Holmberg's Generalization: blocking and push up

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Abstract: Holmberg's (1999) formulation of Holmberg's generalization states that Scandinavian object shift cannot cross any phonologically realized VP-internal material. This correctly predicts that object shift may not apply in, e.g., embedded clauses in Danish: since in these languages V-to-I applies in main clauses only, the main verb occupies a VP-internal position in embedded clause, and object shift would therefore violate HG. Generally, this is considered the end of the story, but it is not as HG can in principle be satisfied in two ways: either the verb blocks object shift, or object shift pushes the verb up into the I-position. A full explanation therefore requires an answer to the question why the latter option is not chosen in Danish. This paper provides such an answer without taking recourse to Holmberg's claim that object shift is a post-syntactic operation.

1   The problem

This article adopts as its point of departure Holmberg's Generalization (HG) as formulated by Holmberg (1999:15), according to which Scandinavian object shift cannot cross any phonetically realized VP-internal material: object shift cannot cross a VP-internal verb or arguments, but it can cross their traces (as well as adverbial phrases).

(1)   **Holmberg's Generalization** (Holmberg 1999): Scandinavian object shift cannot apply across a phonologically visible category asymmetrically c-commanding the object position except adjuncts ($\approx$ cannot cross a VP-internal verb or argument).

Among other things, this correctly predicts that, in Danish, object shift can only apply in main clauses. Consider the examples in (2), taken from Vikner (2006). In the main clause in (2a) object shift is allowed by (1) since it only crosses the trace of the main verb, which has been moved into the I-position of the clause; in the embedded clause in (2b), on the other hand, object shift is excluded by (1) since it crosses the main verb itself.[1]

(2)   • Danish
   a.   Hvorfor **læste** Peter <den>   aldrig [$_{VP}$ t_V <*den>].
        why   read Peter it   never
   b.   Jeg   spurgte why Peter <*den> aldrig   [$_{VP}$ **læste** <den>].
        I   asked   why Peter it   never   read   it

Generally, this is considered the end of the story, but it is not since HG in (1) could in principle be satisfied *in two ways*: either the verb blocks object shift, as in the Danish example in (2b), or object shift pushes the verb up into the empty I position.

(3)   • Object shift in Scandinavian languages without V-to-I in embedded clauses
   a.   **Blocking strategy**: failure to apply movement of the main verb results in failure of applying object shift.
   b.   **Push-up strategy**: application of object shift forces movement of the main verb.

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[1] Holmberg (1999) takes (1) to be a condition on derivations, from which he concludes that object shift is a post-syntactic operation. However, since Chomsky (2001) has shown that this conclusion cannot be correct (see below), I will follow Williams (2003) and Müller (2000/2001) and assume that (1) is a condition on output representations.

Option (3b) gives rise to a hypothetical language that behaves like Danish, but in which pronominal object shift forces V-to-I to apply in embedded clauses. This would result in the asymmetry as in (4): V-to-I applies in embedded clauses when the object is a weak pronoun, but not when it is a full DP.

(4)   • Hypothetical language: "Danish" with push up of the main verb
    a.   Jeg   spurgte hvorfor Peter aldrig   [$_{VP}$ læste den her bog]
          I   asked   why   Peter never   read   this book
    b.   Jeg   spurgte hvorfor Peter læste den   aldrig [$_{VP}$ t_V t_{DO}].
          I   asked   why   Peter read   it   never

Since example (4b) satisfies HG, we must answer the question why Danish prefers the blocking strategy in (2b) to the push up strategy in (4b). A possible answer to this question is that this reflects one of the inherent properties of the language system. One plausible hypothesis, which comes close to the one proposed in Holmberg (1999), is that that the preference for the blocking strategy follows from the architecture of the language system. Holmberg adopts the standard assumption that syntactic derivations are cyclic, and adds to this that any step in the derivation must satisfy HG in (1). These two conditions cannot be simultaneously satisfied if object shift is a syntactic operation: if object shift applies before V-to-I, it crosses the verb and HG in (1) is violated, and if V-to-I applies before object shift, this results in a countercyclic derivation. From this, Holmberg concludes that object shift is a *phonological* (or at least a post-syntactic) operation. If this conclusion is correct, one may plausibly conclude that object shift is inherently incapable to force the application of a syntactic operation like V-to-I as it applies in a grammatical module that can only be accessed after the application of the rules of core syntax. From this it follows that the push up strategy is excluded for principled reasons, and, hence, that the blocking strategy is the only option. However, as Holmberg has pointed out himself, regular object shift is not only subject to the condition in (1) that it cannot cross phonological VP-internal material, but also to the semantic condition that it applies to presuppositional material only. Chomsky (2001:15) has correctly pointed out that it is not expected for phonological rules to have semantic effects, so that we must conclude that object shift is a syntactic operation after all.

     A plausible alternative hypothesis of a more syntactic nature, which to my knowledge has not been defended so far but is completely in line with the current minimalist line of thinking, takes recourse to the notion of economy and relies on the fact that the push up strategy involves application of an otherwise unforced movement: in Danish, V-to-I need not apply in embedded clauses and therefore its application in (4b) is blocked by economy. It is easy to show on the basis of the Icelandic data in (5) and (6), however, that this hypothesis cannot be maintained either. Consider the examples in (5). The first two examples show that object shift of lexical DPs is "optional" in Icelandic, the choice between (5a) and (5b) being dependent on the information structure of the clause: in (5a) the DP is part of the focus ('new' information) of the clause, whereas in (5b) it is part of the presupposition of the clause. Example (5c) shows that pronoun shift is obligatory.

(5)   • Icelandic (core data)
    a.   Jón   las   ekki   þessa bók.   (*þessa bók* ⊂ focus)
          Jón   read   not   this book
    b.   Jón   las   þessa bók   ekki t_{DP}.   (*þessa bók* ⊂ presupposition)
          Jón   read   this book   not
    c.   Jón   las   <hana>   ekki <*hana>.   (*hana* = pronoun)
          Jón   read   it   not

On the basis of the data in (5), certain expectations arise for double object constructions. The most interesting case is the one with an indirect object DP and a pronominal direct object, as in (6). First, consider the case in which the indirect object is part of the *presupposition* of the clause first. The judgments on the examples in (6) are then the ones expected on the basis of observations in (5): both the indirect object and the pronominal object will undergo object shift, as in (6c).

(6) a. *Pétur sýndi   oft   Maríu hana.
         Pétur showed   often Maríu it
     b. *Pétur sýndi Maríu$_i$ oft t_i hana.
     c.   Pétur sýndi Maríu$_i$ hana$_j$ oft t_i t_j.
     d. *Pétur sýndi hana$_j$ oft Maríu t_j.

What we do not expect, however, is that (6c) must also be used when the indirect object is part of the *focus* of the clause. Given the generalizations above, our first expectation is that in this case the indirect object prefers to stay in its base position, whereas the direct object undergoes object shift. Both preferences can be satisfied simultaneously by shifting the direct object across the indirect, as in (6d), but this is excluded by the formulation of HG in (1). This leaves us with the two alternatives in (7): the blocking strategy in (7a) wrongly selects example (6a) as the grammatical one, whereas the push up strategy correctly selects (6c). This shows that, in this case, it is the push-up strategy that has the desired result.

(7)   • Icelandic double object constructions:
     a. **Blocking strategy**: failure to apply object shift to a non-presuppositional indirect object results in failure of applying object shift of a pronominal direct object.
     b. **Push-up strategy**: application of object shift of a pronominal direct object forces object shift of a non-presuppositional indirect object.

The discussion above unequivocally shows that the hypothesis that considerations of economy categorically exclude the push up strategy cannot be maintained — the blocking and the push-up strategy are both available: (i) failure of V-to-I to the main verb in Danish *blocks* object shift, whereas (ii) object shift of a pronominal direct object *forces* object shift of a non-pronominal indirect object in Icelandic.

