

MARTIN HASPELMATH

class lecture notes:

Explaining Syntactic Universals

LSA Linguistic Institute

(July 2005, Massachusetts Institute of Technology)

1. Explanation in functional linguistics and in generative linguistics

(see now:

Haspelmath, Martin. 2014. Comparative syntax. In Carnie, Andrew & Sato, Yosuke & Siddiqi, Dan (eds.), *The Routledge handbook of syntax*, 490–508. London: Routledge. (<https://zenodo.org/record/344909>))

2. Universals of differential case marking

(see now:

Haspelmath, Martin. 2021. Role-reference associations and the explanation of argument coding splits. *Linguistics* 59(1). 123–174. (doi:[10.1515/ling-2020-0252](https://doi.org/10.1515/ling-2020-0252)))

3. Universals of ditransitive constructions

(see now:

Haspelmath, Martin. 2015. Ditransitive constructions. *Annual Review of Linguistics* 1. 19–41. (doi:[10.1146/annurev-linguist-030514-125204](https://doi.org/10.1146/annurev-linguist-030514-125204)))

4. Universals of reflexive marking

(see now:

Haspelmath, Martin. 2008. A frequentist explanation of some universals of reflexive marking. *Linguistic Discovery* 6(1). 40–63. (doi:[10.1349/PS1.1537-0852.A.331](https://doi.org/10.1349/PS1.1537-0852.A.331)))

5. Universals of causative verb formation

(see now:

Haspelmath, Martin. 2016. Universals of causative and anticausative verb formation and the spontaneity scale. *Lingua Posnaniensis* 58(2). 33–63. (doi:[10.1515/linpo-2016-0009](https://doi.org/10.1515/linpo-2016-0009)))

6. Universals of word order

1. Explanation in functional linguistics and in generative linguistics

1. Two very different approaches to explanation in linguistics

- the functional-typological ("Greenbergian") approach:

theory-neutral language-particular description
 & system-external explanation of universals, based on performance regularities

- the generative ("Chomskyan") approach:

language-particular description based on a theory-specific metalanguage
& a constrained universal metalanguage as explanation

an example: article-possessor complementarity

- (1) a. English
 the book
 (**the*) *my book*
- b. Italian
 il libro 'the book'
 il mio libro 'my book' (lit. 'the my book')

functional explanation:

(cf. Haspelmath 1999a)

—possessed NPs are significantly more likely to be definite in discourse than non-possessed NPs (= performance regularity), so that the definite article is more predictable in such contexts

—in some languages (e.g. English) this redundancy is exploited, and the definite article is omitted when the possessor is present, whereas other languages (e.g. Italian) are consistent in coding definiteness and tolerate redundancy

generative explanation:

(cf. Lyons 1986, Giorgi & Longobardi 1991)

—noun phrases consist of a determiner plus N'; the determiner position may only be filled once

—the determiner may be an article, demonstrative, possessive pronoun (*her, his, my, ...*), etc.

- possessive pronouns may be determiners (e.g. English) or adjectives (e.g. Italian):

- (2) a.
NP
├── D
│ └── the
└── N'
 └── book
- b.
NP
├── D
│ └── my
└── N'
 └── book
- c.
NP
├── D
│ └── il
└── N'
 └── libro
- d.
NP
├── D
│ └── il
└── N'
 ├── A
 │ └── mio
 └── N
 └── libro

2. Basic goals of linguistics

3 descriptive goals, 3 explanatory goals:

—we want to **describe** particular languages in such a way that we can predict speaker behavior (**phenomenological description**, Chomsky's "observational adequacy")

—we want to **describe**/infer the mental system of rules underlying speakers' competence (**cognitive description**, Chomsky's "descriptive adequacy")

—we want to **describe**/infer the basic building blocks of the cognitive system that makes knowledge of language possible (the "**cognitive code**", Chomsky's "**Universal Grammar**")

—we want to **explain why** languages have the phenomenological/cognitive properties they do

—we want to **explain why** language acquisition is possible despite the poverty of the stimulus (Chomsky's "explanatory adequacy"/"Plato's Problem")

—we want to **explain why** the basic building blocks are the way they are (Chomsky's "beyond explanatory adequacy"/Minimalism)

— (and of course others, e.g. why do members of a community speak the same language(s)?)

Differences between generative and functional linguistics with respect to these goals:

(i) **Explanation of basic building blocks:**

of prime importance for Chomsky since the 1990s (but not for many other generative linguists); irrelevant for most other linguists, plays no role here

(ii) **Explanation of language acquisition:**

of prime importance for generative linguistics, much less important for functional linguistics (cf. Tomasello 2003); plays no role here

(iii) **Explanation of language properties:**

of prime importance for functionalists ("Why are languages the way they are?"); generativists largely reduce this to the description of Universal Grammar

(iv) **Description of the cognitive code/Universal Grammar:**

of prime importance for generative linguistics; functionalists tend to either deny the existence of Universal Grammar or regard this task as premature

(v) **Description of the cognitive system:**

of prime importance to generative linguistics (and to some functional linguists, cf. Langacker's "Cognitive Grammar"); many functionalists find this goal too difficult at present

(vi) **Phenomenological description:**

valued highly in the functional-typological approach; regarded as a trivial preliminary step by generativists

linguistics in comparison with other disciplines:

	linguistics (unit: language)	biology (unit: species)	chemistry (unit: compound)
phenomenological description	descriptive grammar	zoological/ botanical description	color, smell etc. of a compound
underlying system	"cognitive grammar"	description of species genome	description of molecular structure
basic building blocks	"cognitive code" (= elements of UG)	genetic code	atomic structure
explanation of phenomenology and system	diachronic adaptation	evolutionary adaptation	?
explanation of basic building blocks	biology (Chomsky: physics)	biochemistry	nuclear physics

Table 1. Basic goals of linguistics, biology and chemistry

(cf. Baker 2001 for the linguistics/ chemistry analogy)

—Linguistics is more like biology than like chemistry in that language structures undergo replication and selection (cf. Croft 2000), so **only the "fittest" languages survive**.

—Explanation of language properties is parallel to the explanation of properties of biological organisms: **evolutionary/diachronic adaptation** (Haspelmath 1999b, Nettle 1999, Ritt 2004, Blevins 2004).

—Description of the underlying system ("**mental/cognitive grammar**") is premature in linguistics; cf. genetics: the Human Genome Project would not have been possible without molecular methods.

—Description of the cognitive code ("Universal Grammar") is even more premature (imagine geneticists inferring the structure of DNA from inheritance patterns!)

—Phenomenological description is not easy, but possible. **It is sufficient for evolutionary explanation** (Darwin knew nothing about genetics and little about inheritance). Explanation in linguistics does not presuppose cognitive description (Haspelmath 2004).

—Both in biology and in linguistics, the attested structures fill only a tiny part of the space of options allowed by the basic building blocks. A vast number of **genetically possible organisms** do not exist because they would not survive (e.g. birds with a single wing, trees that shed their leaves in the spring). A vast number of **cognitively possible languages** do not exist because they would not serve their users' needs.

3. Types of explanation

(explanation = relief from puzzlement, = answering a *why*-question)

(A) Teleological explanation:

= identifying the motivation/ goal of an action (Greek *télos* 'goal')

(3) "**Why** did you get a new TV?"

Answer: "So that I can watch the 2006 Soccer World Cup on a wide screen."

(B) Generalizing explanation

= showing that a phenomenon X is an instance of a more general phenomenon Y

(4) "**Why** is that police car blue and white?"

Answer: "All police cars in Boston are blue and white."

(5) "**Why** is *pluribus* in the ablative case in *E PLURIBUS UNUM*?"

Answer: "Because the preposition *e(x)* generally takes an ablative complement."

Latin:

e plur-ibus un-um
from many-ABL.PL one-NOM.SG.N
'Out of Many, One'

(6) "**Why** doesn't English allow **the my book* 'il mio libro'?"

Answer: "Because *my* and *the* are both determiners in English, and there can only be one determiner."

(C) Historical explanation

= identifying the previous event Y that led to a situation X

(7) "**Why** are there currently no living dinosaurs?"

Answer: "Because a large asteroid hit the earth in the late Cretaceous and altered the living conditions, so that they became extinct."

(explanation works only with the presupposition that new dinosaurs couldn't have arisen by other means)

(8) "**Why** does English have so many words that are similar to French words?"

Answer: "Because it adopted them from French after 1066."

(D) Generalizing-historical explanation

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

(9) "**Why** are there no animals with wheels?"

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

(10) "Why are there no languages with zero plurals and overtly marked singulars?"

Universal 1: UA#514
If a language uses an overt marker for the singular, then it also uses an overt marker for the plural.

(cf. Greenberg 1963: 94, #35, Croft 2003:89)

Figure 1.

		<i>with singular-denoting noun:</i>	
		no marker	overt marker
<i>with plural-denoting noun</i>	overt marker	English <i>day-Ø</i> <i>day-<u>s</u></i>	Greek <i>imer-<u>a</u></i> <i>imer-<u>es</u></i>
	no marker	Japanese <i>hi (Ø)</i> <i>hi (Ø)</i>	—

(*Anti-English:
day-a
day-Ø)

Answer: Because there is no common mechanism by which such a pattern could arise (given its dysfunctional nature), while there are various common mechanisms by which it would be changed to a different pattern.

4. Explanations in the generative approach

In generative grammar, only the **generalizing** type of explanation is regarded as interesting:

"descriptive adequacy":

show that individual constructions are derivable from more general language-particular regularities (internalized by the speaker)

"explanatory adequacy":

show that the speaker's regularities are in part derivable from universal constraints (due to the cognitive system: "Universal Grammar")

4.1. Explaining language-particular phenomena = hyper-generalization (shared with other structuralist and many functionalist approaches)

Example: possessives as determiners in English

—More elegant (or simpler) rule:

(11) a. new rule:

N = Predet	Det	N
Predet = <i>all, both</i>		
Det = Art, Dem, Poss		

b. old rule:

N = { <i>all</i> }	{ Art Dem Poss }	N
{ <i>both</i> }		

—Generative explanation of English cooccurrence restriction:

(12) "Why doesn't English allow **the my book?*"

Answer: Because both *the* and *my* are determiners, and the determiner slot cannot be filled twice.

problems:

— Greater elegance / simplicity of the rule comes at the cost of introducing new categories. One could argue that Ockham's razor applies equally to categories.

— Elegance is the only criterion we can apply; standard linguistic techniques (speaker judgments, study of corpora) do not provide evidence either way.

— Position class description is not exhaustive, additional statements are needed anyway (cf. *both the children/both children*).

— We do not know whether speakers tend to adopt the most elegant systems in their mental grammars; much evidence shows that often they don't.

conclusion:

Linguists should spend less time worrying which description is *the true (cognitive) description*. It's hard enough to arrive at a *complete and correct* (phenomenological) description. (Cf. Croft 1998)

4.2. Explaining universal phenomena = "Constrained Description as Explanation"

(or: "Metalanguage as Theory", cf. Dryer 2005+a)

The quest for "explanatory adequacy" typically 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**. The descriptive framework must be innate (= Universal Grammar, otherwise there is no explanation).

"The next task [after constructing an explicit mental grammar, M.H.] is to explain why the facts are the way they are, facts of the sort we have reviewed, for example [e.g. binding phenomena, M.H.]. This task of explanation leads to inquiry into the language faculty. A theory of the language faculty is sometimes called universal grammar... Universal grammar provides a genuine explanation of observed phenomena. From its principles we can deduce that the phenomena must be of a certain character, given the initial data that the language faculty used to achieve its current state." (Chomsky 1988: 61-62)

"The problem that the principles and parameters framework seeks to solve is: How can a grammatical system be flexible enough to account for language variation while at the same time be, to a large extent, restricted in order to account for the relative ease of language acquisition and the impossibility of certain language types?" (Travis 1989:263)

That is, the universals should "fall out" from the framework (=the model of UG).

Unattested languages are cognitively impossible languages (cf. Newmeyer 2005:§3.3)

(A) First example: possessives and definite articles across languages

three out of four logically possible language types are attested:

Figure 2.

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

(*Anti-English:
the *my book*
Ø *book*)

Universal 2:

(UA#1294)

If in a language a definite possessed NP has the definite article, then a definite non-possessed NP also has the definite article.

(Haspelmath 1999a:234)

—Generative explanation of the universal:

- (13) "Why aren't there languages (say, "Anti-English") that use the definite article only when a possessive is present?"
Answer: Because UG allows possessives to be determiners or adjectives, and allows only one item in the determiner slot. Anti-English would not be acquirable by children (Lyons 1986, Giorgi & Longobardi 1991).

(B) Second example: X-bar Theory

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

- (14) NP --> D [_N N PP] *the* [*horse on the meadow*]
 VP --> Adv [_V V NP] *often* [*eats a flower*]
 PP --> Adv [_P 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:

- (15) XP --> Y [_X 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.

- (16) "Why don't some languages have rules like "NP --> VP P"?"

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

Answer: Because the X-bar schema is part of Universal Grammar, i.e. such rules would not be acquirable.

(Without the innateness claim, there is no explanation here.)

5. Digression on the term "theory"

(see Dryer 2005+a, 2005+b)

(A) Explanatory theories = theories that answer *why*-questions
(example: functionalist theories; the theory of Universal Grammar)

(B) Descriptive theories = theories that consist of abstract models of the object of study
e.g. grammatical descriptions of individual languages that strive for cognitive reality; a cognitive grammar of Italian can be thought of as a "theory of the competence of Italian speakers"

(C) Meta-descriptive theories = theories that produce concepts for descriptive theories
e.g. grammatical frameworks such as LFG, HPSG, RRG, GB, FG, Cognitive Grammar, but also:
"Basic Linguistic Theory":

"The expression "basic linguistic theory" (following R. M. W. Dixon) refers to the theoretical framework that is most widely employed in language description, particularly grammatical descriptions of entire languages. It is also the framework assumed by most work in linguistic typology. ... Basic linguistic theory differs from many other theoretical frameworks in that it is not a formal theory but an informal theory. That is, many grammatical phenomena can generally be characterized with sufficient precision in English (or some other natural language), without the use of formalism." (From Matthew Dryer's website, <http://wings.buffalo.edu/soc-sci/linguistics/people/faculty/dryer/dryer/blt>)

—Note that in generative linguistics, "linguistic theory" is often used **both for (A) and for (C) at the same time**, i.e. for a theory of the innate cognitive prerequisites for grammar and the metalanguage for describing languages. It is assumed that the metalanguage that gives the best language-particular descriptions (theories in sense (B)) can be equated with the innate cognitive code for grammar.

—Since it is multiply ambiguous, I avoid the term "theory".

I replace	"explanatory theory"	by	"explanation"
	"descriptive theory"	by	"description"
	"meta-descriptive theory"	by	"descriptive framework"

—I retain "theoretical linguistics" when it contrasts with "applied linguistics", i.e. it includes "descriptive linguistics" (= the branch of theoretical linguistics that aims at phenomenological descriptions, not cognitive descriptions).

6. Explanations in the functional-typological approach

6.1. Explaining speaker behavior: phenomenological grammars & social function of language

cognitive grammars would be even better, but currently they are not a realistic goal (cf. Croft 1998); speakers try to adhere to subtle social norms

6.2. Explaining properties of languages

—adaptive evolutionary explanation, generalizing-historical:

Starting point: Grammars are **efficient** instruments for communication, **well-designed** for their purpose of speaking and understanding.

But how can we explain this good design? Language was not created purposefully by a benevolent creator.

Diachronic change is the necessary link between patterns of language use and grammatical structures (cf. Bybee (1988), Keller (1994), Kirby (1999), Nettle (1999) and related work (cf. also Haspelmath 1999b)).

Speakers do not intend to create well-designed grammars, but they behave purposefully and rationally in selecting from available variants and in creating new variants – they mostly opt for the most useful variants for their particular purposes. Through an invisible-hand process in **language change**, the cumulative effect of many individuals' behavior leads to useful language structures (cf. Keller 1994).

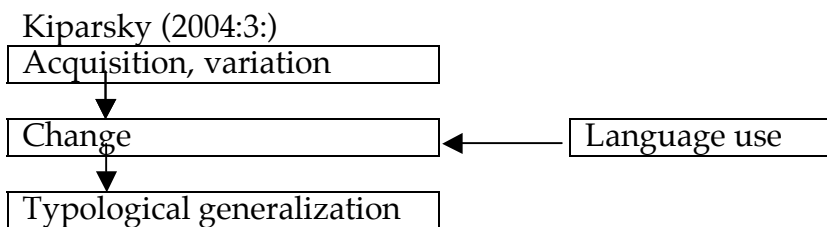
—The two basic motivating factors are the speaker's need to save production energy (**economy**) and the hearer's need to save comprehension energy (**distinctiveness**). Neither is absolute, but each need is limited by the other (*economy*: say as little as you can; *distinctiveness*: say as much as you must). (This is not unlike the Gricean maxims, cf. Levinson 2000.)

