

# 1. Functionalist linguistics: usage-based explanations of language structure

## 1. What is functionalism?

prototypical representatives of "functionalism" in my sense:

general: Greenberg 1966, Croft 1990, Paul 1880/1920  
syntax: Givón 1984-90, Hawkins 1994, Croft 2001  
morphology: Bybee 1985  
phonology: Lindblom 1986, Bybee 2001

non-prototypical representatives:

Foley & Van Valin 1984, Langacker 1987-91, Dik 1997

fundamental question:

**Why is language structure the way it is?**

not: How can language be acquired despite the poverty of the stimulus?

primary answer:

**Language structure (= competence) is the way it is  
because it reflects constraints on language use (= performance).**

typically this means: because it is adapted to the needs of language users

main problem:

**How can language structure "reflect" language use?**

There must be an evolutionary/adaptive process,  
perhaps involving variation and selection.

## 2. Two examples

(A) **Vowel systems:** The great majority of languages have "triangular" vowel systems as in (1a) or (1b). "Horizontal" or "vertical" systems as in (2a-b) are logically perfectly possible, but unattested.

(1) a. [i] [u]  
[a]

b. [i] [u]  
[e] [o]  
[a]

(2) a. [i] [ɪ] [u]

b. [ɪ]  
[ɨ]  
[a]

This reflects a **phonetic constraint on language use:** Vowels should be easily **distinguishable**, and phonetic research has shown that [i], [u], and [a] are the three extremes in the available vowel space (e.g. Lindblom 1986).

**(B) Implicit infinitival subjects:** In many languages, the subject of certain types of complement clauses can be left unexpressed only when it is coreferential with a matrix argument:

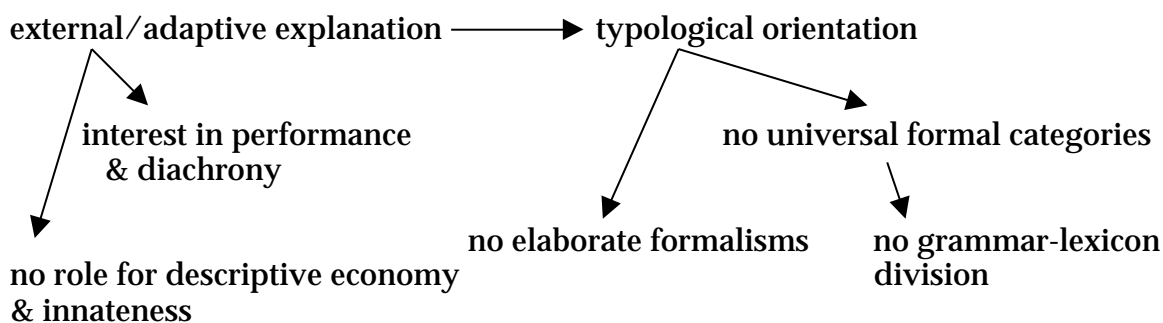
- (3) a. *Robert<sub>i</sub> wants [ $\emptyset_{i,j}$  to arrive in time].*  
 b. *Robert<sub>i</sub> wants [Maria<sub>j</sub> to arrive in time.]*

This reflects a **pragmatic constraint on language use**: With verbs like 'want', coreference of matrix and subordinate subject is far more likely than disjoint reference, hence zero expression of the subordinate subject is **economical**.

### 3. Further characteristics of functionalist work

- interest in **diachrony**, emphasis on the constantly changing nature of language structure and the diachronic origins of grammatical patterns (**grammaticalization**)
- interest in broad **cross-linguistic patterns**, generalizations based on a wide variety of languages (**typology**; "functional-typological approach")
- no assumption of a (small set of) **universal formal categories** (but meanings must be universal in some way)
- no interest in developing **descriptive frameworks** with elaborate formalisms
- interest in regularities of **language use** (e.g. corpus data)
- no strict division between **grammar and lexicon**
- **descriptive economy** is not an important criterion
- the **innate** human linguistic endowment is not seen as constraining the form of grammars in an interesting sense

**How the characteristics of functionalism are connected:**



#### some misconceptions:

*Functional linguists study language function (or performance),  
 formal linguists study language form (or competence).*

**NO:** Functionalists claim that the explanation of language form involves appreciating the regularities of language function.

Functional linguists reject the competence/performance distinction

**NO: Functionalists try to explain competence, often on the basis of performance, because they think that competence can be affected by performance.**

Functional linguists think that nothing in language structure is arbitrary.

**NO: Everyone recognizes that grammars are full of arbitrariness, but functionalists emphasize non-arbitrariness and attempt explanation wherever possible.**

Functional linguists reject the autonomy of syntax.

**NO: If autonomy is defined as in Newmeyer (1998) ("systematic arbitrariness in syntax exists"), it is uncontroversial.**

Functionalists only reject the idea that syntax should be studied as if functional explanation were impossible (just as formal linguists reject the idea that syntax should be studied as if systematic arbitrary generalizations were impossible).

Functional linguistics is atheoretical.

**NO: Functionalists don't think of description as explanatory, hence they do not emphasize the properties of the descriptive tools they work with.**

#### **4. Types of explanation** (explanation = answering a *why*-question)

(A) Teleological explanation = identifying the motivation of an action

e.g. Q: Why did you close the window? A: So that Fido doesn't jump out.

(B) Generalizing explanation = showing that a phenomenon is an instance of a more general phenomenon

e.g. Q: Why didn't we get a newspaper today?

A: Because today is Corpus Christi, and this is a holiday in Bavaria.

(C) Historical explanation = identifying the previous events that led to a situation

e.g. Q: Why is English spoken in Malta?

A: Because Malta used to be a British colony.

(D) Generalizing-historical explanation = showing that a phenomenon is a consequence of general constraints on historical change

e.g. Q: Why are there no animals with wheels?

A: Because "half a wheel" is not useful, and biological adaptation is an incremental process of which each stage must be adaptive.

levels of explanation:

A<sub>1</sub>: *Ich helfe dir, zu verstehen.*

Q<sub>1</sub>: **Why** did you say *dir* rather than *dich*?

A<sub>2</sub>: Because I wanted to conform to the norms, and they require *dir*.

Q<sub>2</sub>: **Why** do the norms require *dir* here?

A<sub>3</sub>: I don't know (By convention.)

- B<sub>1</sub>: Because *helfen* governs a dative object, and the dative of *du* is *dir*.
- Q<sub>4</sub>: **Why** does *helfen* govern a dative object?
- B<sub>2</sub>: *Helfen* governs a dative object because the object referent is an Active Patient, and all Active Patients are generally in the dative case (cf. *folgen*, *begegnen*, etc.)
- Q<sub>5</sub>: **Why** are Active Patients in the dative case?
- B<sub>3</sub>: Because Active Patients, like Recipients, have the role features [+active, +affected], and the dative case is assigned to NPs with these role features.
- Q<sub>6</sub>: **Why** is the dative case assigned to NPs with these role features?
- B<sub>4</sub>: Because the linking between [+dative] case and [+active, +affected] role is unmarked in the innate language faculty (Universal Grammar).
- Q<sub>7</sub>: **Why** is it unmarked in Universal Grammar?
- B<sub>5</sub>: I don't know.
- C<sub>1</sub>: German has a dative case with these properties because it inherited it from Proto-Germanic and in fact from Proto-Indo-European.
- Q<sub>8</sub>: **Why** did Proto-Indo-European have a dative case with these properties?
- C<sub>2</sub>: I don't know.
- D<sub>1</sub>: Languages may have case-markers indicating frequently occurring semantic roles of NPs, and [+active, +affected] is a frequent role feature combination; whereas rare role features (e.g. [+beyond]) are not expressed by case-markers.
- Q<sub>9</sub>: **Why** may languages have case-markers for frequent roles but not for rare roles?
- D<sub>2</sub>: Case-markers arise from full nouns and verbs by grammaticalization in language change, and only frequently occurring full words grammaticalize to become relational affixes on NPs (= case-markers).

## 5. The generative approach of "Constrained Description as Explanation" (or: "Metalanguage as Theory", cf. Dryer 1999)

In generative grammar, only generalizing explanation is regarded as interesting (i.e. B<sub>1</sub>-B<sub>4</sub>):

- "descriptive adequacy": express the speaker's generalizations  
(but B<sub>2</sub>-B<sub>3</sub> are very dubious!)
- "explanatory adequacy": link them to Universal Grammar

In practice, the quest for "explanatory adequacy" often takes the form of new **constraints on the descriptive framework** (cf. standard objections to theories as "too powerful", "too unconstrained"). Ultimately, the descriptive framework should be able to describe **only the possible languages**.

### 5.1. X-bar Theory

Observation: gaps in attested patterns -- some describable structures don't exist.

- NP --> D [<sub>N</sub> N PP]            *the [horse on the meadow]*
- VP --> Adv [<sub>V</sub> V NP]        *often [eats a flower]*
- PP --> Adv [<sub>P</sub> P NP]        *right [under the tree]*
- (but not e.g. \*NP --> VP [Adv P])

Redundancy needs to be "expressed" in the descriptive framework:  
only phrase structures of the following type are allowed:

XP --> Y [<sub>X</sub> X ZP] (X-bar schema, Jackendoff 1977 etc.)

Claim: The non-existence of the unattested structures has been "explained" by the new, "more restrictive" framework.

Q: Why don't some languages have rules like "NP --> VP P"?

\*A: Because such structures are not describable by the framework.

A: Because the X-bar schema is part of Universal Grammar, i.e. innate.

That is, without the innateness claim, there is no explanation here.

### 5.2. Inflection outside derivation

Observation: gaps in attested patterns -- some describable structures don't exist.

ROOT-deriv-infl	*ROOT-infl-deriv	e.g. German <i>Handl-ung-en</i>
infl-deriv-ROOT	*deriv-infl-ROOT	e.g. Arabic <i>ya-ta-kallamu</i> 3sg-REFL-speak

Redundancy needs to be "expressed" in the descriptive framework:  
only morphological structures with inflection outside derivation are allowed,  
because **derivation is lexical, and inflection is in a post-lexical syntactic component** (Anderson 1992).

Again, this architecture must be innate, because otherwise no explanation has been achieved.

### 5.3. Pro-drop of topical arguments

Observation: gaps in attested patterns -- some describable structures don't exist.

no pro-drop when pronoun = topic:English	( <i>She comes./*</i> ∅ comes.)
pro-drop when pronoun = topic:	Italian (∅ viene./* <i>Lei</i> viene.)
no pro-drop when pronoun = focus:English	( <i>SHE</i> comes./*∅ comes.),
	Italian ( <i>LEI</i> viene./*∅ viene.)
pro-drop when pronoun = focus:	(unattested)

Redundancy needs to be "expressed" in the descriptive framework: only the constraint DROPTOPIC exists, no constraint DROPFOCUS exists (Grimshaw & Samek-Lodovici 1998). OT constraint tableaux:

English			Italian		
she <sub>TOPIC</sub> comes	MAX-IO	DROPTOPIC	she <sub>TOPIC</sub> comes	DROPTOPIC	MAX-IO
=> she comes		*	lei viene	*!	
∅ comes	*!		=> ∅ viene		*

Again, unless it is assumed that all the constraints are innate, there is no explanation.

Thus, the approach of "Constrained Description as explanation" requires a strong innateness claim, because otherwise there is no explanation.

## 6. Why functional explanations are attractive

- they are more general, because they link linguistic facts to non-linguistic facts
- they allow exceptions (e.g. German *Kind-er-chen*, ROOT-infl-deriv), so their empirical coverage is broader
- they are cognitively more plausible than a highly specified innate UG with thousands of OT constraints like DROPTOPIC.
- functional explanations are testable, unlike the innateness claims of §5.1-3

**Are functional explanations compatible with generative analyses?**

In principle, yes, but often generative analyses are made redundant by functional explanations, so ignoring functional explanations is irresponsible.

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## 2. Constraints on language change

### 1. Functional explanations are "generalizing-historical"

#### (A) teleological explanations don't work for languages

LIGHTFOOT 1999:121: "the emergence in Middle English of *N of NP* forms is an automatic consequence of the morphological case system: *of* was introduced **in order to** Case-mark a NP which would not otherwise be Case-marked"

NEUMEYER 1998:107: "Kuno (1974) showed that these [Greenbergian word-order] correlations are a consequence of the parser's **desire** to avoid center-embedded structures"

because no single agent can shape language.

#### (B) generalizing explanations don't lead very far,

especially since most of linguists' generalizations are not supportable by independent evidence and hence not more than speculative, e.g. the "head parameter" (Chomsky & Lasnik 1993: 518):  
*in languages with NGen and VO word order, speakers make the generalization that the head precedes the dependent*  
-- not implausible, like every good speculation, but not testable

#### (C) historical explanations work very well for individual languages, but: we want to know more!

#### (D) generalizing-historical explanations:

= showing that a phenomenon is a consequence of general constraints on historical change

e.g. [i] [u] vs. [i] [ʌ] [u]  
[a]

teleological: all languages have "dispersed" vowel systems  
**in order for** speakers to understand each other (incoherent!)

generalizing: all languages have "dispersed" vowel systems because  
UG only allows these (not testable!)

generalizing-historical: all languages have "dispersed" vowel systems  
because there are no possible diachronic changes  
that lead to non-dispersed vowel systems

## 2. Why and how languages change

All diachronic changes are **motivated**, i.e. speakers only introduce and accept **useful innovations**. (cf. Jespersen 1893, Vennemann 1993, Croft 2000)

Two types of usefulness: – useful for speaking and understanding  
(**functional usefulness**)  
– useful for enhancing the speaker's social status  
(**social usefulness**)

examples of

- speaker-oriented functional usefulness (= **economy**):  
OHG *zungono* > ModG *zungen* (GEN.PL) 'tongues'
- hearer-oriented functional usefulness (= **clarity**):  
OE *dohtor/dohtor* > ModE *daughter/daughters*
- social usefulness:  
introduction of polite pronouns, such as German *Sie*, English *you*

thus: no possible motivation for the non-dispersed vowel system [i] [ɪ] [u]

Presuppositions:

- Language change happens in **adults**, not in misacquiring learners (cf. Croft 2000) (because only sufficiently prestigious innovations can spread, and children's speech is not prestigious enough).
- Language change is not purely mechanical, but is driven by speakers' (mostly not very conscious) **intentions**.
- Speakers' communicative behavior is not fully **conscious** at all levels, but it is to a large extent **intentional**: Speakers want to be understood, to spend as little energy as possible on speaking, and to gain in social status. They have **control** over a vast array of choices, which may ultimately lead to language change.

