

Gøre-Support in Danish*

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ABSTRACT: In this paper, we provide an analysis of *gøre*-support in Danish, a process akin to English *do*-support, which arises only in three environments: Verb Phrase Topicalization (VPT), Verb Phrase Ellipsis (VPE), and Verb Phrase Pronominalization (VPP). We provide a description of *gøre*-support and the environments in which it occurs, as well as an analysis of why the phenomenon is restricted to these three environments that relies on Head Movement being a post-Convergence process in Danish. Our analysis thus contributes to the ongoing debate in the literature concerning whether, as proposed by Chomsky (1999, 2001), the essential nature of Head Movement is ‘phonological’.

KEYWORDS: *gøre*-support, *do*-support, Head Movement, verb phrase anaphora, PF

1. Introduction

English *do*-support has been successfully analyzed as a last resort operation since at least as early as Chomsky (1957:62-69). In this tradition, a verb form *do* is inserted to bear phonological material, specifically tense inflection, that would otherwise not have a host. The environments triggering *do*-support are well-known and include negation, polarity focus, questions, Verb Phrase Topicalization (VPT), and Verb Phrase Ellipsis (VPE), which are illustrated in (1)-(5) respectively.

- | | | |
|-----|---|---------------------|
| (1) | Jasper <i>did</i> not wash the car. | [negation] |
| (2) | Jasper <i>DID</i> wash the car. | [polarity focus] |
| (3) | <i>Did</i> Jasper wash the car? | [polarity question] |
| (4) | Jasper promised he’d wash the car and [_{VP} wash the car],
he <i>did</i> <wash the car>. | [VPT] |
| (5) | Mona didn’t wash the car, but Jasper <i>did</i> [wash the car]. | [VPE] |

The formal explanation for this distribution of *do*-support is also reasonably well-understood. In English, the normal means by which tense inflection located in T appears on a main verb is by Lowering of the inflection in the Morphological component of the grammar (Embick and Noyer 2001:56, in the spirit of earlier work by Pollock 1989; Chomsky 1991). In the five environments given above, the regular Lowering of tense is prevented either by intervening phonological material, i.e. negation (1), prosodic features (2), or a subject DP (3), movement, as in (4), or deletion, as in (5), thereby stranding the inflectional material and triggering *do*-support.

A surface-similar construction exists in Danish, involving the verb form *gøre*; it occurs in three environments when no auxiliaries are present: VPT, as in (6), VPE, as in (7), and Verb Phrase Pronominalization (VPP), a little-studied type of verb phrase anaphora in which a proform *det* replaces a verb phrase, as in (8).¹

- | | | |
|-----|---|-------|
| (6) | <i>Jasper lovede at vaske bilen og [_{VP} vaske bilen] gjorde han</i>
Jasper promise.PAST to wash car.DEF and wash car.DEF GØRE.PAST he
(<i>så sandelig</i>).
so truly
‘Jasper promised to wash the car and wash the car, he did (indeed).’ | [VPT] |
| (7) | <i>Mona vaskede ikke bilen men Jasper gjorde.</i>
Mona wash.PAST not car.DEF but Jasper GØRE.PAST
‘Mona didn’t wash the car, but Jasper did.’ | [VPE] |

- (8) *Mona vaskede ikke bilen men det gjorde Jasper.*
 Mona wash.PAST not car.DEF but DET GØRE.PAST Jasper
 ‘Mona didn’t wash the car, but Jasper did.’ [VPP]

While processes cognate to *gøre*-support have been discussed for Swedish (Källgren and Prince 1989) and Norwegian (Lødrup 1990, 1994), to our knowledge there is no treatment of the phenomenon in Danish, though it is mentioned in passing by Hansen (1967:69), Diderichsen (1968:63), and Vikner (2001:456-7). Thus our primary objective here is to begin to fill that descriptive gap by providing a description of *gøre*-support in main clauses in Danish and showing that it is indeed a last resort operation like English *do*-support.

Our second objective is to provide an explanation for why *gøre*-support should occur in Danish in the environments it does. Unlike English, the unification of tense inflection on T with a verb or auxiliary in Danish main clauses is not carried out via Morphological Lowering. Instead, in the absence of an auxiliary, the main verb raises obligatorily into T in order to realize the tense inflection situated there. Intervening negation, as in (9), polarity focus,² as in (10), and an intervening subject DP in polarity questions, as in (11), do not interfere. In these environments, an operation like *gøre*-support is thus not necessary.³

- (9) *Jasper vaskede ikke bilen.*
 Jasper wash.PAST not car.DEF
 ‘Jasper didn’t wash the car.’ [negation]
- (10) *(Jo,) Jasper vaskede faktisk bilen.*
 yes Jasper wash.PAST actually car.DEF
 ‘Actually, Jasper did wash the car.’ [polarity focus]
- (11) *Vaskede Jasper bilen?*
 wash.PAST Jasper car.DEF
 ‘Did Jasper wash the car?’ [polarity question]

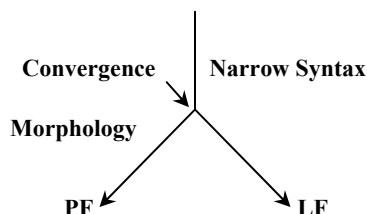
The environments that trigger Aux-Support (as we are going to call the unified last resort operation in English and Danish) fall into two classes. The first, comprising the environments in (9)-(11) in which Aux-Support is triggered only in English, is unified by the presence of phonological material that interferes with T Lowering but not with verb raising. We will argue that the second class of environments, comprising VPE and VPT, and VPP in Danish, can also be formally unified. Aux-Support is triggered in both English and Danish in these environments because of manipulation of the VP⁴ at Convergence, which interferes both with verb raising and T Lowering. Since in Danish main clauses, the tense inflection in T is realized solely through raising of the verb, only this latter set of environments is expected to trigger Aux-Support.

The analysis of *gøre*-support that we will propose bears on the common understanding of verb raising as Head Movement and also on how verb raising interacts with copy deletion and ellipsis. Our third objective is to consider the data from Danish in light of data from Hebrew, a verb-raising language that does not exhibit Aux-Support with VPE or VPT. We suggest that the difference between the two languages derives from a difference in where the effects of Head Movement take place.

Since the topic of this paper concerns the fine details of the architecture of the grammar, we must define unambiguously the terms we will be using, though they are not by any means nonstandard. The point at which syntactic objects created in the narrow syntax are sent to the PF and LF interfaces we refer to as ‘Convergence’. The component after Convergence on the branch leading to the PF interface, we assume to be a ‘Morphological’ component (Halle 1990; Halle

and Marantz 1993; Harley and Noyer 1999), in which syntactic structures that have Converged are further manipulated by operations such as Lowering (Embick and Noyer 2001). This view of the grammar is schematized in (12).

(12)



The remainder of this paper is structured as follows: in §2, we address our first objective, providing a description of the phenomenon of *gøre*-support in Danish and our analyses of the environments in which it appears. In §3, we address the second objective, formally characterizing these environments as ones in which the realization of the VP is altered at Convergence and showing that this manipulation bleeds V raising. In §4, we consider VPE and VPT in Hebrew and work towards an understanding of how this language differs from English and Danish. In §5, we provide a short conclusion.

2. Three environments for *gøre*-support

The Danish verb *gøre* has at least two uses. In sentences like (13) and (14) it functions as a main verb, taking one or more nonverbal internal arguments.

- (13) *Vi må gøre noget ved de vinduer.*
 we must do something to those windows
 ‘We must do something about those windows.’
- (14) *Forestillingen vil gøre et stort indtryk på dem.*
 show.DEF will make a big impression on them
 ‘The show made a big impression on them.’

The second use of *gøre* is as an auxiliary or support verb. This use is restricted to a narrow set of syntactic environments. We believe that this second use is akin to English *do*-support, though the range of environments in which *gøre* appears is narrower. We characterize what the two have in common through the notion of Aux-Support, the defining properties of which are given in (15).

