

## Optionality and Ineffability\*

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### 0. Introduction

English is well-known for the optional presence of the complementizer *that* in declarative complements and relative clauses, as shown in (1a,b). The presence of the complementizer here is truly optional, in that it triggers no discernible difference in core meaning and/or discourse status. In addition to the optionality of the complementizer, object relative clauses in English are also generally optionally introduced by a *wh*-phrase, as shown in (1c); again, no discernible difference in meaning and/or discourse status can be systematically gleaned.

#### (1) Optionality in English

- a. I think [**that** the coat doesn't fit him].  
I think [the coat doesn't fit him].
- b. The coat [**that** he always wears *t*] doesn't fit him.  
The coat [he always wears *t*] doesn't fit him.
- c. The guy [**who** she dates *t*] doesn't respect her.  
The guy [she dates *t*] doesn't respect her.

In this paper we advance a theory of such (true) optionality<sup>1</sup> within the framework of Optimality Theory (OT, Prince & Smolensky 1993; we assume the general OT approach to syntax of Grimshaw 1997a), using the cases of optionality exhibited in (1) as our core examples. In OT, candidate structural analyses of an underlying form are subject to evaluation by constraints against

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\* This paper consolidates, and in some parts improves on, work by both authors, independent and joint (see Baković 1997, Keer & Baković 1997); our names appear here in alphabetical order. Portions of the present version were presented independently by both authors at the Workshop on Optimality Theory Syntax at Universität Stuttgart. We would like to thank the participants of that workshop as well as the audiences at RUM J. CLAM II, WCCFL XVI, and HOT-97; thanks also go to Viviane Déprez, Jane Grimshaw, Takeo Kurafuji, Géraldine Legendre, Susanne Preuss, Alan Prince, Vieri Samek-Lodovici, Paul Smolensky, Sten Vikner, Colin Wilson, and an anonymous reviewer. This work was supported by National Science Foundation Grant SBR-9511891 and by Rutgers University.

<sup>1</sup> On discourse-based or *apparent* optionality within OT, see the papers by Choi, Costa, and Samek-Lodovici in this volume and the references cited therein.

input-output disparity, or *faithfulness* constraints, as well as by constraints on structural outputs, or *markedness* constraints. The optimal realization of one input thus may or may not be the optimal realization of another; optimality is necessarily relativized.

We propose that the locus of true optionality is in the underlying form or input. That is, the versions of the sentences in (1) with and without the complementizer or *wh*-phrase are derived from different inputs. However, because of the possibility of deletion or insertion of complementizers and *wh*-phrases, both versions of the sentence are possible output forms for each of the distinct inputs. We propose that there exist faithfulness constraints on distinctive formal properties of syntactic structures which disfavor deviation from the input in each case. If these faithfulness constraints are ranked above markedness constraints against one or another of the possible outputs, the result is (apparent) optionality. As is generally assumed in OT, language-particular ineffability results from the opposite ranking of faithfulness below markedness. This ranking forces avoidance of marked structure in the output through unfaithful input-output mappings (Prince & Smolensky 1993; see also Legendre et al. 1995, 1998). When the complementizer or *wh*-phrase is either obligatory or prohibited, it is because certain markedness constraints dominate the proposed faithfulness constraints. Under this schematic ranking, the markedness constraints choose the same output for both inputs.

Optionality and ineffability thus arise as alternate effects of the usual interaction between markedness and faithfulness constraints — an expected consequence of ranked and violable conflicting constraints, the core assumption of OT. Moreover, since it is generally (and independently) assumed that OT constraints are universal and that their relative ranking is language-particular, a necessary prediction of our theory is that what is optional in one language or context may be ungrammatical in another. This typological prediction, we argue, is confirmed both within English — in contexts other than those shown in (1) — and in another language, Norwegian.<sup>2</sup>

There are at least two other possible approaches to optionality in OT, both claiming that the outputs in free variation arise from one and the same input. One approach is to ensure that no constraint distinguishes the outputs, so that if one emerges as optimal, the other(s) must also. In other words, the candidates fare equally or “tie” on all constraints, and under some rankings they tie for optimality. The second approach embellishes the basic theory with the notion of a constraint tie, with the same basic effect: the outputs in free variation arise from the same input. Grimshaw (1997a) takes the former approach, and Pesetsky (1998) the latter, in their respective analyses of the optionality of the

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<sup>2</sup> Kurafuji (1997) provides additional evidence from different dialects of Japanese, arguing for the present approach to optionality as opposed to the approaches advocated by Grimshaw (1997a) and Pesetsky (1998). See below.