Examples of

- **conscious intentional choice**: polite pronouns (*du* vs. *Sie*)
- **unconscious intentional choice**: use of colloquial/dialectal/abbreviated as opposed to standard/formal/elaborated variants depending on the situation
- **unintended side-effects**: harmful consequences elsewhere, e.g. consequences of vowel reduction:  
OHG NOM *zungun* ModG *Zungen*  
GEN *zungono* > *Zungen*  
DAT *zungom* *Zungen*  
ACC *zungun* ('tongues') *Zungen*

Structural preferences are often in conflict with each other – not all parameters of variation can be optimized simultaneously.

(cf. Wurzel 1984, McCarthy 2002)

Thus, "language change is language improvement" (Vennemann 1993), but languages do not get better overall – language change is mostly local improvement.



Since diachronic changes must be motivated by functional and social usefulness, not all changes can occur. Hence, generalizing-historical explanations are possible.

### 3. A generalizing-historical explanation of implicit infinitival subjects

Implicit infinitival subjects are possible and required with verbs like 'want', but impossible with verbs like 'recognize':

- (1) a. *Robert<sub>i</sub> will [Ø<sub>i</sub> rechtzeitig ankommen].*  
'Robert wants to arrive in time.'  
b. \**Robert<sub>i</sub> will, [dass er<sub>i</sub> rechtzeitig ankommt].*  
'Robert wants that he arrive in time.'
- (2) a. \**Robert<sub>i</sub> erkennt [Ø<sub>i</sub> rechtzeitig an(zu)kommen].*  
'Robert recognizes to arrive in time.'  
b. *Robert<sub>i</sub> erkennt, [dass er<sub>i</sub> rechtzeitig ankommt].*  
'Robert recognizes that he arrives in time.'

Explanation in terms of frequency-sensitivity of **grammaticalization**:

The more frequent a construction, the greater the chances that it will grammaticalize.

non-grammaticalized loose pattern: (verbal-noun or finite clause possible)

- (3) a. *Robert demands [a better treatment (of the prisoners) (by the government)].*  
b. *Robert demands [that the government treat him/the prisoners better].*

- Infinitives arise from implicit-subject verbal-nouns by grammaticalization (cf. Haspelmath 1989)
- With 'want', same-subject (and hence implicit-subject) complements are highly frequent (88% according to one count), so infinitives get grammaticalized with 'want' verbs first.

### 4. A generalizing-historical explanation of the correlation between rich subject-verb agreement and postposed adverbs

(Alexiadou & Fanselow 2000)

"V-to-I movement" correlates with rich agreement inflection:

English (poor inflection, no V-to-I movement)

- (4) a. *that John **often eats** tomatoes*  
b. \**that John **eats often** tomatoes*

Icelandic (rich inflection, V-to-I movement)

- (5) a. \**aD Jonas **oft borðar** tómata*  
b. *aD Jonas **borðar oft** tómata*

UG-based explanation:

There is an innate principle "Syntactic movement is driven by (rich) morphology" (Haegeman 1997:8), and only verbs with rich morphology raise above the adverb position.

Generalizing-historical explanation:

Suffixal agreement inflection arises by **grammaticalization** from postverbal subject pronouns (Givón 1976), i.e. in a situation when V-to-I movement is present. V-to-I movement **cannot be lost subsequently**.

## 5. An explanation of grammaticalization based on social usefulness (Haspelmath 1999)

changes from lexical to functional category are ubiquitous and of paramount importance in diachronic morphosyntax:

N > P	Latin <i>casa</i> 'house'	> French <i>chez</i> 'at (sb's place)'
N > C	English <i>while</i> 'period of time'	> <i>while</i> 'SIMULTANEITY'
proN > Agr	Lat. <i>illam video</i> 'I see that one'	> Span. <i>la veo a Maria</i> (OBJ.AGR.)
N > Num	Chinese <i>men</i> 'class'	> <i>-men</i> 'PLURAL'
V > PYoruba	<i>fi</i> 'use'	> <i>fi</i> 'with'
V > C	German <i>während</i> 'enduring'	> <i>während</i> 'while; during'
V > Asp	Lezgian <i>qac&amp;z awa</i> 'taking, is'	> <i>qac&amp;zwa</i> 'is taking'
V > TGreek	<i>Qélo na páo</i> 'I wanna go'	> <i>Qa páo</i> 'I'll go'
A > P	English <i>like</i> 'equal'	> <i>like</i> 'similative'
A > D	Latin <i>ipse</i> 'himself'	> Sardinian <i>su</i> 'the'
A > Num	English <i>all</i>	> Tok Pisin <i>ol</i> 'PLURAL'

**TABLE 1. Changes from lexical to functional category**

Battye & Roberts 1995: 11

"Language change is essentially a random "walk" through the space of possible parameter settings".

Lightfoot 1979:226; 224

"[I]t is no part of our task to make claims about the direction of the change, whether a > b or b > a. Under either interpretation it is an abductive change, a change only in structure. Re-analysis of a serial verb as a complementizer or vice versa is similarly abductive" (p. 226)

"Instead of this development of **major to minor category**, a **reverse process** might have taken place". (p. 224)

**The invisible-hand explanation of grammaticalization:**

Keller 1990:

- a **performance-based** theory of change
- language change is an unintended **by-product of ordinary language use**
- language change should be viewed as an **invisible-hand process**, i.e. a phenomenon that is the result of human actions, although it is not the goal of human intentions

### general structure of invisible-hand explanations:

- (i) the ecological conditions within which certain events take place
- (ii) the maxims of action by which speakers are guided,
- (iii) the invisible-hand process, i.e. the events that causally follow from the collective actions of individuals following similar maxims, and
- (iv) the explanandum.

#### key examples:

orig. Arabic	<i>kitaabuManweel-i</i> book-NOM Manwel-GEN	'Manwel's book'
later Arabic	<i>al-kitaab mataa; Manwel</i> the-book possession Manwel	'the book, Manwel's possession'
> Maltese	<i>il-ktieb ta' Manwel</i> the-book of Manwel	'Manwel's book'
English	<i>with a hammer</i>	
later Engl:	<i>by means of a hammer</i>	
> (hypoth.)	<i>#mince a hammer</i> (cf. German <i>mittels eines Hammers</i> )	

### I. Ecological conditions

- a. Linguistic units are ordered along a **continuum from maximally free/conscious/attended to maximally rule-bound/unconscious/ automated** – the former are lexical elements, the latter are functional (or grammatical) elements.
- b. Certain meanings of linguistic units are universally much more **basic to speaking** than others, i.e. they need to be conveyed much more frequently than others (e.g. 'possession', 'instrument' are more basic than 'bicycle' or 'moon' in this sense).
- c. A general feature of cognitive processing in higher organisms is that **frequent occurrence of a cognitive event leads to a greater ease of processing** (automation, routinization), i.e. less attention is necessary to execute the same task.

### II. Maxims of action (cf. Keller 1990:132-39)

- 1. **Hypermaxim:** Talk in such a way that you are socially successful, keeping the costs as low as possible.
- 2. **Clarity:** Talk in such a way that you are understood.
- 3. **Economy:** Talk in such a way that you do not expend superfluous energy.
- 4. **Conformity:** Talk like the others talk.
- 5. **Extravagance:** Talk in such a way that you are noticed.

### III. Invisible-hand process

- a. A speaker says  $YB_LZ$  where s/he could have said  $YA_FZ$  (by maxim 5). ( $X_L$  = lexical element;  $X_F$  = grammatical element)
- b. Other speakers follow him/her and say  $YB_LZ$ , too (by maxims 5 and 4).
- c.  $B_L$  increases in frequency in the community's speech, because B's

- meaning is more basic to discourse (in the sense of Ib).
- d. Because of its high frequency, B<sub>L</sub> becomes more predictable.
  - e. Because of its predictability, B is pronounced in a reduced manner by many speakers (by maxims 2 and 3).
  - f. After some time, the non-reduced form of B is no longer acquired by children because it has become too rare.
  - g. Because of its high frequency, B (which is now B<sub>F</sub>) is increasingly automated/routinized in the speaker's mind (by Ic); Automated processing entails features such as: merger with adjacent elements; obligatory use in certain contexts; fixed position; etc.; i.e. Lehmann's (1995) parameters of grammaticalization.
  - h. Through habituation, the meaning contribution of B is no longer perceived as pragmatically salient.

#### IV. The explanandum

An expression B<sub>L</sub>, which was a lexical category at a certain stage of the language, has become a functional category B<sub>F</sub> (with all sorts of accompanying phonological, semantic and syntactic changes).

#### deriving irreversibility:

the reverse change requires IIIa': "A speaker says YA<sub>F</sub>Z where s/he could have said YB<sub>L</sub>Z".

but:

- this would run counter to maxims 2 and 4, and there is no maxim that would justify such behavior.
- lexical elements are freely manipulable by speakers and (more or less) accessible to consciousness, whereas functional elements are processed automatically and unconsciously (cf. condition Ia)

IIIa is the crucial part of the explanation – the other steps seem to be reversible:

- (c) because its meaning of the item is no longer basic to discourse, the item would drop in frequency
- (d) it would become less predictable
- (e) speakers might want to pronounce it more clearly, e.g. by lengthening the vowel ([wiD] > [wi:D]), strengthening the consonants (e.g. [wi:D] > [hwi:Q]), introducing additional syllables (e.g. [hwi:Q] > [hwi:Q ɪ]), etc.

## 6. A functional explanation of the innate Universal Grammar (UG)

The innate Universal Grammar could be explained in historical-generalizing terms:

In a Darwinian evolutionary process driven by mutation and selection of genotypes, individuals with useful UGs could have had a selective advantage (i.e.

produced more surviving offspring) because they were able to communicate more efficiently. (e.g. Newmeyer 1991)

If independent evidence for such explanations could be found, such **phylogenetic functional explanations** could become serious competitors of **glossogenetic functional explanations**.

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## 4a. Economy and simplicity in language structure

### 1. Simplicity of description in structuralism

describe language structure in a **maximally elegant** way, in particular use as few **basic concepts** as possible, which are heavily exploited by the description.

(a) **Phonology**: the elementary entities are distinctive features, which are **fewer elements** than phonemes (Trubetzkoy 1939), e.g.

	<i>p</i>	<i>b</i>	<i>t</i>	<i>d</i>	<i>k</i>	<i>g</i>
voiced	-	+	-	+	-	+
anterior	+	+	+	+	-	-
coronal	-	-	+	+	-	-

(b) **Morphology 1: fewer elements** through morphemic analysis

(Bloomfield 1933)

e.g. Spanish	<i>canto/kanta/</i>	+ /o/	'I sing'
	<i>cantas</i>	+ /s/	'you sing'
	<i>canta</i>	+ /Ø/	'she sings'

(c) **Morphology 2: few features, few meanings** in Jakobson's (1936, 1958/1971) system of Russian cases:

	Nom	Acc	Gen1	Gen2	Loc2	Loc1	Dat	Instr
marginal	-	-	-	-	-	-	-	-
quantifying	-	-	+	+	+	+	-	-
ascriptive	-	+	+	-	-	+	+	-

the multiplicity of special meanings is reduced to a *Gesamtbedeutung*, characterized by three binary features

(d) **Morphology 3: fewer feature values, a system without gaps** in Conklin's (1962) analysis of pronouns in Ilokano (Philippines)

traditional analysis:	Sg	Du	Pl
	1	-ko	-ta (incl.) -mi (excl.)
	2	-mo	-yo
	3	-na	-da

structuralist analysis:	+restricted-restricted	
[+speaker, -hearer]	-ko	-mi
[-speaker, +hearer]	-mo	-yo
[+speaker, +hearer]	-ta	-tayo
[-speaker, -hearer]	-na	-da

(e) **Syntax:** **fewer rules** in Bloomfield's determiner analysis  
*the book*/\**the my book* (instead: *my book*)  
 Sweet 1898: genitive doesn't cooccur with article  
 Bloomfield 1933: genitive and article are in a single position class ("Determiner")

cf.	1. NP	NP <sub>GEN</sub> N	<i>my book, John's book</i>
	2. NP	Art N	<i>the book</i>
vs.	1. NP	Det N	<i>John's book, the book</i>

simplicity is justified by Occam's Razor;  
 apparently no claim that these descriptions are cognitively real

price for simplicity: highly abstract basic notions, many different possibilities; few constraints on possible basic notions and much arbitrariness; only famous linguists' proposals have a chance of being accepted

basic problem: elegant description is not ambitious enough for a linguistics within cognitive science

## 2. Economy of grammar in generative linguistics

As in structuralist linguistics, the practical goal is to provide elegant descriptions. However, the goal is also to provide cognitively real descriptions that reflect the speakers' generalizations ("descriptive adequacy").

(a) **Syntax:** **fewer rules** with generalized X-bar schema  
 e.g. XP X YP<sub>COMPL</sub> (for: VP V NP<sub>COMPL</sub>  
 NP N PP<sub>COMPL</sub> etc.)

