

# Possessor Extraction in English and Danish

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## 1. Introduction

For the Germanic languages, it is generally said that the phenomenon *possessor extraction* (PE) is not possible. PE is a type of movement from a possessive phrase, where the possessor moves, leaving the rest of the possessive DP material (the possessum DP) behind. Instead, the Germanic languages are said to require pied-piping, that is, the possessum DP follows along when the possessor is moved. However, Davis (2021) shows that PE is possible for some speakers in colloquial English, despite it being a Germanic language. (1) is an example of PE where the possessor *who* has moved out of the possessive phrase *\_’s friend* into the specifier position (CP-spec) of the matrix clause.

(1) En. I can’t remember  $who_i$  I said [<sub>CP</sub>  $_i$ ’s friend is coming over].  
(Davis 2021, 295)

(2) Da. Hvem<sub>i</sub> er det  $_i$ ’s cykel?  
*Who<sub>i</sub> is it  $_i$ ’s bike?*  
(Vikner 2014, 204)

(2) is an example of Danish PE, which should also be impossible, but there are traces of the phenomenon in literature on Danish grammar (Dahlerup 1926; Ravnholt 2006). The mention of PE examples in these texts as well as examples from the internet and my preliminary survey suggest that PE might be acceptable to some speakers in colloquial Danish.

Since both English and Danish are Germanic languages in which PE supposedly is not possible, the fact that there seems to be speakers of both languages that accept PE colloquially provides interesting grounds for comparison of PE in the two languages. This article is a pilot study with the aim of examining the generalizations concerning PE in Danish. Although it gives rise to more questions than it answers, it does indicate the following generalizations: in both English and Danish, PE is possible in the movement context of embedded questions (such as (1) where the *wh*-

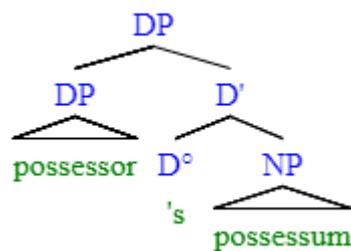
element *who* has moved), but Danish PE is possible for clausebound movement, which is not the case for English PE.

Section 2 outlines the theoretical background for PE before going into detail with PE constructions in English and Danish, specifically. My preliminary survey and formal experiment are presented in section 3, and they form the basis for section 4, which contains the comparison of PE in English and Danish.

## 2. Possessor extraction

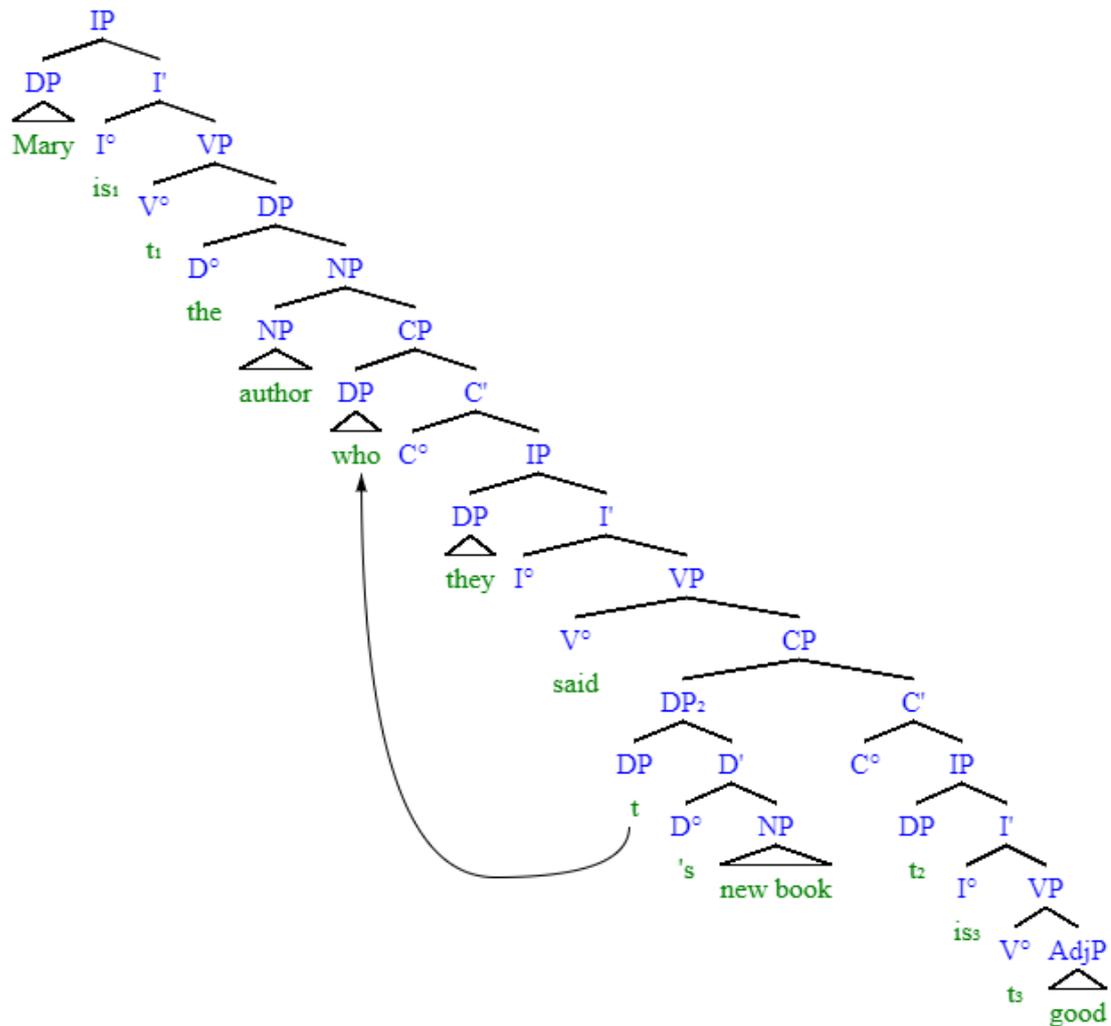
Although it is said that PE is not possible in English and that “the pied-piping of *whose*-phrases is obligatory” (Gavruseva and Thornton 2001, 230), which might well be said for Danish as well, this section outlines what PE is, generally, and what it would look like in English and Danish, specifically. In both languages, the possessive construction in question looks like (3).

### (3) *Structural analysis of the possessive construction in English and Danish*



Examples (1) and (2) include the movement type *possessor extraction*. In PE, the possessor is “extracted” and moves out of the possessive phrase, stranding *-’s* and the possessed NP, as in (4a), where *who* has moved from DP-spec in the possessive phrase to CP-spec of the relative clause. The structural analysis of (4a) is shown in (4b).