English complementizer. Other work has shown these “one-to-many” input-output approaches to be empirically problematic; for instance, Legendre et al. (1995) argue based on extraction facts that candidates with and without the complementizer in English must arise from different inputs. Under the approach advocated here, these candidates do arise from different inputs, as necessary, with no problematic additions to the theory. The analysis laid out below is otherwise parallel to Grimshaw’s in that it employs the same set of markedness constraints, thereby retaining the essential explanatory virtues of Grimshaw’s overall system.

### 1. The Interaction of Markedness and Faithfulness

The optimality ( $\equiv$  grammaticality in OT) of a form in a given candidate output set is partially dependent on the input associated with that set: the optimal output of an input  $i_1$  may or may not be the optimal output of some other input  $i_2$ . Given only markedness constraints, this would of course be impossible — no matter what the input, markedness constraints would battle it out amongst themselves and a unique, least-marked form would invariably surface.

Faithfulness constraints, penalizing disparity between input and output, have thus played a pivotal role in OT since its inception. Depending on the relative ranking of faithfulness and conflicting markedness constraints, contrasting input specifications may or may not surface. If faithfulness dominates markedness ( $F \gg M$ ), then F-dependent contrasts surface in the output. If, conversely, markedness dominates faithfulness ( $M \gg F$ ), then F-dependent contrasts are neutralized in the output, in favor of the M-respecting end of the contrast spectrum. These two situations are depicted in Figure 1.

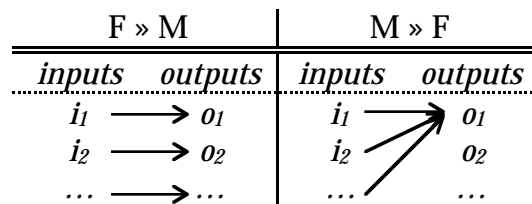


Figure 1. *The Interaction of Markedness and Faithfulness*

The specific proposal made here is that in addition to semantically discernible (*lexical*) contrasts, there exist semantically inert (*functional*) contrasts governed by a set of faithfulness constraints. The notion of ‘input’ that we assume is a modification of that employed by Grimshaw (1997a:375-376): in addition to the lexical features, argument structure, tense and aspect of the

Grimshavian input, we posit that there are functional features such as [ $\pm$ COMP] and [ $\pm$ WH].<sup>3</sup> These functional features are described in more detail below.

When functional contrasts are preserved in the output because  $F \gg M$ , the somewhat illusory effect is optionality of forms in the context marked by  $M$ . Under the ranking  $M \gg F$ , what is predicted is the lack of optionality in the  $M$ -relevant context. This prediction is empirically supported within English, as demonstrated in §2; since a faithfulness constraint can simultaneously dominate some markedness constraints and be dominated by others, this gives rise to optionality in some contexts but not in others. Comparative evidence between English and Norwegian indicates that this prediction is empirically supported cross-linguistically, where  $F \gg M$  in one grammar and  $M \gg F$  in another, as shown in §3.

## 2. English

### 2.1 *The complementizer*

As noted above about (1a,b), repeated below in (2), the complementizer *that* is often optional in English declarative complements and relative clauses. We follow Doherty (1993) in assuming that the structural distinction between *that*-clauses and *that*-less clauses boils down to a distinction in verbal extended projection level, CP vs. IP, and henceforth note it as such.<sup>4</sup>

#### (2) Complementizer optionality

- a. I think [<sub>CP</sub> **that** the coat doesn't fit him].  
I think [<sub>IP</sub> the coat doesn't fit him].
- b. The coat [<sub>CP</sub> **that** he always wears *t*] doesn't fit him.  
The coat [<sub>IP</sub> he always wears *t*] doesn't fit him.