(b) **Morphology:** **fewer underlying allomorphs** if allomorphy is derived by phonological rules, e.g.  
 English *divine* [dēvaēn], *divinity* [dēvənētē]  
 from underlying structure /dēvi:n/ + /Ø/, /ētē/

(c) **Phonology 1:** in Optimality Theory, there are **fewer basic mechanisms** compared to classical generative phonology, only constraints and ranking (as opposed to Morpheme Structure Constraints and phonological derivation rules, often quite similar – "duplication problem")

(d) **Phonology 2:** in Optimality Theory, a more "natural" rule like "Ø --> ˘/C\_\_ [+son]#" is **simpler to state** than an unnatural rule like "Ø --> k/C\_\_ [+son]#"

price for simplicity: see above; also: storage is simplified because fewer elements have to be listed, but computation becomes very complicated

The ultimate goal of generative grammar is to explain language acquisition, the child's task of choosing among a wide variety of possible grammars.

Chomsky (1965) assumes that **the child chooses the simplest grammar** (part of innate Universal Grammar is an Evaluation Metric that evaluates grammars in terms of simplicity). Hence, **linguists too choose the simplest grammar**.

basic problem: there is no evidence for the assumption that the child chooses the simplest grammar in the sense of **minimal storage** and **maximal computation** – this is pure speculation (perhaps motivated by the desire to save much of structuralist linguistics for generative linguistics)

In **minimalism**, "economy" seems to be another abstract concept (analogous to the X-bar schema) that allows to generalize over different kinds of rules. It seems to have nothing to do with descriptive elegance.

### 3. Economy in functionalist linguistics

- **Simple/elegant/economical** descriptions have no particular theoretical status.
- Economy as an explanatory factor is identified at the level of the **utterance**, not the **system**. (In other words: Speakers need systems that allow them to speak economically, but systems do not need to be economical.)
- The human brain has enormous storage capacities (cf. individual multilingualism), but is rather slow (e.g. compared with current computers), thus: speakers need **economy of processing** (= **speech economy**), not **economy of storage** (= **system economy**)

(a) **Syntax**: *John's/my book*, not *\*John's/\*my the book*, because the former is more **economical** (Haspelmath 1999)

(b) **Morphonology**: *divine/divinity* are stored separately; the similarity with other pairs (*sane/sanity*, etc.) is explained diachronically (Bybee 1985)

(c) **Morphology**: many inflected forms are stored for each verb, e.g.

OHG	<i>habem</i> (regular)	>	ModG	<i>habe</i> (irregular)
	<i>habest</i>			<i>hast</i>
	<i>habet</i>			<i>hat</i>

(e) **Phonology**: no problem with asymmetric systems like the following:

stops	p	t	k
	b	d	g
affricates			c&
			j&

At the palatal place of articulation, affricate manner of articulation is **easier**.

(f) **Morpho-semantics**: Grammatical markers (but also lexical items) are seen as multiply polysemous, showing an open-ended multiplicity of different meanings (represented by polysemy networks)



## 4. Economy as a "functional force"

Keller's (1990) maxims:

1. **Hypermaxim:** Talk in such a way that you are socially successful, keeping the costs as low as possible.
2. **Clarity:** Talk in such a way that you are understood.
3. **Economy:** Talk in such a way that you do not expend superfluous energy.
4. **Conformity:** Talk like the others talk.
5. **Extravagance:** Talk in such a way that you are noticed.

Other "functional forces", like **structure-concept iconicity** and **parsing** are derivative of economy and clarity in this sense. (There is no need to assume a maxim "Talk iconically".)

Efficient parsing (including structure-concept iconicity) is good for the hearer, but to some extent also for the speaker. Iconicity of sequence ("the first things get the first words") is good for the speaker, but also for the hearer.

### Conclusion:

At the highest level, there are just **four "functional forces"**: clarity, economy, conformity, and extravagance. At lower levels, all of these can be subclassified in various ways.

## 5. Brevity and frequency

morphological hierarchies: (the further left on the hierarchy, the shorter)

singular < plural < dual  
nominative < accusative < locative  
present < future

e.g. Yimas *yura* 'dog', *yura-y* 'dogs', *yura-ntrm* 'two dogs' (Foley 1991:129)

e.g. Turkish *ev* 'house', *ev-i* 'house-acc', *ev-de* 'in the house'

e.g. French *nous mange-ons* 'we eat', *nous mange-r-ons* 'we'll eat'

Newmeyer 1998:123: "One of the tests for whether a member of a grammatical opposition is marked or unmarked is its relative text frequency... Unmarked singulars are more frequent in discourse than more marked plurals, which in turn are more frequent than still more marked duals. The text frequencies of nominatives are higher than that of accusatives, ..."

Hawkins (unpubl. ms.):

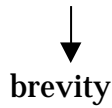
frequency provides a "direct explanation" for the performance-grammar correlations that we observe in the morphological hierarchies -- frequency is an intermediate link in the chain between ultimate cause and ultimate effect:

**(i) Frequency as link between ultimate causes and brevity effects:**

Cause1/Cause2/Cause3 → performance frequency → brevity

**(ii) Frequency as another incidental effect of the same causes:**

Cause1/Cause2/Cause3 → performance frequency



Newmeyer 1998:134: "To what extent is it necessary to appeal to the increased text frequency of singulars over plurals and of plurals over duals to explain these facts? None at all, I would say. It is not frequency per se that makes singular morphemes shorter than plural morphemes. Rather it is some principle involving ease of production that makes frequent items shorter than infrequent ones."

**(ii) Frequency and economy as links between ultimate causes and brevity effects:**

Cause1/Cause2/Cause3 → performance frequency → economy → brevity

- people find singular concepts more relevant, hence singulars are used more frequently than plurals
- frequent singulars are more predictable, hence speakers can afford to reduce them (or not to mark them specifically)
- hence after grammaticalization, zero singulars are more likely than zero plurals

**6. Brevity and iconicity**

Haiman (1983): linguistic distance in grammatical constructions **iconically** reflects conceptual distance

increasing linguistic closeness:

analytical expression > juxtaposition > affixal expression > fused expression

e.g. CAUSATION

English	kill	vs.	cause to die
Cebuano	undang 'stop s.th.'		pa-undang 'stop someone'
Amharic	a-bälla 'feed'		as-bälla 'force to eat'
Korean	ip-hi- 'dress someone'		ip-key ha- 'persuade s.o. to get dressed'

e.g. COORDINATION

Fe'fe' Bamileke	à	kà	gén	n-te@	njwe@	lwà'
	he	PAST	go	market	buy	yams
	'He went to the market buying yams.'					
vs.	à	kà	gén	n-te@	ni@	njwe@ lwà'
	he	PAST	go	market	and	buy yams
	'He went to the market and also (at some later date) bought yams.'					

e.g. POSSESSION

Nakanai	<i>lima-gu</i> [hand-1SG] 'my hand'	vs.	<i>luma taku</i> [house my] 'my house'
Tunica	<i>?u-esiku</i> [3SG-father] 'her father'		<i>?u-hk-iyut?eku</i> [3SG-ALIEN-hog] 'his hog'
but:			
Puluwat	<i>pay-iy</i> [hand-1sg] 'my hand'		<i>nay-iy hamwol</i> [POSS.CLF-1SG chief] 'my chief'

"The classifier which signals alienable possession does not occur between possessor and possessum, but precedes both" hence:

**Universal:** "In no language will the phonological expression of inalienable possession be bulkier than that of alienable possession." (Haiman 1983: 795)

Thus:

Apparent cases of "iconic motivation" are in fact **economically motivated!**

- direct causation is more frequent than indirect causation
- tight coordination is more frequent than loose coordination
- inalienable possession is more frequent than alienable possession

iconicity is relevant for **sequence effects** (*veni, vidi, vici*), but probably not for the phenomena that Haiman discusses

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## 5b. Syntactic categories and functional linguistics

### 1. The universality of syntactic categories

**generative linguistics:** N, V, A, P (etc.) are universal innate categories (no empirical argument)

**"structuralism"/descriptive grammars:**  
word classes may differ across languages

e.g. Nordlinger 1998:46:

"There are seven parts of speech (or 'word classes') in Wambaya, determined by the inflectional and distributional characteristics of each word. These classes are mutually exclusive.. The seven parts of speech in Wambaya are: (1) NOMINALS ((i) nouns, (ii), adjectives (iii) free pronouns, (iv) demonstratives, ...), (2) VERBS, (3) AUXILIARY, (4) ADVERBS, (5) PARTICLES, (6) CLITICS, (7) INTERJECTIONS."

word-class membership is determined on the basis of morphological, syntactic and semantic(?) criteria

**danger of arbitrariness:** what if different criteria give different results?

e.g. in Wambaya: some criteria put property-words and thing-words in the same class, others distinguish them.

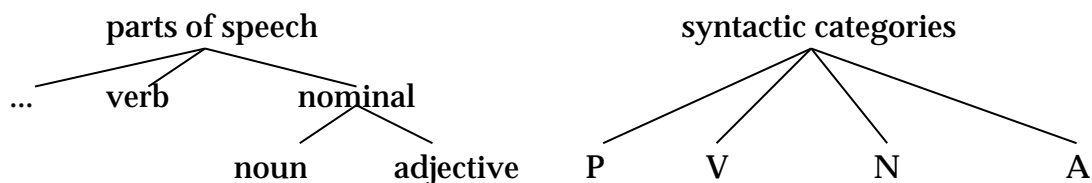
Nordlinger 1998:47:

"For the most part, adjectives and nouns in Wambaya can be considered the same. In this respect, Wambaya is typical of Australian languages, in which there is generally **little formal distinction between nouns and adjectives** (Dixon 1980:272). Both nouns and adjectives are inflected for case, number and gender; can function as the head of a noun phrase or as a modifier qualifying the head; and can function as the predicate of a verbless clause.

However, there are differences between nouns and adjectives that support the treatment of them as **two different subclasses** even though they are both **contained within the larger superordinate class of nominals**...

while nouns inherently belong to only one gender, an adjective has no inherent gender, but potentially can be marked for any of the four genders in agreement with the noun that it modifies..."

gender 1	<i>buga-yi</i>	<i>alaji</i>	'big boy'
gender 2	<i>buga-yirna</i>	<i>bayigina</i>	'big bag'
gender 3	<i>bugu-wama</i>	<i>jigama</i>	'big yam'
gender 4	<i>bugu-wa</i>	<i>darranggu</i>	'big stick'



**theoretical solution of the arbitrariness problem:**

assume as many categories as there are criteria, without arbitrarily privileging any single criterion

– this leads to less elegant descriptions, but non-arbitrariness is more important than elegance (at least in functional linguistics, where there is no expectation that speaker's knowledge of their language is organized elegantly)

**practical solution:** make an arbitrary decision, but be aware that it is arbitrary – for the linguist's convenience, not reflecting anything in speakers' competence

**language-particularity:** since the criteria are language-particular (e.g. inflectional categories, behavior in certain syntactic constructions), the resulting classes are language-particular

(Croft 2000, 2001: ch. 2)

(reflected in the spelling: capitalization for "proper names": Wambaya Verbs, Wambaya Nominals, English Auxiliaries, Latin Adjectives; like the Latin Perfect, the German Perfect, the French Passé simple, German Umlaut, Italian Raddoppiamento sintattico)

**universals:** How can we make claims about languages in general, if the categories are language-particular?

Cross-linguistic comparison is possible on the basis of meaning: "thing-word", "property-word", "action-word" is the only possible definition for word order generalizations (AN = property-word precedes thing-word; SOV = agent-thing-word precedes patient-thing-word precedes action-word).

## 2. Prototypes and syntactic categories

a **functional explanation** for the existence of prototype categories in animal (incl. human) cognition:

Taylor 1989: 53 emphasizes "the greater efficiency of prototype categories. Prototype categories have a flexibility, unknown to Aristotelian categories, in being able to accommodate new, hitherto unfamiliar data. With only Aristotelian categories at our disposal, new data would often demand, for their categorization, the creation of new categories, or a redefinition of existing categories. On the other hand, new entities and new experiences can be readily associated, perhaps as peripheral members, to a prototype category..."

Thus, prototypes **facilitate comprehension**, but there is no analogous motivation for prototypes in **production**.

In syntax, there does not seem to be any motivation for prototype categories: **people do not often encounter new word-classes or new constructions** that they would have to categorize. With achieved syntactic acquisition, they have virtually all the categories that they will ever need.

Syntactic innovations can easily be modeled by the **creation of new categories or redefinition of existing categories**.

Croft 1990:ch. 6, 1991:

"prototypes" as **unmarked combinations of values from several inflectional or semantic dimensions**, e.g.

	<b>voiceless</b>	<b>voiced</b>
<b>obstruents</b>	<b>S (unmarked)</b>	Z (marked)
<b>sonorants</b>	m (marked)	<b>m (unmarked)</b>

	<b>agent</b>	<b>patient</b>
<b>animate</b>	<b>the girl (saw a boy)</b>	(la niña vio) a-l niño <b>'the girl saw the boy'</b>
<b>inanimate</b>	(the boy was struck) by a lightning [??a lightning struck the boy - in many lgs]	(la niña vio) el libro <b>'the girl saw the book'</b>

	<b>1st person</b>	<b>2nd person</b>	<b>3rd person</b>
<b>indicative</b>	cant-o	canta-s	canta-Ø
<b>imperative</b>	let me sing!	<b>sing!</b>	let her sing!

	<b>reference</b>	<b>modification</b>	<b>predication</b>
<b>objects</b>	<b>nouns (unmarked):</b> dog	<b>genitive:</b> dog's	<b>predicate nominals:</b> be a dog
<b>properties</b>	<b>quality nouns:</b> happi-ness	<b>adjectives (unmarked):</b> happy	<b>predicate adjectives:</b> be happy
<b>actions</b>	<b>nominalizations:</b> fligh-t	<b>participles:</b> fly-ing	<b>verbs (unmarked):</b> fly

The boldfaced combinations are the **most frequent** ones, and hence they generally show greatest **syntagmatic simplicity** and **paradigmatic complexity** across languages.

When other factors lead to greater frequency, **frequency** (and not "prototypicality") determines behavior:

- In Welsh and Polish, the copula has more inflected forms than other verbs (Newmeyer 1998:183, from R. Borsley, p.c.)
- In many languages, pronouns have more case distinctions than full nouns.