- (4) a. ?      Mary is the author  $who_i$  they said  $\_i$ ’s new book is good.  
 (Davis 2021, 292)

b.<sup>1</sup>

Gavruseva (2000, 745) examines the “extractability of possessor phrases in [languages] with overt *wh*-movement”, among others English and Hungarian. She argues that PE is possible in for example Hungarian, but that it is not possible in English and the other Germanic languages she examines, although “[t]he principles of grammar license the *wh*-subextraction of a *wh*-Possessor [i.e. possessor extraction] because it occupies the Spec position in the DP<sub>poss</sub>” (Gavruseva and Thornton 2001, 260). Instead of PE, the Germanic languages, Gavruseva (2000) argues, require pied-piping in such movements where, in English, the entire *whose*-phrase needs to move to CP-spec, as in (5); not only *who*.

- (5) Mary is the author [whose new book]<sub>i</sub>; they said t<sub>i</sub> is good.  
(Davis 2021, 291)

<sup>1</sup> For the present purposes, I do not consider subjects to be VP-internally base generated.

As we shall see, however, PE from this type of possessive phrase does seem to be possible (with some constraints) in colloquial English and Danish.

## 2.1 English PE

Davis (2021, 293) writes: “The only work I know to have considered the existence of PE in English is Gavruseva and Thornton 2001”. None of the grammars I have reviewed mention PE although they describe other phenomena that are mainly colloquial (Quirk et al. 1985; Haegeman and Guéron 1999; Aarts 2011). They only mention pied-piping as an option for movement of possessive phrases, but Davis (2021) provides evidence that PE is possible for some speakers in colloquial English.

Although English PE sentences are only accepted by some, speakers that do not accept them might recognize them from child speech. In their study of the acquisition of *whose*-questions in child English, Gavruseva and Thornton (2001, 229) did an elicited production experiment and found that some children produced “split *whose*-questions”, a specific type of *wh*-subextraction which is one subtype of PE.

The participants in Gavruseva and Thornton’s experiment were English-speaking children aged 4;5 to 6, but in the data from their adult control group, production of PE was also found. Gavruseva and Thornton attribute these instances to production errors, but this seems not to be the case for two of the speakers. Davis (2021, 294) notes that two speakers, Christy and Kath, seem to have PE as a “productive option”. Christy used PE almost just as much as pied-piping, and Kath used PE more than pied-piping (Gavruseva and Thornton 2001, 255).

The possessor extraction described in Gavruseva and Thornton (2001) concerns *wh*-subextraction, that is, extraction of *who*, whereas Davis (2021) notes that extraction is possible with possessors other than *who*, although “[e]xtraction of phonologically larger possessors is often judged as more difficult to accept” (Davis 2021, 296). In the present analysis, only extraction of *who* is included, as extraction of other possessors than *hvem* [who] in Danish PE has not been examined.

With Gavruseva and Thornton’s (2001) study as a backdrop, Davis (2021) provides evidence of English PE, noting that some speakers accept it colloquially. Davis (2021, 292) is based on a “study of 34 speakers, mostly residents of the Boston area, [which] resulted in 19 judging PE of [the form in (6)] to be acceptable”.

- (6) Mary is the author who they said \_’s new book is good. = (4)  
(Davis 2021, 292)

On the surface, it seems like the possessive *-s* lacks something to cliticize to, and Davis (2021) describes how, in these cases, the possessive *-s* becomes phonologically dependent on the preceding word. This has been suggested as the reason why sentences with PE are mostly found in spoken and not written English. Davis (2021, 292, fn. 2) suggests that “English PE can be found in informal writing, however” and supports this with examples from the internet.

Davis (2021) is based on data from individual interviews conducted verbally face-to-face using constructed sample PE sentences of different types, asking the participants to judge the sentences. He notes that “there is no clear generalization about the age/origin/background of speakers who accept PE” (Davis 2021, 292, fn. 1). Based on the data from these interviews, Davis (2021) provides the following generalizations for English PE:

- (i) “English PE is not possible for clause-bound movement” (Davis 2021, 296),
- (ii) “English PE is possible in any A'-movement context” (Davis 2021, 295), for example *wh*-movement<sup>2</sup> and,
- (iii) “A possessor must reach the left linear edge of the local CP before extracting from the possessum DP” (Davis 2021, 294).

A subset of these generalizations together with my data from Danish will form the basis of my analysis of the differences between English and Danish PE.

As we shall see, the main difference between English and Danish PE is that English PE is not possible for clausebound movement, contrary to Danish PE. Of the movement contexts that Davis lists (2021, 295-96), the present analysis and comparison will include only embedded questions. Generalization (iii) about the requirement of the possessor to reach the left linear edge of the local CP before extraction means that the trace of the extracted possessor in the possessum DP must be adjacent to the edge of the embedded CP (Davis 2021, 298).

- (7) a. \* Who<sub>i</sub> do they think [<sub>CP</sub> Sue found [<sub>CP</sub> <sub>i</sub>'s cat] today]?
- b. Who<sub>i</sub> do they think [<sub>CP</sub> [<sub>CP</sub> <sub>i</sub>'s cat]<sub>k</sub> Sue found <sub>k</sub> today]?
- (Davis 2021, 296)

In (7a) there has been no displacement of the possessum DP to the edge of the local CP before extraction, that is, the possessum DP *\_s cat* is still in its base position. Davis (2021) argues this

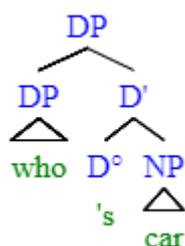
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<sup>2</sup> A'-movement is “movement to an A'-position” which is a position not “assigned a canonical grammatical function”, for example the specifier of CP (Haegeman and Guéron 1999, 218). *Wh*-movement is one type of A'-movement.

explains its unacceptability as opposed to (7b), which shows displacement of the possessive phrase *whose cat* to the edge of the embedded CP before extraction of *who*, making it acceptable.

Before turning to possessor extraction in Danish, a brief look at the interrogative pronoun *who* and its possessive form *whose*. *Whose* is the only interrogative possessive pronoun in English. Davis (2021, 293) takes *whose* “to be *who* + [’s]”, and the homophony of these two suggests the potential possibility of extraction of *who* without -’s from *whose*. Thus, the phrase *whose car* could be analyzed as in (8).

(8) *Whose car*



Finally, the English possessive constructions that are constructed with a postnominal *of*-phrase is also sometimes called the “*of*-genitive”<sup>3</sup>, and it corresponds “closely in meaning and function to a genitive noun phrase” with the possessive -’s (Aarts 2014). In this view, the NP complement of P° in the PP (which is the postnominal *of*-phrase) has a corresponding meaning and function to that of the possessor in the possessive phrases described above, which might mean that PE from these possessive constructions could also be possible. However, as (9b) shows, this type of extraction seems to be possible even in Standard English, as it simply results in a sentence with preposition stranding, which is a possibility along with that of pied-piping as in (9c).

- (9) a. They said he was a friend of John.  
 b. Who<sub>i</sub> did they say he was a friend of   <sub>i</sub>?  
 c. [Of whom]<sub>i</sub> did they say he was a friend *t*<sub>i</sub>?

In (9b), the preposition *of* has been “stranded” in its base position, while its complement has moved out of the phrase into CP-spec as *who*. In (9c), we see pied-piping, where the preposition *of* has moved together with its complement into CP-spec. The possessive constructions with the *of*-genitive and PE from these will not be further examined.

