Against Feature Strength

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1. Introduction

In this paper, I will argue that the distinction between weak and strong formal features must be eliminated (cf. Chomsky 1996). As a starting point of the discussion, I will assume that Chomsky's (1995) computational system of human language (C_{HL}) functions as a generator that produces a candidate set that is evaluated in an optimality theoretic manner (as in the Derivation and Evaluation model proposed in Broekhuis and Dekkers, to appear). In a sense, the evaluation determines the proper SPELL-OUT point of the derivation; the optimal candidate undergoes further computation in the LF-wing of the grammar in order to eliminate the yet unchecked –Interpretable formal features.

I will show that the weak/strong distinction can be caught by assuming an interaction between the constraint STAY, which disfavors movement, and a constraint F, which requires checking of the –Interpretable formal feature F. The weak/strong distinction can now be replaced by the constraint rankings in (1a,b). This is not just a reformulation of the original distinction as movement can be forced even in the case of the “weak” ranking in (1a), provided that there is some constraint A that outranks STAY and favors the movement that results in checking of the pertinent feature F, as in (1c). In this article, I will illustrate this on the basis of Swedish/Danish Object Shift. Similarly, movement can be blocked in the case of the “strong” ranking in (1b), if there is some constraint B that outranks F, and disfavors the pertinent movement, as in (1d). This is what happens in Icelandic Object Shift, but unfortunately space limitations make it impossible to illustrate this in this article (see Broekhuis 1998 and Costa 1996 for a discussion of this). Further, it will be argued that the rankings in (1) can be “overruled” by properties of the generator ($=C_{HL}$).

- (1) a. “weak” ranking: STAY >> F
- b. “strong” ranking: F >> STAY
- c. A >> STAY >> F (A overrules “Procrastinate”)
- d. B >> F >> STAY (B overrules “Strength”)

According to Chomsky (1995), a strong feature on a functional head forces overt movement, whereas Procrastinate prohibits overt movement in the case of a weak feature. This implies that overt movement cannot be optional. As is well known, however, this prediction is wrong. Take the case of Swedish/Danish Object Shift in (2) and (3), taken from Holmberg (1986).

- (2) a. Varför läste studenterna den_i inte [_{VP} alla t_v t_i]
 why read the.students it not all
 ‘Why don’t the students all read it?’
 b. ?*Varför läste studenterna inte [_{VP} alla t_v den]
- (3) a. *att studenterna den_i inte [_{VP} alla läste t_i]
 that the.students it not all read
 ‘that the students all don’t read it.’
 b. att studenterna inte [_{VP} alla läste den]

Given the fact that the weak pronoun in (2a) is moved in front of the negative element *inte*, we could assume that this movement results in checking of a strong N-feature. However, this assumption would lead to the false prediction that the derivation that leads to (3b) would be canceled as the structure contains a strong N-feature that has not been checked overtly. Alternatively, the ungrammaticality of (3a) could lead to the assumption that the relevant N-feature is weak, but then we would predict (2a) to be unacceptable as movement of the pronoun leads to a violation of Procrastinate.

Within the alternative sketched in (1), the patterns in (2) and (3) can be easily explained. Let us adopt Holmberg’s claim that Object Shift is triggered by a Case feature. Given the fact that full DPs never undergo Object Shift in Swedish/Danish, we may conclude that the constraint CASE, which requires checking of the Case feature, is ranked lower than STAY. Let us further assume that there is an additional constraint PRONOUN that requires that pronouns be outside the VP-domain (a phenomenon common in many languages), and outranks STAY in Swedish/Danish.

