The Germanic languages and the SOV/SVO difference

VI. Accounting for Germanic Clause Structure - an OT-approach

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Language abbreviations

Af. = Afrikaans
Da. = Danish
Du. = Dutch
En. = English
Fa. = Faroese
Fr. = French
Fs. = Frisian
Ge. = (Standard) German
Ic. = Icelandic
Yi. = Yiddish

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Abstract

Hand-out I argued for the existence of a link between rich verbal inflection (e.g. Icelandic) vs. poor (e.g. Danish) and presence of V°-to-I° movement (e.g. Icelandic) vs. absence (e.g. Danish). Hand-outs IV & V argued that this link did not hold so straightforwardly for the OV-languages. Below, I will suggest that checking of distinctively marked person features, which takes place when the lexical element moves to the relevant functional X°, is the result of a violable constraint, **Check-Distinctive-Person**.

There is thus a reason to move a verb which is distinctively marked for person to the functional head Pers°, namely to avoid violation of this checking constraint. There is no such reason to motivate movement of a verb whose person features are not distinctively marked, because, irrespective of whether it moves to Pers° or not, it does not violate this constraint.

The violability of the checking constraint makes it possible to integrate OV-languages into the analysis, allowing for OV-languages with distinctive person marking like German and OV-languages without distinctive person marking like Afrikaans to have the finite verb in the same position, i.e. to lack V°-to-I° movement.

Grimshaw (2001, 2006) and Zepter (2003) replace/explain ″movement only as a last resort″ by means of the constraints **Head-Left** and **Head-Right**, and I will argue that by adding another headedness constraint, **Pred-Right** (″predicate head right″), the VO/OV difference across the Germanic languages may be accounted for, while still allowing for Germanic OV-languages differing from consistent head-final languages like Turkish and Japanese.

The analysis predicts six different language types, where only five are found. In section 3, it is shown how a particular application of Smolensky′s (1995, 1997) ″local constraint conjunction″ may remedy this.

Section 4 will show how the difference between embedded clauses and V2 clauses can be derived by means of the constraint **obligatory heads**.

Section 5 concentrates on English, and argues that modern English is unique in that there are two different types of finite verbs with different syntax, and also that the two verb types should be taken to be thematic and non-thematic verbs, rather than main and auxiliary verbs (cf. Roberts 1985).

A comprehensive analysis is given of the complex syntax of these two types of English finite verbs (also as compared to finite verbs both in languages with and languages without V°-to-I° movement) in terms of violable (and potentially conflicting) constraints, in particular the following three:

- **Verb-in-V°** (all verbs should be base-generated in V°),
- **V°-Right** (elements inserted under V° should be to the right of their XP-sisters)
- **Head Movement Constraint** (HMC, heads may not `skip′ other heads when they move, e.g. verbs should not skip over negation on their way to I° or C°)

As in Vikner (2001b), it will be argued that whereas *do*-insertion in negated clauses results from the **HMC** being less violable than **Verb-in-V°**, *do*-insertion in interrogative clauses results from the **V°-Right** being less violable than **Verb-in-V°**, and therefore there could be a language with *do*-insertion in one but not the other case. This is supported by the diachronic developments from Middle English to modern English, where *do*-insertion in questions seems to slightly predate *do*-insertion in negated clauses.

The previous stage, Middle English, and the subsequent loss of V°-to-I° movement (which as stated above was linked to developments in the inflectional system) will be accounted for in terms of a different constraint, **Check Person Inflection**.

0.   Introduction to Optimality Theory

0.1   Central ideas of Optimality Theory

Probably the major characteristic of optimality theory (cf. e.g. Prince & Smolensky 1993/2004, Grimshaw 1997, Kager 1999, Samek-Lodovici 2007, and the papers in Legendre et al. 2001, and in Müller & Sternefeld 2001) is that constraints are taken to be relative ("soft") rather than absolute ("hard"):

(1)   a. **ABSOLUTE**: "If a sentence violates constraint C, it is ungrammatical"

     b. **RELATIVE**: "That a sentence violates constraint C may be bad, but not as bad as if it had violated constraint B, which again is less bad than if it would violate constraint A"

In other words: Although there is a price to be paid every time a constraint is violated, the price is not always the grammaticality of the sentence in question.

     Violability is one of four ideas central to optimality theory (from Grimshaw 1997:373):

(2)   a.   **Constraints may be violated**

     b.   **Constraints are ordered in a hierarchy**
          (A grammar is a particular ordering of constraints.)

     c.   **Constraints are universal**
          (In all languages, the same constraints apply, except that they are ordered differently from language to language. Language variation is variation in the constraint hierarchy.)

     d.   **Only the optimal candidate is grammatical**
          (All non-optimal candidates are ungrammatical. The optimal candidate of two is the one with the smallest violation of the highest constraint on which the two candidates differ.)

The hierarchical ordering of constraints means that a violation of constraint A is more "expensive" than a violation of constraint B. If a particular candidate violates constraint A and another candidate violates constraint B, the second is less expensive and thus more optimal. If there are no other candidates, the candidate that violates only constraint B is optimal and therefore grammatical. If there is a candidate that violates neither A nor B but only e.g. constraint Z, this candidate will be even less expensive, hence optimal and grammatical.

That not all constraints are respected on the surface ("surface-true") makes it possible for constraints to conflict with each other. This again makes it possible to formulate more general (universal) constraints than is otherwise possible in generative grammar.

     In Grimshaw's (1997:399) words: "Maximally general principles will inevitably conflict. The alternative is to formulate more specific principles which are designed never to conflict, and one price is generality. Only by allowing constraints to conflict can we avoid building the effects of every principle into all of the others that it potentially conflicts with."

     Speas (1997:183) makes the same point: "The inviolability of the […] principles is purchased at the price of complicating them". Speas then goes on to point out that even the principles of Principle and Parameter Theory are not inviolable:

(3)

Principle	Essence	Hedge
Satisfy	All syntactic features must be satisfied …	… overtly if they are `strong' and covertly at Logical Form if they are weak.
Full Interpretation	There can be no superfluous symbols in a representation …	… except symbols which delete before the interface level.
Extended Projection Principle	All clauses must have a subject …	… except for languages which lack overt expletives.
Case Filter	An NP must have Case …	… unless it is null.
Binding Principle A	An anaphor must be bound in its governing category …	… unless it is one of a special class of anaphors which need not be bound.
Binding Principle B	A pronoun must be free in its governing category …	… unless it occurs in an idiom like *lose her temper*.
Binding Principle C	A name must be free …	… unless it is an epithet
X-bar Principles	Every category has a head, a specifier and a complement …	… unless a given head takes no complement or has no features to check with its specifier.
Projection Principle	Lexical properties cannot be changed in the course of a derivation …	… unless derivational morphology can take place in the syntax.
Empty Category Principle	A trace must be properly governed …	… where "proper government" means government by a lexical head or a close enough antecedent.
Theta Criterion	All thematic roles must be assigned to an argument position, and all argument positions must receive a thematic role …	… except that the agent of a passive my be absorbed by the verb, and the thematic roles of nouns need not be syntactically realised.
Subjacency	Movement cannot skip potential landing sites …	… unless moving a "D-linked" *wh*-phrase.

(Speas 1997:184, (6.24))

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Instead of writing into each single principle the conditions under which it is violable (the ″hedges″), we should pay more attention to violability and give it a more central role. The Minimalist programme (Chomsky 1995) pays more attention to violability than Principles and Parameters did, in so far as it has a whole group of principles which are violable, the ″Economy considerations″. However, also here it is written into each single principle (cf. the boldface parts below) when it must be violated in order for some other and more important principle not to be violated:

(4)   **Economy Principles**
   Least Effort   Make the **fewest number of moves possible**.
   Procrastinate   Do not move overtly **unless overt movement is forced**.
   Greed   Do not move X **unless X itself has a feature that is satisfied via that movement**.
   Minimality   Movement must be to the **closest possible landing site**.
   Minimize Chain Links   Long-distance dependencies must be **as short as possible**.   (Speas 1997:185, (6.25))

Like Speas and other proponents of OT, I think that OT is simpler and more elegant, because it directly accounts for the interaction between violable constraints, and therefore makes it unnecessary to write the conditions into the individual constraints, and also because it allows more complicated types of interaction than the Minimalist framework does, even if certain implementations of Minimalism differ from Chomsky (1995) precisely in assigning a more central role to violability, see e.g. Bobaljik (1995:351).

Finally, it should be pointed out that the above references to violability of the constraints of the Principles and Parameters framework and of the Minimalist framework should only be taken to show that even these frameworks have to allow violability. I do not mean to suggest that OT absolutely has to incorporate violable versions of principles suggested in these frameworks.

Grimshaw (1998:12) makes this point very strongly: ″Early work in OT syntax has often followed the strategy of taking existing constraints and examining the issue of whether they are violable (e.g. Grimshaw, Müller, Vikner, etc.). This strategy, while often useful, can also be dangerous. It is highly unlikely that, while pursuing theories of inviolable principles, researchers have found the very constraints that a theory of violability must posit. The very commitment of OT to general and primitive constraints is inconsistent with inviolability, and for this reason, relatively standard works on linguistic principles can be a source of OT syntactic constraints only of the least interesting kind. Many of the constraints proposed in the OT syntax literature will require significant further analysis.″

While I agree with this in principle, I think that it is worth remembering that Principles and Parameters Theory and Minimalism also strive for generality. Thus, although Optimality Theory linguists should of course try to see if OT allows even higher generality, it should not be counted as a strong argument against a formulation of a particular constraint that it had/has a similar formulation in Principles and Parameters Theory or in Minimalism.

0.2   A non-linguistic example: the leap year rule

Consider the computation of leap years as a non-linguistic example of the benefit of being able to formulate violable constraints that conflict. The following formulation of the leap year rule shows how exceptions may be built into a rule in order to keep it non-violable:

(5)   Leap years are those years divisible by 4, EXCEPT centesimal years, which are common UNLESS divisible by 400.
> (from the entry "Julian and Gregorian Calendar" in the electronic version of *The World Almanac and Book of Facts 1995*, Funk & Wagnalls, New York, emphasis mine)

Given a system of violable constraints of different priorities, we do not have to take (5) as one monolithic rule. Instead we can tease apart the three independent constraints that make up (5):

(6)   a.   Years divisible by 4 have 366 days.
       b.   Years divisible by 100 have 365 days.
       c.   Years divisible by 400 have 366 days.

Furthermore, (5) also makes the following presupposition:

(7)   Years which do not have 366 days have 365 days.

From an OT point of view, we can interpret this as the following four constraints, where each one overrides (i.e. "is ranked higher than") the former:

(8)   a.   Years have 365 days.
       b.   Years divisible by 4 have 366 days.
       c.   Years divisible by 100 have 365 days.
       d.   Years divisible by 400 have 366 days.

Such constraints are arranged in a tableau like the following, where the higher ranking a constraint has, the further to the left it occurs. The "input" is a particular year, and the "candidates" are the different potential lengths of the year. This reflects that to be able to apply the rule in (5) one has to supply a year, and then the result will be the length of that particular year. ▶▶ marks the optimal candidate (for technical reasons, it replaces the pointing finger), * a constraint violation, and *! a fatal constraint violation (i.e. the constraint violation that caused this particular candidate to be less than optimal):

(9)

Input: 2009	Years divisible by 400 have 366 days	Years divisible by 100 have 365 days	Years divisible by 4 have 366 days	Years have 365 days
a. 364 days				*!
b.▶▶365 days				
c. 366 days				*!

Candidate (9b) wins, because it does not violate any constraints, it is not only optimal, it is perfect. Candidates (9a,c) lose, because they violate the constraint "Years have 365 days". The other constraints do not apply, 2009 is not divisible by 400, 100, or 4.
        Consider now the year 2008 as input:

(10) Input: 2008	Years divisible by 400 have 366 days	Years divisible by 100 have 365 days	Years divisible by 4 have 366 days	Years have 365 days
a. 364 days			*!	*
b. 365 days			*!	
c.▶▶366 days				*

Also here candidates (10a,c) violate the lowest ranked constraint ″Years have 365 days″. However, as candidate (10b) violates a higher ranked constraint, ″Years divisible by 4 have 366 days″, it is less optimal than candidate (10c). All three candidates (10a,b,c) violate at least one constraint, i.e. there is no perfect candidate. Nevertheless, there is a candidate which is better than the others, i.e. an optimal candidate. Here candidate (10c) is more optimal than (10b) because it does better on (i.e. it has less violations of) the highest constraint on which the two candidates differ, viz. ″Years divisible by 4 have 366 days″. The same is the case when (10c) is compared to (10a).

Consider now the year 1900 as input:

(11) Input: 1900	Years divisible by 400 have 366 days	Years divisible by 100 have 365 days	Years divisible by 4 have 366 days	Years have 365 days
a. 364 days		*!	*	*
b.▶▶365 days			*	
c. 366 days		*!		*

As with the input ″2008″, candidates (11a,c) violate the lowest ranked constraint ″Years have 365 days″, and candidates (11a,b) violate the higher ranked constraint ″Years divisible by 4 have 366 days″. This is not relevant however, because as both candidate (11a) and candidate (11c) violate a higher ranked constraint, ″Years divisible by 100 have 365 days″, they are less optimal than candidate (11b), which does not violate this constraint.

Consider finally the year 2000 as input:

(12) Input: 2000	Years divisible by 400 have 366 days	Years divisible by 100 have 365 days	Years divisible by 4 have 366 days	Years have 365 days
a. 364 days	*!	*	*	*
b. 365 days	*!		*	
c.▶▶366 days		*		*

Here only the highest ranked constraint is relevant: As both candidate (12a) and candidate (12b) violate the highest ranked constraint, ″Years divisible by 400 have 366 days″, they are less optimal than candidate (12c), which does not violate it.

Although this example is non-linguistic, it still illustrates two important points about OT: That constraints are violable and that the winner is the optimal candidate.

In order to illustrate a third point, namely that the ranking of the constraints may be crucial, consider the tableau for the input 2000 again. If we re-rank the two highest ranked constraints, the result changes:

(13)

INCORRECT RANKING ! Input: 2000	Years divisible by 100 have 365 days	Years divisible by 400 have 366 days	Years divisible by 4 have 366 days	Years have 365 days
a. 364 days	*!	*	*	*
b.►►365 days		*	*	
c. 366 days	*!			*

Here there could be no exceptions to the generalisation that years divisible by 100 have 365 days, and so we would incorrectly expect the year 2000 to have 365 days. If we formulate the leap year rule(s) as in (8), it is important that the four constraints are ranked as in (9)-(12), and not as in (13).

 This way of computing leap years thus illustrated three points about Optimality Theory: That constraints are violable, that the winner is the optimal candidate, and that constraints are ranked.