(15) Aux-Support

The occurrence of a verbal form which:

- i. is used in place of another verb form to express verbal inflection features, especially tense (but perhaps also finiteness, mood or aspect),
- ii. does not express any meaning beyond that, and
- iii. does not impose any semantic restrictions on the main verb or verb phrase of the clause.

To illustrate, consider the use of *do* in (16) below. It expresses past tense in place of the main verb (compare with (17)) or an auxiliary (compare with *have* in (18)). It does not express any meaning beyond that; if it were able to express its main verb meaning, (19) would be

grammatical. Nor does it impose any semantic restriction on the main verb or VP, as it coöccurs with unaccusative verbs like *faint*, experiencer verbs like *feel*, and agentive verbs like *move*.

- (16) I didn't {faint/feel the heat/move the lamp}.
- (17) I {fainted/felt the heat/moved the lamp}.
- (18) I hadn't {fainted yet/felt the heat/moved the lamp}.
- (19) *I didn't the dishes.⁵

The rest of this section is concerned with showing that the support use of *gøre* systematically exhibits these three traits as well. We discuss of each of the environments that trigger *gøre*-support in turn.

2.1 Verb Phrase Topicalization

First, the support use of *gøre* is found in the context of Verb Phrase Topicalization (VPT), as shown in (6) and (20a-b).

- (20) a. CONTEXT: 'As an invalid from the First World War he has a small pension that covers coffee and food in the cheapest places.'
 [VP *Sulte*] **gør** han ikke, og han har endda råd til at
 starve GØRE.PRES he not and he has even affordance to to
bestikke folk.
 bribe people
 'Starve, he doesn't, and he can even afford to bribe people.' [Korpus 2000]
- b. CONTEXT: 'Vibeke Ege had been my patient a couple of years earlier. I don't know what gave her the idea to contact me again. The official reason was that she had had a sprained ankle and that she thought that it would benefit from a little massage.'
 [VP *Trænge til det*] **gjorde** den knapt, men så var kontakten
 need to it GØRE.PAST it hardly but then was contact.DEF
ganske legalt i orden.
 perfectly legally in order
 'It (=the ankle) hardly needed it (=massage), but this way the contact was perfectly justified.' [Korpus 2000]

In these examples the fronted main verb is infinitival and the tense morphology (present tense in (20a) and past tense in (6) and (20b)) is expressed on *gøre*, resulting in the finite forms *gør* and *gjorde*.⁶ These finite verb forms appear immediately after the fronted VP manifesting Danish's characteristic verb second word order. Without VPT, *gøre* cannot appear, as shown in (21); rather, tense morphology must be realized on the main verb, as in (22).

- (21) **Han gør ikke [sulte] og ...*
 he GØRE.PRES not starve and
- (22) *Han sulter ikke og ...*
 he starve.PRES not and
 'He doesn't starve and ...'

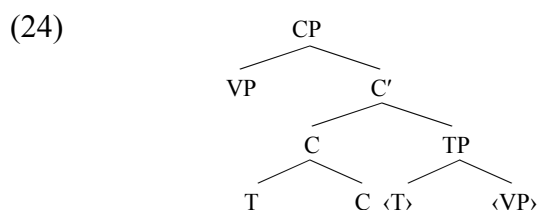
Further evidence that *gøre* appears instead of another verbal form in (6) and (20a-b) comes from the fact that VPT can also strand modals (23a) and other auxiliaries, specifically perfect aspect *have* (23b) and passive *blive* (23c) (the last two select for a participial form of the main verb, whereas the modal, like *gøre*, requires an infinitival form).

- (23) a. CONTEXT: ‘There are slow, empty days and what can one write about then?’
 [VP *Undersøge noget*] **kan** man jo altid ...
 investigate something can one ADV always
 ‘One can always investigate something’ [Korpus 2000]
- b. CONTEXT: ‘Infidelity is a dangerous and sensitive subject which cannot be measured and made the subject of statistics.’
 [VP *Forsøgt*] **har** man selvfølgelig ... [discussion of the Kinsey reports]
 attempted has one of course
 ‘Though people have tried of course...’ [Korpus 2000]
- c. CONTEXT: ‘Grundfos employees have bribed civil servants in Iraq and 72 other Danish companies are being investigated by the UN.’
 [VP *Straffet*] **bliver** de dog næppe, vurderer eksperter.
 punished become they though hardly evaluate experts
 ‘It’s unlikely that they will be punished say experts.’
 [Information 8/20-21, 2005, p. 3]

Finally, in accordance with (15iii), *gøre*-support does not impose any semantic restrictions on the fronted VP: *gøre* cooccurs with an agentive verb in (6), with an experiencer verb in (20a), and with a stative verb in (20b).

As is the case in other languages (see e.g. Ward (1988) on English, Källgren and Prince (1989:52) on Swedish, and Landau (2006:40-42) on Hebrew), Danish VP fronting is pragmatically restricted. The fronted VP is either Discourse-Old, as in (6), or it stands in a (contrastive) set relation to an already evoked VP meaning. In (20a) the condition denoted by the fronted VP (starving) is being contrasted with the general condition of living on a small income described in the preceding text, and in (20b) the contrast is between the foot benefiting from massage and the foot needing it.

In these respects, VPT patterns with the topicalization of nonverbal phrases in Danish which also serves to express discourse continuation or contrast (Diderichsen 1968:191-2). Consequently we assume that VPT involves movement of a topic-marked VP to Spec-CP, accompanied by movement of T to C, as shown in (24).



This understanding of Danish VPT is supported by two further considerations. First, Lødrup (1990:3-4) and Källgren and Prince (1989:48-52) identify VPT in the closely related Mainland Scandinavian languages as an unbounded dependency construction. Second, topicalization of nonverbal phrases in Danish has been argued to involve movement to Spec-CP, as opposed to adjunction to IP/TP (Vikner 1995).

2.2 Verb Phrase Ellipsis

The second environment for *gøre*-support is Verb Phrase Ellipsis (VPE). For reasons that we do not currently understand, the use of VPE is somewhat restricted in Danish compared to its use in English, especially in main clauses. Nonetheless, it seems to be a productive part of the grammar of the language, and some representative examples are given in (25a-c), where Δ marks the site of VPE.

- (25) a. CONTEXT: 'There is nothing wrong with our system...'
*Enten følger spillerne det, eller også **gør** de ikke Δ .*
 either follow players.DEF it or also gøre.PRES they not
 'Either the players follow it (=the system), or they don't.' [Korpus 2000]
- b. *Snydebilleder hedder de vist. Vel **gør** de ej Δ .*
 cheat.pictures be.called they supposedly well gøre.PRES they not
 'I believe they are called cheating-pictures. No they aren't!' [Korpus 2000]
- c. *Men jeg ser ingen forbindelse til den danske statsborger Niels Lassen.*
 but I see no connection to the Danish citizen N. L.
Gør De Δ ?
 gøre.PRES you
 'But I don't see any connection to the Danish citizen Niels Lassen.
 Do you?'
 [From Leif Davidsen, 'De gode søstre Lindhardt og Ringhof', 2002:144]

Again, *gøre* expresses tense morphology (past in (7) and present in (25a-c)) and takes the place of a finite main verb, as can be appreciated by comparing (25a) with (26) and (27).

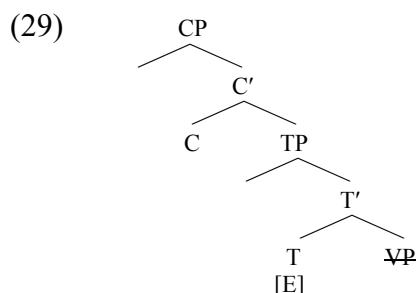
- (26) *Enten følger spillerne det, eller også **følger** de det ikke.*
 either follow players.DEF it or also follow.PRES they it not
 'Either players follow it, or they don't follow it.'
- (27) **Enten følger spillerne det, eller også **gør** de ikke [følge det].*
 either follow players.DEF it or also gøre.PRES they not follow it

As with VPT, *gøre* alternates with modals, e.g. (28a), and auxiliaries, e.g. perfect aspect *have* in (28b).