Since UG apparently allows for both the blocking and the push up strategy, this article will investigate what determines which of the two strategies is applied in which case. The proposed analysis contains three basic ingredients. First, Holmberg's Generalization in (1) will be derived by assuming that Scandinavian object shift is subject to a number of shape conservation constraints; cf. e.g. Williams (2003), Müller (2000/2001) and Fox and Pesetsky (2005). Secondly, a new and maximally simple theory of V-to-I will be proposed, which straightforwardly accounts for some of the core facts in the Germanic languages, including the variation that we find. Thirdly, a proposal will be formulated concerning the question how order preservation and V-to-I interact. The analysis is phrased in terms of a slightly adapted version of the derivation-and-evaluation analysis of object shift in Broekhuis (2000), as outlined in Broekhuis (2006b/to appear), which will be briefly introduced in section 2.

2   The derivation-and-evaluation model

This section introduces the background assumptions underlying this study in as far as this is needed to follow the present discussion (a more elaborate introduction can be found in Broekhuis 2006/to appear). In much current linguistic theorizing, the focus of attention is

one-sidedly restricted either to the derivation (as in most minimalist studies) or to the evaluation of the output of the derivation (as in most optimality-theoretic work). The basic claim of the derivation-and-evaluation (D&E) framework is that in order to arrive at a descriptively and explanatory adequate theory, it is needed to integrate both aspects into a single overarching framework. In order to obtain this, Broekhuis and Dekkers (2000) have argued in favor of the model in Figure 1, in which some version of the computational system C_{HL} functions as a generator, which produces an output that is evaluated in an optimality-theoretic manner.

Figure 1: The derivation-and-evaluation model
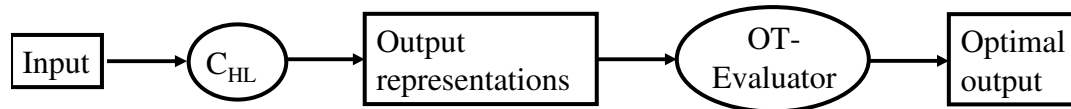
Just like in most minimalist work, C_{HL} consists of at least two operations, which are subject to inviolable conditions. The first operation is external merge that selects/copies some element from the lexicon (see note 2) and merges it with some other lexical element or with some syntactic object already formed. I will refer to this operation as Select, and follow Hornstein (2001) in assuming that this operation is subject to last resort, perhaps triggered by some unsaturated θ-feature but at least motivated by θ-theoretic considerations. The second operation is internal merge that selects/copies some element from the structure already formed and merges it to the root of that structure. I will refer to this operation as Move and follow the general opinion that it is subject to last resort (triggered by some unvalued formal feature), locality conditions, etc. C_{HL} may contain other operations, like Delete, but since these will play no role in this study I will not discuss them here.

        The main difference between D&E and the 'standard' versions of MP is that the former assumes that C_{HL} is not parameterized: more specifically, it is assumed that there are no STRENGTH/EPP/EDGE-features that may force or block the application of a certain operation, and neither can an operation be blocked by the availability of a more economical option.[2] At any point P in the derivation, then, C_{HL} may choose at random between applying or not applying the operation(s) that could in principle be performed (= would satisfy the last resort condition) at P.

Figure 2: The construction of the candidate set

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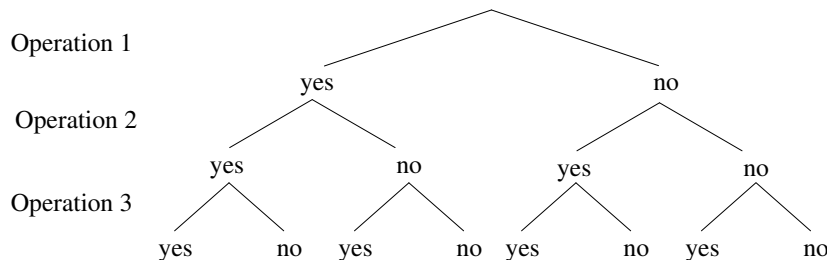
[2] For reasons discussed in Broekhuis and Klooster (2001/2004) I will assume that lexical items are taken directly from the lexicon: there is no numeration and, given that Select (external merge) and Move (internal merge) are both composite operations (see main text), there is no universal preference for the former over the latter. The representations that enter the evaluation are characterized by the fact that they have the same meaning; cf. Grimshaw (1997). Given Frege's principle of compositionality of meaning, this implies that the compared representations are normally composed of the same set of lexical items. Since this will play no role in this study, I will put this aside here; see Broekhuis (2006/to appear) for more discussion.

Consequently, the number of candidates in the candidate set is therefore at most 2^n, where n is the number of operations that satisfy Last Resort. The actual number of candidates even radically decreases when we adopt some version of phase theory. When we have a single cycle with 16 operations that satisfy last resort, this gives rise to at most 65.536 ($=2^{16}$) candidates. However, when we break this cycle up into 4 phases of 4 operations each, the number of candidates is at most 64 ($= 4 \times 2^4$).

Since C_{HL} defines a candidate set that contains a limited number of candidates, we may expect that the OT-evaluation of these candidates requires a limited set of constraints only. In other words, we hope that this will enable us to drastically reduce the universal constraint set CON postulated by OT. Furthermore, since the candidates in the candidate set only differ from each other in a small number of well-defined ways (see Figure 2), we may also expect the number of constraint *types* to be rather small. This makes it possible to entertain the hypothesis that the OT-evaluator is actually a formalization of the interface conditions postulated in MP. If that is indeed so, we expect the syntactic constraints in CON to be somehow related to the three components involved: the computational system C_{HL}, which creates the relevant syntactic representations in the candidate set, and the two systems that interpret them, namely the articulatory-perceptual and the conceptual-intentional component. Let us therefore assume that the syntactic constraints in CON can be divided into the two basic types in (8a&b).

(8)   **The syntactic constraints in CON**
   a. C_{HL} constraints:
        (i) EPP constraints: probe F attracts its goal (cf. (9)).
        (ii) Economy constraints: constraints on internal (or external) merge (cf. (10)).
   b.   Interface constraints:
        (i) LF constraints: semantic constraints on Move (cf. (13)).
        (ii) PF constraints: constraints on e.g. linearization (cf. (16)) and deletion.

As is already indicated in (8a), the C_{HL} constraints can be divided into two groups. The first group consists of constraints that favor movement. I refer to this group as EPP constraints since they all require that some unvalued formal feature attracts it goal. The constraints that will play a role in this study are given in (9).

(9)   **EPP constraints:**
   a.   EPP(φ): unvalued φ-features attract their goal.
   b.   EPP(case): an unvalued case-feature attracts its goal.
   c.   *STRAY FEATURE: amalgamate formal features of the functional heads with the root they are associated with (e.g. unvalued verbal features on v, Asp and I attract their goal)

The constraints in (9a) and (9b) define two types of object shift (Broekhuis 2000/2006b/to appear): section 3 will briefly discuss object shift triggered by the unvalued φ-features on V, and section 5 will discuss object shift triggered by the unvalued case features on v. The constraint *STRAY FEATURE will enter the analysis of verb movement in section 4.

The second group of C_{HL} constraints consists of the economy constraints that disfavor the application of the operations of C_{HL}. The economy constraints that will play a role in this article are given in (10). Other constraints that may fall in this class are *Select, which disfavor Select (cf. Broekhuis and Klooster 2001/2004), and NOVACM, which disfavor string vacuous movement (cf. Broekhuis to appear).

(10)   **Economy constraints**:
      a.   *MOVE (STAY): don't apply internal merge.
      b.   NOLEXM: don't apply internal merge to lexical (θ-role assigning) verbs.

Word order variation between languages can now be accounted for by assuming that the EPP constraints interact in an optimality-theoretic fashion with the economy constraints. Ranking (11a), for example, expresses that the case feature on v (normally) trigger object shift, because it is more important to satisfy the EPP constraint than the economy constraint *MOVE. A ranking of this sort will be called 'strong', since it is more or less equivalent to assuming that the case feature is weak or that v has no EPP-feature associated with it. Ranking (11b) expresses that the unvalued case feature on v (normally) does not trigger object shift, because it is more important to satisfy the economy constraint *MOVE than the EPP constraint. A ranking of this sort will be called 'weak', since it more or less equivalent to saying that the case feature is weak or that v has no EPP-feature associated with it.