—Since functional explanations only appeal to universal factors, **only universal patterns can be explained** (language-particular patterns are historical accidents that can be described but not explained in a deeper sense)

—The language-particular descriptions that are the basis for universals must be sufficient to account for speaker behavior, i.e. all productive patterns must be captured (= **phenomenological descriptions**). Further generalizations are not necessary (Haspelmath 2004).

i.e. hyper-general concepts such as "determiner", "head / dependent", "inflection / derivation" are not required

—the **metalinguage of description does not matter**; special notational conventions do not seem to be of much help, basic linguistic theory seems sufficient (Dryer 2005+b)



6.3. A concrete example: alienability contrasts

Universal 3:

If a language uses an overt marker for possessive constructions with inalienable possessum nouns (kinship or body part terms), it also uses an overt marker with other (i.e. alienable) nouns.

	inalienable possessum	alienable possessum
(20) Abun	<i>Sepenyel gwes</i> Sepenyel leg 'Sepenyel's leg'	<i>Sepenyel bi nggwe</i> Sepenyel of garden 'Sepenyel's garden' (Berry & Berry 1999)
(21) Maltese	<i>id Sandro</i> hand Sandro 'Sandro's hand'	<i>il-ktieb ta' Sandro</i> the-book of Sandro 'Sandro's book' (Koptjevskaja-Tamm 1996)
(22) Maricopa	<i>'iipaa ime</i> man leg 'the man's leg'	<i>'iipaa ny-hat</i> man POSSD-dog 'the man's dog' (Gordon 1986:31-2)
(23) Tauya	<i>ya-neme</i> 1SG-head 'my head'	<i>ŋte ya-pi</i> garden I-GEN 'my garden' (MacDonald 1990:129-31)

Functional (usage/frequency/economy-based) explanation:

Inalienable nouns occur in a possessive construction more often than alienable nouns (NICHOLS 1988:579). (I.e. in inalienable nouns, a higher proportion of the occurrences is in possessive constructions than in alienable nouns.) For this reason, their possessive use is more expected (= predictable) by hearers, so speakers can afford to economize on inalienable constructions and not to use an overt coding element.

Figure 3.

		<i>with inalienable possessum:</i>	
		no marker	overt marker
<i>with alienable possessum</i>	overt marker	Maltese <i>id Sandro</i> <i>il-ktieb ta' Sandro</i>	English <i>Sandro's hand</i> <i>Sandro's book</i>
	no overt marker	Haitian Creole <i>bra Ø Sandro</i> <i>liv Ø Sandro</i>	—

(*Anti-Maltese:
hand of Sandro
book Sandro)

Two basic functional motivations:

speaker's point of view:	economy	("say as little as possible")
hearer's point of view:	explicitness	("say as much as necessary")

Three basic coding types:

explicit coding:	English (explicit, not economical)
efficient coding:	Maltese (partly explicit, partly economical; <i>economical where high predictability</i>)
zero coding:	Haitian Creole (economical, not explicit)
*anti-efficient coding:	(*Anti-Maltese) (partly explicit, partly economical; <i>economical where low predictability</i>)

6.4. Frequency asymmetries

The usage-based explanation presupposes that there is a significant frequency asymmetry between alienable nouns and inalienable nouns.

Is this presupposition correct?

A very preliminary corpus search, looking at six possibly representative nouns (British National Corpus, 100,000,000 words):

	unpossessed	possessed
alienable: <i>chair, knife, newspaper</i>	11,869	2,908
inalienable: <i>sister, daughter, uncle</i>	8,373	11,303

Figure 4

$p < 0.001$

	POSSESSED	UNPOSSESSED
<i>chair</i>	2330	5029
<i>knife</i>	293	2296
<i>newspaper</i>	285	4544
<i>sister</i>	3902	3248
<i>daughter</i>	6080	3099
<i>uncle</i>	1324	2026

Further prediction based on the frequency asymmetry: The coding contrast need not be **overt-zero**, but can be **long-short**, **free-affixed**, or **separated-fused** (because more frequent elements have a higher chance of being reduced and fused, Bybee 2003)

(24)	inalienable construction	alienable construction
a. Nakanai (Johnston 1981:217)	<i>lima-gu</i> hand-1SG 'my hand'	<i>luma taku</i> house I 'my house'
b. Hua (Haiman 1983:793)	<i>d-zaʔ</i> 1SG-arm 'my arm'	<i>dgaiʔfu</i> I pig 'my pig'
c. Ndjébbana (McKay 1996:302-6)	<i>nga-ngardabbámba</i> 1SG-liver 'my liver'	<i>budmánda</i> <i>ngáyabba</i> suitcase I 'my suitcase'
d. Kpelle (Welmers 1973:279)	<i>m-pôlu</i> 1SG-back 'my back'	<i>ŋa pɛɾɛi</i> I house 'my house'
e. Lakhota (Buechel 1939:103)	<i>ina/nihu/huku</i> 1SG.MOM / 2SG.MOM / 3SG.MOM 'my mother / your m. / his m.'	

6.5. From teleological to evolutionary explanation

Strictly speaking, the explanation given above is teleological ("speakers can afford to economize on inalienable constructions and not to use an overt coding element").

But speakers aren't economizing – they are just following the rules of their language. Not all languages allow an economical coding type. So how do we get from speakers' purposeful actions to their grammars? How do we get from teleological to evolutionary explanation?

Answer: through language change, which happens because of speakers' actions in language use. The locus of language change is not language acquisition, but adult language use (Croft 2000). Speakers' preferences in language use determine the general direction of language change.

6.5.1. Conservative retention

from pre-Maltese to Maltese:

- | | | |
|------|--------------------|-----------------------|
| (25) | <i>yadu Sandro</i> | <i>kitaabu Sandro</i> |
| | hand Sandro | book Sandro |

→ **innovation:** introduction and spread of a new circumlocutory construction:

- | | | |
|------|--------------------|---|
| (26) | <i>yadu Sandro</i> | <i>al-kitaabu mataaṣu Sandro</i> |
| | | the-book possession Sandro |
| | | 'the book, Sandro's possession = Sandro's book' |

- | | | |
|------|------------------|----------------------------|
| (27) | <i>id Sandro</i> | <i>il-ktieb ta' Sandro</i> |
|------|------------------|----------------------------|

This new circumlocutory construction has (basically) the same meaning as the old construction. As it becomes more frequent, it shows more and more formal signs of grammaticalization (cf. Haspelmath 1999c). In particular, the noun *mataaṣu* loses all its nominal properties and is shortened to *ta'*.

This new construction finally comes to fully replace the old construction (**ktieb Sandro* is no longer possible), except in cases of inalienable possession. Why? Because with inalienable nouns, possession is highly predictable, so that a special overt marker of possession is not felt to be necessary by speakers. For this reason, language change is **inhibited** in this context (cf. Dahl & Koptjevskaja-Tamm 1998).

6.5.2. Innovative reduction and fusion

Nichols 1988:579:

"A single dichronic process appears to motivate all of the attested patterns involving 'alienability': tighter bonding of possessive affixes to nouns, and earlier lexicalization of possession, take place with those nouns which are most often possessed..."

(28) a. Old Italian

<i>mogli</i> - <i>ma</i>	<	<i>mulier mea</i>	'my wife'
<i>fratel</i> - <i>to</i>	<	<i>fratellus tuus</i>	'your brother'
* <i>terra</i> - <i>ma</i>		(cf. <i>terra mea</i>)	'my land' (> <i>terra mia</i> / <i>mia terra</i>)

b. Nyulnyul (Nyulnyulan; northern Australia; McGregor 1996):

<i>jan yil</i>	vs.	<i>nga-lirr</i>	(< <i>ngay lirr</i>)
I.OBL dog		1SG-mouth	I mouth
'my dog'		'my mouth'	

Possession forms in inalienable possession get reduced more than possessive forms in alienable possession because they are more predictable and hence speakers can afford to reduce the articulatory effort. As more and more speakers do this, the language changes.

Both *conservative retention* and *innovative reduction/fusion* lead to patterns in which the inalienable forms are shorter than the alienable forms, i.e. efficient coding patterns.

7. Conclusion

- The generative and functional-typological approaches are **very** different.
- The difference is not that functionalists reject the autonomy of grammar (Newmeyer 1998) or the usage/grammar distinction (Newmeyer 2003).
- The difference is that
 - (i) generativists seek typological explanations in **restrictive frameworks that are assumed to be innate**, while
 - (ii) functionalists seek typological explanations in **regularities of language use that get grammaticalized**.
- Both could be right, for different empirical domains.

Kiparsky 2004:	"structure explains change"	"change explains structure"
e.g.	– split ergative case-marking	– simple/complex reflexives
	– other D-hierarchy effects	– nominative anaphors
	– coda neutralization	
	– sonority hierarchy	

- So let's compare the two approaches, in Kiparsky's spirit.

Appendix: alternative functional explanations for the alienability universal

(i) iconic explanation

A general iconicity principle says that meanings that belong together more closely semantically are expressed by forms that show less linguistic distance. Inalienable possession exhibits greater semantic closeness than alienable possession, and this is reflected in less linguistic distance (Haiman 1983, 1985), e.g. juxtaposition.

(ii) conceptual explanation

Inalienable concepts cannot be conceived of without a possessor, so that the possessive relation is **inherent** in their meaning. Therefore zero-coding is sufficient for inalienables.

problems

—with the iconic explanation: The coding element does not always come between the possessor and the possessee:

(29)	alienable construction	inalienable construction
a. Puluwat (Elbert 1974:55, 61)	<i>nay-iy hamwol</i> poss-1SG chief 'my chief'	<i>pay-iy</i> hand-1SG 'my hand'
b. 'O'odham (Zepeda 1983)	<i>ñ-mi:stol-ga</i> 1SG-cat-POSSD 'my cat'	<i>ñ-je'e</i> 1SG-mother 'my mother'
c. Koyukon (Thompson 1996: 654, 667)	<i>se-tel-e'</i> 1SG-socks-POSSD 'my socks'	<i>se-tlee'</i> 1SG-head 'my head'
d. Achagua (Wilson 1992)	<i>nu-caarru-ni</i> 1SG-car-POSSD 'my car'	<i>nu-wíta</i> 1SG-head 'my head'

—with the conceptual explanation: It's not actually clear that inalienable concepts cannot be conceived of without a possessor. In many languages, one can talk about the problems of "first-born sons" and "single fathers", and in most languages one can talk about cut-off limbs whose possessor is unknown. These situations are non-standard, they are unusual (i.e. they are not frequent), but they present no conceptual problem.

hence: **the usage-based explanation is the correct explanation**

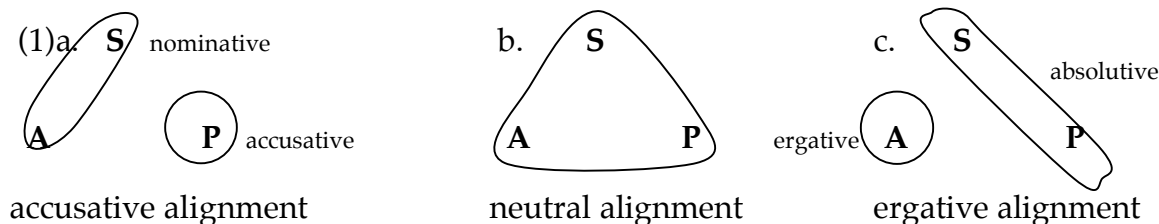
References

- Anderson, Stephen. 1992. *A-morphous morphology*. Cambridge: Cambridge University Press.
- Baker, Mark C. 2001. *The atoms of language: The mind's hidden rules of grammar*. New York: Basic Books.
- Berry, Keith & Berry, Christine. 1999. *A description of Abun: a West Papuan language of Irian Jaya*. (*Pacific linguistics*, B-115.) Canberra: Australian National University.
- Blevins, Juliette. 2004. *Evolutionary phonology*. Cambridge: Cambridge University Press.
- Buechel, Eugene. 1939. *A Grammar of Lakota*. Rosebud, SD: Rosebud Educational Society.
- Bybee, Joan L. 1985. *Morphology: A Study of the Relation between Meaning and Form*. Amsterdam: Benjamins.
- Bybee, Joan L. 1988. "The diachronic dimension in explanation." In: *Explaining language universals*, ed. by John A. Hawkins, 350-379. Oxford: Blackwell.
- Bybee, Joan. 2003. "Mechanisms of change in grammaticization: The role of frequency." In: B. D. Joseph and J. Janda (eds.) *The Handbook of Historical Linguistics*, 602-23. Blackwell.
- Chomsky, Noam A. 1988. *Language and problems of knowledge: The Managua lectures*. Cambridge, MA: MIT Press.
- Croft, William. 1990. *Typology and universals*. Cambridge: Cambridge University Press.
- Croft, William. 1998. "Linguistic evidence and mental representations." *Cognitive Linguistics* 9.2: 151-173.
- Croft, William. 2000. *Explaining language change: An evolutionary approach*. London: Longman.
- Croft, William. 2001. *Radical construction grammar: syntactic theory in typological perspective*. Oxford: Oxford University Press.
- Croft, William. 2003. *Typology and universals*. 2nd edition. Cambridge: Cambridge University Press.
- Dahl, Östen & Maria Koptjevskaja-Tamm. 1998. "Alienability splits and the grammaticalization of possessive constructions." In Haukioja, Timo (ed.), *Papers from the 16th Scandinavian Conference of Linguistics*. (Publications of the Department of Finnish and General Linguistics of the University of Turku, 60.). Turku: University of Turku, 38-49.
- Dryer, Matthew S. 2005+a. "Functionalism and the theory-metalanguage confusion." To appear in a festschrift for Bruce Derwing to be published by Crane Publishers. (available from <http://wings.buffalo.edu/soc-sci/linguistics/people/faculty/dryer/dryer/dryer.htm>)
- Dryer, Matthew S. 2005+b. "Descriptive theories, explanatory theories, and basic linguistic theory." In: *Catching Language: Issues in Grammar Writing*, edited by Felix Ameka, Alan Dench, and Nicholas Evans. Berlin: Mouton de Gruyter. (available from the same website)
- Elbert, Samuel H. 1974. *Puluwat grammar*. Pacific Linguistics, Series B-9. Canberra: The Australian National University.
- Giorgi, Alessandra, and Giuseppe Longobardi. 1991. *The syntax of noun phrases: Configuration, parameters and empty categories*. Cambridge: Cambridge University Press.
- Gordon, Lynn. 1986. *Maricopa Morphology and Syntax*. University of California Publications in Linguistics 108. Berkeley: University of California Press.
- Greenberg, J. 1966. *Language universals, with special reference to feature hierarchies*. The Hague: Mouton.
- Greenberg, Joseph H. 1963. "Some universals of grammar with particular reference to the order of meaningful elements." In: Greenberg, Joseph H. (eds.) *Universals of grammar*, 73-113. Cambridge, Mass.: MIT Press.
- Grimshaw, Jane & Samek-Lodovici, Vieri (1998): "Optimal subjects and subject universals." In: Barbosa, Pilar et al. (eds.) *Is the best good enough?* Cambridge/MA: MITWPL & MIT Press, 193-219.

- Haiman, John. 1983. "Iconic and economic motivation." *Language* 59: 781-819.
- Haiman, John. 1985. *Natural syntax*. Cambridge: Cambridge University Press.
- Haspelmath, Martin. 1999a. "Explaining article-possessor complementarity: economic motivation in noun phrase syntax". *Language* 75.2: 227-43.
- Haspelmath, Martin. 1999b. "Optimality and diachronic adaptation." *Zeitschrift für Sprachwissenschaft* 18.2: 180-205 (with open peer commentary)
- Haspelmath, Martin. 1999c. "Why is grammaticalization irreversible?" *Linguistics* 37.6: 1043-68.
- Haspelmath, Martin. 2004. "Does linguistic explanation presuppose linguistic description?" *Studies in Language* 28.3: 554-579.
- Hawkins, John A. 1994. *A performance theory of order and constituency*. Cambridge: Cambridge University Press.
- Jackendoff, Ray. 1977. *X-bar theory*. Cambridge: MIT Press.
- Johnston, Raymond Leslie. 1980. *Nakanai of New Britain: the grammar of an Oceanic language*. Pacific linguistics, Series B-70. Canberra: Dept. of Linguistics, Research School of Pacific Studies, Australian National University for Linguistic Circle of Canberra.
- Keller, Rudi (1994): *Language change: The invisible hand in language*. London: Routledge.
- Kiparsky, Paul. 2004. "Universals constrain change, change results in typological generalizations." Ms., Stanford University.
- Kirby, Simon. 1999. *Function, selection and innateness: The emergence of language universals*. Oxford: Oxford University Press.
- Koptjevskaja-Tamm, Maria. 1996. "Possessive noun phrases in Maltese: Alienability, iconicity and grammaticalization." *Rivista di Linguistica* 8.1: 245-274.
- Levinson, Stephen C. 2000. *Presumptive meanings: the theory of generalized conversational implicature*. Cambridge/MA: MIT Press.
- Lyons, Christopher. 1986. The syntax of English genitive constructions. *Journal of Linguistics* 22.123-43.
- MacDonald, Lorna. 1990. *A grammar of Tauya*. Mouton Grammar Library 6. Berlin: Mouton de Gruyter.
- McGregor, William. 1996. "The grammar of nominal prefixing in Nyulnyul." In: Chappell, Hilary & McGregor, William (eds.) 1996. *The grammar of inalienability*. Berlin: Mouton de Gruyter, 251-292.
- McKay, Graham R. 1996. "Body parts, possession marking and nominal classes in Ndjébbana." In: Chappell, Hilary & McGregor, William (eds.) 1996. *The grammar of inalienability*. Berlin: Mouton de Gruyter, 293-326.
- Nettle, Danie. 1999. *Linguistic diversity*. Oxford: Oxford University Press.
- Newmeyer, Frederick J. 1998. *Language form and language function*. Cambridge: MIT Press.
- Newmeyer, Frederick J. 2003. "Grammar is grammar and usage is usage." *Language* 79: 682-707.
- Nichols, Johanna, 1988. "On alienable and inalienable possession." In: Shipley, William (ed.), *In honor of Mary Haas*, pp. 557-609. Berlin: Mouton de Gruyter.
- Ritt, Nikolaus. 2004. *Selfish Sounds and Linguistic Evolution: A Darwinian Approach to Language Change*. Cambridge: Cambridge University Press.
- Thompson, Chad. 1996. "On the grammar of body parts in Koyukon Athabaskan." In: Chappell, Hilary & McGregor, William (eds.) *The grammar of inalienability*, 651-676. Berlin: Mouton de Gruyter.
- Travis, Lisa. 1989. 'Parameters of phrase structure'. In: *Alternative conceptions of phrase structure*, ed. by Mark R. Baltin and Anthony S. Kroch. Chicago: University of Chicago Press, pp. 263-279.
- Wilson, Peter J. 1992. *Una descripción preliminar de la gramática del Achagua (Arawak)*. Bogotá: Asociación Instituto Lingüístico de Verano.
- Zepeda, Ofelia. 1983. *A Papago Grammar*. Tucson: The University of Arizona Press.

