

## ARGUMENT PLACEMENT IN DANISH

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### ABSTRACT

This paper gives an overview of the Danish data on argument placement in the Nordic Word Order Database (NWD, Lundquist et al. 2019). The data were collected from 28 speakers in Copenhagen and Fredriksværk in 2018. The experimental task elicited subject and object placement relative to adverbs and particles (i.e., subject shift, object shift and particle shift), as well as subject placement relative to objects (long object shift). The results confirm that there is considerably less variability in argument placement in Danish than in the other North Germanic languages.

### [1] INTRODUCTION

All of the modern North-Germanic languages are V2-languages: the finite verb occurs in the second position in main clauses. Main clause declaratives are often subject initial, as in the Danish example in (1a). If something other than the subject has been fronted to the first position, the subject must follow the verb, as in (1b). Danish, like all of the North Germanic languages, have VO-order, as is shown in (1c).<sup>1</sup>

- (1) a. Jens            så        filmen        i går.  
       Jens            saw    film.DEF    yesterday  
       ‘Jens saw the film yesterday.’
- b. I går            så        Jens        filmen.  
       yesterday    saw    Jens        film.DEF  
       ‘Jens saw the film yesterday.’
- c. Jens har        set        filmen.  
       Jens has        seen    film.DEF  
       ‘Jens has seen the film.’

However, in other respects, there is considerable variation in argument

[1] If nothing else is specified, all examples are in Danish.

placement within North Germanic. The relative position of subjects and objects versus sentence adverbs and verb particles varies both intra- and inter-individually, and across varieties. In this paper, we investigate the placement of arguments in Danish, using the experimental data available in the Nordic Word Order Database (NWD, Lundquist et al. 2019). We will only be concerned with non-initial arguments in main clause declaratives.

It is well-known that Danish differs from the two other Mainland Scandinavian languages (i.e., Norwegian and Swedish) in that it generally has significantly stricter constituent order (see further Section 2 below). Consider first the Swedish examples in (2).

- (2) a. I går såg {Jens/han} inte {Jens/\*han} filmen. (Sw.)  
 yesterday saw Jens/he not Jens/he film.DEF  
 ‘Yesterday, Jens/he did not see the film.’
- b. Jens såg {\*filmen/den} inte {filmen/den} i går.  
 Jens saw film.DEF/it not film.DEF/it yesterday  
 ‘Jens did not see the film/it yesterday.’
- c. Jens kastade {\*skräpet/\*det} ut {skräpet/det}.  
 Jens threw rubbish.DEF/it out rubbish.DEF/it  
 ‘Jens threw the rubbish/it out.’
- d. Då tvättade {sig} Jens {sig}.  
 then washed REFL Jens REFL  
 ‘Then Jens washed himself.’

In Swedish, non-pronominal (NP) subjects can either precede or follow negation, as in (2a).<sup>2</sup> Following standard terminology, we will refer to the order subject–negation (and other sentence adverbs) as involving *subject shift* (see, e.g., Larsson & Lundquist 2022a and references therein). Pronominal objects can also either precede or follow negation and other sentence adverbs, as in (2b); the order object–adverb is standardly referred to as involving *object shift* (Holmberg 1986). Non-pronominal object shift across negation is possible in Icelandic (Larsson 2022 and references therein) and to some extent in Faroese (Lundquist 2020 and references therein), but not in the Mainland North Germanic languages. Unlike the other North Germanic languages, Swedish only allows the order particle–object, as is shown in (2c); for simplicity, we will here refer to this order as involving *particle shift* (see Larsson & Lundquist 2022a, and cf. Larsson & Lundquist 2022b for discussion). Finally, Swedish allows so-called *long object shift* across an NP subject, as shown in (2d), where a reflexive pronoun precedes the

[2] In the following, we refer to noun phrases headed by a lexical noun as NPs.

subject (Larsson & Lundquist 2022a and references therein).<sup>3</sup>

Now, consider the Danish examples in (3). In Danish declarative main clauses, subject shift is generally obligatory both with pronominal and NP subjects, as is illustrated in (3a) (see Bentzen 2014a and references therein). Pronominal object shift is also generally obligatory (when it can apply), as illustrated in (3b) (but see Section 2.2 below for some qualification); non-pronominal object shift is not possible. Considering the placement of particles, the word order is strict, as in Swedish, but in the opposite way: particles must follow both pronominal and NP objects (e.g., Vikner 1987, Lundquist 2014); see (3c). Long object shift is not possible in Danish; see (3d).

- (3) a. I går så {Jens/han} ikke {\*Jens/\*han} filmen.  
 yesterday saw Jens/he not Jens/he film.DEF  
 ‘Yesterday, Jens did not see the film.’
- b. Jens så {\*filmen/den} ikke {filmen/\*den} i går.  
 Jens saw film.DEF/it not film.DEF/it yesterday  
 ‘Jens did not see the film yesterday.’
- c. Jens smed {affaldet/det} ud {\*affaldet/\*det}.  
 Jens threw rubbish.DEF/it out rubbish.DEF/it  
 ‘Jens threw out the rubbish.’
- d. Så vaskede {\*sig} Jens {sig}.  
 then washed REFL Jens REFL  
 ‘Then Jens washed himself.’

