Generativ lingvistik:
Optimalitetsteori og komparativ syntaks

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″**Wer fremde Sprachen nicht kennt, weiß nichts von seiner eigenen**″
(Goethe, Maximen und Reflexionen)

0. Introduction

0.1 Two crucial questions for linguistics

(1)   a.   ***What does the linguistic knowledge in the brain (of the first language(s)) look like?***
        b.   ***How did it get there?***

The answer to (1b) will set certain limits to the possible answers to (1a):

(2)

Innate	Acquired	
100%	–	a. The entire grammar is innate, nothing is acquired
–	100%	b. Nothing is innate, everything is acquired
Part	Part	c. Some of the grammar is innate and some is acquired

If **EVERYTHING** was innate, i.e. (2a), then we should all speak exactly the same language, just like we all have exactly one liver, two kidneys, two arms and ten fingers, not two livers, one kidney, ten arms and two fingers (or any other combination). In other words, any kind of variation between languages is a problem for such a hypothesis (which admittedly has never been seriously suggested):

(3)   English *boy*   = German *Junge* =   French *garçon* =   Italian *ragazzo*
       = Swedish *pojke* = Danish *dreng* = Norwegian *gutt*   = Icelandic *strákur*

If **NOTHING** was innate, i.e. (2b), then there ought to be a lot more variation between languages than there actually is. Although about 8000 natural languages are spoken in the world today, they are not all that different, cf. the linguistic universals, which are properties which are common to all languages. An example is that a name cannot be coreferent with a preceding pronoun (in the same or a higher clause). The languages below are English, Danish, Icelandic, German, French, Welsh, Hungarian, Basque, Turkish, Hebrew and Swahili (from Vikner 1999):

(4) En. a. <u>He</u> thinks [that <u>John</u> is rich]   (Impossible with coreference)
          b. <u>John</u> thinks [that <u>he</u> is rich]   (Coreference possible)

(5) Da. a. <u>Han</u> tror [at <u>Johan</u> er rig]   (Impossible with coreference)
          b. <u>Johan</u> tror [at <u>han</u> er rig]   (Coreference possible)

(6) Ic. a. <u>Hann</u> heldur [að <u>Jóhann</u> sé ríkur]   (Impossible with coreference)
          b. <u>Jóhann</u> heldur [að <u>hann</u> sé ríkur]   (Coreference possible)

(7) Ge. a. <u>Er</u>   glaubt, [daß <u>Johann</u> reich ist]   (Impossible with coreference)
          b. <u>Johann</u> glaubt, [daß <u>er</u>   reich ist]   (Coreference possible)

(8) Fr. a. <u>Il</u> croit [que <u>Jean</u> est riche]   (Impossible with coreference)
          b. <u>Jean</u> croit [qu' <u>il</u>   est riche]   (Coreference possible)

(9) We. a. Mae <u>o</u>   'n gwybod [bod <u>Sion</u> yn gyfoethog] (Coreference imposs.)
          b. Mae <u>Sion</u> yn gwybod [ei fod <u>o</u>   'n gyfoethog] (Coreference possible)

(10) Hu. a. ___   Azt gondolja [hogy <u>János</u> gazdag] (Impossible with coreference)
          b. <u>János</u> azt gondolja [hogy ___   gazdag] (Coreference possible)

(11) Ba. a. ___   [<u>Jon</u> aberatsa dela] uste du   (Impossible with coreference)
          b. <u>Jonek</u> [___ aberatsa dela] uste du   (Coreference possible)

(12) Tu. a. ___   [<u>HasanIn</u> zengin olduGunu] sanIyor (Impossible with coreference)
          b. <u>Hasan</u> [___   zengin olduGunu] sanIyor (Coreference possible)

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(13)  He. a.  Hu      xoSev [Se-Yohanan 9aSir]      (Impossible with coreference)
          b.  Yohanan xoSev [Se-hu      9aSir]      (Coreference possible)

(14)  Sw. a.  Yeye anafikiri [John ni tajiri]       (Impossible with coreference)
          b.  John anafikiri [yeye ni tajiri]       (Coreference possible)
```

If **NOTHING** was innate, (2b), it would be hard to account for language acquisition taking place so quickly and so successfully, as the child would have to acquire everything from scratch.

When you have to learn something from scratch, like math or chess or rollerskating or speaking a foreign language, then the result is not always very impressive. But people whose native language is English vary much much more with respect to how well they play chess or how well they speak French than with respect to how well they speak English.

0.2 Insufficiency of the input

If **NOTHING** was innate, i.e. (2b), then it would be an open question how the child could get from 0% to 100%. The answer is (uncontroversially) that the child′s knowledge must come from the input, i.e. from what the child hears. But what the child hears is not that much and not always that good either:

(15)   a. **Not enough**
           The child cannot possibly have heard all the sentences (or all the sentence types) that it can produce or understand. The time it takes for a child to acquire its mother tongue is simply not long enough.

       b. **Not good enough**
           On top of this, the sentences that the child actually hears are not all well-formed.

       c. **Negative input plays no role at all**
           The poverty of the stimulus is even more striking when it is considered that negative input (information that something is not possible) seems to play no role at all:

```
(16)  Child:  Want other one spoon, Daddy
      Father: You mean you want "the other spoon".
      Child:  Yes, I want other one spoon, please, Daddy.
      Father: Can you say "the other spoon"?
      Child:  other - one - spoon
      Father: Say "other".
      Child:  Other
      Father: "Spoon".
      Child:  Spoon.
      Father: "other - spoon".                      (Fromkin, Rodman &
      Child:  Other - spoon. Now give me other one spoon?     Hyams 2003:345)

(17)  Child:  I taked a cookie
      Parent: Oh, you mean you "took" a cookie.
      Child:  Yes, that's right, I taked it.        (Akmajian et al. 1995:453)

(18)  Child:  Ved du hvor meget jeg drikkede?
      Parent: Nej, hvor meget drak du?
      Child:  Først drikkede jeg en hel kop te og så drikkede jeg et
                     glas juice, og så ...
      Parent: Drak du så meget?
      Child:  Ja, så meget drikkede jeg.            (occurred on 14.3.2000, at age 5)
```

(The child now says only *drak*, never *drikkede*.)

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How can these children (and all other children) then ever learn that something is not possible in their language? E.g. how could children find out that (19a)/(20a) are impossible with coreference although (19b)/(20b) are possible?