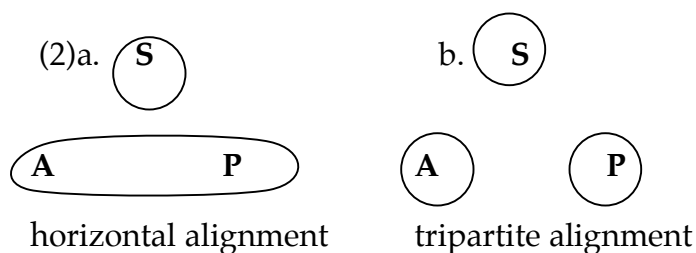
Explaining Syntactic Universals
(MARTIN HASPELMATH, LSA Institute, MIT, LSA.206, 21 July 2005)
2. Universals of differential case marking

1. The major (monotransitive) alignment types



S = the single argument of an intransitive clause
A = the most agent-like argument of a transitive clause
P = the most patient-like argument of a transitive clause

two further logical possibilities, hardly attested:



Universal 4:

Case alignment is practically always neutral, accusative, or ergative. Horizontal alignment and tripartite alignment are extremely rare.

Explanation in terms of efficiency:

- The **horizontal** alignment type requires the same coding effort as the accusative and ergative alignments, but fails to make the important distinction between A and P. It is equally costly but less distinctive, and therefore clearly less efficient.
- The **tripartite** alignment requires more coding effort, but the distinction between S and A, and S and P is redundant because S+A and S+P do not occur together in the same clause. It is more costly but not more distinctive, and therefore clearly less efficient.

Universal 5:

In neutral alignment, the single case is always zero-coded; in accusative alignment, the nominative case is usually zero-coded; in ergative alignment, the absolutive case is almost always zero-coded.

Explanation in terms of efficiency:

In all these cases, the zero-coded case is by far the **most frequent** case. The most frequent case is the one hearers expect, and efficient coding systems only use overt coding for unexpected meanings.

2. Differential Object Marking (DOM)

= a difference in the form of overt case marking that depends on the intrinsic properties of the (*direct*) *object*, not on its semantic or syntactic role

(more precisely: Differential P Marking)

Universal 6:

UA#217

If any P is overtly case-marked, then all Ps that are higher on the animacy scale, the definiteness scale, or the person scale are marked at least to the same extent.

(Silverstein 1976)

2.1. The animacy scale: human > animate > inanimate

- (3) Spanish (only human)
El director busca el carro/el perro/a su hijo.
 'The director is looking for the car/the dog/his son.'
- (4) Russian (animate and human)
Miša uvidel dom/kot-a/brat-a.
 'Misha saw the house/the cat/the brother.'
- (5) Hungarian (inanimate, animate and human -- no split!)

<i>Table 1.</i>	human	animate	inanimate
Vietnamese	–	–	–
Spanish	m	–	–
Russian	m	m	–
Hungarian	m	m	m

2.2. The definiteness scale: pronoun > proper noun > definite > specific > nonspecific

- (6) English (only pronoun)
Leyla saw hi-m/Yusuf/the boy/a boy.
- (7) older German (pronouns, proper nouns)
Friedrich sah ih-n/Gertrud-en/das Kind/ein Kind.
 'Friedrich saw him/Gertrud/the child/a child.'
- (8) Persian (pronouns, proper nouns, and definite)
Hasan u-ra/ Ali-ra/ ketab-ra/ ketab did.
 Hasan he-ACC Ali-ACC book-ACC book saw
 'Hasan saw him/Ali/the book/a book.'

<i>Table 2.</i>	pronoun	proper n.	definite	specific	nonspecif.
Vietnamese	–	–	–	–	–
English	m	–	–	–	–
older German	m	m	–	–	–
Persian	m	m	m	–	–
Turkish	m	m	m	m	–
Hungarian	m	m	m	m	m

2.3. The person scale: 1st/2nd person > 3rd person

(9) Dyirbal (1st/2nd person only)

nad^a *ɲinu-na/* *balagara* *balgan*
 I.NOM you-ACC they.DU hit
 'I hit you/ them.'

<i>Table 3.</i>	1st/2nd	3rd
Vietnamese	–	–
Dyirbal	m	–
Hungarian	m	m

2.4. Older explanations for differential marking of animate/definite objects

Caldwell (1856: 271)

"...the principle that it is more natural for rational beings to act than to be acted upon; and hence when they do happen to be acted upon – when the nouns by which they are denoted are to be taken objectively [i.e. are used as objects] – it becomes necessary, in order to avoid misapprehension, to suffix to them the objective case-sign."

Thompson (1912:75)

"...wenn die Sprache ein transitives Verb besitzt, in gewissen Fällen der Patiens als solcher durch sprachliche Mittel zur Unterscheidung von Agens gekennzeichnet werden muß, weil er sonst vom Hörer als Agens aufgefaßt werden würde. Zu dieser fälschlichen Auffassung ist der Hörer öfter dann disponiert, wenn das Objekt eine bestimmte Person bezeichnet. Ist andererseits die Person oder ein Tier Agens und ein unbelebtes Ding Patiens, so ist auch ohne sprachliche Bezeichnung ein solches Mißverständnis fast ganz ausgeschlossen."

[...if a language has a transitive verb, in certain cases the patient needs to be marked as such by linguistic means to distinguish it from the agent, because otherwise the hearer would interpret it as agent. The hearer is frequently inclined toward this wrong interpretation if the object denotes a definite human being. If, on the other hand, the human being or an animal is the agent and an inanimate thing is the patient, such a misunderstanding is almost completely excluded even without any linguistic marking.]

(Caldwell and Thompson cited after Filimonova 2005)

Silverstein (1976:113)

"This hierarchy expresses the semantic naturalness for a lexically-specified noun phrase to function as agent of a true transitive verb, and inversely the naturalness of functioning as patient of such."

Comrie (1989:128)

"...the most natural kind of transitive construction is one where the A is high in animacy and definiteness, and the P is lower in animacy and definiteness; and any deviation from this pattern leads to a more marked construction... the construction which is more marked in terms of information flow should also be more marked formally"

Dixon (1994:85):

"Those participants at the left-hand end of the hierarchy are most likely to be agents..., and those at the right-hand end are most likely to be patients..."

(the term *differential object marking* is from BOSSONG 1985, 1991, 1998; see also Croft 1988, 2003:166-75, Lazard 2001)

3. Aissen's (2003) explanation in terms of "iconicity constraints" and an "economy constraint"

"The challenge then is to **develop a theory of DOM** [=differential object marking] which expresses the generalization in [Universal 3], and **at the same time** allows for the various ways in which DOM can be **implemented in particular languages**." (p. 437)

i.e. Aissen wants to conflate explanation of universals with language-particular description, in the manner characteristic of generative linguistics.

This is typical of Optimality Theory more generally:

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...is probably the most important insight of the theory."

Aissen simply presupposes that the universals should be explainable by generative linguistic theory:

"The fact that DOM is characterized in many languages by a great deal of apparent fuzziness has perhaps reinforced the feeling that the principles underlying DOM are not part of core grammar. However, the exclusion of DOM from core grammar comes at a high cost, since it means that **there is no account forthcoming from formal linguistics for what appears to be an excellent candidate for a linguistic universal**."

OT's strategy in many cases: take a known typological generalization, turn it into an OT constraint, and account for cross-linguistic variation by inserting counteracting constraints in different positions.

McCarthy (2002:40)

"Descriptive universals rarely make good constraints, but descriptive tendencies often do. Indeed, the success of OT in incorporating phonetic or functional generalizations is largely a consequence of its ability to give a fully formal status to the otherwise fuzzy notion of a cross-linguistic tendency. **Tendencies, then, are a good place to start theorizing about constraints...**"

Aissen starts with the Relational scale and the Animacy scale:

"The analysis rests on a set of proposed universal prominence scales which are part of universal grammar." (AISEN 1999:679):

- (10) Relational scale: **Su > Oj** (Subject > Object)
 (11) Animacy scale: **Hum > Anim > Inan** (Human > Animate > Inanimate)

"Harmonic alignment" yields "markedness hierarchies" (increasing markedness of associations from left to right):

- (12) a. Su/Hum > Su/Anim > Su/Inan
 b. Oj/Inan > Oj/Anim > Oj/Hum

Markedness hierarchies can be "implemented" as fixed/universal constraint subhierarchies (p. 443):

- (13) a. *SU/INAN >> *SU/ANIM >> *SU/HUM
 b. *OJ/HUM >> *OJ/ANIM >> *OJ/INAN

This expresses the fact that inanimate subjects and human objects are generally disfavored. But in fact they do occur, though languages pay the price of additional marking. What's really excluded is "marked" associations of relation and animacy that is not case-marked:

implemented as local conjunction with *Ø_{CASE} ("STAR ZERO CASE"):

- (14) *OJ/HUM & *Ø_{CASE} >> *OJ/ANIM & *Ø_{CASE} >> *OJ/INAN & *Ø_{CASE}

- (15) *OJ/PRO & *Ø_{CASE} >> *OJ/PN & *Ø_{CASE} >> *OJ/DEF & *Ø_{CASE}
 >> *OJ/SPEC & *Ø_{CASE} >> *OJ/NSPEC & *Ø_{CASE}

"The effect of local conjunction here is to link **markedness of content** (expressed by the markedness subhierarchy) to **markedness of expression** (expressed by *Ø). That content and expression are linked in this way is a fundamental idea of markedness theory (Jakobson 1939; Greenberg 1966). In the domain of Differential Object Marking, this is expressed formally through the constraints [shown immediately above]. Thus they are **ICONICITY CONSTRAINTS**: they favor morphological marks for marked configurations." (Aissen 2003:448)

"Iconicity" must be limited by "economy", otherwise all objects would get case. Hence, we need an economy constraint: *STRUC_{case} ("STAR STRUCTURE CASE").

This constraint is inserted among the constraints of the subhierarchy, thus yielding the different language types:

(16) a. Vietnamese

$\boxed{*STRUC_{case}} \gg *OJ/HUM \& *Ø_{CASE} \gg *OJ/ANIM \& *Ø_{CASE} \gg *OJ/INAN \& *Ø_{CASE}$

b. Spanish

$*OJ/HUM \& *Ø_{CASE} \gg \boxed{*STRUC_{case}} \gg *OJ/ANIM \& *Ø_{CASE} \gg *OJ/INAN \& *Ø_{CASE}$

c. Russian

$*OJ/HUM \& *Ø_{CASE} \gg *OJ/ANIM \& *Ø_{CASE} \gg \boxed{*STRUC_{case}} \gg *OJ/INAN \& *Ø_{CASE}$

d. Hungarian

$*OJ/HUM \& *Ø_{CASE} \gg *OJ/ANIM \& *Ø_{CASE} \gg *OJ/INAN \& *Ø_{CASE} \gg \boxed{*STRUC_{case}}$

A language such as "Anti-Spanish", which only case-marks inanimate objects, **cannot be described** in this system, because the constraints in the subhierarchy cannot be reranked.

Thus, Aissen achieves **explanation by constrained description**.

Method:

- Use the concepts of functional-typological linguistics (*scales, harmonic association, iconicity, economy*),
- translate them into OT (e.g. by adjusting the TYPEFACE),
- and claim that progress has been made.

"OT provides a way...to reconcile the **underlying impulse of generative grammar to model syntax in a precise and rigorous fashion** with a conception of DOM which is based on prominence scales. The purpose ... is to develop an approach... that is formal and at the same time **expresses the functional-typological understanding of DOM**" (Aissen 2003:439)

But why do we need "constrained description"? Why not opt for a division of labor? (some universals are explained functionally, others in terms of innate constraints of the cognitive code/UG)

Different **underlying impulses** of generative grammar:

- (– use fancy abbreviations and notational conventions)
- explain as many facts as possible with the generative method ("explain universals")
- focus on arguments from the poverty of the stimulus ("explain acquisition")
- reduce the formal apparatus of UG as much as possible ("explain UG")

If Aissen's story differential object marking is successful, it could itself be an argument in favor of the general approach.

4. Problems with Aissen (2003)

(i) How are exceptions dealt with?

- Aissen seems to think that no exceptions exist (cf. p. 439: "absolute linguistic universals"), but see Filimonova 2005 (e.g. Nganasan: definite nouns have an accusative case, but personal pronouns lack it).

(ii) How are language-particular idiosyncrasies dealt with?

e.g. in German, DOM in noun inflection is found only in one small subclass of masculine nouns (Haspelmath 2002:245):

	MASCULINE			FEMININE		NEUTER	
NOMINATIVE	<i>Löwe</i>	<i>Mann</i>	<i>Garten</i>	<i>Frau</i>	<i>Nase</i>	<i>Kind</i>	<i>Buch</i>
ACCUSATIVE	<i>Löwe-n</i>	<i>Mann</i>	<i>Garten</i>	<i>Frau</i>	<i>Nase</i>	<i>Kind</i>	<i>Buch</i>
	'lion'	'man'	'garden'	'woman'	'nose'	'child'	'book'

(iii) The contrast may not be zero-overt, but short-long:

Dyirbal:	NOM	ACC	
1sg	<i>ɲadya</i>	<i>ɲayguna</i>	
2sg	<i>ɲinda</i>	<i>ɲinuna</i>	(cf. Carnie 2005)

(iv) Carnie 2005:4:

"From the standpoint of generative grammar, it isn't at all clear what the grammatical status of the [scales] is. They aren't constraints, procedures or rules. How the restrictions are imposed on the grammar isn't at all clear."

- but let us grant that the scales and the mechanisms for turning them into the right constraints (harmonic alignment, subhierarchies) are part of UG

(v) How do we know how the scales are aligned harmonically?

Answer: "The basic principle is that prominent structural positions attract elements which are prominent on other dimensions." (p. 476)

- This principle needs to be part of UG as well, and we need a general definition of "prominence" across the scales.

(vi) What is "markedness"? Aissen treats it as a primitive concept that everyone understands and that everyone agrees on.

"The OT account of DOM requires...constraints which characterize the relative **markedness** of various associations of grammatical function with animacy and definiteness." (p. 440)

- But in fact, the term "markedness" stands for a highly diverse range of different (often related) concepts, none of which is needed (see Haspelmath 2006). In this case, "markedness of associations of grammatical function with animacy/ definiteness" can easily be replaced by "rarity".

Oj/Inan > Oj/Anim > Oj/Hum = human objects are rarer than inanimate objects

(vii) Iconicity: "Iconicity constraints: they favor morphological marks for marked configurations" (p. 448)

- But there is no need for a concept or principle of "**iconicity as markedness matching**"; all such cases can be explained by appealing to frequency and economy (Haspelmath 2003)

5.2. In what sense is DOM efficient?

Frequencies lead to expectations, e.g. animate arguments are mostly subjects, and only rarely objects. Hence hearers expect an animate NP to be a subject. Object marking tells us then that against their expectations, the NP is to be understood as an object.

Inanimate arguments are mostly objects, so that hearers expect an animate argument to be an object. Marking it as such is relatively redundant. A coding system that exploits the redundancy is **efficient**.

5.3. Does DOM serve ambiguity avoidance?

Aissen (2003:437)

"An intuition which recurs in the literature on DOM is that it is those direct objects which are most in need of being distinguished from subjects that get overtly case-marked. This intuition is sometimes expressed as the idea that **the function of DOM is to disambiguate subject from object**."

No, the threat of ambiguity is not sufficient:

(continued:) "There may be cases in which DOM is motivated precisely by the need to disambiguate, but it is also clear that **DOM is required in many instances where the absence of case-marking could not possibly lead to ambiguity**."