Sometimes the complementizer is obligatorily present — for instance, when there is subject extraction from a relative (3) or when there is adjunction to a complement (4).

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<sup>3</sup> Our notion of the 'input' thus corresponds more closely to the notion of the 'numeration' in Chomsky 1995.

<sup>4</sup> Grimshaw (1997a:381) argues further that clauses are only as big as they need to be, and can be CP, IP, or VP. Our analysis is entirely compatible with this assumption; the further distinction between VP and IP is reduced here to IP for purely expository reasons.

- (3) Complementizer obligatoriness in relatives with subject extraction
- a. The coat [<sub>CP</sub> **that** *t* doesn't fit him] might fit me.
  - b. \*The coat [<sub>IP</sub> *t* doesn't fit him] might fit me.
- (4) Complementizer obligatoriness in complements with adjunction
- a. I think [<sub>CP</sub> **that** on him, no coat looks good *t*].
  - b. \*I think [<sub>IP</sub> on him, no coat looks good *t*].

In some other cases, the complementizer is obligatorily *absent* — for example, when there is subject extraction from a complement (5). This is known as the *\*that*-trace effect; see Déprez 1994, Keer 1996 and references therein.

- (5) Complementizer absence in complements with subject extraction
- a. \*Which coat do you know [<sub>CP</sub> **that** *t* doesn't fit]?
  - b. Which coat do you know [<sub>IP</sub> *t* doesn't fit]?

Suppose that the functional distinction between an embedded CP and an embedded IP is their specification for a feature [COMP] — CPs are specified as [+COMP] and IPs are specified as [-COMP]. Suppose further that an embedded clause may be freely specified in the input as [+COMP] or as [-COMP]. To regulate the disparity between input and output in terms of the two values of this feature, we must have the following faithfulness constraint.

- (6) FAITH[COMP]: The output value of [COMP] is the same as the input value.

## 2.2 Analytic essentials

If there are no relevant markedness constraints ranked higher than FAITH[COMP] that distinguish a particular pair of CP and IP forms, FAITH[COMP] ensures that the faithful output candidate for each type of input embedded clause is the optimal candidate in its candidate set, and hence a grammatical option. The input embedded clause specified as [+COMP] will surface as a [COMP]-faithful CP, and the one specified as [-COMP] will surface as a [COMP]-faithful IP. The effect will be the optionality of a complementizer, as in the examples in (2). This is shown in Table 1. (MARK stands for any and all markedness constraints that militate against either the CP or IP form in these cases.)

Input: [+COMP]	FAITH[COMP]	MARK
a.  CP		(*)
b. IP	*!	(*)

Input: [-COMP]	FAITH[COMP]	MARK
c. CP	*!	(*)
d.  IP		(*)

Table 1. *Complementizer optionality: FAITH[COMP] » MARK*

On the other hand, if the output structure of a particular form is such that a higher-ranked markedness constraint distinguishing the contrasting CP and IP forms is relevant, then the result is neutralization of the contrast. This neutralization can be in favor of the CP form as in Table 2, resulting in the obligatory complementizer effect in (3) and (4), or in favor of the IP form as in Table 3, resulting in the complementizer absence effect in (5). (MARK-XP stands for some markedness constraint that militates against the XP form in each of these cases.)

Input: [+COMP]	MARK-IP	FAITH[COMP]
a.  CP		
b. IP	*!	*

Input: [-COMP]	MARK-IP	FAITH[COMP]
c.  CP		*
d. IP	*!	

Table 2. *Complementizer obligatoriness: MARK-IP » FAITH[COMP]*

Input: [+COMP]	MARK-CP	FAITH[COMP]
a. CP		
b. $\Rightarrow$ IP	*!	*

Input: [-COMP]	MARK-CP	FAITH[COMP]
c. CP		*
d. $\Rightarrow$ IP	*!	