(11)   a.   Strong ranking: EPP(case) >> *MOVE ⇒ normally regular object shift.
        b.   Weak ranking: *MOVE >> EPP(case) ⇒ normally no regular object shift

An important advantage of this formalization of "feature strength" is that even under the strong ranking movement can be blocked provided there is some higher ranked constraint A that disfavors it (cf. (12a)), and that even under the weak ranking movement can be forced provided that there is some higher ranked constraint B that favors this movement (cf. (12b)).

(12)   a.   A >> EPP(case) >> *MOVE (if B disfavor movement, 'Strength' is overruled)
        b.   B >> *MOVE >> EPP(case) (if A favors movement, 'Procrastinate' is overruled)

The role of A and B are played by the interface constraints in (8b), such as the LF constraints in (13).

(13)   **LF constraints:**
      a.   ALIGNFOCUS (AF): the prosodically unmarked focus is the rightmost constituent in its clause.
      b.   D-PRONOUN: A definite pronoun must be vP-external: *[$_{vP}$ ... pron$_{[+def]}$ ...].

The case in (12a) can be illustrated by means of the Icelandic examples in (5a&b), repeated here in a slightly different form as (14); the angled brackets indicate alternative placements of the object. Broekhuis (2000) argued that Icelandic object shift in (14b) is forced by the strong ranking EPP(case) >> *MOVE. The fact that object shift is not possible when the object is part of the focus of the clause, as in (14a), is due to the fact that EPP(case) is outranked by ALIGNFOCUS in (13a), which requires the object to be the rightmost constituent in its clause.

(14)   a.   Jón   las   <*þessa bók>   ekki   <þessa bók>.   (þessa bók ⊂ focus)
              Jón   read   this book   not
        b.   Jón   las   <þessa bók>   ekki <*þessa bók>.   (þessa bók ⊂ presupposition)
              Jón   read   this book   not

The case in (12b) can be illustrated by means of Danish examples in (15). Broekhuis (2000) argued that Danish object shift in (15a) is blocked by the weak ranking *MOVE >> EPP(case). The fact that object shift is possible when the object is a pronoun is due to the fact that *MOVE is outranked by D-PRONOUN in (13b), which requires that the pronominal object to be VP-external.

(15) a.   Hvorfor   læste studenterne   <*artiklen>   ikke   <artiklen>?
           why   read   the students   the article   not
      b.   Hvorfor   læste studenterne   <den>   ikke   <*den>?
           why   read   the students   it   not

We will see later that also the PF-constraints in (16a&b) may block object shift that would normally apply if this results in distortion of the underlying word order: this will derive HG in (1). The constraint in (16c) may force verb movement that is otherwise not allowed: this constraint will be used in order to account the asymmetry in some languages between embedded and main clauses with respect to V-to-I.

(16)   **PF constraints:**
      a.   H-COMPL: a head precedes all terminals dominated by its complement.
      b.   Relativized Minimality (RELMIN): If the foot of X-chain α c-commands the foot of X-chain β, the head of X-chain α c-commands the head of X-chain β.
      c.   LEXICALLY FILL TOP F (LFTF): the highest head position in an extended projection must be lexically filled.

3   VO- versus OV-languages and short object shift

The constraints in (16a&b) are shape conserving surface constraints: (16a) prohibits changing the underlying order of head and complements, and (16b) prohibits changing the underlying order of arguments. It is clear that these constraints imply some version of Kayne's (1994) "universal base" hypothesis, and this, in its turn, raises the question how so-called VO- and OV-languages differ. This will be the topic of this section.

3.1   The universal base hypothesis

For reasons that I have discussed elsewhere (Broekhuis 2006a/to appear), I will assume that Kayne was indeed right in assuming that the universal order is *specifier-head-complement*. In addition to this I will adopt Hale and Keyser's (1993) proposal that verbs are an amalgamate of a root and some verbalizing element: I will refer to the verbalizing element that combines with finite verbs as *v*, and to the verbalizing element that combines with participles as Asp. The base orders for present/past and perfect tense constructions are as given in (17a) and (17b), respectively. Furthermore, I follow Broekhuis (2000) in assuming the root V/aux and the light verb *v* are associated with different nominal features: the root V/aux has unvalued φ-features, whereas *v* has unvalued case-features (cf. see Chomsky, 2005, who adopts a similar claim in the guise of feature inheritance).

(17)   • **Universal base hypothesi**s
      a.   [... I ... [(S) ... $v_{[ucase]}$ [... $V_{[u\varphi]}$ OBJ]]]
      b.   [... I ... [(S) ... $v_{[ucase]}$ [... $aux_{[u\varphi]}$ [... Asp [... $V_{[u\varphi]}$ OBJ]]]]]

Given that unvalued features act as probes, it follows that we may distinguish the two types of object shift in (18); cf. Broekhuis (2000/2006b/to appear) for extensive discussion. Since the type in (18b) is normally discussed in the literature on object shift, I will refer to it as regular object shift, while using the notion of short object shift for the movement in (18a).

(18)   • **Two types of object shift**
      a.   Short object shift: movement triggered by the unvalued φ-features on V/aux.
      b.   Regular object shift: movement triggered by the unvalued case features on *v*.

This section will discuss short object shift and its interaction with V-to-*v*/Asp. As we have seen in section 2, we must postulate the two EPP constraints in (19a&b), which favor movement of respectively the object and the root V. The ranking of these constraints with respect to economy constraints like *MOVE determines whether these movement will actually take place. Now, let us start with considering the Germanic VO-languages in more detail.

(19) • Relevant constraints
    a. EPP(φ): unvalued φ-features attract their goal.
    b. *STRAY FEATURE: unvalued verbal features on *v*, Asp attract their goal (=V)
    c. *MOVE: don't apply internal merge.

3.2 Germanic VO-languages (simple tense constructions)

The three constraints in (19) can in principle be ranked in six different ways, and five of these rankings will derive the VO-order. These five rankings are given in (20), where {A, B} expresses that the rankings A >> B and B >> A give rise to the same result. There are three possible ways to derive the VO-order. The first option is to assume that the economy constraint *MOVE outranks the two EPP constraints in (19a&b): this predicts that V-to-*v* and short object shift are both blocked. The second option is to assume that *MOVE is outranked by *STRAY FEATURE but not by EPP(φ): this predicts V-to-*v* to be possible but short object shift to be excluded. The third option is to assume that the two EPP constraints both outrank *MOVE: this predicts that V-to-*v* and short object shift apply both.

(20) Germanic VO-languages: 5 potential rankings
    a. Option I: *MOVE >> {EPP(φ), *STRAY FEATURE} ⇒ No V-to-*v* and no short object shift
    b. Option II: *STRAY FEATURE >> *MOVE >> EPP(φ) ⇒ V-to-*v* but no short object shift
    c. Option III: {EPP(φ), *STRAY FEATURE} >> *MOVE ⇒ V-to-*v* and short object shift

Now, let us assume that VP-adverbs are adjoined to the projection of the verb root V, and that V-to-*v* and short object shift cross these adverbs: (20a) then predicts that both the verb and the object will follow the VP-adverb, (20b) that the VP-adverb appears in between the verb and the object, and (20c) that the verb and the object both precede the VP-adverb. The examples in (22) suggest that option III makes the correct predictions for English.

(21) a. Option I: [... *v* adverb [... V OBJ]]
    b. Option II: [... *v*+V adverb [... t_V OBJ]]
    c. Option III: [... *v*+V adverb [OBJ ... t_V t_{OBJ}]]

(22) Nominal complements
    a. *that John every day reads books.
    b. *that John reads every day t_V books.
    c. that John reads books every day t_V t_{DO}.

For completeness' sake, the evaluation of the examples in (22) is given in Tableau 1. Given that there are two operations that can in principle apply (in the relevant part of the derivation), there are four (= 2^2) candidates. As was already mentioned above, the selection of (22c) as the optimal candidate does not depend on the ranking of the constraints EPP(φ) and *STRAY FEATURE; the ranking EPP(φ) >> *STRAY FEATURE >> *MOVE and *STRAY FEATURE >> EPP(φ) >> *MOVE both select this candidate as optimal. This is indicated in Tableau 1 by placing a dashed line between the two constraints; the angled brackets ">" and "<" indicate in which constraint order the relevant constraint incurs a fatal violation; the exclamation mark indicates that the constraint is fatal on both orders.