```
(19)  En. a.  He    thinks [that John is rich]      (Impossible with coreference)
          b.  John thinks [that he   is rich]      (Coreference possible)

(20)  Da. a.  Han   tror [at Johan er rig]          (Impossible with coreference)
          b.  Johan tror [at han   er rig]          (Coreference possible)
```

To generative linguists, children do not need to learn this, they already "know":

(21) **Some of the linguistic knowledge is innate (the so-called Universal Grammar)**
            (this is the reason for universals and for the speed and success rate of language acquisition)
      and some of it has to be acquired
            (this is the reason for those differences that actually exist between the languages of the world)

0.3 Universal Grammar (UG)

UG is the innate part of our linguistic knowledge. Many (though not all) of the properties that all languages share can be derived from UG. UG is the reason that there are linguistic universals (in most if not all cases), and UG is also the reason that language acquisition can be so quick and so successful as it is.

It is not only UG that determines the language acquired: Also the input (the sentences that the child hears) plays a decisive role. The input determines all those properties that vary between languages, i.e. that are not laid down by UG. The theory of UG is two things at once:

(22) a. UG is a theory of grammar across all natural languages, and
      b. UG is a theory of the innate linguistic endowment, i.e. the ability to acquire linguistic skills, which humans but no other beings are born with.

Only by trying to be both at the same time, does the theory of UG hold any interest: The amazing speed and ease with which children acquire their mother tongue is only really amazing when the immense number of different possible mother tongues is kept in mind.

I thus take it that **comparative linguistics** should strive to account for as many (surface) differences between different languages as possible by deriving them from as few underlying (theoretical) differences as possible.

This is desirable not only for the inherent theoretical elegance in being able to unite separate surface phenomena under one generalisation, but also because it may provide the other half of the account of first language acquisition: The fewer (underlying) differences there are between languages, the less data the child will have to encounter in order to be able to choose between alternative possible grammars, and the fewer data that have to be encountered to acquire any given language, the better is our account for the speed of first language acquisition.

This also makes it possible to determine which aspects of a given language, e.g. Danish, also exist in other languages and which aspects are specific to the individual language.

Such a typological perspective not only makes it possible to establish a number of typological correspondences and predictions (e.g. of the kind "only languages which have X will have Y too"), but also to explain and justify these theoretically,

By comparing both different languages (e.g. Danish vs. English) and different stages of the same language (e.g. Middle English vs. modern English) it becomes possible to decide what constitutes possible (and impossible) types of language variation.

1. Structure

1.1 X-bar structure

In a generative analysis, syntactic constituents are all constructed according to the same pattern: The ″X-bar structure″ as in (23) (where the sequence of the head and the complement may vary).

```
(23)                      XP
                ┌─────────┴─────────┐
               YP                   X'
            Specifier         ┌─────┴─────┐
                             X°           ZP
                            Head       Complement
```
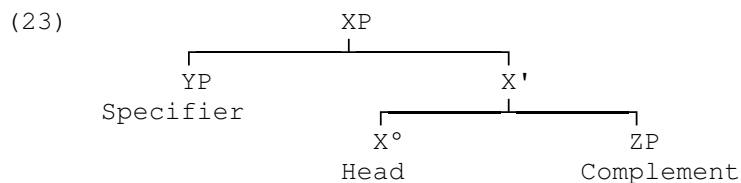
```
(24)  XP = phrase  —  the maximal projection of X
      X' = X-bar   —  the intermediary projection of X
      X° = head    —  the minimal projection of X
```

A maximal projection may occur as specifier or as complement in another projection. A head is always a head of its own projection, and all maximal projections have a head (are endocentric). Furthermore, a maximal projection can also be adjoined to another maximal projection:

```
(25)                      XP
                ┌─────────┴─────────┐
               WP                   XP
          Adjungeret                │
           position                ...
```
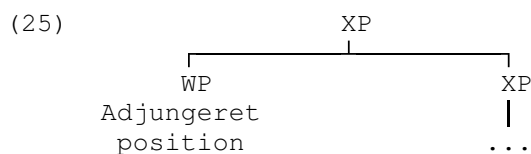
X (and also Y, Z and W) may stand for one of the following categories:

(26) lexical categories (word classes)	"functional" categories
N (noun)	C ('complementiser' —
V (verb)	subordinating conjunction)
P (preposition)	I ('inflection', used to be AUX)
Adj (adjective)	D (determiner/article etc.)
Adv (adverb) etc.	etc.

1.2 Clause structure

In a somewhat simplified generative analysis, the structure of a sentence is as follows:

(27)   A clause is a CP,
       the complement of its head (= C°) is an IP, and
       the complement of the IP's head (= I°) is a VP.

       (VP thus corresponds to Diderichsen's 1962 "indholdsfelt",
       IP thus corresponds to BOTH Diderichsen's 1962 "nexusfelt" AND "indholdsfelt")

All verbs have their own VP. Adverbials (etc.) may be adjoined both on the left side and on the right side of a VP.

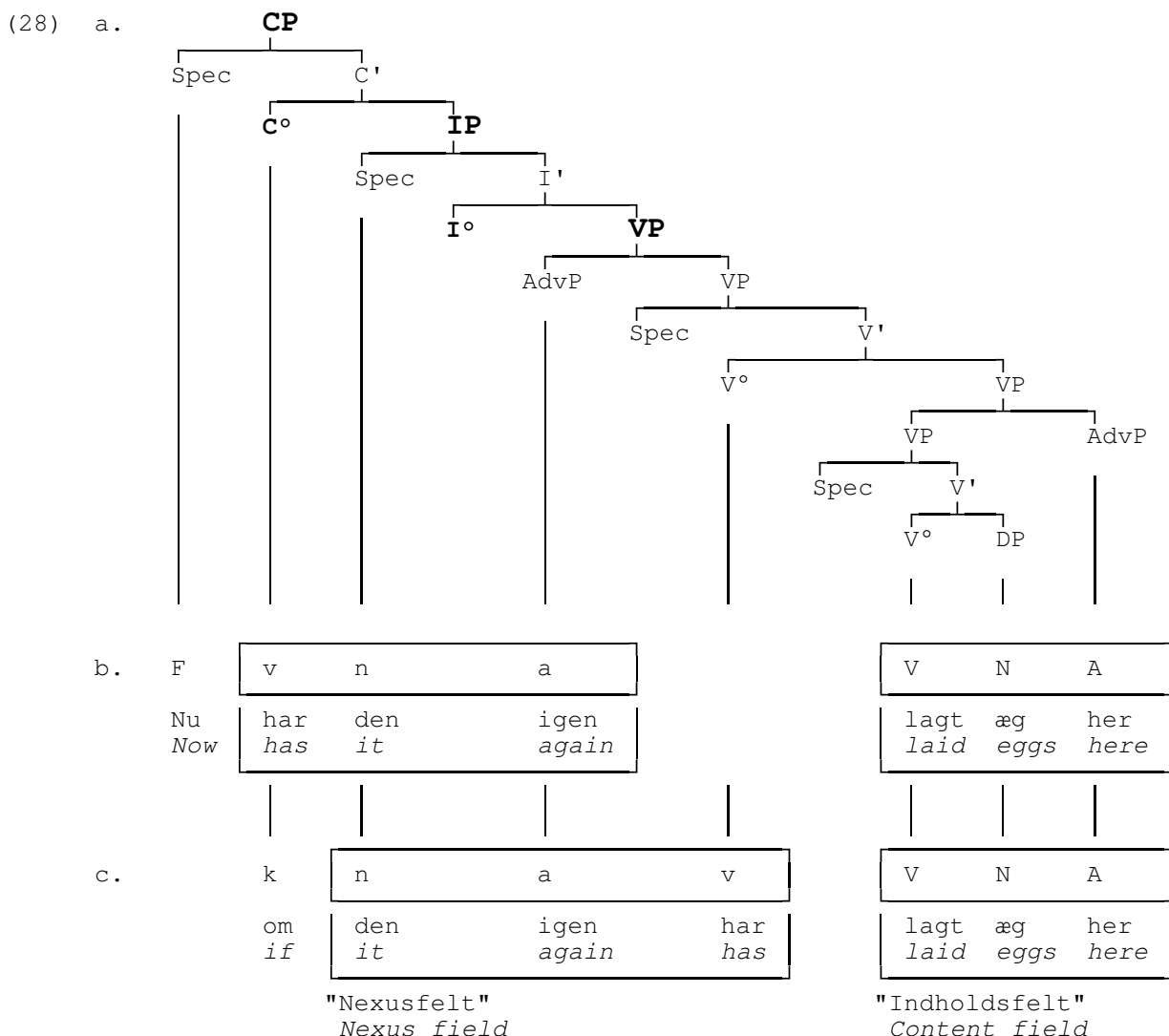The structure in (28a) may thus be compared to the Diderichsen model for modern Danish (etc.) as illustrated in (28b) for main clauses and in in (28c) for embedded clauses (Diderichsen 1962:162, 186, cf. also Hansen 1980:44, 72-74, Heltoft 1986, Allan et al. 1995:491-498, Jørgensen 2000:63-78, Togeby 2003:56, 72, 97-99):

(28)   a.

```
                        CP
              ┌──────────┴──────────┐
            Spec                    C'
             │            ┌──────────┴──────────┐
             │           C°                     IP
             │            │          ┌───────────┴──────────┐
             │            │        Spec                     I'
             │            │          │           ┌───────────┴──────────┐
             │            │          │          I°                     VP
             │            │          │           │          ┌───────────┴──────────┐
             │            │          │           │        AdvP                     VP
             │            │          │           │          │          ┌───────────┴──────────┐
             │            │          │           │          │        Spec                     V'
             │            │          │           │          │          │           ┌───────────┴──────────┐
             │            │          │           │          │          │          V°                     VP
             │            │          │           │          │          │           │          ┌───────────┴──────────┐
             │            │          │           │          │          │           │         VP                     AdvP
             │            │          │           │          │          │           │    ┌──────┴──────┐              │
             │            │          │           │          │          │           │  Spec           V'             │
             │            │          │           │          │          │           │    │        ┌─────┴─────┐       │
             │            │          │           │          │          │           │    │       V°          DP      │
             │            │          │           │          │          │           │    │        │           │      │
```

       b.   F   │ v   n   a   │   │ V   N   A   │

            Nu   │ har   den   igen   │   │ lagt   æg   her   │
            Now │ has   it   again   │   │ laid   eggs here │

       c.   k   │ n   a   v   │   │ V   N   A   │

            om   │ den   igen   har   │   │ lagt   æg   her   │
            if   │ it   again   has   │   │ laid   eggs here │

                   "Nexusfelt"   "Indholdsfelt"
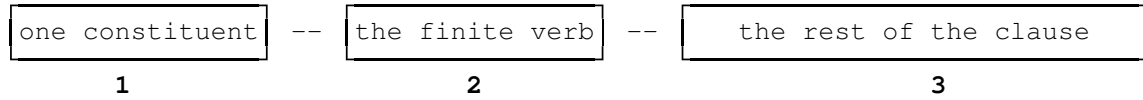   *Nexus field*   *Content field*

(This collapsing of the Diderichsen model for the main clause with the one for the embedded clause was introduced by Platzack 1985).
(On compatibilities and incompatibilities between formal and functional linguistics, see also Vikner 2004).

2. Verb Second (V2)

In all Germanic languages with the exception of Modern English, all main clauses have a special property, namely that they are ″**verb second**″ (V2), which means that the finite verb occupies the second position in the clause, irrespective of which constituent occupies the first position:
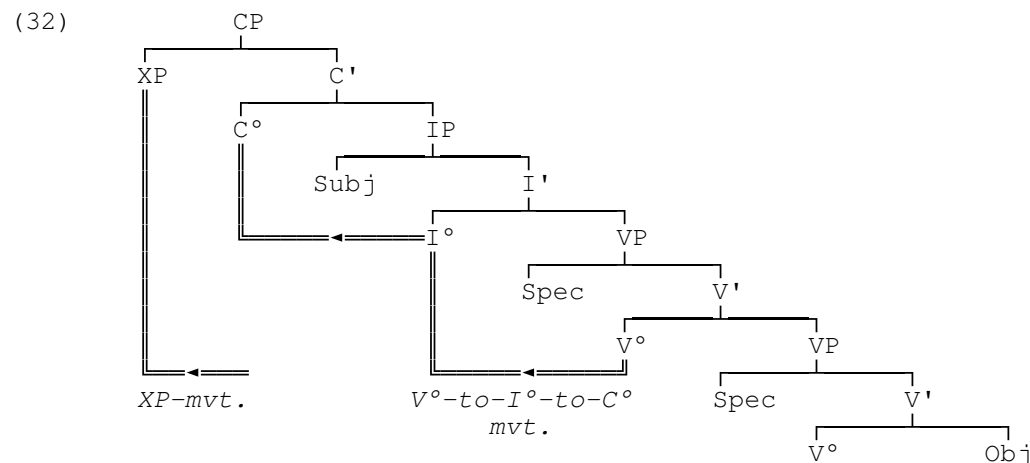
(29) **Verb second = V2**:

```
┌─────────────────┐    ┌─────────────────┐    ┌─────────────────────────┐
│ one constituent │ -- │ the finite verb │ -- │   the rest of the clause │
└─────────────────┘    └─────────────────┘    └─────────────────────────┘
        1                      2                          3
```

Danish, Icelandic and German are thus V2, whereas English and French are not:

		CP-Spec	C°	IP
(30) a.	Da.	Den her bog	har	Peter læst
b.	Ic.	Þessa bók	hefur	Pétur lesið
c.	Ge.	Dieses Buch	hat	Peter gelesen
d.	En.	*This book	has	Peter read
e.	Fr.	*Ce livre	a-t-	il lu
(31) a.	Da.	Nu	har	Peter læst den her bog
b.	Ic.	Nú	hefur	Pétur lesið þessa bók
c.	Ge.	Jetzt	hat	Peter dieses Buch gelesen
d.	En.	*Now	has	Peter read this book
e.	Fr.	*Maintenant	a-t-	il lu ce livre

V2 is analysed as two movements: A maximal projection (e.g PP, AdvP, DP) moves into CP-Spec (i.e. the 1st position) and the finite verb moves into C° (i.e. the 2nd position).

(32)

```
                      CP
            ┌──────────┴──────────┐
           XP                     C'
           ││          ┌──────────┴──────────┐
           ││         C°                     IP
           ││         ││          ┌──────────┴──────────┐
           ││         ││        Subj                    I'
           ││         ││          │          ┌──────────┴──────────┐
           ││         └──◄────────┼────────I°                     VP
           ││                     ││         ┌──────────┴──────────┐
           ││                     ││       Spec                    V'
           ││                     ││                    ┌──────────┴──────────┐
           ││                     ││                   V°                     VP
           └────◄─────────────────┘│         ┌──────────┴──────────┐
                                   └──◄───────┤        Spec                   V'
                                                                    ┌──────────┴──────────┐
                                                                   V°                     Obj
   XP-mvt.               V°-to-I°-to-C°
                            mvt.
```
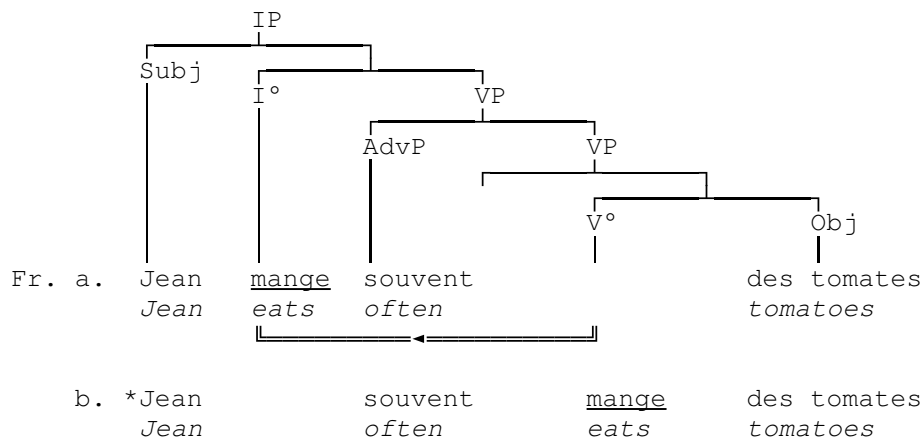
Because V2 moves the finite verb out of the clause (into the C°-position, to the left of the subject position), we have to look at sentences without V2 in order to be able to see which verb positions are possible in which languages. In English and French this is not difficult, as only main clause questions are V2, whereas in the other Germanic languages, we have to turn to embedded clauses.

3. V°-to-I° movement

French is a language with what is called **V°-to-I° movement**. This means that in French the finite verb moves from its position in V° to a functional position further left, namely I°. This movement can be detected if there is a e.g. medial adverbial present, in this case *souvent*:
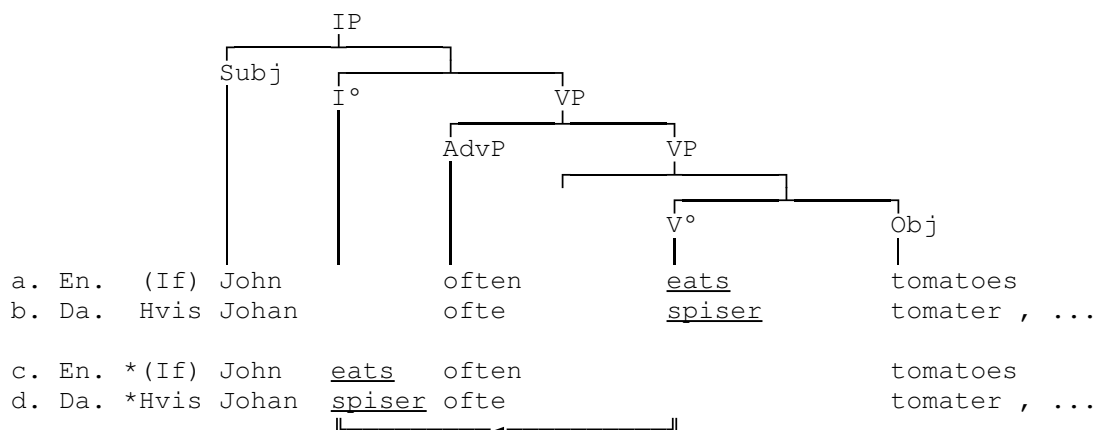
```
(33)                       IP
                  ┌─────────┴──────────┐
                Subj          ┌────────┴────┐
                              I°            VP
                                      ┌─────┴──────┐
                                    AdvP           VP
                                              ┌────┴──────────┐
                                              V°              Obj