- (28) a. *Jeg har prøvet at male det [...] men jeg **kan** ikke Δ .*
 I have tried to paint it but I can not
 'I have tried to paint it... but I can't.' [DK87-90]
- b. *Vi har ikke fanget noget, **har** I Δ ?*
 we have not caught something have you.PL
 'We haven't caught anything. Have you?' [Korpus 2000]

The support use of *gøre* imposes no restrictions on the elided VP, as can be seen from the fact that the meaning of the elided VP can be an action (wash the car in (7), following the system in (25a)), a state (being called cheating-pictures in (25b)), or an experience or mental state (seeing a connection in (25c)).

Following Merchant (2001), we take Danish VPE to be the result of a feature [E] which causes the nonpronunciation of the sister of the head that bears it (T), as illustrated in (29). We will lay out our assumptions about the precise way in which the VP is not pronounced in §3.



The [E] feature also manages the semantic requirements of VPE, specifically that there be an appropriate antecedent for the elided VP (see Merchant (2001:25-29) for details).

2.3 Verb Phrase Pronominalization

The third and final environment for *gøre*-support also involves a type of VP anaphora; instead of the anaphoric VP going missing as in VPE, it is realized as an invariant proform *det*. We therefore refer to this phenomenon as Verb Phrase Pronominalization, or VPP. The proform is equivalent to the 3rd person singular neuter pronoun, though we will gloss it as DET since the analysis we adopt for VPP entails a different syntactic origin for *det* in its two uses. VPP is very common in Danish, which might help explain why VPE is somewhat less common in Danish compared to VPE in English. The VPP phenomenon is noted in descriptive grammars (e.g. Hansen 1967:31; Diderichsen 1968:178; Allen et al. 1995:158-9), but has received no theoretical treatment.⁷ The proform typically shows up in clause-initial position, as in (8), (30c), and (30d), though it may also surface in the position where nonpronominalized, nonfinite VPs normally occur, as in (30a) and (30b).⁸

- (30)
- a. *Vi trættes, men hvem **gør** ikke det!*
 we fight but who GØRE.PRES not DET
 ‘We fight with each other, but who don’t!’ [Korpus 2000]
 - b. Q: *Ved I hvor **det** ligger?*
 know you.PL where it lies
 ‘Do you know where it is?’
 A: *Selvfølgelig **gør** vi **det**.*
 of.course GØRE.PRES we DET
 ‘Of course we do.’ [elicitation]
 - c. *Jeg bor ikke i Svaneparken, men **det** **gør** mine børn.*
 I live not in Svaneparken, but DET GØRE.PRES my children
 ‘I don’t live in Svaneparken, but my children do.’ [Korpus 2000]
 - d. *Bare bilen ville bryde sammen lige nu! Men **det** **gjorde** den*
 just car.DEF would break together right now but DET GØRE.PAST it
selvfølgelig ikke!
 of.course not
 ‘If only the train would break down right now! But of course it didn’t!’

Again, *gøre* carries the tense morphology and is incompatible with a non-pronominalized VP, as shown by the contrast between (31) and A's utterance in (30b).

- (31) **Selvfølgelig gør* vi [_{VP} *vide* *hvor det ligger*].
of.course GØRE.PRES we know where it lies

As in VPT and VPE, *gøre* does not impose any semantic restrictions on the pronominalized VP. The examples in (8) and (30a) involve active agentive verbs, (30b) and (30c) involve stative verbs, and in (30d) the target of VPP is an unaccusative VP, *break down*. As expected, VPP can also be licensed by modals (32a), perfect aspect *have* (32b), and passive *blive* (32c).

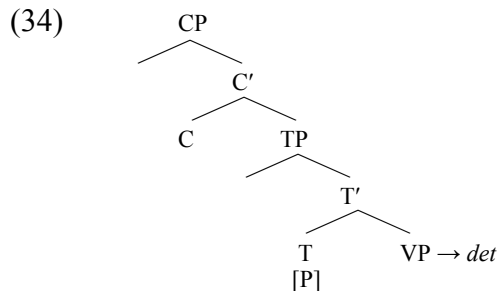
- (32) a. *Han siger han kan hække, men det kan han ikke.*
he says he can crochet but DET can he not
‘He says that he can crochet, but he can’t.’ [elicitation]
- b. [Sampson] *Vi har holdt øje med hende i flere år.*
we have held eye with her in several years
‘We have kept an eye on her for several years.’
[Toftlund] *Det har alle åbenbart.*
DET has everyone apparently
‘It seems that everyone has.’
[From Leif Davidsen, *De gode søstre Lindhardt og Ringhof*, 2002]
- c. *Det var første gang, jeg ønskede at blive afsat,*
it was first time I wanted to become dismissed
og det blev jeg.
and DET became I
‘It was the first time I had wanted to be dismissed and I was.’ [DK97-90]

Despite involving an overt proform, there is evidence that Danish VPP is surface anaphora in the sense of Hankamer and Sag (1976).⁹ It passes their diagnostics for surface: (a) it strongly prefers a linguistic antecedent (33a); (b) it exhibits the Missing Antecedent Phenomenon (33b); and (c) it requires syntactic parallelism between the antecedent and target clauses with respect to voice (33c) and transitivity (33d).

- (33) a. i. *Palle har spundet ud fra 10-meter vippen*
P. has jumped out from 10-meter diving.board.DEF
og det har jeg også.
and DET have I too
‘Peter has jumped from the 10 meter diving board, and I have too.’
- ii. CONTEXT: A and B are observing Palle jump from the 10 meter diving board.
A: ??*Det har jeg også.*
DET have I too. [cf. Lødrup 1994, ex. (34)]

- b. *Jeg har aldrig redet på en kamel, men det har Ivan og han siger at den stank forfærdeligt.*
 I have never ridden on a camel but DET has Ivan and he says that it.COM stank terribly
 ‘I have never ridden a camel, but Ivan has and he says it stank terribly.’
- c. *??Skraldespanden skulle tømmes og jeg gjorde det.*
 garbage.bucket.DEF should empty.PASS and I GØRE.PAST DET
 Intended: ‘The garbage can needed to be emptied and I emptied it.’
- d. **Jeg ville hænge hesteskoen over døren og det gør den nu.*
 I wanted hang horse.shoe.DEF over door.DEF and DET GØRE.PRES it now
 Intended: ‘I wanted to hang the horseshoe over the door and it hangs there now.’

Moreover, VPP is possible with unaccusative verbs (30d) and passive verbs (32c). If the subject of these clauses originates as the internal argument of the verb, then this is further evidence that the pronominalized VP has internal syntactic structure. We therefore propose an analysis of VPP that is very similar to the analysis adopted for VPE above. Extending Merchant's (2001) feature-driven analysis, we posit a feature [P] (P for Pronominalization) which occurs on T and which causes the sister of T to be pronounced as the proform *det*. This is shown schematically in (34).



As mentioned above, the surface proform *det* may appear fronted due to the VP being topic-marked (examples (30c-d) and (32a-c)), but the appearance of another element in Spec-CP, as in (30a-b), preempts this movement.