Tableau 1: VO-languages

	EPP(φ)	*STRAY FEATURE	*MOVE
[v adv [V O]]	*>	*<	
[v+V adv [t_V O]]	*!		*
[v [O adv [V t_O]]]		*!	*
[v+V [O adv [V t_O]]] ☞			**

Note in passing that the present proposal correctly predicts that sentential objects do not precede the VP-adverbs. Since sentential objects do not have φ-features, they are not suitable goals for the unvalued φ-features on the root V so that they must remain in their base position following the VP-adverbs. The strong ranking of *STRAY FEATURE forces V-to-v and as a result the VP-adverb appears in between the verb and the sentential object.

(23)   Sentential complements
   a.   *that John yesterday said that he will come.
   b.   that John said yesterday t_V that he will come.
   c.   *that John said that he will come yesterday t_V t_{CP}.

        There are additional reasons to assume that option III, with short object shift and V-to-v, is the correct one for English. For example, Johnson (1991) has argued on the basis of the placement of the object in particle verb constructions like (24) that English has some sort of object movement that moves the object in front of the particle.

(24)   a.   John looked up the information.
   b.   John looked the information up t_i.

Similarly, Lasnik (1999a/1999b) has argued on the basis of examples like (25) that English requires some form of object shift that moves the subject of the infinitival clause into the matrix clause in order to be able to license binding of the anaphor *each other* embedded in the adverbial phrase of the matrix clause.

(25)   a.   [*?]The DA proved [that *the defendants* were guilty] during *each other*'s trials.
   b.   The DA proved [*the defendants* to be guilty] during *each other*'s trials.

A cursory look at the position of the VP-adverbs in the Scandinavian languages suggests that they behave just like English. For this reason, I will adopt as a working hypothesis that all Germanic VO-languages are like English in having obligatory short object shift, and hence that they all have the partial constraint ranking in (20c).

3.3   Germanic OV-languages (Dutch/German)

Let us now turn to the Germanic OV-languages. Example (20) gives us five out of the six possible ranking of the constraints in (19). The ranking in (26) is the sixth possibility, and it is this ranking that gives rise to the properties that I have attributed to the OV-languages.

(26)   Germanic OV-languages: EPP(φ) >> *MOVE >> *STRAY FEATURE

The subranking EPP(φ) >> *MOVE expresses that the φ-features of V trigger short object shift, whereas the subranking *MOVE >> *STRAY FEATURE expresses that there is (normally) no

V-to-*v*. The evaluation in Tableau 2 shows that this ranking correctly predicts that the nominal object in (27) is obligatorily placed in a position preceding the clause-final verb.

(27) a. *dat   Jan leest dat boek.
            that   Jan reads that book
      b.   dat Jan dat boek leest t_{DP}.

Tableau 2: OV-languages (DP-complements)

	EPP(φ)	*MOVE	*STRAY FEATURE
$[v [V O]]$	*!		*
$[v{+}V [t_V O]]$	*!	*	
$[v [O [V t_O]]]$ ☞		*	*
$[v{+}V [O t_V [t_V t_O]]]$		**!	

The present proposal also correctly predicts that sentential objects do not precede the verb; since sentential objects do not have φ-features, they are not suitable goals for the unvalued φ-features on the root V so that they must remain in their base position following the VP-adverbs.

(28) a. dat   Jan zei   dat   hij ziek was.
            that Jan said that he ill   was
            'that Jan said that he was ill.'
      b. *dat Jan dat hij ziek was zei t_{CP}

   So far we have only considered examples with simple tenses. The Dutch examples in (29) show that in perfect tense examples the object must also precede the auxiliary. This follows under the assumption in (17b) that both the root of the main verb and the root of the auxiliary are endowed with φ-features: the strong ranking of EPP(φ) does not only force movement of the object into the local domain of the verbal root of V but also into that of the auxiliary.[3]

(29) a. *dat Jan waarschijnlijk heeft gelezen dit boek.
      b. *dat Jan waarschijnlijk heeft dit boek gelezen t_{DP}.
      c.   dat   Jan waarschijnlijk   dit boek   heeft t'_{DP} gelezen t_{DP}.
            that Jan probably   this book   has   read
            'that Jan has probably read this book.'

The evaluation is given in the following tableau; this tableau does not include candidates with V-to-Asp or aux-to-*v*; these are all excluded due to the weak ranking of *STRAY FEATURE.

Tableau 3: OV-languages (complex tenses)

candidates with V-movement ignored	EPP(φ)	*MOVE	*STRAY FEATURE
... v [... aux [... Asp [... V O]]]]	**!		
... v [... aux [... Asp [O... V t_O]]]]	*!	*	
... v [O ... aux [... Asp+V [t_O... V t_O]]]] ☞		***	

---

[3] I added the sentential adverb *waarschijnlijk* 'probably' to these examples in order to exclude the possibility that (29c) is derived by regular object shift, which would target a position to the left of this adverb. The proposal that auxiliaries have φ-features is originally due to Broekhuis and Van Dijk (1995), who argue that auxiliaries can also assign case, in other words, that auxiliaries are also associated with a light verb *v*.

3.4   The Germanic VO-languages again: perfect tense examples

The proposed analysis of the perfect tense constructions in Dutch creates a new problem for the analysis of the VO-languages. Since we have seen that these languages also have a strong ranking of EPP(φ), we wrongly predict that in these languages the object must be moved in the local domain of the root of the auxiliary as well, and should therefore cross the main verb; cf. (30,iii). This means that short object shift must be selectively blocked: the shifts in (30i) and (30ii) must be allowed, whereas the additional movement in (30iii), which result in a violation of HG in (1), must be blocked. This can be obtained by assuming that the shape conserving constraint H-COMPL in (16a) is ranked above EPP(φ), as in (30).

(30)   Type A: H-COMPL >> {EPP(φ), *STRAY FEATURE} >> *MOVE
            (i)   [... v+V [OBJ ... t_V t_{OBJ}]]
            (ii)   [... v+aux [... t_{aux} [... Asp+V [OBJ ... t_V t_{OBJ}]]]]
            (iii)*[... v+aux [OBJ ... t_{aux} [t'_{OBJ}... Asp+V [t_{OBJ} ... t_V t_{OBJ}]]]]

The evaluations of the simple and perfect tense examples in Tableaux 4 and 5 show that the ranking in (30) allows short object shift applies as long as it does not change the order of the object and the main verb. From this it follows that the output representation in (30iii) is excluded. Note that Tableau 5 only contains the candidates with verb-movement; the candidates without verb movement are all excluded due to the strong ranking of *STRAY FEATURE.

Tableau 4: VO-languages, hypothetical type A (simple tense)

	H-COMPL	EPP(φ)	*STRAY FEATURE	*MOVE
[v adv [V O]]		*>	*<	
[v+V adv [t_V O]]		*!		*
[v [O adv [V t_O]]]	*!		*	*
[v+V [O adv [t_V t_O]]] ☞				**

Tableau 5: VO-languages, hypothetical type A (perfect tense)

candidates without V- movement ignored	H-COMPL	EPP(φ)	*STRAY FEATURE	*MOVE
V+aux [... t_{aux} [... Asp+V [... t_V O]]]]		**!		**
V+aux [... t_{aux} [... Asp+V [O... t_V t_O]]]] ☞		*		***
V+aux [O ... t_{aux} [... Asp+V [t_O... t_V t_O]]]]	*!			****

Interestingly, the evaluations in Tableaux 6 and 7 show that the introduction of the partial ranking H-COMPL >> EPP(φ) >> *MOVE makes it possible to derive the same result when we postulate a weak ranking of *STRAY FEATURE.