And of course many languages tolerate an amount of ambiguity, because the context usually gives enough further clues.

DOM is about maximizing distinctiveness with minimal effort, or minimizing confusion with maximal economy:

Comrie (1977:9)

"Given the general tendency in languages [for subjects to be definite/animate and objects to be indefinite and inanimate], instances where **confusion** will be particularly likely will be where one has either indefinite...and/or inanimate subjects, or where one has definite...and/or animate direct objects."

5.4. How do languages come to have efficient case-marking?

The functional factors assert themselves in language use. Language use affects language structure through language change. Where they have a choice, speakers will tend to prefer more efficient coding strategies, and these usage preferences may become part of language structure.

– *Morphosyntactic innovations tend to eliminate inefficient patterns created by phonological change* (cf. Bossong 1985):

	Latin	>	Old French	>	Middle French	
NOM	<i>mur-us</i>		<i>mur-s</i>		<i>mur</i>	'wall'
ACC	<i>mur-um</i>		<i>mur</i>		<i>mur</i>	

– *Introduction of more distinctive patterns may be limited by perceived redundancy:*

e.g. Spanish introduced a new direct-object marker *a* (by semantic extension from the dative *a*) which is first used where it is most needed (with personal pronouns), then spreads to all animate objects, but hasn't spread further yet.

<i>Veo a ti.</i>	<i>Veo a Juan.</i>	<i>Veo a mi marido.</i>	<i>*Veo a mi perro.</i>
'I see you.'	'I see Juan.'	'I see my husband.'	'I see my dog.'

e.g. Old High German extended the accusative suffix *-an* from pronouns to personal names, where it is most needed, but not further.

NOM	<i>er</i>	<i>dese</i>	<i>hwer</i>	<i>Hartmuot</i>	>	<i>Hartmuot</i>
ACC	<i>inan</i>	<i>desan</i>	<i>hwenan</i>	<i>Hartmuot</i>		<i>Hartmuot-an</i>
	'he'	'this'	'who'			

– *Elimination of distinctive patterns may be limited by non-redundancy:*

e.g. in the Old High German *n*-declension, animate and inanimate nouns alike had a distinction between nominative and accusative (cf. 15). Then the nominative-accusative distinction was lost in inanimate nouns (following the pattern of the other declension types), and in Modern German only animates preserve the zero-marking in the nominative (Haspelmath 2002:245).

(17)		Old High German	>	Modern German
	NOM.SG	<i>affo</i>	<i>knoto</i>	<i>Affe</i> <i>Knoten</i>
	ACC.SG	<i>affon</i>	<i>knoton</i>	<i>Affen</i> <i>Knoten</i>
		'ape'	'knot'	'ape' 'knot'

5.5. How does the efficiency-based approach avoid the problems of Aissen 2003?

(i) Exceptions: Exceptional languages are inefficient with respect to a given aspect of structure, but not unacquirable. Exceptions may arise if other motivating factors happen to create a system that is inefficient from a case-marking point of view, e.g. phonological factors:¹

¹ Another example is the use of genitive case for animate objects in Russian:

Miša uvidel stol-Ø/kot-a/brat-a/stol-y/ptic-Ø
'Misha saw the table/ the cat/ the brother/ the birds.'

NOM	<i>stol</i>	<i>kot</i>	<i>brat</i>	<i>picc-y</i>	<i>ptic-y</i>
ACC	<i>stol</i>	<i>kot-a</i>	<i>brat-a</i>	<i>picc-y</i>	<i>ptic</i>
GEN	<i>stol-a</i>	<i>kot-a</i>	<i>brat-a</i>	<i>picc</i>	<i>ptic</i>
	'table'	'cat'	'brother'	'pizzas'	'birds'

In animate nouns whose accusative would otherwise be identical to the genitive, the accusative *consistently* adopts the form of the genitive. Almost always, this leads to a longer form than the nominative, but occasionally, the genitive is zero, so that DOM is zero-coded.

	Latin	>	Old French
NOM	<i>mur-us</i>		<i>mur-s</i>
ACC	<i>mur-um</i>		<i>mur</i>

(ii) Language-particular idiosyncrasies: No problem, because the explanation is separate from the description.

(iii) Zero-overt vs. short-long: The efficiency explanation predicts short-long, and zero-overt only as a special case of this.

(iv) Status of the scales: They are convenient tools for the cross-linguistic generalizations made by linguists and have no status for the speakers. No scales are needed for language-particular descriptions.

(v) How do we predict harmonic associations? The explanation uses observed text distributions as a point of departure. It would also work if we had no explanation for the text distributions.

But it's easy to speculate about explanations: Humans are more interested in events initiated by humans, so they talk much more about such events than about other types of events. Agents tend to be topics and therefore definite because when we talk we adopt the point of view of the agent, etc.

(vi) The role of markedness. "Markedness" plays no role.

(vii-viii) The role of iconicity. Iconicity plays no role.

5.6. Conclusion

– Aissen's story on DOM is not successful.

– Hence, there is no reason not to adopt Caldwell's (1856) and Thompson's (1909/1912) approach and explain DOM in functional, efficiency-based terms.

If desired, this old functionalist approach can be formalized in terms of

- plain (functional) OT (Zeevat & Jäger 2002),
- bidirectional stochastic OT (Jäger 2004, Morimoto & de Swart 2005)
- Evolutionary Game Theory (Jäger 2005+)

6. Differential Subject Marking

mirror image of Universal 6:

Universal 7: UA#217
 If any A is overtly case-marked (with "ergative" case), then all Ps that are lower on the animacy scale, the definiteness scale, or the person scale are marked at least to the same extent.

(Silverstein 1976)

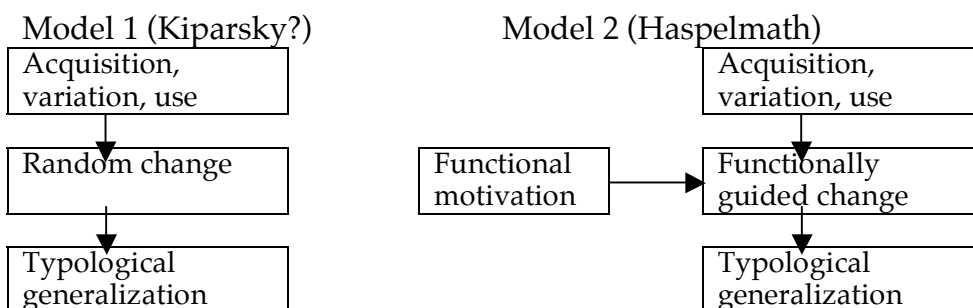
<i>Table 5.</i>	1st/2nd	3rd	proper	human	inanimate
Lezgian	m	m	m	m	m
Dyirbal	–	m	m	m	m
Guugu Yimidhirr	–	–	m	m	m
Gumbainggir	–	–	–	m	m
Lakhota	–	–	–	–	m
Hungarian	–	–	–	–	–

Kiparsky 2004: argues extensively against Garrett's (1990) proposal that "NP-split ergativity" (=differential use of overt ergative case only for lower NP types) has a **purely diachronic explanation**

"All diachronic roads lead to the same synchronic Rome, where ergative case is lacks a morphological mark in high-D nominals. Far from explaining this syncretism pattern, the various changes themselves **require a motivation for the pattern as part of their explanation**. The "invisible hand" of historical evolution nudges morphological systems towards certain **optimal states**, and part of the job of **morphological theory** is to say what those states are...

Historical mechanisms by themselves cannot explain why languages undergo the particular kinds of reanalyses that result in split ergativity but not other, a priori equally imaginable kinds of reanalyses. The D-hierarchy must in some sense be part of the **design of language**. (Kiparsky 2004:§3.2)"

Two models of "change resulting in typological generalization":



"(continued:) The D-hierarchy is a linguistic universal and **SHOULD** be expressed in **the synchronic theory of grammar** because:

- (23)
- The hierarchy is inviolable.
 - There are multiple sources of split ergative case marking.
 - The hierarchy is a pathway of analogical change.
 - The hierarchy is manifested spontaneously in child language.
 - The hierarchy must be encoded in the grammar because it intersects with other hierarchies (notably definiteness) and because it plays a role in the distribution of other morphological categories (notably number and agreement)."

- the hierarchy is NOT inviolable (various exceptions have been noted to DOM and DSM)
- the hierarchy must be part of a ("synchronic") functional motivation (and in this sense perhaps part of the "design of language"), **but it need not be part of the cognitive code/Universal Grammar!**

References

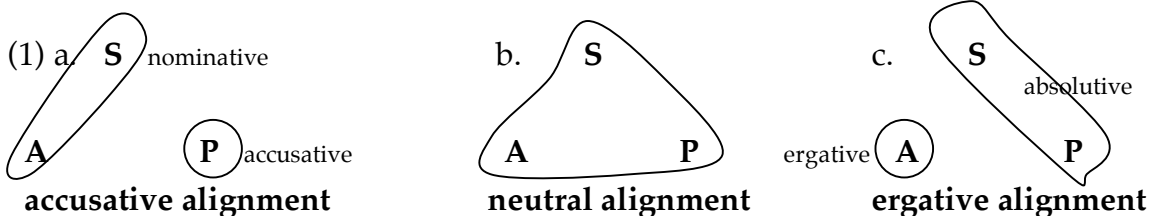
- Aissen, Judith. 1999. "Markedness and subject choice in Optimality Theory." *Natural Language and Linguistic Theory* 17: 673-711.
- Aissen, Judith. 2003. "Differential object marking: Iconicity vs. economy." *Natural Language and Linguistic Theory* 21.3: 435-483.
- Bossong, Georg. 1985. *Differenzielle Objektmarkierung in den neuiranischen Sprachen*. Tübingen: Narr.
- Bossong, Georg. 1991. "Differential Object Marking in Romance and Beyond." In D. Wanner and D. Kibbee (eds.), *New Analyses in Romance Linguistics: Selected Papers from the XVIII Linguistic Symposium on Romance Languages, Urbana-Champaign, April 7-9, 1988*. Amsterdam: Benjamins, 143-170.
- Bossong, Georg. 1998. "Le marquage différentiel de l'objet dans les langues d'Europe". In: Feuillet, Jack (ed.) *Actance et valence dans les langues de l'Europe*. Berlin: Mouton de Gruyter, 193-258.
- Caldwell, Robert. 1856. *A comparative grammar of the Dravidian or South-Indian family of languages*. London: Harrison.
- Carnie, Andrew. 2005. "Some Remarks on Markedness Hierarchies: A Reply to Aissen 1999 and 2003." *Coyote Working Papers in Linguistics* 14. (available from <http://dingo.sbs.arizona.edu/~carnie/Pages/Papers.html>)
- Comrie, Bernard. 1977. 'Subjects and direct objects in Uralic languages: a functional explanation of case-marking systems'. *Études Finno-Ougriennes* 12 (1975): 5-17.
- Comrie, Bernard. 1981/1989. *Language Universals and Linguistic Typology*. Oxford: Blackwell.
- Croft, William. 1988. Agreement vs. case marking in direct objects. In Barlow, M. and Ferguson, C. A., editors, *Agreement in Natural Language: approaches, theories, descriptions*, pages 159-80. Stanford: CSLI.
- Croft, William. 2003. *Typology and universals*. 2nd ed. Cambridge: Cambridge University Press.
- de Hoop, Helen & Andrej Malchukov. 2005. "Case Marking Strategies." Paper presented at the Workshop on Recent Developments in OT Syntax & Semantics, Harvard University, 2 July 2005.
- Dixon, R.M.W. 1994. *Ergativity*. Cambridge: Cambridge University Press.
- Filimonova, Elena. 2005. "The noun phrase hierarchy and relational marking: problems and counterevidence." *Linguistic Typology* 9.1: 77-113.
- Garrett, Andrew. 1990. The Origin of NP Split Ergativity. *Language* 66: 261-296.
- Greenberg, Joseph. 1966. *Language Universals with Special Reference to Feature Hierarchies*, Mouton, The Hague.
- Haspelmath, Martin. 2002. *Understanding morphology*. London: Arnold.
- Haspelmath, Martin. 2003. "Against iconicity and markedness". Handout of talk at Stanford University, 6 March 2003.
- Haspelmath, Martin. 2006. "Against markedness (and what to replace it with)". To appear in *Journal of Linguistics* 42.1
- Jäger, Gerhard. 2004. "Learning constraint sub-hierarchies: The Bidirectional Gradual Learning Algorithm." In R. Blutner & H. Zeevat (eds.), *Pragmatics in OT*. Palgrave MacMillan, 251-287

- Jäger, Gerhard. 2005+. "Evolutionary Game Theory and Typology. A Case Study." Unpublished, available from <http://www.uni-bielefeld.de/lili/personen/gjaeger/>
- Jakobson, Roman. 1939. 'Signe Zéro', *Melanges de Linguistique Offerts à Charles Bally sous les Auspices de la Faculté des Lettres de L'université de Genève* par des Collegues, des Confrères, des Disciples Reconnaissants, Georg et cie, s.a., Genève.
- Kiparsky, Paul. 2004+. "Universals constrain change, change results in typological generalizations." Stanford University.
- Lazard, Gilbert. "Le marquage différentiel de l'objet." In: Haspelmath, Martin et al. (eds.) *Language typology and language universals: an international handbook*. Vol. II. Berlin: de Gruyter, 873-85.
- McCarthy, John J. 2002. *A thematic guide to Optimality Theory*. Cambridge: Cambridge University Press.
- Morimoto, Y. & P. de Swart. 2005. "Modelling Synchrony and Diachrony of Differential Object Marking." Paper presented at the Workshop on Recent Developments in OT Syntax & Semantics, Harvard University, 2 July 2005.
- Silverstein, Michael. 1976. "Hierarchy of features and ergativity." In: Dixon, R.M.W. (ed.), *Grammatical categories in Australian languages*, 112-171. Canberra: Australian Institute of Aboriginal Studies.
- Thompson, Alexander. 1909/1912. "Beiträge zur Kasuslehre I/IV." *Indogermanische Forschungen* 24:293-307/30:65-79.
- Zeevat, Henk & Gerhard Jäger. 2002. "A reinterpretation of syntactic alignment." In D. de Jongh, H. Zeevat and M. Nilsenova (eds.), *Proceedings of the 3rd and 4th International Symposium on Language, Logic and Computation*. Amsterdam: ILLC. (available from: <http://www.uni-bielefeld.de/lili/personen/gjaeger/>)

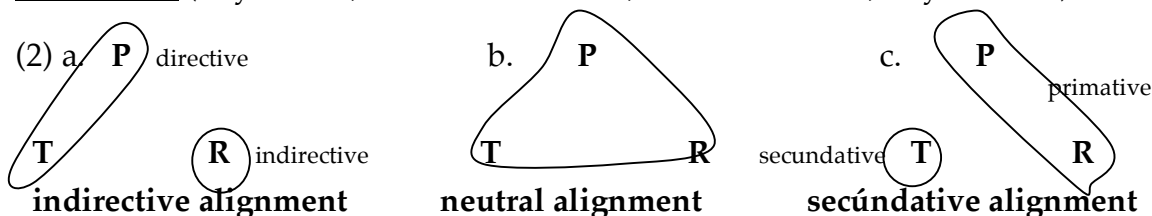
3. Universals of ditransitive constructions

1. The major alignment types, monotransitive and ditransitive

monotransitive:



ditransitive (Dryer 1986, Croft 1990:100-108, Siewierska 2004, Dryer 2005+):



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

Like ergativity and accusativity, indirectivity and secundativity can be seen both in **flagging** (= case-marking and adpositions) and in **indexing** (or cross-referencing):

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

- (m) *Der Junge füttert den Teddy_{ACC}.*
'The boy is feeding the teddy bear.'
- (d) *Der Junge gibt dem Teddy_{DAT} etwas_{ACC} zu trinken.*
'The boy is giving the teddy bear something to drink.'

(4) **Choctaw** (Muskogean): 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.'

(5) **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.'

(6) **Maranungku** (Western Daly): 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.'

(7) **Hyow** (Tibeto-Burman): indirective flagging & secundative indexing

(m) *yɔntuʔa uy=la key ʔɔ-ŋoʔwey-sɔ*
 yesterday dog=ERG I 1SG.P-bite-CONCL
 'Yesterday a dog bit me.'

(d) *cu=la key=a cɔ ʔe-pek*
 he=ERG I=LOC book 1SG.R-give
 'He gave me a book.'