The differences between Swedish and Danish illustrated in (2) and (3), and the variation found in North Germanic more generally, have been much discussed in the literature (see, e.g., Holmberg 1986, 1993, Vikner 1987, 2017, Svenonius 2002, Andréasson 2013, Bentzen et al. 2013, Erteschik-Shir et al. 2021 to name a few). The systematically elicited experimental data in NWD provide an important addition to these studies, since it allows us to investigate variation both within and across speakers in all of the Nordic countries, as well as the speakers’ varying choices between different possibilities that might all be grammatical. The Swedish and Norwegian data in NWD have revealed considerable inter- and intra-individual variation (see Larsson & Lundquist 2022a, Lundquist & Tengedal 2022). In Swedish, the main exception is particle placement, which

[3] We use the standard terminology while remaining agnostic as to the right analyses of the “shifts”. As pointed out by a reviewer, the position to the left of negation is generally referred to simply as “the subject position” in Danish grammars, without any reference to subject shift. Note also that *subject shift*, *object shift*, *particle shift* and *long object shift* are treated as variables in the present study; in the discussion of the experimental data below, also non-shifted arguments will therefore be treated under the headings *subject shift*, *object shift* etc.

seems to be completely strict. In Norwegian, pronominal placement is generally strict, but the placement of NP subjects relative negation and verb particles varies.

In this paper, we present data from the Danish part of NWD. The aim of the paper is to give an empirical overview of the Danish patterns with respect to argument placement, in order to allow for cross-linguistic comparison. The data were collected using an experimental production task (see Section 3 below and Lundquist et al. 2019). For Danish, 28 speakers were recorded during fieldwork in the Copenhagen region in October 2018. In sum, 2 576 utterances that elicit argument placement were recorded during the fieldwork, and have now been annotated and are available in NWD.<sup>4</sup> NWD also includes corresponding data from other Nordic countries (see Lundquist et al. 2019, for more detailed descriptions of the experimental setup and the structure of the database).

This paper is concerned with subject placement relative to negation (subject shift), object placement relative to sentence adverbs (regular object shift) and subjects (long object shift), as well as the placement of particles relative to objects (particle shift) and subjects (long particle shift). Section 2 provides a brief background to argument placement in Danish (and the other North Germanic languages). Section 3 gives an overview of the experimental design and materials, and Section 4 provides an overview of the data collection and participants. The results are presented in Section 5. As we will see, and as expected given what we previously know, there is little variation in Danish. From a (micro-)comparative perspective, this is not unimportant, and we will briefly compare Danish to the other North Germanic languages in Section 6. Section 7 is a short conclusion.

## [2] ARGUMENT PLACEMENT IN DANISH

This section gives a brief background to argument placement in Danish, focusing on the phenomena that are included in NWD.

### [2.1] *Subject shift*

As mentioned above, the Mainland North Germanic languages differ in the placement of non-initial subjects. Norwegian and Swedish allow both shifted and unshifted NP subjects, while in Danish, subject shift is often obligatory (but see, e.g., Jensen 1995, Jørgensen 1996, Ørsnes 2009 and references therein); cf. (2a) and (3a) above. Bentzen (2014b) shows that the order negation–subject is generally judged as unacceptable by the Danish speakers in the Nordic Syntax

[4] NWD also includes Danish experimental data on verb placement, but this will not be discussed here; see Westendorp (2021).

Database (NSD, Lindstad et al. 2009), with one exception: embedded conditional clauses introduced by *hvis*, as in (4) (#1330 in NSD).<sup>5</sup> Ørsnes (2009) argues that Danish allows preposed negation in embedded contexts, and that preposing is associated with negated verum focus in certain information structurally specific contexts (specifically in clauses lacking an aboutness topic).

- (4) Jeg bliver vred hvis ikke du gør det nu.  
 I get angry if not you do it now  
 ‘I’ll get angry if you don’t do it now.’ (Bentzen 2014a, example (4a))

The data on argument placement in NWD only include main clause declaratives. The experimental items that investigate subject shift include sentences with pronominal and NP subjects and negation (see Section 3 for further details). In these contexts we do not expect variation in Danish.

## [2.2] Regular and long object shift

Object shift has been studied extensively in the North Germanic languages (e.g., Holmberg 1986, 1999, Pedersen 1993, Vikner 1997, 2006, Hellan & Platzack 1995, Thráinsson 2001, Heltoft 2011). Here, we only give a brief overview.

As we saw in (3b) above (repeated in (5a)), Danish, like the other Mainland North Germanic languages, has pronominal object shift across negation. NP objects and stressed pronouns, on the other hand, do not shift. As is well-known, object shift is dependent on verb placement: it is only possible if the main verb has moved out of the VP (Holmberg’s generalization, Holmberg 1986). In sentences with auxiliaries, as in (5b), object shift is therefore ungrammatical.

- (5) a. Jens så {\*filmen/den} ikke {filmen/\*den} i går.  
 Jens saw film.DEF/it not film.DEF/it yesterday  
 ‘Jens did not see the film yesterday.’  
 b. Jens har {\*filmen/\*den} ikke set {filmen/den}.  
 Jens saw film.DEF/it not seen film.DEF/it  
 ‘Jens hasn’t seen the film.’

It has often been claimed that pronominal object shift is obligatory (whenever it can apply) in Danish, except in certain southern Danish dialects (Pedersen 1993, Erteschik-Shir et al. 2021, cf. Bentzen 2014a and references therein), but optional in Swedish (e.g., Josefsson 2003, 2010, Andréasson 2008, 2009, 2010). In the corpus study by Bentzen et al. (2013), 95% (21/22) of the pronouns with nominal

[5] As pointed out by a reviewer, there are also other types of embedded clauses (e.g., clauses introduced by *om* ‘if’) where the order negation–subject sometimes occurs, and subjects also sometimes precede adverbs like *nu* ‘now’ or *ellers* ‘otherwise’ in embedded contexts; see, e.g., Jensen (1995), Pedersen (1996).

reference shift in Danish; the corresponding number for Norwegian is 87% (41/47), and 64% (30/47) in Swedish.