(31)   Type B: H-COMPL >> EPP(φ) >> *MOVE >> *STRAY FEATURE
            (i)   [... v+V [OBJ ... t_V t_{OBJ}]]
            (ii)   [... v+aux [... t_{aux} [... Asp+V [OBJ ... t_V t_{OBJ}]]]]
            (iii)*[... v+aux [OBJ ... t_{aux} [t'_{OBJ}... Asp+V [t_{OBJ} ... t_V t_{OBJ}]]]]

Tableau 6: VO-languages, hypothetical type B (simple tense)

simple tense	H-COMPL	EPP(φ)	*MOVE	* STRAY FEATURE
[*v* adv [V O]]		*!		*
[*v*+V adv [*t*_V O]]		*!	*	
[*v* [O adv [V *t*_O]]]	*!		*	*
[*v*+V [O adv [*t*_V *t*_O]]] ☞			**	

Tableau 7: VO-languages, hypothetical type B (complex tense)

	H-COMPL	EPP(φ)	*MOVE	*STRAY FEATURE
v [... aux [... Asp [...V O]]]]		**!		**
v [... aux [... Asp+V [... *t*_V O]]]]		**!	*	*
v+aux [... *t*_{aux} [... Asp [... V O]]]]		**!	*	*
v+aux [... *t*_{aux} [... Asp+V [... *t*_V O]]]]		**!	**	
v [... aux [... Asp [O ...V *t*_O]]]]	*!	*	*	**
v [... aux [...Asp+V [... *t*_V *t*_O]]]] ☞		*	**	*
v+aux [... *t*_{aux} [... Asp [O ...V *t*_O]]]]	*!	*	**	*
v+aux [... *t*_{aux} [... Asp+V [O... *t*_V *t*_O]]]]		*	***!	
v [O ... aux [... Asp [*t*_O... V *t*_O]]]]	*!		**	**
v [O ... aux [... Asp+V [*t*_O... *t*_V *t*_O]]]]	*!		***	*
v+aux [O ... *t*_{aux} [... Asp [*t*_O... V *t*_O]]]]	*!		***	*
v+aux [O ... *t*_{aux} [... Asp+V [*t*_O... *t*_V *t*_O]]]]	*!		****	

This means that we may postulate a new type of VO-language that does not have a strong but resembles the Germanic OV-languages in having a weak ranking of *STRAY FEATURE. Below I will argue that this VO-type indeed exists and is instantiated by Danish. Note that this language type should not have V-to-*v* when the object remains in situ. In order to account for the fact that V-to-*v* also applies with sentential complements, we can now no longer adopt our earlier assumption that these complements remain VP-internally. Consequently, we must adopt an analysis of the type proposed by Den Dikken (1995) and Kayne (2005:ch.11), according to which "extraposed clauses" are actually "intraposed" and end up in postverbal position as the result of remnant VP-movement to the left (see Broekhuis, to appear, for extensive discussion).

3.5   Conclusion

This section has discussed the distinction between the Germanic VO- and OV-languages. It was claimed that in principle there can be two different types of VO-languages. Type A with the constraint ranking in (30) requires V-to-v/Asp movement because it has a strong ranking of *STRAY FEATURE. Type B with the constraint ranking in in (31), on the other hand, has a weak ranking of *STRAY FEATURE, but exhibits the VO-order due to a **push up** strategy: EPP(φ) >> *MOVE favors short object shift; H-COMPL >> EPP(φ) disfavors movement of the object across the verb, and EPP(φ) >> *MOVE >> *STRAY FEATURE favors push up of the verbal root V over blocking of short object shift. The OV-languages have a weak ranking of *STRAY FEATURE, just like the VO-languages of type B, but due to the fact that H-COMPL is outranked by *MOVE, short object shift does not push up the root V into *v*/Asp.

4   The analysis of V-to-I

Section 3 has shown that that there are in principle two types of VO-languages. This section will argue that the two types of VO-languages do indeed occur in Germanic: Icelandic will be argued to be of type A, while Danish will be argued to be of type B. The reason for this claim is that the two language types can be distinguished by taking into consideration other verb movement operations like V-to-I. Given that type A in (30) has a strong ranking of *STRAY FEATURE it is expected that languages of this type (normally) have V-to-I, as is indeed the case in Icelandic. Type B in (31), on the other hand has a weak ranking of *STRAY FEATURE, so that it is expected that in languages of this type V-to-I is (normally) blocked; this is the case in Danish, in which V-to-I is more or less restricted to root clauses. Note that the OV-languages also have a weak ranking of *STRAY FEATURE, and are therefore correctly expected to behave like Danish with respect to V-to-I.

(32)   a.   **Germanic VO-languages**:
            (i) Icelandic: H-COMPL >> EPP(φ) >> **_*STRAY FEATURE >> *MOVE_** $\Rightarrow$ V-to-I.
            (ii) Danish: H-COMPL >> EPP(φ) >> *__*MOVE >> *STRAY FEATURE__ $\Rightarrow$ no V-to-I.
        b.   **Germanic OV-languages**:
            EPP(φ) >> **_*MOVE >>_** {*STRAY FEATURE, H-COMPL} $\Rightarrow$ no V-to-I.

Since Icelandic has obligatory V-to-I in most contexts, nothing more need be said about this language, but the fact that Danish and the OV-languages do have V-to-I in root contexts still need to be explained. I propose that this is due to the constraint LEXICALLY FILL TOP F in (16c), repeated below as (33), which requires that the highest head position in an extended projection be lexically filled.[4]

(33)   LEXICALLY FILL TOP F (LFTF): the highest head position in an extended projection must be lexically filled.

When this constraint outranks the economy constraint *MOVE, V-second will be forced in main clauses. In embedded clauses, on the other hand, the highest head position in the extended verbal projection (= C) is lexically filled by the complementizer, so that V-to-I is blocked by the weak ranking of *STRAY FEATURE. To complete the analysis we must, of course, account for the fact that insertion of a lexical complementizer is excluded in root contexts. A plausible assumption is that declarative and interrogative complementizers like *that* and *if* must be licensed/selected by some matrix verb.
        Putting exceptional cases of embedded V-second aside, the above proposal captures the basic distinctions concerning V-to-I, which are summarized in (34).

(34)   • Predictions:
        a.   Icelandic: *STRAY FEATURE >> *MOVE $\Rightarrow$ V-to-I in all context.
        b.   Danish: LFTF >> *MOVE >> *STRAY FEATURE $\Rightarrow$ V-to-I in main clauses only.
        c.   Dutch/German: LFTF >> *MOVE >> *STRAY FEATURE $\Rightarrow$ V-to-I in main clauses only.

---

[4] The notion 'lexically filled' in (33) must be distinguished from the notion 'phonetically realized'. More specifically, it may be the case that a complementizer that is lexically present is phonetically empty. This is the case in embedded *wh*-questions like *I wonder [$_{CP}$ what Ø [$_{IP}$ Bill bought t_{what}]]* due to the constraint TEL from Pesetsky (1998). The constraint LEXICALLY FILL TOP F is very similar to the following principle proposed in Zwart (2001): "Let γ be a chain of F-related elements (α, ..., β), where α c-commands β. Then α must contain LEX-features, and β is spelled out in the highest positions of γ containing the LEX-features of β", where "α and β are F-related if α is involved in a feature valuation involving F, where F is a formal feature of β".

However, the proposal raises a new question: Given that Danish is a VO-language of type B, in which short object shift pushes V into *v*, why doesn't regular object shift push up the *v*+V complex into I in Danish,? In order to answer this question we first have to look at the analysis of regular object shift in the D&E framework.

5   Push up and blocking with regular object shift

Section 5.1 will start with briefly sketching the D&E account of regular object shift, that is, object shift triggered by the case features on *v*. After this, section 5.2 will discuss the push up and blocking strategy in double object constructions in Icelandic and Danish, which will enable us to discuss the question why regular object shift in Danish does not force V-to-I in section 5.3.
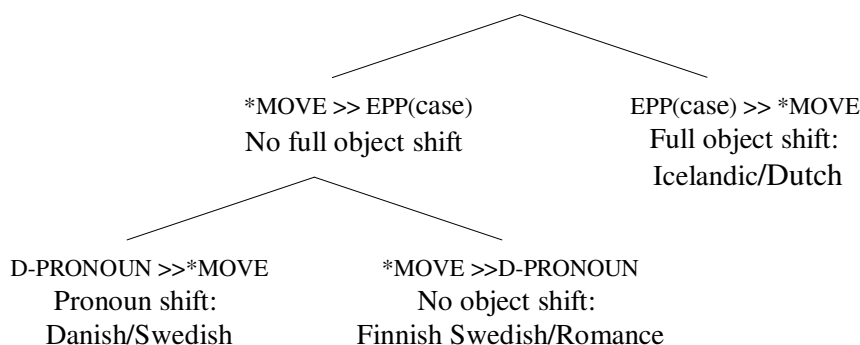
5.1   Regular object shift

Languages differ to the extent that they exhibit regular object shift. Languages like Icelandic or Dutch allow object shift with all DPs that are part of the presupposition of the clause (cf. (35)), while languages like Danish or Swedish allow object shift with pronouns only (cf. (36). Some languages like Finnish Swedish or French do not have any form of regular object shift.