- (4) Swedish/Danish: PRONOUN >> STAY >> CASE

This ranking correctly predicts that object pronouns (but not full DPs) must undergo Object Shift in structures like (2); despite the weak ranking of CASE, the constraint PRONOUN forces the pronoun to move into the position where Case is checked.¹ It still does not explain, however, that the pronoun cannot undergo Object Shift in (3). In these constructions, the inherent properties of the generator become relevant. According to Holmberg’s generalization, Object Shift is possible only if the main verb of the clause has moved as well. In Chomsky

(1995:chapter 3), this has been accounted for by assuming that movement is subject to a locality condition, the Minimal Link Condition (MLC).² If we adopt Chomsky's assumption that this condition is part of the definition of movement (hence: inviolable), it follows that C_{HL} cannot create a structure like (3a), so that this structure is not part of the candidate set. Hence, (3a) and (3b) do not compete, and (3b) is selected as the optimal candidate. These examples show that even the ranking in (4) need not force movement of the pronoun. Further, it illustrates that not only the evaluator, but also the generator (= C_{HL}) is relevant for the determination of the optimal output, contrary to what is assumed in "standard" Optimality Theory (OT) (but see Grimshaw, 1997:376, on X-bar-theory).

2. Swedish/Danish Object Shift in transitive clauses

In this section, I will provide an optimality theoretic account of some basic properties of Object Shift in Swedish and Danish. The data in this section are mainly taken from Swedish, but Danish behaves similarly in the relevant respects. Consider again the examples in (2) above.

According to the "last resort" condition on movement, which states that movement must result in feature checking, the movement of the pronoun in (2a) must be triggered by some –Interpretable formal feature on some higher head. Given the fact that we are dealing with a DP in this case, a good candidate would be the Case feature on the verb itself (cf. Holmberg 1986). This assumption correctly predicts that it is not possible to Object Shift a pronoun that is the complement of a preposition, as in the Swedish example in (5): as the Case of the pronoun is checked by the preposition itself, there is no trigger for moving the pronoun into the checking domain of the verb. For the same reason, it is predicted that Object Shift is restricted to nominal phrases. That this is borne out is illustrated by the Danish examples in (6).

- (5) a. Jag tro inte på det.
 I believe not in it
 'I don't believe in it.'
- b. *Jag tro det_i inte på t_i
- (6) a. Jeg betalte ikke for bogen.
 I paid not for.the books
 'I didn't pay for the books.'
- b. *Jeg betalte for bogen_i ikke t_i

If we adopt the distinction between strong and weak features, the possibility of Object Shift in (2) would lead to the conclusion that the Case feature on the

verb is strong in Swedish/Danish. This runs into problems, however, if we consider examples that involve full DPs. As is illustrated in (7), full DPs never undergo Object Shift in Swedish/Danish.

- (7) a. *Varför läste studenterna artikeln_i inte [_{VP} alla t_v t_i]
 why read the.students the.article not all
 ‘Why don’t the students all read it?’
 b. Varför läste studenterna inte [_{VP} alla t_v artikeln]

If the Case feature is strong, it should be eliminated before SPELL-OUT. Given the unacceptability of (7a), we must therefore conclude that the accusative feature on the verb is weak. But under this assumption, we would wrongly predict (2a) to be unacceptable as it violates Procrastinate.

Of course, one could propose certain revisions of the theory in order to account for the facts in (2) and (7). One possibility would be to assume that the pertinent feature on the verb can be either weak or strong, but this runs into the problem that the choice between the two options should be made dependent on the presence of a pronoun or a full DP, which would certainly be *ad hoc*. Alternatively, one could assume that the weak-strong distinction is expressed on the nominal elements themselves: a full DP has a weak, and a pronoun has a strong Case feature. This would predict that object DPs cannot, whereas object pronouns must undergo Object Shift. This prediction is clearly wrong as well, as object pronouns cannot undergo Object Shift in embedded clauses in Swedish/Danish, as is shown in (3) above. This discussion shows that Object Shift cannot be immediately accounted for by taking recourse to the weak/strong distinction. What I want to demonstrate below is that the Derivation and Evaluation model can adequately account for the pertinent Swedish/Danish facts.