2.4 Summary

What we have shown so far is that Danish has Aux-Support in the sense laid out in (15). In the three environments examined above, the verb *gøre* appears in place of a main verb or auxiliary and expresses tense morphology. In these environments, *gøre* does not express any meaning beyond tense. In particular, it does not express the content associated with its main verb uses in (13) and (14). As an indication of its lack of semantic content, the support use of *gøre* places no restrictions on the VP it is associated with, but occurs freely with agentive, stative, and unaccusative predicates. In these respects, *gøre* is similar to English *do*. *Gøre*-support, however, is only found in the context of VPT, VPE, and VPP, whereas English *do*-support appears in a wider range of environments (see §1). We have already noted that the lack of *gøre*-support in

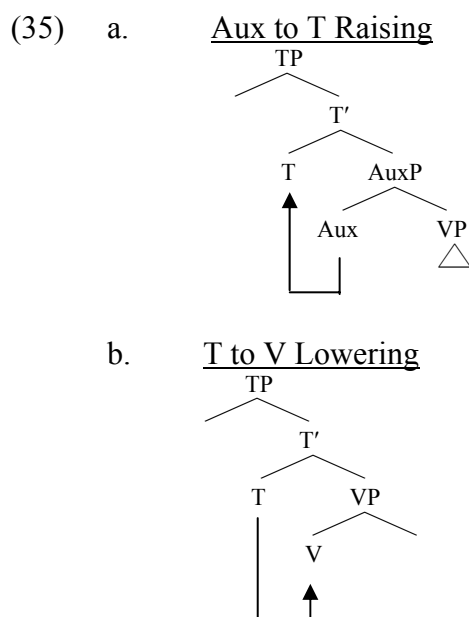
those environments follows from the fact that Danish has V to T movement for auxiliaries and main verbs alike.

What still needs to be explained is why Danish has *gøre*-support at all and why it has it in exactly the three environments laid out above. At a descriptive level, what is common to VPT, VPE, and VPP is that the verb phrase is realized in a noncanonical fashion: in VPT the verb phrase is realized in fronted position, in VPE it is not overtly realized at all, and in VPP it is realized as a proform (which may appear in situ or further left in the clause). We suggest that it is the noncanonical realization of the VP that triggers *gøre*-support in Danish. The question then becomes what syntactic mechanisms underlie these various realizations of the VP and exactly how and why they result in *gøre* being inserted. The next section is devoted to addressing that question.

3. Analysis

3.1 *Gøre*-support in VPT, VPE, and VPP

A standard analysis of English *do*-support is that it is a last resort operation that takes place to express the features on T when they would otherwise have no legitimate Spell Out (Chomsky 1957:61-72; Bobaljik 1995:63-77; Lasnik 2000:81-105; Bobaljik 2002:210-221). In the normal case, the features on T are expressed by an auxiliary verb raising to T, or in the absence of an auxiliary, by the features on T Lowering onto the main verb in the Morphological component of syntax (since main verbs do not raise to T in English). These two options are illustrated schematically in (35).



It is when T to V Lowering cannot take place that *do*-support arises in English. Bobaljik (1995) provides a unified analysis of the contexts in which this occurs in his phonological adjacency requirement on Lowering. Whenever phonological material intervenes between T and V (or when V has gone missing in the case of VPE), T is unable to lower to V,¹⁰ and *do*-support must take place to express the features on T. Lowering is thus blocked when negation intervenes between T and V; when the subject intervenes, as in questions where T raises to C; when there is

intervening prosodic material, as with polarity focus; when the verb is fronted, as in VPT; or when the verb goes missing, as in VPE. In the case of sentences with auxiliaries, however, the auxiliary verb can always raise to T, thus providing a legitimate pronunciation for the features on T.

Empirical support for the last resort analysis of *do*-support comes from the fact that *do* cannot be inserted when it is not necessary—that is, in normal declarative sentence, as in (36), or in sentences where *do*-support could arise but another auxiliary is present, as in (37) (see also the Danish examples in (21), (27), and (31)).

- (36) *Jasper did wash the car.
- (37) a. *Jasper did not have washed the car. [negation]
 b. *Jasper DID have washed the car. [polarity focus]
 c. *Did Jasper have washed the car? [polarity question]
 d. *Jasper promised he had washed the car,
 and washed the car, he did have <washed the car>. [VPT]
 e. *Mona didn't wash the car, but Jasper did have [~~wash the car~~]. [VPE]

A last resort analysis of *do*-support provides a clear reason why these examples are ungrammatical: *do*-support has applied without cause since the features on T could have been realized by normal means.

Some analyses of Aux-Support have been proposed, however, that do not rely on it being a last resort operation. Yet, each analysis incorporates features that get at the restricted nature of Aux-Support. Working within Lexical Functional Grammar (LFG), a non-derivational framework where late insertion of linguistic items is not possible, Lødrup (1990) analyzes VPT in Norwegian and considers *gjøre* (the Norwegian equivalent of Danish *gøre*) to be a normal auxiliary. To capture the restricted distribution of *gjøre*, Lødrup places restriction R on the support-Aux, which states that “the verbal complement of *gjøre* must enter into an unbounded dependency” (pg. 10). This restriction, while admittedly strange, accounts for the appearance of *gjøre* in VPT sentences. It fails to account for VPP-like sentences in Norwegian, where the VP proform *det* stays in situ (38),¹¹ and Lødrup has to further stipulate that restriction R does not apply to *det*.

- (38) (*Liker du jordbær?*) *Ja, jeg gjør det.*
 ‘(Do you like strawberries?) Yes, I do that.’ [Lødrup 1990:4, ex. 9]

While Lødrup’s analysis of *gjøre* in Norwegian has the correct empirical coverage, it does so by means of a stipulative restriction. It is hard to see how this is any more explanatory than the last resort analyses that have been proposed.

Grimshaw (1997) analyzes verb raising in English within the framework of Optimality Theory (OT), providing an account of *do*-support in certain environments of English.¹² She considers the highest auxiliary verb to originate in I (our T), thus accounting for why there is no *do*-support in sentences with auxiliaries. In languages like English, main verbs do not raise due to a high ranking constraint against lexical head movement (NO-LEX-MVT). *Do*-support arises due to the constraint OB-HD (which requires every projected category to have a lexically filled head) dominating the low ranking FULL-INTERP constraint, which militates against the insertion of lexical material into the output and captures the last resort nature of the process. In a language like Danish, where main verbs normally raise however, the ranking of NO-LEX-MVT and OB-HD are reversed (i.e. OB-HD >> NO-LEX-MVT), accounting for why there is no *gøre*-support in many

of the environments it is found in English. However, we have seen that in the context of VPT, VPE, and VPP, the main verb fails to raise, triggering *gøre*-support. Therefore, it seems that either the opposite ranking of OB-HD and NO-LEX-MVT is needed just in case there is VPT, VPE, or VPP, or some other constraint is needed to account for *gøre*-support in Danish. While Grimshaw's analysis could probably be adapted to account for the Danish data laid out in §2, as it stands it does not, and just like Lødrup's LFG analysis, it is no more explanatory than the last resort analyses.

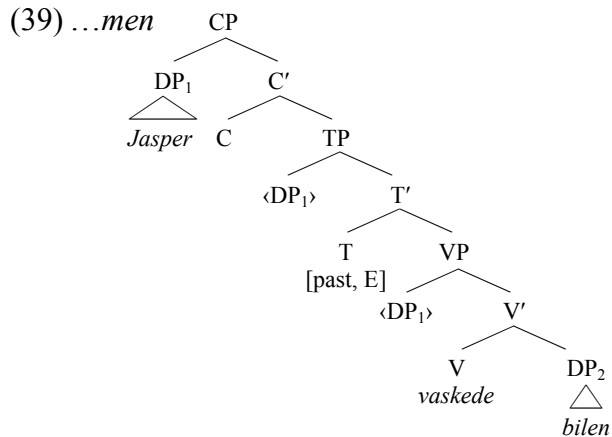
Given the properties of *gøre*-support and its similarity to English *do*-support, it is reasonable to pursue an analysis of *gøre*-support as a last resort operation. If *gøre*-support is a Last Resort operation in Danish, however, it is curious why it occurs at all, given that, unlike in English, main verbs normally raise to T. This it to say, Lowering of T to V never takes place in Danish main clauses,¹³ and since it is in the contexts where T Lowering is not possible where *do*-support takes place in English, we would predict *gøre*-support never to be necessary in Danish.