0.3   A linguistic example: V°-to-I° movement in Vikner (2001b)

Consider as a linguistic example the way the differences concerning V°-to-I° movement (cf. chapter 1 above) in English and French were derived in Vikner (2001b:432, (T14.4), 436, (T14.9)).

 It was assumed that there were two different movements, namely either V°-to-I° movement, as in (14a)/(15a), or movement of the inflectional ending from I° to V°, as in (14b)/(15b).

(14)

English (& **Danish**)		Lx-Mv	Pr-Bd
a. *... if she saw$_i$ really v$_i$ the film		*!	
b.►► ... if she v$_i$ really saw$_i$ the film			*

(15)

French (& **Icelandic**)	Pr-Bd	Lx-Mv	
a.►► ... si elle voyait$_i$ vraiment v$_i$ le film		*	
b. *... si elle v$_i$ vraiment voyait$_i$ le film	*!		

The two relevant constraints were

(16)   a.   Lx-Mv = **No Movement of a Lexical Head**: violated when a verb leaves V°.

      b.   Pr-Bd = **Proper Binding**: violated when a trace (in I° here) c-commands its antecedent (in V° here).

This analysis can be paraphrased as follows: In English it is less bad for a trace to c-command its antecedent, i.e. to move something downward in the tree, than it is to move a lexical category, i.e. the main verb. In French, on the other hand, it is less bad to move the verb out of VP than it is to move something downward in the tree.

 (14) and (15) illustrate the four points in (2):

 Constraints are **violable**, (2a), cf. that both (14b) and (15a) violate a constraint and yet they are grammatical.

 Constraints are **ordered** in a hierarchy, (2b), and they are **universal**, (2c), cf. that the same constraints are found in English and French, but in a different order of priority.

Finally, only the **optimal** version of a sentence is grammatical, (2d), cf. that both (14a) and (15b) are ungrammatical, because they are less optimal than their competitors (14b) and (15a). (14a) has more violations than (14b) of the highest ranking constraint on which they differ, namely Lx-Mv. (15b) has more violations than (15a) of the highest ranking constraint on which they differ, namely Pr-Bd.

Compared to the leap year case in the previous subsection, (14) and (15) thus illustrate two further points, namely that constraints are universal and that different grammars have the same constraints in different rankings.

Finally, as (14) and (15) deal with data which will also be discussed later (see sections 1 and 2 below), they provide a basis for comparison between different accounts of the same phenomenon, V°-to-I° movement. The main reason why I have chosen to revise the analysis in (14) and (15) is that there is no link whatsoever to the strength of inflection. Icelandic and French might as well have had the ranking in (14) and English and Danish might as well have had the ranking in (15).

0.4   The candidates

The competing candidates are different realisations of the same input, or, if you like, different versions of the same sentence. ″The *input* for a verbal extended projection is a lexical head plus its argument structure and an assignment of lexical heads to its arguments, plus a specification of the associated tense and aspect″, Grimshaw (1997:375-376). For a more radical approach, in which it is argued that the input can be dispensed with, see e.g. Heck et al. (2002).

A typical set of competing candidates, in this case for a Danish object question is the following:

```
(17)   Da. a. *Ib købte hvor mange bøger?        Ib bought how many books?
           b. *Hvor mange bøger Ib købte?         How many books Ib bought?
           c.  Hvor mange bøger købte Ib?         How many books bought Ib?
           d. *Ib gjorde købe hvor mange bøger?   Ib did buy how many books?
           e. *Hvor mange bøger Ib gjorde købe?   How many books Ib did buy?
           f. *Hvor mange bøger gjorde Ib købe?   How many books did Ib buy?
           g.  ...
```

Now it is up to the Optimality Theory linguist to figure out which constraints are relevant here and how they are ranked, so that only (17c) is optimal in Danish (and only (17f) is optimal in English).

In OT, the grammar is seen as having two main components, GEN (the generating component) and EVAL (the evaluation component). The candidates are generated by GEN and then evaluated by EVAL. In other words, what is illustrated by the OT tableaux is EVAL. GEN is much less of a departure from other variants of generative grammar: Constraints active here will be non-violable, as they constrain which candidates are generated, and thus potential candidates that violate a constraint in GEN will simply not be generated.

0.5   Optionality and ungrammaticality

Optionality (i.e. the grammaticality of two different and competing candidates) is possible in this theory, but only under certain circumstances.

0.5.1   Identical constraint profiles

One such set of circumstances is that two different competing structures have **exactly the same constraint profile** (i.e. they violate the same constraints to the same extent), and this constraint

profile is the optimal constraint profile. In Vikner (2001b: 435, (T14.8)), I use identical constraint profiles to account for the optionality of complementisers in English and mainland Scandinavian embedded clauses. Although also Grimshaw (1997) and many others use this, it has to be admitted that this kind of situation is extremely unlikely to obtain, as it is extremely unlikely that two competing structures violate all constraints to exactly the same extent.

0.5.2   Tied constraints

Another way of accounting for optionality is to posit **constraint ties** (see Müller 1999 for a detailed discusssion of this and for further relevant references), i.e. saying that violating constraint A costs exactly the same as (is neither more nor less expensive than) violating constraint B. The notation is as follows: >> means "is ranked higher than" whereas <> means "is ranked the same as / is tied with". The major problem with constraint ties is that the number of possible grammars, which already is not exactly small, increases enormously.

 With two constraints, the number of possible grammars without constraint ties is 2 `(a >> b, b >> a)`, with constraint ties it rises to 3 `(a >> b, b >> a, a <> b)`. With three constraints, the number of possible grammars without constraint ties is 6, whereas with constraint ties it rises to 13. With four constraints, the number of possible grammars without constraint ties is 24:

(18)

a >> b >> c >> d,	b >> a >> c >> d,	c >> a >> b >> d,	d >> a >> b >> c,
a >> b >> d >> c,	b >> a >> d >> c,	c >> a >> d >> b,	d >> a >> c >> b,
a >> c >> b >> d,	b >> c >> a >> d,	c >> b >> a >> d,	d >> b >> a >> c,
a >> c >> d >> b,	b >> c >> d >> a,	c >> b >> d >> a,	d >> b >> c >> a,
a >> d >> b >> c,	b >> d >> a >> c,	c >> d >> a >> b,	d >> c >> a >> b,
a >> d >> c >> b,	b >> d >> c >> a,	c >> d >> b >> a,	d >> c >> b >> a

whereas with constraint ties it rises to no less than 75:

(19)

a >> b >> c >> d,	a <> b >> c >> d,	a >> b <> c >> d,	a >> b >> c <> d,
a >> b >> d >> c,	a <> b >> d >> c,	a >> b <> d >> c,	a >> c >> b <> d,
a >> c >> b >> d,	a <> c >> b >> d,	a >> c <> d >> b,	a >> d >> b <> c,
a >> c >> d >> b,	a <> c >> d >> b,	b >> a <> c >> d,	b >> a >> c <> d,
a >> d >> b >> c,	a <> d >> b >> c,	b >> a <> d >> c,	b >> c >> a <> d,
a >> d >> c >> b,	a <> d >> c >> b,	b >> c <> d >> a,	b >> d >> a <> c,
b >> a >> c >> d,	b <> c >> a >> d,	c >> a <> b >> d,	c >> a >> b <> d,
b >> a >> d >> c,	b <> c >> d >> a,	c >> a <> d >> b,	c >> b >> a <> d,
b >> c >> a >> d,	b <> d >> a >> c,	c >> b <> d >> a,	c >> d >> a <> b,
b >> c >> d >> a,	b <> d >> c >> a,	d >> a <> b >> c,	d >> a >> b <> c,
b >> d >> a >> c,	c <> d >> a >> b,	d >> a <> c >> b,	d >> b >> a <> c,
b >> d >> c >> a,	c <> d >> b >> a,	d >> b <> c >> a,	d >> c >> a <> b,
c >> a >> b >> d,			
c >> a >> d >> b,			
c >> b >> a >> d,			
c >> b >> d >> a,	a <> b <> c >> d,	a <> b >> c <> d,	a >> b <> c <> d,
c >> d >> a >> b,	a <> b <> d >> c,	a <> c >> b <> d,	b >> a <> c <> d,
c >> d >> b >> a,	a <> c <> d >> b,	a <> d >> b <> c,	c >> a <> b <> d,
d >> a >> b >> c,	b <> c <> d >> a,	b <> c >> a <> d,	d >> a <> b <> c,
d >> a >> c >> b,		b <> d >> a <> c,	
d >> b >> a >> c,		c <> d >> a <> b,	
d >> b >> c >> a,			
d >> c >> a >> b,			a <> b <> c <> d
d >> c >> b >> a,			

As grammars of natural languages are very likely to contain much more than four constraints, allowing constraints to be tied would make the number of possible grammars rise enormously, which then complicates correspondingly the task of the language-acquiring child (which is basically the task of ruling out all potential grammars except one).

0.5.3 Faithfulness

Yet another way of accounting for optionality is to exploit the interaction between two different types of constraints: **markedness** constraints and **faithfulness** constraints (see e.g. Kager 1999:9-10). Markedness constraints are constraints that penalise a particular situation (e.g. syllables with a coda, or an ungoverned trace, or an empty X°), whereas faithfulness constraints penalise disparity between input and output.

Consider the case of *if* and *whether*. In infinitives, (20), only *whether* is possible, whereas in finite clauses like (21), both may occur:

```
(20)  En.  a.   He doesn't know whether to go to the movies
           b. *He doesn't know if      to go to the movies     (Kayne 1991:665, (51), (52))

(21)  En.  a.   He doesn't know whether he should go to the movies
           b.   He doesn't know if      he should go to the movies
```
                                                    (Kayne 1991:665, (53), (54))

We can account for the impossibility of (20b) by reference to (20a), i.e. by saying that there is a constraint that (20b) violates, but which (20a) does not violate. The constraint could be something like

(22)   No *if* in infinitives

(a similar constraint might apply to the complementiser *that*). This is sometimes known as **neutralisation**, because the difference between *if* and *whether* is neutralised in infinitives.

This solution would of course work only if (20a) and (20b) compete with each other. And this again would mean that also (21a) and (21b) would compete with each other. And if they do, how come both (21a) and (21b) are grammatical?

One option is of course that (21a) and (21b) have exactly the same constraint profile, i.e. that they violate exactly the same constraints to exactly the same extent, cf. 4.5.1 above. It is, however, extremely unlikely that finite *if* and finite *whether* clauses have exactly the same constraint profile. The reason for this is that there are many differences between *if* and *whether* (in addition to (20)), even in finite clauses. The data below are based on Quirk et al. (1985:1053).

There are certain matrix expressions which show a preference for *whether* over *if*:

```
(23)  En.  a.   It is not irrelevant whether Denmark beats Germany
           b. ?It is not irrelevant if      Denmark beats Germany

(24)  En.  a.    You have to justify whether your journey is really necessary
           b. ?*You have to justify if      your journey is really necessary
```

Whereas both *if* and *whether* are possible if the embedded clause is in object position, only *whether* is possible when the clauses is in subject position:

```
(25)  En.  a.    It is not clear to me whether she likes the present
           b.    It is not clear to me if      she likes the present

(26)  En.  a.    Whether she likes the present is not clear to me
           b. ?*If      she likes the present is not clear to me
```

Apposition clauses allow only *whether* (i.e. the embedded clause is an apposition to *the question*, not the complement of *the question*):

```
(27)  En. a.   You have to answer my question, whether I can count on your vote
          b. ?*You have to answer my question, if      I can count on your vote
```

Also subject predicate clauses allow only *whether*:

```
(28)  En. a.   My main problem now is whether I should ask for another loan
          b. ?*My main problem now is if      I should ask for another loan
```

Clauses which are the complement of a preposition only allow *whether*:

```
(29)  En. a.   It all depends on whether Denmark beats Germany
          b. ?*It all depends on if      Denmark beats Germany
```

Finally, whereas both *if* and *whether* are possible if the embedded clause is followed by *or not*, only *whether* is possible when *or not* precedes the subject of the embedded clause:

```
(30)  En. a.   He doesn't know whether he should go to the movies or not
          b.   He doesn't know if      he should go to the movies or not
```

```
(31)  En. a.   He doesn't know whether or not he should go to the movies
          b. ?*He doesn't know if      or not he should go to the movies
```

In other words: Because it is very unlikely that (finite) *if* and *whether* clauses have exactly the same constraint profile, and because we still want to account for the impossibility of (20b) by reference to (20a), i.e. by saying that there is a constraint which is violated by (20b), but not by (20a), we have to think of something else to ensure that (21a) and (21b) are both optimal[1].

If (21a) and (21b) cannot be optimal in the same competition, they have to be optimal in two different competitions. But if there are different competitions involved, i.e. one for *whether* and another one for *if*, we will need *whether* to win both the *whether*-competition and the *if*-competition, when the clause involved is infinitival, otherwise we could not prevent (20b) from being grammatical.

The idea is therefore to introduce a **faithfulness** constraint which will ensure that *if* wins the *if*-competition, and *whether* wins the *whether*-competition. Such a faithfulness constraint might be

(32)   Subordinating conjunctions present in the input must also be present in the output.

This would prevent *if* from winning the *whether*-competition, (21a), and *whether* from winning the *if*-competition, (21b). The difference between the two competitions would be whether their input includes *if* or *whether*:

---

[1]Haegeman & Guéron (1999:176, 319) suggest that *whether* is in CP-spec whereas *if* is in C°. This is compatible with *whether* being a *wh*-element (*wh*-elements are typically XPs), and with *whether* not having a selectional preference for finite or infinitival sentences. Haegeman & Guéron (1999:176) take it that such preferences can only be expressed by a C° element, which to them is a selecting X°. However, of course we now have to explain why *if* and *whether* cannot cooccur (e.g. by saying that *if* requires an empty operator in its specifier position, cf. Vikner 1995a:123, Haegeman & Guéron 1999:180).

If this account is on the right track, it makes it (even) more likely that there are two different competitions involved in the various cases above, an *if*-competition and a *whether*-competition.