(Peterson 2003: 174, 179)

2. Monotransitive/ditransitive correlations?

data from a study of 100 languages, monotransitive and ditransitive flagging and indexing (Haspelmath 2005+)

Table 1A. Flagging

mono-tr.	di-trans.	# of lgs.	example language
ACC	IND	18	Class. Arabic
ACC	SEC	0	--
ACC	NEUT	10	Martuthunira
ERG	IND	12	Lezgian
ERG	SEC	2	W Greenlandic
ERG	NEUT	6	Wambaya
NEUT	IND	27	French
NEUT	SEC	3	Yoruba
NEUT	NEUT	28	Vietnamese

Table 1B. Indexing

mono-tr.	di-trans.	# of lgs.	example language
ACC	IND	8	Choctaw
ACC	SEC	15	Khumi
ACC	NEUT	28	German
ERG	IND	4	Abkhaz
ERG	SEC	0	--
ERG	NEUT	3	Semelai
NEUT	IND	0	--
NEUT	SEC	0	--
NEUT	NEUT	29	Cantonese

- neutral monotransitive indexing implies neutral ditransitive indexing
 - because neutral monotransitive indexing means no indexing; indexing of A is more likely than indexing of P, and indexing of P is more likely than indexing of other roles (because of the correlation of indexing with topicworthiness; Moravcsik 1974, Givón 1976)
- otherwise no clear correlations

3. Overt coding vs. zero-coding of arguments: Coding types

monotransitive (S-A-P):

00m =	S	zero-coded (0)	<i>Guest-Ø arrived.</i>
	A	zero-coded (0)	<i>Girl-Ø saw boy-M.</i>
	P	overtly coded (m)	
mm0 =	S	overtly coded (m)	<i>Guest-M arrived.</i>
	A	overtly coded (m)	<i>Girl-M saw boy-Ø.</i>
	P	zero-coded (0)	("marked nominative")
mmm =	S	overtly coded (m)	<i>Guest-M arrived</i>
	A	overtly coded (m)	<i>Girl-M₁ saw boy-M₂.</i>
	P	overtly coded (m)	

ditransitive (P-T-R):

00m =	P	zero-coded (0)	<i>X saw boy-Ø.</i>
	T	zero-coded (0)	<i>X gave book-Ø girl-M.</i>
	R	overtly coded (m)	
mmm =	P	overtly coded (m)	<i>X saw boy-M.</i>
	T	overtly coded (m)	<i>X gave book-M girl-M.</i>
	R	overtly coded (m)	

Monotransitive

Ditransitive

Table 2. Flagging

align ment	coding type	# of lgs	example language	align ment	coding type	# of lgs	example language
ACC (29)	00m	21	Hungarian	IND (58)	00m	39	French
	mm0	3	Maricopa		mm0	0	--
	mmm	5	Japanese		mmm	19	Hungarian
ERG (19)	0m0	15	Lezgian	SEC (6)	0m0	4	Yoruba
	m0m	0	--		m0m	1	Sahaptin
	mmm	4	Wardaman		mmm	1	Tagalog
NEUT (49)	000	49	English	NEUT (45)	000	34	Maranungku
	mmm	0	--		mmm	11	Martuthunira
TRIP (3)	0mm	3	Sahaptin	TRIP (1)	m0m	1	Awa Pit

Universal 8:

In the flagging of non-neutral monotransitive and ditransitive alignment constructions, the overwhelming preference is for the specially treated role-type to be overtly coded, and for the two equally treated role-types to be zero-coded. The opposite case (specially treated role-type zero-coded, equally coded role-type overtly coded) is very rare.

(largely subsumes Universal 5)

monotransitive flagging/accusative alignment:	21:3 (00m:mm0)
monotransitive flagging/ergative alignment:	15:0 (0m0:m0m)
ditransitive flagging/indirective alignment:	39:0 (00m:mm0)
ditransitive flagging/secundative alignment:	4:1 (0m0:m0m)

Marked nominative in Maricopa (Yuman; Arizona; Gordon 1986:37-41)

- (8) (i) *sny'ak-sh ashvar-k*
 woman-NOM sing-REAL
 'The woman sang.'
- (t) *'iipaa-ny-sh qwaaq kyaa-m*
 man-DEM-NOM deer shoot-REAL
 'The man shot a deer.'

Marked primitive in Sahaptin (Penutian; Oregon; Rude 1997:324, 334)

- (9) (m) *i-q'ínun-a iwíns inít-na*
 3NOM-see-PAST man house-PRIM
 'The man saw the house.'
- (d) *pa-ní-ya k'úsi miyúux-na*
 3PL.NOM-give-PAST horse chief-PRIM
 'They gave the horse to the chief.'

Marked absolutive had been thought not to exist until recently, cf. Dixon (1994:67); but see now Donohue & Brown 1999, Brown 2005, for Nias (Austronesian), and Wichmann 2005 for Tlapanec.

Marked directive (=unmarked dative) is still unattested.

Explanation:

- The efficient coding types are the common ones, the inefficient coding types are rare (cf. Comrie 1978 for ergative alignment).

4. Ditransitive alignment splits

cf. monotransitive alignment splits (e.g. Comrie 1981, Dixon 1994):

Differential Object (= P) Marking:

Special P-marking is the more likely, the higher the P is on the animacy and definiteness scales.

Differential Subject (=A) Marking:

Special A-marking is the more likely, the lower the A is on the animacy and definiteness scales.

Explanation:

The most frequent and expected monotransitive association: animate/definite A and inanimate/indefinite P.

Deviations from the expectation need special marking.

4.1. Differential Recipient Marking

Universal 9:

Special ("dative") R-marking is the more likely, the lower the R is on the animacy and definiteness scales.

Explanation: The most frequent and expected ditransitive association: animate/definite R and inanimate/indefinite T.
Deviations from the expectation need special marking.

Table 3.

1st/2nd	3rd	proper	human	non-human	
•	•	•	•	•	Latin, Lezgian, etc.
	•	•	•	•	French, Yimas, Georgian, etc.
		•	•	•	Pero
			•	•	Drehu
				•	English

4.1.1. No special marking for 1st/2nd person pronouns

(10) French bound pronouns

	ACCUSATIVE	DATIVE
SG 1	<i>me</i>	<i>me</i>
2	<i>te</i>	<i>te</i>
3M	<i>le</i>	<i>lui</i>
3F	<i>la</i>	<i>lui</i>
PL 1	<i>nous</i>	<i>nous</i>
2	<i>vous</i>	<i>vous</i>
3	<i>les</i>	<i>leur</i>

(11) Tangale (bound) object pronouns (Jungraithmayr 1991:36)

	DIRECT-OBJECT PRONOUN	INDIRECT-OBJECT PRONOUN
SG 1	-no/-no , -n-	-no/-no , -n-
2	-ko/-ko , -k-	-ko/-ko , -k-
3M	<i>mbé e ndâm</i>	<i>-ni/-ni</i>
3F	<i>mbáastâm</i>	<i>-to/-to</i>
PL 1	-mu/-mu , -m-	-mu/-mu , -m-
2	-ku/-ku , -k-	-ku/-ku , -k-
3	<i>mbúindâm</i>	<i>-wu/-wu</i>

(12) Yimas bound object pronouns (Foley 1991:200-211)

		"O-pronouns"	"D-pronouns"
SG	1	<i>a-</i>	<i>a-</i>
	2	<i>nan-</i>	<i>nan-</i>
	3	<i>na-</i>	<i>-(n)akn</i>
DL	1	<i>kra-</i>	<i>kra-</i>
	2	<i>kul-</i>	<i>kul-</i>
	3	<i>impa-</i>	<i>-mpn</i>
PL	1	<i>kra-</i>	<i>kra-</i>
	2	<i>kul-</i>	<i>kul-</i>
	3	<i>pu-</i>	<i>-mpun</i>

similarly: Georgian (Kartvelian), Abkhaz (Abkhaz-Adyghean), Amele (Trans-New Guinea; Roberts 1987)

4.1.2. *No special marking for pronouns*

Pero (Chadic; Nigeria; Frajzyngier 1989:109, 166-7):

object suffixes that do not distinguish between Patient/Theme and Recipient:

- (13) a. *À-múntée-nò-té-m.*
 NEG-give-1SG.OBJ-3SG.F.OBJ-NEG
 'He didn't give her to me.'
- b. *À-múntée-té-nò-m.*
 NEG-give-3SG.F.OBJ-1SG.OBJ-NEG
 'He didn't give me to her.'

Full NPs require the preposition *tí* when they occur as Recipients:

- (14) *Músà mún-kò júrà tí Dillà.*
 Musa give-COMPL peanuts to Dilla
 'Musa gave peanuts to Dilla.'

4.1.3. *No special marking for pronouns and proper nouns*

In Drehu (Oceanic; Loyalty islands), pronouns and proper nouns may show zero-marking if they are Recipient (Moyse-Faurie 1983:161-2):

- (15) a. *Eni a hamëë angeic la itus.*
 I PRES give him the book
 'I give him the book.'
- b. *Eni a hamëë Wasinemu la itus.*
 I PRES give Wasinemu the book
 'I give Wasinemu the book.'

Other NPs must appear with the preposition *kowe* 'to':

- (16) *Eni a hamëën la itus kowe la nekönatr.*
 I PRES give the book to the child
 'I give the book to the child.'

4.1.4. No special marking for all human NPs

In English, non-human NPs must appear with the preposition *to*:

- (17) a. *I sent the letter to Masha./I sent Masha the letter.*
 b. *I sent the letter to Warsaw./*I sent Warsaw the letter.*

(see also Kittilä 2005)

4.2. Differential Theme Marking

Universal 10:

Special ("secundative") T-marking is the more likely, the higher the T is on the animacy and definiteness scales.

Explanation:

The most frequent and expected ditransitive association: animate/definite R and inanimate/indefinite T.

Deviations from the expectation need special marking.

Example:

In Akan (Niger-Congo, Kwa; Ghana etc.), the Theme argument in a double-object construction must be indefinite, as in (14a). (14b) with the definite article on the Theme is ungrammatical, and a construction with a special T-marking serial verb must be used instead (*dè* lit. 'take') (data from Sáàh & Ézè 1997:143-44).

- (18) a. *Ámá màà mè sàká.*
 Ama give 1SG money
 'Ama gave me money.'
- b. **Ámá màà mè sàká nó.*
 Ama give 1SG money the
 'Ama gave me the money.'
- c. *Ámá dè sàká nó màà mè.*
 Ama take money the give 1SG
 'Ama gave me the money.' (Lit. 'Ama took the money gave me.')

5. Inverse ditransitive patterns

5.1. Some well-known but peculiar facts

(19) English

- | | |
|--|-------------------------------------|
| a. <i>She gave me the book.</i> | b. <i>She gave the book to me.</i> |
| c. <i>She gave Kim the book.</i> | d. <i>She gave the book to Kim.</i> |
| e. <i>%She gave me it./%She gave it me.</i> | f. <i>She gave it to me.</i> |
| g. <i>*She gave Kim it./ *She gave it Kim.</i> | h. <i>She gave it to Kim.</i> |

(20) French (glosses as in 19a-h)

- | | |
|--------------------------------------|--------------------------------------|
| a. <i>Elle me donna le livre.</i> | b. <i>Elle donna le livre à moi.</i> |
| c. * <i>Elle donna Kim le livre.</i> | d. <i>Elle donna le livre à Kim.</i> |
| e. <i>Elle me le donna.</i> | f. <i>Elle le donna à moi.</i> |
| g. * <i>Elle le donna Kim.</i> | h. <i>Elle le donna à Kim.</i> |

These facts are easy to **describe** using the straightforward notions "double-object construction" (DOC) for two zero-coded objects and "indirect-object construction" (IOC) (for a construction where the Recipient receives special coding):

- (21) a. American English allows both the DOC and the IOC,
except when the Theme is a pronoun.
- b. British English allows both the DOC and the IOC,
except when the Theme is a pronoun and the Recipient is a full NP.
- c. French allows both the DOC and the IOC,
except when the Recipient is a full NP.

But how should they be explained? (No well-known explanation exists.)

Definition of "inverse pattern": A pattern in which argument-marking depends not only on the intrinsic properties of the argument NPs, but also on the relation between two cooccurring arguments.

5.2. Monotransitive inverse patterns (involving person-role associations)

A well-known case: Lummi (Salish) (Jelinek & Demers 1983, Bresnan et al. 2001)

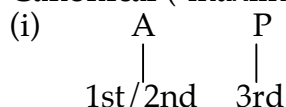
(22) Lummi (Jelinek & Demers 1983:168)

- | | | | |
|----------|--------------------------|----------------------|--------------|
| a. (1>3) | <i>xč̣i-t-sən</i> | <i>cə swəyʔqəʔ</i> | (canonical) |
| | know-TR-1SG.SUBJ | the man | |
| | 'I know the man.' | | |
| b. (3>1) | * <i>xč̣i-t-əŋəs-s</i> | <i>cə swəyʔqəʔ</i> | (crossing) |
| | know-TR-1SG.OBJ-3SG.SUBJ | the man | |
| | 'The man knows me.' | | |
| c. | <i>xč̣i-t-ŋ-sən</i> | <i>ə cə swəyʔqəʔ</i> | (non-simple) |
| | know-TR-PASS-1SG.SUBJ | by the man | |
| | 'I am known by the man.' | | |

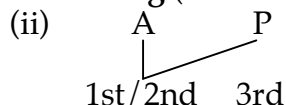
When the A argument is higher on the Person Scale than the P argument, the simple transitive construction cannot be used, but the language resorts to a **passive construction**.

Three types of association of Role Scale (A > P) and Person Scale (1/2 > 3):

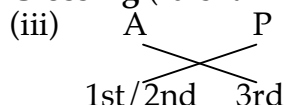
Canonical ("maximally harmonic") association of role and person:



Clustering ("less harmonic") association of role and person:



Crossing ("disharmonic") association of role and person:



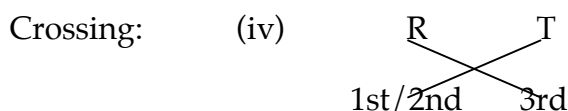
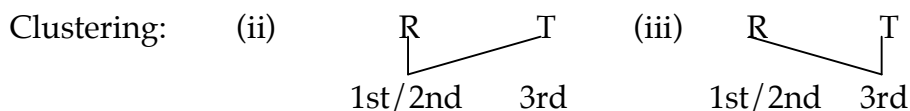
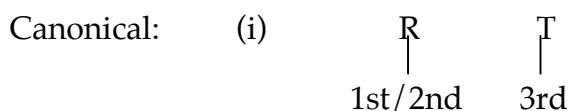
"Harmonic" and "disharmonic" translates as "frequent" and "rare". Since frequent patterns tend to be expressed with little coding and rare patterns require more complex coding, we expect:

Universal 11:

In languages with inverse patterns, the canonical association is always expressed by the simple ("direct") construction, the crossing association is never expressed by the simple construction, and the clustering association is intermediate.

5.3. Ditransitive person-role inverses (see Haspelmath 2004)

Role Scale: A > P / R > T



In French, Modern Greek, and Shambala, the **independent pronouns** are used instead of bound pronouns in the crossing association:

(23) French (e.g. Grevisse 1986:§657 (b) 1°)

- a. (1>3) *Agnès me la présentera.*
 Agnès 1SG.REC 3SG.F.THM present.FUT.3SG
 'Agnès will introduce her to me.'

- b. (3>1) **Agnès me lui présentera.*
 Agnès 1SG.THM 3SG.F.REC present.FUT.3SG
 'Agnès will introduce me to her.'
- c. *Agnès me présentera à elle.*
 Agnès 1SG.THM present.FUT.3SG to her
 'Agnès will introduce me to her.'

(24) Modern Greek (Anagnostopoulou 2003)

- a. (2>3) *Tha su ton stílune.*
 FUT 2SG.REC 3SG.M.THM send.PF.3PL
 'They will send him to you.'
- b. (3>2) **Tha tu se stílune.*
 FUT 3SG.M.REC 2SG.THM send.PF.3PL
 'They will send you to him.'
- c. *Tha tu stílune eséna.*
 FUT 3SG.M.REC send.PF.3PL you.OBL
 'They will send you to him.'

(25) Shambala (Bantu-G, Tanzania; Duranti 1979:36)

- a. (1>3) *A-za-m-ni-et-ea.*
 3SG.SUBJ-PAST-3SG.THM-1SG.REC-bring-APPL
 'S/he has brought him/her to me.'
- b. (3>1) **A-za-ni-mw-et-ea.*
 3SG.SUBJ-PAST-1SG.THM-3SG.REC-bring-APPL
 'S/he has brought me to him/her.'
- c. *A-za-ni-eta kwa yeye.*
 3SG.SUBJ-PAST-1SG.THM-bring to him/her
 'S/he has brought me to him/her.'

French and Modern Greek also forbid bound pronouns in one of the clustering associations:

(26) French

- d. (2>1) **Agnès me te présentera.*
 Agnès 1SG.THM 2SG.REC present.FUT.3SG
 'Agnès will introduce me to you.'

(27) Modern Greek

- d. (1>2) **Tha mu se stílune.*
 FUT 3SG.M.REC 2SG.THM send.PF.3PL
 'They will send you to me.'