In other words, whereas there is a clear difference between Swedish and Danish, the difference between Danish and Norwegian is less clear. Moreover, the numbers are too low to allow for any conclusions regarding individual variation in these languages. This is a general problem with corpus studies of object shift, since the syntactic contexts for shifting are so rare in spontaneous speech. As we will see below in Section 5 and 6, the experimental data in NWD confirm that object shift is strongly preferred in both Danish and Norwegian, and optional in Swedish. It has been suggested (most recently by Erteschik-Shir et al. 2021) that this difference between Danish and Swedish with respect to object shift is related to prosodic differences between the two languages; where Norwegian fits into the picture is less clear (and see Mikkelsen 2011 and Lyskawa et al. 2022 for arguments against purely prosodic accounts). The data in NWD can be used for prosodic analysis, but we will not attempt to do so here.

As shown by, e.g., Andréasson (2008, 2009, 2010), Ørsnes (2013) and Bentzen et al. (2019), object shift is less frequent with the pronoun *det* ‘it’ with non-nominal reference, than with reflexives and pronouns that have nominal antecedents (see also Mikkelsen 2011). This holds for all three Mainland North Germanic languages, but to a varying degree. In the present study, all object pronouns have nominal reference, and non-nominal *det* will therefore not be discussed further.

Let us now turn briefly to long object shift, whereby an object pronoun or reflexive shifts to a position preceding the subject (see, e.g., Holmberg 1986, Heinat 2010, Larsson & Lundquist 2022a). As mentioned in Section 1 above, long object shift is possible in Swedish; examples are given in (6).

- (6) a. Igår vilade sig bagaren. (Sw.)  
 yesterday rested REFL baker.DEF  
 ‘The baker rested yesterday.’
- b. Igår gav mig bagaren torrt bröd.  
 yesterday gave me baker.DEF dry bread  
 ‘Yesterday the baker gave me dry bread.’

Long object shift is generally impossible in the other North Germanic languages, but, as mentioned by Thráinsson (2007:71) there are scattered attestations from older stages of Icelandic and Danish.

To distinguish object shift across sentence adverbs from long object shift across a subject, we here sometimes refer to the former as *regular object shift*. In the experimental data discussed in the present study, there are items that

investigate regular object shift across negation, with reflexives, pronominal objects with nominal antecedents, and with NP objects. In addition, a couple of items that test the ordering of particles and objects also include a sentence adverb (other than negation), and therefore also test object shift. Moreover, a number of items are included to investigate long object shift of reflexives and pronouns.

[2.3] *Particle shift and long particle shift*

As mentioned in the introduction, the ordering of objects and verbal particles, too, varies across the North Germanic varieties (see Lundquist 2014 for an overview). Danish only allows the order object–particle, Swedish only the order particle–object, and the other languages have both possibilities; compare the Danish examples in (7), to Swedish in (8) and Norwegian in (9).

- (7) a. Boris        skruede        musikken/den    ned.  
       Boris        turned        music.DEF/it    down  
       b. \*Boris        skruede ned        musikken/den.  
       Boris        turned    down        music.DEF/it  
       ‘Boris turned the music/it down.’ (Lundquist 2014:1–2)
- (8) a. \*Boris        skruvade        musiken/den    ner.                (Sw.)  
       Boris        turned        music.DEF/it    down  
       b. Boris        skruvade        ner        musiken/den.  
       Boris        turned        down        music.DEF/it  
       ‘Boris turned the music/it down.’
- (9) a. Boris        skrudde        musikken/den    ned.                (No.)  
       Boris        turned        music.DEF/it    down  
       b. Boris        skrudde        ned        musikken/%den.  
       Boris        turned        down        music.DEF/it  
       ‘Boris turned the music/it down.’

As illustrated in (7), Danish has a strict order object–particle both with NP and pronominal objects. Similarly, as we see in (8), Swedish requires the order particle–object with both object types. In many Norwegian varieties, on the other hand, as well as in Icelandic and (at least to some extent) Faroese, the order varies in part depending on the form of the object: unstressed pronominal objects precede verbal particles, whereas NP objects have a more variable placement (e.g., Svenonius 1996). Several different factors might be at play. The type of particle, the semantics of the verb–particle combination (directional or not), the syntactic context, as well as prosodic factors, might influence the word

order. In the experimental set-up, we therefore included several different types of particle constructions; these are discussed in the papers on Norwegian (Lundquist & Tengedal 2022) and Icelandic (Larsson 2022). Since the focus here is on Danish, we will only discuss the different types of items used to test the ordering of objects and particles very briefly in Section 5.4 below.

In addition to what we will here refer to as (regular) particle shift, the experiment also included items to investigate the ordering of verb particles and subjects; we will refer to the order particle–subject as *long particle shift*. Verb particles are generally verb phrase internal in the North Germanic languages, and we therefore do not expect variation in the order of particles and subjects in any of the languages (except perhaps in the cases where VP-internal subjects are allowed; see Larsson 2022 on Icelandic). Rather, we expect subjects to precede verb particles, as in (10).

- (10) a. Igår            gav        Boris    op.  
           yesterday gave        Boris    up  
           ‘Boris gave up yesterday.’

There are still a couple of reasons to investigate long particle shift. As mentioned by Lundquist (2020), the order particle–subject has been attested sporadically. Also, the items that test long particle placement never include a negator, and they therefore function as fillers in the parts of the experiment that test object shift and subject shift across negation.

