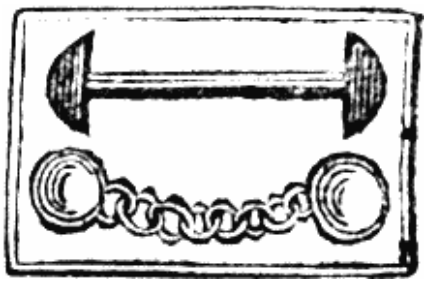
Theories of (Long-Distance) Dependencies



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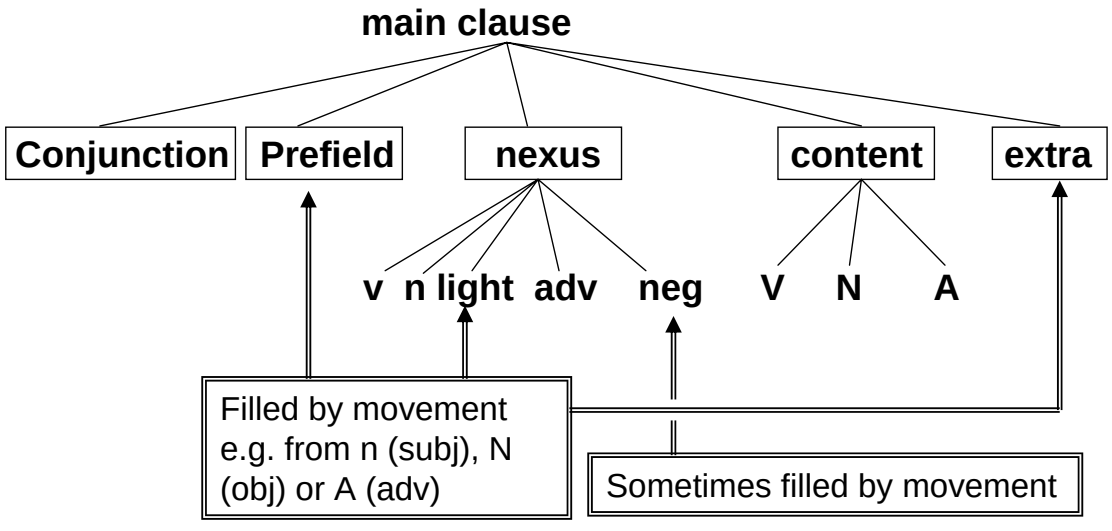
Contents

1. ‘Diderichsonian’ Field Analysis

- Contrary to claims, this version of Functional Grammar (FG) has something that corresponds to movement
- The focus is on description
- It would seem to have very little to offer by way of explanation

- “In most cases, we can use movement to the pre-field as a test to show the size of the constituents of the clause: what moves together is one and only one constituent.” (Hansen 1984: 55)
  - **Movement** and **constituency**, i.e. **hierarchical structure**, are core concepts in Generative Grammar
  - Topicalization is a typical constituency test



- **Heavy-NP shift:**
  "Italics mark a heavy moved constituent or part of constituent, and the empty parentheses indicate the normal position." (Hansen 1984: 61)
  - Note the parallel to **traces** and **empty categories** in Generative Grammar

- **NEG-shift:**
  "Objects, predicates and adverbials that contain negation are not placed in the normal positions for these types of constituents." (Hansen 1984: 58)

- **Object shift:**
  "They [the *object-shifted* pronominals] are thus not in the position in the field schema which they should be affiliated with by their relational functions, but [cliticized onto the element] in the closest filled position [to its left, except adverbials]." (Jørgensen 2000: 87)

- **Head movement:**
  "Partial inversion is a type of inversion where only the finite verb (the first verb from the left, in visual terms) is moved to the left of the subject" (Preisler 1997: 51)

You have been drinking!
Have you ____ been drinking?

  - This is the same as the standard generative analysis of inversion

2. Lexical Functional Grammar (LFG)

- A non-derivational formal approach that doesn't have movement operations – or does it?