<sup>3</sup> For the present purposes, I prefer the term *possessive* over *genitive*.



Ravnholt (2006) and Bostrup (2018) suggest that the construction I argue to be Danish PE is an example of the group genitive, just like “Mie og Mortens bil [Mie and Morten’s car]” (Bostrup 2018) where the possessive *-s* is attached to the end of the entire NP rather than each of the individual NPs (in which case it would have been “Mies og Mortens bil”). Bostrup argues that the group genitive makes it “possible in colloquial language to attach an *s* to pretty much anything” (Bostrup 2018). Although there are similarities between the possessive constructions involved in the group genitive and PE, Danish PE is not an example of the group genitive. In PE sentences, possessive *-s* has a trace specifier (see (7b)), whereas in the group genitive, possessive *-s* has a fully realized specifier (e.g. *Mie og Morten*).

Another mention of Danish PE without calling it PE is by Vikner (2014) who suggests that in Danish, there are examples of “certain cases of *-s* that do not seem to require the presence of a possessor”, for example (11b), where *det* [it] is not the possessor of *cykel* [bike] (if it was, the question would be about *who the bike is*, which is not the correct interpretation of the sentence).

- (11) a. Det er Peters cykel  
*It is Peter’s bike.*
- b. Hvem er dets cykel?  
*Who is it’s bike?*
- (Vikner 2014, 204)

The possessor is present, but has moved from its usual possessive position in DP-spec into CP-spec. Vikner (2014) also notes that this is a phenomenon that is not productive for all Danish speakers, like Davis (2021) argues for English PE. Katballe-Kristensen (2022) suggests that PE is possible in the Danish dialect West Jutlandic (WJ), but as we shall see in section 3.2, PE does not seem to be restricted to WJ.

Before turning to my own data from colloquial Danish, a brief note on written examples of Danish PE on the internet. As Davis (2021) notes for English PE, Danish PE is also rare in written form and my searches in the online Danish corpus KorpusDK have not yielded any natural examples of Danish PE. In wider searches on the internet, the following two examples were found:

- (12) Jeg er ligeglåd hvem<sub>i</sub> det er <sub>i</sub>s  
*I don’t care who<sub>i</sub> it is <sub>i</sub>’s*
- ([https://www.scootergalleri.dk/galleri/267813-suzuki\\_street\\_magic](https://www.scootergalleri.dk/galleri/267813-suzuki_street_magic))

- (13) det hvide hvem<sub>i</sub> er det   's?

*the white who<sub>i</sub> is it   's?*

([https://www.facebook.com/sitlyDK/photos/a.595996303894762/926516617509394/?papipv=0&eav=AfbKh9HE0KiGlvEprDsIwaEKtcD2v\\_oQOV9yjYwTqo1tpLWdeGfRyeo-5fde4IG-dKg](https://www.facebook.com/sitlyDK/photos/a.595996303894762/926516617509394/?papipv=0&eav=AfbKh9HE0KiGlvEprDsIwaEKtcD2v_oQOV9yjYwTqo1tpLWdeGfRyeo-5fde4IG-dKg))

Both (12) and (13) are comments on posts in online fora, which supports the status of these written texts as very speech-like.

Although not formally examined, there are several suggestions in the literature that Danish PE exists, as outlined in this section. Before turning to the comparison of English and Danish PE, I will introduce my own study of Danish PE, forms the basis of comparison.

### 3. A study of Danish possessor extraction

#### 3.1 Preliminary Survey

In a preliminary survey, I performed informal interviews of small groups of native Danish speakers. The survey of six speakers (in groups of two and four) resulted in five out of six judging PE of the forms in (14) and (15) to be acceptable, but the form in (16) to be, if not completely unacceptable, then at least significantly less acceptable. Further, three out of six said the forms in (14) and (15) were less acceptable than their pied-piping equivalents.

- (14) Søren fandt en kat i skoven. Hvem<sub>i</sub> var det   's?

*Søren found a cat in forest-the. Who<sub>i</sub> was it   's?*

- (15) Jeg ved ikke hvem<sub>i</sub> det var   's kat Søren fandt i skoven.

*I know not who<sub>i</sub> it was   's cat Søren found in forest-the.*

- (16) Jeg ved ikke hvem<sub>i</sub> det var Søren fandt   's kat i skoven.

*I know not who<sub>i</sub> it was Søren found   's cat in forest-the.*

Some of the speakers commented that they knew the PE forms were not completely correct, but that they would probably not think anything of it if they heard someone else use them, and that they might probably also produce them themselves.

### 3.2 Experiment

To generate data suitable for comparison of Danish PE with the generalizations about English PE as argued by Davis (2021) (see (i.-iii.) in section 2.1), and as informed by my preliminary survey, the formal experiment was designed to test the following predictions:

- i) Danish PE is possible for clausebound movement,
- ii) Danish PE is possible for embedded questions, and
- iii) Danish PE is impossible/less acceptable for embedded questions when the possessive phrase has not first been pied-piped to the edge of the embedded CP.

#### *Participants*

10 native speakers of Danish participated in the experiment (6 males, 4 females, mean age 31.5 years, range 20-57). 9 participants grew up in the area of Central/Western Jutland, 1 grew up on the island of Funen.

#### *Materials*

Participants listened to a recording of 35 sentences, with five of each type of the following sentences as well as five grammatical and five ungrammatical distractors. The full set of sentences can be found in the appendices.

Clausebound movement with pied-piping:

- (A) Søren fandt en kat i skoven, men [hvis kat]<sub>i</sub> var det *t*<sub>i</sub>?  
*Søren found a cat in forest-the, but [whose cat]<sub>i</sub> was it *t*<sub>i</sub>?*

Clausebound movement with PE:

- (B) Søren fandt en kat i skoven, men hvem<sub>i</sub> var det   <sub>i</sub>s kat?  
*Søren found a cat in forest-the, but who<sub>i</sub> was it   <sub>i</sub>'s cat?*

Embedded question with pied-piping:

- (C) Jeg ved ikke [hvis kat]<sub>i</sub> det var *t*<sub>i</sub> Søren fandt i skoven.  
*I know not whose cat it was Søren found in forest-the.*

Embedded question with PE, type 1:

(D) Jeg ved ikke hvem<sub>i</sub> det var <sub>i</sub> kat Søren fandt i skoven.

*I know not who<sub>i</sub> it was <sub>i</sub>'s cat Søren found in forest-the.*

Embedded question with PE, type 2:

(E) Jeg ved ikke hvem<sub>i</sub> det var Søren fandt <sub>i</sub> kat i skoven.