        Fr. a.   Jean     mange    souvent                des tomates
                 Jean     eats     often                  tomatoes
                          └─────────────◄═══════════════┘

            b. *Jean               souvent    mange       des tomates
                Jean               often      eats        tomatoes
```

In other words, in French the finite verb is base-generated in one position, to the immediate left of the object, and then moved across the sentence adverbial into another position, to the immediate right of the subject. This is what is called **V°-to-I° movement**.

   In modern English and modern Danish, finite main verbs do not undergo V°-to-I° movement:

```
(34)                        IP
                   ┌────────┴─────────┐
                 Subj        ┌────────┴────┐
                             I°            VP
                                     ┌─────┴──────┐
                                   AdvP           VP
                                             ┌────┴────────┐
                                             V°            Obj

     a. En.  (If) John          often    eats         tomatoes
     b. Da.  Hvis Johan         ofte     spiser       tomater , ...

     c. En. *(If) John    eats  often                 tomatoes
     d. Da. *Hvis Johan   spiser ofte                 tomater , ...
                          └──────────◄═══════════┘
```

Chomsky (1995:222) says about the ability of constituents to move in the syntax: *"Minimalist assumptions suggest that this property should be reduced to morphology-driven movement."* This was the objective of Vikner (1997, 1998), where finite verb movement was linked to verbal inflectional morphology:

(35)   An SVO-language has V°-to-I° movement if and only if person morphology is found
        in all tenses.   (Vikner 1997:207, (23))

The generalisation in (35) accounts for the above difference in the positions of finite main verbs, assuming a clause structure as in (34) and (33) above.

Among all the Romance and Germanic SVO-languages, the only languages where inflectional differences for person are not found in every tense are modern English and four modern Scandinavian languages: Danish, Faroese, Norwegian, and Swedish, cf. (40) and (41) below.

These five languages are also the only SVO-languages without V°-to-I° movement, cf. (36) and (37) below.

▪ Which languages have V°-to-I° movement?

Icelandic, Yiddish, and French all have V°-to-I° movement:

```
(36)            C°    |IPsp  |I°    |AdvP   |V°   |DP         |
      a. En. *That |John  |eats  |often  |_____|tomatoes   |(surprises most people)
      b. Da. *At   |Johan |spiser|ofte   |_____|tomater    |(overrasker de fleste)
      c. Fa. *At   |Jón   |etur  |ofta   |_____|tomatir    |(kemur óvart á tey flestu)
      d. Ic.  Að   |Jón   |borðar|oft    |_____|tómata     |(kemur flestum á óvart)
      e. Yi.  Az   |Jonas |est   |oft    |_____|pomidorn   |(iz a khidesh far alemen)
      f. Fr.  Que  |Jean  |mange |souvent|_____|des tomates|(surprend tout le monde)
                          └─────────◄─────────┘
```

English, Danish, and Faroese (and also Norwegian and Swedish) all lack V°-to-I° movement:

```
(37)            C°    |IPsp  |I°  |AdvP    |V°    |DP         |
      a. En.  That |John  |    |often   |eats  |tomatoes   |(surprises most people)
      b. Da.  At   |Johan |    |ofte    |spiser|tomater    |(overrasker de fleste)
      c. Fa.  At   |Jón   |    |ofta    |etur  |tomatir    |(kemur óvart á tey flestu)
      d. Ic. *Að   |Jón   |    |oft     |borðar|tómata     |(kemur flestum á óvart)
      e. Yi. *Az   |Jonas |    |oft     |est   |pomidorn   |(iz a khidesh far alemen)
      f. Fr. *Que  |Jean  |    |souvent |mange |des tomates|(surprend tout le monde)
```

Furthermore, the languages without V°-to-I° movement have all only recently lost V°-to-I° movement. In English and in Danish, this change took place in the 15th and 16th centuries, Middle English and Old Danish were like French:

```
(38)  a. ME.  He  swore that he  talkyd neuer  t       wyth no man  ...
      b. En.  He  swore that he         never  talked to   anybody ...
```
((38a): 1460 William Paston I, *Letter to John Paston I, 02.05.1460*, Davis 1971:164)

```
(39)  OD.  Æn  beriær   man   threl for  bondæns          øghæn. tha  bøtæ han
           But  hits    a man a slave for peasant-the's  eyes,  then pays he