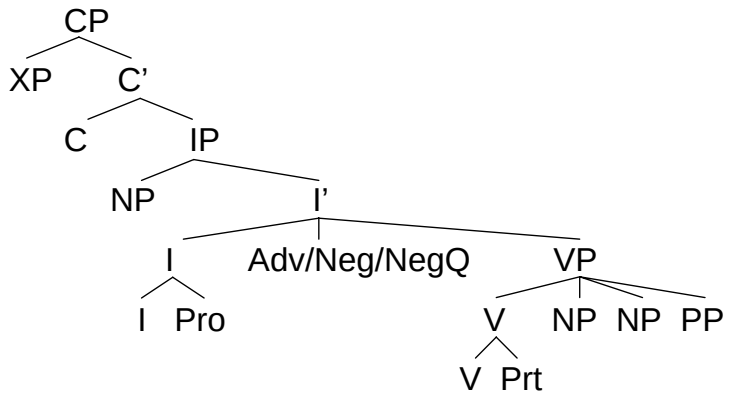
- There are empty categories that corresponds more or less to the generative notion of traces and mappings that resemble co-indexing.

- **Verb movement**:
  "Which positions it actually appears in depends not on movement (the paired structures are generated without movement), but on *correspondence*. […] While movement configurations coindex one lexically filled position with a chain of empty ones, imperfect correspondence allows for 'coindexing' (formally, a correspondence mapping) between multiple lexically filled positions." (Bresnan 2000:4)

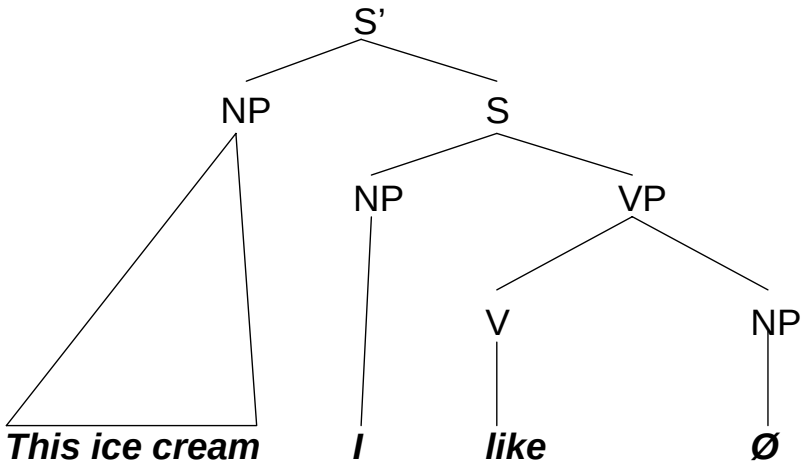
- "**First**, the extended X' theory of LFG is *lexicalized*, in the sense that every syntactic category X represents a lexical class. […] Hence, nothing ever moves to I or C; if there is evidence for an element occupying a special head position such as I or C, it is base-generated in I or C. **Second**, the extended X' theory of LFG is *nonderivational*: the effects of movement in X' trees arise from the fact that different c-structure positions may correspond to the same f-structure by general principles of correspondence between parallel structures." (Bresnan 2000: 10-11)

- **There is no movement**
  "So far then, the distribution of negative elements is clear: they cannot be within the surface VP, and the functions they have in the clause is entirely determined by their surface position. These are fully representational generalizations which at best are unexpected and at worst inexpressible in a derivational approach." (Sells 2000: 10)

  – **I disagree**



- **There may be movement**
  "This diagram indicates that the fronted constituent bears both the topic function, by virtue of its structural position, and the OBJ relation, which is required by the subcategorization of the verb *like*." (Kroeger 2004: 139)



- "A number of linguists have taken the position that there is actually no position in [the] phrase structure corresponding to the gap […] However, Bresnan (2001) argues that this is in fact an empirical question: some languages (including English) provide evidence [e.g. from *wanna*- and *be*- contraction] for an empty position in [the] phrase structure, while other do not." (Kroeger 2004: 171)

- "In the present framework […], empty categories can appear as a "last resort" in highly configurational languages which lack other means of specifying functions." (Bresnan 2001: 92)