*I know not who<sub>i</sub> it was Søren found <sub>i</sub>'s cat in forest-the.*

In all the sentences that have PE, the trace of the extracted possessor is part of an object, for example, in (2), (4) and (5), *hvem* [who] has been moved from within the object of *fandt* [found], namely *\_\_s kat* [*\_\_*'s cat] to CP-spec. In all examples, the possessed NP (e.g. *kat*) is overt. Also, all example sentences are in some way cleft sentences. In (E), the embedded question is cleft as it could have just been *hvem Søren fandts kat i skoven* [who Søren found's cat in forest-the] without *det var* [it was]. The significance of clefting for Danish PE will be discussed in section 4.1.

The sentences were spoken and recorded by me on an *iPhone 12 mini*, and every effort was made to ensure that the sentences sounded natural. After each sentence there was a brief pause of about 2 seconds before the next, and after 13 and 27 sentences there was a longer pause to give participants time to turn the page on their answer sheet. In total, the recording was 2:18 minutes. Participants listened to the recording in a set of on-ear headphones in a quiet environment. All participants listened to the same 35 sentences in the same randomized order (appendix B).

### *Procedure*

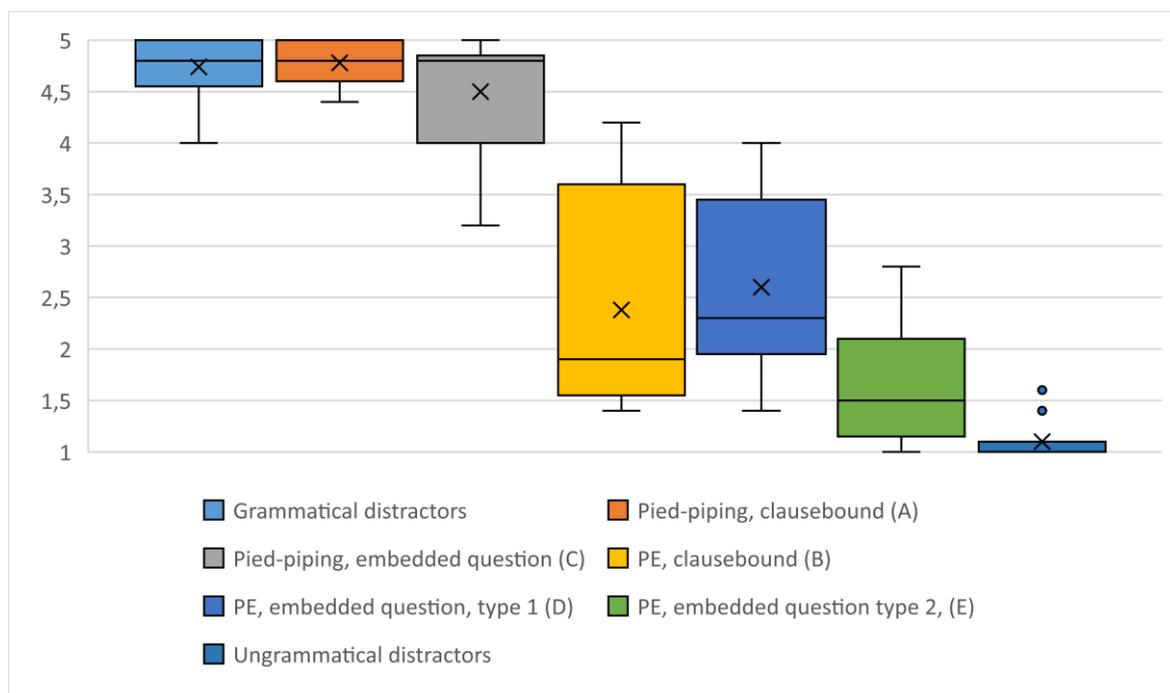
Participants were asked to judge each sentence on a scale from 1 to 5, where 1 was “Helt forkert” [completely wrong] and 5 was “Helt OK” [completely okay] in terms of what they would find acceptable in casual everyday speech (“almindeligt hverdagsdansk talesprog”). The participants were told that the sentences were short and would come in quick succession, and they were encouraged to answer as quickly as possible, following their intuition.

### *Results*

The results of the experiment are summarized in Table 1 and Figure 1. Table 1 shows the mean acceptability scores for each of the sentence types (A)-(E) for each participant and Figure 1 is a boxplot of the overall results for all participants.

Participant number, origin/age	<i>Pied-piping, clausebound</i> (A)	<i>Pied-piping, emb. question</i> (C)	<i>PE, clausebound</i> (B)	<i>PE, emb. question, type 1</i> (D)	<i>PE, emb. question, type 2</i> (E)
1, CJ/20	5.0	5.0	1.6	1.4	1.0
2, WJ/24	4.6	4.0	1.8	2.2	1.4
<b>3, CJ/23</b>	4.4	4.8	<b>1.4</b>	<b>3.4</b>	<b>1.4</b>
4, CJ/57	4.8	4.8	1.8	2.2	1.2
5, WJ/28	5.0	5.0	2.0	2.0	2.4
<b>6, WJ/28</b>	5.0	4.8	<b>3.6</b>	<b>4.0</b>	<b>2.8</b>
7, WJ/56	4.8	4.8	1.4	2.4	1.6
<b>8, CWJ/25</b>	4.6	3.2	<b>4.2</b>	<b>3.6</b>	<b>1.8</b>
<b>9, F/27</b>	5.0	4.6	<b>3.6</b>	<b>3.0</b>	<b>2.0</b>
10, WJ/27	4.6	4.0	2.4	1.8	1.0

**Table 1.** Mean acceptability scores of the five different sentence types (A)-(E) by participant. CJ = Central Jutland, WJ = Western Jutland, CWJ = Central/Western Jutland, F = Funen.



**Figure 1.** Box plot of mean acceptability scores across sentence types (including distractors) and participants. X marks the mean score of all participants for each sentence. The horizontal line through each box marks the median, which is the point for each sentence type that has as many participants’ mean scores above it as below it. The ends of the whiskers mark the minimum and maximum values (i.e., the highest and lowest participant mean score) for each sentence type.

Type (B), *PE in clausebound movement* (yellow) and type (D), *PE in embedded questions, type 1* (light blue) received quite low mean scores across participants and significantly lower mean scores than type (A), *pied-piping in clausebound movement* (orange) and type (C), *pied-piping in embedded questions* (grey), as well as the grammatical distractors (mid blue). But especially for type (B) and (D), Figure 1 illustrates the great uncertainty the small sample size is characterized by, which gives cause to consider that these sentence types might be acceptable to some speakers despite the mean and median that suggest they be regarded as unacceptable. For PE both in type (B) and (D), Figure 1 shows that although both the mean and the median are quite low, there is a somewhat significant portion of the data set that pulls the statistical analysis in a direction that gives uncertain results. Additionally, the three sentence types with PE did receive a slightly higher mean score than the ungrammatical distractors (dark blue).

### *Discussion*

Before discussing the results of the experiment, a brief note on methodology. First, the sample size is quite small, which significantly limits generalizability. However, an advantage of the small sample size is that the data from individual participants can be examined more easily. Second, on the scale from 1-5, I take individual mean scores of 3 or higher to suggest that a sentence type is at least somewhat acceptable to the participant in question.