Table 3. *Complementizer absence: MARK-CP » FAITH[COMP]*

In the following subsections we make some explicit claims as to the actual content of the schematic constraints MARK, MARK-IP and MARK-CP to account for the particular cases exemplified in (2) – (5). These constraints are the same ones employed by Grimshaw (1997a) in her account of the same set of data; the major difference here is their necessary ranking with respect to the new constraint FAITH[COMP], required by our approach to optionality. We begin in the middle, with complementizer obligatoriness.

### 2.3 Complementizer obligatoriness ...

#### 2.3.1 ... in relatives with subject extraction

Recall from (3), repeated below in (7), that subject extraction from a relative induces the obligatory presence of the complementizer.

- (7) Complementizer obligatoriness in relatives with subject extraction
- The coat [<sub>CP</sub> **that** *t* doesn't fit him] might fit me.
  - \*The coat [<sub>IP</sub> *t* doesn't fit him] might fit me.

In Grimshaw's account, this is because subject traces in relative clauses potentially run afoul of the constraint T-GOV, demanding that traces be governed (see also Déprez 1994). Relative clauses (in English) are adjoined structures and are thus not governed. The subject trace in (7b) is thereby also ungoverned, violating T-GOV. On the other hand, the subject trace in (7a) is governed by the complementizer *that*, satisfying the constraint.

It should be quite clear how T-GOV naturally takes the place of MARK-IP in Table 2 to explain the obligatory complementizer effect in (7), as shown in Table 4. The rank of T-GOV above FAITH[COMP] explains why the particular configuration of subject extraction from a relative clause requires a complementizer. If the input effectively lacks one (that is, if it is specified as

[−COMP]), the low-rank of FAITH[COMP] relative to T-GOV means that the optimal output is going to violate FAITH[COMP] and be a less-marked CP, rather than the [COMP]-faithful but more-marked IP.

Input: [+COMP] relative clause with subject extraction	T-GOV	FAITH [COMP]
a. ☞ The coat [ <sub>CP</sub> <b>that</b> <i>t</i> doesn't fit him] might fit me.		
b. The coat [ <sub>IP</sub> <i>t</i> doesn't fit him] might fit me.	* !	*

Input: [−COMP] relative clause with subject extraction	T-GOV	FAITH [COMP]
c. ☞ The coat [ <sub>CP</sub> <b>that</b> <i>t</i> doesn't fit him] might fit me.		*
d. The coat [ <sub>IP</sub> <i>t</i> doesn't fit him] might fit me.	* !	

Table 4. *Complementizer obligatoriness in relatives: T-GOV » FAITH[COMP]*

### 2.3.2 ... in complements with adjunction

Now recall from (4), repeated below in (8), that adjunction to a complement also requires the presence of the complementizer. Again, following Grimshaw's account, adjunction to the highest node of an embedded clause violates PURE-EP (see also McCloskey 1992, Doherty 1993).

- (8) Complementizer obligatoriness in complements with adjunction
- I think [<sub>CP</sub> **that** on him, no coat looks good *t*].
  - \*I think [<sub>IP</sub> on him, no coat looks good *t*].

The presence of the higher complementizer *that* in (8a) means that the highest node of the complement (here, CP) is not adjoined to, satisfying PURE-EP. In (8b), with no complementizer, the highest node of the complement (here, IP) *is* adjoined to, violating the constraint. All that remains to be said is that PURE-EP, like T-GOV, dominates FAITH[COMP], as shown in Table 5.<sup>5</sup>

<sup>5</sup> The full form of Grimshaw's PURE-EP also rules out movement into the head of a subordinate clause (see Rizzi & Roberts 1989, McCloskey 1992), which is irrelevant to our immediate concerns here. Grimshaw (1998) argues for a different analysis of the effects of PURE-EP which is entirely compatible with the essence of the analysis put forth here.