- "We have assumed […] that all c-structure categories are optional and are present only if required by general principles such as completeness or coherence [this is the principle of Economy of Expression]. We have further hypothesized that the presence of or absence of of c-structure gaps in the English and Russian examples of topicalization, illustrated in (17) and (18), is **typological** [i.e. **parameterized**]. Russian has no need for the empty category in its clause-internal topicalizations, because it employs lexocentric principles of function specification in addition to the purely configurational endocentric principles. English, in contrast, cannot do without the endocentric principles. **Empty categories are pressed into service in English as a "last resort," to secure completeness and coherence when there is no other means of function specification available.**" (Bresnan 2001: 188)

(17) $[_{IP}\ [_{DP}$ *the old boat*$]\ [_{IP}\ [_{DP}$ *we*$]\ [_{VP}$ *sold* $[_{DP}$ *e*$]]]$

(18) $[_{IP}\ [_{NP}$ *staruju lodku*$]$ $[_{IP}\ [_{DP}$ *my*$]$ $[_{I}$ *prodali*$]]]$
old.acc boat.acc we.nom perf.sell.pst.pl.Sb
"The old boat, we sold."

3. Functional Grammar (FG)

- "**Starting from the nuclear predication, the full structure of the clause can be built up layer by layer, by specifying grammatical operators "π" and lexical satellites "σ" appropriate to the given layer**. Operators concern distinctions which are lexically expressed in the language concerned, satellites are modifications which are lexically expressed. Satellites largely coincide with "adverbial modifiers". (Dik 1989/1997: 51)

- "**The structures in the predicate frame constitute the input to a number of operations […] which result in an elaborate underlying clause structure (UCS). The UCS is subsequently mapped unto a linguistic expression by the application of expression rules**, which determine both the form and the order of the elements of the underlying structure." (Kahrel 1996: 13)

Level 4: clause (speech act)
σ4: "briefly"
π4: illocutionary force (declarative, interrogative, imperative)

Level 3: proposition (possible fact)
σ3: "in my opinion"
π3: subjective modality (evaluation, attitude)

Level 2: extended predication (state of affairs)
σ2: time, location, space
π2: tense, objective modality (time, space, cognition(?))

Level 1: core predication (property or relation)
σ1: manner, speed, instrument, direction, beneficiary
π1: (im)perfective aspect, (non-)progressive aspect (Subj, Obj)