But Catalan allows these associations:

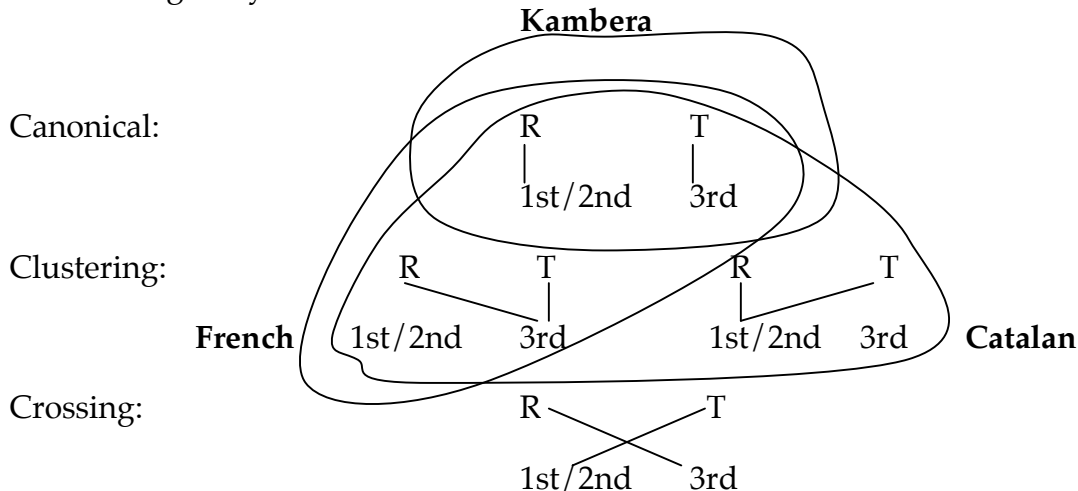
(28) Catalan (Bonet 1994:41)

Te m' ha venut el mercador més important.
 you me has sold the merchant more important
 'The most important merchant has sold you to me.' (or: '... me to you')

And Kambera (Central Malayo-Polynesian, eastern Indonesia) allows only the canonical association:

(29) Kambera (Klamer 1997: 903-4)

- a. *Na-wua-ngga-nya.*
3SG.AG-give-1SG.REC-3SG.THM
'He gives it to me.'
- b. *Na-wua-nggau-nja.*
3SG.AG-give-2SG.REC-3PL.THM
'He gives them to you (e.g. apples).'
- c. **Na-wua-nja-nya.*
3SG.AG-give-3PL.REC-3SG.THM
'He gives it to them.'
- d. **Na-wua-ngga-nggau.*
3SG.AG-give-1SG.REC-2SG.THM
'He gives you to me.'



(three out of four possible language types are attested)

Universal 12 (subsumes Universal 11):

On the scale of decreasing harmony of person-role association ("Canonical (i) > Clustering (ii/iii) > Crossing (iv)"), the upper end is always expressed by a simple construction, and the likelihood of special complex constructions being required increases.

Explanation: The less harmonic the association, the less frequent the pattern. More frequent patterns are more expected and therefore need less coding.

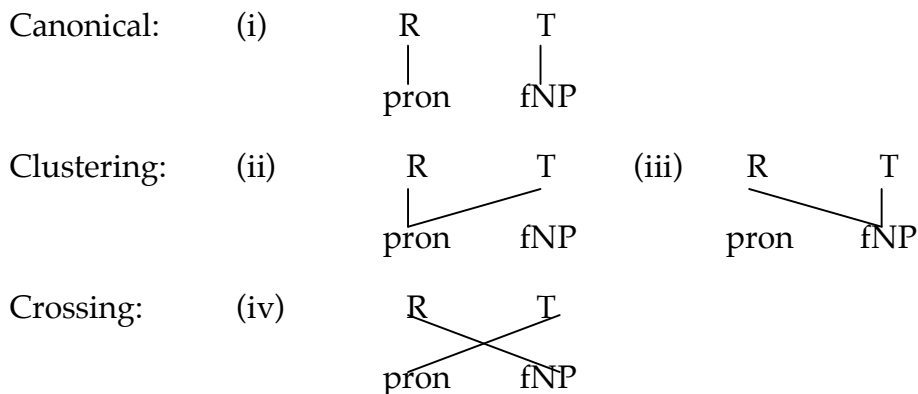
"complex construction" is verbal in monotransitive inverses, nominal in ditransitive inverses

5.4. Ditransitive pronoun-full NP inverses

cf. monotransitive pronoun-full NP inverse in Lummi:

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

- a. (pron>fNP) *xč̣i-t-s cə swəyʔqəʔ*
 know-TR-3SG.SUBJ the man
 'He knows the man.'
- b. (fNP>pron) **xč̣i-t-s cə swəyʔqəʔ*
 know-TR-3SG.SUBJ the man
 'The man knows him.'



Universal 13: On the scale of decreasing harmony of association of role and pronoun/ full NP ("Canonical (i) > Clustering (ii/iii) > Crossing (iv)"), the upper end is always expressed by a simple construction, and the likelihood of special complex constructions being required increases.

Explanation: The less harmonic the association, the less frequent the pattern. More frequent patterns are more expected and therefore need less coding.

ditransitive pronoun-full NP inverses:

(A) In Capeverdean Creole, the clitic pronouns are only used in the canonical pattern (i), cf. (31a-b). If both the R and the T are pronouns, they cannot be both expressed as clitics, **and the T must be expressed as an independent pronoun**, cf. (31c-d). This is also the case if T is a pronoun and R is a full NP, cf. (31e-f).

(31) Capeverdean Creole (Baptista 2003, Marlyse Baptista, p.c.)

- a. *El da=bu libru.*
 she give=you book
 'She gave you a book.'
- b. *El da=l libru.*
 she give=him book
 'She gave him a book.'
- c. **El da=bu=l.*
 she give=you=him
 'She gave you him=She gave him to you.'

- d. *El da=bu el.*
 she give=you he
 'She gave you him=She gave him to you.'
- e. **El da João=l.*
 she give João=her
 'She gave her to João.'
- f. *El da João el.*
 she give João her
 'She gave her to João.'

Similarly in Hausa (Chadic; Newman 2000):

- (32) a. *Naa báà=shì aikìi.*
 I.PFV give=him work.
 'I gave him work.'
- b. *Naa báà=tà aikìi.*
 I.PFV give=her work.
 'I gave her work.'
- c. **Naa báà=shì=tà.*
 I.PFV give=him=her
 'I gave him her=I gave her to him.'
- d. *Naa báà=shì ita.*
 I.PFV give=him her
 'I gave him her=I gave her to him.'

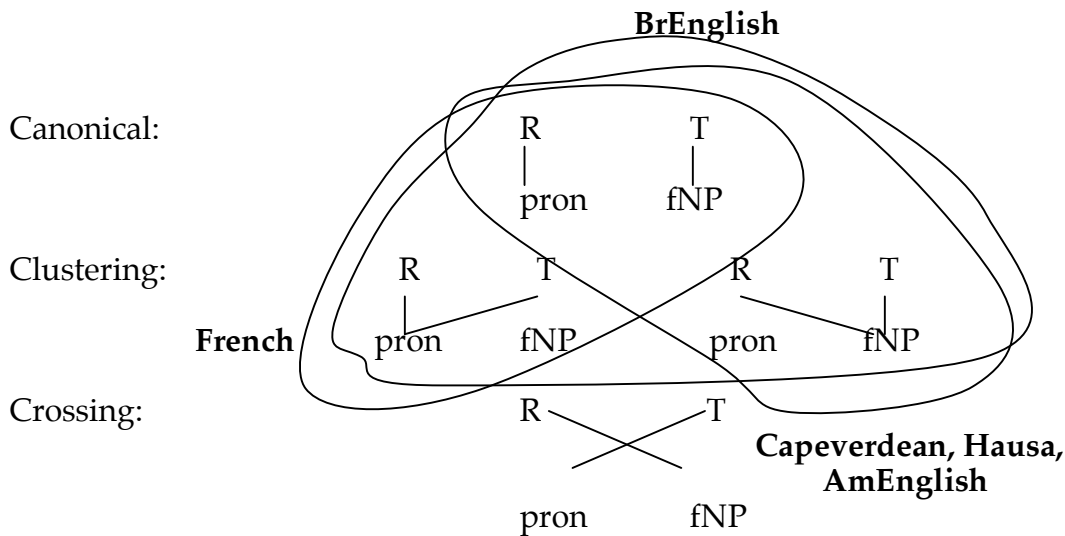
(B) In Lillooet (Salish; van Eijk 1997), the crossing pattern (iv) is impossible, and a **passive construction** must be used instead.

- (33) a. *ʔúm'n-as-Ø kʷ-s-Sam ti-c'qáxʔ-a*
 give-3SG.SUBJ-3SG.OBJ ART-NMLZ-Sam ART-horse-ART
 'He gave Sam a horse.'
- b. **ʔúm'n-as-Ø kʷ-s-Sam*
 give-3SG.SUBJ-3SG.OBJ ART-NMLZ-Sam
 'He gave it to Sam.'

(C) In British English, only the crossing pattern is excluded (**She gave Kim it*/**She gave it Kim*), and a circumlocution with the preposition *to* must be used instead (*She gave it to Kim*).

(D) American English also excludes the clustering pattern (ii) (**She gave me it*/**She gave it me*), requiring a complex construction here, too (*She gave it to me*).

(E) French excludes the crossing pattern (**Elle le donna Kim*) and the clustering pattern (iii) (**Elle donna Kim le livre*), requiring a complex construction here (*Elle le donna à Kim*, *Elle donna le livre à Kim*). However, French allows the clustering pattern (ii) (*Elle me le donna*).



Capeverdean/Hausa and American English differ in that Capeverdean/Hausa have full pronouns where the complex construction is required, while AmEnglish has a preposition. But both language types obey the same Universal 13.

6. More on the Ditransitive Person-Role Constraint

(see Haspelmath 2004)

DPRC (Bonet 1994: PCC = Person-Case Constraint):

"When both R and T are bound pronouns, T cannot be first/second person."

(23) French (e.g. Grevisse 1986:§657 (b) 1°)

- a. (1>3) *Agnès me la présentera.*
 Agnès 1SG.REC 3SG.F.THM present.FUT.3SG
 'Agnès will introduce her to me.'
- b. (3>1) **Agnès me lui présentera.*
 Agnès 1SG.THM 3SG.F.REC present.FUT.3SG
 'Agnès will introduce me to her.'
- c. *Agnès me présentera à elle.*
 Agnès 1SG.THM present.FUT.3SG to her
 'Agnès will introduce me to her.'

6.1. Some frequency figures

English (BNC online version, over 100 million word tokens)

Table 4.		dative pronouns (to)		
		1st person	2nd person	3rd person
accusative pronouns	1st person	2	25	114
	2nd person	17	10	111
	3rd person	848	588	1697

German (Goethe corpus, IDS online corpus COSMAS, 1.4 million words)

		dative pronouns		
		1st person	2nd person	3rd person
accusative pronouns	1st person	4 (2%)	8 (4%)	33 (15%)
	2nd person	3 (1%)	0	1 (0%)
	3rd person	114 (51%)	18 (8%)	60 (27%)

6.2. Alternative explanations

6.2.1. A ban on doubly filled structural slots

three structural slots for preverbal clitic pronouns in French (e.g. Togeby 1982: 400)

Table 6.

ACC/DAT	ACC	DAT
me _{1SG}		
te _{2SG}	le _{3SG.M}	lui _{3SG}
se _{3REFL}	la _{3SG.F}	leur _{3PL}
nous _{1PL}	les _{3PL}	
vous _{2PL}		

Togeby 1982: **me te* is ungrammatical because *me* and *te* occupy the same slot

Emonds 1975: **me lui* is ungrammatical because *me* and *lui* occupy the same slot in deep structure

- slots are used as explanantia here, although they are really explananda (cf. also Haspelmath 1999a, where the same was argued for the "determiner" slot)

6.2.2. The Ditransitive Person-Role Constraint as inviolable and innate

Bonet 1994:43-44: "The [Person-Case constraint] ... has to be understood as a universal constraint which, as will be seen, is ranked highest in the grammar of all languages."

- counterexamples:

(34) Kabardian (Northwest Caucasian; Kumaxov & Vamling 1998:34)

(3>2) *w-je-s-te-n-s'* 'I will give you to him.'
2SGT-3SGR-1SGA-give-FUT-ASSRT

(35) Lakota (Siouan; Van Valin 1977)

(3>2) *ni-wícha-wa-kʔu*
2SG.THM-3PL.REC-1SG.AG-give
'I give you to them.'

(36) Noon (Northern Atlantic, Senegal; Soukka 2000:207)

(3>2) *mi teeb-pi-raa*
I present-3SG.REC-2SG.THM
'I present you to her.'

=> The DPRC is not an absolute constraint, but only a preference.
 Preferences can be reformulated as universals:

Universal 14:

If a language has some combinations of Recipient-Theme bound pronouns, the Theme may always be 3rd person. (follows from Universal 12)

6.2.3. Clash between positional alignment requirements (Gerlach 1998, 2002)

Languages with DPRC effects have the following high-ranking constraints (Gerlach 1998:47,49; 2002):

(38)

ALIGN-L (+1, CS): 1st person clitics are initial in a clitic sequence.

ALIGN-L (+2, CS): 2nd person clitics are initial in a clitic sequence.

ALIGN-L (+lr, CS): Indirect object clitics are initial in a clitic sequence.

Sentences blocked by DPRC violate two of these constraints and are hence ungrammatical. Crucially, the constraint FAITH(arg)^M ("An argument role has a correspondent (i.e. a clitic or an affix) in the output") is ranked lower than the alignment constraints:

(39) Modern Greek (cf. Gerlach 1998:60)

'me to him'	ALIGN-L(+1,CS)	ALIGN-L(+lr,CS)	FAITH(arg) ^M
<i>me tu</i>		*!	
<i>tu me</i>	*!		
<i>me</i>			
<i>tu</i>			

problems:

- the alignment constraints cannot be universal (cf. Gensler 2003, who finds that Recipient-Theme order is not even preferred cross-linguistically); thus, a language violating universal 14 could be described if its R-T order is different
- hence, the constraints are not motivated

6.2.4. Markedness of person and case values

Grimshaw (2001:225-227) derives DPRC effects from the fact that in the ungrammatical combinations, both bound pronouns show a "marked" value for one feature:

- French **me lui* 'me to her': *me* (1st person) = marked value
lui (dative case) = marked value

"If first and second persons, dative, and reflexive are more marked than, respectively, third person, accusative, and nonreflexive..., it turns out that the impossible combinations of clitics are those that involve marked values for case, person, and /or reflexivity." (Grimshaw 2001:226)

— implemented by positing a constraint "MARK1ST/2ND&DAT", which penalizes combinations of the marked values 'first/second person' and 'dative'

problems:

— presupposes the contrast between a marked dative and an unmarked accusative case, which is lacking in Shambala (see 25), Arabic, and other languages; one cannot say that R in general is marked over T
 — seems to make the prediction that combinations with two third-person pronouns should be the most favored, whereas combinations with two non-third-person pronouns should be the least favored:

(40) *Markedness of bound-pronoun combinations with respect to person and case:*

	(A)		(B)		(C)		(D)	
	him	to-her	him	to-me	me	to-him	me	to-you
person	u	u	u	m	m	u	m	m
case	u	m	u	m	u	m	u	m

—if C is disfavored because it shows two marked values, D should be even more disfavored (but Catalan and Spanish allow D but rule out C, see (28))

—A should be even more favored than B (but Kambera prohibits A but allows B, see (29))

6.2.5. Harmonic alignment of person and role scales

DPRC-violating sentences show a lack of "harmony" between two scales (Person Scale and Role Scale) which are supposed to show harmonic alignment

Farkas & Kazazis 1980: 78

"[I]n the Rumanian clitic system, the case hierarchy [Ethical > Goal > Theme] and the personal hierarchy [1 > 2 > 3] are not supposed to conflict. Where there is no conflict..., the string is grammatical. Where there is strong conflict..., the sequence is unacceptable..."

Parodi 1998: 98-99

"What we end up with is a joint conditioning of clitic ordering by case and person. The hierarchy of syntactic functions and argument structure [i.e. A > R > T] has to be observed; the specificity hierarchy [i.e. 1/2 > 3] must be observed as well and in the same direction. The hierarchies are not allowed to cross; ... This means that in order for a sequence of two clitics to be allowed, the argument which is higher in the specificity hierarchy must have a higher position in terms of case."

Cf. Aissen's (1999) OT analysis of comparable data in Lummi (Coast Salish)

"Monotransitive Person-Role Constraint":

1st/2nd person pronouns cannot be patients

upper part of animacy scale (1,2 > 3) is aligned with relation scale (Subj > Obj):

(41) **Harmony scales**

Subj/1,2 \supset Subj/3

Obj/3 \supset Obj/1,2

Constraint hierarchies

*Subj/3 \gg *Subj/1,2

*Obj/1,2 \gg *Obj/3

(42) Input: V (Agent/3, Patient/1)	*Obj/1,2	*Subj/Pat
ACTIVE Agent/Subj/3 – Patient/Obj/1	*!	
☞ PASSIVE Patient /Subj/1 – Agent/Obl/3		*

analogous analysis for Ditransitive Person-Role Constraint:

(43) **Harmony scales**

Rec/1,2 \supset Rec/3

Thm/3 \supset Thm/1,2

Constraint hierarchies

*Rec/3 \gg *Rec/1,2

*Thm/1,2 \gg *Thm/3

(44) Input: V (Recipient/3, Theme/1)	*Thm/1,2	AVOID PRONOUN
<i>me lui présentera</i>	*!	
☞ <i>me présentera à lui</i>		*

- problems:
 - no principled account for the directionality of the alignment
(why is Recipient associated with 1st/2nd person, rather than 3rd person?)
 - no principled account for which scales are aligned harmonically
(why not align the role hierarchy with the number hierarchy?)
 - no principled account for the existence of "harmonic alignment"
(why is this device allowed?)
 - no explanation for why the DPRC applies only to bound pronouns

References

- Aissen, Judith. 1999. "Markedness and subject choice in Optimality Theory." *Natural Language and Linguistic Theory* 17: 673-711.
- Anagnostopoulou, Elena. 2003. *The syntax of ditransitives: evidence from clitics* (Studies in generative grammar, 54.) Berlin: Mouton de Gruyter.
- Baptista, Marlyse. 2003. *The syntax of Capeverdean Creole: The Sotavento varieties*. Amsterdam: Benjamins.
- Bonet, Eulalia. 1994. "The Person-Case constraint: A morphological approach". In: Harley, Heidi & Phillips, Colin (eds.) *The morphology-syntax connection* (MIT WPL, 22.), 33-52.
- Bresnan, Joan & Dingare, Shipra & Manning, Christopher. 2001. "Soft constraints mirror hard constraints: voice and person in English and Lummi." In: Butt, Miriam & King, Tracy Holloway (eds.) *Proceedings of the LFG 01 Conference, The University of Hong Kong*. CSLI Online Publications, 13-32. [<http://csli-publications.stanford.edu/hand/miscpubsonline.html>]
- Brown, Lea. 2005. Nias. In Adelaar, Alexander and Nikolaus P. Himmelmann (eds.), *The Austronesian Languages of Asia and Madagascar*, pp. 562-589.