The Derivation and Evaluation model is essentially an optimality system, although it differs in various respects from what is assumed in “standard” OT. In “standard” OT, the explanatory power of the system exclusively resides in the evaluator, that is, the explanatory role of the generator is generally considered to be negligible: it is assumed that it consists of a set of operations of a linguistic nature which apply in a random fashion to create an in principle infinite set of candidates among which the evaluator selects the optimal one(s) — the explanations that are provided in the OT-literature hardly ever involve the properties of the generator. In the Derivation and Evaluation model, on the other hand, the generator is as important as the evaluator; it is assumed that it can be more or less identified with Chomsky’s (1995) computational system C_{HL} , which implies that only a limited number of candidates can be created among which the evaluator must select the optimal candidate.

In order to account for the Swedish/Danish data above, I like to propose three

constraints: CASE, STAY and PRONOUN. The constraint CASE requires that Case be checked at the time the evaluation takes place (essentially Chomsky's SPELL-OUT point), and is of course a direct descendant of the Case Filter. The constraint STAY prohibits movement; this constraint plays a role in virtually all OT-analyses proposed so far, and can in fact be equated with Chomsky's Procrastinate. The constraint PRONOUN has not been proposed before, but it is clear that many languages indeed prefer pronouns to be moved into a VP-external position.

As has already been pointed out in §1, the weak/strong distinction can be captured by means of a ranking of these constraints. By claiming that CASE is ranked above STAY, we express more or less the same as by claiming that the Case feature is strong, and by assuming the inverse order of the constraints we express that the Case feature is weak.

- (8) a. "weak" ranking: STAY >> CASE
 b. "strong" ranking: CASE >> STAY

By assuming that Swedish/Danish has the "weak" ranking in (8a), we account for the fact that full DPs cannot undergo Object Shift in this language. Contrary to what is the case if we assume the weak/strong distinction, the prohibition of Object Shift can in principle be overruled by another constraint that forces the pertinent movement, provided that it outranks STAY. This is precisely what I want to propose for Swedish/Danish Object Shift. If we assume that Swedish/Danish has the ranking of the pertinent constraints in (4), the data in (2) and (7) follow straightforwardly. This is shown in the tableaux 1 and 2. Note that in the tableaux only those violations are indicated that result from the application/absence of Object Shift — the violations of STAY that result from verb/subject movement are omitted for simplicity.

Tableau 1: Swedish (2)

	PRONOUN	STAY	CASE
a. Subj V inte [_{VP} t _v pron]	*!		*
b. Subj V pron _i inte [_{VP} t _v t _i]		*	

Tableau 2: Swedish (7)

	PRONOUN	STAY	CASE
a. Subj V inte [_{VP} t _v DP]			*
b. Subj V DP _i inte [_{VP} t _v t _i]		*!	

In tableau 2, we see that the "weak" ranking STAY >> CASE selects candidate 2a without Object Shift as the optimal one. The ban on Object Shift is, however, lifted in the case of a pronoun as leaving the pronoun in its base position would

violate the higher ranked constraint PRONOUN: candidate 1b is therefore selected as the optimal one.

For the sake of argument, assume that the constraint PRONOUN is also violated if a pronoun occurs as the complement of a prepositional phrase that is VP-internal, as in (9).

(9) $[_{VP} \dots [_{PP} P \text{ pronoun}]]$

The Swedish/Danish ranking in (4) would then wrongly predict that the pronoun must be removed from the VP, either by movement of the pronoun itself, as in the Swedish example in (5b), or by movement of the complete PP, as in the Danish example in (6b). In order to block these candidates, we can take recourse to the generator itself — as movement is subject to the “last resort” condition, the candidates in (5b) and (6b) cannot be created. The evaluation is therefore as given in the tableaux 3 and 4: the candidates that cannot be derived by the generator are marked with an asterisk, and the cells below the constraints are filled by ###. For completeness, note that the violations of CASE in these tableaux are due to the fact that the pronouns are in post-P complement position, and not in the pre-P checking position.