Since Danish does not have T to V Lowering, it must be the case that something interferes with the raising of V to T, triggering *gøre*-support in VPT, VPE, and VPP. Chomsky (1995:368, 2001:37-38) suggests that Head Movement, unlike Phrasal Movement, does not apply solely in the narrow syntax. Head Movement contains a Morphological (i.e. post-Convergence) component.¹⁴ Capitalizing on this proposal, we have a straightforward account of why *gøre*-support occurs in these environments. Essentially, in these three constructions, some operation alters the normal realization of VP, thereby bleeding Head Movement and triggering *gøre*-support. These operations are movement plus copy deletion (for VPT), ellipsis (for VPE), and pronominalization (for VPP).

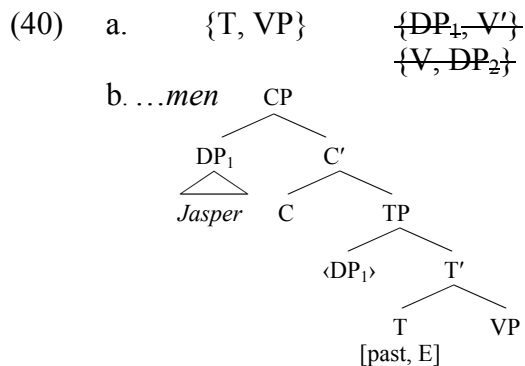
There are two possibilities for when the operations that affect the VP take place: in the narrow syntax or at Convergence¹⁵ before Head Movement takes place. It is of course possible that some of these operations take place in the narrow syntax and others at Convergence, but Landau (2006) provides arguments that operations that are independently needed at one of the interfaces (i.e. PF or LF) should not be doubled in the narrow syntax. Based on the fact that PF deletion is necessary to account for VPE, he argues that decisions about chain resolution (i.e. which copy in a chain is pronounced) are made at the PF interface. In the case of VPE, all of the phonological features of the verb phrase go missing (i.e. ellipsis) but the VP is still interpretable at LF, meaning that deletion cannot take place in the narrow syntax. If deletion took place in the narrow syntax, the VP would not be LF- or PF-interpretable. As it is, the VP receives its LF interpretation. Therefore, the ellipsis must be a PF operation. If this is the case, we have a clear understanding of the reason *gøre*-support is necessary in VPE. Consider the derivation of (7) immediately before Convergence in (39).

- (7) *Mona vaskede ikke bilen men Jasper gjorde.*
 Mona wash.PAST not car.DEF but Jasper GØRE.PAST
 'Mona didn't wash the car, but Jasper did.'

[VPE]



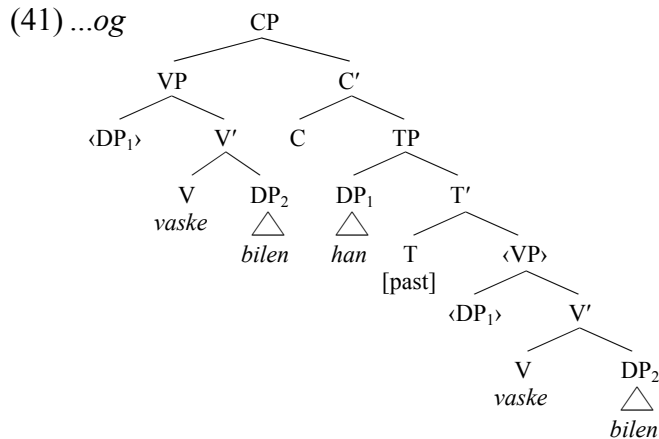
Subsequently at Convergence, ellipsis occurs as a result of the [E] feature on T. We propose that this deletion of syntactic structure is best understood in derivational terms (Epstein, et al. 1998). A syntactic object is a series of statements recording the derivational history, which consists of two-member sets corresponding to sister relations. When ellipsis happens, statements are deleted and therefore not linearized or pronounced. The relevant statements for (39) are given in (40a). [E] triggers deletion of the struck-through sets, resulting in the structure in (40b).



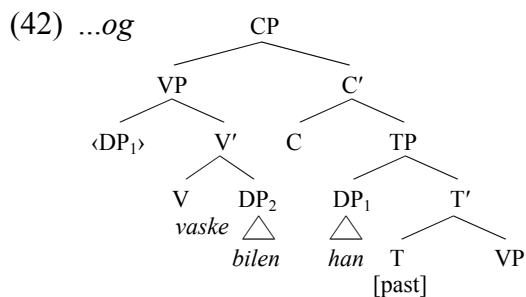
At this point, V to T Head Movement cannot take place since the verb has been deleted; thus, *gøre* is inserted as a last resort to save the features on T.

Since PF deletion exists independent of chain formation, it would be redundant, Landau argues, to assume that chain resolution occurs in the narrow syntax when the same interface operation can be used to delete copies in a chain. Therefore, the analysis of *gore*-support in VPE can be extended to VPT. The pre-Convergence derivation of (6) is given in (41). Here the VP has been moved into Spec-CP, leaving a copy.

- (6) *Jasper lovede at vaske bilen og [VP vaske bilen] gjorde han*
 Jasper promise.PAST to wash car.DEF and wash car.DEF GØRE.PAST he
(så sandelig).
 so truly
 ‘Jasper promised to wash the car and wash the car, he did (indeed).’ [VPT]

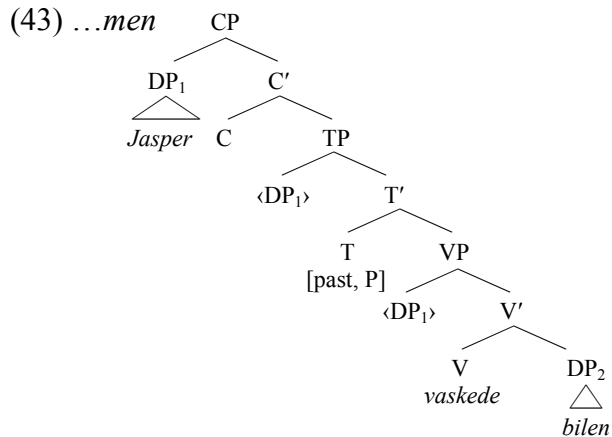


At Convergence, the lower copy is deleted, making the Head Movement out of the lower occurrence of the VP impossible. Moreover, the occurrence of the main verb that has already moved to Spec-CP as part of Topicalization cannot lower to T due to Travis's Head Movement Constraint (1984), which effectively states that an X^0 category may only move *upward* to an immediately higher head position. The structure after chain resolution has taken place is shown in (42). *Gøre*-support is the only option for spelling out the features on T.

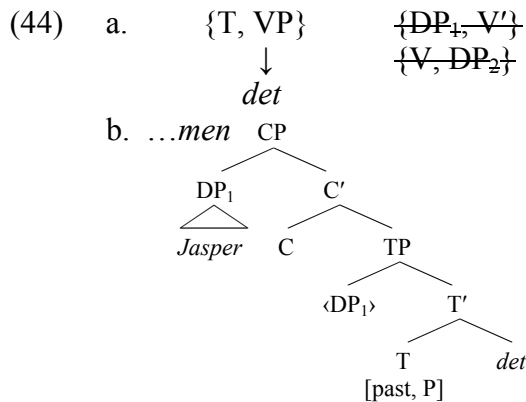


So far we have only seen cases where V to T movement is disrupted by deletion (and, in the case of VPT, also movement) of material during the derivation. We have argued that this happens at Convergence, and in an extension of this analysis, we consider pronominalization of the VP to occur at this point in the derivation as well. The derivation of (8) right before Convergence is given in (43).