           bondæn         tolf øræ  foræ      um thrællæn takær  ey atær gen
           peasant-the twelve øre therefore   if slave-the attacks not back again
```

"Men slår en mand en træl for øjenene af bonden, da skal han bøde tolv øre derfor til bonden, hvis trællen ikke sætter sig til modværge"
(ca. 1300, *Valdemars sjællandske lov, yngre redaktion*, chap. 86, Uldaler & Wellejus 1968:54, l. 21-22)

Which languages have person morphology in all tenses?

(40)	English (20th C.)	Early modern English (16th C.)	Middle English (14/15th C.)	French (20th C.)
Infinitive	hear	hear(en)	here(n)	entendre
Imperative				
Singular	hear	hear	her(e)	entends
Plural	hear	hear	hereth	entendez
Participles				
Present	hearing	hearing	hering	entendant
Past	heard	heard	herd	entendu
Present				
1st singular	I hear	I hear	I here	j' entends
2nd singular	you hear	thou hearst	thou herest	tu entends
3rd singular	he hears	he heareth	he hereth	il entend
1st plural	we hear	we hear(en)	we here(n)	nous entendons
2nd plural	you hear	you hear(en)	ye here(n)	vous entendez
3rd plural	they hear	they hear(en)	þei here(n)	ils entendent
Different forms	2	3	4	4 (1s=2s=3s)
Past				
1st singular	hear-d	hear-d	her-d-e	entend-ais
2nd singular	hear-d	hear-d-[st]	her-d-est	entend-ais
3rd singular	hear-d	hear-d	her-d-e	entend-ait
1st plural	hear-d	hear-d-(en)	her-d-e(n)	entend-i-ons
2nd plural	hear-d	hear-d-(en)	her-d-e(n)	entend-i-ez
3rd plural	hear-d	hear-d-(en)	her-d-e(n)	entend-aient
Different forms	1	2	3	3 (1/2s=3s=3p)

(41)	Danish	Faroese	Yiddish	Icelandic
Infinitive	høre	hoyra	hern	heyra
Imperative				
Singular	hør	hoyr	her	heyr
Plural	hør	hoyr(ið)	hert	heyrið
Participles				
Present	hørende	hoyrandi	herndik	heyrandi
Past	hørt	hoyrt	gehert	heyrt
Present				
1st singular	jeg hører	eg hoyri	ikh her	ég heyri
2nd singular	du hører	tú hoyrir	du herst	þú heyrir
3rd singular	han hører	hann hoyrir	er hert	hann heyrir
1st plural	vi hører	vit hoyra	mir hern	við heyrum
2nd plural	I hører	tit hoyra	ir hert	þið heyrið
3rd plural	de hører	tey hoyra	zey hern	þeir heyra
Different forms	1	3	4	5
Past				
1st singular	hør-te	hoyr-d-i	---	heyr-ð-i
2nd singular	hør-te	hoyr-d-i	---	heyr-ð-ir
3rd singular	hør-te	hoyr-d-i	---	heyr-ð-i
1st plural	hør-te	hoyr-d-u	---	heyr-ð-um
2nd plural	hør-te	hoyr-d-u	---	heyr-ð-uð
3rd plural	hør-te	hoyr-d-u	---	heyr-ð-u
Different forms	1	2	0	5

▪ Digression on SOV-languages

Now what about SOV-languages like German or Dutch? As far as verbal inflection is concerned, the above suggestion would lead us to expect German (but not Dutch) to have V°-to-I° movement. Although this is what I used to think (Vikner 1995:152-157), I no longer think so, in that I now think that none of the SOV-languages have V°-to-I° movement, not even German (Vikner 2001a, 2005). Consider first the German version(s) of (36) and (37):

```
(42)  Ge. a. *Dass Johann isst oft Tomaten       (überrascht die meisten Leute)
          b.  Dass Johann     oft Tomaten isst  (überrascht die meisten Leute)
```

The ill-formedness of (42a), which must have the structure (43a), could be due to I° being final (as I thought in Vikner 1995:153) and/or be due to German not having V°-to-I° movement (as argued in Vikner 2001a, 2005).

The well-formedness of (42b) may either be the result of V°-to-I° movement if I° is final, as in (43b), or of lack of V°-to-I° movement, as in either of (43a,b) WITHOUT the arrows:
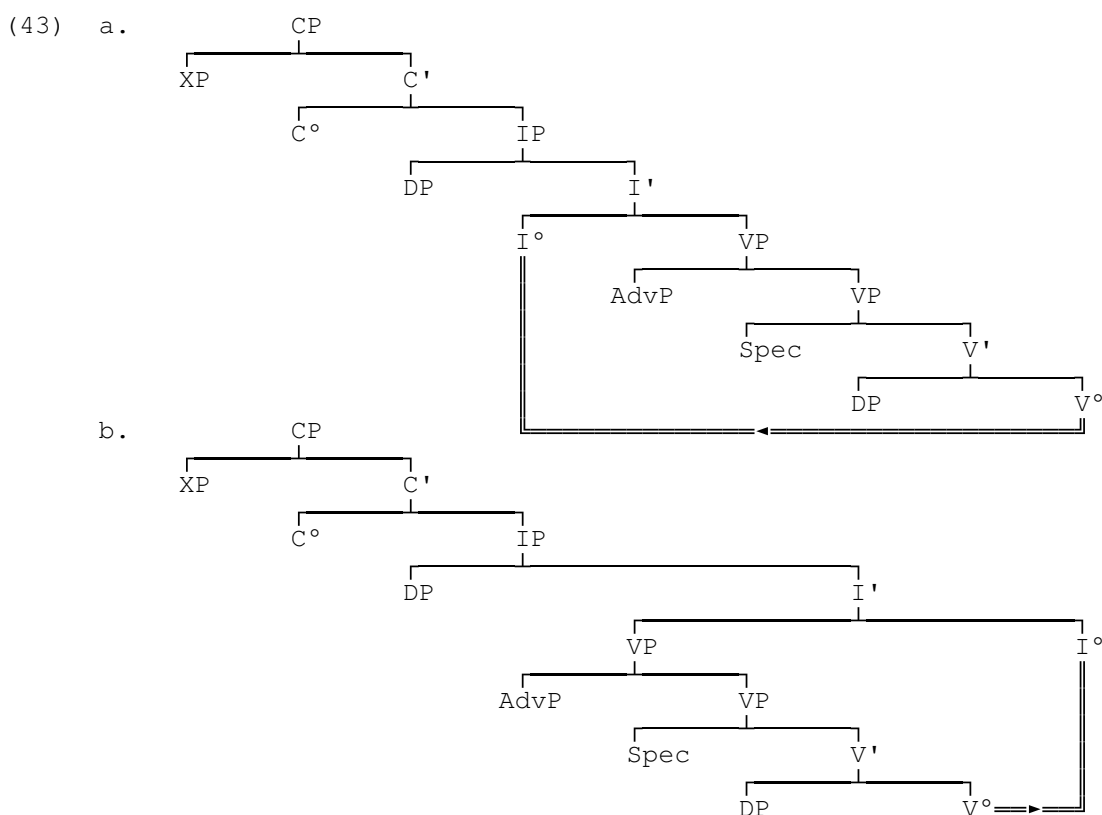
In other words, if German lacks V°-to-I° movement, we have no evidence of the position of I° in German, and thus it may be that the only difference between German clause structure and that of e.g. English and Danish is the position of V°, as in (43a) vs. (34).

(44)			V2	V°-to-I°	
	a.	French	−	+	
	b.	English	−	−	(at least not main verbs)
	c.	Icelandic	+	+	
	d.	Danish	+	−	
	e.	German	+	?	(Vikner 1995: + , Vikner 2001, 2005:-)

4. Main verb syntax versus auxiliary verb syntax

When compared even to languages which are very close either typologically (e.g. Danish) or diachronically (e.g. Middle English), it becomes apparent that one property of (modern) English syntax is really unique, namely the fact that there are syntactic differences between finite auxiliary verbs and finite main verbs. Auxiliary verbs are those which take a VP as complement (as opposed to main verbs, which have an NP, a PP, or a CP as complement or have no complement at all).

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 modern French), finite *have* occurs in I° (as in (33a)), i.e. before the sentence adverbial *never*, regardless of whether it is an auxiliary, (45a), or a main verb, (45b):