In the next section we look in more detail at the experimental set-up, and the different conditions (i.e., manipulated independent variables) included in the experiment.

### [3] MATERIALS

We have investigated argument placement in North Germanic using an elicited production experiment. The Danish version of the experiment was based on the Icelandic, Norwegian, and Swedish experiments (see Larsson 2022, Lundquist & Tengedal 2022, and Larsson & Lundquist 2022a). In this section, we present an overview of the Danish version of the experiment. We refer to Lundquist et al. (2019) for a more detailed description of the experiment and how to access the data through the Nordic Word Order Database.

The basic experimental design is constant across the conditions and items. First, the participant is presented with a background sentence, as in (11a), and asked to read it aloud. Immediately after that, the participant is presented with the start of a new sentence, the so-called trigger (11b). The participant is asked to finish the trigger-sentence using the words in the background. Possible target



sentences are illustrated in (11c).

- (11) a. Læreren/Hun tog ikke bussen til (Background)  
 teacher.DEF/she took not bus.DEF to  
 arbejde i går.  
 work yesterday  
 ‘The teacher/she did not take the bus to work yesterday.’
- b. I går... (Trigger)  
 yesterday...
- c. ... tog {læreren/hun} ikke {læreren/hun} (Target)  
 took teacher.DEF/she not teacher.DEF/she  
 bussen til arbejde.  
 bus.DEF to work  
 ‘Yesterday, the teacher/she did not take the bus to work.’

The background sentence always has an initial subject (NP or pronoun). In the trigger in (11b), there is an initial adverbial, and since North Germanic has a V2-requirement, the subject must be post-verbal in the target sentence. The relative order of the subject and other elements (e.g., negation) might vary; the items illustrated in (11), elicit subject shift (with pronominal or NP subjects) across negation. In NWD, the background sentences are referred to as ‘Read’ (since the participant simply reads from the screen) whereas the produced target sentences are called ‘Produced’; it is in the latter we might find word order variation.

The experiment consists of three parts that elicit partly different phenomena. In the first part, the produced sentences always begin with a temporal adverbial, and the participant must invert the subject and verb given in the background sentence to adhere to the V2-rule. However, the participant can vary the order of subject and negation (as in (11c)), subject and verb particle, or subject and object. In this way, the items in the first part of the experiment elicit subject shift, long particle shift, and long object shift.

In the second part of the experiment, the background sentence is always subject-initial and in the future tense (formed with *kommer til at* ‘come to that’ + infinitive); see (12a). The trigger has an initial adverb and the verb in the past tense; see (12b). The speaker can potentially vary the order between subject, reflexive and negation, potentially yielding six different orders. (12c) illustrates the target sentence expected for Danish. (As mentioned in Section 2 above, we hardly expect all possible orders to be produced by Danish speakers, but see Larsson & Lundquist 2022a on Swedish.)

- (12) a. Løberen kommer ikke til at vaske (Background)  
 runner.DEF will not to that wash  
 sig efter løbet.  
 REFL after race.DEF  
 ‘The runner will not wash himself/herself after the race.’
- b. I går vaskede... (Trigger)  
 yesterday washed...
- c. ... løberen sig ikke efter løbet. (Target)  
 runner.DEF REFL not after race.DEF  
 ‘Yesterday, the runner didn’t wash himself/herself after the race.’

The background sentences in part 2 of the experiment have negation and reflexives (as in (11a)) or object pronouns, or a verb particle. In this way, the items elicit subject shift, regular and long object shift with reflexive or pronoun, and long particle shift.

In the third part of the experiment, the participants are asked to transform the background sentence from passive to active voice. The background sentence is in the passive voice, and an agent adverbial is always included; see (13a). The trigger is also subject initial, with the agent as subject and the verb in the active voice; see (13b). (13c) illustrates the word orders that North Germanic speakers might produce. This particular item elicits particle shift.

- (13) a. Studenten blev smidt ud af (Background)  
 student.DEF was thrown out of  
 pubben af vagterne.  
 pub.DEF by guard.PL.DEF  
 ‘The student was thrown out of the pub by the guards.’
- b. Vagterne smed... (Trigger)  
 guard.PL.DEF threw
- c. ... {ud} studenten {ud} af pubben. (Target)  
 out student.DEF out of pub.DEF  
 ‘The guards threw the student out of the pub.’

The background sentences in the third part of the experiment all include either negation or a particle, and they elicit regular object shift and particle shift. As mentioned above some of the sentences with particles also have a sentence adverb (*øjeblikkelig* ‘immediately’) and therefore elicit both object shift and

particle shift.<sup>6</sup> The objects are either pronouns or NPs.

Table 1 shows an overview of the experimental structure, with conditions and the number of items.<sup>7</sup> There are altogether 92 experimental items. As mentioned, the first part of the experiment includes items to investigate three phenomena, whereas the other two parts test two phenomena each.