- (8) *Mona vaskede ikke bilen men det gjorde Jasper.*
 Mona wash.PAST not car.DEF but DET GØRE.PAST Jasper
 'Mona didn't wash the car, but Jasper did.'
- [VPP]



Recall that T bears a feature [P] that causes its sister to be pronounced as the proform *det*. Just as with the [E] feature, the effects of [P] take place at Convergence, deleting the internal structure of VP and marking the VP such that *det* is inserted at Vocabulary Insertion. This is shown schematically in (44). Notice that the deletion involved in VPP is exactly the same as in VPE and VPT; the same statements are deleted in (44a) as in (40a). However, VPP involves the added step of marking the remaining VP node to be spelled out as *det*. Since the internal structure of the VP is deleted, no Head Movement out of it can take place, and *gøre* must be inserted to save the features on T.



The analysis of *gøre*-support we provide crucially relies on the proposal that syntactic structure is deleted at Convergence. This allows us to unify ellipsis, movement, and pronominalization in their effects on Head Movement of the verb, which occurs in the Morphology. It also explains why other operations involving the verb remain unaffected. For example, in VPT with regular auxiliaries (i.e. not *gøre*), the fronted main verb appears in the form that these auxiliaries normally select for: infinitive in the case of modals (23a) and past participle in the case of perfect *have* (23b) and passive *blive* (23c). This is entirely expected under our analysis since the Agree relation responsible for the nonfinite form of the verb takes place as normal before Topicalization of the VP. Deletion of the lower occurrence of VP only has an impact on post-Convergence operations. Furthermore, this understanding of the ordering of operations explains why in the case of VPT with *gøre*-support, the fronted verb is in the bare form (20a-b); since *gøre* is inserted as a last resort, no Agree relation between it and the main verb obtains prior to topicalization (or at all), thus leaving the main verb in its bare form. Our

analysis readily accounts for the facts of VPT, VPE, and VPP. It can also be extended to account for the facts of another construction involving the deletion of syntactic structure, Sluicing.

Our account of *gøre*-support in Danish is consistent with a suggestion by Merchant (2001:72-74) to account for why there is no T to C raising in Sluicing across Germanic languages. He proposes that Sluicing be analyzed as movement of a *wh*-phrase into Spec-CP followed by deletion of the TP. If this is correct, then in Danish and English main clauses one might expect that an auxiliary would be stranded in C, since movement to Spec-CP is normally accompanied by Head Movement of the auxiliary to C. However, this is ungrammatical, as shown in (45) for English and (46) for Danish.

- (45) A: Max has invited someone.
 B: Really? Who (*has)? (Merchant 2001:63 ex. 74a)
- (46) A: *Max har inviteret en eller anden.*
 M. has invited one or other
 'Max has invited someone.'
 B: *Ja? Hvem (*har)?*
 yes who has
 'Really? Who?' (Merchant 2001:63 ex. 74d (interlinear added))

The absence of auxiliary inversion in Sluicing falls out from our proposal: if Head Movement is preceded by deletion of TP at Convergence, then T cannot raise to C, and the auxiliary cannot escape deletion. No Aux-Support is necessary in Sluicing since T has been deleted.

3.2 *Gøre*-support in embedded contexts

So far we have exclusively examined *gøre*-support in main clauses, where the finite verb moves at least as far as T (see fn. 3). For VPT, this bias is warranted since topicalization is generally limited to verb second environments, i.e. main clauses and only certain embedded contexts (see Vikner 1995: chapter 4). VPE and VPP, however, occur freely in embedded clauses without verb second, suggesting that we should find *gøre*-support in embedded clauses with VPE or VPP when there is no other auxiliary present. Moreover, if *gøre* is inserted to express features on T, we would expect it to occur in the T position, i.e. to the right of the subject, but to the left of negation and other medial adverbs.¹⁶ The first expectation is borne out, but the second one is not. There is *gøre*-support in embedded clauses, but *gøre* surfaces to the right of negation, in exactly the position that a finite verb would surface. This is shown for VPE in (47), where the target of VPE is inside an adverbial clause. The word order in (47a) is the attested one, which is also the one found with a finite main verb (47c) and a finite auxiliary (47d). Having *gør* in the T position is impossible, as (47b) shows.

- (47) *At antyde at truslerne eksisterer,*
 to suggest that threats.DEF exist
- a. *når de rent faktisk ikke **gør** Δ, vil...*
 when they purely factually not GØRE.PRES will
- b. **når de **gør** rent faktisk ikke Δ, vil...*
 when they GØRE.PRES purely factually not will
- c. *når de rent faktisk ikke **eksisterer**, vil...*
 when they purely factually not exist will

- d. *når de rent faktisk ikke har eksisteret i flere år, vil...*
 when they purely factually not have existed in several years will
 ‘To suggest that the threats exist, when they in fact don’t, will ...’

The exact same pattern is found with VPP, as shown in (48). The target of VPP is inside an adverbial clause, which does not exhibit verb second (48c-d), and *gøre* must surface below negation (48a).

- (48) *Esbjerg satser også på trænersiden,*
 E. bets also on coach.side.DEF
 a. *mens Aalborg ikke gør det.*
 while A. not GØRE.PRES DET
 b. **mens Aalborg gør ikke det.*
 while A. GØRE.PRES not DET
 c. *mens Aalborg ikke satser på trænersiden.*
 while A. not bets on coach.side.DEF
 d. *mens Aalborg ikke har satset på trænersiden.*
 while A. not has bet on coach.side.DEF
 ‘Esbjerg is also putting effort into coaching, while Aalborg isn’t.’

It is not clear how to make sense of the position of *gør* in these examples under our analysis. If the internal structure of the VP is deleted at Convergence, there is no syntactic head position below negation in which *gør* could occur in (47a) and (48a). Note also that English exhibits the opposite order of Danish in this regard:

- (49) To suggest that the threats exist
 a. when they do not, will...
 b. *when they not do, will...

We do not currently have an explanation for this difference, but we can see two ways of approaching it. The first is to abandon the last resort analysis of *gøre*-support developed above.¹⁷ This is of course a rather radical move and would rob us of an analysis of the data presented in §2. In particular, it would leave us without an explanation for why *gøre*-support is found in exactly the three environments that it is.

The other path is to take the difference between (47)-(48) and (49) as an incentive to rethink how tense morphology is realized in embedded clauses in the two languages. As far as we can tell, the common assumption in the literature is that Danish and English are alike in terms of the derivation of finite main verbs in embedded clauses. Authors who assume that the low position of finite main verbs is due to T (or I) lowering to V, assume this for embedded clauses in both Danish and English (e.g. Holmberg and Platzack 1991 and Vikner 2001:428-9), and authors who assume that the low position of the finite main verb is due to V to T movement being relegated to LF (e.g. Holmberg and Platzack 1995:26-28, 71-7) assume this for English and for Danish. Whatever analysis is adopted for one language is adopted for the other. This uniformity of analysis is difficult to reconcile with the difference in position of the support verb in the two languages. At a descriptive level, the difference in the position of the support verb is reflective of a much better known difference between the two languages. In English, the highest auxiliary raise to T in both main and embedded clauses, whereas main verbs never raise. In Danish, auxiliaries and main verbs behave alike: they both raise (at least) to T in main clauses

and neither raise in (non-verb second) embedded clauses. In both languages the position of the support verb in embedded clauses is identical to that of a regular auxiliary in the language. This seems significant to us, but at present we are not able to turn this observation into an actual analysis.

4. Head movement in linguistic theory

We have postponed filling out the details about our assumption that Head Movement is an operation that takes place in the Morphology until now. In what follows, we provide a more fine-grained articulation of this conception of Head Movement.