```
               C°   I°         V°                                      (Aux have)
(45)  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      (Main have)
          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, finite *have* occurs in V° (as in (34b)), i.e. after the sentence adverbial *aldrig* `never´, regardless of whether *have* is an auxiliary, (46a), or a main verb, (46c):

```
               C°        I°          V°
(46)  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° (as in (33a)), i.e. before the sentence adverbial *never*, whereas finite main verb *have* occurs in V° (as in (34b)), i.e. after *never*:

```
               C°   I°       V°
(47)  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 *not*, whereas main verb *have* needs *do*-support in a negated clause:

```
                         C°      I°      V°
(48)  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
```

The other 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°
(49)  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?
```

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

(50)   ″**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**

(51)   ″**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** 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°. (Examples of thematic roles are agent, patient, goal, experiencer, theme, …). 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**). Main verb **be** here differs from main verb **have** and **do**, but resembles auxiliary **have**, **be** and **do**.

5. Optimality Theory

I would like to propose an analysis that can also take in the data discussed in section 4, based on Vikner (2001a,b) and formulated in terms of Optimality Theory.

     (References: Prince & Smolensky 1993/2004, Burzio 1995, Grimshaw 1997, Kager 1999, and the papers in Archangeli & Langendoen 1997, in Barbosa & al. 1998, in Legendre et al. 2001, and in Müller & Sternefeld 2001).

     Probably the major characteristic of optimality theory is that constraints are taken to be relative (″soft″) rather than absolute (″hard″):

(52)   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 (the following is based on Grimshaw 1997:373):

(53)   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 ranked differently from language to language. Language variation is variation in the constraint hierarchy.

      d.   **Only the optimal version of a sentence is grammatical**
          (The different versions of a sentence are called candidates.) 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 better. 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.

(Many of the underlying assumptions and constraints are found also in Government and Binding Theory, Chomsky 1986 etc., and the Minimalist Program, Chomsky 1995 etc.)

5.1 The position of finite thematic verbs

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

```
                         C°      I°         V°
(54)  a. ME. He  swore that he  talkyd neuer t     wyth no man  ... (= (38a))
      b. En. He  swore that he         never talked to   anybody ...
      c. Da. Han svor  at   han        aldrig talte med  nogen   ...
```

The relevant constraints here are:

(55) ▪ **Check person inflection**: Requires all finite sentences to contain in I° a finite verb with person differences in all tenses. This is what forces V°-to-I° movement.
(Based on Vikner 1997 as discussed in section 3 above, but see also Rohrbacher 1999. Note that this constraint is necessarily violated in languages like modern English and modern Danish, because none of their finite verbs display person differences in all tenses. This constraint is also violated e.g. in German, cf. Vikner 2001a, 2005.)

▪ **V°-Right**: Requires all elements base-generated in **V°** to be to the right of their XP-sisters.
(Necessarily violated in SVO-languages like English and Danish, but respected e.g. in German embedded clauses, in fact, its different rankings account for the SVO-SOV differences English/Danish vs. German/Dutch).

Without formulating it as constraints, I shall furthermore presuppose that the following are respected in the SVO-languages:

(56) ▪ All thematic verbs are base-generated in V°, to make the assignment of the thematic roles possible (because all assignment of the verbs thematic roles is done inside VP). There is no such requirement on non-thematic verbs, i.e. on auxiliaries and main verb *be*.

▪ All **X°**s are to the left of their XP-sisters in SVO-languages like English and Danish (Grimshaw 1999). This is violated in German VPs, cf. e.g. German embedded clauses, as in (42) and (43) above.

▪ When something moves into CP-spec, the finite verb moves into C° (This is V2, cf. section 2 above).

The difference between Middle English on one hand and modern English and modern Danish on the other arises even though **Check person inflection** is ranked above (= takes precedence over) **V°-Right** in all three languages, because the languages differ in whether they mark finite verbs and thereby in their ability to comply with **Check person inflection**.

In Middle English, the two relevant candidates are (57a), which has V°-to-I° movement of a verb that has person in all tenses, and (57b), which has no V°-to-I° movement at all. **Check person inflection** prefers the former:

OT & comparative syntax, p. 15

(57)

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

(= (54a))

(►► marks the optimal candidate, which corresponds to a grammatical sentence. * marks a violation of a constraint, ** marks two violations of a constraint, and *! marks a fatal constraint violation.)

The two violations of **V°-Right** in (57a) 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 violation of **Check person inflection** in (57b) is caused by I° not containing a ″fully inflected″ finite verb, because (57b) has no V°-to-I° movement.

In modern English and modern Danish, on the other hand, the two relevant candidates options are (58a), which has V°-to-I° movement but of a verb that does not have person in all tenses, and (58b), which has no V°-to-I° movement at all. Both violate **Check person inflection** and the decision between them is therefore up to **V°-Right**. **V°-Right** is violated only once when the verb remains in V°, (58b), but twice when the verb is inserted under V° and then moved into I°, (58a), and so the optimal candidate is (58b):

(58)

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

(= (54b,c))

Because thematic verbs must be base-generated in V°, (56), 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: Base-generation directly in I°, without going via V°. This is what the next section is about.

5.2 The position of finite non-thematic verbs

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