Tableau 3: Swedish (5)	PRONOUN	STAY	CASE
a. Subj V inte $[_{VP} t_v [_{PP} P \text{ pron}]]$ ✖	*		*
b. *Subj V pron_i inte $[_{VP} t_v [_{PP} P t_i]]$	###	###	###

Tableau 4: Danish (6)	PRONOUN	STAY	CASE
a. Subj V ikke $[_{VP} t_v [_{PP} P \text{ pron}]]$ ✖	*		*
b. *Subj V $[P \text{ pron}]_i$ ikke $[_{VP} t_v [_{PP} P t_i]]$	###	###	###

Perhaps, this account of the data in (5) and (6) is not completely convincing as we have no independent evidence that the constraint PRONOUN is violated by the structure in (9). There is, however, more compelling evidence that the generator may block certain candidates from the candidate set. Consider again the Swedish examples in (3). Under the constraint ranking in (4), we would expect that Object Shift would be obligatory in the examples in (3). However, if the MLC indeed prohibits Object Shift in absence of verb movement, we should conclude that the candidate in (3a) cannot be created. Consequently, (3b) is selected as the optimal candidate despite the fact that the constraint PRONOUN is violated. The evaluation is given in tableau 5.

Tableau 5: Swedish (3)

	PRONOUN	STAY	CASE
a. att Subj I inte [_{VP} V pron]	*		*
b. *att Subj I pron inte [_{VP} V <i>t_i</i>]	###	###	###

3. Object Shift in the double object construction

The double object construction is problematic in several respects, and has received many analyses. Here, I want to assume that the construction has the properties in (10).

(10) **Double object construction**

- a. The indirect object is structurally higher than the direct object (if the double object construction is the result of Dative Shift, this holds after the application of the relevant operations).
- b. The dative object is assigned structural Case.
- c. Hence, attraction of the Case feature of the direct object can in principle be blocked by the indirect object (the MLC).
- d. Movement of the indirect object into a position in which its Case is checked, voids the barrier for movement of the direct object.

The assumption in (10a) is fairly standard, I believe, so that I will not digress on it. The assumption in (10b) is not generally accepted. However, if it is true that Object Shift is triggered by a Case feature, this assumption seems to be well justified as an indirect object may undergo this movement, as is shown in (11); in Danish, a full DP must occur after the sentence adverb *jo*, whereas the dative pronoun *hende* must undergo Object Shift as a result of which it is placed in front of the adverb. I refer to Broekhuis and Cornips (1994) for independent evidence for assumption (10b).

- (11) a. Peter viste jo Marie bogen
 Peter showed indeed Marie the.book
 ‘Peter showed Marie the book indeed.’
 b. Peter viste hende_i jo *t_i* bogen
 Peter showed her indeed the.book

The assumptions in (10c,d) are in need of a more extensive justification. In order to avoid that our explanation of the Scandinavian data becomes circular, I will motivate them on the basis of Dutch (similar West-Flemish data are reported by Haegeman 1991). In Den Dikken (1995), it is observed that *wh*-movement of a direct object across a dative object has a degrading effect in the Dutch example

in (12a), in which the dative object follows the adverb (provided that the indirect object is not contrastively focused). This degrading effect is however completely absent if the dative object is placed in front of the adverb, as in (12b); *wh*-movement of the direct object is fully acceptable in these examples.

- (12) a. *²Wat_j zal Jan waarschijnlijk Marie t_j geven?
 what will Jan probably Marie give
 ‘What will Jan probably give to Marie?’
 b. Wat_j zal Jan Marie_i waarschijnlijk t_i t_j geven?

At first sight, example (12a) is quite surprising from the perspective of the MLC (which only blocks movement of an element α across an element β if the feature that triggers the movement can be checked both by α and by β), as it involves an A'-movement that is blocked by an element in an A-position. However, under certain assumptions, example (12a) can be easily explained.

First, assume that *wh*-movement of an argument with an unchecked Case- or Agreement feature is impossible. If an object undergoes *wh*-movement, this has to proceed via the positions in which these formal features are checked. We can attribute this property to the operation ATTRACT/MOVE by assuming (13), taken from Chomsky (1995:304).