Part	Phenomenon	Subcondition 1	Subcondition 2
1. Subject-Verb inversion (n=36)	Subject shift (n=10)	NP subj. (n=5)	
		PRO subj. (n=5)	
	Long object shift (n=15)	NP subj. (n=10)	REFL obj. (n=5)
		PRO subj. (n=5)	1 PRO obj. (n=5)
Subject-Particle (n=11)	NP subj. (n=7)	REFL obj. (n=5)	
	PRO subj. (n=4)	1 PRO obj. (n=5)	
2. Subject-Verb inversion, complex to simple tense (n=20)	Subject shift, (long) object shift (n=10)	NP subj. (n=5)	REFL obj. (n=5)
		PRO subj. (n=5)	1 PRO obj. (n=5)
	Subject-Particle (n=10)	NP subj. (n=5)	
		PRO subj. (n=5)	
3. Passive to active (n=36)	Object shift (n=11)	NP obj. (n=4)	
		PRO obj. (n=7)	
	Particle shift (n=25)	NP obj. (n=13)	See Section 5.4
		PRO obj. (n=12)	

TABLE 1: Overview of the Danish experiment.

As can be seen in Table 1, the first subcondition is always the form of either the subject or the object (pronoun or NP). For instance, subject shift is investigated with 10 items in part one; five of these have NP subjects, five have pronominal subjects. Object shift is investigated with 11 items in part 3; four of these have NP objects and seven have pronominal objects. In some cases, there is also a second subcondition. Long object shift across an NP subject is for instance investigated with five items that have a reflexive object and five items that have a first person pronominal object. Long object shift across a pronominal subject,

[6] A reviewer asks why the adverb *øjeblikkelig* was chosen. In this context, it is important that objects might not show the same placement patterns with respect to sentence adverbs as with negation. However, many other sentence adverbs could also have been included, and it is possible that the choice affects the frequency of object shift (at least in some North Germanic varieties, see, e.g., Larsson 2022 on Icelandic). Importantly, *øjeblikkelig* typically occurs in sentence medial position, and can therefore provide a relevant context for object shift.

[7] Cf. Table 1 in Lundquist (2020) on Faroese, and Table 1 in Larsson (2022) on Icelandic.

on the other hand, is investigated only with reflexives.<sup>8</sup> Particle shift is investigated using items that have different kinds of verb particles (adverbs and prepositions). A number of items have a directional PP in addition to the particle (as in (13a) above). Since these subconditions are hardly relevant in Danish, they will only be mentioned briefly in Section 5.4.

The Danish version of the experiment differs from the other language versions in a few respects. First, the Swedish experiment (see Larsson & Lundquist 2022a) has more conditions for long object shift. While the Norwegian and Swedish versions tested object shift only with negation, the Danish version in addition has two items that test object shift across the adverb *øjeblikkelig* ‘immediately’, as mentioned. The number of items within each subcondition also sometimes differs from the other languages. One example is that while Danish included 25 items to test particle shift in part 3, the Icelandic experiment had 23. The particle verbs used in the different versions also vary somewhat depending on language.

#### [4] PARTICIPANTS AND METHOD

In this section, we provide an overview of the Danish participants and describe the experimental set-up.

##### [4.1] *Participants and recording locations*

The data collection was conducted in the Capital Region of Denmark, at the end of October 2018.<sup>9</sup> The recordings were primarily carried out at two locations, namely the University of Copenhagen and Frederiksværk Gymnasium (an upper secondary school); Fredriksværk is a town located about an hour’s drive from Copenhagen. One recording was conducted in a northern suburban area of Greater Copenhagen. The primary recording locations are shown on the map in Figure 1.

Participants were recruited through personal contacts and social media. Arrangements for the data collection that took place at the university were made with the help from our personal contacts at the university. The upper secondary school contacted us in response to our online call on social media about the research project.

[8] As shown by Larsson & Lundquist (2022a), long object shift across pronouns is hardly expected even in Swedish, but occurs occasionally with reflexives.

[9] The data collection was carried out by Eirik Tengedal and Maud Westendorp.

FIGURE 1: Overview of fieldwork locations in Denmark.<sup>10</sup>

Table 2 gives an overview of the 28 participants. The participants were university students (BA level,  $n=7$ ) or upper secondary school pupils ( $n=20$ ), and one was a teacher. Most participants were young; only three participants were born before 1970. 23 participants had Danish as their first language, while five reported that they were simultaneous bilinguals (Danish/French, Danish/Libanes, Danish/Pakistani, Danish/Serbian, German/Danish). The simultaneous bilinguals had all grown up in Denmark. All participants were given information about the project and volunteered to participate. The upper secondary school pupils received small gifts and the university students received a cinema gift card as a token of gratitude for their participation.

Location	No. of participants	Sex (male/female)	Age range (mean)
Copenhagen	8	(0/8)	21–71 (33.6)
Frederiksværk	20	(11/9)	16–18 (17.3)
<b>Total</b>	<b>28</b>	<b>(11/17)</b>	<b>16–71 (22)</b>

TABLE 2: Overview of the Danish participants. ‘Age’ is operationalized as the year of recording subtracted with the year of birth.

[10] The script that created this map is available in a GitHub repository, archived by Zenodo (Tengesdal 2022).

#### [4.2] *Experimental setup*

Several of the recordings at Copenhagen university were conducted in the sound studio at the Linguistic Laboratory (Department of Nordic Studies and Linguistics). The experiments were run on laptops using the software OpenSesame (Mathôt et al. 2012). Handheld digital audio recorders (Zoom H4n/H4n Pro Handy Recorder,  $n=14/n=14$ ) were used to record the sessions. Most recordings were carried out using an external lapel microphone (Audio-Technica ATR3350,  $n=11$ ), omnidirectional condenser microphone (Sennheiser Omnidirectional condenser microphone capsule,  $n=3$ ) or a dynamic headset microphone (Shure WH20XLR,  $n=12$ ), while only two were made with the Zoom H4n Pro's microphones. The recordings were stored in WAV-format at 44,1 kHz audio sampling rate, with a bit depth of 16. The WAV files were converted into the lossless FLAC format for the Nordic Word Order Database.