(33) Input: *whether* + finite clause

				(32) Faith	
a.▸▸ ...	<u>whether</u> he should go to the movies				= (21a)
b *...	<u>if</u> he should go to the movies			*!	= (21b)

(34) Input: *if* + finite clause

				(32) Faith	
a. *...	<u>whether</u> he should go to the movies			*!	= (21a)
b.▸▸ ...	<u>if</u> he should go to the movies				= (21b)

Of couse all this only works if no higher ranked constraint intervenes. Such a higher ranked constraint could be the markedness constraint (22) above, i.e. ″no *if* in infinitives″. When (22) is ranked higher than the faithfulness constraint, the result would be the neutralisation case, namely that *whether* would win both the infinitival *if*-competition and the infinitival *whether*-competition:

(35) Input: *whether* + infinitival clause

		(22) Marked	(32) Faith	
a.▸▸ ...	<u>whether</u> to go to the movies			= (20a)
b *...	<u>if</u> to go to the movies	*!	*	= (20b)

(36) Input: *if* + infinitival clause

		(22) Marked	(32) Faith	
a.▸▸ ...	<u>whether</u> to go to the movies		*	= (20a)
b. *...	<u>if</u> to go to the movies	*!		= (20b)

0.5.4 Ungrammaticality

Notice that we have now also outlined a potential answer to the different question of **ungrammaticality**, i.e. how to account for sentences that seem not to have any well-formed versions (see e.g. Legendre et al. 1998:254).

The obvious problem for an optimality account here is that one version (candidate) of every sentence has to be the optimal one and hence grammatical. Given the above-mentioned distinction between markedness constraints and faithfulness constraints, the optimal output of a particular input, e.g. an infinitive question with *if*, may in some languages be a faithful candidate (e.g. in Italian) and in other languages a candidate that violates a faithfulness constraint (by not containing *if* or by being finite). In the latter case, the optimal candidate for a particular input (*if* + infinitive) may be identical to the optimal candidate for a different input, e.g. to *whether* + infinitive in English, (20a), or to a finite embedded question in Danish or German, which do not have infinitival embedded questions of the type in (20a), only finite embedded questions like (21).

1. Constraints

1.1 Constraints related to richness of inflection

Assume an internal structure of a finite verb as in (37), which reflects a basic clause structure as in (38) (which is equivalent to e.g. the clause structure suggested by Belletti 1990: 28, (7), with ″person″ replacing ″agreement″):

(37)   [[[verb stem] tense affix] person affix]

(38)
```
                CP
          ┌─────┴─────┐
         C°          PersP
               ┌──────┴──────┐
             Pers°         TenseP
                      ┌──────┴──────┐
                    Tense°          VP
                              ┌─────┴─────┐
                             V°
```
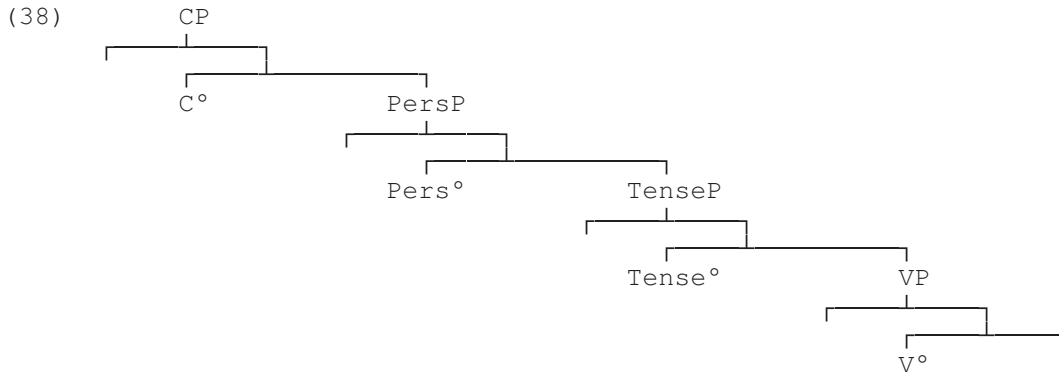
I assume that Pers° and Tense° together correspond to what I referred to as I° in the previous hand-outs. I further assume that medial adverbials are adjoined to VP. This means that whereas it can be told (from its position relative to a medial adverbial) whether a verb is in V° or in Tense°/Pers°, it has no empirical consequences whether a verb is in Tense° or in Pers°. I shall therefore continue to refer to I° rather than to Tense°/Pers° in connection with discussion of data.

What seems to count (at least for the VO-languages, cf. hand-out I) is not whether or not a feature is marked but whether or not it is **distinctively** marked. An inflectional feature is distinctively marked if it is possible to obtain a different form by varying the feature in question (e.g. person) with respect to the X° that it attaches to (e.g. Tense°) irrespective of the actual value of the latter. In other words, inflection for person is distinctive with respect to inflection for tense if regardless of which tense is chosen, a different verb form may be obtained by changing only the feature specification for person.

This formulation of distinctiveness forms part of three constraints in the OT account to be outlined below. Two of these constraints deal with morphological realisation, whereas the third one is of a more syntactic nature:

(39)   **Pers-Not-Dist = Features for person are not distinctively marked**
         A subcase of a more general constraint ″features are not distinctively marked″, which again is a subcase of ″linguistic expressions should contain as little material as possible″.

(40)   **Pers-Dist = Features for person are distinctively marked**
         A subcase of a more general constraint ″features are distinctively marked″, which again is a subcase of ″linguistic expressions should convey as much information as possible″.

(41)   **Check-Dist-Pers = Pers° checks distinctively marked person features**
         There must be a head that is distinctively marked for person, and whose chain includes both Pers° and V°. In other words, Pers° must contain a head (or the trace of a head) that is distinctively marked for the verbal feature Person.

In principle, eight different constraint profiles should be possible with three constraints if we only distinguish between whether a constraint is violated or not. Five of these eight are impossible, leaving only three possibilities, namely (42a): strong (i.e. distinctively marked) features which are checked, (42b): strong features which are not checked, and (42c): weak features (i.e. features which are not distinctively marked).

(42)	Pers Dist	Pers Not Dist	Check Dist Pers
POSSIBLE:			
a. strong features which are checked		*	
b. strong features which are not checked		*	*
c. weak features	*		*
IMPOSSIBLE:			
* d. weak features which do not violate checking	*		
* e. features both weak and strong			
* f. features both weak and strong			*
* g. features neither weak nor strong	*	*	
* h. features neither weak nor strong	*	*	*

The other possibilities either require that non-distinctive ("weak") features do not violate checking, (42d), which is impossible, as the checking constraint, (41), can only be observed by a verb with distinctive ("strong") features, or they require that features are either both distinctive and non-distinctive, (42e,f), or neither distinctive or non-distinctive, (42g,h), both of which are also impossible.

By positing both **Pers-Not-Dist** and **Pers-Dist**, this analysis is compatible with the view that constraints from different modules should not interact directly. In other words, constraints from different modules should not be able to rerank, cf. that all that is needed is that the morphological constraint **Pers-Dist** is reranked with respect to **Pers-Not-Dist**, not with respect to any of the syntactic constraints. This amounts to saying that the syntax has to work with what the morphology (or the lexicon) provides. See also e.g. Müller (1997), who suggests not only that there is such compartmentalisation, but also that there is inherent ranking between some components: salience (semantics/pragmatics) > > prosody/stress > > segmental phonology. Assuming that it is not the individual morphological and syntactic constraints that are ranked with respect to each other, but all of morphology and all of syntax that is ranked, we have the following two options:

(43)   a.   Morphology > > Syntax   "If there is rich morphology, then move the verb"
          b.   Syntax > > Morphology   "If the verb moves, then make the morphology rich"

I take (43b) to be impossible: The language-acquiring child has to lexically acquire the inflectional morphology of her native language morpheme by morpheme, she cannot simply deduce the existence of "rich" morphology. If morphological richness could be caused by such an inference, we would expect the inflectional morphemes to vary much more from speaker to speaker than they actually do. Furthermore, under (43b), loss of V°-to-I° movement should be a potential cause of loss of inflectional morphology. This would predict much more abrupt losses to be possible than what you might call "normal erosion". However, none of the Germanic languages which have lost V°-to-I° movement show any such abrupt losses of inflectional morphology.

Hence the only viable alternatives to (43a) would seem to be either no connection at all between V°-to-I° movement and verbal inflectional morphology or only a very limited connection between them.

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1.2 Constraints related to directionality

The second type of constraints to be discussed are those related to directionality, i.e. the ones responsible for the difference between OV- and VO-languages.

I will assume that only a **lexical** X° (i.e. V°, P°, N°, Adj°/Adv°) can be right OR left of its XP-sister. **Functional** X°s on the other hand are universally left of their XP-sisters (as suggested e.g. in Kiparsky 1996:169). Assuming that specifiers are always left of their X′-sister, the only possible source of variation in the underlying structures is thus the order of lexical heads and their complements:

(44)

```
              CP
        ┌──────┴──────┐
        C°          PersP
              ┌───────┴───────┐
            Pers°           TenseP
                      ┌────────┴────────┐
                    Tense°            VP
                              ┌────────┴────────┐
                             V°                XP
```

as in (57a-h)

i.e. **VO**

(45)

```
              CP
        ┌──────┴──────┐
        C°          PersP
              ┌───────┴───────┐
            Pers°           TenseP
                      ┌────────┴────────┐
                    Tense°            VP
                              ┌────────┴────────┐
                             XP                V°
```

as in (57i-p)

i.e. **OV**
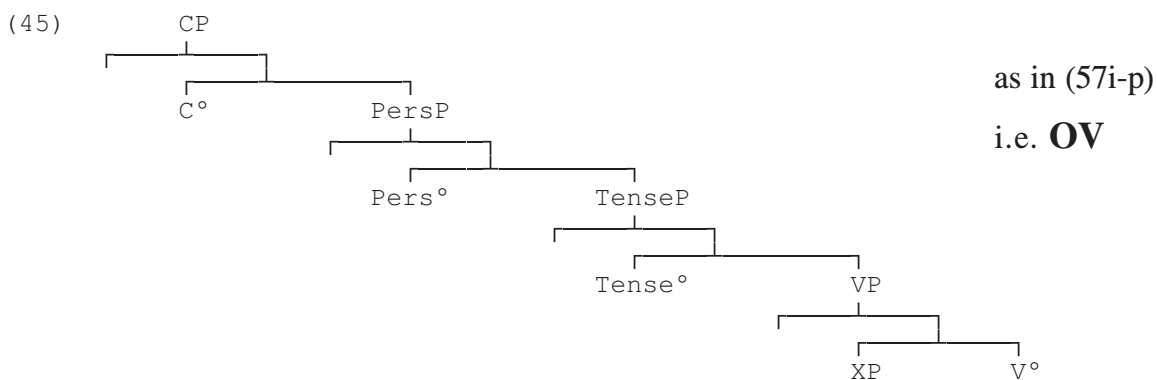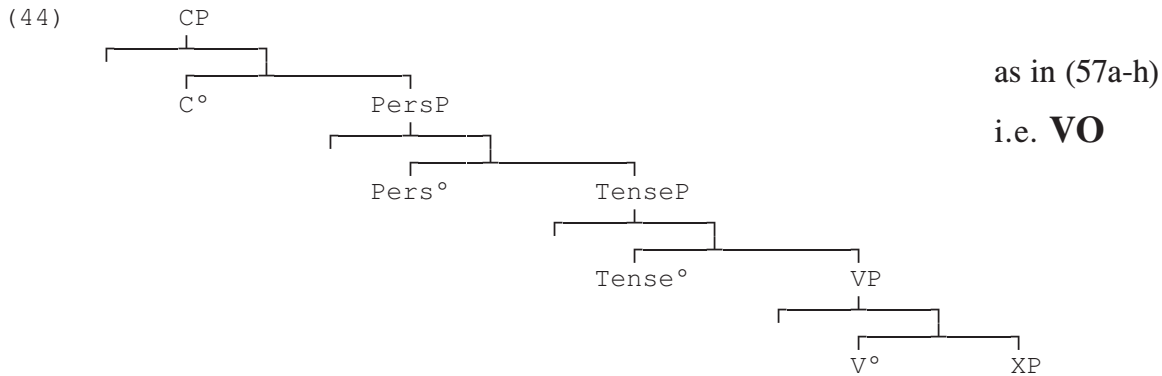
The approach taken here is directly based on Haider′s (1997:15, 2000:47, 2005:14) *Branching Constraint*.

When examined closely, the variation in directionality actually found turns out to be much more constrained than might have been expected. Given four lexical categories, V°, P°, N°, and Adj°, sixteen combinations are possible in theory, since each of these four categories may take its complement either to the left or to the right, independently of the other three categories. However, the combinations actually attested are much fewer (see also Haider 1993:39-43):

(46)   **Variation found in base order of lexical X° and their complements:**

N°	P°	V°	Adj°	
left	left	left	left	E.g. English, …
left	left	RIGHT	RIGHT	E.g. German, …
RIGHT	RIGHT	RIGHT	RIGHT	E.g. Turkish, …

The ″English type″ of languages also includes all the Scandinavian and all the Romance languages.

As argued in hand-outs II-V, the ″German type″ of languages also includes all other continental Germanic languages, e.g. Yiddish, Dutch, Afrikaans, West Flemish, Frisian, Swabian, and the three Swiss German variants from Sankt Gallen, Zürich, and Bern.

Finally, the ″Turkish type″ of languages presumably includes a number of different languages, e.g. Basque, Bengali, Hindi, Japanese, Kannada, Korean, Latin, and Quechua.

I propose to derive the (limited) variation in (46) above by assuming three relevant constraints, **X°-Left**, **Pred-Right**, and **X°-Right**, which are based on Grimshaw′s (2001, 2006) **Head-Left** and **Head-Right**. If it is assumed that the constraints in (47)-(49) apply to phonetically realised heads and their traces, the typology in (50) is predicted:

(47)   **X°-Left**   violated by any head which is right of its XP-sister

(48)   **Pred-Right**   violated by any V° or Adj° which is left of its XP-sister

(49)   **X°-Right**   violated by any head which is left of its XP-sister

Although there are six possible rankings of these constraints, there are actually only three different possible outcomes, corresponding to the three patterns in (46) above:

(50)   a. X°-Left > > Pred-Right > > X°-Right   →   left: N°/P°/V°/Adj°
        b. X°-Left > > X°-Right > > Pred-Right   →   left: N°/P°/V°/Adj°

        c. Pred-Right > > X°-Left > > X°-Right   →   left: N°/P° **AND** right: V°/Adj°
        d. Pred-Right > > X°-Right > > X°-Left   →   right: N°/P°/V°/Adj°

        e. X°-Right > > X°-Left > > Pred-Right   →   right: N°/P°/V°/Adj°
        f. X°-Right > > Pred-Right > > X°-Left   →   right: N°/P°/V°/Adj°

It might seem counterintuitive also to have traces count for alignment constraints like the ones in (47)-(49), but cf. that e.g. Chomsky (1993:35 = 1995:202) and Pesetsky (1997:142, 1998:360) consider a trace to be an unpronounced copy of the moved constituent.

By **Pred-Right**, I understand a constraint **Predicate-X°-Right**, which only applies to chains whose highest link is phonetically realised and which include a V° or a Adj°. It thus does not apply e.g. to a(n auxiliary) verb that is not inserted under V° (nor does it apply to nouns or prepositions).