- (13) Only the head of a chain CH enters into the operation ATTRACT/MOVE (trace is immobile).

This condition on ATTRACT/MOVE may play a role in the well-known fact illustrated in (14) that in languages like French and Italian, participial agreement does not occur with a direct object in post-verbal position, but does show up if the object is *wh*-moved or placed in a clitic position (cf. e.g. Kayne 1985/9 and Burzio 1986) — according to the condition in (13), if the object would skip the position in which its Agreement features are checked, there would be no opportunity to check these features at a later stage in the derivation, and the derivation would crash as a result of a violation of Full Interpretation at LF. The derivation of (14b,c) must therefore be as roughly indicated in (14b',c'); the intermediate trace t'_i indicates the position in which the Agreement features of the participle are checked.

- (14) a. Paul a repeint/*repeintes les tables
 Paul has repainted the tables
 b. Paul les a repeintes
 Paul them has repainted
 ‘Paul repainted them.’
 b'. Paul les_i a t'_i repeintes t_i

- c. Je sais combien de tables il a repeintes
 I know how many tables he has repainted
 c'. Je sais combien de tables_i il a t'_i repeintes t_i

Now, assume that in Dutch and West-Flemish, the Case features of the objects in post-adverbial position are still unchecked, that is, that the Case-checking position precedes the adverb, just as in the Scandinavian languages. According to (13), the direct object in (12a) must first check its Case feature before it can undergo *wh*-movement. The hypothesis in (10c) now correctly states that Case movement of the *wh*-object is blocked by the MLC; the intermediate stage in the derivation of the relevant Dutch example, given in (15a), cannot be derived as the indirect object blocks Case attraction of the direct object. In this respect, the *wh*-object behaves just like the direct object in (15b). Hence (10c) seems to be supported.

- (15) a. Intermediate stage in the derivation of (12a):
 *Jan zal wat_j waarschijnlijk Marie t_j geven
 Jan will what probably Marie give
 b. *Jan zal het boek_j waarschijnlijk Marie t_j geven
 Jan will the book probably Marie give

Under the assumption that the Case positions precede the adverb, the movement of the indirect object in (12b), which is generally attributed to so-called "Scrambling", is motivated by Case checking. According to the assumption in (10d), the barrier for the direct object is voided as the result of this movement of the indirect object; Case movement of the *wh*-object, as in (16a), becomes possible, just as in the case of Case movement of the direct object *het boek* in (16b).

- (16) a. Intermediate stage in the derivation of (12b):
 Jan zal Marie_i wat_j waarschijnlijk t_i t_j geven
 Jan will Marie what probably give
 b. Jan zal Marie_i het boek_j waarschijnlijk t_i t_j geven
 Jan will Marie het boek probably give
 'Jan will probably give Marie the book.'

The *wh*-object can be attracted from its derived pre-adverbial position in (16a) by the *wh*-feature in C since the indirect object has no *wh*-feature, and can consequently not block this movement. Consequently, both (16b) and the acceptability of the example in (12b), with the derivation in (17), support the hypothesis in (10d). Therefore, I conclude that the assumptions in (10) are all well-motivated, even though much must still be done to make things work in a technical sense.

- (17) Wat_j zal Jan Marie_i t'_j waarschijnlijk t_i t_j geven?
 what will Jan Marie probably give

Having established the assumptions in (10), we can consider the Swedish/Danish double object constructions. The data are taken from Danish. The Swedish/Danish constraint ranking is repeated here as (18).

(18) Swedish/Danish: PRONOUN >> STAY >> CASE

If both objects are full DPs, as in (19a), there is of course only one possible order, due to the weak ranking of CASE. The same holds if the indirect object is a pronoun, as in (19b). The evaluations, which proceed straightforwardly in these cases, are given in tableau 6 and 7, respectively.

- (19) a. Peter viste jo Marie bogen
 Peter showed indeed Marie the.book
 'Peter showed Marie the book indeed.'
 b. Peter viste hende_i jo t_i bogen
 Peter showed her indeed the.book
 'Peter showed her the book indeed.'