The original insight that Head Movement may not take place in the narrow syntax is due to Chomsky's (1999:30, 2001:36) suggestion that "a substantive core of head raising processes [...] may fall within the phonological component." While it has inspired much recent investigation, Chomsky's proposal leaves open the question of what precisely the component parts of Head Movement are and, beyond the "substantive core" he makes reference to, where they take place within the grammar. Recent work in the literature generally accepts the decomposition of Head Movement into two components. First, two, or more, heads—V and T for example¹⁸—enter into a relationship that delimits the possible scope of Head Movement. This relationship is motivated by formal properties (features) of the participating heads; here, V and T must be unified in order for the tense inflection on T to be realized. In the second component, V moves into a position local to T, where unification of the two heads takes place, either through the movement itself or at some later stage in the derivation.¹⁹

Given this bipartite division of Head Movement, there are several possibilities for how these components are distributed within the grammar. One possibility, taking Chomsky's suggestion most seriously, is that both components take place in the Morphology. To our knowledge, nobody has proposed an implementation of this interpretation of the phonological nature of Head Movement, removing it entirely from the narrow syntax. We therefore don't consider it further.

Another possibility that comes from the opposite extreme abandons the idea of Morphological Head Movement altogether. Both the relationship-establishing component and the movement component belong in the narrow syntax, as has been suggested, for example, by Matushansky (2006). In her proposal, a relationship is established between V and T via an operation C-Select, which for her is analogous to the operation Agree in the domain of phrasal movement. Then, still in the narrow syntax, V moves into specifier of T, determining where the V-T complex will be pronounced. (An additional Morphological operation, m-merger, applies later to combine the two heads into a single complex one.) Matushansky's proposal faces difficulties dealing with the empirical facts from Danish that we have presented here. We have argued that the deletion of VP triggered by ellipsis, movement, or pronominalization occurs at Convergence; if both components of Head Movement are located in the narrow syntax, then we expect the main verb in Danish VPE, VPT, and VPP to be realized overtly, as it will have already moved into the specifier of T. *Gøre*-support would not be triggered.

The third type of proposal is a hybrid one in which the two essential components of Head Movement are split between the narrow syntax and the Morphology. One example of this type is Zwart (2001), who, on the basis of data from Dutch and Frisian, proposes that, while V and T enter into a relationship of feature transmission in the narrow syntax, the decision about whether V will be pronounced in T or independently in its base position is made in what he calls the phonological component (which we understand to be our Morphology). Zwart's proposal nicely

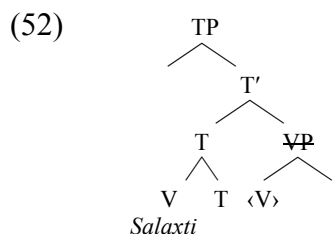
accommodates the Danish data. Since the decision about whether movement of V to T occurs after Convergence, Head Movement is able to be disrupted by deletion of VP.

This hybrid account of Head Movement finds empirical challenges in VP manipulation processes like VPE and VPT in Hebrew, which, like Danish, has obligatory verb raising. This is shown in (50), where the main verb occurs to the left of a VP-adjoined adverb. This is commonly analyzed as obligatory Head Movement of V to T, with only optional subsequent movement to C (Doron 1983, 1999:125-127; Shlonsky 1997; Goldberg 2001).

- (50) *dani meanSek lif'amim et dina.*
 Dani kisses sometimes ACC Dina
 'Dani sometimes kisses Dina.'
 (Doron 1999:126)

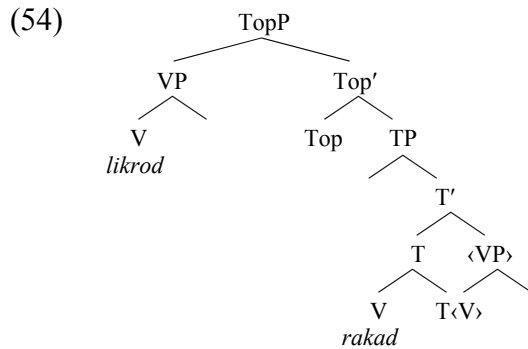
Turning now to VPE, Doron (1999) shows that the phenomenon behaves quite differently than in English and Danish, as illustrated in (51). Hebrew does not possess an Aux-Support option, so that, while it is the VP that is deleted under identity as shown by Goldberg (2005), only the verb's internal arguments go missing. The main verb, which has raised to T, is stranded and remains overt. This analysis of Hebrew VPE is schematized in (52).²⁰

- (51) Q: *Salaxt etmol et ha-yeladim le-beit-ha-sefer?*
 you.sent yesterday ACC the.kids to.school
 'Did you send the kids to school yesterday?'
 A: *Salaxti.*
 I.sent
 'I did.'
 (Doron 1999:129)



Hebrew VPT exhibits a parallel stranding of the main verb in T. Landau (2006) argues that the Verb Fronting construction, illustrated in (53), involves movement of the VP into the specifier of some higher functional projection. Both the copy of V that has raised to T and the copy present in the fronted VP must be realized overtly to satisfy independent constraints on the pronunciation of chains (though the fronted copy is realized with infinitival morphology). The derivation of (53) is schematized in (54) (where angle brackets '< >' indicate only those copies of a chain that are not pronounced).

- (53) *lirkod, hu rakad.*
 to.dance he danced
 'As for dancing, he danced.'
 (Landau 2006:57)



In Hebrew VPE and VPT, then, a copy of the main verb that has raised to T is pronounced even though the occurrence of the VP out of which it has moved is not. In short, it seems as if Hebrew requires the exact opposite ordering as Danish of deletion and Head Movement. If the deletion of copies and elided phrases occurs at Convergence, then the overt effects of V to T in Hebrew must take place in the narrow syntax, contra Zwart's proposal above. Otherwise, the main verb would not be able to escape deletion.

Danish and Hebrew thus exhibit systematic differences in the place in the derivation at which tense inflection is unified with the verb. In Hebrew, this happens relatively early, before Convergence, such that any operations that apply at that point or later do not affect it. This yields the verb stranding effect observed in VPT and VPE in the language, as well as the absence of any sort of Aux-Support. No such operation is ever necessary since the relationship between V and T can never be disrupted.

In contrast, Danish seems to effect the unification of the verb with tense inflection later in the derivation, in the Morphological component of the grammar. This produces a need for *gøre*-support, since otherwise a whole class of derivations would crash because the inflectional features in T would lack a host. English patterns with Danish in this respect, though unification of T and V occurs by a different operation, Lowering. As a result, English *do*-support is triggered in both VPT and VPE, as well as in the other class of Aux-Support environments that derive from the intervention of phonological material (see §3.1).

The division we introduce here between Hebrew on the one hand and Danish and English on the other is reminiscent of Chomsky's (1993:27-31) distinction between strong agreement languages and weak agreement languages. Pursuing proposals made originally by Pollock (1989), Chomsky argues that the former type of language possesses strong inflectional features that, since they are PF uninterpretable, must be checked in the narrow syntax, or else the derivation crashes. He gives French as an example of such a language, since the main verb raises overtly to T. On the basis of the data given in (50)-(54) above, Hebrew should be included in this category as well.²¹ In contrast, in weak agreement languages like English, inflectional features pose no problem for PF interpretability, and so according to Procrastinate, the principle dictating that feature checking should be delayed as long as possible, a weak inflectional language will not have overt verb raising, since the weak inflectional features can be checked covertly after Convergence on the way to the LF interface.

Under more current assumptions that dispense with Lexicalism, the distinction between strong and weak inflectional languages can be reinterpreted as a distinction between early and late unification of T and V. In English, the verb does not raise to T overtly and so tense inflection, which still needs a phonological host to be realized, Lowers onto the verb in the Morphology. In English the absence of overt verb raising correlates with late unification of T and V. This correlation is accidental, however. Danish, like English, shows late unification of T with V; nonetheless, Danish displays verb raising. This, we suggest, occurs via Head Movement in the

Morphological component of the grammar. The upshot is that ‘weak agreement’ languages have two paths by which they can realize the inflectional features in T: Lowering and Morphological Head Movement.