I am here following the insight in Chomsky (1981:41) who suggests that verbs and adjectives have a lexical feature in common, viz. [+V], and that this feature may be taken to stand for ″predicate″. Van Riemsdijk & Williams (1986:42) refers to the property shared by the two [+V] categories as ″predicative″. Radford (1997:63-65) lists the following data, based on an observation in Stowell (1981:57, n17), as an argument in favour of verbs and adjectives forming a natural class:

(51)   a.   Verbs: ***un**do*, ***un**tie*, ***un**fold*, ***un**pack*
        b.   Adjectives: ***un**afraid*, ***un**friendly*, ***un**manly*, ***un**kind*
        c.   Nouns: *****un**fear*, *****un**friend*, *****un**woman*, *****un**convention*
        d.   Prepositions: *****un**inside*, *****un**by*, *****un**on*, *****un**from*

Similarly, it is observed in Fanselow & Felix (1987:68) that verbs and adjectives have in common that they may be modified by an adverbial. (Admittedly verbs and adjectives do not form a natural class in Jackendoff 1977:31, and Chomsky 1970:199 also explicitly argues against verbs and adjectives forming a natural class.)

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In (72) in section 4. below, I will introduce a further constraint, **Obligatory Heads**, which is violated by every completely empty X° (as opposed to an X° containing a trace). This constraint also plays a role in determining where X°s may be.

The situation with respect to the positioning of heads can now be summarised as follows:

(52) A functional head may
  a. be radically empty, in which case it violates **Obligatory Heads**, cf. (72) below.
  b. contain only a feature, e.g. Pers° and Tense°, but no phonetic material, in which case it violates none of **Obligatory Heads**, **Pred-Right**, **X°-Right**, **X°-Left**.
  c. contain phonetic material (or a trace thereof), in which case it violates **X°-Right** and possibly also **Pred-Right**. (GEN: non-lexical heads are left).

(53) A lexical head must
  a. not be radically empty (GEN, due to the definition of a lexical head).
  b. not contain only a feature (GEN, due to the definition of a lexical head).
  c. contain phonetic material (or a trace thereof), in which case it violates either **X°-Left** or **X°-Right** and potentially also **Pred-Right**.

Because non-lexical heads (i.e. all possible landing site heads) are always to the left of their XP-sister (GEN forces all non-lexical heads to be on the left), every step of every movement of a verb or an adjective causes an additional violation of **Pred-Right** and **X°-Right**, but no further violations of **X°-Left**. **Pred-Right** and **X°-Right** are thus also constraints on movement (cf. the function of the constraint **Stay** in other OT-analyses).

Because non-lexical heads (i.e. all possible landing site heads) are always to the left of their XP-sister (GEN forces all non-lexical heads to be on the left), every step of every movement of a verb inserted directly under a functional head causes an additional violation of **X°-Right**, but not one of **Pred-Right**: Only chains which include a V° or an Adj° count for **Pred-Right**.

2. Embedded clauses: V°-to-I° movement and VO vs. OV

The first actual examples to be considered here are embedded clauses (of a kind where main clause word order is not possible), e.g. embedded questions:

```
(54)  a. En.  ... if she really    saw the film                     VO, −V→I
      b. Da.  ... om hun virkelig  så  filmen                        VO, −V→I
      c. Fa.  ... um hon virkuliga sá  filmin                        VO, −V→I

(55)  a. Ic.  ... hvort hún  sá      áreiðanlega myndina             VO, +V→I
      b. Fr.  ... si    elle voyait en effet     le  film            VO, +V→I
      c. Yi.  ... oyb   zi   zet    take         dem film            OV, +V→I
          ... if    she  saw    really       the film

(56)  a. Af.  ... of  sy  die rolprent werklik     sien              OV, −V→I
      b. Du.  ... of  ze  de  film     werkelijk   zag               OV, −V→I
      c. Fs.  ... oft se  de  film     echt wol    seach             OV, −V→I
      d. Ge.  ... ob  sie den Film     tatsächlich sah               OV, −V→I
          ... if she the film     really      saw
```

Consider now the derivation of (54)-(56):

(57)   non-V2, finite main verb

English/Danish/ Faroese: e C°P°T°[VP]		Pers Not Dist	Pers Dist	Chck Dist Pers	X° Left	Pred Right	X° Right	
◄ a.	e e V DP +dist	*!		*		*	*	(??)
b.	e V t DP +dist	*!		*		**	**	
◄ c.	V t t DP +dist	*!				***	***	(Icelandic/French)
d.	V t t t DP +dist	*!				****	****	
►►e.	**e e V DP −dist**		*	*		*	*	(English/Dan./Far.)
f.	e V t DP −dist		*	*		**!	**	
g.	V t t DP −dist		*	*		**!*	***	
h.	V t t t DP −dist		*	*		**!**	****	
◄ i.	e e DP V +dist	*!		*	*			(Frisian/German)
j.	e V DP t +dist	*!		*	*	*	*	
◄ k.	V t DP t +dist	*!			*	**	**	(Yiddish)
l.	V t t DP t +dist	*!			*	***	***	
◄ m.	e e DP V −dist		*	*	*!			(Afrikaans/Dutch)
n.	e V DP t −dist		*	*	*!	*	*	
o.	V t DP t −dist		*	*	*!	**	**	
p.	V t t DP t −dist		*	*	*!	***	***	

▪ Verbs precede their complements in (57a-h), and follow their complements in (57i-p).

▪ The finite verb is distinctively marked for person in (57a-d, i-l), but not in (57e-h, m-p).

▪ The finite verb occurs in V° in (57a,e,i,m), in Tense° in (57b,f,j,n), in Person° in (57c,g,k,o), and in C° in (57d,h,l,p).

  * marks a constraint violation, and *! a fatal constraint violation (i.e. the constraint violation that caused this particular candidate to be less than optimal)
  The candidate with a ►► in (57), i.e. (57e), is the **optimal** one (for technical reasons, ►► replaces the pointing finger).
  The candidates with a ◄ in (57), i.e. (57a,c,i,k,m), are **potential winners**, i.e. constraint rankings are possible under which each of these would be optimal.
  The candidates which do not have any ◄ or ► in (57), i.e. (57b,d,f,g,h,j,l,n,o,p), are ″**eternal losers**″, they could never win regardless of how the constraints were ranked. For each of these losers, there is at least one potential winner which will always be more optimal, regardless of the ranking of the constraints. For e.g. (57b), this potential winner is (57a). Technically speaking, (57a) ″**harmonically bounds**″ (57b), e.g. it is because of (57a) that (57b) can never be the optimal candidate, (57a) will always be more harmonic, i.e. more optimal, than (57b).
  In the tableaux below for the same case in the different languages, (57′)-(62), it is thus only necessary to consider those six candidates which are not harmonically bounded. This does not mean that the rest of the candidates are completely uninteresting, cf. e.g. that the fact that all candidates with the finite verb in Tense°, (57b,f,j,n), are harmonically bounded (by (57a,e,i,m) respectively) accounts for why the finite verb does not occur in Tense° in any of the languages under consideration: Nothing is gained by moving the verb from V° only to Tense°, it is always more optimal not to move the verb at all.
  The comparative tableaux, (57′)-(62) below, are all abbreviated versions of (57), with different rankings. In (57′)-(62), the ″eternal losers″ have been filtered out, and the candidates have been kept constant, i.e. candidate (57e) = (57′e) = (58e) = … = (62e). For an overview of the ranking variations in (57′)-(62), see (67) below.

(57′)   non-V2, finite main verb

English/Danish/ Faroese: e C°P°T°[VP]	Pers Not Dist	Pers Dist	Chck Dist Pers	X° Left	Pred Right	X° Right
◄ a. e e V DP +dist	*!		*		*	*
◄ c. V t t DP +dist	*!				***	***
►►e. e e V DP −dist		*****	*****		*****	*****
◄ i. e e DP V +dist	*!		*	*		
◄ k. V t DP t +dist	*!			*	**	**
◄ m. e e DP V −dist		*	*	*!		

English, Danish and Faroese are VO-languages without V°-to-I° movement. The absence of V°-to-I° movement is derived by having **Pers-Not-Dist** being ranked above **Pers-Dist**, cf. (42c) in section 1.1 above. The VO-property is derived by having **X°-Left** outrank both **Pred-Right** and **X°-Right**, cf. (50a,b) in section 1.2 above.

Consider now what happens when only one minor change is made, compared to (57)/(57′): Reversing the ranking of **Pers-Not-Dist** and **Pers-Dist**.

(58)   non-V2, finite main verb

Icelandic/French: c C°P°T°[VP]	Pers Dist	Pers Not Dist	Chck Dist Pers	X° Left	Pred Right	X° Right
◄ a. e e V DP +dist		*	*!		*	*
►►c. V t t DP +dist		*****			*******	*******
◄ e. e e V DP −dist	*!		*		*	*
◄ i. e e DP V +dist		*	*!	*		
◄ k. V t DP t +dist		*		*!	**	**
◄ m. e e DP V −dist	*!		*	*		

French and Icelandic are VO-languages with V°-to-I° movement. The presence of V°-to-I° movement is derived by having **Pers-Dist** being ranked above **Pers-Not-Dist**, cf. (42a) in section 1.1 above. This only works because **Check-Dist-Person** is not outranked by **Pred-Right**, cf. (61) below (or by **X°-Right**). Finally, as in English, Danish and Faroese above, the VO-property is derived by having **X°-Left** outrank both **Pred-Right** and **X°-Right**, cf. (50a,b) in section 1.2 above.

Consider now what happens when a different minor change is made, compared to (57)/(57′): Reversing the ranking of **X°-Left** and **Pred-Right**.

(59)   non-V2, finite main verb

Afrikaans/Dutch: m C°P°T°[VP]	Pers Not Dist	Pers Dist	Chck Dist Pers	Pred Right	X° Left	X° Right
◄ a. e e V DP +dist	*!		*	*		*
◄ c. V t t DP +dist	*!			***		***
◄ e. e e V DP −dist		*	*	*!		*
◄ i. e e DP V +dist	*!		*		*	
◄ k. V t DP t +dist	*!			**	*	**
►►m. e e DP V −dist		*****	*****		*****	

Afrikaans and Dutch are OV-languages without V°-to-I° movement. As in English, Danish and Faroese above, the absence of V°-to-I° movement is derived by having **Pers-Not-Dist** being ranked above **Pers-Dist**, cf. (42c) in section 1.1 above. The OV-property (for only verbs and adjectives) is derived by having **Pred-Right** outrank **X°-Left** which again outranks **X°-Right**, cf. (50c) in section 1.2 above.

Consider now what happens when both of the two minor changes from above apply at once: Compared to (57) and (57′), the following tableau has reversed both the ranking of **Pers-Not-Dist** and **Pers-Dist** and the ranking of **X°-Left** and **Pred-Right**:

(60)   non-V2, finite main verb   e.g. … *oyb zi zet take dem film* (55c)

Yiddish: k C°P°T°[VP]	Pers Dist	Pers Not Dist	Chck Dist Pers	Pred Right	X° Left	X° Right
◄ a. e e V DP +dist		*	*!	*		*
◄ c. V t t DP +dist		*		***!		***
◄ e. e e V DP −dist	*!		*	*		*
◄ i. e e DP V +dist		*	*!		*	
►►k. **V t DP t +dist**		*		**	*	**
◄ m. e e DP V −dist	*!		*		*	

Yiddish is an OV-language with V°-to-I° movement. The presence of V°-to-I° movement is derived by having **Pers-Dist** being ranked above **Pers-Not-Dist**, cf. (42a) in section 1.1 above. The OV-property (for only verbs and adjectives) is derived by having **Pred-Right** outrank **X°-Left** which again outranks **X°-Right**, cf. (50c) in section 1.2 above.

So far we have derived four language types by applying either none of the two independent rerankings seen so far, or applying one of them, or the other one of them, or both of them. This would be sufficient if we only had four language types to account for, and if we had some independent support for these two possible rerankings being the only possible ones.

However, there are other kind of possible rerankings, and one is having **Pred-Right** outrank not only **X°-Left** and **X°-Right** but also **Check-Dist-Person**. This is what we see in the following tableau of German and Frisian:

e.g. … *oft se de film echt wol seach* (56c)

(61)   non-V2, finite main verb   e.g. … *ob sie den Film tatsächlich sah* (56d)

German/Frisian: i C°P°T°[VP]	Pers Dist	Pers Not Dist	Pred Right	Chck Dist Pers	X° Left	X° Right
◄ a. e e V DP +dist		*	*!	*		*
◄ c. V t t DP +dist		*	*!**			***
◄ e. e e V DP −dist	*!		*	*		*
►►i. **e e DP V +dist**		*		*	*	
◄ k. V t DP t +dist		*	*!*		*	**
◄ m. e e DP V −dist	*!			*	*	

German and Frisian are OV-languages without V°-to-I° movement, but as opposed to Dutch and Afrikaans, they do have distinctive inflection for person, which is why **Pers-Dist** is ranked above **Pers-Not-Dist**. Nevertheless there is no V°-to-I° movement, because **Pred-Right** outranks not only **X°-Left** and **X°-Right** but also **Check-Dist-Person**, which means that it is more important to stop even predicative heads from moving into functional heads (which would incur **Pred-Right** violations, because universally, functional heads are on the left) than it is to check distinct inflection for person, cf. (42b) in section 1.1 above. The ranking of the three lower constraints is irrelevant.

Vikner: Germanic SOV/SVO, part VI, p. 22

Notice that I kept **Pers-Dist** ranked above **Pers-Not-Dist** in (61). If this were to be reversed, the rest of the ordering in (61) would derive exactly the same sentences as (59) above, i.e. as in Dutch and Afrikaans.

The last possible optimal candidate, (57a) = (57′a) = (58a) = … = (62a), is optimal if a different reranking is made, such that **X°-Left** outranks **Pred-Right**, which again outranks **Check-Dist-Person**. (If **Check-Dist-Person** were to outrank **Pred-Right**, the result would be (62c), just as in (58) above).

(62)   non-V2, finite main verb   (Ic./Fr. morphology with Da./En. syntax)

UNATTESTED: a C°P°T°[VP]	Pers Dist	Pers Not Dist	X° Left	Pred Right	Chck Dist Pers	X° Right
►►a. **e e V DP +dist**		*		*	*	*
◄ c. V t t DP +dist		*		**!*		***
◄ e. e e V DP −dist	*!			*	*	*
◄ i. e e DP V +dist		*	*!		*	
◄ k. V t DP t +dist		*	*!	**		**
◄ m. e e DP V −dist	*!		*		*	

This language type, which is not attested within the Germanic and Romance languages, would be a VO-language without V°-to-I° movement, and as opposed to English, Danish and Faroese, it would have distinctive inflection for person.