Input: [+COMP] complement clause with adjunction	PURE-EP	FAITH [COMP]
a. $\text{I think}_{\text{CP}} \text{that on him, no coat looks good } t]$ .		
b. $\text{I think}_{\text{IP}} \text{on him, no coat looks good } t]$ .	*!	*

Input: [-COMP] complement clause with adjunction	PURE-EP	FAITH [COMP]
c. $\text{I think}_{\text{CP}} \text{that on him, no coat looks good } t]$ .		*
d. $\text{I think}_{\text{IP}} \text{on him, no coat looks good } t]$ .	*!	

Table 5. *Complementizer obligatoriness in complements: PURE-EP » FAITH[COMP]*

The ranking of PURE-EP above FAITH[COMP] explains why adjunction to a complement clause requires a protective complementizer. If the input effectively lacks one (that is, if it is specified as [-COMP]), the low-rank of FAITH[COMP] relative to PURE-EP means that the optimal output is going to violate FAITH[COMP] and be a protected CP, rather than the [COMP]-faithful IP.

#### 2.4 Complementizer absence

Unlike relative clauses, complement clauses are complements (to verbs), and are hence (lexically) governed. Subject traces in complements thus satisfy T-Gov whether there is a complementizer or not. But recall from (5), repeated below in (9), that a complementizer is ungrammatical here, unlike subject extraction from a relative clause.

- (9) Complementizer absence in complements with subject extraction
- a. \*Which coat do you know  $_{\text{CP}} \text{that } t \text{ doesn't fit}]?$
  - b. Which coat do you know  $_{\text{IP}} t \text{ doesn't fit}]?$

This is because the subject trace in (9a) violates T-LEX-GOV, demanding that traces not only be governed but *lexically* governed (Déprez 1994).<sup>6</sup> If T-LEX-GOV also dominates FAITH[COMP], then given a choice between an IP with a lexically-governed subject trace and a CP with a nonlexically-governed trace, T-LEX-GOV prefers the former, at the expense of FAITH[COMP]. This is shown in Table 6.

<sup>6</sup> Subject traces in English relatives uniformly violate T-LEX-GOV because English relatives are adjuncts, hence the irrelevance of this constraint in the case of relatives.

Input: [+COMP] complement clause with subject extraction	T-LEX-GOV	FAITH [COMP]
a. Which coat do you know [ <sub>CP</sub> <b>that</b> <i>t</i> doesn't fit]?	* !	
b. ☞ Which coat do you know [ <sub>IP</sub> <i>t</i> doesn't fit]?		*

Input: [-COMP] complement clause with subject extraction	T-LEX-GOV	FAITH [COMP]
c. Which coat do you know [ <sub>CP</sub> <b>that</b> <i>t</i> doesn't fit]?	* !	*
d. ☞ Which coat do you know [ <sub>IP</sub> <i>t</i> doesn't fit]?		

Table 6. *Complementizer absence: T-LEX-GOV » FAITH[COMP]*

The relative ranking of T-GOV and T-LEX-GOV is irrelevant here, since they make partially overlapping rather than conflicting demands. T-GOV is satisfied by both lexical and nonlexical government, so it fails to distinguish the forms in (9) and the work is left entirely up to the conflict between T-LEX-GOV and FAITH[COMP] in Table 6.

### 2.5 *Complementizer optionality*

Any markedness constraint that prefers CPs to IPs or vice-versa in the contexts in which the complementizer is optional must be dominated by FAITH[COMP] in order for the optionality to be possible. The assumption in Grimshaw 1997a is that no such constraints exist, and that optionality emerges as a consequence of the optimality of two indistinguishable structures. But, there is at least one constraint in Grimshaw's system that does distinguish the forms in question. HD-RT, demanding rightmostness of a head in its projections, militates against the CP candidate relative to the IP candidate. This and any other similar constraints must be outranked by FAITH[COMP] in order to prevent them from changing input [COMP]-specifications, as shown in Table 7.

Input: [+COMP] embedded clause	FAITH [COMP]	HD- RT
a. $\Rightarrow$ The coat [ <sub>CP</sub> <b>that</b> he always wears <i>t</i> ] doesn't fit him. I think [ <sub>CP</sub> <b>that</b> the coat doesn't fit him].		*
b. The coat [ <sub>IP</sub> he always wears <i>t</i> ] doesn't fit him. I think [ <sub>IP</sub> the coat doesn't fit him].	* !	