**Hence: "prototypicality" in Croft's sense can be reduced to frequency.**  
(Newmeyer 1998:§5: prototypicality can be reduced to markedness; but markedness itself can be reduced to frequency!)

### 3. Category gradience ("fuzziness") and category multiplicity

Quirk et al. 1985:90: "Grammar is to some extent an indeterminate system. Categories and structures, for example, often do not have neat boundaries. Grammarians are tempted to overlook such uncertainties, or to pretend that they do not exist. Our guiding principle in this grammar, however, will be to acknowledge them, and where appropriate to explore them through the concept of GRADIENCE."

examples of "gradient parlance" in descriptions:

- Heath 1999:121 (on Koyra Chiini Songhay): "Conjoined PPs appear to be limited to the more **"nouny" postpositions.**"
- Dayley 1985:152 (on Tzutujil): "The short forms of relational nouns, because they do not take possessive prefixes, might be viewed as **incipient prepositions.**"

**A noun-preposition gradient in German** (see also Di Meola 2000):

five criteria:

- (a) complement in the genitive case
- (b) formally identical to a full noun
- (c) complement not in the dative case
- (e) complement can be a possessive pronoun
- (d) one part is a preposition

	(a) genitive complement	(b) identical to full noun	(c) no dative complement	(d) one part is a prep.	(e) poss. pron. complement
<i>in Begleitung</i>	+	+	+	+	+
<i>anstatt</i>	+	+	+	+	-
<i>kraft</i>	+	+	+	-	-
<i>trotz</i>	+	+	-	-	-
<i>wegen</i>	+	-	-	-	-
<i>mit</i>	-	-	-	-	-

Such gradients are extremely common in the world's languages – but only **between lexical word-classes and grammatical word-classes!**  
(no adjective-verb clines, noun-verb clines, etc.)

Grammatical words arise from lexical words by **grammaticalization**, in a gradual, piecemeal way: they acquire more and more properties that are not characteristic of the lexical word-class, and lose more and more of their earlier word-class properties.

If there were no fuzziness, we would expect only wholesale reanalysis and no descriptive indeterminacy, but instead again and again we observe items that cannot easily be categorized.

**Explanation:**

(Dryer 2001)

Speakers are not limited in their syntactic categories by the specifications of UG – if necessary, they can set up **as many categories as there are criteria**, and **as many categories as there are (incipient) grammatical words**.

- there is a lot more idiosyncrasy in grammars than is usually recognized by theorists (Culicover 1999) -- all this must be learnable
- grammatical words are highly frequent, so learning idiosyncratic syntactic behavior is relatively easy
- grammatical words are often highly polysemous, so many different facts about them have to be learned anyway

Thus, what appears to the observer as **category gradience** (or difficulty of category assignment), it in fact **category multiplicity**.

Instead of a fuzzy area between nouns and prepositions, German in fact has at least six classes of prepositions (and perhaps as many as a hundred).

(The only type of clear evidence that speakers recognize a category: Productivity! For instance, loanwords can be taken over as nouns or verbs, showing that speakers have classes of nouns and verbs.

But grammatical-word classes are rarely productive, so maybe there are no grammatical-word classes at all!)

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## 6a. A functional explanation of article-possessor complementarity

### 1. Introduction

Possessors are often in complementary distribution with definite articles

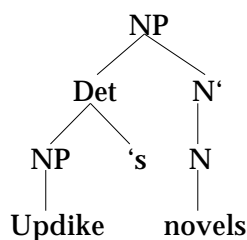
- (1) English:    *my house*            (\**the my house*, \**my the house*)  
                   *Paul's house*        (\**the Paul's house*, \**Paul's the house*)
- (2) French:    *ma maison*            (\**la ma maison*, \**ma la maison*)  
                   (but: *la maison de Paul*)

structural explanation: complementary distribution

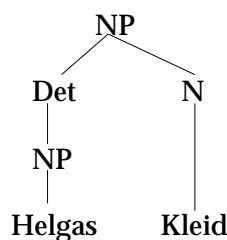
—> position class ("determiner") (Bloomfield 1933, Fries 1952)

- (3) a. English possessed NP (McCawley 1988:386)                      b. German possessed NP (Heidolph et al. 1981:306)

*Updike's novels*



*Helgas Kleid* 'Helga's dress'



- this position-class analysis was given up by most generativists in the 1990s, because in the "DP analysis" of noun phrases, determiners occupy a head position and possessor NPs must occupy a specifier position
- still, it exemplifies non-functional thinking well:  
observation: Two things do not cooccur, **and** they occur in the same position.  
interpretation: They do not cooccur **because** they occur in the same position.

This is possible, but there is no independent evidence: the only evidence for the position class is the non-cooccurrence of the elements in it -- circular reasoning!

Primary motivation: **Economical description**

2 competing descriptions:

- (a) [PossAdj N]                      PossAdj = my, your, his, etc  
       [Art N]                            Art = the, a, some
- (b) [Det N]                            Det = the, a, some, my, your, his, etc

deeper **functional explanation**: "economic motivation" (Haiman 1983)  
 the definite article tends to be omitted when a possessor is present because  
**a possessed NP is quite likely to be definite**, so speakers can economize  
 by omitting the article

Note: A possessed NP **need not** be definite (in contrast to NP with demonstrative: \**a this house*), cf. *a house of mine*. Thus, **likelihood** of being definite is sufficient to cause the economical pattern.

## 2. Typological variation

Many languages do not show any article-possessor complementarity:

(4) Italian

*la casa di Pirandello*  
 'Pirandello's house'

*la mia casa*  
 'my house'

(5) Basque

*amaren diru-a*  
 mother.GEN money-ART  
 'mother's money'

*zuen liburu-ak*  
 you.GEN book-PL.ART  
 'your books'

(6) Samoan

*'o le fale o le ali'i*  
 PT ART house POSS ART chief  
 'the chief's house'

*'o l-o-na fale*  
 PT ART-POSS-3SG house  
 'his/her house'

structural perspective: there is a "**possessive parameter**":

in some languages, the possessor is a **determiner** (e.g. English, French)

in other languages, the possessor is an **adjective** (e.g. Italian, Basque)

(Lyons 1986, Giorgi & Longobardi 1991)

functional perspective: "**competing motivations**":

some languages syntacticize the preference for **economy** (e.g. English)

other languages syntacticize the preference for **explicitness** (e.g. Italian)

Every **universal preference** is reflected in an implicational (and vice versa). There is a universal preference for possessed NPs to lack a definite article.

**Implicational Universal 1**: "If in a language a definite possessed NP has the definite article, then a definite non-possessed NP has the definite article, too."

		<i>in possessed NP</i>	
		no article	with article
<i>in non-possessed NP</i>	with article	English Ø <i>my book</i> <u><i>the book</i></u>	Italian <u><i>il mio libro</i></u> <u><i>il libro</i></u>
	no article	Russian Ø <i>moja kniga</i> Ø <i>kniga</i>	—

(\*Martian:  
*illo mijjo libbro*  
 Ø *libbro*)

Cf. the parallel case of **number marking** (Croft 1990:68):

**Implicational Universal 2:** "If in a language the singular is expressed by an overt morpheme, then the plural is expressed by an overt morpheme, too."

		<i>in Singular</i>	
		no morpheme	morpheme
<i>in</i>	morpheme	English <i>book-∅</i> <i>book-s</i>	Italian <i>libr-∅</i> <i>libr-ì</i>
	Plural	Chinese <i>shu@</i> <i>shu@</i>	—
no morpheme			
		(*Martian: <i>libbr-o</i> <i>libbr-∅</i> )	

### 3. The scope of the economy-based explanation

**Determiner-based explanation:** Predicts that article-possessor complementarity should be found only when the article and the possessor occur in the same position.

Apparently confirmed by Germanic and Romance:

	POSSESSIVE PRONOUN	PREPOSED POSSESSOR	POSTPOSED POSSESSOR
English	<i>my</i> (*the) house	<i>Paul's</i> (*the) house	<i>the roof of the house</i>
German	<i>mein</i> (*das) Haus 'my house'	<i>Pauls</i> (*das) Haus 'Paul's house'	<i>das Haus von Paul/Pauls</i> 'Paul's house'
Dutch	<i>mijn</i> (*het) huis 'my house'	<i>Diks</i> (*het) huis 'Dik's house'	<i>het huis van Dik</i> 'Dik's house'
French	<i>ma</i> (*la) maison 'my house'	—	<i>la maison de Paulette</i> 'Paulette's house'
Spanish	<i>mi</i> (*la) casa — 'my house'		<i>la casa de Irene</i> 'Irene's house'

**TABLE 1: Article-possessor complementarity in Germanic and Romance**

**Economy-based explanation:** Predicts that article-possessor complementarity should not be restricted structurally, because all that counts is saving production energy.

Confirmed by Tables 2-4:

Abkhaz (NW Caucasian)	<i>a-y<sup>h</sup>n</i> ART-house	'the house'	<i>y<sup>h</sup>-y<sup>h</sup>n<sup>h</sup>Y</i> 3SG.POSS-house	'his house'
Erzya Mordvin (Finno-Ugrian)	<i>kudo-s!</i> house-ART	'the house'	<i>kudo-m</i> house-1SG.POSS	'my house'
Amharic <i>bet-u</i> (South Semitic)	'the house' house-ART	<i>bet-e</i>	'my house' house-1G.POSS	
Bibl. Aramaic (NW Semitic)	<i>malk-a@</i> king-ART	'the king'	<i>malk-ì@</i> king-1SG.POSS	'my king'

**TABLE 2: Article-poss. complementarity with affixed article and possessor.**

Bulgarian	<i>sestra-ta</i>	<i>sestra</i> (*-ta)	<i>mi</i>
-----------	------------------	----------------------	-----------

	sister-ART 'the sister'	sister(-ART) my 'my sister'	
Icelandic	fyrirlestur-inn lecture-ART 'the lecture'	fyrirlestur(*-inn) málfraeðings-ins lecture(-ART) linguist.GEN-ART 'the linguist's lecture'	
Biblical Aramaic	?elā@a@ God-ART '(the) God'	?elā@a@ s&majj-a@ God(-ART) Heaven-ART 'the God of (the) Heaven'	

**TABLE 3: Article-poss. complementarity with affixed article and free poss.**

Swedish	bok-en 'the book'	Karins bok(*-en)	'Karin's book'	
Vai	ba&&	'the goat'	kāi-E&fa&-a&	'the man's father'
Amharic	l'g&u 'the son'	yä-gäbäre-w l'g&-u)	'the farmer's son'	
Hebrew	ha-sefer	'the book'	(*ha-)sefer David	'David's book'
Maltese	id-dar	'the house'	(*id-)dar Manwel	'Manwel's house'
Welsh	y car	'the car'	(*y) car y meddyg	'the doctor's car'
Irish	an tigh	'the house'	(*an) tigh an tsagairt	'the priest's house'

**TABLE 4: Complementarity with different position of article and possessor**

additional difficulty for structural explanation: **optionality** of definite article with possessors (is Br. Portuguese a determiner-genitive lg. or an adjectival-genitive lg.?)

(7) Brazilian Portuguese (Thomas 1969)

- a. os amigos 'the friends'  
the friends
- b. (os) meus amigos 'my friends'  
the my friends

#### 4. The economic motivation of article-possessor incompatibility

Hawkins's (1978, 1991) theory of definite articles:

two necessary conditions for definite article:

An NP is definite

- (i) if its referent is locatable in a pragmatic set of entities shared by the speaker and the hearer, i.e. if it is pragmatically 'anchored', and
- (ii) if the referent is unique within this set

**pragmatic anchoring in the context:**

- (8) a. Carlo bought a new cat. Lucia finds **the** cat too big.
- b. I just read a book about Antarctica. **The** author is a Norwegian.
- c. (in a room with windows;) Could you open **the** window, please?
- d. (in a monarchy;) **The** king has abdicated.

**pragmatic anchoring within the definite NP:**

- (9) a. Carlo is upset. He finds **the** cat that Lucia bought too big.
  - b. Please open **the** window above the main entrance.
  - c. **The** author of my new book about Antarctica is a Chilean.
- a possessor serves as a **pragmatic anchor** for definiteness

– thus, one of the two conditions is **automatically fulfilled**  
 but the second condition need not be fulfilled:

hence there are also indefinite possessed NPs,

e.g. a book of John's (John has several books)

French *une maison à moi* (I have several houses)

greater likelihood of possessed NPs being definite

—> more possessed NPs are definite in texts

	ALL NPs	POSSESSED NPs
total number of (full) NPs	1000	311
definite NPs	673	292
indefinite NPs	327	19
ratio of indefinite to definite NPs	0.49	0.07
Sources: David Lodge, <i>Small world</i> , Harmondsworth: Penguin, 1984, 3-13; John le Carré, <i>The Russia House</i> , Sevenoaks: Hodder and Stoughton, 1989, 19-31.		
<b>TABLE 5: Text frequency of definite and indefinite NPs in English.</b>		

	ALL NPs	POSSESSED NPs
total number of (full) NPs	1000	173
definite NPs	745	163
indefinite NPs	255	10
ratio of indefinite to definite NPs	0.34	0.06
Sources: Mario Tobino, <i>Il perduto amore</i> , Milan: Mondadori, 1979, 25-40; Susanna Tamaro, <i>Anima mundi</i> , Milan: Baldini & Castoldi, 1997, 69-82.		
<b>TABLE 6: Text frequency of definite and indefinite NPs in Italian.</b>		

## 5. The explanatory potential of the economy-based explanation

### 5.1. Further cases of omissible articles

(10) demonstrative:

English

*this (\*the) book*

Modern Greek

*aftó to vivlío*

(\**aftó vivlío*)

(11) superlative:

Arabic

*?akbar (\*al-)walad*

English

*the biggest boy*

(\**biggest boy*)

(12) proper name:

English

(\**the*) *Mary*

Modern Greek

*i María (\*María)*

'*Maria*'

in these cases, too, the modifier makes it more likely (or necessary) that the NP is definite – this is syntacticized in some languages (omission of the article), other languages opt for explicitness

### 5.2. Increased omissibility with preposed possessors

	PREPOSED POSSESSOR, DEFINITE ARTICLE OMITTED	POSTPOSED POSSESSOR, DEFINITE ARTICLE PRESENT
English	<i>our dog's (*the) kennel</i>	<i>the kennel of our dog</i>
Spanish	<i>(*el) mi libro</i>	<i>el libro mío</i>
Yiddish(*di)	<i>mayn shvester</i>	<i>di shvester di mayne</i>
Romany	<i>(*le) murré rklés (the) my boy</i>	<i>le rklés le murrés the boy the my</i>
Swedish	<i>min bok(*-en) my book(-ART)</i>	<i>bok-en min book-ART my</i>
Icelandic	<i>mitt hús(*-iD) my house(-ART)</i>	<i>hús(-iD) mitt house(-ART) my</i>
Romanian	<i>ai nos,tri tineri(*-i) GENART our youngsters(-ART)</i>	<i>tineri-i nos,tri youngsters-ART our</i>
Albanian	<i>im vëlla(*-i) my brother(-ART)</i>	<i>vëlla-i im brother-ART my</i>

**TABLE 8: Increased omissibility with preposed possessors.**

#### Economy-based explanation:

If the possessor precedes the head noun, then at the time the hearer encounters the head noun he or she already has the information regarding its probable definiteness. Thus, overt indication of definiteness is still more redundant under these circumstances. Conversely, the definite article is relatively more useful with postposed possessors because at the time the head noun is encountered the anchoring information of the possessor is not yet available.

