit better than (67b). This suggests that A-bar movement across sentential subjects is not accepted in general, except in matrix clauses for speakers who allow the sentential subject to appear in subject position.

In summary, it is not clear that sentential subjects can only appear in main clause environments. Several sentential subjects do occur in embedded clauses, though this is contingent on the matrix predicate. As for ECM environments, again verbs seem to differ, though a more complete investigation of ECM verbs is in order. The unavailability of A-bar movement across sentential subjects in embedded environments, due to a sentential subject in an A-bar position, is the strongest argument in favor of sentential subjects being an instance of MCP.

3.5. Summary

This section has discussed the status of sentential subjects in English applying a range of tests. The following table summarizes the tests.

Table 2: Summary of tests of sentential subjects

Test	Syntactically subject	Syntactically topic
Subject-verb agreement	√	√
Subject-auxiliary inversion	√	√
Comparison with syntactic topics	√	
Embedded clauses		√

As for the last two tests, I have looked at the overall evidence and based on that, it seems that the comparison with topics suggests that sentential subjects are syntactically subjects, whereas the topic analysis more easily accounts for the lack of sentential subjects in embedded environments.

I have argued that there is inter-speaker variation as to whether the subject can occur in the canonical subject position or in a topic position in the left periphery of the clause. This variation is especially pronounced when it comes to subject-auxiliary inversion and embedded environments.

4. Sentential subjects in Norwegian

In this section, I want to discuss sentential subjects in Norwegian.¹⁹ I will argue that the data show that sentential subjects are not allowed to occur in SpecIP in Norwegian, but that they are amenable to a topic analysis.

Norwegian is a Verb Second (V2) language. I assume that subjects sit in SpecCP in subject-initial clauses (Schwartz and Vikner 1989, 1996, pace Travis 1984). This means that a sentence with a sentential subject occurring in subject position by default will be consistent with a topic-analysis as proposed by Koster, Alrenga, and others. A typical example of such a sentence with a sentential subject is given in (72).

- (72) At han kom så sent, ødela festen.
that he came so late ruined the party
'That he arrived so late ruined the party.'

However, given that this movement would be string-vacuous, we do not have empirical evidence regarding the structural position of the sentential subject. We only have theoretical arguments involving subject-initial clauses in V2 languages. It is therefore important to develop other tests to determine where exactly a sentential subject sits in Norwegian.

As Koster (1978) observes for Dutch, it is possible to insert an expletive in these cases, showing that the sentential subject occurs in SpecCP. The Dutch example is provided in (73) and a Norwegian example in (74).

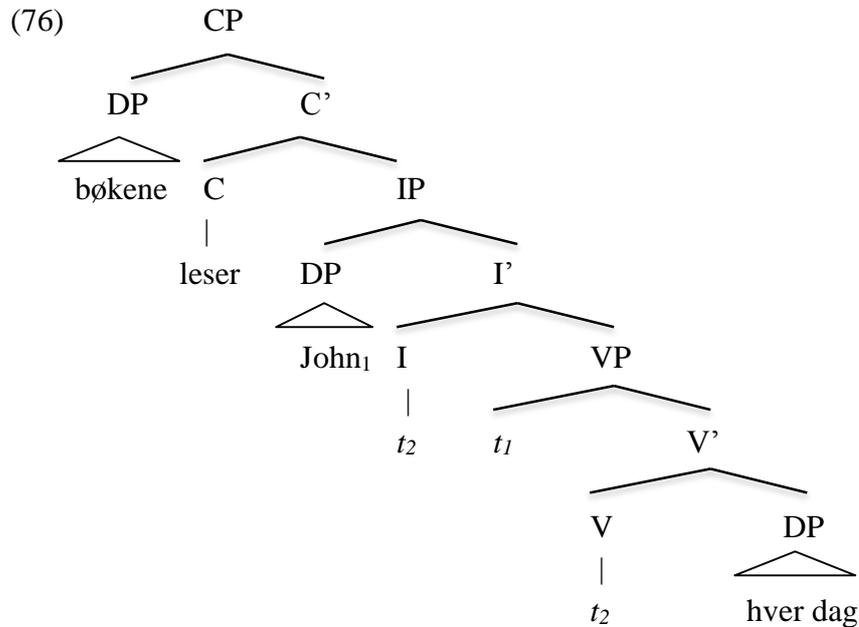
- (73) Dat hij komt (dat) is duidelijk.
that he comes (that) is clear
'That he will come is clear' (Koster 1978)
- (74) At han vil komme, (det) er klart.
that he will come, (that) is clear
'That he will come is clear.'