The mean acceptability scores of all 10 participants for the PE sentences (all three types) were lower than 3 and lower than the pied-piping equivalents, which I take to suggest that PE is not generally acceptable in Danish, or at least that the equivalent pied-piping versions are generally more acceptable. However, four out of 10 participants gave one or two types of PE sentences scores of 3 or higher, which suggests that these four participants accept Danish PE. The question remains whether a larger sample size would show results suggesting the possibility of Danish PE more generally.

Despite the small sample size, I take the mean acceptability scores of the four participants who seemed to accept Danish PE together with the results of the preliminary survey to indicate that PE is possible in colloquial Danish for some speakers. Participants 6, 8, and 9 gave PE sentences of type (B) and (D) a mean score of 3 or higher, so if we take the results from these three participants and the preliminary survey, these confirm predictions (i) that Danish PE is possible for clausebound movement, and (ii) that Danish PE is possible for embedded questions. However, it is important to note that these four participants generally gave PE sentences lower mean scores than their pied-piping equivalents. The difference between mean scores for pied-piping and PE sentences varies by participant, but for all four, the mean scores for the PE sentences were higher

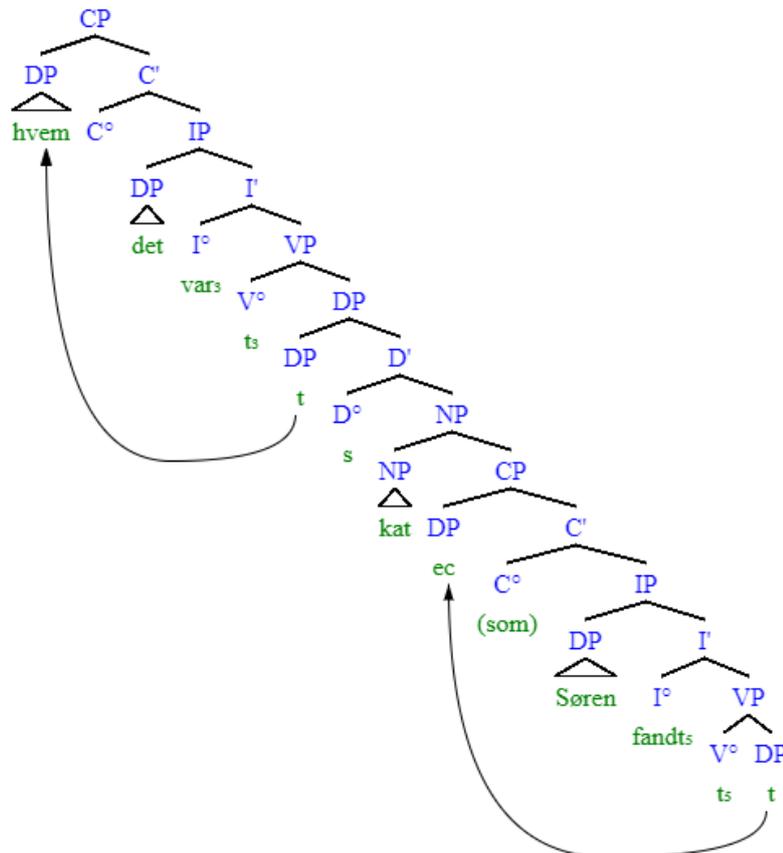
than for the ungrammatical distractors. The indication that these four participants find PE less acceptable than pied-piping does not necessarily mean that PE is not a productive option for them. Further research with a different type of experiment is needed before any such conclusions can be made about Danish PE, for example an elicited production experiment like Gavrusseva and Thornton’s (2001).

In the experiment and the preliminary survey, sentence type (E)/(17c) was supposed to test prediction (iii), but this could neither be confirmed nor rejected. Since it is a cleft clause, the embedded question in (17a) *hvem det var \_s kat Søren fandt i skoven* [who it was \_’s cat Søren found in forest-the] has an embedded relative clause *Søren fandt i skoven* that modifies the NP *kat*, as shown in (17b). Within this relative clause there is movement of an *ec* from the complement of V° *fandt* [found]. Thus, the possessive DP that *hvem* [who] has been extracted from does not have its base position within the embedded relative clause, but within the complement of V° *var* [was]. This means that what we see in (17a) is not that the possessum DP *\_s kat* [‘s cat], has been “displaced” to the edge of the local CP.

(17) a. Jeg ved ikke hvem<sub>i</sub> det var \_<sub>s</sub> kat Søren fandt i skoven. = (D)

*I know not who<sub>i</sub> it was \_<sub>s</sub>’s cat Søren found in forest-the.*

b.



- c. Jeg ved ikke hvem<sub>i</sub> det var Søren fandt <sub>i</sub> kat i skoven. = (E)  
*I know not who<sub>i</sub> it was Søren found <sub>i</sub>'s cat in forest-the.*

The analysis of (17c) is more complicated. If we take (17c) to have a similar embedded CP to that in (17a), it might be the placement of the DP *kat* [*'s cat*] within the embedded CP that makes this sentence type unacceptable. The displacement requirement proposed by Davis (2021) does not apply to this sentence pair; the acceptability of (17a) and unacceptability of (17c) cannot be ascribed to the displacement requirement being fulfilled in (17a) and not in (17c). To test Davis's (2021) displacement requirement, sentences of the type in (18) should have been contrasted with the type in (19), both with a regular embedded clause within the embedded question instead of a cleft.

- (18) Jeg ved ikke hvem<sub>i</sub> Sofie sagde <sub>i</sub> kat Søren fandt i skoven.  
*I know not who<sub>i</sub> Sofie said <sub>i</sub>'s cat Søren found in forest-the.*

- (19) Jeg ved ikke hvem<sub>i</sub> Sofie sagde Søren fandt <sub>i</sub> kat i skoven.  
*I know not who<sub>i</sub> Sofie said Søren found <sub>i</sub>'s cat in forest-the.*

Because of the small sample size, I will not generalize about the background of speakers who accept PE. With a larger sample size, such generalizations could possibly be made, as tentatively suggested by Katballe-Kristensen (2022, 36): “it seems that in West Jutlandic it is possible to do [...] *possessor extraction*”. Despite its small size, the results of the present study seems to suggest that PE is present in but not limited to Central/Western Jutland, as three of the participants that accepted PE were from Central/Western Jutland and one was from Funen.