Input: [-COMP] embedded clause	FAITH [COMP]	HD- RT
c. The coat [ <sub>CP</sub> <b>that</b> he always wears <i>t</i> ] doesn't fit him. I think [ <sub>CP</sub> <b>that</b> the coat doesn't fit him].	* !	*
d. $\Rightarrow$ The coat [ <sub>IP</sub> he always wears <i>t</i> ] doesn't fit him. I think [ <sub>IP</sub> the coat doesn't fit him].		

Table 7. Complementizer optionality: FAITH[COMP] » HD-RT

Given that constraints like HD-RT exist, then something like FAITH[COMP] must exist to account for the optionality of the complementizer in these forms. Note that it is possible that HD-RT does not exist in English and other languages with the opposing constraint HD-LFT being dominant: as Grimshaw (1997b) has argued, the direct opposition of alignment constraints like HD-LFT and HD-RT completely inactivates the lower-ranked of the two (modulo the way that it can emerge to prevent optionality, as just shown above). HD-LFT and HD-RT can thus be seen as different parametric settings of the same universal constraint schema, HD-{LFT/RT}. Since HD-LFT must be dominant in English for independent reasons (see Grimshaw 1997a:406-409), HD-RT needn't be posited for English and thus won't be in the way to prevent complementizer optionality.

The elimination of HD-RT does not, however, change the difficult-to-reconcile fact that *any* constraint distinguishing the candidates in free variation will subvert Grimshaw's (1997a) tied-candidate approach to optionality. In fact, this argument applies to other one-input/many-outputs approaches to optionality, in particular to Pesetsky's (1998) tied-constraint approach. Pesetsky's definition of a constraint tie crucially allows for a constraint to distinguish candidates that would otherwise tie.<sup>7</sup> Advocates of this approach, like advocates of Grimshaw's, must deny the existence of such constraints applying to the cases where a tie is desired.

<sup>7</sup> Other definitions of constraint ties, with somewhat different consequences, have been proposed by Ackema & Neeleman (1998) and Müller (1996).

One crucial difference between Grimshaw's tied candidate approach and that of Pesetsky is that Grimshaw's approach does not add anything to the mechanisms of OT whereas Pesetsky's introduces the notion of tied constraints. In a sense, then, Grimshaw's approach cannot be argued against in general. Optimality Theory allows for the possibility that any two candidates could tie on all the possible constraints and thus that both could be optimal. In order for this tie to occur, *no* constraint may prefer one candidate to the other on any of the ways in which they differ. We are arguing here that there must be markedness constraints that prefer *that*-less clauses to clauses with *that* and that these constraints can only be inactivated through domination (by faithfulness).

There are other compelling reasons to disprefer these one-input/many-output approaches. One inevitable prediction of Grimshaw's tied-candidate approach to complementizer optionality is that if two candidates  $c_1$  and  $c_2$  tie for optimality in some language  $L_1$ , then the optimality of  $c_1$  in another language  $L_2$  entails the optimality of  $c_2$  in  $L_2$  (and vice-versa, of course). That is, tied candidates are inextricably bound to each other, and one cannot be optimal without the other.<sup>8</sup> Pesetsky's tied-constraint approach in particular predicts that any point of linguistic variation that is analyzed as the different available rankings of conflicting constraints could be a point of free variation in some language, through the *crucial non-ranking* of the relevant constraints. There seems to us to be too much descriptive looseness and too little explanatory payoff with this approach, under any plausible definition of "constraint tie".

## 2.6 Summary

Complementizers in English embedded clauses are only optionally present, except under certain conditions when they are either obligatorily present or obligatorily absent. The optionality itself is due to the purely functional nature of the values of the [COMP] feature, its arbitrary specification in the input, and the faithfulness constraint FAITH[COMP]. When imposed upon by conflicting markedness constraints such as T-GOV, PURE-EP, and T-LEX-GOV, FAITH[COMP] gives way and there is loss of optionality in just those contexts that the markedness constraints are sensitive to, and optionality otherwise.