In sentences with ordinary nominal subjects, the V2 property ensures that the subject has to appear in SpecIP when a non-subject is located in SpecCP. In (75), the direct object has been moved to SpecCP.

¹⁹ The author is a native speaker of Norwegian. All examples have been checked with at least two other native speakers.

- (75) Bøkene leser John hver dag.
 the.books reads John every day
 ‘The books, John reads every day.’

This sentence has the following standard syntactic analysis (cf. e.g., Eide and Áfarli 2003), again setting aside further decompositions, cf. footnote 3.



The V2 property suggests that we can use it to test whether sentential subjects can occur in SpecIP in Norwegian. If a non-subject occurs in SpecCP, the sentential subject should follow the verb and thereby sit in SpecIP. Let us first use a nominal subject as a baseline.

- (77) a. John overrasket alle deltakerne i fjor. *baseline*
 John surprised all the.participants in last.year
 ‘John surprised all the participants last year.’
- b. Alle deltakerne overrasket John i fjor. *fronted object*
 all the.participants surprised John in last.year
 ‘All the participants, John surprised last year.’²⁰
- c. I fjor overrasket John alle deltakerne. *fronted PP*
 in last.year surprised John all the.participants
 ‘Last year, John surprised all the participants.’

²⁰ This example requires that *alle deltakerne* ‘all the participants’ is focused in order to not yield the interpretation that it was the participants who surprised John last year.

We can now insert a sentential subject in the same position as *John*. The examples and judgments are as follows.

- (78) a. At John vant prisen, overrasket alle deltakerne i fjor.
that John won the.prize surprised all the.participants in last.year
'That John won the prize surprised all the participants last year.'
- b. *Alle deltakerne overrasket at John vant prisen, i fjor.
all the.participants surprised that John won the.prize in last.year
Intended: 'It surprised all the participants that John won the prize last year.'
- c. *I fjor overrasket at John vant prisen, alle deltakerne.
in last.year surprised that John won the.prize all the.participants
Intended: 'Last year, it surprised all the participants that John won the prize.'

We can also note that *wh*-movement across the sentential subject is also not possible.

- (79) *Hvem overrasket at John vant prisen, i fjor?
who surprised that John won the.prize in last.year
Intended: 'Who did it surprise that John won the prize last year.'

All the unacceptable examples can be "rescued" if a nominal determiner *det* 'it' is inserted so that the *that*-clause modifies this determiner (Faarlund, Lie and Vannebo 1997: 678).

- (80) a. Det at John vant prisen, overrasket alle deltakerne i fjor.
it that John won the.prize surprised all the.participants in last.year
The fact that John won the prize surprised all the participants last year.'
- b. Alle deltakerne overrasket det at John vant prisen, i fjor.
all the.participants surprised it that John won the.prize in last year
'The fact that John won the prize last year surprised all the participants.'
- c. I fjor overrasket det at John vant prisen, alle deltakerne.
in last.year surprised it that John won the.prize all the.participants
'Last year, the fact that John won the prize surprised all the participants.'
- d. Hvem overrasket det at John vant prisen, i fjor?
who surprised it that John won the.prize in last.year
'Who did the fact that John won the prize last year surprise?'

This is similar to the effect we get in English if a *that*-clause is embedded within a *the fact*-phrase (see Haegeman and Ürögdi 2010 for discussion of how to analyze *the fact that*-phrases).

- (81) a. *Did [that John showed up] please you?
 b. Did [the fact [that John showed up]] please you?

These data from both Norwegian and English show that there are distributional differences between subjects that are clearly nominal and sentential subjects.²¹

Regarding the availability of sentential subjects in embedded clauses in Norwegian, these are generally not available, even with bridge verbs.²²

- (82) a. ??Jeg tror [_{CP} [at John kom for sent] vil irritere mange].
 I think that John came too late will annoy many
 ‘I think that the fact that John arrived too late will annoy many.’
 b. ??Peter forteller [_{CP} [at John kom for sent] vil irritere mange].
 Peter says that John came too late will annoy many
 ‘Peter says that the fact that John came too late will annoy many.’

If the sentential subject is embedded within a nominal phrase, the structures become acceptable.