#### 4. Comparison of English and Danish PE

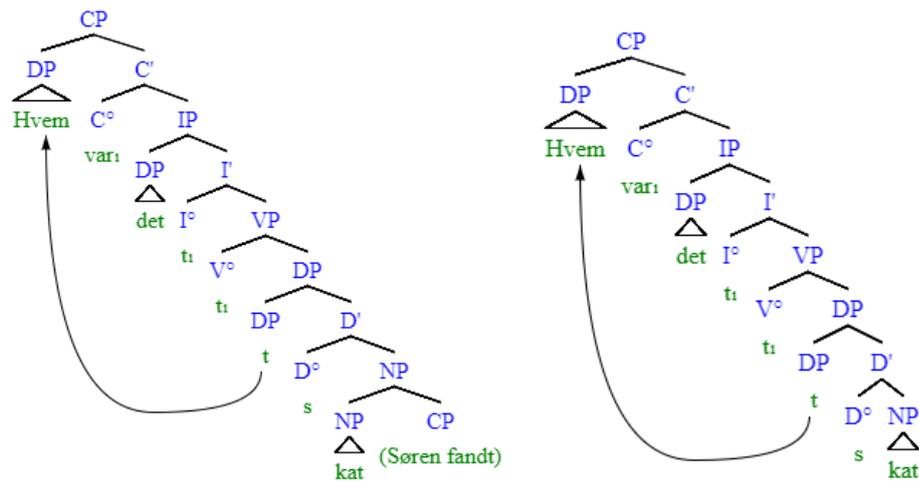
The preliminary survey together with the data from participants 6, 8 and 9 in the experiment in comparison with the generalizations made by Davis (2021) suggest one main difference between PE in English and Danish: PE is possible for clausebound movement in Danish (possibly with restrictions), but not in English, and one similarity: in both English and Danish, PE is possible in the *wh*-movement context of embedded questions.

All 25 example sentences in my experiment can be analyzed as cleft sentences of a variant of the type in (20b), where the base sentence (20a) has been divided into two parts to highlight information (Aarts 2011, 331).

- (20) a. Søren fandt Annas kat.  
*Søren found Anna's cat.*  
 b. Det var Annas kat Søren fandt.  
*It was Anna's cat Søren found.*

Whether the question *hvem var dets kat* from example sentence type (B) is seen as a cleft sentence where the relative clause modifying the NP *kat* (as in (21a)) or not (as in (21b)), *hvem* is not extracted from a position within an embedded clause. Within the relative clause, the CP *Søren fandt*, there is movement of an *ec* to CP-spec, as shown in (22b), where the lowest CP has the same structure as *Søren fandt* in (21a).

- (21) a. Hvem<sub>i</sub> var det <sub>i</sub>s kat (Søren fandt)?      b. Hvem<sub>i</sub> var det <sub>i</sub>s kat?  
*Who<sub>i</sub> was it <sub>i</sub>'s cat (Søren found)?*      *Who<sub>i</sub> was it <sub>i</sub>'s cat?*

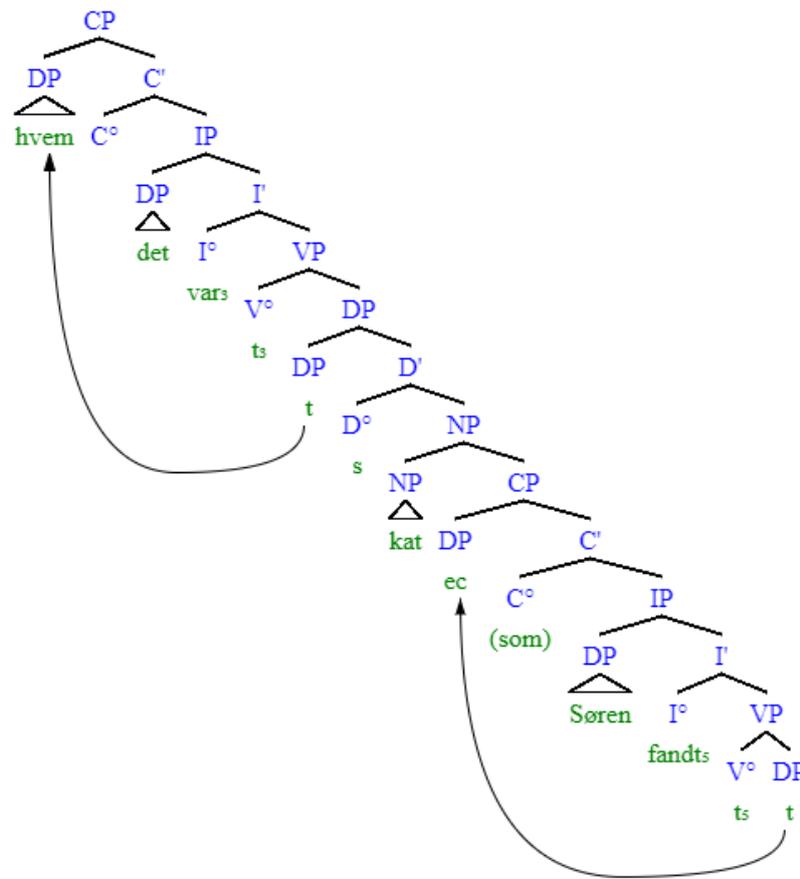


In (22a), *hvem det vars kat Søren fandt* is a cleft clause, and although there is an embedded (relative) clause in cleft sentences, *hvem* is not extracted from within the embedded clause, as the tree structure (22b) shows.

- (22) a. Jeg ved ikke hvem<sub>i</sub> det var <sub>i</sub>s kat (som) Søren fandt.      =(D)  
*I know not who<sub>i</sub> it was <sub>i</sub>'s cat (that) Søren found.*

b.

=(17b)



Thus, both (21) and (22) show how Danish PE (contrary to English PE) is possible for clausebound movement, as the extraction is not from within an embedded clause, as is the case in the examples provided by Davis (2021).

If we take the example sentences of type (D) to be acceptable, as I argue my data suggest, this does show that Danish PE is possible in the movement context of an embedded question, as is also true for English PE.

#### 4.1 Further questions about Danish PE

First, the present study only tested embedded questions as a *wh*-movement context for PE, whereas Davis (2021) argues that in colloquial English, PE is possible in any A'-movement context, for example also topicalization and free relatives (Davis 2021, 295-96). To make a similar generalization for colloquial Danish, study of the acceptability of PE in the remaining types of A'-movement contexts besides embedded questions is necessary.

Second, although there seems to be a clear difference between English and Danish PE, the possible restrictions on PE as clausebound movement in Danish, for example in monoclausal

sentences, are not clear and require further research. Since the questions in type (C) sentences such as (21) can be seen either as monoclausal or as cleft sentences with an elided relative clause, PE in unambiguously monoclausal sentences should be tested along with PE in other types of clausebound movement.

Third, since the present study does not include any non-cleft example sentences, it is not possible to determine whether clefting is necessary for Danish PE. It seems, however, that another function of *det* than the one it has in cleft sentences, namely existential or deictic *det* also allows for PE. The PE examples from the internet ((12)-(13)) and Dahlerup (1926) were neither cleft sentences, nor did they have extraction of *hvem* from within an embedded clause, as in English PE, but PE seems to be possible nonetheless.

Fourth, since all example sentences can be seen as cleft sentences, PE in the relevant examples is clausebound movement. The acceptability of the PE example sentences in my experiment cannot show whether PE is possible from within an embedded clause in Danish as is the case in English. This would need further testing of Danish sentences of the type such as “I can’t remember who I said’s friend is coming over” (Davis 2021, 295).