### 5.3. Increased omissibility with kinship nouns

	KINSHIP NOUN	OTHER HEAD NOUN
Italian	<i>(*la) mia madre</i>	<i>la mia casa</i>
Braz. Portuguese	<i>(*a) minha mãe</i>	<i>(a) minha casa</i>
Bulgarian	<i>majka(*-ta) mi mother(-ART) my</i>	<i>kola-ta mi car-ART my</i>
Icelandic	<i>sonur(*-inn) minn son(-ART) my</i>	<i>hús(-iD) mitt house(-ART) my</i>
Somali	<i>hooya-day(*-du) mother-1SG.POSS(-ART) 'my mother'</i>	<i>saxiib-kay-gu friend-1SG.POSS-ART 'my friend'</i>
Nkore-Kiga	<i>(*o-)mukuruwangye (ART-)sister my 'my sister'</i>	<i>e-kitabo kyangye ART-book my 'my book'</i>

**TABLE 9: Increased omissibility with kinship nouns.**

### **Economy-based explanation:**

The crucial property of kinship nouns is the fact that the possessive relation is inherent in them: Kinship terms, like other inalienable nouns, are semantically relational, i.e. they are conceptually incomplete when they are not possessed. The pragmatic anchoring is particularly effective in the case of inalienable possession. The definite article is therefore relatively more redundant in kinship terms, and relatively more useful in non-relational nouns, a difference that is exploited in the grammars of some languages.

## **6. The implementation of the economic motivation**

Grammars incorporating a rule of article-possessor complementarity allow their speakers to construct shorter, more economic utterances. **But how does this functional motivation become part of the grammar?**

Answer: – through diachronic change  
– through syntacticization of frequent forms

### **Article-possessor complementarity:**

Definite articles arise through the **grammaticalization** of demonstratives. At first, they are optional, as in the oldest stage of Germanic and Romance:

Gothic (Sauvageot 1929)

(15) *ik im Ʒata weinatriu, iƷ jus weinatainos* (John 15.5)  
I am the vine but ye branches  
'I am the vine, ye are the branches.'

(16) a. *mein bloƷ* (John 6.54)      b. *so meina laiseins* (John 7.16)  
my blood                              the my doctrine  
'my blood'                              'my doctrine'  
c. *saiwala meina* (John 10.15)      d. *sa Ʒiumagus meins* (Matth. 8.8)  
soul my                                      the servant my  
'my soul'                                      'my servant'

Old Italian (Rohlf's 1968)

(17) a. *miei giorni*                                      b. *lo tuo patre*  
c. *la loro potenza*                                      d. *lo viso mio*

During the period of optionality, speakers favor those constructions that lack a definite article when a possessor is present. **Due to their higher frequency, only these become fixed**, and with increasing SYNTACTICIZATION (=loss of variability, obligatorification), only the fixed forms survive.

**Consequence:** Article-possessor complementarity exists only in those languages in which a definite article was recently grammaticalized.

When a possessive construction is more recent than the definite article, there is no way for article-possessor complementarity to arise – **speakers do not just drop grammaticalized definite articles.**

Confirming evidence:

	OLD POSSESSIVE CONSTRUCTION		NEW POSSESSIVE CONSTRUCTION
English	<i>the planet's destruction</i>	>	<i>the destruction of the planet</i>
German	<i>meines Bruders Haus</i>	>	<i>das Haus von meinem Bruder</i>
Norwegian	<i>engelsk mann-en-s båt</i> Englishman-ART-GEN boat	>	<i>til engelsk mann-en båt</i> boat-ART of Englishman-ART
Hebrew	<i>sefer ha-talmid</i> book the-pupil	>	<i>ha-sefer s&amp; ha-talmid</i> the-book of the-pupil
Hungarian	<i>a barát könyv-e</i> the friend book-3SG.POSS 'the friend's book'	>	<i>a barát-nak a könyv-e</i> the friend-DAT the book-3SG.POSS 'the friend's book'
Coptic	<i>he@s</i> belly-3SG.F.POSS 'her belly'	>	<i>tes-he@s</i> ART.3SG.F.POSS-belly 'her belly'

TABLE 10: Old and new possessive constructions.

## 7. Conclusion

Article-possessor compatibility, one of the clearest examples of a "structural effect" (cf. Givón 1995), has a functional explanation.

The structural description of (3a-b) is not necessarily incorrect – it just lacks any explanatory value and is redundant from the point of view of linguistic theory. As in evolutionary biology, we can explain grammatical facts by **adaptation** to the "environment", i.e. the **functions** that grammatical constructions play for speakers so that speakers continue to use them (=keep them alive). The mechanism of propagation in linguistics, analogous to procreation in biology, is **continued frequent use** by speakers.

However, many facts of individual languages are simply historical accidents – e.g. Italian *\*mio paese* and English *\*the my country*. **Universals** – as discovered in language typology – are not historical accidents, but express what is **necessary** rather than contingent in languages.

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## Discussion of Frederick Newmeyer's (FJN) discussion

### A. Economy versus redundancy

Speech economy (or more generally, action economy) is a **universal preference** in speakers (and indeed, all animals). By contrast, there is **no preference for redundancy**. Cf. the continuation of the Hockett (1963:24) quote:

"...decrease [of redundancy] much below the figure [of 50%] leads to misunderstanding, and people slow down or articulate more clearly"

"Redundancy" in Hockett's terms is **required**, not superfluous.

Since there is no preference for **redundancy** (rather than economy) and no preference for **obfuscation** (rather than clarity), all uneconomical patterns are motivated by clarity, and all unclear patterns are motivated by economy.

**Agreement** (a relatively uneconomical pattern) is motivated by clarity (as is shown by constructions in which agreement occurs only when the constituents are not adjacent, cf. Hawkins 2001).

I see no evidence that different categories (such as definiteness) should show a smaller tendency to be economized on than others.

### B. Definite and indefinite articles

FJN: "The prediction would seem to follow, then, that when the possessed phrase is *indefinite*, the indefinite article (if there is one in the language) would be more likely to occur."

More precisely and more generally, the prediction follows that possessed indefinite NPs are coded in a more complex way than non-possessed indefinite NPs. This seems to be borne out. In a number of languages, the indefinite article cannot combine with a possessor in the ordinary possessive construction (\**a John's*

*book*, Arabic *kitaab-ii* 'a book of mine'), and the use of the ordinary possessive construction implies definiteness. (Of course, an indefinite marker that is used only in possessive constructions would hardly be called an indefinite article.)

### C. On H's Universal 1

(If possessed NPs show the definite article, then so do nonpossessed NP)

FJN: "if H's theory predicts why there are no uneconomical inexplicit languages, then it would also seem to predict (incorrectly) that there should be lots of languages in which both economy and explicitness are possible".

There is no such prediction, because we cannot predict which notional categories will be expressed (optionally or obligatorily). Some notional categories are virtually always obligatory (e.g. person), some are often optional and often absent (e.g. plural, verbal tense), and some are very rarely obligatory and rarely expressed (e.g. nominal tense). We don't really know why.

(Moreover, it may well be that lots of languages are like Brazilian Portuguese -- we know far too little about the cross-linguistic facts.)

### E. On H's Universal 3

(Articles are more likely to be omitted with kinship nouns)

*mia sorella* vs. *le mie sorelle*  
*mia mamma* vs. *la mia mamma*

FJN: "the explanation might be more complex than the one suggested by H in terms of 'relationality'."

In fact, I did propose a more complex explanation in terms of **grammaticalization** and **frequency**. Plurals and diminutives are **rarer** than singulars and non-diminutives, so they are less likely to exhibit special patterns. (Cf. also rarer kinship terms like *bisnonno* 'great-grandfather'.)

### Reference

Hawkins, John A. 2001. "Why are categories adjacent?" *Journal of Linguistics* 37:1-34.

MARTIN HASPELMATH, 26 July

## 8. Functional explanations of argument-marking patterns

### 1. Argument-marking: Flagging ("case-marking") and indexing ("agreement")

core arguments:	S	intransitive subject
	A	transitive agent and similar arguments
	P	transitive patient and similar arguments
	R	ditransitive recipient and similar arguments
	T	ditransitive recipient and similar arguments

**dependent-marking languages:** flagging by role-markers on the argument

(1) Lezgian (Haspelmath 1993: 214)

*C&alaw cifer-i xürü-n winel mic& qhen-Ø wehe-nwa-j.*  
black clouds-ERG village-GEN over dark shadow-ABS throw-PERF-PAST  
'Black clouds had cast a dark shadow over the village.'

**head-marking languages:** indexing by identity/role-markers on the verb  
(identity markers = person-number(-gender) indices)

(2) Abkhaz (Hewitt 1979: 105)

*Sarà a-x° c&k°a a-s&q°-k°à Ø-r ʸ-to-yt'.*  
I ART-child-PL ART-book-PL 3PL(P)-3PL(R)-1SG(A)-give-FIN  
'I give the books to the children.'

(various mixed types are possible, e.g. German, with case-marking and indexing)

**flag** = a role-marker that occurs on the argument (case or adposition)

**index** = a combined identity/role-marker that occurs on the verb and identifies an argument

**Generalizations:** (cf. Lehmann 1985)

**(I) Logically possible but inexistent or rare:**

– **role-markers on the verb that don't identify the arguments**

(superfluous, because inherent in the verb's meaning;  
insufficient, because arguments are not identified)

– **identity-markers on the arguments**

(superfluous, because inherent in the arguments' meaning;  
insufficient, because roles are not identified)

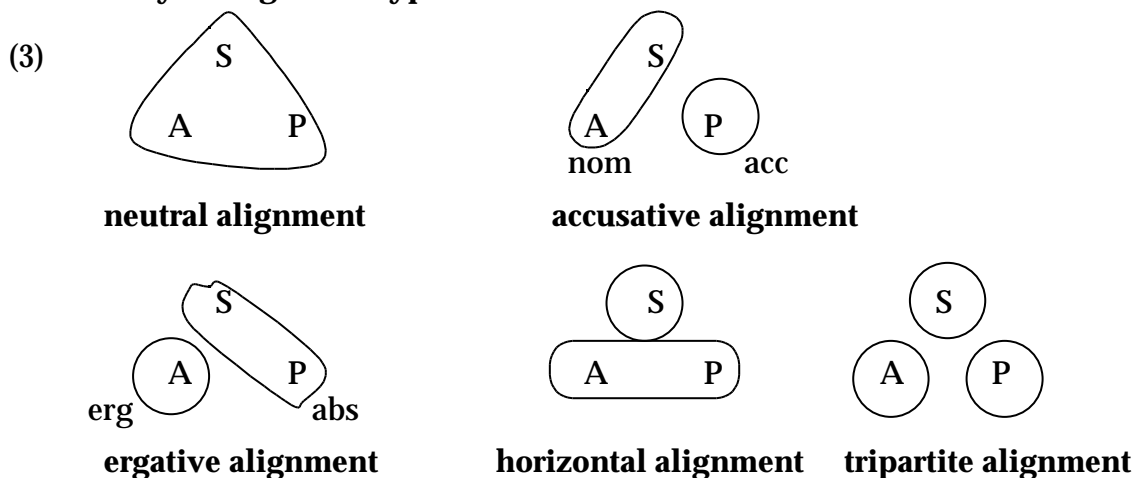
**(II) Indices (combined identity/role-markers) on the verb are restricted to core arguments, while flags are not.**

(because only core arguments frequently enough cooccur with the verb,

and can therefore become grammaticalized on the verb)

## 2. Flagging of monotransitive core arguments

### 2.1. Inventory of alignment types



The function of argument marking is **distinguishing** A and P. Accusative, ergative and tripartite alignment do this well. Neutral and horizontal alignment are **non-distinctive**.

Argument-marking systems should also be **parsimonious**, i.e. they should not make too many differentiations. Neutral alignment is highly parsimonious, tripartite alignment is **unparsimonious**.

Accusative and ergative alignment are **both distinctive and parsimonious** -- these are the two most widely found patterns. (Comrie 1978, 1989: ch. 6)

Neutral alignment occurs commonly because roles can be identified by indexing and/or word order.

As predicted, **neutral alignment in the absence of indexing is mostly found in SVO languages**.

### 2.2. Flag shape

The most frequent pattern should be the shortest. In accusative languages, nominative is necessarily the most frequent, while in ergative languages, absolutive is the most frequent.