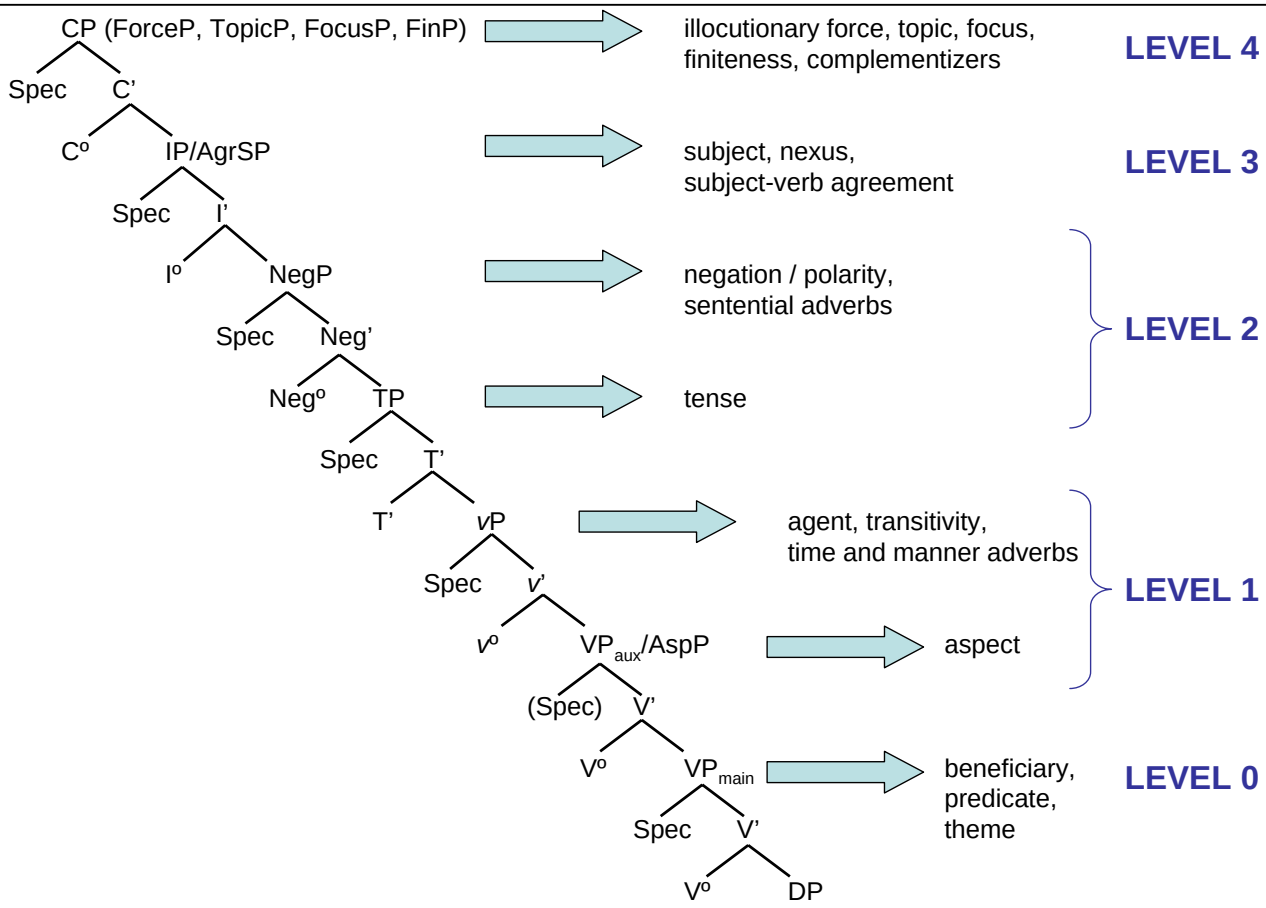
Level 0: nuclear predication
Predicate and terms (arguments)

4. Generative Grammar

- So far, a mapping from FG to Generative Grammar is more or less straight forward. The functions standardly assigned to the different projections/domains of the structure correspond more or less to the different levels of the FG model.

- In other words, the “underlying clause structure (UCS)” corresponds to a D(eep) S(tructure) in the Government & Binding Theory (GB, Chomsky 1981), and the “application of expression rules” corresponds to the generative morphosyntactic derivation.
  - The Minimalist Program (MP, Chomsky 1995, 2001) have neither DS nor SS, as it is strictly derivational, but at a representational level the correspondence still holds. (The ‘little’ vP projection is also a feature of MP, not GB, but again, it is not crucial to the comparison.)

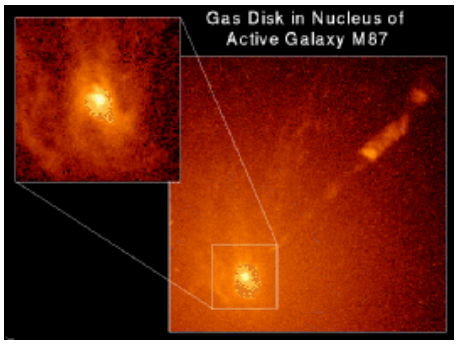
- FG operators (π) correspond to heads (Xº), and satellites (σ), “adverbial modifiers”, correspond to specifiers and adjuncts (XP).