Fifth, all of the example sentences in my experiment have an overt possessed NP, as in (23a) and (24a), although a construction with ellipsis, as in (23b) and (24b), might also be possible. The acceptability of these has not yet been tested and they do therefore not have any grammaticality marking, but, anecdotally, the few people I have asked about these sentences find (23b) and (24b) as acceptable as (23a) and (24a).

- (23) a. Søren fandt en kat i skoven, men hvem<sub>i</sub> var det <sub>i</sub>s kat?  
*Søren found a cat in forest-the, but who<sub>i</sub> was it <sub>i</sub>'s cat?*
- b. Søren fandt en kat i skoven, men hvem<sub>i</sub> var det <sub>i</sub>s?  
*Søren found a cat in forest-the, but who<sub>i</sub> was it <sub>i</sub>'s?*
- (24) a. Jeg ved ikke hvem<sub>i</sub> det var <sub>i</sub>s kat Søren fandt i skoven.  
*I know not who<sub>i</sub> it was <sub>i</sub>'s kat Søren found in forest-the.*
- b. Søren fandt en kat i skoven, men jeg ved ikke hvem<sub>i</sub> det var <sub>i</sub>s.  
*Søren found a cat in forest-the, but I know not who<sub>i</sub> it was <sub>i</sub>'s.*

The acceptability of sentences with an elliptical possessed NP by speakers who accept PE in the contexts addressed in this article, as well as the possible significance of overt versus elliptical possessed NP in PE sentences require further research. As with the issue of cleft, the examples

from Dahlerup (1926), Ravnholt (2006) and the internet ((12)-(13)) all have an elided possessed NP, which might suggest that PE sentences with ellipsis are more common.

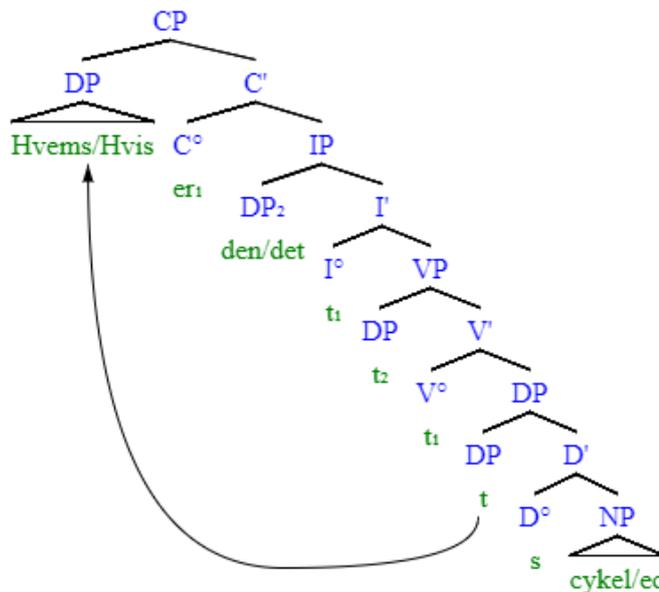
#### Other Danish possessive variants

Some other possessive constructions that resemble PE in that they differ from the standard pied-piping movement of *hvis* are “Hvis er dets?” (Bostrup 2018), and “Hvems er dens cykel” (KorpusDK). Dahlerup (1926) calls *hvems* [who’s] colloquial or childish, and it might be seen as a variant of the pronoun *hvis*, where the possessive *-s* has simply been added to the interrogative pronoun *hvem* [who] to create a possessive interrogative form instead of using the standard *hvis*. These examples have what Gavruseva and Thornton (2021, 251) call “Gen ’s doubling”, where the possessive *-s* is “doubled” in that it is present both on the interrogative pronoun and in the stranded DP material. This doubling of *-s* should not be possible, since *hvis* or *hvem* + *-s* does not form a constituent and they should therefore not be able to move without the rest of the phrase they are a part of (Davis 2021, 293).

(25) a. Hvis<sub>i</sub> er det t<sub>i</sub>s? / Hvems<sub>i</sub> er den t<sub>i</sub>s cykel. (Bostrup 2018; KorpusDK)

*Whose<sub>i</sub> is it t<sub>i</sub>'s? / [Who's]<sub>i</sub> is it t<sub>i</sub>'s bike.*

b.



The syntactic similarity of “Hvis er dets?” and “Hvems er dens cykel” is evident in (25b), and in both variants *hvis* or *hvems* moves into CP-spec without the possessed NP, while the possessive *-s* simultaneously is present in D°. The fact that Gavruseva and Thornton (2001) only found this

sentence type in the data of two children and Davis's (2021) argument that extraction of *whose* is impossible in English seems to me to suggest that such constructions might also be production errors in Danish, in contrast with true PE. However, ruling out their acceptability in Danish would require further studies.

#### 4.2 Further considerations about English PE

As is the case for Danish, the significance of clefting in relation to PE has not been studied for English. The examples of possible English PE sentences provided by Davis (2021) do not include the kind of cleft clause that occurs in the examples in my experiment, which suggests that the possible significance of clefting for Danish PE does not apply to English PE. In contrast, PE in cleft clauses of this type seems to be impossible in English.

- (25) a. ?      En. I can't remember who<sub>i</sub> it was   's car I borrowed.  
       b.      Da. Jeg kan ikke huske hvem<sub>i</sub> det var   's bil jeg lånte.                    = type (D)

(26b) is a sentence of type (D), which is the sentence type that all four participants in the experiment who were taken to accept Danish PE gave mean a score of 3 or higher. As shown for the Danish equivalents (22a), PE in this context is clausebound, which Davis (2021, 299) argues is impossible in English. Since *who it was's car I borrowed* is a cleft clause, there is no CP edge next to *was* that   's *car* can move to, to make PE possible, in accordance with Davis's generalization.

## 5. Conclusion

While it is said that PE is not possible in the Germanic languages (Gavruseva 2000, 744), Davis (2021) provides evidence for its existence in colloquial English and suggests generalizations of the restrictions of the phenomenon. The data on Danish PE presented in this article form the basis for comparison of PE in Danish and English. Despite the small sample size, the data from my experiment and preliminary survey indicate that some speakers accept PE in colloquial Danish. Thus, on the basis of these data, the comparison of PE in colloquial English and Danish suggests the similarity that in both languages, PE is possible in the movement context of embedded questions. Further, the comparison suggests one main difference between PE in English and Danish, namely that Danish PE is possible for clausebound movement, whereas PE of this type is impossible in colloquial English.

As this article is a pilot study, it gives rise more questions than it answers. These are a few of the main considerations presented in the article: First, PE in more sentence types should be studied,

some of which should include PE from within an embedded clause, non-cleft sentences, possessive phrases with elliptical versus overt possessed NPs, as well as PE in additional movement contexts other than embedded questions. Second, extraction of other possessors than *hvem* [who] has not been studied for Danish PE but has been shown to be possible for English PE (Davis 2021, 296). Finally, since PE was not expected to be possible in English and Danish, it would be interesting to examine whether it is also possible in other Germanic languages.