As predicted, **nominative and absolutive are universally the shortest cases**. (Greenberg 1966)

### 3. Indexing of monotransitive core arguments

#### 3.1. Inventory of alignment types

the same as in §2.1, with the same explanations

#### 3.2. Index shape

since indices not only serve as role-markers, but also as identity-markers, they cannot be zero; however, it is expected that P indices are generally "bulkier" than SA indices, e.g. Spanish *los=llama-n* [them.P=call-they.A] 'they call them' (-- but no typological data yet)

#### 3.3. Comparison of flagging and indexing

data from a sample of 100 languages (Haspelmath 2001): **alignment types:**

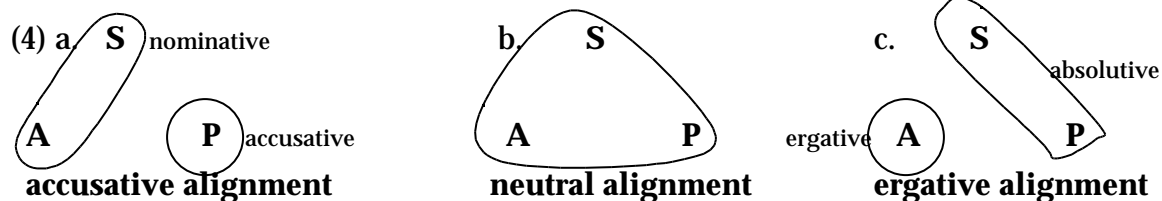
Flagging		Indexing	
ACC	29	ACC	48
ERG	19	ERG	7
NEUT	49	NEUT	33
TRIP	3	TRIP	12

**Generalization:** Preference for accusative over ergative indexing: indexing diachronically arises from the grammaticalization of resumptive pronouns in dislocation constructions (Givón 1976: *the girl, she comes > the girl she-comes*). Dislocation constructions highlight topics, and **topics** are associated with S and A.

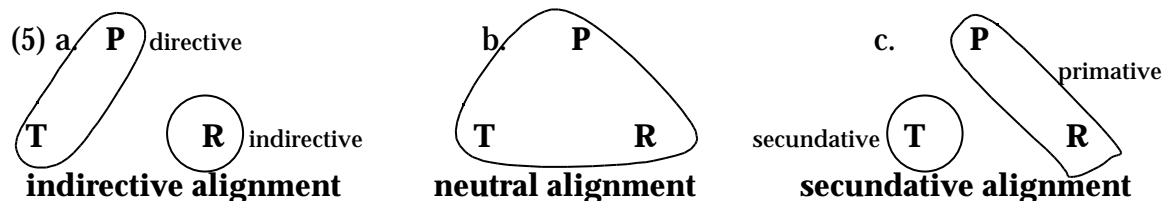
### 4. Ditransitive alignment

#### 4.1. Comparison between monotransitive and ditransitive alignment types

monotransitive:



ditransitive (Dryer 1986, Croft 1990:100-108, Dryer (to appear)):



(directive = direct object, indirective = indirect obj., primitive = primary object, secundative = secondary obj.)

Like ergativity and accusativity, **indirectivity** and **secundativity** can be seen both in **flagging** and in **indexing**:

(6) **German: indirective flagging & neutral indexing**

- (m) *Der Junge füttert den Teddy<sub>ACC</sub>.*  
'The boy is feeding the teddy bear.'  
(d) *Der Junge gibt dem Teddy<sub>DAT</sub> etwas<sub>ACC</sub> zu trinken.*  
'The boy is giving the teddy bear something to drink.'

(7) **Choctaw: neutral flagging & indirective indexing**

- (m) *ofi-yat katos kopoli-tok* (Davies 1986:16, 40)  
dog-NOM cat bite-PAST.3SG.NOM  
'The dog bit the cat.'  
(d) *alla iskali im-a:-li-tok*  
child money 3IND-give-1NOM-PAST  
'I gave money to the child.'

(8) **Yoruba: secundative flagging & neutral indexing**

- (m) *ó pa mí* (Rowlands 1969)  
he kill me  
'He killed me.'  
(d) *ó fún mi l' ówó*  
he give me SEC money  
'He gave me money.'

(9) **Maranungku: neutral flagging & secundative indexing**

- (m) *mi awa kara tim ayi* (Tryon 1970:48, 70)  
dog meat 3SG.A.NFUT bury PAST  
'The dog buried the meat.'  
(d) *kantu yuwa tyinta kanga=na wut ayi*  
man that spear 3SG.A.NFUT=3SG.R give PAST  
'He gave the spear to that man.'

(10) **Hyow: indirective flagging & secundative indexing**

- (m) *phll=la key ?0-NOwey-s0* (David Peterson, handout 2001)  
snake=ERG I 1SG.P-bite-FINAL  
'A snake bit me.'  
(d) *cu=la key=a co ?e-pek*  
he=ERG I=LOC book 1SG.R-give  
'He gave me a book.'

#### 4.2. Inventory of patterns

As predicted, horizontal alignment is unattested, and tripartite alignment is very rare (1%).

### 4.3. Comparison of flagging and indexing

#### ditransitive flagging

alignment	# of lgs.
indirective	58
secundative	6
neutral	45
tripartite	1

#### ditransitive indexing

alignment	# of lgs.
indirective	16
secundative	22
neutral	71
tripartite	1

#### Generalizations:

#### (I) Secundative indexing is more common than indirective indexing.

Because agreement markers arise as resumptives for topicalized NPs, and R is more topic-worthy than T.

-- But indirective agreement arises when a new ditransitive construction is introduced:

#### (8) Lango (Noonan 1992:120-121, 149)

##### a. monotransitive object agreement

*lóc ʔ ò-nEá-á án*  
 man 3SG.A-see.PERF-1SG.P me  
 'The man saw me.'

##### b. old ditransitive construction, with P = R agreement

*lóc ʔ ò-mìy-á búk*  
 man 3SG.A-give.PERF-1SG.R book  
 'The man gave me the book.'

##### c. new ditransitive construction, with P = T agreement

*lóc ʔ ò-mìy-E! bôt- ʔ!*  
 man 3SG.A-give.PERF-3SG.P to-1SG  
 'The man gave him (e.g. a slave) to me.'

(The analogous monotransitive change (new ergative construction) is much rarer -- monotransitive constructions are much more conservative.)

#### (II) There is a strong preference for indirective flagging over secundative flagging.

-- Because ditransitive constructions tends to be modeled metaphorically on the spatial transfer situation ('move THEME to PLACE'), in which generally the theme is treated like the monotransitive patient. (The analogous monotransitive change is much rarer.)

-- Because ditransitive T, unlike monotransitive P, is unlikely to attract differential case-marking. (Many cases of ACC flagging come from differential case-marking generalized.)

## 5. Split marking of A and P (monotransitive)

the **most frequent situation** is for the A to be definite and animate, and for the P to be indefinite and inanimate; rarer situations tend to get more overt marking, because they are less predictable (Comrie 1989: §6.2)

### Animacy Hierarchy

1st/2nd person > 3rd person > proper name > human > animal > inanimate

### Definiteness Hierarchy

definite > specific indefinite > non-specific indefinite

**The higher a P is on these hierarchies, the more likely it is to show special marking. The lower an A is on these hierarchies, the more likely it is to show special marking.**

### Special marking of a "high" P: "differential object marking"

(Bossong 1985, 1998, Aissen 2000, Lazard 2001)

#### Animacy Hierarchy

1st/2nd person > 3rd person > proper name > human > animal > inanimate  
-----Latin-----  
-----Russian-----  
-----Spanish-----  
-----Nhanda-----  
-----English-----  
----Dyirbal--

#### Definiteness Hierarchy

definite > specific indefinite > non-specific indefinite  
-----Latin-----  
-----Turkish-----  
--Hebrew--

### Special marking of "low" A: "split ergativity" (Silverstein 1976, Dixon 1994)

#### Animacy Hierarchy

1st/2nd person > 3rd person > proper name > human > animal > inanimate  
-----Lezgian-----  
-----Godoberi-----  
-----Dyirbal-----  
-----Mangarayi-----



## 6. Split marking of R and T (ditransitive)

the **most frequent situation** is for the R to be definite and animate,  
and for the T to be indefinite and inanimate;

(The higher a T is on these hierarchies, the more likely it is to show special marking.)  
The lower an R is on these hierarchies, the more likely it is to show special marking.

French: "differential R marking" only with 3rd person NPs

- (i) *Marie donne l'argent à Robert.*  
'Marie gives the money to Robert.'
- (ii) *Marie le lui donne.*  
'Marie gives it to him.'
- (iii) *Marie me donne l'argent.*  
'Marie gives me the money.'
- (iv) *Marie me donne à Robert.*  
'Marie gives me to Robert.'

(very similarly in Yimas, Foley 1991:208ff.)

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## 9a. Explanations of coreference patterns

Key reference:

Comrie, Bernard. 1999. "Reference-tracking: description and explanation" *Sprachtypologie und Universalienforschung* 52: 335-46.

### 1. Reference-tracking: full NPs, pronouns, reflexives

The existence of pronouns itself is functionally motivated, not innate (not all languages use pronouns) – pronouns are more **economical** than repeating the full NP, and more **distinctive** than zero.

Many languages have special **coreferential pronouns** (= REFLEXIVES or LOGOPHORS) that are used when the pronoun is coreferential with another prominent argument (mostly the subject) in the sentence.

Very often, the use of pronouns and reflexives is **strictly grammaticalized**, i.e. they must be used when they can be used:

- (1) a. *Robert<sub>i</sub> knows that some people admire **him**<sub>i</sub>.*  
      (\**Robert<sub>i</sub> knows that some people admire **Robert**<sub>i</sub>.*)  
      b. *Robert<sub>i</sub> admires **himself**<sub>i</sub>.*  
      (\**Robert<sub>i</sub> admires **him**<sub>i</sub>.*)

But not always:

- (2) Russian  
*Ja viz&menja.* = *Ja viz&sebja.*  
(lit.) 'I see me.' (lit.) 'I see self.'

– Both pronouns and reflexives **cannot be in a more prominent position than their antecedent** (\**Himself<sub>i</sub> admires Robert<sub>i</sub>.*/\**He<sub>i</sub> knows that some people admire Robert<sub>i</sub>.*)

– In English, reflexives **can only be used in a local domain** (generally the same clause as the antecedent): *Robert admires himself*/\**Robert knows that many people admire himself.*

(for similar (but more complicated) functional explanations of coreference patterns involving pronouns, see also Levinson 1987, 1991, Huang 1994, 2000, using "neo-Gricean pragmatics")

## 2. Reflexives prefer the third person

Comrie's (16): "If a language has distinct reflexive pronouns in the non-third person, then it will also have distinct reflexive pronouns in the third person."

		1st/2nd person reflexive:	
		no	yes
3rd person reflexive:	yes	French	ModEnglish
	no	Old English	--

**Explanation:** (p. 337)

Third person reflexives are useful, because third-person pronouns have many referential possibilities. 1st/2nd-person reflexives are much less useful, because the speaker and the hearer do not normally change in mid-sentence.

"... a special case of a more general principle of economy in language: more explicit expressions are more likely to be used where they are more useful."

## 3. "Special marked" forms in local domains indicate coreference

When the (local) reflexive and the pronoun differ in number of morphemes or in phonological size, it is normally the reflexive that is longer.

English	<i>him/himself</i>	French	<i>le/se</i>
German	<i>ihn/sich</i>	(exception: Danish)	<i>sig/hende</i>
Russian	<i>ego/sebja</i>		
Lezgian	<i>am/wic&amp;</i>		
Hausa	<i>shi/kansa</i>		

The more local the domain, the more likely the use of a "special marked form":  
increasingly less local domain —>

	object	adjunct	possessor	nonfinite	finite
English	<i>-self</i>	<i>s/he</i>			
Russian	<i>sebja/svoj</i>			<i>on/a</i>	
Danish	<i>sig selv</i>	<i>sig/sin</i>			<i>hende</i>
Japanese	<i>zibun zisin</i>	<i>zibun</i>			<i>kare</i>

### (3) Danish

- (object) *Peter kritiserer sig selv.*  
'Peter criticizes himself.'
- (adjunct) *Sofie lagde bøgerne bag sig.*  
'Sofie put the books behind her.'
- (possessor) *Peter tog sin frakke.*  
'Peter took his coat.'
- (nonfinite) *Marie hørte Eva kritisere sig/hende.*  
'Marie<sub>i</sub> heard Eva criticize her<sub>i</sub>.'
- (finite) *Marie siger at Eva kritiserer hende/\*sig.*  
'Marie<sub>i</sub> says that Eva is criticizing her<sub>i</sub>.'

Where there are two "special marked" forms, the one that is used in the more local domain is shorter.

"The greater markedness of a pronominal form correlates with greater locality of the domain." (p. 341)

**Explanation:** (p. 341)

"The normal situation, in terms of our conceptualization of the world, is for an action that includes more than one participant to have an agent acting on a patient that is a distinct entity from the agent. In other words, **the most natural situation is for the arguments of a predicate to be non-coreferential...** As we move to more and more extended domains, the expectation of non-coreference is relaxed, so that...at some particular point an individual language will decide to shift from reflexive to ordinary pronoun even in cases of coreference."

(4) Danish

*Han vasker sig.*

'He washes (himself).'

#### 4. "Less marked" forms are used in self-directed situations

König & Siemund 1999:62

**Correlation between predicate meaning and reflexivization strategies:**

The more complex strategy tends to be used for the more remarkable (i.e. other-directed) situation; the less complex strategy tends to be used for inherently reflexive verbs and for non-other directed situations.

examples	Other-directed situations	Self-directed situations
Danish, Dutch:	complex reflexive ( <i>sig selv/zichzelf</i> )	simple reflexive ( <i>sig/zich</i> ) affix reflexive (- <i>sj</i> )
Russian:	free reflexive ( <i>sebja</i> )	verbal marker
Hebrew:	reflexive	single intensifier
Turkish, Lezgian:	double intensifier	reflexive optional
English:	reflexive obligatory	pronoun
French:	complex reflexive	

(5) Russian

a. *Nadja umyvaet-sja.*

'Nadja is washing (herself).'

b. *Nadja nenavidit sebja.*

'Nadja hates herself.'