The experiment elicited a total amount of 5 152 sentences that are included in NWD, counting both the 'Read' and 'Produce' types. The results from the 2 576 produced sentences are discussed in the next section.

#### [5] RESULTS

This section presents the results of the investigation. Section 5.1 is concerned with the variable subject shift, and Section 5.2 presents data on the placement of subjects relative objects (long object shift) and particles (long particle shift). In Section 5.3, we turn to object shift, and Section 5.4 is concerned with particle shift. Section 5.5 gives a brief summary.

The basic elicitation method is rather simple, and it was overall quite easy for the participants to follow the instructions. However, on occasion, some participants made production errors, or, for instance, left out negation or substituted a pronoun for an NP. These instances are included in the tables below (categorized as 'Other'), but they are not counted when we discuss the percentage of the different word order alternatives.

##### [5.1] *Subject shift*

In the first part of the experiment, there were 10 items that elicited subject shift across negation. All participants consistently placed the subject before negation, as in (14), independently of the form of the subject.

- (14) a. I går            fandt    han        ikke   nøglerne  
           yesterday    found    he        not    key.PL.DEF  
           til                kontoret.  
           to                office.DEF  
           'He didn't find the keys for the office yesterday.'

- b. I går tog læreren ikke bussen  
 yesterday took teacher.DEF not bus.DEF  
 til arbejde.  
 to work  
 ‘The teacher didn’t take the bus to work yesterday.’

As mentioned in Section 3 above, subject shift was tested also in the second part of the experiment, but in sentences that included a reflexive pronoun (*sig*) or a first person object pronoun (*mig*) in addition to an NP or pronominal subject and negation, as in (15). Also in these cases, all participants consistently placed the subject before negation. (We discuss the order between the placement of the reflexive or object pronoun further below.)

- (15) a. I går følte eleven sig ikke  
 yesterday felt student.DEF REFL not  
 træt efter skole.  
 tired after school  
 ‘The student didn’t feel tired after school yesterday.’
- b. I går hjalp hun mig ikke  
 yesterday helped she me not  
 med lektierne.  
 with homework.PL.DEF  
 ‘She didn’t help me with the homework yesterday.’

In other words, the results confirm that subject shift is obligatory in main clause declaratives in Danish. The results concerning subject shift is summarized in Table 3 below; the results from part 1 and part 2 of the experiment have been combined.<sup>11</sup>

Constituent order pair	Subject–Negation	Negation–Subject	Other
NP subject – Negation	251	0	29
PRO subject – Negation	270	0	10
<b>Total</b>	<b>521</b>	<b>0</b>	<b>39</b>

TABLE 3: Overview of results of subject placement with respect to negation.

### [5.2] *Placement of subjects in relation to objects and particles*

As mentioned above, the experiment included sentences to elicit the order between subjects and objects (long object shift), and subjects and particles (long

[11] A majority of the produced sentences that have been categorized as ‘Other’ lack negation.

particles shift). As expected, the participants consistently placed subjects before objects, reflexives and particles, as in (16). There is one single exception: one speaker once placed a pronominal object before an NP subject (1/137 observations).<sup>12</sup> This production appears to be prosodically well-formed.

- (16) a. I går skyndte læreren sig hjem  
 yesterday hurried teacher.DEF REFL home  
 fra arbejde.  
 from work  
 ‘Yesterday, the teacher hurried home from work.’

Disregarding the single exception, the word order in Danish is strict, as expected, independently of whether the subject is an NP or a pronoun, whether the object is a reflexive or a pronoun, and with all types of particles. A summary of the results is presented in Table 4, where the outcome from the different parts of the experiment have been combined.<sup>13</sup> (The order of negation and arguments is disregarded here, see Section 5.1 above and 5.3 below.)

Constituent order pair	Subject first	Subject second	Other
NP subject – Reflexive object	139	0	1
PRO subject – Reflexive object	139	0	1
NP subject – 1 PRO object	247	1	32
PRO subject – 1 PRO object	131	0	9
NP subject – Particle	299	0	37
PRO subject – Particle	241	0	11
<b>Total</b>	<b>1 196</b>	<b>1</b>	<b>91</b>

TABLE 4: Overview of results of subject placement with respect to reflexives, pronominal objects and particles.

### [5.3] Object shift

The variable object shift was tested with four types of direct objects: simple reflexives (*sig*), first person singular pronouns (*mig*), third person singular or plural pronouns (*ham*, *hende* and *dem*) and definite non-pronominal NPs. The results for these types will be presented separately below. In the following, we

[12] The exceptional sentence is provided in (i).

(i) I sidste uge tilbød mig advokaten en ny stilling. (KBH 13, sentence no. 1113)  
 last week offered me lawyer.DEF a new position

[13] Most of the sentences that have been categorized as ‘Other’ have either an element missing (often negation, which was also tested in many items with NP subject and pronominal object) or an added element. In one of the items with NP subject and particle (no. 1132, with the particle verb *stille op* ‘be there’), a reflexive is sometimes added by the speakers (*stille sig op* ‘stand up’); cf. fn. 15 below.



will first summarize the results concerning non-pronominal object shift, before we turn to pronominal object shift. The results are summarized in Table 5 below.

As expected, NP objects do not undergo object shift across negation in Danish. Out of 110 observations, 108 (98.2%) had the expected constituent order negation-object; an example is given in (17). Only two (1.8%) had the opposite order. Both of these were produced by the same speaker (KBH04); one involves a slight hesitation and partial restart, while the other seems to be realized with natural intonation.