(35)	a.	Jón	las	\<hana>	ekki \<*hana>.		(Icelandic)
		Jón	read	it	not		
	c.	Jón	las	\< þessa bók> ekki \<þessa bók>.			
		Jón	read	this book	not		

(36)	a.	Hvorfor	læste studenterne	\<den > ikke \<*den>.		(Danish)
		why	read the students	it not		
	b.	Hvorfor	læste studenterne	\<*artiklen> ikke \<artiklen>.		
		why	read the students	the article not		

Broekhuis (2000/2006/to appear) proposes that we can account for these facts by adopting the four constraints in (37).

(37)   a.   *MOVE: don't apply internal merge.
        b.   EPP(case): an unvalued case-feature attracts its goal.
        c.   D-PRONOUN: A definite pronoun must be *v*P-external: *[$_{vP}$ ... pron$_{[+def]}$ ...].
        d.   ALIGNFOCUS (AF): the prosodically unmarked focus is the rightmost constituent in its clause.

The relative ranking of EPP(case) and *MOVE determines whether the language in question allows regular object shift in the normal case; the strong ranking of EPP(case) allows it, whereas the weak ranking excludes it. The weak ranking of EPP(case) does not categorically block regular object shift, however: when D-PRONOUN outranks *MOVE, object shift of definite pronouns is allowed; it is only when *MOVE outranks D-PRONOUN that object shift of definite pronouns will be blocked as well. This gives rise to the following macro-parameterization.

Figure 3: Macro-parameterization of languages with respect to object shift

```
                           ╱▔▔▔▔▔▔▔╲
                    *MOVE >> EPP(case)      EPP(case) >> *MOVE
                    No full object shift        Full object shift:
                                                    Icelandic/Dutch
                      ╱▔▔▔▔▔▔▔╲
          D-PRONOUN >>*MOVE        *MOVE >>D-PRONOUN
             Pronoun shift:            No object shift:
             Danish/Swedish       Finnish Swedish/Romance
```

The constraint ALIGNFOCUS, finally, is needed to account for the fact that regular object shift is not allowed in languages like Icelandic and Dutch when the object is part of the focus of the clause. The subranking in (38a) will correctly predict this. Recall that we have already seen that short regular shift is not sensitive to the information structure of the clause. This will follow if we assume the subranking in (38b). From (38a&b) it follows that Icelandic has the ranking in (38c).

(38) a. AF >> EPP(case) >> *MOVE $\Rightarrow$
          regular object shift is sensitive to the information structure of the clause
      b. EPP(φ) >> AF >> *MOVE $\Rightarrow$
          short object shift is not sensitive to the information structure of the clause
      c. Icelandic: EPP(φ) >> AF >> EPP(case) >> *MOVE

5.2 Double object constructions

Now I have briefly discussed the required background information we can continue our discussion of the push up and blocking strategy by showing that both may occur in double object constructions. Section 5.2.1 will start with discussing the relevant cases in Icelandic. This will be followed by a discussion of similar cases in Danish in 5.2.2.

5.2.1   Icelandic

In Icelandic double object constructions regular object shift can derive the orders in (39a-c). The order in (39d) violates HG in (1) and is ungrammatical.

(39) a. Pétur sýndi   oft   Maríu bókina.   (Icelandic)
          Pétur showed   often Maríu the book
      b. Pétur sýndi Maríu$_i$ oft t_{IO} bókina.
      c. Pétur sýndi Maríu$_i$ bókina$_j$ oft t_{IO} t_{DO}.
      d. *Pétur sýndi bókina$_j$ oft Maríu t_{DO}.   ◀ Holmberg's Generalization ▶

The word order alteration in (39) is due to differences in the information structure of the clause. Let us see what the constraint ranking we have established for Icelandic predicts for these examples. First assume that both the direct and the indirect object belong to the presupposition of the clause: the evaluation in Tableau 8 shows that due to the strong ranking of EPP(case), example (39c) is selected as the optimal candidate in that case.

Tableau 8: Icelandic (IO and DO not in focus)

	AF	EPP(case)	*MOVE (t_O only)
a. Subj I+V Adv t_V IO DO		*!*	
b. Subj I+V IO Adv t_V t_{IO} DO		*!	*
c. Subj I+V IO DO Adv t_V t_{IO} t_{DO} ☞			**
d. Subj I+V DO Adv t_V IO t_{DO}		*!	*

Now assume that the direct and the indirect object are both part of the focus of the clause. The evaluation in Tableau 9 shows that in this case the strong ranking of EPP(case) is overruled by ALIGNFOCUS, so that both objects must remain VP-internally as in example (39a). Note that ALIGNFOCUS is a gradient constraint, which means that a violation is added for each constituent that follows the focused phrases: in candidate 9b the indirect object is followed by the adverbial phrase and the direct object, which results in two violations of ALIGNFOCUS. Note that I have placed the focused phrases in italics for convenience.

Tableau 9: Icelandic (IO and DO both in focus)

	AF	EPP(case)	*MOVE (t_O only)
a. Subj I+V Adv t_V *IO DO* ☞	*	**	
b. Subj I+V *IO* Adv t_V t_{IO} *DO*	**!	*	*
c. Subj I+V *IO DO* Adv t_V t_{IO} t_{DO}	**!*		**
d. Subj I+V *DO* Adv t_V *IO* t_{DO}	**!	*	*

When only the direct object is part of the focus of the clause, the strong ranking of EPP(case) forces object shift of the indirect object, whereas object shift of the direct object will be blocked by ALIGNFOCUS. The evaluation in Tableau 10 thus shows that example (39b) is selected as the optimal candidate in this case.

Tableau 10: Icelandic (IO not in focus; DO in focus)

	AF	EPP(case)	*MOVE (t_O only)
a. Subj I+V Adv t_V IO *DO*		**!	
b. Subj I+V IO Adv t_V t_{IO} *DO* ☞		*	*
c. Subj I+V IO *DO* Adv t_V t_{IO} t_{DO}	*!		**
d. Subj I+V *DO* Adv t_V IO t_{DO}	*!*	*	*

Finally, consider the prediction in case the direct object is part of the presupposition whereas the indirect object is part of the focus of the clause. Under the ranking assumed so far this causes a problem: the strong ranking of EPP(case) now forces movement of the direct object, while ALIGNFOCUS blocks object shift of the indirect object, and Tableau 11 shows that this forces the direct object to move across the indirect object, so that we wrongly predict (39d) to be grammatical.

Tableau 11: Icelandic (IO in focus: DO not in focus)

	AF	EPP(case)	*MOVE (t_O only)
a. Subj I+V Adv t_V *IO* DO	*!	**	
b. Subj I+V *IO* Adv t_V t_{IO} DO	*!*	*	*
c. Subj I+V *IO* DO Adv t_V t_{IO} t_{DO}	*!*		**
d. Subj I+V DO Adv t_V *IO* t_{DO} ☹		*	*

This problem can be solved by introducing the constraint RELMIN, which prohibits the output configuration of the d-examples. When we assume that RELMIN outranks ALIGNFOCUS, the evaluation is given as in Tableau 12, which correctly selects example (39a) as the optimal candidate.

Tableau 12: Icelandic (IO in focus: DO not in focus)

	RELMIN	AF	EPP(case)	*MOVE (t_O only)
a. Subj I+V Adv t_V *IO* DO ☞		*	**	
b. Subj I+V *IO* Adv t_V t_{IO} DO		**!	*	*
c. Subj I+V *IO* DO Adv t_V t_{IO} t_{DO}		**!		**
d. Subj I+V DO Adv t_V *IO* t_{DO}	*!		*	*

Tableau 12 shows that the problem with respect to RELMIN is solved by means of the blocking strategy, that is, by not applying object shift of the direct object. When the direct object is a pronoun, on the other hand, it is clear that the alternative push-up strategy is used. This can be readily observed from the examples in (40): if pronoun shift were blocked by an indirect object that is part of the focus of the clause, we incorrectly predict (40a) to be acceptable next to (40c), which would then only arise in case the indirect object is part of the presupposition of the clause.