(6) Hebrew

a. *le-hit-ralec*

'wash oneself'

b. *le-vaker et jacmo*

'criticize oneself'

(7) French (Zribi-Hertz 1995)

a. *Pierre est fier de lui/lui-même.*

'Pierre is proud of himself.'

b. *Pierre est jaloux de lui-même/\*lui.*

'Pierre is jealous of himself.'

## 5. "Special marked" forms in extended domains indicate non-coreference

### Explanation:

"...in the extended domain, the expectation is for referential continuity ... or topic continuity... What is unexpected is the introduction of new participants, or of referring back to less salient participants, and it is in these cases that more marked forms are used."

e.g. special **same-subject forms** like infinitives and converbs (also some "switch-reference" forms)

### (8) German (cf. Comrie's Russian examples 44-45)

- a. *Georg<sub>i</sub> will [Ø<sub>i</sub> die Uhr dem Onkel geben].*
- b. *Georg will, [dass du die Uhr dem Onkel gibst].*

e.g. possibility of **pro-drop**

### (9) Russian

- Ona skazala, c& Ø odenetsja sama.*  
'She<sub>i</sub> said that she<sub>i</sub> would dress herself.'

e.g. **contrastively stressed pronouns**

### (10) English

- a. *John<sub>i</sub> punched Bill<sub>j</sub>, and then he<sub>i</sub> kicked him<sub>j</sub>.*
- b. *John<sub>i</sub> punched Bill<sub>j</sub>, and then HE<sub>j</sub> kicked HIM<sub>i</sub>.*

e.g. **demonstratives**

### (11) German (cf. Comrie's Dutch example (55))

- a. *Helga<sub>i</sub> kritisierte Regina<sub>i</sub>, und dann entließ sie<sub>i</sub> sie.*  
'Helga criticized Regina, and then she fired her.'
- b. *Helga<sub>i</sub> kritisierte Regina<sub>i</sub>, und dann entließ diese<sub>i</sub> sie.*

## 6. Comments on Frederick Newmeyer's "Discussion"

### (A) "On general appeals to 'usefulness' in functional explanation"

FJN: "There is nothing predictive about accounts like Comrie's. One can come up with any number of things that it would be useful for a language to do, but which never occur."

NO: The strong **prediction** is that things which aren't useful or even harmful will not occur or occur only very rarely. If usefulness played no role, we would expect **the same amount of useful and harmful structures** in languages, which is patently not the case.

Comrie's explanation may be "post facto", but a post-facto explanation that makes predictions about all languages is better than none, and certainly not worse than an equally post-facto UG-based explanation.

Hawkins 1988: "After all, there are lots of useful real-world distinctions that could potentially be grammaticalized in languages... Speakers regularly have occasion to refer deictically to objects on their left as opposed to their right side... Yet deictic systems across languages are not organized on this basis."

**Predictive power is added by the diachronic part of the story:**

More useful structures are used more often, and hence are more likely to get grammaticalized. **Frequency of use can easily be determined independently.** And in fact, Comrie's terms "normal" and "natural" have to be interpreted in terms of frequency.

**(B) "On ambiguity-reduction as a motivating force"**

FJN: "It is well-known that language tolerates a tremendous amount of (formal) ambiguity... To be convincing, Comrie should take a language like Old English, which does not have a special 3rd person reflexive form, and show that a significant amount of confusion arises from that fact."

NO: The fact that ambiguity is often tolerated (for reasons of economy) does not mean that ambiguity avoidance is not a motivating force.  
(Cf. economics: The fact that people often spend money (for reasons of survival) doesn't mean that they are not generally trying to save money.)

Comrie would predict that Old English (or Kiribatese) speakers are more often confused about reference than modern English speakers, but if the confusion were "significant" or overwhelming, then probably such languages wouldn't be so common.

Analogous, and equally easy to test: The claim that speakers of a language without dual marking (e.g. Chinese, English) are more often confused about number than Slovene speakers.

**(C) "A better functional explanation of the same facts"**

FJN: "Language users (for whatever reason) more frequently use identical subjects and objects in the 3rd person than in the 1st and 2nd... There is no need to appeal to ambiguity-reducing 'usefulness'."

This claim is very doubtful. In ordinary conversation, 1st/2nd person forms are far more common than in most texts that are available in writing.

**(D) "Suppose that the facts were the opposite..."**

FJN: "A tell-tale sign of a weak argument is that a reversal of the facts also lend itself to a 'neat' explanation."

This is a tell-tale sign of a **fatally flawed argument**, not just a "weak argument".

FJN: 1st/2nd person is higher on various markedness/prototypicality hierarchies than 3rd person, so it is less marked and should make more distinctions.

**PROBLEM:** The direction of "markedness" hierarchies depends on the categories they interact with. Ultimately, everything boils down to frequency, and the notion "markedness" should be eliminated.

**BUT: If 1st/2nd person pronouns are indeed more frequent in general than 3rd person pronouns (note that Dahl only talks about animate arguments), then one would indeed expect them to make more distinctions than 3rd person pronouns. (Rarity leads to fewer elaboration.)**

We would have **two competing motivations:**

- make **fewer distinctions (in general) in 3rd person pronouns** because of their lower frequency
- make **more referential distinctions 3rd person pronouns** because of their greater referential variability

Diametrically opposed motivations are not testable (e.g. "verb-object order facilitates verb processing, and object-verb order facilitates object processing"). But these two motivations are not 180° opposed:

**Prediction:** Non-referential distinctions are never collapsed in 1st/2nd person pronouns, and referential distinctions may be collapsed in 1st/2nd person pronouns.

Cf. also gender distinctions: typically collapsed in 1st/2nd person (Greenberg's Universal 44: "If a language has gender distinctions in the first person, it always has gender distinctions in the second or third person, or in both.")

**(E) Towards a better formal (and therefore functional) account: Burzio 1996**

"For Burzio, reflexives are always possible, no matter how far from the antecedent, unless blocked by some relevant intervening category."

This is an interesting descriptive trick which makes the account more elegant than Chomsky's original story, but it does not explain why we have this blocking hierarchy:

tensed indicative clauses > tensed subjunctive clauses > infinitival clauses > noun phrases

This hierarchy is explained if the higher domains are more likely to show topic continuity, which is plausibly the case.

"Built into Burzio's theory: Languages that do not have verb agreement, such as Chinese, Japanese, and Korean, permit anaphors as subjects of tensed clauses.

Incorrect generalization: Some agreementless languages don't (e.g. Danish), and some languages with agreement do, too (e.g. Kannada).





- (13) *Ada-z zun cxi-z klig-zawa-jdi aku-na.*  
 he-DAT [LABS selves-DAT look-IMPV-COMP] see-PAST  
 'He saw that I was looking at them.' (Haspelmath 1993:414)

### (F) On the independent need for a formal analysis

FJN: "since a commonly heard view is that, given a functional explanation, one doesn't need formal principles, it is worth pointing out why such principles are indeed needed"

– Language-particular ("formal") descriptions are of course needed, but they contribute to language-particular theories (e.g. the theory of English grammar), not to linguistic theory in general.

– Language-particular facts are always to some extent arbitrary (otherwise languages wouldn't differ). To the extent that they are arbitrary (due to historical accidents), they are not interesting. They are interesting only to the extent that they can be subsumed under universals. Universals usually have the form of implicational scales, and are explainable in functional terms.

– Language-particular theories are not only more parochial than linguistic theory, they are also much harder to test. Usually we have no way of knowing whether speakers really make the generalizations that linguists find. "Descriptive adequacy" (= psychologically real descriptions) is extremely difficult, and trying to build "explanatory adequacy" (= a characterization of UG) on descriptively adequate language-particular theories is fairly hopeless.

– Functionalist linguistic theory only needs observationally adequate descriptions.

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MARTIN HASPELMATH, 31 July

## 10b. Typology, functional explanations, and the study of the innate Universal Grammar

Newmeyer 1998b and this class: "U[niversal] G[rammar] characterizes the notion 'possible human language', not the notion 'probable human language' "

Therefore: typology, which tells us what a probable human language is, is irrelevant for "grammatical theory" (= the study of the innate UG, = generative grammatical theory)

Hale & Reiss 2000: 162 for phonology: "...many of the so-called *phonological universals* are in fact epiphenomena deriving from the interaction of extragrammatical factors like acoustic salience and the nature of language change... If our goals as generative linguists is to define the set of *computationally possible* human grammars, "universal tendencies" are irrelevant to that enterprise."

I fully agree, and I add:

**The typological facts show that the notion 'possible human language' has little relevance for linguistics, and vice versa. The generative enterprise (= characterizing UG) is important in the broader context of cognitive science and the philosophy of mind, but linguists need not worry much about it.**

### 1. Typological generalizations are generally one-way implications

- **unrestricted universals**  
vs. **implicational universals**:

the latter are more interesting, because they provide grist for the linguist's mill (both functionalist and generativist)

- **biconditional implications** (= equivalences)  
vs. **one-way implications** (= preferences)

(1) If in a language the genitive (= possessor) follows the noun ("NGen"), then the complement follows the adposition ("AdpN"; = preposition), **and vice versa**. (Greenberg 1963, Universal 2)

tetrachoric table:

		Genitive:	
		precedes (GenN)	follows (NGen)
Adposition:	precedes (= prep.)	--	German
	follows (= postp.)	Turkish	--

e.g. Turkish *Mehmet ile* 'with Mehmet',  
*Türkiye'nin endüstrisi* 'the industry of Turkey'

(2) If in a language subject agreement morphology is rich, then the subject pronoun is optional ("Pro-Drop"), **and vice versa**. (e.g. Haegeman 1994:454)

tetrachoric table:		subject agreement:	
		poor	rich
subject pronoun:	optional	--	Italian
	obligatory	Swedish	--

Swedish *jag kommer* 'I come', Italian (*io*) *vengo*

**Possible UG-based explanations (with reference to parameters):**

**Universal (1):**

There is an innate "head parameter", which is fixed simultaneously for the relation headnoun-genitive and adposition-complement (e.g. Chomsky & Lasnik 1993:518). For this reason, languages with the order NAdp & GenN or AdpN & NGen cannot be acquired.)

**Universal (2):**

The existence of rich subject agreement is parametrized (yes/no). An innate principle allows the identification and licensing of null subjects by rich agreement. Another innate principle prohibits pronouns when they are not necessary (Chomsky 1981).

(but see Gilligan 1987, Haider 1994 and Newmeyer 1998a:§7.3 on the empirical problems with the "null subject parameter")

However, most universals are **one-way implications**:

(3) If a language has a [g] hat, it also has a [b] (**but not vice versa**).

tetrachoric table:		[g]:	
		no	yes
[b]:	yes	Dutch	German
	no	Hopi	--

(4) If a language has initial [M], it also has non-initial [M] (**but not vice versa**).

tetrachoric table:		initial [M]:	
		no	yes
non- initial [M]:	yes	German	Ngiyambaa
	no	Russian	--

(5) If a language has a marked singular, it also has a marked plural (but not vice versa). (Greenberg 1966)

tetrachoric table:		Singular:	
		unmarked	marked
Plural:	marked	English	Latin
	unmarked	Chinese	--

Latin *hort-us* 'garden', *hort-i* 'gardens; English *book/book-s*; Chinese *shu* 'book(s)'

(6) If a language has plurals for inanimates, it also has plurals for humans (but not vice versa). (Smith-Stark 1974, Corbett 2000)

		tetrachoric table:	
		humans:	inanimates:
	plural	no plural	plural
	no plural	Maricopa	German
		Kombai	--

cf. Maricopa *humar* 'child', *humaar* 'children', vs. *kpur* 'hat(s)'

(7) If a language has the definite article in a possessive NP (e.g. *my book*), then it also has it in a non-possessive NP (Haspelmath 1999a).

		tetrachoric table:	
		non-possessive NP:	possessive NP:
	with article	no article	with article
	no article	German	Italian
		Russian	--

(8) If the pronominal subject is expressed in a 'want' complement clause, then it is also expressed in a 'say' complement clause.

		tetrachoric table:	
		'say' complement clause	'want' complement clause
	with subject	no subject	with subject
	no subject	German	Greek
		Chinese	--

German

- (i) a. *Robert<sub>i</sub> will [Ø<sub>i</sub> rechtzeitig ankommen].*  
 'Robert wants to arrive in time.'  
 (ii) b. *Robert<sub>i</sub> erkennt<sub>i</sub> [dass er<sub>i</sub> rechtzeitig ankommt].*  
 'Robert recognizes that he arrives in time.'

Greek

- (iii) a. *Ø Róbert thél-i [na éρθ-i].*  
 the Robert want-3SG COMP come-3SG  
 'Robert wants to come.'  
 b. *Ø Róbert ksér-i [óti tha éρθ-i].*  
 the Robert know-3SG COMP FUT come-3SG  
 'Robert knows that he will come.'

(9) If a *wh*-element can be extracted from an *S'*, then it can also be extracted from a VP (but not vice versa). (Hawkins 1999:263)

		tetrachoric table:	
		extraction from VP	extraction from <i>S'</i>
	possible	impossible	possible
	impossible	Russian	English
		Lezgian	--

Russian (from Comrie 1973)

(iv) a. extraction from VP

Vot ogurcy<sub>i</sub> [kotorye<sub>i</sub> ja obes~~ca~~ [<sub>VP</sub> prinesti Ø<sub>i</sub>]].  
 'Here are the cucumbers which I promised to bring.'

b. extraction from S'

\*Vot ogurcy<sub>i</sub> [kotorye<sub>i</sub> ja obes~~ca~~ [<sub>S'</sub> c~~ca~~ prinesu Ø<sub>i</sub>]].  
 'Here are the cucumbers which I promised that I'd bring.'