In the discussion above, three direct consequences of pairwise rankings have become clear.

The first corollary is that whether a language has distinctive inflection for person or not depends on the ranking of the two morphological constraints:

(63)   a. Pers-Not-Dist > > Pers-Dist → Non-distinctive inflectional morphology
        b. Pers-Dist > > Pers-Not-Dist → Distinctive inflectional morphology

Secondly, whether or not distinctive inflection for person leads to V°-to-I° movement or not depends on how high **Check-Dist-Person** is ranked:

(64)   a. Pred-Right > > Check → no V°-to-I° movement (regardless of verbal inflection)
        b. Check > > Pred-Right → V°-to-I° movement   (**iff** rich verbal inflection)

Finally, whether a language has the basic order VO or OV depends on how **X°-Left** is ranked with respect to the two head-right constraints, **Pred-Right** and **X°-Right**:

(65)   a. Pred-Right > > X°-Left → OV
        b. X°-Left > > Pred-Right → VO

The reason why the interaction of these three binary choices does not result in 8 languages (2^3) is that **Check-Dist-Person** can only have an effect in half of the cases, namely only if verbal inflectional morphology is ″rich″, i.e. distinctive for person. In the following section, a potential further reduction from six to five or four possible languages is discussed.

3. Typologies

3.1 Four or six different types?

Six candidates are potential winners in (57)-(62). However, only five of these are actually attested, one would seem not to exist:

(66) a: **NOT ATTESTED** (Icelandic/French morphology with English/Danish syntax)
      c: French, Icelandic
      e: English, Danish, Faroese (& Norwegian, Swedish)
      i: German, Frisian (& Swabian, Swiss German, West Flemish)
      k: Yiddish
      m: Dutch, Afrikaans

Six different rankings that would derive the respective candidates in (57)-(62) and (66) are the following (as mentioned, some of the candidates would also be optimal under other rankings):

(67)

```
    P°T°V°
                   ┌────┬────┐              ┌────┐┌────┬────┬────┐
a. e e V DP +dist  │Pers│Pers│              │X°  ││Pred│Chck│X°  │ not
                   │Dist│Not │              │Left││Rght│Dist│Rght│ attested,
                   │    │Dist│              │    ││    │Pers│    │ (62)
                   └────┴────┘              └────┘└────┴────┴────┘

                   ┌────┬────┐    ┌────┐    ┌────┬────┐    ┌────┐
c. V t t DP +dist  │Pers│Pers│    │Chck│    │X°  │Pred│    │X°  │ French/
                   │Dist│Not │    │Dist│    │Left│Rght│    │Rght│ Icelandic,
                   │    │Dist│    │Pers│    │    │    │    │    │ (58)
                   └────┴────┘    └────┘    └────┴────┘    └────┘

                     ┌────┬────┐  ┌────┐    ┌────┬────┐    ┌────┐
e. e e V DP −dist    │Pers│Pers│  │Chck│    │X°  │Pred│    │X°  │ English/
                     │Not │Dist│  │Dist│    │Left│Rght│    │Rght│ Danish/
                     │Dist│    │  │Pers│    │    │    │    │    │ Faroese,
                     └────┴────┘  └────┘    └────┴────┘    └────┘ (57)/(57')

    P°T°   V°
                     ┌────┬────┐  ┌────┬────┬────┐         ┌────┐
m. e e DP V −dist    │Pers│Pers│  │Chck│Pred│X°  │         │X°  │ Dutch/
                     │Not │Dist│  │Dist│Rght│Left│         │Rght│ Afrikaans,
                     │Dist│    │  │Pers│    │    │         │    │ (59)
                     └────┴────┘  └────┴────┴────┘         └────┘

                   ┌────┬────┐    ┌────┬────┬────┐         ┌────┐
k. V t DP t +dist  │Pers│Pers│    │Chck│Pred│X°  │         │X°  │ Yiddish,
                   │Dist│Not │    │Dist│Rght│Left│         │Rght│ (60)
                   │    │Dist│    │Pers│    │    │         │    │
                   └────┴────┘    └────┴────┴────┘         └────┘

                   ┌────┬────┐  ┌────┬────┐┌────┐          ┌────┐
i. e e DP V +dist  │Pers│Pers│  │Pred│Chck││X°  │          │X°  │ German/
                   │Dist│Not │  │Rght│Dist││Left│          │Rght│ Frisian,
                   │    │Dist│  │    │Pers││    │          │    │ (61)
                   └────┴────┘  └────┴────┘└────┘          └────┘
```

This shows that in an OT framework like the present, six different language types are predicted, each of the following three, (42a-c), in a VO- and an OV-version:

(68) a. distinctive features & V°-to-I° movement
                             (VO: (66c)/(67c), OV: (66k)/(67k))
      b. distinctive features & no V°-to-I° mvt.
                             (VO: (66a)/(67a), OV: (66i)/(67i))
      c. non-distinctive features & no V°-to-I° mvt.
                             (VO: (66e)/(67e), OV: (66m)/(67m))

In a framework where checking cannot be violated (e.g. within Principles and Parameters or within Minimalism), only four different language types are predicted, each of the following two in a VO- and an OV-version:

(69) a.   strong features & V°-to-I° movement
      b.   weak features & no V°-to-I° movement

Cf. what Chomsky (1995:222) says on the ability of constituents to be displaced in the syntax: "Minimalist assumptions suggest that this property should be reduced to morphology-driven movement."

However, given that languages without V°-to-I° movement exist, e.g. German, which undoubtedly have "richer" inflection than the inflection of some languages with V°-to-I° movement, e.g. French or Yiddish, it is not possible to directly relate "strong" to any independent measure of morphological "strength".

In other words, under the present analysis, six different language types are expected, whereas if checking were non-violable, only four different language types would be expected. The five different types that are actually found are thus only compatible with checking being violable, unless we give up the attempt to relate the movement to any measure of morphological "strength". As stated above, such a view would mean that some or all of the descriptive generalisations in hand-out I would be a complete coincidence.

3.2   A "missing" language?

Notice that six different language types would be attested if the definition of "rich"/"strong" were to be changed, say to simple presence of person in any tense. In this case, English and Faroese would violate checking by having rich features and still no V°-to-I° movement, and thus be examples of the language type defined by (62a)/(66a)/(67a).

The reason why I do not want to pursue this line of thinking is that it would be a coincidence that English and Faroese have less verbal inflection than e.g. French and Icelandic.

Also the change from Middle English to early modern English, or the one from Old Norse to Faroese or Middle Danish (i.e. the loss of V°-to-I° movement, see Vikner 1995:161, 1997:201-207, 1999:107-120 and references there) could no longer be seen as caused by erosion in the inflectional system (an analysis due to e.g. Roberts 1985 and Platzack 1988); English, Faroese or Middle Danish would all count as having "rich" inflection, even though they all lack V°-to-I° movement.

Hence I prefer to look for alternative ways of dealing with the potential problem of the "missing" language, i.e. a language that would fit the predictions in (62a)/(66a)/(67a). One option might be to find a way of ruling out the constraint ranking that gives rise to the missing language, i.e. (67a), which might be possible by an appeal to the mechanism of constraint conjunction, as discussed in 3.3 below.

Finally, even if it should turn out that there is no language spoken which corresponds to (62a)/(66a)/(67a), this would not necessarily be a disaster. Overgeneration (the prediction that a type of language exists that we do not know any examples of) is much preferable to undergeneration (the prediction that a type of language does not exist that we do know examples of). The end of 3.1 above argued that whereas the present OT analysis might overgenerate, an analysis in terms of non-violable generalisations would either undergenerate or lose the direct relation between strength of features and morphological richness.

3.3 Constraint conjunction

As (62a)/(66a)/(67a) is the only potential winning candidate that violates both **Check** and **Pred-Right**, cf. (62a), one way of ruling it out is by using a mechanism originally suggested by Smolensky (1995, 1997): ″Local constraint conjunction″, cf. also Kager (1999:392-400). If a constraint would exist that is a conjunction between **Check** and **Pred-Right**, then (62a,e) would both violate it, but the other four potential winning candidates, (62c,i,k,m), would not, cf. (70) below. A candidate only violates a conjoined constraint when it violates both of the constraints that make up the conjoined constraint.

Smolensky (1995:2,4) and Ito & Mester (1999:5) assume that a conjoined constraint must be ranked above the two constraints that it is composed of. If this is so, such a new conjoined constraint, **Check & Pred-Right**, would make it impossible for (62a)/(70a) to ever win, as it will lose out to (62c)/(70c) or (62e)/(70e), as long as **Check & Pred-Right** has to be ranked above **Pred-Right** and **X°-Right**, in which case the ranking in (67a)/(70) would lead to the same result as (67b), i.e. to the word order in Icelandic and French:

(70)   non-V2, finite main verb, **with local conjunction**
        ″same″ ranking as (62)   (Fr./Ic. morphology with En./Da. syntax)

<div align="center">NEW ▾</div>

The unattested (a) cannot possibly win C°P°T°[VP]	Pers Dist	Pers Not Dist	X° Left	**Chck & Pred**	Pred Right	Chck Dist Pers	X° Right
a. e e V DP +dist		*		*!	*	*	*
▸▸c. **V t t DP +dist**		*		*******			*******
◂ e. e e V DP −dist	*!			*	*	*	*
◂ i. e e DP V +dist		*	*!			*	
◂ k. V t DP t +dist		*	*!		**		**
◂ m. e e DP V −dist	*!		*			*	

<div align="center">▴ NEW</div>

(As can be seen from (70), ruling out (70a) universally requires not only that **Check & Pred-Right** be ranked higher than **Pred-Right**, but also that **Check & Pred-Right** be ranked higher than **X°-Right**. The latter can be achieved in a parallel fashion to the former, if it is assumed that **Pred-Right** itself be seen as the result of a constraint conjunction, viz. one between **No-Predicate-X°** and **X°-Right**. This would impose the following partial rankings universally: **Check & Pred-Right** > > **Pred-Right** > > **X°-Right**. If the existence of conjoined constraints in UG has to be assumed anyway (i.e. to get **Check & Pred-Right**), then the additional assumption that **Pred-Right** itself is a conjoined constraint would not seem to be particularly counterintuitive.)

However, in my view it remains an open question whether a conjoined constraint by definition has to be ranked above the two constraints that it is composed of (as assumed e.g. by Smolensky 1995:2,4 and Ito & Mester 1999:5), or whether it only has to be ranked above the two constraints in order to have any effect. If the latter were the case, then ranking a conjoined constraint lower than one of the two constraints that it is composed of would effectively be a way of ″switching it off″. In order to universally rule out (70a), the latter would have to be impossible. The ranking of the conjunction above the two constraints would have to be the only one possible.

4. V2 clauses

A complete analysis must also take into account what happens in those main clauses which differ from embedded clauses, i.e. it must account for cases where the verb moves to C°:
(English will be left out of this discussion, for reasons of exposition, given the complications linked to *do*-insertion. The further constraints necessary to account for the English data will be introduced in section 6.1 below.)

```
(71)  a. Da.  Hvad for en film    så      hun  egentlig  ?
      b. Fa.  Hvat fyri   film    sá      hon  egentliga ?
      c. Ic.  Hvaða       mynd    sá      hún  eiginlega ?
      d. Fr.  Quel        film    voyait- elle vraiment  ?
      e. Yi.  Voser       film    zet     zi   eygntlekh ?
      f. Af.  Watter      rolprent sien   sy   eintlik   ?
      g. Du.  Welke       film    zag     ze   eigenlijk ?
      h. Fs.  Hokfoar     film    seach   se   eins      ?
      i. Ge.  Welchen     Film    sah     sie  eigentlich ?
              Which       film    sees/saw she  really     ?
```

I am here adopting a version of Grimshaw's (1997) account of Verb Second (V2). The languages under discussion vary with respect to whether only *wh*-elements or also other kinds of operators (i.e. elements that undergo topicalisation/fronting) have to move into CP-spec. I shall disregard this difference here, as all the languages have some amount of V2 (see Vikner 2001a:226-254 for a suggestion on how to derive such differences). Once an element has to move to CP-spec, the existence of a new C° is forced, due to X-bar-structure (which is part of GEN). This new C° is completely empty, i.e. it is not the realisation of a feature (as opposed to e.g. Pers° or Tense°). If it is not filled by phonetic material, it violates **Obl-Head**:

(72) **Obligatory heads**,
      violated by every completely empty X°
                        (cf. Grimshaw 1997:377, Haider 1988:101)

I take **Obl-Head** to be ranked above the other syntactic constraint discussed so far in all the languages under discussion. This almost amounts to taking **Obl-Head** to be unviolable (cf. the discussion of the unviolability of the constraint that a verb assigns its thematic roles inside VP in 6.2 below), as suggested e.g. in Bakovic (1998:38). I will nevertheless continue to take **Obl-Head** to be violable, cf. that it is violated in embedded *wh*-questions (Grimshaw 1997: 393-396). The new constraint rankings are given in (73).

In the complete tableau in (74), I will consider only candidates where the V2 conditions are fulfilled and the *wh*-XP has moved to CP-spec. When the V2 conditions are fulfilled, only movement of the finite verb to C° avoids a violation of **Obl-Head**.

(73)

NEW ▼

Pers Dist	Pers Not Dist		Obl Head				X° Left	Pred Rght	Chck Dist Pers	X° Rght	not attested
Pers Dist	Pers Not Dist		Obl Head	Chck Dist Pers		X° Left	Pred Rght		X° Rght	French/ Icelandic
	Pers Not Dist	Pers Dist	Obl Head	Chck Dist Pers		X° Left	Pred Rght		X° Rght	English/ Danish/ Faroese
	Pers Not Dist	Pers Dist	Obl Head	Chck Dist Pers	Pred Rght	X° Left			X° Rght	Dutch/ Afrikaans
Pers Dist	Pers Not Dist		Obl Head	Chck Dist Pers	Pred Rght	X° Left			X° Rght	Yiddish
Pers Dist	Pers Not Dist		Obl Head	Pred Rght	Chck Dist Pers	X° Left			X° Rght	German/ Frisian

NEW ▲

(74) V2, finite main verb

e.g. *Hvad for en film så hun egentlig?* (71a)
e.g. *Hvat fyri film sá hon egentliga?* (71b)

Danish/Faroese: h C°P°T°[VP]	Pers Not Dist	Pers Dist	Obl Head	Chck Dist Pers	X° Left	Pred Right	X° Right	
◄ a. e e V DP +dist	*!		*	*		*	*	(*ObHd)
b. e V t DP +dist	*!		*	*		**	**	
◄ c. V t t DP +dist	*!		*			***	***	(*ObHd)
◄ d. V t t t DP +dist	*!					****	****	(Ic./Fr.)
◄ e. e e V DP −dist		*	*!	*		*	*	(*ObHd)
f. e V t DP −dist		*	*!	*		**	**	
g. V t t DP −dist		*	*!	*		***	***	
►► h. V t t t DP −dist		*		*		****	****	(Da./Fa.)
◄ i. e e DP V +dist	*!		*	*	*			(*ObHd)
j. e V DP t +dist	*!		*	*	*	*	*	
◄ k. V t DP t +dist	*!		*		*	**	**	(*ObHd)
◄ l. V t t DP t +dist	*!				*	***	***	(Yi/Fs/Ge)
◄ m. e e DP V −dist		*	*!	*	*			(*ObHd)
n. e V DP t −dist		*	*!	*	*	*	*	
o. V t DP t −dist		*	*!	*	*	**	**	
◄ p. V t t DP t −dist		*		*	*!	***	***	(Af./Du.)