(40) a. *Pétur sýndi   oft   Maríu hana.   ◄ * blocking ►
           Pétur showed   often Maríu it
      b. *Pétur sýndi Maríu$_i$ oft t_i hana.
      c.   Pétur sýndi Maríu$_i$ hana$_j$ oft t_i t_j.   ◄ √ push up ►
      d. *Pétur sýndi hana$_j$ oft Maríu t_j.   ◄ Holmberg's Generalization ►

The fact that in the case of pronouns the push-up strategy is used can be readily accounted for by assuming that the constraint D-PRONOUN, which forces regular object shift of weak pronouns, is ranked higher than ALIGNFOCUS, which disfavors regular object shift of an indirect object that is part of the focus of the clause. Tableaux 13 and 14 provide the evaluation of the Icelandic examples in (40). Tableau 13 provides the evaluation for cases in which the indirect object is part of the presupposition of the clause: the strong ranking of EPP(case) forces object shift of the indirect object, and consequently pronoun shift can apply without causing a violation of RELMIN, so that (40c) is selected as the optimal candidate.

Tableau 13: Icelandic (DO pronoun; IO not in focus)

	REL MIN	D-PRONOUN	AF	EPP (case)	*MOVE (t_O only)
a. Subj I+V Adv t_V IO pron		*!		**	
b. Subj I+V IO Adv t_V t_{IO} pron		*!		*	*
c. Subj I+V IO pron Adv t_V t_{IO} t_{DO} ☞					**
d. Subj I+V pron Adv t_V IO t_{DO}	*!			*	*

Tableau 14 provides the evaluation for cases in which the indirect object is part of the presupposition of the clause: ALIGNFOCUS now disfavors movement of the indirect object and hence favors the blocking strategy, but this is overruled by the higher ranked constraint D-PRONOUN which favors the push-up strategy. Consequently, (40c) is again selected as the optimal candidate.

Tableau 14: Icelandic (DO pronoun; IO in focus)

	REL MIN	D-PRONOUN	AF	EPP (case)	*MOVE (t_O only)
a. Subj I+V Adv t_V *IO* pron		*!	*	**	
b. Subj I+V *IO* Adv t_V t_{IO} pron		*!	**	*	*
c. Subj I+V *IO* pron Adv t_V t_{IO} t_{DO} ☞			**		**
d. Subj I+V pron Adv t_V *IO* t_{DO}	*!			*	*

The conclusion we have to draw from this section is that in Icelandic double object constructions, we can find both the blocking and the push up strategy: due to the subranking ALIGNFOCUS >> EPP(case) a non-presuppositional indirect object blocks regular object shift of a presuppositional direct object, whereas due to the D-PRONOUN >> ALIGNFOCUS a pronominal direct object forces regular object of a non-presuppositional indirect object.

5.2.2   Danish

This section will show that the push up strategy also occurs in Danish (and Swedish) double object constructions. First, consider double object constructions in which both the direct and the indirect object are a pronoun, as in (41), taken from Vikner (1989/1990). The evaluation in Tableau 15 shows that the constraint ranking that was established earlier straightforwardly predicts that (41c) is the optimal candidate.

(41)   a.   *Peter viste   jo   hende   den.
            Peter showed   indeed   her   it
       b.   *Peter viste hende jo t_{IO} den.
       c.   Peter viste hende den jo t_{IO} t_{DO}.
       d.   *Peter viste den jo hende t_{DO}.

Tableau 15: Danish (two pronominal objects)

	D-PRONOUN	*MOVE (t_O only)	EPP (case)
a. Subj I+V Adv t_V pron$_{IO}$ pron$_{DO}$	*!*		**
b. Subj I+V pron$_{IO}$ Adv t_V t_{IO} pron$_{DO}$	*!	*	*
c. Subj I+V pron$_{IO}$ pron$_{DO}$ Adv t_V t_{IO} t_{DO} ☞		**	
d. Subj I+V pron$_{DO}$ Adv t_V pron$_{IO}$ t_{DO}	*!	*	*

The ranking also straightforwardly predicts that when the indirect object is a pronoun and the direct object is a full NP, as in (42), it is only the indirect object that undergoes object shift. This is shown in Tableau 16.

(42)   a.   *Peter   viste   jo   hende   bogen.
               Peter showed   indeed   her   the book
       b.   Peter viste hende jo t_{IO} bogen.
       c.   *Peter viste hende bogen$_j$ jo t_{IO} t_{DO}.
       d.   *Peter viste bogen jo hende t_{DO}.

Tableau 16: Danish (pronominal indirect object only)

	D-PRONOUN	*MOVE (t_O only)	EPP (case)
a. Subj I+V Adv t_V pron$_{IO}$ DO	*!		**
b. Subj I+V pron$_{IO}$ Adv t_V t_{IO} DO ☞		*	*
c. Subj I+V pron$_{IO}$ DO Adv t_V t_{IO} t_{DO}		**!	
d. Subj I+V DO Adv t_V pron$_{IO}$ t_{DO}	*!	*	*

The situation is more complex, however, when the indirect object is a full NP and the direct object a pronoun. Consider the examples in (43), with the judgments assigned to them in Vikner (1989/1990). Vikner's judgments suggest that there is some uncertainty concerning the grammatical status of the examples in (43a&c). Furthermore, there seem to be some disagreement on example (43a) as similar examples are judged fully acceptable by Christensen (2005:155). Unfortunately, Christensen does not discuss examples like (43c), but since Vikner judges the two examples as equally acceptable, it seems safe to assume that both are grammatical (the same is reported for Swedish in Anagnostopoulou, 2003:128).

(43)   Danish (judgments for Vikner 1989)
       a.   %Peter viste   jo   Marie   den.
               Peter showed   indeed Marie   it
       b.   *Peter viste Marie jo t_{IO} den.
       c.   %Peter viste Marie den jo t_{IO} t_{DO}
       d.   *Peter viste den jo Marie t_{DO}

The conclusion that (43c) is acceptable is very remarkable, as this shows that Danish allows full object shift in double object constructions, despite the fact that this is categorically blocked in monotransitive constructions. We will see below, however, that this follows immediately when we assume that the constraint D-PRONOUN is outranked by RELMIN. That we need to introduce RELMIN is clear from the fact that the ranking D-PRONOUN >> *MOVE >> EPP(case) wrongly predicts that example (43d) is acceptable.

Tableau 17: Danish (pronominal direct object only)

	D-PRONOUN	*MOVE (t_O only)	EPP (case)
a. Subj I+V Adv t_V IO pron	*!		**
b. Subj I+V IO Adv t_V t_{IO} pron	*!	*	*
c. Subj I+V IO pron Adv t_V t_{IO} t_{DO}		**!	
d. Subj I+V pron Adv t_V IO t_{DO} ☹		*	*

The evaluation in Tableau 18 shows that this problem is solved when we assume that RELMIN outranks D-PRONOUN: candidate 18d is now blocked by candidate 18c, and this correctly predicts that example (43c) is acceptable. This shows that, just like in Icelandic, the constraint D-PRONOUN favors the push-up strategy.

Tableau 18: Danish (pronominal direct object only)

	RELMIN	D-PRONOUN	*MOVE (t_O only)	EPP (case)
a. Subj I+V Adv t_V IO pron		*!		**
b. Subj I+V IO Adv t_V t_{IO} pron		*!	*	*
c. Subj I+V IO pron Adv t_V t_{IO} t_{DO} ☞			**	
d. Subj I+V pron Adv t_V IO t_{DO}	*!		*	*

What we have not yet accounted for is that example (43a) is also acceptable in Danish. Since this example involves the blocking strategy, and we have seen in the discussion of Icelandic that ALIGNFOCUS favors this strategy, we may conclude that ALIGNFOCUS outranks D-PRONOUN. Tableaux 19 and 20 further show that this will correctly predict the pattern in (43) provided that we also assume that ALIGNFOCUS in its turn is outranked by RELMIN: the blocking strategy in (43a) will be preferred over the push-up strategy when the indirect object is part of the focus of the clause, whereas the push-up strategy in (43c) is preferred when the indirect object is part of the presupposition of the clause.