- (17) Politiet        arresterede    ikke    røverne                i går.  
       police.DEF    arrested        not    robber.PL.DEF        yesterday  
       ‘The police didn’t arrest the robbers yesterday.’

In addition to NP object shift across negation, the experiment also tested object shift across the adverb *øjeblikkelig* ‘immediately’ in constructions with a verb particle. In five cases, the adverb was realized in sentence-final position, after the particle (i.e., object-particle-adverb); these do not tell us anything about object shift. Of the other cases, 20 (90.9%) had the order adverb-object-particle, and two (9.1%) had the order object-adverb-particle. We return to this observation in the discussion in Section 6. The three attested word orders are exemplified in (18).

- (18) a. Chaufføren    skruede    øjeblikkelig    benzindækslet    af.  
       driver.DEF    screwed    immediately    fuel.cap.DEF    off  
       b. Chaufføren    skruede    benzindækslet    øjeblikkelig    af.  
       driver.DEF    screwed    fuel.cap.DEF    immediately    off  
       c. Chaufføren    skruede    benzindækslet    af    øjeblikkelig.  
       driver.DEF    screwed    fuel.cap.DEF    off    immediately  
       ‘The driver immediately unscrewed the fuel cap.’

Let us now turn to pronominal objects and reflexives, which are expected to shift across negation in Danish. In the data set, 109 (98.2%) of the reflexives shifted across negation; two (1.8%) remained unshifted.<sup>14</sup> First person pronouns behave similarly: altogether 130 (99.2%) were shifted, and only one remained unshifted (0.8%). All three examples with an unshifted reflexive or first person pronoun were produced with some hesitation. In other words, object shift with reflexives and first person pronouns seems completely obligatory in Danish, as is also expected, given previous descriptions.

Part three of the experiment tested object shift with third person object

[14] In total 29 produced sentences have been coded as ‘Other’. In many of these, negation was left out.

pronouns (*ham, hende, dem*). Of the altogether 188 observations, 171 (91%) had a shifted object, as in (19a). However, 17 cases (9%) had an unshifted object; seven of these involve some hesitation. We return to the unshifted object pronouns in Section 6, where we will compare the results from Danish with the experimental data from the other North Germanic languages.

- (19) a. Kollegerne            forsvarede    ham        ikke  
           colleague.PL.DEF    defended    him        not  
           under            mødet.  
           during            meeting.DEF  
           ‘The colleagues didn’t defend him during the meeting.’

Part three also included items to test pronominal object shift (with the third person pronoun *det* ‘it’) across the adverb *øjeblikkelig* ‘immediately’. In one case, the adverb was produced in clause final position. Of the other 23 cases, two (8.7%) had the order adverb–object–particle. The frequency of shift (91.3%) across *øjeblikkelig* is, in other words, similar to what we find with third person pronouns and negation.

The results concerning object shift are summarized in Table 5. We can conclude that NP object shift across negation hardly occurs (see further Section 6), but shifting of NPs across *øjeblikkelig* ‘immediately’ might be more acceptable (as in (18b) above). With regard to pronouns, object shift is highly preferred, but there are also cases of unshifted third person pronouns. There is no difference between negation and *øjeblikkelig* ‘immediately’ when it comes to pronominal object shift.

Constituent order pair	Object first	Object second	Final adverb	Other
Reflexive object – Negation	109	2	0	29
1 PRO – Negation	130	1	0	9
3 PRO – Negation	171	17	0	8
NP object – Negation	2	108	0	2
NP object – Adverb	2	20	5	1
3 PRO object – Adverb	21	2	1	4
<b>Total observations</b>	<b>435</b>	<b>150</b>	<b>6</b>	<b>53</b>

TABLE 5: Overview of object placement relative to negation or adverb.

It should be mentioned that only 9/28 speakers (32%) produced unshifted pronominal objects; five of these produced one instance each. One speaker (KBH20) stands out: they produced 8 unshifted pronouns (6 of which are third

person) and only three shifted. However, this speaker also has more production errors, hesitations and corrections than the others; seven of their produced sentences that elicit pronominal object shift are categorized as ‘Other’. Note that even if we exclude this participant, there are 11 unshifted third person pronouns in the data set. We return to this observation in Section 6, where we compare the results from the other North Germanic languages.

#### [5.4] Particle shift

Turning now to particle shift, the experiment included several different types of verb particle constructions, namely those involving directional particles (with and without a PP), semantically non-transparent verb–particle combinations, prepositional particles (e.g., *skruet af* ‘unscrew’) and verb–particle combinations that take an object with the thematic role ground (e.g., *rydde af bordet* ‘clear the table’). The results are strikingly uniform. Apart from one observation with an NP object following a ground particle, all objects precede particles in the 651 remaining observations (99.8%), regardless of pronominal or NP status and particle type. The results are presented in Table 6.<sup>15</sup>

Constituent order pair	Particle first	Particle second	Other
NP object – Directional particle	0	111	1
PRO object – Directional particle	0	112	0
NP object – Directional particle + PP	0	110	2
PRO object – Directional particle + PP	0	109	3
NP object – Metaphorical particle	0	67	17
PRO object – Metaphorical particle	0	72	12
NP object – Prepositional particle	0	27	1
PRO object – Prepositional particle	0	24	4
NP object – Ground particle	1	19	8
<b>Total (%)</b>	<b>1 (0.1)</b>	<b>651 (93)</b>	<b>48 (6.9)</b>

TABLE 6: Overview of particle placement with respect to NP and pronominal objects.