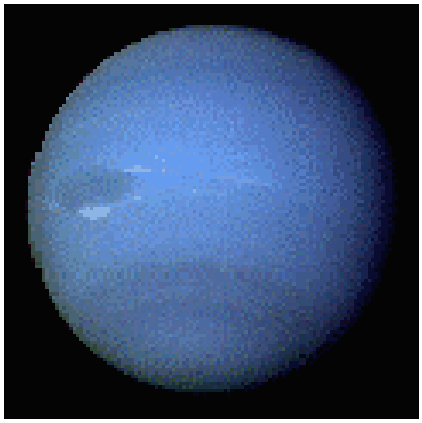
5. Invisible Elements

- "Invisible" elements that are only inferred or postulated to account for a range of observed phenomena are common in science, e.g.:
- Physics:
  - Quarks
    - "If we cannot separate them out, how do we know they are there? The answer is simply that **all our calculations depend on their existence and give the right answers for the experiments**." (http://www2.slac.stanford.edu/vvc/theory/quarks.html)
      - (The same applies historically to atoms, electrons and protons.)
    - All we know is that quarks and leptons are smaller than 10^{-19} meters in radius. As far as we can tell, they have no internal structure or even any size. **It is possible that future evidence will, once again, show this understanding to be an illusion** and demonstrate that there is substructure within the particles that we now view as fundamental. (http://www2.slac.stanford.edu/vvc/theory/fundamental.html)

- Astronomy:
  - Black holes
    - "It is impossible to see a black hole directly because no light can escape from them; they are black. But there are good reasons to think they exist."
      - Observable from their immense gravitation (http://www.damtp.cam.ac.uk/user/gr/public/bh_intro.html)



  - Planets
    - The existence of the planet Neptune was inferred from deviations in the orbital course of Uranus. This led astronomers to actually search for it. (http://www.u-net.com/ph/naw96/discover.htm)



- Mathematics:
  - irrational numbers like $\sqrt{2}$ and π
  - the so-called imaginary number $i = \sqrt{-1}$
    - "It has, however, proved extremely fruitful and useful to enlarge the number concept to include square roots of negative numbers. The resulting objects are numbers in the sense that arithmetic and algebra can be extended to them in a simple and natural manner; they are imaginary in the sense that their relation to the physical world is less direct than that of the real numbers."
      (Encyclopædia Britannica Online, entry="complex analysis")
  - The numbers doesn't correspond to anything directly observe (yet) but they are needed to account for geometry, multiple dimensions, chaos …

- Abstract entities may be posited to account for theoretical as well as empirical phenomena. In turn, this may motivate empirical search for such inferred phenomena.
- This is often the case with silent elements (overt categories, traces of movement) in syntax, e.g.:
  - Priming effects at trace positions (Bever et al. 1988, MacDonald 1989)
  - Neurolinguistic phenomena
    - Imaging studies of movement effects (Ben-Shachar et al. 2003, 2004)
    - Agrammatism: movement-related comprehension problems and structure-dependent production deficits (Grodzinsky 2000

6. Functional linguistics and formal linguistics

Functional linguistics is functional in the sense of "concerned with external factors", e.g. with non-linguistic effects caused by linguistic utterances:

(1) **Functional grammar**: a linguistic theory which was devised in the 1970s as an alternative to the abstract formalized view of language presented by [generative] grammar, and relying instead on a pragmatic view of language as social interaction. The approach focuses on the rules which govern verbal interaction, seen as a form of co-operative activity, and on the rules which govern the linguistic expressions that are used as instruments of this activity. (Crystal 1997b:161-162)

Formal linguistics (including generative linguistics) may be formal in one or both senses of the word (cf. Newmeyer 1998:8). One sense is "concerned with the form of language", i.e. its internal structure. The other sense of "formal linguistics" is "formalized linguistics":

(2) **Formalize/Formalization**: A characteristic of formulations in linguistics - and especially a primary goal of generative analyses - whereby the rules, principles, conditions etc. governing an analysis are capable of being specified in a precise and rigorous way. (Crystal 1997b:156)

In other words (more or less those of Newmeyer 1998:6):

(3) a. **Formalism**: Linguistic form can be characterized independently of meaning and function
b. **Functionalism**: Meaning and function can determine linguistic form

It is thus **POSSIBLE** to accept one and reject the other of (3a,b), i.e. it is possible to adhere to one of the two extremes, (4a,b):

(4) a. **Extreme formalism**: Meaning and function has no relevance whatsoever for the characterisation of linguistic form
b. **Extreme functionalism**: No aspect of linguistic form can be characterized independently of meaning and function

It is very important to realise that formalism and functionalism in their **non**-extreme variants, i.e. (3a,b), are **NOT** incompatible (cf. Vikner 2004).