```
            C°      I°           V°
(59) a. En. ... if   I   had   never      said that to  you   (= (47b) above)
     b. Da. ... hvis jeg       aldrig havde sagt det  til dig  (= (46a) above)

     c. ME.    Yf   y   hadde neuer      sayd to þe  but ...  (= (45a) above)
               If   I   had   never      said to you but ...
```

The relevant conflict here is between the constraints **V°-Right** and the following:

(60)   ▪ **Verb-in-V°**: Verbs should be inserted under V°. As stated above, this is necessarily the case for thematic verbs, and therefore the ranking of this constraint will only affect non-thematic verbs.

Recall that **V°-Right** only applies to verbs base-generated in V°. It is therefore necessary to consider not two but three candidates in each of (61)-(63):

(61a)/(62a)/(63a) - a candidate with **had** base-generated directly in I°, where only **said** violates **V°-Right** but **had** violates **Verb-in-V°**),

(61b)/(62b)/(63b) - a candidate with **had** base-generated in V° and then moved into I°, which has two more violations of **V°-Right** than (61a)/(62a)/(63a) but no violations of **Verb-in-V°**),

(61c)/(62c)/(63c) - a candidate in which the verb is base-generated in V° and stays there, which only has one more violation of **V°-Right** than (61a)/(62a)/(63a).

In modern English, **V°-Right** takes precedence over **Verb-in-V°**, whereas in Danish, it is the other way round, **Verb-in-V°** takes precedence over **V°-Right**:

(61)

MODERN ENGLISH	Check p.inf.	V°-Right	Verb-in-V°	
I° V° V°				
►► a. *had never said*	*	*	*	(= (59a))
b. *had never t said*	*	***!*		
c. *never had said*	*	**!		

(62)

MODERN DANISH	Check p.inf.	Verb-in-V°	V°-Right	
I° V° V°				
a. *havde aldrig sagt*	*	*!	*	
b. *havde aldrig t sagt*	*		***!	
►► c. *aldrig havde sagt*	*		**	(= (59b))

In Middle English, the constraint ranking is the same as in Danish, the difference being the same as in (57) above, i.e. that **Check person inflection** is only violated by the candidate where the verb is not in I°:

(63)

MIDDLE ENGLISH	Check p.inf.	Verb-in-V°	V°-Right	
I° V° V°				
a. *had neuer sayd*		*!	*	
►► b. *had neuer t sayd*			***	(= (59c))
c. *neuer had sayd*	*!		**	

5.3 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°
(64) a. En.  What  does   it t really   mean   ?
     b. En. *What  means  it t really          ?

     c. Da. *Hvad  gør    det t egentlig betyde ?        ( (64a))
     d. Da.  Hvad  betyder det t egentlig t     ?        ( (64b))

     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 **V°-Right**, caused by the main verb in V°, (65a). Movement of the thematic verb via I° into C° does not violate **Verb-in-V°**, but it violates **V°-Right** three times, in V°, in I°, and in C°, (65b). The ranking of these two constraints is therefore crucial:

(65)

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

(66)

MODERN DANISH	Check p.inf.	Verb-in-V°	V°-Right
C° I° V° 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° (actually a verb trace in I°):

(67)

MIDDLE ENGLISH	Check p.inf.	Verb-in-V°	V°-Right
C° I° V° a. *does 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°
(68) 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?      ( (68a))
     d. Da.  Hvorfor   har  I   t   egentlig t    spurgt mig?      ( (68b))

     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 **V°-Right**, because non-thematic **have** may itself be inserted under I°, so that only the main verb **seen** violates **V°-Right**, (69b), whereas **do**-insertion in I° would force non-thematic **have** to be inserted under a V° and then there would be two violations of **V°-Right**, (69a). Insertion of non-thematic **have** under a V° and subsequent movement to I° and C° would violate **V°-Right** even more, (69c):

(69) MODERN ENGLISH	Check p.inf.	V°-Right	Verb-in-V°
C° I° V° 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°, (70c), wins, because of the high ranking of **Verb-in-V°**:

(70) MODERN DANISH	Check p.inf.	Verb-in-V°	V°-Right
C° I° V° V° 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°:

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

6. Conclusion

I began by a short discussion of innateness and comparative linguistics, which (among other things) tries to determine what is and what is not a possible type of language variation. One role of comparative linguistics is thus to find the the border between innate and acquired knowledge.

The brief introduction to a generative view of clause structure in section 1 also tried to underline the parallels to Diderichsen's (1962) analysis, as seen in the analysis of V2 in section 2.

Section 3 suggested an analysis of the different positions of the finite main verb in English and related languages in terms of V°-to-I° movement. I went on to suggest a link to the presence of inflection for person in all verbal tenses.

In section 4, it was pointed out that modern English is unique in that the two different types of finite verbs have different syntax. I argued that the two verb types should be taken to be thematic and non-thematic verbs, rather than main and auxiliary verbs.

In the rest of the paper, I showed that it is possible to give a comprehensive analysis of the complex syntax of these two types of English finite verbs (and the absence of this difference in Danish) in terms of Optimality Theory and violable constraints, in particular **Verb-in-V°** and **V°-Right**.

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) was accounted for in terms of a different but also violable constraint, **Check person inflection**.

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Finally, if time had permitted, a further consequence could have been discussed:

The analysis presented here rests on the assumption that the basic differences between English and the other languages lie in the ranking of constraints and not in the vocabulary. As stated by Grimshaw (1997:388), it is not the case that English has two verbs *do* (a main verb *do* and a "substitution" *do*) and that other languages only have one *do* each (namely a main verb *do*). One reason why such a view is to be avoided is that it would lead us to expect that languages either have or do not have substitution *do*. This is not the case: Although e.g. Danish, Icelandic, French and German do not have *do*-insertion the way English does, they all have a so-called "verbum vicarium", i.e. a verb that substitutes for other verbs under certain circumstances. Furthermore, these verbs are the straightforward translations of *do*: Danish *gøre*, Icelandic *gera*, French *faire*, German *tun*.

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(72)  a. En.  Hold       the pencil    as      I        do   (it)
      b. Da.  Hold       blyanten      ligesom jeg      gør
      c. Ic.  Haltu á    blýantinum    eins og ég       geri
      d. Fr.  Tiens      le  crayon    comme   je le    fais
      e. Ge.  Halte      den Bleistift wie     ich es   tue
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In other words, this difference between the languages is purely syntactic, not lexical. English merely uses its *do* in more circumstances than Danish, Icelandic, French, and German.

Was the problem with Sells that spine right (instead of functional heads being left unviolably) would make the wrong predictions for German?

Why was it that the theta/non-theta split is much more compatible with base-gen in I° than V°-to-I° movement in English?

Well, what could possibly pull only non-th verbs to I°, especially w/o forcing do-insertion in finite clauses w/o aux? Nothing.