The following tableaux omit not only all candidates which are harmonically bounded, but also those potential winners, (74a,c,e,i,k,m), which violate **Obligatory-heads**.

Vikner: Germanic SOV/SVO, part VI, p. 28

e.g. *Hvad for en film så hun egentlig?* (71a)

(74′)   V2, finite main verb

e.g. *Hvat fyri film sá hon egentliga?* (71b)

Danish/Faroese: h C°P°T°[VP]	Pers Not Dist	Pers Dist	Obl Head	Chck Dist Pers	X° Left	Pred Right	X° Right
◄ d. V t t t DP +dist	*!					****	****
►►**h. V t t t DP −dist**		*		*		****	****
◄ l. V t t DP t +dist	*!				*	***	***
◄ p. V t t DP t −dist		*		*	*!	***	***

The only difference between Danish and Faroese in (74′) above and Icelandic and French in (75) below is whether **Pers-Not-Dist** outranks **Pers-Dist** or vice versa. In this case, this difference only has a consequence for the form of the verb, and not for the syntax of the clause, as (74′d)/(75d) and (74′h)/(75h) have the same word order. The crucial difference between Danish/Faroese and Icelandic/French in embedded clauses (see section 2 above) was that **Check-Dist-Pers** forced verb movement (to I°) only in languages with distinctive inflection. Here this difference is irrelevant, as verb movement (to C°) is forced by **Obl-Head** which is ranked higher than **Check-Dist-Pers**.

e.g. *Hvaða mynd sá hún eiginlega?* (71c)

(75)   V2, finite main verb

e.g. *Quel film voyait-elle vraiment?* (71d)

Icelandic/French: d C°P°T°[VP]	Pers Dist	Pers Not Dist	Obl Head	Chck Dist Pers	X° Left	Pred Right	X° Right
►►**d. V t t t DP +dist**		*				****	****
◄ h. V t t t DP −dist	*!			*		****	****
◄ l. V t t DP t +dist		*			*!	***	***
◄ p. V t t DP t −dist	*!			*	*	***	***

Compare now the situation in OV-languages. Also here, verb movement is forced by the high ranking of **Obl-Head**. The different ranking between **X°-Left** and **Pred-Right** still derives the difference between VO (where **X°-Left** outranks **Pred-Right**) and OV (where **Pred-Right** outranks **X°-Left**), but if the main verb is also the finite verb, the VO/OV difference is masked, i.e. it is a question of whether the lowest trace of the verb is to the left or the right of the object. If the finite verb was an auxiliary, this difference would be crucial.

(76)   V2, finite main verb

e.g. *Voser film zet zi eygntlekh?* (71e)

Yiddish: l C°P°T°[VP]	Pers Dist	Pers Not Dist	Obl Head	Chck Dist Pers	Pred Right	X° Left	X° Right
◄ d. V t t t DP +dist		*			****!		****
◄ h. V t t t DP −dist	*!			*	****		****
►►**l. V t t DP t +dist**		*			***	*	***
◄ p. V t t DP t −dist	*!			*	***	*	***

The only difference between Yiddish and Frisian/German is the ranking of **Check-Dist-Person** and **Pred-Right**, but again the high ranking of **Obl-Head** keeps this from making a difference in the actual word order here.

<div align="right">

e.g. *Hokfoar film seach se eins?* (71h)

</div>

(77)   V2, finite main verb   e.g. *Welchen Film sah sie eigentlich?* (71i)

Frisian/German: l C°P°T°[VP]	Pers Dist	Pers Not Dist	Obl Head	Pred Right	Chck Dist Pers	X° Left	X° Right
◄ d. V t t t DP +dist		*		****!			****
◄ h. V t t t DP –dist	*!			****	*		****
►►**l. V t t DP t +dist**		*****		*******		*****	*******
◄ p. V t t DP t –dist	*!			***	*	*	***

The only difference between Yiddish/Frisian/German and Afrikaans/Dutch is whether **Pers-Not-Dist** outranks **Pers-Dist** or vice versa. Here, this difference only has a consequence for the form of the verb, and not for the syntax of the clause, as the optimal candidates have the same word order. As above, this is because verb movement is forced by the ranking of **Obl-Head** which is ranked higher than **Check-Dist-Pers**.

<div align="right">

e.g. *Watter rolprent sien sy eintlik?* (71f)

</div>

(78)   V2, finite main verb   e.g. *Welke film zag ze eigenlijk?* (71g)

Afrikaans/Dutch: p C°P°T°[VP]	Pers Not Dist	Pers Dist	Obl Head	Chck Dist Pers	Pred Right	X° Left	X° Right
◄ d. V t t t DP +dist	*!				****		****
◄ h. V t t t DP –dist		*		*	****		****
◄ l. V t t DP t +dist	*!				***	*	***
►►**p. V t t DP t –dist**		*****		*****	*******	***!**	*******

In other words, in this section the only discernible effect of the different rankings is whether inflection is distinctive or not. All other differences, including VO/OV are hidden by the high ranking of **Obl-Head**. This is completely consistent with the fact that superficially speaking all the languages have the same word order in (71). This section has thus shown how the differences between embedded clauses across the Germanic languages and their neutralisation in V2 constructions can be derived within the present framework.

5. The special status in English of ″light″ verb *do* and other auxiliary verbs

Following the discussion of the syntax of finite main verbs in the previous sections, it is now possible to see in which contexts in which languages the syntax of finite auxiliary verbs differ from that of finite main verbs . It will be shown below that such differences are found only in English, and that they are related to *do*-insertion in V2 clauses, in negative clauses, and in emphatic clauses.

5.1 ″Verbs are inserted in V°″ is a violable constraint

The following difference between English and all the other languages was set aside in section 4 above: In all the other languages, the finite verb in a V2 context may be a main verb, (80), repeated from (71) in section 4 above. In the same context, English inserts the ″light″ verb *do*, (79), rather than move a finite main verb. *Do* in (79) is ″light″ in the sense of appearing to make no contribution to the interpretation of the sentence, cf. e.g. Grimshaw & Mester (1988:205).

```
(79)  En.  Which film did she actually see?

(80)  a. Da. Hvad for en film    så       hun egentlig  ?
      b. Fa. Hvat fyri  film     sá       hon egentliga ?
      c. Ic. Hvaða      mynd     sá       hún eiginlega ?
      d. Fr. Quel       film     voyait-  elle vraiment ?
      e. Yi. Voser      film     zet      zi  eygntlekh ?
      f. Af. Watter     rolprent sien     sy  eintlik   ?
      g. Du. Welke      film     zag      ze  eigenlijk ?
      h. Fs. Hokfoar    film     seach    se  eins      ?
      i. Ge. Welchen    Film     sah      sie eigentlich ?
             Which      film     sees/saw she really    ?
```

```
(81)                            C°      Pers° Tns°          V°
      a. En. [Which       film]ⱼ didᵢ she tᵢ    tᵢ    actually see tⱼ?
      b. Da. [Hvad for en film]ⱼ såᵢ  hun tᵢ    tᵢ    egentlig tᵢ   tⱼ?
```

The structure of (79) is (81a), and the one of (80a-d) is (81b). The structure of (80e-i) is like (81b) except that the trace of the object precedes the rightmost trace of the verb rather than follows it.

In order to to be able to include the English data, i.e. (79) and (81a), into the account as presented in section 4 above, the set of candidates has to be enlarged, in such a way that the possibility is taken into consideration of inserting a light *do* directly under a functional head (e.g. Tense°), as an alternative to first inserting the main verb under V° and then moving it to a functional head. These new candidates, i.e. candidates with *do* inserted outside VP, do extremely well on **Pred-Right**, because only elements inserted under V° (or under Adj°) count as predicate heads in the sense of **Pred-Right**. **Pred-right** thus only penalises the movement of lexical verbs (comparable to the earlier constraint **No-Lexical-Movement** in Grimshaw 1997:386, also used in Vikner 2001b).

The reason why only English and not all languages inserts light *do* above the main verbs is the existence and the ranking of the following constraint:

(82)   **V-in-V°**
       violated by every verb which is not inserted under V°

V-in-V° is ranked below **Pred-Right** in English, but above it in the other languages. The ranking of **V-in-V°** is thus what distinguishes English from Danish, Faroese, Norwegian and Swedish:

NEW ▼

Pers Dist	Pers Not Dist		Obl Head	V in V°			X° Left	Pred Rght	Chck Dist Pers	X° Rght	not attested
Pers Dist	Pers Not Dist		Obl Head	V in V°	Chck Dist Pers		X° Left	Pred Rght		X° Rght	French/ Icelandic
	Pers Not Dist	Pers Dist	Obl Head		Chck Dist Pers		X° Left	Pred Rght	V in V°	X° Rght	English
	Pers Not Dist	Pers Dist	Obl Head	V in V°	Chck Dist Pers		X° Left	Pred Rght		X° Rght	Danish/ Faroese
	Pers Not Dist	Pers Dist	Obl Head	V in V°	Chck Dist Pers	Pred Rght	X° Left			X° Rght	Dutch/ Afrikaans
Pers Dist	Pers Not Dist		Obl Head	V in V°	Chck Dist Pers	Pred Rght	X° Left			X° Rght	Yiddish
Pers Dist	Pers Not Dist		Obl Head	V in V°	Pred Rght	Chck Dist Pers		X° Left		X° Rght	German/ Frisian

▲ NEW

As stated above, *do* inserted outside V° cannot violate **Pred-Right**, because only elements inserted under V° (or under Adj°) count as predicate heads in the sense of **Pred-Right**. Given that otherwise (e.g. in all the other languages) even e.g. auxiliary verbs and the verb *be* are taken to be predicate heads, allowing *do* to not be a predicate head is of course bending the rules somewhat, but this bending of the rules has a price, namely a violation of **V-in-V°**, as it amounts to the disregarding of some of the features of the verb *do*.

That insertion under Tense° leads to the disregarding of some of *do'*s features can also be seen in that this insertion does not lead to TenseP turning into a VP, although TenseP in some sense has a verb as a head.

There is yet another indication that inserting *do* outside VP (i.e. using *do* as a light verb) amounts to disregarding some of its feature content. I would like to repeat a suggestion made in Vikner (2001b:456), namely that **V-in-V°** be seen as a gradient constraint, following Grimshaw's (1997:386-387) suggestion for her constraint **FI** (Full Interpretation). This would mean that **V-in-V°** would be violated to a lesser extent by light *do* than by light *divulge* or light *domesticate*: Light *do*, light *divulge*, and light *domesticate* would all violate **V-in-V°** because (some of) their lexical/categorial properties would be ignored if they were not inserted under V°. However, the violation incurred by light *do* would be smaller than the violations incurred by other verbs, because *do* has fewer lexical/categorial properties than other verbs, and so when *do* is used as a light verb, there are fewer lexical/categorial properties which have to be ignored.

5.2 Main verb syntax versus auxiliary verb syntax

Light *do* is not the only difference between the English auxiliaries and the auxiliaries of all the other Germanic and Romance languages. English has syntactic differences between finite auxiliary verbs and finite main verbs, whereas in all the other Romance and Germanic languages, finite auxiliary verbs and finite main verbs behave alike.

Consider auxiliary *have* and main verb *have*.

In Middle English (as in French, Icelandic and Yiddish), finite *have* occurs in I°, i.e. before the sentence adverbial *never*, regardless of whether it is an auxiliary, (84a), or a main verb, (84b):

```
                C°    I°            V°
(84)  ME. a.  Yf y hadde neuer      sayd to þe  but þis  folowand  techinge ...
              If I had   never      said to you but this following teaching ...
              ( = If I had never told you anything but the following …)
                  (around 1400-1450, Anonymous (trsl.), The Governance of Lordschipes, Steele 1898:53)


             I°        V°
      b.  I had neuer       more nede off mony  than now
          I had never       more need of  money than now
                        (1475, John Paston II, Letter to John Paston III, 06.11.1473, Davis 1971:469)
```

In Danish (and the other languages without V°-to-I° movement), finite *have* occurs in V°, i.e. after the sentence adverbial *aldrig* `never', regardless of whether *have* is an auxiliary, (85a), or a main verb, (85c):

```
                C°         I°          V°
(85)  Da. a.  ... hvis    jeg         aldrig havde sagt det til dig   (Aux have)
              ... if       I          never  had   said it  to  you
      b. *... hvis    jeg havde aldrig       sagt det til dig

      c.  ... fordi   jeg         aldrig havde brug for penge  (Main have)
          ... because I          never  had   need for money
      d. *... fordi   jeg havde aldrig        brug for penge
```

In modern English, finite auxiliary *have* occurs in I°, i.e. before the sentence adverbial *never*, (86b), whereas finite main verb *have* occurs in V°, i.e. after *never*, (86c):

```
                C°        I°       V°
(86)  En. a. ?... if      I    never had said that to you    (Aux have)
      b.  ... if      I had never     said that to you

      c.  ... because I    never had any need for money  (Main have)
      d. *... because I had never     any need for money
```

Two other differences between finite auxiliaries and finite main verbs in modern English correlate with this one. One difference is that auxiliary *have* may precede the subject in questions (and in other V2-contexts), whereas main verb *have* needs *do*-support also here:

```
                C°        I°            V°
(87)  En. a. *Why do  you       actually have asked me?     (Aux have)
      b.  Why have you       actually      asked me?

      c.  Why did  you       actually have a fight?    (Main have)
      d. *Why had  you       actually      a fight?
```

The other difference is that auxiliary **have** may precede **not**, whereas main verb **have** needs **do**-support in a negated clause:

```
               C°     I°      V°
(88) En. a. *... that we did not have seen the film      (Aux have)
        b.  ... that we had not      seen the film

        c.  ... that we did not have a fight last night  (Main have)
        d. *... that we had not      a fight last night
```

When other English verbs are examined, the full picture is as follows:

(89)   ″**Auxiliary**″ **syntax**
        (verb occurs in I°, and may also occur in C° in e.g. questions)
                Auxiliaries: **be**, **have**, **do**, and modals
                Main verbs: **be**

(90)   ″**Main verb**″ **syntax**
        (verb occurs in V° only, never in I° or in C°)
                Auxiliaries: -
                Main verbs: **have**, **do**, and all other main verbs

(Auxiliary **be** is found with progressive and passive, whereas main verb **be** is found e.g. in **John is never ill**. Auxiliary **do** (= light **do**) is found e.g. with negated main verbs or in questions, whereas main verb **do** is found e.g. in **John never does his homework**.)