Tableau 19: Danish (DO-pronoun; IO not in focus)

	RELMIN	AF	D-PRONOUN	*MOVE (t_O only)	EPP (case)
a. Subj I+V Adv t_V IO pron			*!		**
b. Subj I+V IO Adv t_V t_{IO} pron			*!	*	*
c. Subj I+V IO pron Adv t_V t_{IO} t_{DO} ☞				**	
d. Subj I+V pron Adv t_V IO t_{DO}	*!			*	*

Tableau 20: Danish (DO-pronoun; IO in focus)

	REL MIN	AF	D-PRONOUN	*MOVE (t_O only)	EPP (case)
a. Subj I+V Adv t_V *IO* pron ☞		*	*		**
b. Subj I+V *IO* Adv t_V t_{IO} pron		**!	*	*	*
c. Subj I+V *IO* pron Adv t_V t_{IO} t_{DO}		**!		**	
d. Subj I+V pron Adv t_V *IO* t_{DO}	*!			*	*

The conclusion we can draw from this section is that in Danish double object constructions, we can find both the blocking and the push up strategy: due to the subranking D-PRONOUN >> *MOVE >> EPP(case), a pronominal direct object forces object shift of a presuppositional indirect object, whereas due to the subranking ALIGNFOCUS >> D-PRONOUN a non-presuppositional indirect object blocks object shift of a pronominal direct object. For what follows in the following section it is important to note that we have seen earlier that EPP(φ) outranks ALIGNFOCUS in order to account for the fact that short object shift is not sensitive to the information structure of the clause, so that we can establish the following subranking for Danish:

(44) Danish: {RELMIN, EPP(φ)] >> ALIGNFOCUS >> D-PRONOUN >> *MOVE >> EPP(case)

5.3 V-to-I in Danish embedded clauses

Now that we have also discussed regular object shift in Danish, we can finally tackle the question how come that whereas short object shift pushes up the verbal root V into *v*, regular object shift does not force V-to-I in (45).

(45) a. Jeg spurgte hvorfor Peter aldrig [$_{VP}$ læste den her bog]   (Danish)
           I   asked   why   Peter never   read   this book
      b. Jeg spurgte hvorfor Peter aldrig [$_{VP}$ læste den]   ◄ √ blocking ►
           I   asked   why   Peter never   read   it
      c. *Jeg spurgte hvorfor Peter læste den   aldrig [$_{VP}$ t_V t_{DO}].   ◄ * push up ►
           I   asked   why   Peter read   it   never

To start, let us first consider the predictions that follow from the Danish constraint ranking in (46), we have established earlier (cf. (32/34) and Figure 3). We have already seen that the subranking H-COMPL >> EPP(φ) >> *MOVE >> *STRAY FEATURE correctly predicts that short object shift forces V-to-*v*. However, for the same reason we would expect on the basis of the subranking H-COMPL >> D-PRONOUN >> *MOVE >> *STRAY FEATURE that regular object shift of a pronominal object forces *v*-to-I. This prediction is wrong. This can, however, be amended if we assume that EPP(φ) outranks D-PRONOUN in Danish, as in (46b),[5] and postulate an additional constraint C that blocks verb movement ranked in between EPP(φ) and D-PRONOUN, as in (46c). The subranking EPP(φ) >> C expresses that short object shift will push up the verbal root V into *v*, whereas C >> D-PRONOUN expresses that regular object shift of pronouns is blocked when V-to-I does not apply for independent reasons.

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[5] The ranking EPP(φ) >> D-PRONOUN can be independently argued for in Swedish, which resembles Danish in most of the relevant respects; cf. Broekhuis (to appear) for discussion.

(46) a. Danish constraint ranking established so far: (cf. (32) and (44)):
          {H-COMPL, LFTF} >> {EPP(φ) >> RELMIN} >> ALIGNFOCUS >> D-PRONOUN >> *MOVE
          >> {*STRAY FEATURE, EPP(case)}

What we have to do then is to identify this constraint C, which, of course, preferably should be independently motivated. The question therefore is whether there is a constraint that could block V-to-I in example (45c). This question can be answered in the affirmative: V-to-I of the main verb *læste* can in principle be blocked by the constraint NOLEXM in (10b), which was introduced by Grimshaw (1997) in order to capture Pollock's (1989) insight that in English V-to-I is blocked only when the finite verb is a θ-role assigner. Tableau 21 shows the evaluation that arises when we rank this constraint in between EPP(φ) and D-PRONOUN. The candidate with short object shift and V-to-*v*/Asp, but no regular object shift and V-to-I is now correctly selected as the optimal candidate. Note that none of the violations of D-PRONOUN is fatal. This correctly predicts that when we replace the pronominal object by a full noun phrase the same candidate will be selected as the optimal one.

Tableau 21: V-to-I in Danish embedded clauses with regular object shift

	HEAD-COMPL	LFTF	EPP(φ)	NOLEXM	D-PRONOUN	*MOVE (t_O)	*MOVE (t_V/t_v)	*STRAYF	EPP(case)
C ... I ... v ... V O			*!		*			**	*
C ... I ... v ... O V t_O	*!				*	*		**	*
C ... I ... O v ... t'_O V t_O	*!					**		**	
C ... I ... V+v ... t_V O			*!	*	*		*	*	*
C ... I ... V+v ... O t_V t_O ☞				*	*	*	*	*	*
C ... I ... O V+v ... t'_O t_V t_O	*!			*		**	*	*	
C ... V+v+I ... t_v t_V O			*!	**	*		**		*
C ... V+v+I ... t_v O t_V t_O				**!	*	*	**		*
C ... V+v+I ... O t_v ... t'_O V t_O				**!		**	**		

Tableau 22 gives the evaluation of the main clause counterpart of (45b) in (47b). The evaluation shows that all examples in which V-to-I fails to apply are excluded by H-COMPL and LEXICALLY FILL TOP F. Consequently, the remaining c-candidates violate NOLEXM to the same extent, so that EPP(φ) and D-PRONOUN get the final say: the optimal candidates is the one in which both short and regular object shift of the pronominal object have applied. Note that when the object is a full noun phrase, as in (47a), D-pronoun will not be violated, so that regular object shift will be blocked by *MOVE.

(47) a. Hvorfor læste Peter <*den her bog>   aldrig <den her bog>.
          Why   read   Peter this book   never
      b. Hvorfor læste Peter <den> aldrig <*den>.
          Why   read   Peter it   never

Tableau 22: V-to-I in Danish main clauses with regular object shift

	HEAD-COMPL	LFTF	EPP(φ)	NOLEXM	D-PRONOUN	*MOVE (t_O)	*MOVE (t_V/t_v)	*STRAYF	EPP(case)
... I ... v ... V O		*!	*		*			**	*
... I ... v ... O V t_O	*>	*<			*	*		**	*
... I ... O v ... t'_O V t_O	*>	*<				**		**	
... I ... V+v ... t_V O		*!	*	*	*		*	*	*
... I ... V+v ... O t_V t_O		*!		*	*	*	*	*	*
... I ... O V+v ... t'_O t_V t_O	*>	<*		*		**	*	*	
... V+v+I ... t_v t_V O			*!	**	*		**		*
... V+v+I ... t_v O t_V t_O				**	*!	*	**		*
... V+v+I ... O t_v ... t'_O V t_O ☞				**		**	**		

This concludes our discussion of the Danish verb movement puzzle. The puzzle is solved by ranking the independently motivated economy constraint NOLEXM in between EPP(φ) and D-PRONOUN: the subranking EPP(φ) >> NOLEXM accounts for the fact that short object shift pushes up the verbal root V into v, whereas the subranking NOLEXM >> D-PRONOUN accounts for the fact that regular object shift of pronouns is blocked when V-to-I does not apply for independent reasons.

6   Conclusion

This article has discussed Holmberg's Generalization in (1), and has shown that there are in principle two ways to satisfy this generalization. Either object shift is blocked when it has to cross the main verb or some co-argument, or the moved object forces movement of these elements as well. We have seen that both strategies exist. This paper studied the two strategies and gave an analysis which straightforwardly predicts which strategy applies in which case.

<div align="center">References</div>

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