It is ultimately an empirical question whether a given property of a language or a given difference between two languages is best accounted for with (functionalism) or without (formalism) reference to meaning and function. The word "ultimately", however, highlights that this matter is not necessarily particularly easy to decide. In many cases, it therefore becomes a matter of personal preference whether one first turns to one side or to the other when seeking to explain a newly discovered empirical linguistic fact.

The central question relevant for this workshop is why the two approaches are interested in comparative linguistics. The functional linguist Martin Haspelmath (2000:236) says:

(5) Chomskyans primarily want to characterize the innate faculty underlying grammatical competence, whereas functionalists want to explain why language is the way it is.

To this the formal linguist Frederick Newmeyer (quoted in Haspelmath 2000:240) replies:

(6) If you asked the vast majority of generativists what their goal is, they would answer the same way as your functionalist: to explain why language is the way it is.

In other words, both approaches recognise the existence of different languages and of language variation, and both want to account for them.

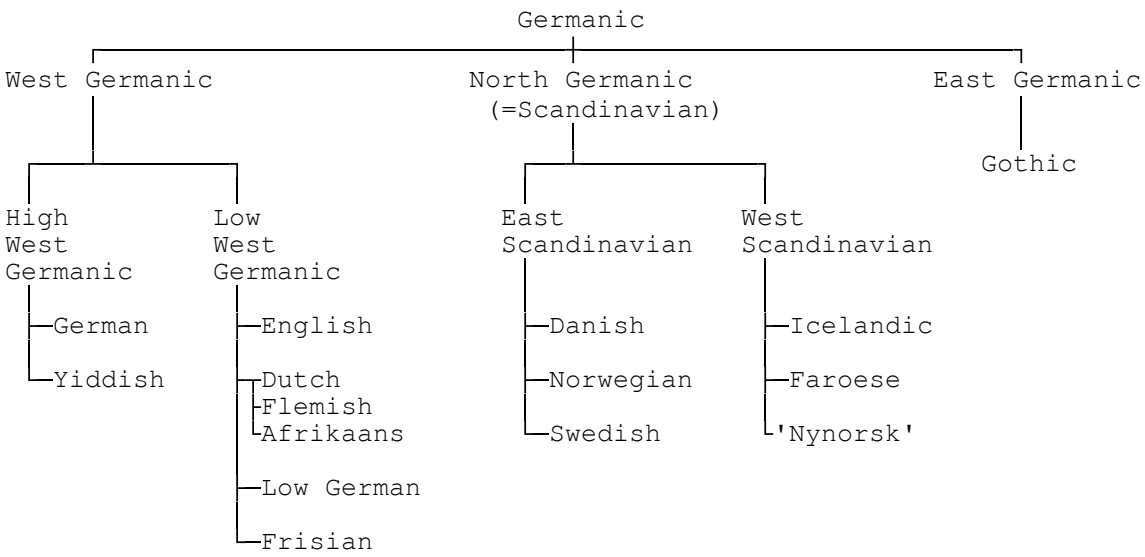
7. Typology and the distinction between functional and formal linguistics

Originally, typological language classification was suggested in the 19th century as an alternative to the traditional genetic language classification:

(7) **A genetic classification of Germanic** (already seen in) above)

a. **North Germanic (= Scandinavian)**
Danish, Faroese, Icelandic, Norwegian, Swedish,

b. **West Germanic**
Dutch, Frisian, German, Yiddish and English



(8) **A typological classification of Germanic**

a. **Verb-Object languages**

Danish, Faroese, Icelandic, Norwegian, Swedish, **English**, **Yiddish**

b. **Object-Verb languages**

Dutch, Frisian, German

		Verb	Object	
c. Jeg	har	læst	bogen	(Danish)
d. Ég	hef	lesið	bókina	(Icelandic)
e. I	have	read	the book	(English)
f. Ikh	hob	geleyent	dos bukh	(Yiddish)

		Object	Verb	
g. Ik	heb	het boek	gelezen	(Dutch)
h. Ik	ha	it boekje	lêzen	(Frisian)
i. Ich	habe	das Buch	gelesen	(German)