The relevant difference is not one of auxiliaries versus main verbs, as seen by the behaviour of main verb **be**, which behaves unlike other main verbs but like the auxiliaries (always precedes sentence adverbials, precedes **not**, precedes the subject e.g. in questions, and does not allow **do**-insertion).

I also strongly doubt that the relevant difference is one between high frequency verbs versus verbs of lower frequency, as suggested by e.g. Bybee (2003a, 2003b:620-621). Although some of the verbs with ″auxiliary″ syntax (e.g. main and aux **be** or aux **have**) are likely to have a very high frequency, I find it difficult to believe that also relatively rarely used modal verbs, e.g. **ought**, should have a higher frequency than even the most commonly used verbs with ″main verb″ syntax (e.g. main **have** or **say**, **know**, **believe**).

Instead, I would like to follow Roberts (1985:30), Scholten (1988:160), and Pollock (1989: 385), who suggest that in English, only verbs that do not assign thematic roles may occur in I°. This gives the right prediction concerning main verb **be**, which presumably does not assign a thematic role (in e.g. **John is ill**, if there is a thematic role here at all, it is presumably assigned by **ill**, cf. also hand-out III). Main verb **be** here differs from main verb **have** and **do**, but resembles auxiliary **have**, **be** and **do**.

I propose to capture this by having GEN make sure that all verbs that assign theta-roles are generated in V°.

In the other languages under discussion, insertion of any verb outside VP, be it main verb, auxiliary, or light *do*, is never optimal anyway, because of the high ranking of **V-in-V°**.

Assuming that it is part of GEN that thematic roles have to be assigned inside lexical projections and that every argument must be assigned a thematic role, the interaction between GEN, **Pred-Right**, and **V-in-V°** makes three predictions (where ″thematic verbs″ means verbs that assign one or more thematic roles):
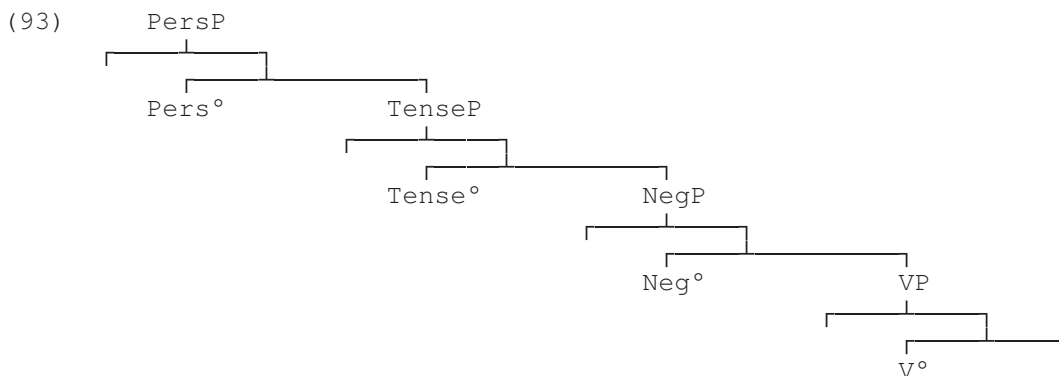
(91) a. Either **NO verbs** (most languages) or **ONLY non-thematic verbs** (only English) are inserted outside VP - making it possible for finite thematic and finite non-thematic verbs to have different syntax.

(Thematic verbs are never inserted outside VP.)

b. Either **NO verbs** (most languages) or **ONLY thematic verbs** (only English) have *do*-support when verb movement to C° takes place.

(Non-thematic verbs never have *do*-support when verb movement to C° takes place.)

c. Either **NO verbs** (most languages) or **ONLY thematic verbs** (only English) have *do*-support with negation.

(Non-thematic verbs never have *do*-support with negation.)

The second of the two options in (91a,b) is achieved by having **Pred-Right** ranked above **V-in-V°**, and this is what happens in English, whereas the first of the two options in (91a,b) is achieved by having **V-in-V°** ranked above **Pred-Right**, and this is what happens in all the other languages discussed above.

What counts for (91c) is not the ranking between **V-in-V°** and **Pred-Right**, but between **V-in-V°** and a new constraint:

(92) **HMC** (Head Movement Constraint)
violated by any X° which intervenes in an X°-chain with a different index
An X° intervenes in an X°-chain when it c-commands a link of the chain and is c-commanded by another link of the chain. The HMC is violated when X°-movement "skips" a head-position. See Travis (1984:131), Baker (1988:53), Rizzi (1990:11, 2001:92), Roberts (2001).

I am suggesting that the **HMC** is violated whenever Neg° intervenes in the verb chain in any of the languages (i.e. when Pers° and Tense° c-command Neg° and Neg° c-commands V°), which is the case whenever a sentence contains a sentential negation:

(93)
```
      PersP
    ┌───┴────┐
  Pers°    TenseP
         ┌───┴────┐
       Tense°    NegP
               ┌──┴───┐
             Neg°     VP
                    ┌──┴──┐
                   V°
```

Notice that the NegP here is taken to be inside TenseP, not vice versa, as opposed to what is commonly assumed, e.g. Pollock (1989:397), Belletti (1990:30), and Haegeman (1995:28).

In order to also have the occurrence of a sentential negation count as a **HMC** violation in languages where the finite verb occurs in V°, the licensing of person and tense in such languages needs to be examined more closely.

It might be more accurate to talk about two different kinds of licensing of person and tense morphology on finite verbs. In addition to the (violable) checking which requires movement to Pers° of verbs with distinctive person morphology (regulated by the ranking of

Check-Dist-Pers), I also assume that even in cases where the verb remains in V°, Pers° and Tense° obligatorily license the closest inflectional morphemes of the relevant kind that they dominate or c-command, cf. that also verbs which do not undergo V°-to-I° movement are not allowed to have just any inflection for person or tense:

```
                     Pers° Tns° Adv     V°
(94)  En. a.  ... if she           really knows the answer
         b. *... if she           really know  the answer

         c. *... if they          really knows the answer
         d.  ... if they          really know  the answer

                     Pers° Tns° Adv         V°
(95)  Fa. a.  ... um hon          virkuliga sá          filmin
         b. *... um hon          virkuliga sóu         filmin
              ... if she         really    saw.SG/saw.PL film-the

         c. *... um teir         virkuliga sá          filmin
         d.  ... um teir         virkuliga sóu         filmin
              ... if they        really    saw.SG/saw.PL film-the
```

The idea is that this kind of licensing from Pers° and Tense° to the actual verb form in V° takes the form of an X°-chain, and so if the sentence contains an intervening sentential Neg°, this counts as a **HMC** violation, as in) above:

```
                 C°          Pers°   Tns°  Neg° V°
(96)  a. Fr. ... si elle ne  voyait  t     pas  t  le  film
                            |_____|_____|X|___|

      b. En. ... if she      (P°)    did   not  see the film
                            |_____|_____|

      c. Fa. ... um hon      (P°)    (T°)  ikki sá filmin
                            |_____|_____|X|___|
```

We thus have a situation parallel to that in V2 clauses without auxiliaries. Also here English prefers to insert *do*, although this costs a violation of **V-in-V°**, whereas in the other languages, where **V-in-V°** is ranked much higher, not violating **V-in-V°** is more important than not violating the conflicting constraint, in this case **HMC**. In the V2 cases the conflicting constraint was **Pred-Right**. The fact that the constraint with which **V-in-V°** conflicts is not the same in the two cases opens the door to the possibility that languages might exist with *do*-insertion in one but not the other case.

This analysis is thus parallel to analyses that take *not* to be in Neg° and to block the formation of a chain between V° and I° (e.g. Pollock 1989:397, Roberts 1993:338, n21).

Summarising sections 5.1 and 5.2, I have suggested two new constraints:

The low ranking of **V-in-V°** in English means that rather than moving something inserted under V°, it is cheaper to insert a (non-thematic) verb outside VP. The high ranking of **V-in-V°** in all other languages means that this strategy to avoid verb movement does not work, the price of inserting a verb outside VP is higher than that of verb movement, see 5.4-5.6.

The **HMC** is ranked the same in all the languages, and it is what is violated in negative clauses, unless a verb is inserted outside VP, see 5.6 below.

In 5.3-5.6, only three languages will be considered: English, Middle English (standing in for lg.s with V°-to-I° mvt.), and Danish (standing in for lg.s without V°-to-I°). Also the difference Person° and Tense° will be glossed over, but the full details for the full structure and for all the languages are available in Vikner (2001a:165-225).

5.3 The position of finite thematic verbs

(The points made in this section were already made in section 2 above. I nevertheless include this section to set the stage for the following sections).

The basic difference between Middle English on one hand and modern English and modern Danish on the other concerns V°-to-I° movement and verbal inflection. Middle English has V°-to-I° movement with all verbs, whereas modern English and modern Danish do not:

```
                       C°        I°             V°
(97)   a. ME.  He  swore that he  talkyd neuer  t      wyth no man   ...
       b. En.  He  swore that he         never  talked to  anybody ...
       c. Da.  Han svor  at   han         aldrig talte med nogen    ...
```
((97a): 1460 William Paston I, *Letter to John Paston I, 02.05.1460*, Davis 1971:164)

The relevant conflict here is between the constraints **Check person inflection** and **Pred-Right**. The difference between the languages arises even though **Check person inflection** is ranked above **Pred-Right** in all three languages.

In Middle English, the two options are V°-to-I° movement of a verb that has person in all tenses, (98a), or no V°-to-I° movement at all, (98b). **Check person inflection** prefers the former:

(98)

MIDDLE ENGLISH I° V°	Check person inflection	Pred- Right
►► a. *talkyd neuer* t		**
b. *neuer talkyd*	*!	*

(= (97a))

The two violations of **Pred-Right** in (98a) are caused first by *talkyd* being inserted under V°, which is left of its complement, the PP *wyth no man*, and then by *talkyd* occurring in I°, which is left of its complement, the VP. The (fatal) violation of **Check person inflection** in (98b) is caused by I° not containing a ″fully inflected″ finite verb.

In modern English and modern Danish, on the other hand, the two options are V°-to-I° movement of a verb that does not have person in all tenses, (99a), vs. no V°-to-I° movement at all, (99b). Both violate **Check person inflection** and the decision is therefore up to **Pred-Right**. **Pred-Right** is violated only once when the verb remains in V°, (99b), but twice when the verb is inserted under V° and then moved into I°, (99a), and so the optimal candidate is (99b):

(99)

MODERN ENGLISH & MODERN DANISH	Check person inflection	Pred- Right
a. *talked never* t	*	**!
►► b. *never talked*	*	*

(= (97b,c))

Because thematic verbs must be inserted under V°, the only way for them to occur in I° is to undergo V°-to-I° movement. For non-thematic verbs, an alternative way is also available: Insertion directly under I°, without going via V°.

5.4 The position of finite non-thematic verbs

The next difference to be derived is one between Middle English and modern English on one hand and modern Danish on the other, concerning the placement of finite non-thematic verbs. In Middle English and modern English they are in I°, in Danish in V°:

```
                  C°      I°              V°
(100) a. En.  ... if   I   had    never       said that to  you      (= (86b) above)
      b. Da.  ... hvis jeg         aldrig havde sagt det  til dig      (= (85a) above)

      c. ME.      Yf   y   hadde neuer       sayd to þe  but ...      (= (84a) above)
                  If   I   had   never       said to you but ...
```

The relevant conflict here is between the constraints **Pred-Right** and **Verb-in-V°**. Recall that **Pred-Right** only applies to verbs inserted under V°. It is therefore necessary to consider

- **a.** - a candidate with *had* inserted directly under I° ((101a), where only *said* violates **Pred-Right** but *had* violates **Verb-in-V°**),
- **b.** - a candidate with *had* inserted under V° and then moved into I° ((101b), which has two more violations of **Pred-Right** than (101a) but no violations of **Verb-in-V°**), and
- **c.** - a candidate in which the verb is inserted under V° and stays there ((101c), which only has one more violation of **Pred-Right** than (101a)).

In modern English, **Pred-Right** takes precedence over **Verb-in-V°**:

(101)

MODERN ENGLISH I° V° V°	Check p.inf.	Pred- Right	Verb- in-V°	
►► a. *had never said*	*	*	*	(= (100a))
b. *had never t said*	*	**!*		
c. * never had said*	*	**!		