- London and New York: Routledge.
- Comrie, Bernard. 1978. "Ergativity." In: Lehmann, Winfred P. (ed.) *Syntactic typology*. Austin: University of Texas Press, 329-94.
- Comrie, Bernard. 1981. *Language Universals and Linguistic Typology*. Oxford: Blackwell.
- Croft, William. 1990. *Typology and universals*. Cambridge: Cambridge University Press.
- Davies, William D. 1986. *Choctaw verb agreement and universal grammar*. Dordrecht: Kluwer.
- Dixon, R.M.W. 1994. *Ergativity*. Cambridge: Cambridge University Press.
- Donohue, Mark and Lea Brown. 1999. Ergativity: some additions from Indonesia. *Australian Journal of Linguistics* 19: 57-76.
- Dryer, Matthew. 1986. "Primary objects, secondary objects, and antitativity." *Language* 62: 808-45.
- Dryer, Matthew. 1989. "Large linguistic areas and language sampling." *Studies in Language* 13:257-92.
- Dryer, Matthew. 2005+. "Clause types." To appear in: Shopen, Timothy (ed.) *Language typology and syntactic description, 2nd ed.* Cambridge: Cambridge University Press.
- Duranti, Alessandro. 1979. "Object clitic pronouns in Bantu and the topicality hierarchy." *Studies in African Linguistics* 10.1:31-45.
- Emonds, Joseph. 1975. "A transformational analysis of French clitics without positive output constraints." *Linguistic Analysis* 1: 3-24.
- Farkas, Donka & Kazazis, Kostas. 1980. "Clitic pronouns and topicality in Rumanian." *Chicago Linguistic Society* 16: 75-82.
- Foley, William A. 1991. *The Yimas language of New Guinea*. Stanford: Stanford University Press.
- Frajzyngier, Zygmunt. 1989. *A Grammar of Pero*. Berlin: Dietrich Reimer.
- Gensler, Orin. 2003. "Object ordering in verbs marking two pronominal objects: Nonexplanation and explanation." *Linguistic Typology* 7.2: 187-231.
- Gerlach, Birgit. 1998. "Optimale Klitiksequenzen." *Zeitschrift für Sprachwissenschaft* 17.1: 35-91.
- Gerlach, Birgit. 2002. *Clitics between syntax and lexicon*. Amsterdam: Benjamins.
- Givón, Talmy. 1976. "Topic, pronoun and grammatical agreement." In: Li, Charles N. (ed.) *Subject and topic*. New York: Academic Press, 149-89.
- Gordon, Lynn. 1986. *Maricopa Morphology and Syntax*. University of California Publications in Linguistics 108. Berkeley: University of California Press.
- Grevisse, Maurice. 1986. *Le bon usage*. 12ème édition. Paris: Duculot.
- Grimshaw, Jane. 2001. "Optimal clitic positions and the lexicon in Romance clitic systems." In: Legendre, Géraldine & Grimshaw, Jane & Vikner, Sten (eds.) *Optimality-theoretic syntax*. Cambridge/MA: MIT Press, 205-240.
- Haspelmath, Martin. 1999a. "Explaining article-possessor complementarity: economic motivation in noun phrase syntax". *Language* 75.2: 227-43.
- Haspelmath, Martin. 2004. "Explaining the Ditransitive Person-Role Constraint: a usage-based account." *Constructions* 2004/2, 49 pp. (free online journal, www.constructions-online.de)
- Haspelmath, Martin. 2005+. "Argument marking in ditransitive alignment types." Max Planck Institute for Evolutionary Anthropology, Leipzig.

- Jelinek, Eloise & Demers, Richard. 1983. "The agent hierarchy and voice in some Coast Salish languages." *International Journal of American Linguistics* 49: 167-185.
- Jungraithmayr, Herrmann. 1991. *A dictionary of the Tangale language*. Berlin: Reimer.
- Kittilä, Seppo. 2005+. "Differential goal marking: on the encoding of animate and inanimate goals." University of Turku.
- Klamer, Marian. 1997. "Spelling out clitics in Kambara." *Linguistics* 35: 895-927.
- Kumaxov, Muxadin & Vamling, Karina. 1998. *Dopolnitel'nye konstrukcii v kabardinskom jazyke*. Lund: Lund University, Department of Linguistics.
- Moravcsik, E. 1974. "Object-verb agreement." *Working Papers in Language Universals* 15:25-140.
- Moyse-Faurie, Claire. 1983. *Le drehu, langue de Lifou (Iles Loyauté)*. Paris: SELAF.
- Newman, Paul. 2000. *The Hausa Language: An Encyclopedic Reference Grammar*. New Haven: Yale University Press.
- Parodi, Teresa. 1998. "Aspects of clitic doubling and clitic clusters in Spanish." In: Fabri, Ray et al. *Models of inflection*. Tübingen: Niemeyer, 85-102.
- Peterson, David A. 2003. "Agreement and grammatical relations in Hyow." In: Bradley, David & LaPolla, Randy & Michailovsky, Boyd & Thurgood, Graham (eds.) *Language variation: Papers on variation and change in the Sinosphere and in the Indosphere in honour of James A. Matisoff*. (Pacific Linguistics, 555.) Canberra: Australian National University, 173-83.
- Rowlands, E.C. 1969. *Yoruba*. (Teach Yourself Books) Sevenoaks, Kent: Hodder & Stoughton.
- Rude, Noel. 1997. "Dative shifting and double objects in Sahaptin." In: Givón, T. (ed.) *Grammatical relations: A functionalist perspective*. Amsterdam: Benjamins, 323-349.
- Sáàh, Kòfí K. & Ézè, Éjiké. 1997. "Double objects in Àkán and Ìgbo." In: Déchaine, R. & Manfredi, Victor (eds.) *Object positions in Benue-Kwa*. The Hague: Holland Academic Graphics, 139-51.
- Siewierska, Anna. 1996. "Word order type and alignment type." *Sprachtypologie und Universalienforschung* 49.2: 149-176.
- Siewierska, Anna. 2004. *Person*. Cambridge: Cambridge University Press.
- Soukka, Maria. 2000. *A descriptive grammar of Noon: A Cangin language of Senegal*. (Lincom Studies in African linguistics, 40.) Munich: Lincom Europa.
- Togeby, Knud. 1982. *Grammaire française. Vol. I: Le nom*. Copenhagen: Akademisk Forlag.
- Tryon, Darrell. 1970. *An introduction to Maranungku*. (PL, B, 15.) Canberra: ANU.
- van Eijk, Jan. 1997. *The Lillooet language: phonology, morphology, syntax*. Vancouver: University of British Columbia.
- Van Valin, Robert D. 1977. *Aspects of Lakhota Syntax*. Ph.D. Dissertation, UC Berkeley.
- Wichmann, Søren. 2005. Tlapanec cases. In: Beam de Azcona, Rosemary and Mary Paster (eds.), *Conference on Otomanguean and Oaxacan Languages, March 19-21, 2004, University of California at Berkeley*. Report 13, Survey of California and Other Indian Languages, pp. 133-145. Berkeley: University of California at Berkeley.

4. Universals of reflexive marking

1. Some explananda

— contrast between introverted and extroverted verb:

- (1) Russian
 a. *Vanja moeť-sja.* (/#sebjə) 'Vanja washes (himself).'
 b. **Vanja nenavidit-sja.* (^{OK}sebjə) 'Vanja hates himself.'
- (2) German
 a. *Gertrud wäscht sich.* 'Gertrud washes (herself).'
 b. *Gertrud hasst sich.* 'Gertrud hates herself.'

— contrast between object and adpossessor:

- (3) English
 a. *Bob₁ admires himself₁.* (*him₁) b. **Bob₁ admires himself's₁ boss.* (^{OK}his₁)
- (4) Lezgian
 a. *Ali-diz wič akuna.* (*am)
 Ali-DAT self saw him 'Ali saw himself.'
 b. *Ali-diz wič-in ruš akuna.*
 Ali-DAT self-GEN girl saw 'Ali₁ saw his₁ daughter.'

— contrast between disjoint reference and coreference:

- (5) English
 a. *Bob₁ saw him₂.* b. **Bob₁ saw him₁.* (^{OK}himself₁)
- (6) Loni (Oceanic, Papua New Guinea; Hamel 1994:54)
 a. *Suʔu₁ čaʔiti suʔu₂.*
 they.DU cut they.DU 'They cut them.'
 b. *Suʔu₁ čaʔiti suʔu₁.*
 they.DU cut they.DU 'They cut themselves/each other.'

— contrast between exact and inclusive coreference:

- (7) English
 a. *Maria₁ criticized herself₁.* b. **Maria₁ criticized themselves_{1+x}.*
 (^{OK}herself and the others/?them)
- (8) Hausa (Newman 2000:524)
 a. *Laadi₁ taa soòki kààn-tà₁.*
 Ladi 3SG criticize self-3SG.F 'Ladi criticized herself.'
 b. *Laadi₁ taa soòki kààn-sù_{1+x}.*
 Ladi 3SG criticize self-3PL (lit.) 'Ladi criticized themselves.'

None of these contrasts is necessary, so how is explanation possible? After all "explaining something" basically means showing that it is necessary.

2. Introverted vs. extroverted actions

Universal 15:

In all languages, the reflexive-marking strategy employed with extroverted verbs is at least as complex phonologically ("heavy") as the reflexive-marking strategy employed with introverted verbs.

(Faltz 1985[1977], Haiman 1983:801-08, König & Siemund 2000a, Smith 2004)

extroverted: verbs like 'kill', 'hate', 'criticize', 'see', 'attack'

introverted: verbs like 'wash', 'shave', 'dress', 'defend'

Table 1: Extroverted and introverted reflexive forms in some languages

	EXTROVERTED		INTROVERTED	
English	<i>hate onself</i>		<i>shave Ø</i>	
Russian	<i>nenavidet' sebja</i>	'hate oneself'	<i>myt'-sja</i>	'wash'
Hungarian	<i>utálja mag-á-t</i>	'hates herself'	<i>borotvál-köz-</i>	'shave'
Greek	<i>aghapái ton eaftó tu</i>	'loves himself'	<i>dín-ete</i>	'dresses'
Turkish	<i>kendini sev-iyor</i>	'loves himself'	<i>yika-n-ıyor</i>	'washes'
Dutch	<i>haat zichzelf</i>	'hates herself'	<i>wast zich</i>	'washes'
Frisian	<i>hearde himsels</i>	'heard himself'	<i>wasket him</i>	'washed'
Jamul Tiipay	<i>naynaach mat-aaxway</i>	'killed himself'	<i>mat-sxwan</i>	'scratch (oneself)'

generative "explanation":

Reinhart & Reuland 1993: introverted verbs have two lexical entries, one of which is "lexically reflexive"

(purely stipulative — would allow languages with lexical reflexive 'hate' and 'see', while 'wash' and 'dress' are not lexically reflexive)

functional explanation: economic motivation

Haiman 1983:807: "What is predictable receives less coding than what is not."
But why is the reflexive interpretation of introverted verbs predictable?

Faltz 1985:8: "verbs expressing commonly reflexive actions such as washing onself"

Faltz 1985:19: "normally reflexive activities"

Haiman 1983:803: "actions which one generally performs upon one's self"

Levinson 2000:329: "stereotypically reflexive actions"

König & Siemund 2000a:60: "The semantic property that plays a fundamental role in the selection of a reflexivizing strategy concerns the question whether the situation denoted by the verb or adjective is typically or conventionally directed at others or not."

König & Siemund 2000a:61: "It is world knowledge concerning other-directed and non-other directed situations that is responsible for the way we interpret..."

World knowledge or semantics?

Not a semantic property of the predicate

(in a culture that prohibits self-shaving, 'shave' would not behave as an introverted verb)

How can “world frequency” get reflected in language structure?

- Speakers can afford to reduce expressions that hearers can predict they will hear, and they have to be fully explicit on expressions that surprise hearers.
- Structural (Zipfian) economy derives from **speech frequency**, not from **world frequency** — frequently used expressions are short, not expressions for items that are frequent in the world (so *oxygen molecule* is longer than *house*, although houses are much less frequent in the world; see also Ariel 2004)
- Speech frequency (unlike world frequency) can be measured rather easily, by doing frequency counts of representative corpora
- Of course, speech frequency is often ultimately due to world frequency, as presumably in the case of introverted/extroverted verbs
- But speech frequency may be due to other factors, e.g. singular/plural asymmetry, present/past asymmetry (these asymmetries show the same structural effects!)
- For the grammarian, speech frequency is sufficient as an explanatory factor; explaining speech frequency is a separate task that is often worthwhile, but will not be pursued here

Do introverted verbs occur “typically” / “normally” reflexively?

Table 2: Different transitive verbs with coreferential and disjoint objects

(source: British National Corpus)

extroverted: <i>kill</i>	disjoint (‘kill someone’)	86 (79%)	(full NP object: 59)
	coreferential (‘kill oneself’)	5 (5%)	(pronoun object: 27)
	objectless (‘be a killer’)	18 (17%)	
introverted: <i>wash</i>	disjoint (‘wash someone’)	35 (70%)	(full NP object: 28)
	coreferential (‘wash onself’)	11 (22%)	(pronoun object: 7)
	objectless (‘be a washer’)	4 (8%)	

Too strong to say that introverted verbs are “normally reflexive” – at most we can say that they are “commonly reflexive”.

But what counts for explaining the coding of reflexive situations is the contrast between disjoint phoric pronouns and reflexive pronouns.¹ **When a verb has a phoric notional object, in introverted verbs this is more commonly reflexive than disjoint:**

¹ “phoric pronoun” is a cover term for discourse-referring pronouns (“personal pronouns”, “anaphoric demonstratives”) and intrasentential pronouns (“reflexive pronouns”, “anaphors”).

Table 3: Transitive verbs with coreferential and disjoint object pronouns

(sources: for German: Cosmas Corpus of Institut für deutsche Sprache;
for Czech: Czech National Corpus)

two *introverted* verbs:

			disjoint pronoun	reflexive pronoun
German	<i>waschen</i>	'wash'	66 (32%)	141 (68%)
Czech	<i>mýt, umýt, umývat</i>	'wash'	28 (22%)	98 (78%)
German	<i>verteidigen</i>	'defend'	43 (21%)	162 (79%)
Czech	<i>bránit</i>	'defend'	7 (4%)	194 (96%)

two *extroverted* verbs:

			disjoint pronoun	reflexive pronoun	reciprocal pronoun
German	<i>hören</i>	'hear'	196 (96%)	8 (4%)	0
Czech	<i>slyšet</i>	'hear'	201 (98%)	2 (1%)	2 1%
German	<i>hassen</i>	'hate'	160 (76%)	14 (7%)	37 18%
Czech	<i>nenávidět</i>	'hate'	104 (76%)	19 (14%)	13 10%

More fine-grained prediction:

Extroverted/introverted is not necessarily a bifurcation, but a **scale of increasing frequency of reflexive use**:

(9) Universal 15a

In all languages, verbs with higher frequency of reflexive use show shorter reflexive-marking forms than verbs with lower frequency of reflexive use.

"Introversion/extroversion" contrast also for adjectives (e.g. Zribi-Hertz 1995: lexically specified for [±disjoint reference]):

(10) French

- a. *Pierre₁ est fier de lui_{1/2}.*
'Pierre is proud of himself.'
b. *Pierre₁ est jaloux de lui-même₁.* (...*jaloux de lui_{2/*1}*)
'Pierre is jealous of himself.'

Table 4: Two adjectives with (animate) disjoint/coreferential pronoun complements

(source: British National Corpus)

	PERSONAL PRONOUN	REFLEXIVE PRONOUN
<i>proud of</i>	212 (84%)	39 (16%)
<i>jealous of</i>	41 (100%)	0 (0%)

3. Complexity of the reflexive marker

Universal 16:

In all languages, the primary reflexive-marking strategy is at least as complex phonologically as the primary phoric disjoint-reference-marking strategy.

e.g. Comrie 1999: 342, Levinson 2000:329

primary reflexive-marking strategy (Faltz 1985:4):

the strategy used with extroverted transitive verbs

primary phoric disjoint-reference-marking strategy:

the strategy corresponding to English *him* in *They hate him*.