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## Appendix A: Example sentences by type

### *Clausebound movement with pied-piping*

- (A) a. Søren fandt en kat i skoven, men hvis kat var det?  
*Søren found a cat in forest-the, but whose cat was it?*
- b. Trine fortalte om et flot hus, men hvis hus var det?  
*Trine told about a pretty house, but whose house was it?*
- c. Jeg har fundet en bog på bordet, men hvis bog er det?  
*I have found a book on table-the, but whose book is it?*
- d. Jeg griber en bold, men hvis bold er det?  
*I catch a ball, but whose ball is it?*
- e. Jeg lånte en bil i går, men hvis bil var det?  
*I borrowed a car yesterday, but whose car was it?*

### *Clausebound movement with PE*

- (B) a. Søren fandt en kat i skoven, men hvem var dets kat?  
*Søren found a cat in forest-the, but who was it's cat?*
- b. Trine fortalte om et flot hus, men hvem var dets hus?  
*Trine told about a pretty house, but who was it's house?*
- c. Jeg har fundet en bog på bordet, men hvem er dets bog?  
*I have found a book on table-the, but who is it's book?*
- d. Jeg griber en bold, men hvem er dets bold?  
*I catch a ball, but who is it's ball?*
- e. Jeg lånte en bil i går, men hvem var dets bil?  
*I borrowed a car yesterday, but who was it's car?*

### *Multiclausal: embedded question with pied-piping*

- (C) a. Jeg ved ikke hvis kat det var Søren fandt i skoven.  
*I know not whose cat it was Søren found in forest-the.*
- b. Gad vide hvis hus det var Trine sagde var flot.  
*I wonder whose house it was Trine said was pretty.*
- c. Gad vide hvis bog det er jeg har fundet på bordet.  
*I wonder whose book it is I have found on table-the.*
- d. Gad vide hvis bold det er jeg har grebet.  
*I wonder whose ball it is I have caught.*

- e. Jeg kan ikke huske hvis bil det var jeg lånte i går.  
*I cannot remember whose car it was I borrowed yesterday.*

*Multiclausal: embedded question with PE, type 1*

- (D) a. Jeg ved ikke hvem det vars kat Søren fandt i skoven.  
*I know not who it was's cat Søren found in forest-the.*
- b. Gad vide hvem det vars hus Trine sagde var flot.  
*I wonder who it was's house Trine said was pretty.*
- c. Gad vide hvem det ers bog jeg har fundet på bordet.  
*I wonder who it is's book I have found on table-the.*
- d. Gad vide hvem det ers bold jeg har grebet.  
*I wonder who it is's ball I have catched.*
- e. Jeg kan ikke huske hvem det vars bil jeg lånte i går.  
*I cannot remember who it was's car I borrowed yesterday.*

*Multiclausal: embedded question with PE, type 2*

- (E) a. Jeg ved ikke hvem det var Søren fandts kat i skoven.  
*I know not who it was Søren found's cat in forest-the.*
- b. Gad vide hvem det var Trine sagdes hus var flot.  
*I wonder who it was Trine said's house was pretty.*
- c. Gad vide hvem det er jeg har fundets bog på bordet.  
*I wonder who it is I have found's book on table-the.*
- d. Gad vide hvem det er jeg har grebets bold.  
*I wonder who it is I have caught's ball.*
- e. Jeg kan ikke huske hvem det var jeg låntes bil i går.  
*I cannot remember who it was I borrowed's car yesterday.*

*Grammatical distractors*

- (F) a. Gad vide hvem der kastede den bold jeg lige har grebet.  
*I wonder who there threw the ball I just have caught.*
- b. Søren fandt en kat i skoven som så meget bange ud.  
*Søren found a cat I forest-the which saw very afraid out.*
- c. Jeg lånte en bil af nogen, men jeg kan ikke huske hvem.  
*I borrowed a car from someone, but I cannot remember who.*

- d. Trine fortalte om et flot hus. Hvem ejer det?  
*Trine told about a pretty house. Who owns it?*
- e. Jeg kan ikke huske hvem der lagde bogen på bordet.  
*I cannot remember who there laid book-the on table-the.*

*Ungrammatical distractors*

- (G) a. Jeg ved i skoven hvems fandt kat ikke Søren.  
*I know in forest-the who's found cat not Søren.*
- b. Gad vide det Trine fortalte hvem hus's flot var.  
*I wonder it Trine told who house's pretty was.*
- c. Jeg har hvem fundet bog på bordet ligger.  
*I have who found book on table-the lies.*
- d. Bolden flyvende kommer, men hvems jeg griber det er?  
*Ball-the flying comes, but who's I catch it is?*
- e. Jeg ikke husker bil i går men jeg lånte hvis.  
*I not remember car yesterday but I borrowed whose.*

## **Appendix B: Randomized example sentences**

1. Gad vide hvis hus det var Trine sagde var flot.
2. Søren fandt en kat i skoven som så meget bange ud.
3. Søren fandt en kat i skoven, men hvis kat var det?
4. Jeg kan ikke huske hvem det vars bil jeg lånte i går.
5. Gad vide det Trine fortalte hvem hus's flot var.
6. Jeg kan ikke huske hvis bil det var jeg lånte i går.
7. Gad vide hvem det er jeg har fundets bog på bordet.
8. Søren fandt en kat i skoven, men hvem var dets kat?
9. Jeg kan ikke huske hvem der lagde bogen på bordet.
10. Gad vide hvem det ers bog jeg har fundet på bordet.
11. Jeg ved ikke hvem det vars kat Søren fandt i skoven.
12. Gad vide hvem det er jeg har grebets bold.
13. Trine fortalte om et flot hus. Hvem ejer det?
14. Gad vide hvis bold det er jeg har grebet.
15. Jeg griber en bold, men hvem er dets bold?
16. Gad vide hvem det var Trine sagdes hus var flot.
17. Jeg lånte en bil i går, men hvis bil var det?
18. Jeg har fundet en bog på bordet, men hvem er dets bog?
19. Jeg kan ikke huske hvem det var jeg låntes bil i går.
20. Jeg ved i skoven hvems fandt kat ikke Søren.
21. Trine fortalte om et flot hus, men hvis hus var det?
22. Jeg har fundet en bog på bordet, men hvis bog er det?
23. Jeg ved ikke hvis kat det var Søren fandt i skoven.
24. Jeg har hvem fundet bog på bordet ligger.
25. Trine fortalte om et flot hus, men hvem var dets hus?
26. Gad vide hvis bog det er jeg har fundet på bordet.
27. Jeg lånte en bil i går, men hvem var dets bil?
28. Gad vide hvem det vars hus Trine sagde var flot.
29. Gad vide hvem der kastede den bold jeg lige har grebet.
30. Jeg ved ikke hvem det var Søren fandts kat i skoven.
31. Jeg ikke husker bil i går men jeg lånte hvis.
32. Bolden kastet er, men hvems jeg griber det er?
33. Gad vide hvem det ers bold jeg har grebet.

34. Jeg lånte en bil af nogen, men jeg kan ikke huske hvem.

35. Jeg griber en bold, men hvis bold er det?