In Danish, it is the opposite, **Verb-in-V°** takes precedence over **Pred-Right**:

(102)

MODERN DANISH I° V° V°	Check p.inf.	Verb- in-V°	Pred- Right	
a. *havde aldrig sagt*	*	*!	*	
b. *havde aldrig t sagt*	*		***!	
►► c. * aldrig havde sagt*	*		**	(= (100b))

In Middle English, the constraint ranking is the same as Danish, the difference being the same as in (98) above, i.e. that **Check person inflection** is only violated by the candidate where the verb is not in I°:

(103)

MIDDLE ENGLISH I° V° V°	Check p.inf.	Verb- in-V°	Pred- Right	
a. *had neuer sayd*		*!	*	
►► b. *had neuer t sayd*			***	(= (100c))
c. * neuer had sayd*	*!		**	

5.5 The position of finite verbs in questions

The very same difference in constraint ranking also accounts for another syntactic difference between English, Danish and Middle English, concerning verb movement in questions. In English questions with finite thematic verbs, ***do*** is inserted in I° and moved to C°, whereas in Danish and Middle English questions, the thematic verb itself moves via I° into C°:

```
                    C°           I°           V°
(104) a. En.   What does    it  t  really   mean    ?
      b. En. *What means   it  t  really          ?

      c. Da. *Hvad gør     det t  egentlig betyde ?          ( (104a))
      d. Da.  Hvad betyder det t  egentlig t      ?          ( (104b))

      e. ME.  What meneþ   it  t            t
                                     þat  my dayes sall  be so schortte?
           What means    it           that my days  shall be so short    ?
```
                                    (1494, Anonymous, *Life of Alexander*, Westlake 1913:109)

The cost of ***do***-insertion is a violation of **Verb-in-V°**, but on the benefit side there is only one violation of **Pred-Right**, caused by the main verb in V°, (105a). Movement of the thematic verb via I° into C° does not violate **Verb-in-V°**, but it violates **Pred-Right** three times, in V°, in I°, and in C°, (105b). The ranking of these two constraints is therefore crucial:

(105)	MODERN ENGLISH C° I° V°	Check p.inf.	Pred- Right	Verb- in-V°
	►► a. *does it t really mean*	*	*	*
	b. *means it t really t*	*	**!*	

(106)	MODERN DANISH C° I° V°	Check p.inf.	Verb- in-V°	Pred- Right
	a. *gør det t egentlig betyde*	*	*!	*
	►► b. *betyder det t egentlig t*	*		***

Here there is no difference between Danish and Middle English. In Middle English, neither candidate violates **Check person inflection** because both candidates have a verb in I°:

(107)	MIDDLE ENGLISH C° I° V°	Check p.inf.	Verb- in-V°	Pred- Right
	a. *doth it t mene*		*!	*
	►► b. *meneþ it t t*			***

In questions with non-thematic verbs, none of the three languages have *do*-insertion:

```
                    C°       I°          V°   V°
(108) a. En. *Why   do   you t  actually have asked  me?
      b. En.  Why   have you t  actually      asked  me?

      c. Da. *Hvorfor gør  I  t  egentlig have spurgt mig?     ( (108a))
      d. Da.  Hvorfor har  I  t  egentlig t   spurgt mig?      ( (108b))

      e. ME.  Whare-tyll haue ye  t            t  askyd me þerof ?
              Where-till have you               asked me  thereof?
              (Why did you ask me about it?)
                   (around 1400-1450, Anonymous (trsl.), The Governance of Lordschipes, Steele 1898:113)
```

Even in modern English, there is nothing to be gained by *do*-insertion here. It does not minimise the violations of **Pred-Right**, because non-thematic *have* may itself be inserted under I°, so that only the main verb *seen* violates **Pred-Right**, (109b), whereas *do*-insertion in I° would force non-thematic *have* to be inserted under a V° and then there would be two violations of **Pred-Right**, (109a). Insertion of non-thematic *have* under a V° and subsequent movement to I° and C° would violate **Pred-Right** even more, (109c):

(109)

MODERN ENGLISH C° I° V° V°	Check p.inf.	Pred- Right	Verb- in-V°
a. *do you t actually have asked*	*	**!	*
►► b. *have you t actually asked*	*	*	*
c. *have you t actually t asked*	*	**!**	

In Danish, the candidate with insertion of all verbs under a V°, (110c), wins, because of the high ranking of **Verb-in-V°**:

(110)

MODERN DANISH C° I° V° V°	Check p.inf.	Verb- in-V°	Pred- Right
a. *gør du t egentlig have spurgt*	*	*!	**
b. *har du t egentlig spurgt*	*	*!	*
►► c. *har du t egentlig t spurgt*	*		****

Here again there is no difference between Danish and Middle English. In Middle English, none of the candidates violate **Check person inflection** because all candidates have a verb trace in I°:

(111)

MIDDLE ENGLISH C° I° V° V°	Check p.inf.	Verb- in-V°	Pred- Right
a. *do ye t haue askyd*		*!	**
b. *haue ye t askyd*		*!	*
►► c. *haue ye t t askyd*			****

5.6 The position of finite verbs in negated clauses

Consider now the three-way difference concerning negated clauses. In modern English negated clauses, **do** is inserted in I°, in Danish there is neither **do**-insertion nor V°-to-I° movement, and in Middle English, there is no **do**-insertion but there is V°-to-I° movement:

```
                   C°_____    I°_____     V°_____
(112) a. En.  ... because you  did    not  talk   to him
      b. En. *... because you  talked not  t      to him
      c. En. *... because you          not  talked to him

      d. Da. *... fordi   du   gjorde ikke tale   til ham    ( (112a))
      e. Da. *... fordi   du   talte  ikke t      til ham    ( (112b))
      f. Da.  ... fordi   du          ikke talte  til ham    ( (112c))

      g. ME.  ...         I    spak   not  t      to  hym ther-of
              ...         I    spoke  not          to  him about it
```
<div align="right">(1460, Margaret Paston, <i>Letter to John Paston I, 21.10.1460</i>, Davis 1971:259)</div>

The conflict here is between **Verb-in-V°** on one hand and **HMC** and **Pred-Right** on the other. Recall that **HMC** is violated not only by a finite verb moving from V° across negation into I°, but also by a link from I° across negation down into V°. (The underlying assumption is that all languages have to have some kind of link between I° and the finite verb). As usual, the candidate with **do**-insertion violates **Verb-in-V°**, but it does not violate **HMC**, because there is no link across negation, (113a). Both candidates without **do**-insertion do not violate **Verb-in-V°**, but they do violate **HMC**, because they both have a link across negation, (113b,c).

In English, **Pred-Right** and **HMC** takes precedence over **Verb-in-V°**:

(113)

MODERN ENGLISH I°　　　　V°	Check p.inf.	Pred- Right	HMC	Verb- in-V°
►► a. *did　not talk*	*	*		*
b. *talked not t*	*	**!	*	
c. *　　　not talked*	*	*	*!	

In Danish, **Verb-in-V°** takes precedence over **Pred-Right** and **HMC**, causing (114a) to be ruled out. **Pred-Right** then settles the competition between (114b,c) in favour of (114c):

(114)

MODERN DANISH I°　　　　　V°	Check p.inf.	Verb- in-V°	Pred- Right	HMC
a. *gjorde ikke tale*	*	*!	*	
b. *talte　ikke t*	*		**!	*
►► c. *　　　ikke talte*	*		*	*

Again there is no ranking difference between Danish and Middle English. In Middle English, however, the candidates with a verb in I° do not violate **Check person inflection**, ruling out (115c) right away. **Verb-in-V°** then settles the competition between (115a,b) in favour of (115b):

(115)

MIDDLE ENGLISH I°　　　　V°	Check p.inf.	Verb- in-V°	Pred- Right	HMC
a. *did　not speke*		*!	*	
►► b. *spak not t*			**	*
c. *　　　not spak*	*!		*	*

<div align="right"><i>Vikner: Germanic SOV/SVO, part VI, p. 41</i></div>

(English negated clauses with non-thematic verbs do not have *do*-insertion: Non-thematic verbs are themselves inserted under I° and thus already avoid any violations of the **HMC**. If *do* is inserted in such a construction, the non-thematic verb is forced to appear under V°, causing an extra **Pred-Right** violation, cf. (109a) above).

5.7 Early Modern English

As seen above, there are three constraints that are ranked differently in modern English and modern Danish: **Verb-in-V°**, **Pred-Right**, and **HMC**. In English, **Verb-in-V°** is ranked below the other two constraints, whereas in Danish, **Verb-in-V°** is ranked above the other two:

```
(116) a.                 Pred-Right >> HMC >> Verb-in-V°    (modern English)
      b.  Verb-in-V° >> Pred-Right >> HMC                   (modern Danish)
```

The fact that two different constraints conflict with **Verb-in-V°** means that *do*-insertion in questions, section 5.5, is in principle independent of *do*-insertion in negated clauses, section 5.6. Seeing as English has *do*-insertion in both cases and all the other Germanic and Romance languages have *do*-insertion in neither case, this might appear to be too powerful an account, i.e. to provide unnecessary options.

However, when we include not only Middle English but also the stage between Middle English and modern English, Early Modern English (i.e. English 1550-1650), it becomes clear that this extra option is actually not superfluous. Early Modern English is an example of a language which has **Verb-in-V°** ranked below one of the conflicting constraints, **Pred-Right**, but above the other one, **HMC**:

```
(117)   Pred-Right >> Verb-in-V° >> HMC
```

This ranking will derive the facts of Early Modern English, where *do*-insertion in questions is far more common than *do*-insertion in negative clauses:

```
(118)            1475  1500  1525  1535  1550  1575  1600  1625  1650
      % do       1500  1525  1535  1550  1575  1600  1625  1650  1700

      – in questions    6.4  30.3  33.0  45.1  55.8  57.0  64.0  75.0  77.4

      – in negative     4.8   7.8  13.7  27.9  38.0  23.8  36.7  31.7  46.0
        declaratives
```

(figures from Rohrbacher 1999:166, Table 4.2, which builds on Kroch 1989:224, table 3, which again builds on Ellegård 1953:161, table 7, 204, table 20)

(An informal way of thinking about this is that the ″normal″ situation is that **Verb-in-V°** is very highly ranked. The Early Modern English situation might then be the beginning of the slide of **Verb-in-V°** into insignificance, and the modern English situation with its even lower ranking of **Verb-in-V°** is the end point (so far) of this slide.)

6.   Conclusions

6.1   Conclusions, sections 1-4

It was argued that it is possible to formulate checking as a constraint, making possible an account of the link between verbal inflectional morphology and V°-to-I° movement, as argued for by the non-OT-studies Rohrbacher (1999) and Vikner (1997).

By formulating checking as a violable constraint, an inclusion of all the OV-languages into the above accounts is made possible. It was argued that this would not be possible if violability of constraints was impossible, because although German has more verbal inflection than French and Yiddish, there is no V°-to-I° movement in German, whereas there is V°-to-I° movement in French and Yiddish.

The analysis also made it possible to see Yiddish as an OV-language without undermining the findings of Rohrbacher (1999) and Vikner (1997). It was shown that it was possible to derive the VO/OV-difference with violable constraints, and that the constraints crucial for the VO/OV-difference also had other effects, namely the minimising both of structure and of movement.

The typological predictions were discussed, and two different ways were discussed of dealing with the fact that one out of the six predicted language types (w.r.t. the word order in embedded clauses) was not attested within Germanic and Romance. One was an appeal to the mechanism of constraint conjunctions which would exclude the sixth language type, so that exactly five different language types would be predicted.

Finally, it was shown how the difference between embedded clauses and V2 clauses could be derived by means of the constraint **Obl-Head**.

6.2 Conclusions, section 5

Section 5 discussed a number of issues in the syntax of finite auxiliary verbs and finite main verbs. Having already discussed the syntax of finite main verbs in the earlier sections, it was possible to see where the syntax of finite auxiliary verbs differ from this, and what such a difference co-occurs with. Such differences were found in English, but not in the other languages, and this was correlated with *do*-insertion in V2 clauses and in negative clauses.

(It may be extended to emphatic clauses, Vikner 2001a:207, where it is assumed that emphasis is a head position c-commanding VP but c-commanded by Pers° and I°, and

so its presence in a structure has exactly the same effect as the presence of sentential negation: It intervenes in the chain between I° and V°. This causes *do*-insertion in English, but not in the other languages).

Why is light *do* necessary in V2? Because verb movement has a price, and because in English, this price is higher than the price of inserting a light *do*. This is assumed, not derived, but most of the other findings of this section can be derived from this initial assumption.

Why is light *do* always finite? Because light *do* is never inserted under V°, only under I°. Insertion of *do* under V° would require one more VP and therefore one more violation of **Pred-Right**, and the advantages of *do*-insertion would be lost.

If *do* can be inserted outside VP, why not insert a finite main verb outside VP, seeing as this would also cut down the number of violations of **Pred-Right**? Because only non-thematic verbs can be inserted outside VP. Thematic verbs inserted directly outside VP would not be able to assign their thematic roles, and I take this to be ruled out (by GEN).

This leaves open the possibility of inserting other verbs under I°, as long as they are non-thematic, and this is precisely what happens in English: The auxiliaries *be*, *do*, *have*, and the modal verbs, but also the main verb *be* are inserted outside VP, which is why they precede sentential adverbials in English, in contrast to English finite main verbs.

Why is there no *do*-insertion with non-thematic verbs? The insertion of non-thematic verbs outside VP further means that there is nothing to be saved by insertion of light *do* in such cases: **Pred-Right** is already only violated once, by the main verb in V°. This is why *do*-insertion is impossible with the auxiliaries *be*, *do*, *have*, with the main verb *be*, and with the modal verbs (but not impossible with other main verbs, including main verb *do* and main verb *have*).

Because *do*-insertion (during V2) and the insertion of non-thematic verbs outside VP follow from exactly the same ranking, it makes the prediction that any language that shows the differences between main and auxiliary verbs found in English will also have *do*-insertion, and vice versa.

Why is light *do* necessary with sentential negation? Because sentential negation intervenes in the chain between I° and V°. Such a chain has to obtain both when there is V°-to-I° movement (in which case the chain is the movement path of the finite verb) and also when there is no V°-to-I° movement (in which case the chain is the checking relation between I° and the finite verb in V°, which still has to show subject-verb agreement, cf. e.g. English, Faroese, German and Dutch). As in V2 clauses, English prefers to insert *do*, although this costs a violation of **V-in-V°**, whereas in the other languages, where **V-in-V°** is ranked much higher, not violating **V-in-V°** is more important than not violating the conflicting constraint, in this case **HMC** (Head Movement Constraint).

In the V2 cases the constraint in conflict with **V-in-V°** was **Pred-Right**. The fact that the constraint with which **V-in-V°** conflicts is not the same in the two cases opens the door to the possibility that languages might exist with *do*-insertion in one but not the other case. This is compatible with the fact that *do*-insertion in questions seems to slightly predate *do*-insertion in negative environments in late Middle English and early modern English, cf. section 5.7.

6.3 Not covered

▪ **V2 vs. residual V2**

The variation between French and English (V2 only in questions, i.e. ″residual V2″) on one hand and the other Germanic languages on the other (V2 in all main clauses) can be shown to be derivable by means of two constraints **Wh-spec** (requiring *wh*-operators to be in a specifier position) and **Operator-spec** (requiring all operators including topics to be in a specifier position), see Vikner 2001a:226-254. This account also predicts the impossiblity of the mirror image of English and French, i.e. languages with V2 in topicalisations but not in questions.

▪ **Optionality of complementisers**

that is optional only in VO-languages without V°-to-I° movement, but obligatory in VO-languages with V°-to-I° movement (an effect of the constraint **Projection-Principle**, Grimshaw 1997, Vikner 2001b, and many others) and in all OV-languages (because all embedded sentences have to be extraposed, just like subject sentences in the VO-languages, which also have obligatory *that*).

▪ **Possibility of transitive expletive constructions**

In the VO-languages, transitive expletive constructions are possible only in languages with V°-to-I° movement, an observation going back at least to Vikner (1990:3.7, 3.24, 1995:153, 188-190) and Sigurðsson (1991:354). This is because the logical subject (which was shown to be in TP-spec by Jonas & Bobaljik 1993:88-89) is licensed from I°, and such licensing requires that I° has content, which is only the case if the verb has moved there. In OV-languages, on the other hand, following Haider & Rosengren (1998:48-51, 2003), the logical subject of a transitive expletive construction may be licensed by the verb in situ.

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