**One-way implicational universals can be reformulated as universal preferences, and vice-versa.**

- [b] is preferred over [g]
- non-initial [M] is preferred over initial [M]
- marked plurals are preferred over marked singulars
- human plurals are preferred over inanimate plurals
- VP extraction is preferred over S' extraction

Universal preferences/one-way implications are relatively difficult to explain on the basis of an innate UG, but relatively easy to explain functionally.

\*\*\*\*\*

**Optimality Theory: "markedness constraints" can "explain" preferences equally well:**

\*BACK&VOICED:

An obstruent may not be simultaneously back and voiced.

Dutch

input: [g]	*BACK&VOICED	FAITHFUL
[g]	*	
[V]		*

German

input: [g]	FAITHFUL	*BACK&VOICED
[g]		*
[V]	*	

prerequisites for this explanation:

- \*BACK&VOICED is an innate constraint
- the opposite constraint (\*FRONT&VOICED) does not exist (but why not?)

further possible OT constraints:

- \*INITIALVELARNASAL, \*MARKEDSINGULAR, \*INANIMATEPLURAL,
- \*POSSESSIVEDEFARTICLE, \*WANTSUBJECT

(very shallow abstraction level; no independent evidence for these constraints; cognitively rather implausible)

\*\*\*\*\*

## 2. Typological generalizations generally take the form of implicational scales (not simply binary implications)

(3') [G] [g] [d] [b] (at least for implosive stops)

(4') word-initial [M] syllable-initial [M] syllable-final [M]

(5') singular plural dual  
(the further to the right, the more likely marked, and the longer the marking)

(6') masses discrete things lower animals higher animals people  
kinship terms pronouns  
(the further to the right, the more likely plural marking)

(9') S' in NP S' VP  
(the further to the right, the easier the extraction)

(v) Swedish (from Hawkins 1999)

ett ben<sub>i</sub> [som<sub>i</sub> jag ser [<sub>NP</sub> en hund [<sub>S'</sub> som gnager på Ø<sub>i</sub>]]]  
a bone that I see a dog that is-gnawing on

Again, preference scales are intrinsically easier to explain functionally than on the basis of an innate UG.

\*\*\*\*\*

### Optimality Theory:

preference scales are "explained" by "**harmonic alignment**":  
**fixed constraint subhierarchies** (= constraint sets whose ranking is not subject to variation):

\*MASS/PLURAL >> \*INANIMATE/PLURAL >> \*LOWERANIMAL/PLURAL >>

\*HIGHERANIMAL/PLURAL >> \*HUMAN/PLURAL >> \*KIN/PLURAL >>

\*PRONOUN/PLURAL

(cf. Aissen 1999, 2000, McCarthy 2002: 21)

\*\*\*\*\*

## 3. Typological generalizations often have exceptions

(13) Greenberg 1963, Universal 2: "In languages with prepositions, the genitive almost always follows the governing noun, while in languages with postpositions it almost always precedes."

That is, generalizations do not describe absolute limits on **possible** languages, but only describe **probable** languages.

Cf. Dryer 1997:

Fig. 1.

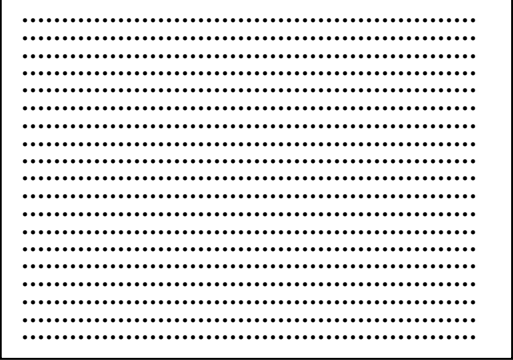
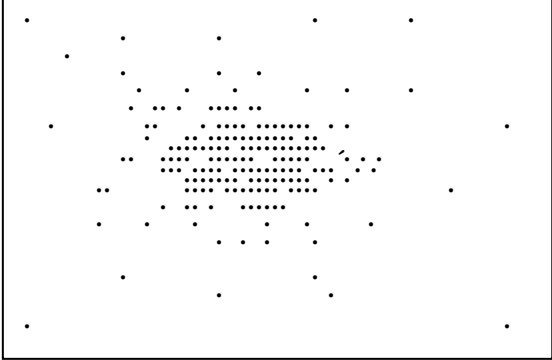


Fig. 2



If languages were **distributed evenly** in the space of possibilities (Fig. 1), determining the boundaries of that space would be a reasonably interesting enterprise. Since languages are distributed more like in Fig. 2 (**clustering around certain highly probable types**), determining what a possible language is very uninformative.

The languages in the outer regions of Fig. 2 are "**diachronically** impossible languages (ones that could never arise because of the nature of language change), but not ones that are **computationally** impossible." (Hale & Reiss 2000:163)

There are many structures that can be acquired but that are rarely or (in practice) never found in actual languages, because they are not useful and therefore are likely to be eliminated in language change.

#### 4. What is left for the "generative enterprise"?

Newmeyer 1998b:161 denies the "possible implication that there is no need for grammatical theorists [=students of innate UG, M.H.] to undertake the intensive investigation of as many languages as possible. Indeed, there is such a need, both for an appreciation of the range of processes that the languages of the world can manifest and for testing candidate universals that have been mooted on the examination of one or a small number of languages. After all, no investigation of a single language, no matter how thorough, could answer the question of whether overt *Wh*-movement is subject to locality conditions if that language happened not to have overt *Wh*-movement!"

- but the locality conditions on *wh*-movement are outside the scope of UG, too!
- and why should the "range of processes" in the world's languages be relevant for UG?



The innate Universal Grammar is best studied **not by examining grammars of natural languages, but**

– by studying **language games**, cf. Anderson 1999: 121

"...the scope of the language faculty cannot be derived even from an exhaustive enumeration of the properties of existing languages, because these contingent facts result from the *interaction* of the language faculty with a variety of other factors, including the mechanism of historical change. To see that what is natural cannot be limited to what occurs in nature, consider the range of systems we find in spontaneously developed language games, as surveyed by Bagemihl (1988)...

...the underlying faculty is rather richer than we might have imagined even on the basis of the most comprehensive survey of actual, observable languages...

...observations about preferences, tendencies, and which of a range of structural possibilities speakers will tend to use in a give situation are largely irrelevant to an understanding of what those possibilities are."

– by studying the acquisition of **unnatural languages** such as Esperanto (cf. Versteegh 1993)

– by **artificial acquisition** experiments with highly unusual inputs (e.g. Bybee & Newman 1995)

This is an important area of **experimental cognitive linguistics**, but its goals and methods are largely unrelated to the core tasks of linguistics, **describing and explaining the structure of natural languages**.

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## 11b. Why Optimality Theory is still suboptimal

### 1. Why is OT so good at doing what it does?

because it has learned two important things from functionalism:

- (i) that there are two great "driving forces", "**markedness**" ( *economy*) and "**faithfulness**" ( *clarity*)
- (ii) that the driving forces may be in **conflict** with each other

neogrammarians (e.g. Paul 1880)	tension between phonetic tendencies (leading to sound changes) and morphological regularity (analogical leveling)
von der Gabelentz (1901:256)	tension between the "striving for ease" ( <i>Bequemlichkeitsstreben</i> ) and the "striving for clarity" ( <i>Deutlichkeitsstreben</i> )
natural phonology and morphology	naturalness principles in conflict (Donegan & Stampe 1979, Dressler 1977:13, Dressler et al. 1987:7, 93, Wurzel 1984)
functional syntax	competing motivations (Haiman 1983:812, Du Bois 1985, Croft 1990:\$7.4)

Langacker 1977:102:

"I believe we can isolate a number of broad categories of linguistic **optimality**. Languages will tend to change so as to maximize optimality in each of these categories... The tendencies toward these various types of optimality will often conflict with one another." (my emphasis, M.H.)

this influence is acknowledged by some OT practitioners:

McCarthy 2002: 51: "Natural Phonology, then, has no truck with the abbreviatory conventions and feature-counting Evaluation Metric of *SPE* (i.e. Chomsky & Halle 1968: *The sound pattern of English*). **OT has closer affinities to Natural Phonology than to *SPE***. Although OT shares with *SPE*, and with generative grammar as a whole, the goal of developing an explicit theory of language competence, the principal modes of analysis and explanation in OT and *SPE* have little in common."

BUT cf.:

**classical generative phonology (= *SPE*): abbreviatory devices for natural classes**

German final devoicing

old style: {b, d, g, v, z, ʃ} → {p, t, k, f, s, ʃ} / \_\_  
 ¿ why not {b, z, l, m, i, a} → {p, s, l, m, i, a} / \_\_ ?(bizarre!)  
 new style: [-sonorant] → [-voice] / \_\_

**features** are more economical, and more explanatory:

bizarre processes require an elaborate description

presupposition: phonological features are a **small, closed class**; they are **innate**; they have to be **phonetically grounded**; and one cannot simply create **new arbitrary features** (e.g. [+sibstruent] for {b, z, l, m, i, a})

## Optimality Theory: abbreviatory devices for natural processes

German final devoicing

old style: [-sonorant] → [-voice] / \_\_]  
¿ why not [+labial] → [+voice] / \_\_] ? (bizarre!)  
new style: \*/\_\_] (= NOVOICECODA)

**constraints** are more economical, and more explanatory:

bizarre processes require an elaborate description  
presupposition: phonological constraints are a **small, closed class**; they are **innate**; they have to be **phonetically grounded**; and one cannot simply **create new arbitrary constraints** (e.g. LABIALCODA VOICED)

Classical generative phonology is good at doing what it does because its **natural classes** are phonetically based, and phonological processes are phonetically motivated.

OT is good at doing what it does because its **constraints** are phonetically based, and phonological processes are phonetically motivated.

## 2. Problems of OT

(see Haspelmath 1999)

**OT inherits problems of classical generative phonology:**

- unclear how phonetic grounding and innateness can be compatible
- innateness of phonological features is cognitively implausible (cf. also the evidence from non-spoken language: visual signs, tactile signs, etc.)
- there is no theory of phonetic grounding

**OT syntax** is very similar to OT phonology, except that the constraints are not just phonetically grounded, but also in pragmatics and processing considerations, e.g. DROPTOPIC (pronouns referring to topics are predictable and hence easier to omit)

**additional problems** (that were not problems for earlier generative approaches)

- the huge number of innate constraints is cognitively even more implausible than a small number of innate features, categories or principles
- highly parochial rules are very hard to describe by universal constraints; constant temptation to use language-particular constraints (e.g. "SON]<sub>PL</sub>" for German plurals in Golston & Wiese 1996:152)

## 3. Non-problems of functional OT

Newmeyer 2002:56-57: "Nobody understands or, in the foreseeable future, is likely to understand the full set of external factors that might combine to account for the properties of syntactic structure... even the plausible external motivations are so numerous, so diverse, and so open-ended that any conceivable rule or constraint in any framework could be provided with one." (see also Newmeyer 1998: 153)

NO: the fact that our knowledge is still incomplete does not mean that an approach is on the wrong track; we do not understand the full set of principles and parameters with their values either.

To make an approach promising, it suffices that there is a substantial number of phenomena that allow us to make interesting and strong predictions which are both testable and apparently correct.

Newmeyer 2002:57: it is too easy "to contrive *some* functional motivation for almost any given constraint"

NO: It is far easier to contrive some formal construct that is hypothesized to be part of UG. Functional motivations are more constrained than formal constructs because they are expected to show up in performance, so they can usually be tested fairly easily with psycholinguistic experiments.

#### 4. Stochastic OT

Bresnan et al. (2001):

Stochastic OT accounts for the non-accidental **correspondence between the hard grammatical constraint of Lummi and the statistical preferences of English.**

(1) Lummi (Jelinek & Demers 1983:168)

the person of the subject argument cannot be lower than the person of a nonsubject argument:

a. (1>3) x~~ɛ~~t-s ˈn                      c ˈ sw ˈy?q ˈ?  
know-TR-1SG.SUBJ    the man  
'I know the man.'

b. (3>1) \*x~~ɛ~~t-oN ˈs-s                      c ˈ sw ˈy?q ˈ?  
know-TR-1SG.OBJ-3SG.SUBJ    the man  
'The man knows me.'

c.                      x~~ɛ~~t-N-s ˈn                      ˈ    c ˈ sw ˈy?q ˈ?  
know-TR-PASS-1SG.SUBJ    by the man  
'I am known by the man.'

d.                      (\*'The man is known by me.')

(2) English

passives with first/second person subjects are significantly more common than passives with first or second person agents

*The man is known by me*                      is far rarer than                      *I am known by the man.*

Stochastic OT (Boersma & Hayes 2001):

the model produces stochastic outputs, i.e. in addition to assigning **simple grammaticality values** to candidates ("grammatical"/"ungrammatical"), also assigns values corresponding to the **likelihood of occurrence** of candidates ("2%", "8%", "50%", etc.), which are then reflected by **frequencies in language use**. The

mechanisms that allow this are "ranking on a continuous scale" and "stochastic evaluation".

In this way, the formal model predicts both grammaticality and frequency of use.

**Problem:** It seems implausible that frequency of use in texts is governed by speakers' grammatical knowledge of that frequency. Frequency is more plausibly a result of the interplay of all kinds of conditions on the use of a linguistic unit.

## 5. Why OT is so popular

OT allows linguists working on individual languages to formulate analyses that make direct reference to universal properties of human language:

McCarthy 2002:1:

"One of the most compelling features of OT, in my view, is the way that it unites description of individual languages with explanation of language typology... OT is inherently typological: the grammar of one language inevitably incorporates claims about the grammars of all languages. This joining of the individual and the universal, which OT accomplishes through ranking permutation, is probably the most important insight of the theory."

- Simple description of individual languages is less prestigious than making universal claims.
- Most linguists work on individual languages.
- The opposite view (that description and explanation should be separated) accords special privileges to typologists: only typologists can work on explanation.

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