Returning to the beginning of our discussion, it’s clear then that none of the three logical possibilities we suggested for the location of the components of Head Movement accounts for both Hebrew-style and Danish-style languages. Instead, we would like to suggest that the point in the derivation at which the second component of Head Movement takes place is subject to variation across languages. While in Danish-style languages, Head Movement’s effects take place relatively late, in the Morphology after the application of deletion, in Hebrew-style languages this happens relatively early, in the narrow syntax, such that the raised verb is able to escape deletion in VPE and VPT.

5. Conclusion

We have sought to show that Danish *gøre*-support is a last resort operation like English *do*-support. The differences in the distribution of the two processes under our analysis follow from independent properties of the two languages, namely that English effects the unification of a verb and tense inflection via Lowering while Danish does so via Morphological Head Movement. The main strength of this analysis is the formal unification of the seemingly different environments in which Aux-Support occurs in both languages: VPE, VPT, and VPP all involve deletion of the internal structure of the lowest occurrence of VP. The unexpected occurrence, however, in Danish embedded clauses, of *gøre* below negation remains to be explained under our last resort analysis.

On a more speculative note, we have suggested that the differences between Hebrew and Danish in the realization of tense inflection when the VP is deleted should be attributed to a fundamental difference in where in the grammar Head Movement occurs. The cautious reader might find this claim overly strong; why might these differences not be due to a more superficial difference the two languages, such as, for instance, the fact that Danish has raising of the verb to T as part of raising all the way to C, while Hebrew only has V to T? Looking at just one other Germanic language, Yiddish, this argument doesn’t go through. Yiddish, like Danish, is a verb second language and has verb raising of the V to T to C type. Nonetheless, Yiddish, like Hebrew, exhibits a type of Verb Topicalization in which a copy of the finite verb is stranded in addition to the occurrence that is fronted (Källgren and Prince 1989). Nor does the size of the fronted constituent correlate with whether a language will exhibit verb stranding or Aux-Support: Yiddish fronts just a nonfinite verb while Hebrew can front a full VP. It thus seems necessary to look for a more abstract explanation for the distribution of verb stranding and Aux-Support. We have offered one such explanation, though more work is needed to see if it can be maintained.

* Acknowledgments

¹ We use the following abbreviations in this paper: ACC, accusative; ADV, adverbial; DEF, definite; PASS, passive; PAST, past tense; PERF, perfect aspect; PRES, present tense; PL, plural; REFL, reflexive pronoun.

² Note that Danish does not have a dedicated prosodic strategy for signaling polarity focus. Instead, it employs conjunctions like *jo* and/or adverbs like *faktisk*.

³ In the text we purposefully discuss only verb movement in Danish main clauses. The situation is quite different in embedded clauses, most of which exhibit no verb movement. Instead the finite verb (main or auxiliary) surfaces below negation and other VP-adjoined adverbs. While *gøre*-support is found in both main and embedded clauses, our focus in this paper is on *gøre*-support in main clauses. We briefly return to the question of *gøre*-support in embedded clauses in §3.2, though a serious treatment of that phenomenon must await another occasion. One further issue deserves mention here: whereas some analyses of verb second assume that it always involve movement all the way to C (via T), others assume that this is only the case when the subject is

postverbal, and that subject-initial clauses are not CPs, but TPs with the finite verb in T. As far as we can tell, this issue does not affect our analysis of *gøre*-support, and we ignore it in what follows.

⁴ Here and throughout we will refer to *vP* as *VP*, since nothing in our analysis depends on a more articulated structure for the verb phrase.

⁵ The example in (19) is grammatical when construed as an instance of pseudogapping, as in *I put away the food, but I didn't the dishes*. This is irrelevant to the arguments we make.

⁶ Here we only consider fronting of non-finite VPs. Fronting of finite VPs is possible in Swedish and Norwegian (see Källgren and Prince 1989:47-53 and Lødrup 1990:8 respectively), but quite marginal in Modern Danish. Hansen (1967:69) describes it as possible in 'lower' registers and cites some examples but we have not found any examples in the modern corpora.

⁷ Vikner (1988:11) cites some examples in a footnote, but does not develop an analysis. A range of descriptively similar VP anaphoric constructions are found throughout the Germanic languages. For data and discussion see Lødrup (1994) on Norwegian auxiliary+*det*, Källgren and Prince (1989) on Swedish *göra det*, López and Winkler (2000) on the German *es* construction, van Craenenbroeck (2004:125-260) on Dutch Short Do Replies, and Kehler and Ward (1999) on English *do it* and *do so*.

⁸ It is also sometimes possible for the VP proform to show up in the position characteristic of shifted objects, i.e. immediately to the left of negation and other medial adverbs, as shown in (i):

- (i) *En del af dem klarer sig, andre gør det ikke.*
a part of them deal.with REFL others GØRE.PRES DET not
'Some of them manage, others don't.' [DK87-90]

We do not currently understand under what conditions this is possible nor can we say for sure whether this word order is derived by object shift. If it is, it would imply that VPP can feed object shift, since only pronominals undergo object shift in Danish. While that might seem problematic at first, it is worth noting that recent analyses of object shift have argued that it takes place after Convergence (see e.g. Holmberg 1999 and Erteschik-Shir 2005). If so, our analysis is compatible with VPP feeding object shift. See Lødrup (1994) for relevant discussion.

⁹ Lødrup (1994) investigates this issue for a VPP-like construction in Norwegian. He argues that there are two kinds of VPP in Norwegian. One is a deep anaphor and occurs exclusively with root modals. The other is a surface anaphor and occurs with epistemic modals, passive and perfective auxiliaries, and the support verb *gjøre*. We have not observed a similar split within Danish VPP, but at present we also cannot rule it out. However, if a split exists along the lines argued for by Lødrup, it would not affect our analysis of *gøre*-support since *gøre* would occur only with surface anaphoric VPP.

¹⁰ For an explanation of why adverbs do not disrupt adjacency, see Bobaljik (2002:213-221).

¹¹ Lødrup (1990) does not identify this example by name as an instance of VPP, but he does refer to *det* as a VP pro-element. He makes no mention of VPE-like sentences in Norwegian.

¹² See also Vikner (2001) for an analysis of verb raising in embedded clauses in English, Danish, French, and Icelandic within the framework of OT.

¹³ For a discussion of *gøre*-support in embedded clauses, see §3.2.

¹⁴ We discuss the implication of this somewhat controversial proposal in §4.

¹⁵ In the discussion that follows, our term 'Convergence' and Landau's term 'PF-interface' are synonymous.

¹⁶ We thank Dorian Roehrs for pointing this out.

¹⁷ Lødrup (1990) pursues such an analysis of Norwegian *gjøre*, in which the support verb is base-generated as an auxiliary. Whatever accounts for the low position of other auxiliaries would also account for the low position of *gjøre*.

¹⁸ For the sake of concreteness, we will refer to V and T as the heads in question, though of course the discussion should be construed as applicable to the movement of any head.

¹⁹ Depending on independent assumptions, actual phonological material may be inserted at yet a later stage corresponding to Distributed Morphology's Vocabulary Insertion.

²⁰ For obvious reasons, Goldberg (2005) calls this type of ellipsis V-Stranding VPE. She identifies similar processes in Irish and Swahili though we are unable to examine them in this context.

²¹ Interestingly, Lobeck (1995:158-162) predicts that strong agreement languages should not exhibit VPE. This is true for French and German, though López and Winkler (2000) argue that German indeed has a type of VPE in which a proform *es* replaces the verb phrase. In Hebrew, however, the prediction is clearly not borne out. A stronger form of her prediction, that verb-raising languages in general should not exhibit VPE, is also falsified by Danish, which possesses not only VPE but also VPP, which we have argued to be essentially identical to VPE.

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