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<sup>8</sup> In the case of complementizers, this prediction seems to be disconfirmed by languages such as Spanish or French in which the complementizer is generally obligatory in declarative complements. But one could, of course, posit a structural difference between the declarative complements of English and those of Spanish and French, as Vikner (this volume) does, such that the winning candidate with the complementizer in Spanish and French is somehow distinct from the corresponding (losing) candidate in English.

### 3. English vs. Norwegian

Like English *that*, the Norwegian complementizer *som* is generally optional in declarative complements and in relative clauses. The conditions under which it is not optional, somewhat distinct from the conditions in English noted above, are discussed and analyzed in detail by Keer (1996). We concentrate here on another point of difference between English and Norwegian; namely, the optionality of *wh*-relatives in English and their ungrammaticality in Norwegian (Taraldsen 1978, 1986; cf. Åfarli 1994).<sup>9</sup>

#### (10) Optional vs. impossible *wh*-relatives

<u>English</u>	<u>Norwegian</u>
a. the man [ <sub>CP</sub> <b>who</b> I know <i>t</i> ]	d. *mannen [ <sub>CP</sub> <b>hvem</b> jeg kjenner <i>t</i> ]
b. the man [ <sub>CP</sub> <b>that</b> I know <i>t</i> ]	e. mannen [ <sub>CP</sub> <b>som</b> jeg kjenner <i>t</i> ]
c. the man [ <sub>IP</sub> I know <i>t</i> ]	f. mannen [ <sub>IP</sub> jeg kjenner <i>t</i> ]

Following the analyses of Grimshaw (1997a) and Keer (1996), we assume that a *wh*-relative (10a,d) in these two languages — a headless CP with a *wh*-phrase in its specifier — incurs a violation of OB-HD, requiring that a projection have a head. This violation is forced by higher-ranked HD-LFT, requiring that a head be leftmost in its projections; HD-LFT is satisfied by complementizer-headed relatives (10b,e), but violated by a relative introduced by both a *wh*-phrase and a complementizer (cf. the Doubly-Filled Comp Filter; Chomsky & Lasnik 1977).


The violation of OB-HD incurred by *wh*-relatives is obviously tolerated in English, but not in Norwegian. We propose that this is a result of the different ranking of OB-HD with respect to another faithfulness constraint, FAITH[WH] (cf. FAITH-OP in Keer & Baković 1997).

(11) FAITH[WH]: The output value of [WH] is the same as the input value.

The feature [ $\pm$ WH] here stands for the presence vs. absence of a *wh*-phrase: a [+WH] input is faithfully realized by a clause with a *wh*-phrase, while a [-WH] input is faithfully realized by a clause without one.<sup>10</sup> FAITH[WH] must dominate OB-HD in English, since *wh*-relatives are optional in that language, but the opposite ranking must hold in Norwegian, since in this language *wh*-relatives are ungrammatical. This is shown in Table 8 and Table 9.

<sup>9</sup> We restrict our attention to argument relatives here; adjunct relatives, for instance, can and must be introduced by a *wh*-phrase in Norwegian as well as in English. See Keer & Baković 1997 for discussion and analysis.

<sup>10</sup> For recoverability reasons (see Keer & Baković 1997; cf. Pesetsky 1998), only argument relatives can be faithfully realized without a *wh*-phrase.

Input: [+WH] object relative clause	FAITH[WH]	OB-HD
a.  the man [ <sub>CP</sub> <b>who</b> I know <i>t</i> ]		*
b. the man [ <sub>IP</sub> I know <i>t</i> ]	*!	