- (83) a. Jeg tror [_{CP} (at) [det [at John kom for sent]] vil irritere mange].
 I think (that) it that John came too late will annoy many
 ‘I think that the fact that John arrived too late will annoy many.’
 b. Peter forteller [_{CP} at [det at John kom for sent]] vil irritere mange].
 Peter says that it that John came too late will annoy many
 ‘Peter says that the fact that John came too late will annoy many.’

These data confirm that sentential subjects cannot occur in the canonical subject position SpecIP in Norwegian. I have not detected the same kind of speaker variability in Norwegian as I detected in English, which indicates that sentential subjects can never sit in SpecIP for native speakers of Norwegian. Rather, they appear to be topics, sitting in SpecCP or in a dedicated topic phrase (cf. Rizzi 1997).

5. General discussion

English and Norwegian are different: In Norwegian, sentential subjects are structural topics sitting in a topic phrase in the left periphery of the clause. In English, they can either be structural topics or structural subjects. I will now discuss a couple of more general issues concerning sentential subjects.

If sentential subjects are embedded within a covert determiner, as assumed in this paper, why are there distributional differences between sentential subjects and

²¹ Kastner (2013) shows that Hebrew allows the patterns that Norwegian disallows. In that sense, Hebrew may be more similar to one of the English varieties discussed in this paper.

²² “??” indicates 2 on a scale from 1 to 5 where 1 is unacceptable and 5 is acceptable.

ordinary noun phrases? That is, we have seen contrasts such as the following for English (84) and Norwegian (85).

- (84) a. *Did [that John showed up] please you?
b. Did [the fact [that John showed up]] please you?
- (85) a. ??Jeg tror [_{CP} [at John kom for sent] vil irritere mange].
I think that John came too late will annoy many
'I think that the fact that John arrived too late will annoy many.'
b. Jeg tror [_{CP} (at) [det [at John kom for sent]] vil irritere mange].
I think (that) it that John came too late will annoy many
'I think that the fact that John arrived too late will annoy many.'

If the a-examples in (84) and (85) contain a covert determiner, why are these examples acceptable? There has to be a difference between real nominal phrases and sentential subjects. Note also that although a DP subject can appear in an initial CP, an initial CP cannot appear inside an initial CP (Adger 2003: 299).

- (86) a. [That [the answer] is obvious] upset Hermes.
b. *[That [that the world is round] is obvious] upset Hermes.
c. *[That [whether the world is round] is unknown] bothered Athena.

Again, this points at a difference between “normal” nominal subjects and sentential subjects.

Takahashi (2010) suggests a feature-based analysis whereby the silent determiner is only licensed by a topic head. The answer could also be more semantic in nature, viz. the proposal in Moulton (2013). Since the question of what category sentential subjects are has not occupied us in this paper, I won't discuss these alternatives further.

Even though many analyses claim that sentential subjects cannot move, it is not the case that constituents of category CP cannot move in general. Moulton (2013) cites Stowell (1987) who shows that the clausal pro-form *so* is one item that seems to move. This movement occurs even with verbs that do not select a DP, such as *seems*.

- (87) a. It seems so.
b. *That seems.
c. So it seems.

Moulton claims that the correct generalization is that CPs with internal structure do not move. Although he hints at the presence of a complementizer, he does not present a way to implement this generalization. In the current paper, I have not said much about whether sentential subjects move or not. The structural topic analysis claims that they are base-generated in the topic position, whereas the structural subject analysis argues that the subject does move. However, both analyses have a constituent moving from within the verbal domain to the canonical subject position SpecIP: either

the sentential subject itself or an empty category. Reconstruction data provided in Moulton (2013) also show that this kind of movement is required.

Sentential subjects are most likely of category D. There is definitely movement involved. There is also cross-linguistic evidence regarding the syntactic position of sentential subjects. I have also argued that speakers of English differ in terms of where the sentential subject is structurally located.

6. Conclusions

This paper has discussed the structural position of sentential subjects in English and Norwegian. It has been assumed that sentential subjects are introduced by a DP shell, that is, that they have a nominal property. The paper argues that there is variation among English speakers and that the sentential subject sits in the canonical subject position for some speakers whereas it sits in a topic position in the left periphery of the clause for other speakers. In Norwegian, sentential subjects cannot sit in the canonical subject position, something that was tested using the V2 property of Norwegian. Thus sentential subjects have different positions across languages, and only in depth analyses for each language can reveal what the structural position is for each language.

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