(9) **Another typological classification of Germanic**

a. **V2 (verb second) languages**

Danish, Faroese, Icelandic, Norwegian, Swedish

Dutch, Frisian, German, Yiddish

b. **Non-V2 languages**

English

c. Den her bog	har	Peter læst		(Danish)
d. Þessa bók	hefur	Pétur lesið		(Icelandic)
e. Dieses Buch	hat	Peter gelesen		(German)
f. *This book	has	Peter read		(English)
g. Nu	har	Peter læst	den her bog	(Danish)
h. Nú	hefur	Pétur lesið	þessa bók	(Icelandic)
i. Jetzt	hat	Peter	dieses Buch gelesen	(German)
j. *Now	has	Peter read	this book	(English)

(10) We might look for the structural features that all or most languages have in common; or we might focus our attention on the features that differentiate them. In the former case, we are searching for language **universals**, in the latter case, we are involving ourselves in language **typology**. In principle, the two approaches are complementary, but sometimes they are associated with different theoretical conceptions of the nature of linguistic enquiry. (Crystal 1997a:84)

In this sense, a lot of formal/generative research (including research presented in this workshop) is definitely typological, as it attempts to uncover exactly how e.g. the Germanic languages differ from each other, and, just as important, what such differences are correlated to.

An example of such a typological correlation is the one between the word order difference verb-object vs. object-verb, (8), and the word order difference finite verb before VP (verb phrase) vs. VP before finite verb. It turns out that Germanic VO-languages always have the finite verb before VP, whereas Germanic OV-languages always have VP before the finite verb (this is an oversimplification, cf. e.g. Vikner 2001 and the references there):

(11)

			Finite V	VP			
a.	... fordi	jeg	har	læst	bogen	(Danish)	**(VO)**
b.	... af því að	ég	hef	lesið	bókina	(Icelandic)	
c.	... veyl	ikh	hob	geleyent	dos bukh	(Yiddish)	
d.	... because	I	have	read	the book	(English)	
			VP		Finite V		
e.	... omdat	ik	het boek	gelezen	heb	(Dutch)	**(OV)**
f.	... om't	ik	it boekje	lêzen	ha	(Frisian)	
g.	... weil	ich	das Buch	gelesen	habe	(German)	

However, there is a tendency for the word "typological" to be mainly used about relatively superficial comparisons of a great number of languages, or, to put it more diplomatically:

(12) Typologists typically study a wide range of languages as part of their enquiry, and tend to make generalizations that deal with the more observable aspects of structure, such as word order, word classes, and types of sound. (Crystal 1997a:85)

One example is Greenberg (1963), where **ALL** the Germanic languages in his sample are classified as SVO-languages, i.e. not only Danish, English, Icelandic, Norwegian, and Swedish but also e.g. **German and Dutch** (1963:109-110). Presumably this is based on examples like

(13)

a.	Peter	læste	den her bog	i går	(Danish)
b.	Peter	read	this book	yesterday	(English)
c.	Peter	las	dieses Buch	gestern	(German)

In our view, more detailed studies (both generative and functional) of these languages have shown that although the order in (13c) is SVO just like in (13a,b), it is much preferable to characterise German (and Dutch and Frisian) as SOV languages with V2, (8) & (9). The "SOV with V2" characterisation accounts for the fact that only finite verbs in main clauses precede the object in German (and Dutch and Frisian), whereas all other verbs occur after the object (i.e. both all finite verbs in embedded clauses, (11e-g), and all non-finite verbs, (8g-i)). Simply characterising German (and Dutch and Frisian) as "SVO" may be correct for (13c), but wrong for all finite verbs in embedded clauses as well as for all non-finite verbs.

In other words, although there is a tendency for the word "typological" to be associated with relatively superficial comparisons of a great number of languages, often within a functional linguistics framework, this only covers parts of the typological research out there. In actual fact, there is a large amount of formal linguistics that is also typological, just as there is a large amount of typological functional linguistics which is not superficial.

We are confident that all this and more will be in evidence in this workshop.

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