Input: [-WH] object relative clause	FAITH[WH]	OB-HD
c. the man [ <sub>CP</sub> <b>who</b> I know <i>t</i> ]	*!	*
d.  the man [ <sub>IP</sub> I know <i>t</i> ]		

Table 8. *wh*-phrase optionality in English: FAITH[WH] » OB-HD

Input: [+WH] object relative clause	OB-HD	FAITH[WH]
a. mannen [ <sub>CP</sub> <b>hvem</b> jeg kjenner <i>t</i> ]	*!	
b.  mannen [ <sub>IP</sub> jeg kjenner <i>t</i> ]		*


Input: [-WH] object relative clause	OB-HD	FAITH[WH]
c. mannen [ <sub>CP</sub> <b>hvem</b> jeg kjenner <i>t</i> ]	*!	*
d.  mannen [ <sub>IP</sub> jeg kjenner <i>t</i> ]		

Table 9. *wh*-phrase absence in Norwegian: OB-HD » FAITH[WH]

The winner for the [-WH] input in Table 8 and for both inputs in Table 9 is simply an IP with a trace in object position. We follow Doherty (1993) in assuming that the trace is bound by the head of the relative clause (*man* in English and *mannen* in Norwegian). Note that the traditional analysis of these relative clauses (Chomsky 1977) is that they are CPs with an empty operator in the specifier of CP. Nothing we have said so far hinges on this choice. However, the empty operator approach requires one more ranking for both languages: FAITH[COMP] must dominate OB-HD since the complementizer is optional in both Norwegian and English object relatives. This is shown in Table 10 for Norwegian.<sup>11</sup>

<sup>11</sup> There is a further complication with the empty operator analysis: in English relatives with subject extraction (see §2.3.1), there must be a trace in subject position for T-GOV to force the presence of a complementizer. To achieve this, empty operators must be forced to move. See Keer 1996 for discussion.

Input: [+COMP] object relative clause	FAITH[COMP]	OB-HD
a. ☞ mannen [ <sub>CP</sub> <i>Op som</i> [jeg kjenner <i>t</i> ]]		
b. mannen [ <sub>CP</sub> <i>Op</i> [jeg kjenner <i>t</i> ]]	* !	*
Input: [-COMP] object relative clause	FAITH[COMP]	OB-HD
c. mannen [ <sub>CP</sub> <i>Op som</i> [jeg kjenner <i>t</i> ]]	* !	
d. ☞ mannen [ <sub>CP</sub> <i>Op</i> [jeg kjenner <i>t</i> ]]		*

Table 10. *Complementizer optionality with empty operators: FAITH[COMP] » OB-HD*

Both languages exhibit complementizer optionality in non-*wh* object relative clauses (10b,c for English and 10e,f for Norwegian). Since the trace in object relatives is guaranteed to be lexically governed by the embedded verb, both T-GOV and T-LEX-GOV are satisfied by both relevant output candidates in both languages. Complementizer optionality results in both languages from the ranking of FAITH[COMP] above HD-RT, as shown in Table 11 (see also §2.4).

Input: [+COMP] embedded clause	FAITH[COMP]	HD-RT
a. ☞ the man [ <sub>CP</sub> <b>that</b> I know <i>t</i> ] mannen [ <sub>CP</sub> <b>som</b> jeg kjenner <i>t</i> ]		*
b. the man [ <sub>IP</sub> I know <i>t</i> ] mannen [ <sub>IP</sub> jeg kjenner <i>t</i> ].	* !	
Input: [-COMP] embedded clause	FAITH[COMP]	HD-RT
c. the man [ <sub>CP</sub> <b>that</b> I know <i>t</i> ] mannen [ <sub>CP</sub> <b>som</b> jeg kjenner <i>t</i> ]	* !	*
d. ☞ the man [ <sub>IP</sub> I know <i>t</i> ] mannen [ <sub>IP</sub> jeg kjenner <i>t</i> ]		

Table 11. *Complementizer optionality: FAITH[COMP] » HD-RT*

#### 4. Concluding Remarks

We have proposed here a general theory of optionality, adapting the tools of OT to the problem by admitting faithfulness constraints to distinctive formal

properties of syntactic structures. When conflicting markedness constraints are either irrelevant or subordinate to one of these faithfulness constraints, optionality of a formal property arises. When markedness is relevant and dominates faithfulness, the result is ineffability. We have attempted to show in this paper that these predicted interactional possibilities are borne out both within a language and across languages, lending support to the approach.

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