Tableau 6: Danish (19a)

	PRONOUN	STAY	CASE
a. Subj V oft [_{VP} t _v IO DO]			**
b. Subj V IO _i oft [_{VP} t _v t _i DO]		*!	*
c. Subj V IO _i DO _j oft [_{VP} t _v t _i t _j]		*!*	
d. *Subj V DO _j oft [_{VP} t _v IO t _j]	###	###	###

Tableau 7: Danish (19b)

	PRONOUN	STAY	CASE
a. Subj V oft [_{VP} t _v pron DO]	*!		**
b. Subj V pron _i oft [_{VP} t _v t _i DO]		*	*
c. Subj V pron _i DO _j oft [_{VP} t _v t _i t _j]		**!	
d. *Subj V DO _j oft [_{VP} t _v pron t _j]	###	###	###

Of great interest is the case in which the direct object is a pronoun, as in (20). Apparently, judgments are somewhat unclear in this case: all orders are rejected, but the judgments in Vikner (1990) indicate that (20a) and (20c) are relatively best.

- (20) a. ??Peter viste jo Marie den
 Peter showed indeed Marie it
 'Peter showed it to Marie indeed.'
 b. *Peter viste Marie_i jo t_i den
 c. ??Peter viste Marie_i den_j jo t_i t_j
 d. *Peter viste den_j jo Marie t_j

Especially the fact that (20c) is judged as relatively good is surprising as Object Shift of full DPs is generally excluded in Danish. However, these judgments make more sense if we consider the evaluation of this set of examples in tableau 8 as this candidate is selected as the optimal one.

Tableau 8: Danish (20)		PRONOUN	STAY	CASE
a. Subj V oft [_{VP} <i>t_v</i> IO pron]		*!		**
b. Subj V IO _i oft [_{VP} <i>t_v</i> <i>t_i</i> pron]		*!	*	*
c. Subj V IO _i pron _j oft [_{VP} <i>t_v</i> <i>t_i</i> <i>t_j</i>]	ES		**	
d. *Subj V pron _j oft [_{VP} <i>t_v</i> IO <i>t_j</i>]		###	###	###

The fact that the judgments on the examples in (20) are unclear may indicate that something is missing in the present analysis, but the fact that (20c) is judged to be relatively good is certainly encouraging. A final important thing that the judgments in (20) show is that we must indeed assume that candidate 8d is not part of the candidate set: if ever, it would certainly have to show up in this case, as there is no fully acceptable alternative, and it would involve only a single violation of STAY. So, despite the fact that (20) proves problematic, it certainly also supports the idea that the generator ($=C_{HL}$) determines which structures are part of the candidate set!

4. Conclusion

The main goal of this article has been to argue for the assumptions in (21). I have shown how these assumptions can account for certain aspects of Object Shift in Swedish and Danish that are problematic for the minimalist framework. Unfortunately, many aspects of Object Shift could not be discussed, due to space limitations; I refer the reader to Broekhuis (1988) for a more extensive discussion, which also goes into Object Shift in Icelandic and Dutch.

- (21)
- The computational system C_{HL} functions as an OT-generator.
 - The operations of the generator are subject to inviolable conditions.
 - The evaluation proceeds in a optimality theoretic fashion: it takes place on the basis of a set of ranked, violable constraints.
 - The distinction between weak and strong features must be replaced by the constraint rankings in (i) and (ii):
 - “weak” ranking: STAY >> F
 - “strong” ranking: F >> STAY

Notes

1. In other words, the constraint PRONOUN forces the movement that is triggered by the –Interpretable Case feature to apply overtly, that is, before SPELL–OUT.
2. Of course, I am aware that Chomsky (1995:chapter 4) claims that Holmberg’s generalization cannot be derived if we eliminate the functional head AGR from the theory. As Kitahara (1997) has shown, however, Chomsky is plainly wrong here.

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