#### [6] NORTH GERMANIC COMPARISONS

As expected from previous work, the data in the present study show that there is very little variability in the placement of arguments in Danish (when the sentence initial position is disregarded). In elicited production, Danish speakers

[15] Most of the instances annotated as ‘Other’ involve the particle verb *stille op* ‘stand up (for someone)’, which was sometimes exchanged for some variant of the reflexive *stille sig op* ‘stand up’.

consistently place subjects before negation and particles, and objects before particles. NP objects do not undergo object shift across negation. There is no long object shift. In this concluding section, we will briefly compare Danish to the corresponding data from the other North Germanic languages, also available in NWD.

In a couple of respects, Danish is similar to both Norwegian and Swedish (see Lundquist & Tengedal 2022, Larsson & Lundquist 2022a). First, subject pronouns consistently precede negation in all three languages. However, in both Norwegian and Swedish, there is a difference between pronouns and NPs; this contrast is not found in Danish, where also NP subjects always shift. Second, none of the languages have NP object shift across negation. We found a couple of examples of NP objects preceding negation in Danish, and NWD similarly contain a couple of examples from Norwegian and Swedish. We consider these to be production errors (due perhaps to how the background sentence is stored in memory) which do not reflect grammaticality. With other sentence adverbs than negation, the possibility of NP object shift is less clear. There was only one item that tested NP object shift across *øjeblikkelig* ‘immediately’ in the Danish experiment, and 2/22 observations had the order object–adverb. There were no corresponding items in the Norwegian and Swedish versions. As pointed out by Svenonius (2002), Norwegian seems to allow NP object shift across certain adverbs, and the same seems to be true in Swedish (see Larsson & Lundquist 2022a, fn. 5). However, this needs to be investigated further.

Turning to pronominal object shift, the data in NWD confirm that there is a clear difference between Danish, on the one hand, and Swedish, on the other. In Swedish, 58.3% of the third person pronouns shift across negation (Larsson & Lundquist 2022a); in Danish 90.9% shift (and many speakers produce object shift consistently). The difference between Danish and Norwegian is much less clear. In the Norwegian data in NWD, 95% of the third person pronouns shift (Lundquist & Tengedal 2022). It has been suggested that object shift is obligatory in Danish but optional in Swedish, due to a prosodic difference between the languages, namely that the latter language has a tonal contrast that the former lacks (see Erteschik-Shir et al. 2021). Given the data in NWD, this can hardly be the full explanation; most Norwegian dialects have a tonal contrast of the type found in Swedish (see also Lyskawa et al. 2022 for further discussion).

The experimental data in NWD come from elicited production, and do not necessarily give information about acceptability. It seems clear that the preference for object shift is much stronger in Danish (and Norwegian) than in Swedish, but we do not think that all of the almost 10% unshifted third person pronouns should be disregarded. Recall that according to the corpus study by

Bentzen et al. (2013), 5% of the pronouns with nominal reference are unshifted in Danish spontaneous speech. The difference between Danish and Icelandic is illustrative: in the Icelandic data in NWD, there are 323 examples of shifted object pronouns, and a single example of a non-shifted pronoun. Faroese, on the other hand, looks strikingly similar to Danish: 92.3% of the third person pronouns shift across negation (Lundquist 2020). Note that the experimental setting excludes an explanation for the differences in terms of information structure; the experimental setting is identical in all of the languages.

There is a difference between third person pronouns, on the one hand, and first person pronouns and reflexives, on the other, both in the Danish and the Swedish data in NWD. With the first person pronoun *mig* and reflexive *sig*, object shift indeed seems obligatory in Danish: there were only a couple of examples with unshifted *mig* or *sig*, and all of these were produced with hesitation. In Swedish, object shift of *mig* and *sig* is preferred, but not obligatorily: 73.6% of the first person pronouns and 89.3% of the reflexives shift (Larsson & Lundquist 2022a). In Norwegian, object shift of the reflexive is near-categorical, whereas the first person pronoun shifts in 92% of the cases (Lundquist & Tengedal 2022). The subtle differences between different pronouns, and between Danish and Norwegian still requires further study. Among other things, the prosodic realizations in the sentences with and without object shift needs to be carefully examined; such an investigation would be feasible to carry out on the basis of the data in NWD.

#### [7] CONCLUSION

The Danish data in NWD by and large confirm the results from previous studies of argument placement in Danish. At the same time, NWD has revealed nuances in the placement of subjects and objects in the other North Germanic languages, and the results raise questions regarding the object placement possibilities with different types of pronouns, and NP object shift across different types of sentence adverbs. The data in NWD show that there is some variation in object shift with third person pronouns in Danish, albeit considerably more restricted variation than in Swedish.

Important questions remain regarding the (Southern) Danish dialects that have been claimed to have more word order flexibility than Standard Danish and the varieties spoken in and around Copenhagen.

## ACKNOWLEDGMENTS

This research was funded by the Research Council of Norway (RCN) project *Variation and Change in the Scandinavian Verb Phrase* (project number: 250755, PI: Ida Larsson). This study would not have been possible without the generous help of Maud Westendorp and Sofie Ol Winkler who translated the Danish experimental items; Svend Skriver, Janus Spindler Møller, Torben Juel Jensen, and Tanya Karoli Christensen who helped us recruit Danish participants; Københavns Universitet, Frederiksværk Gymnasium and Mette Karmann who hosted us for the Danish fieldwork. We also thank all the Danish participants who gave of their time to work with us. Finally, we are grateful to two anonymous reviewers and Björn Lundquist for helpful comments.

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