(non-reflexive phoric pronoun)

Table 5: Reflexive markers and phoric disjoint-reference markers

	REFLEXIVE-MARKING	DISJOINT-REFERENCE-MARKING
English	<i>herself</i>	<i>her</i>
Greek	<i>ton eaftó tu</i>	<i>ton</i>
Hebrew	<i>et šacmo</i>	<i>oto</i>
Turkish	<i>kendini</i>	<i>onu</i>
Oriya	<i>nijaku</i>	<i>taaku</i>
Lezgian	<i>wič</i>	<i>am</i>
Japanese	<i>zibun o</i>	Ø
Mandarin Chinese	<i>zǐjǐ</i>	<i>tā</i>
German	<i>sich</i>	<i>ihn</i>
French	<i>se</i>	<i>le</i>
Swahili	<i>ji-</i>	<i>mu-</i>

generative explanation:

Reinhart & Reuland 1993:663:

“Condition B: A reflexive predicate is reflexive-marked”, i.e. “lexically” or by means of a “complex anaphor”.

But this cannot account for the Oriya, Lezgian, Japanese, German, and French cases.

functionalist explanation: frequency / predictability / efficiency

With extroverted transitive verbs, and indeed with the group of transitive verbs as a whole (in which extroverted verbs are the majority), **disjoint reference is overwhelmingly more frequent than coreference**, so shorter coding for disjoint reference is more efficient.

Table 6. Coreferential and disjoint use of phoric object pronouns in transitive clauses

(source: Ariel 2004, based on Santa Barbara Corpus of English)

disjoint	101	(98%)
coreferential	2	(2%)

cf. already Faltz 1985:241-2:

“in the case of a predication involving more than one argument, the unmarked situation is for the different arguments to have distinct referents”

—> here “unmarked” presumably means “more frequent”

But Levinson (2000:328-9) questions the frequency-based explanation:

“agents normally act upon entities other than themselves; the prototypical action—what is described by the prototypical transitive clause—is one agent acting upon some entity distinct from itself. If that is how the world stereotypically is, then an interpretation of an arbitrary transitive sentence as having referentially distinct arguments is given to us by the I-principle, which encourages and warrants an interpretation to the stereotype. Note that **this is not some kind of behaviorist presumption that the statistical preponderance of nonreflexive states of affairs, or even linguistic statements, is inductively learned and then reflected unwittingly in pragmatic presumption.**” [my emphasis]

—> my claim:

This is exactly what explains the universal: inductive learning of statistical skewings in linguistic statements, reflected in speakers’ tendency to use explicit coding for the rarer situation (which gets grammaticalized).

The functional motivation is **implemented through language change**; see König & Siemund 2000b, Keenan 2003, Ariel 2004, Levinson 2000:§4.4 for details on how complex reflexives arise diachronically.

4. Reflexive adnominal possessors

Universal 17:

If a language uses a special reflexive pronoun for adnominal possessors, then it also uses a special reflexive pronoun for the object, but not vice versa.

Only three out of four logically possible language types are attested:

		subject-coreferential pronouns in adnominal possessive position	
		normal	special reflexive
subject-coreferential pronouns in object position	special reflexive	English	Lezgian
	normal	Loniu	—

(12) English

- a. *She₁ killed herself₁.* (She₁ killed her₂.)
 b. *She₁ killed her_{1/2} lover.* (*She killed herself’s lover.)

(13) Lezgian

- a. *Alfija-di (wič-i) wič q'ena.*
 Alfija-ERG self-ERG self killed
 'Alfija killed herself.'
- b. *Alfija-di wič-in kic' q'ena.* (vs. *Alfija-di₁ ada-n₂ kic' q'ena.*)
 Alfija-ERG self-GEN dog killed
 'Alfija₁ killed her₁ dog.'

(14) Loni (Hamel 1994:49)

- Hetow ne?ehin hetow to tiñi tɔp a hetow.*
 3PCL girl 3PCL STAT weave basket POSS 3PCL
 'The girls₁ are weaving their_{1/2} baskets.'

Both the English type and the Lezgian type seem to be very widespread:

(15) Akan (Faltz 1985:170-81)

- a. *Mary hũũ nẽ hõ.*
 Mary see.PAST 3SG.POSS REFL
 'Mary saw herself.'
- b. *John praa nẽ 'fie.*
 John sweep.PAST 3SG.POSS house
 'John₁ swept his_{1/2} house.'

(16) Japanese

- a. *Ken wa zibun o seme-ta.*
 Ken TOP self ACC blame-PAST
 'Ken blamed himself.'
- b. *Jon₁ wa Marii₂ to zibun_{1/2} no ie de hanasi o si-ta.*
 John TOP Mary with self GEN house in talk ACC do-PAST
 'John had a talk with Mary in his/*her house.'

(17) Oriya (Ray 2000:588)

- a. *Raama₁ (taa) nija-ku₁ bahut Teke.* (Raama taa-ku₂ bahut Teke.)
 Rama his self-ACC much praises
 'Rama praises himself very much.'
- b. *Raama₁ nija₁ bahi paDhilaa.* ~Raama₁ taa_{1/2} bahi paDhilaa.
 Rama self.GEN book reads Rama he.GEN book reads
 'Rama reads his book.'

(18) Tsez (Polinsky & Comrie 1999: 329)

- a. *ʕal-a nes-a nesi-r ʕutku r-oy-si.*
 Ali-ERG self-ERG self-DAT house GIV-make-PSTWIT
 'Ali built a house for himself.'
- b. *ʕal-a nes-a nesi-z qizaniyo-r ʕutku r-oy-si.*
 Ali-ERG self-ERG self-GEN2 family-DAT house GIV-make-PSTWIT
 'Ali built a house for his family.'
- ~ *ʕal-a nesi-z qizaniyo-r ʕutku r-oy-si.*
 Ali-ERG he-GEN2 family-DAT house GIV-make-PSTWIT
 'Ali built a house for his family.'

generative explanation: ??

functionalist explanation:

Is coreference more “natural” /“(stereo)typical” /“normal” with possessive pronouns?

Robert₁ brought his₁ umbrella, so he₁ won't get wet.
Robert₁ has read his₂ book, so he₁ admires him₂.

What is the "presumption" here?

Table 7. Coreferential and disjoint phoric possessors

A. English *his*

(source: first 20 chapters of the English translation (CEV) of Genesis (the first book of the Bible))

subject-coreferential	43 (53%)	(Abraham went to his tent, Gen 18.6)
conjunct-coreferential	19 (23%)	(Noah and his sons, Gen 9.18)
disjoint	19 (23%)	(she was taken to his house, Gen 12.15)

B. German *ihr*- 'her; their'

(source: 19 of Grimm's fairy tales)

subject-coreferential	79 (68%)
conjunct-coreferential	1 (1%)
disjoint	36 (31%)

Thus:

Adnominal possessive phoric pronouns are much more likely to be coreferential with the subject than object pronouns. So unlike object pronouns, they do not need any special marking, and they behave just like ordinary personal pronouns in many languages.

Question:

But if possessive pronouns are largely coreferential, why do some languages have heavier reflexive possessive pronouns than disjoint possessive pronouns? (e.g. Japanese *zibun/kare*, Lezgian *wičin/adan*)

Answer:

These languages show **strategic streamlining** (i.e. possessive pronouns pattern after object pronouns), whereas English-type languages show **functional streamlining** (cf. Faltz 1985). “System pressure” beats economic motivation. Note that strategic streamlining can only create symmetries. It is still predicted that all asymmetries must be functionally motivated.

5. Reflexives in locative phrases

Universal 18:

If a language uses a special reflexive pronoun in locative phrases, it also uses a special reflexive pronouns for objects, but not vice versa.

(Faltz 1985:§3.3, Comrie 1999:338)

(19)		subject-coreferential pronouns in locative position	
		normal	special reflexive
subject-coreferential pronouns in object position	special reflexive	English	German
	normal	Loniu	—

(20) English *Maria₁ saw a snake near her₁.*

(21) German *Maria₁ sah eine Schlange neben sich₁/ihr₂.*

(22) Loniu (Hamel 1994:80)

Suʔu ɲetu suʔu ime peliŋeʔi suʔu.
 3DU child 3DU 3SG.come with 3DU
 'Their₁ two children₂ came to be with them_{1/2/3}.'

Universal 19:

If different reflexive pronouns are used for objects and in locative phrases, the locative-phrase reflexive is phonologically less complex.

(23) Dutch (Reinhart & Reuland 1993:665-6)

- Max legt het boek achter zich.*
 'Max puts the book behind him.'
- Max haat zichzelf.*
 'Max hates himself.'

generative explanation: (Reinhart & Reuland 1993)

Condition B: "A reflexive predicate is reflexive-marked"; locative phrases form their own predicates, hence they do not have to combine with complex ("SELF") anaphors.

But different locative prepositions / different predicates behave differently, suggesting that this is not a matter of pure configurational syntax (predicate vs. no predicate) (Faltz 1985:107):

- (24) a. *Krag the robot placed a sandwich in front of him/?*himself.*
 b. *Krag the robot unscrewed a panel in his abdomen and placed a sandwich inside himself/?him.*

- (25) *He looked about him/*himself.* (Smith 2004: 598)
 (26) *She has a lot of money on her/*herself.*
 (27) *The box has a spider in it/*itself.*
 (28) *Pedro put his past behind him/*himself.*

And what about benefactive phrases? Do they belong to the verbal predicates?

- (29) *Leyla₁ bought a cake for herself₁/her₂.*

functionalist explanation:

Subject-coreference is significantly more common in locative phrases than with objects. Hence, languages do not need special reflexive pronouns as much as for objects, and reflexive pronouns can be shorter.

Table 8. Coreferential and disjoint use of phoric pronouns in locative phrases

A. German locative prepositions

(source: Goethe Corpus of Institut für deutsche Sprache Mannheim)

<i>bei sich</i>	coreferential	93	(31%)
<i>bei ihm/ihr/ihnen</i>	disjoint	209	(69%)
<i>vor sich</i>	coreferential	188	(55%)
<i>vor ihm/ihr/ihnen</i>	disjoint	153	(45%)
<i>hinter sich</i>	coreferential	39	(48%)
<i>hinter ihm/ihr/ihnen</i>	disjoint	42	(52%)
<i>unter sich</i>	coreferential	30	(42%)
<i>unter ihm/ihr/ihnen</i>	disjoint	42	(58%)
<i>über sich</i>	coreferential	66	(47%)
<i>über ihm/ihr/ihnen</i>	disjoint	75	(53%)

B. English locative prepositions

(source: British National Corpus, simple search):

<i>near him</i>	coreferential	10	(20%)
	disjoint	40	(80%)
<i>behind him</i>	coreferential	12	(24%)
	disjoint	38	(76%)
<i>in front of him</i>	coreferential	17	(34%)
	disjoint	33	(66%)
<i>above him</i>	coreferential	7	(14%)
	disjoint	43	(86%)
<i>below him</i>	coreferential	8	(16%)
	disjoint	42	(84%)

6. Long-distance reflexives

Universals 20-21:

6. If a language uses a special reflexive pronoun in long-distance contexts, it also uses a special reflexive pronouns in local contexts, but not vice versa.
 7. If a language has different reflexive pronouns in local contexts and long-distance contexts, the local reflexive pronoun is at least as complex phonologically as the long-distance reflexive.

Faltz 1985:153: “compound reflexives tend to obey the [clause mate condition]”
 Pica 1987: long-distance reflexives are monomorphemic

Table 9: Local reflexives and long-distance reflexives

	LOCAL REFLEXIVE	LONG-DISTANCE REFLEXIVE	
Mandarin Chinese	(<i>tā</i>) <i>zìjǐ</i>	<i>zìjǐ</i>	
Icelandic	<i>sjálfan sig</i>	<i>sig</i>	
Dutch	<i>zichzelf</i>	<i>zich</i>	
Telugu	<i>tanu tanu</i>	<i>tanu</i>	
Bagvalal	<i>e-b-da</i>	<i>e-b</i>	(Ljutikova 2001)
Malay	<i>diri-nya</i>	<i>diri-nya</i>	
English	<i>him-self</i>	<i>him-self</i>	

generative explanation (for universal 20):

Long-distance-reflexives become local by head movement, and heads are monomorphemic while phrases are not (e.g. Pica 1987, Cole et al. 1990, Cole et al. 2005+).

Conceptual problem: multi-morphemic entities are not necessarily phrasal -- there is very little evidence that Dutch *zichzelf*.

Empirical problem: Malay and English have multi-morphemic long-distance reflexives (however, Cole et al. 2005+ claim that they are not "bound anaphors").

Kiparsky 2004:§2.1: "What we have here is not a true universal, but a typological generalization with a historical explanation"

functionalist explanation:

Phoric pronouns in subordinate clauses are much more likely to be (subject-) coreferential than phoric pronouns in object position. Hence they do not need as much coding as object pronouns.

Comrie 1999:341:

“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.”

But what is the connection between “domain” and coreference?

some frequency figures:

Table 10. Coreferential and disjoint use of phoric pronouns in finite complement clauses

A. German *dass*-clauses, all phoric pronouns

(source: German translations of Acts (Bible))

disjoint in the sentence	57 (47%)
coreferential with superordinate subject	46 (38%)
coreferential with superordinate nonsubject	14 (11%)
antecedent within subordinate clause	5 (4%)

B. Czech *že*-clauses, all phoric pronouns

(source: Czech National Corpus, sub-corpus of spoken language)

disjoint in the sentence	135 (55%)
coreferential with superordinate subject	76 (31%)
coreferential with superordinate nonsubject	15 (6%)
antecedent within subordinate clause	21 (9%)

Thus, phorics in complement clauses are very similar to phorics in adnominal possessive function and in locative phrases. Like these, they are often not obligatory (i.e. can be replaced by non-reflexive pronouns without significant meaning change).

7. What has been explained and what can be explained

– The universals corresponding to the first three contrasts in §1 have been explained (plus a few more):

Russian	* <i>Vanja nenavidit-sja.</i>
English	* <i>Bob₁ saw him₁.</i>
English	* <i>Bob admires himself's boss.</i>

– Can we also explain why Russian is not like German, or why English is not like Lezgian, for example?

The answer is no (until we find further, hitherto unknown universals and explanations for them).

– This is the same for both functionalist and generative approaches; but in the generative approach, linguists simultaneously offer synchronic descriptions of particular languages, which may create the impression that language-particular facts are also explained.)

– The language-particular facts have been explained to the extent that they instantiate the universals, i.e. weakly (cf. Vennemann 1983), in the sense that

knowing that a language-particular contrast falls under an explainable universal gives us some "relief from puzzlement".

- These facts are of course still unexplained in the sense that it is an historical accident that Russian is not like German, that English is not like Lezgian, etc.
- The fourth contrast (in (7)-(8) has not been explained, and no attempt at explanation has been made, because there is no known universal that it instantiates. We simply don't know the cross-linguistic facts here, so we cannot achieve explanation. Explanations presuppose universals.

8. What about Chomsky's Binding Theory?

Chomsky (1981)'s binding conditions have generally been taken as part of the innate Universal Grammar:

Condition A. An anaphor must be bound in its local domain.

Leyla₁ liked herself₁.
**Leyla₁ thought that Yusuf liked herself₁.*

Condition B. A pronominal must not be bound in its local domain.

Leyla₁ thought that Yusuf liked her₁.
**Leyla₁ liked her₁.*

Condition C. A nonpronoun must not be bound.

**Leyla₁ thought that Yusuf liked Leyla₁.*

So a version of the Binding Theory should be universal. But are there any testable universal claims that it makes?

Problem: The concepts 'anaphor', 'pronominal', and 'nonpronoun' (= 'r-expression') are not independently defined. It seems that 'anaphor' is defined as 'whatever is subject to Condition A'.

?Universal: "All languages have an element that is subject to Condition A."

NO: Clearly, not all languages have anaphors – see Loniu above, which has no element that falls under Condition A.

Thus, Condition A seems to claim only that some languages have an element that must be bound in its local domain (and we call such elements "anaphors"). This is an existential claim, but not a universal claim that can be tested and falsified. It seems that the Binding Theory is not relevant to explaining syntactic universals.

9. Fischer's (2004) OT approach

Reflexivity constraints penalize the binding of non-maximally anaphoric elements in domains of different size;

universal fixed ranking (smaller domains ranked higher):

$\text{Refl}_{\text{ThetaD}} \gg \text{Refl}_{\text{CaseD}} \gg \text{Refl}_{\text{SubjectD}} \gg \text{Refl}_{\text{FiniteD}} \gg \text{Refl}_{\text{IndicativeD}} \gg \text{Refl}_{\text{RootD}}$

Anaphoricity constraints penalize the occurrence of elements;

universal fixed ranking (less anaphoric elements are generally preferred):

*SELF \gg *SE \gg *PRONOMINAL \gg **R-EXPRESSION

progress:

the domain ranking of the reflexivity constraints corresponds to Comrie's "extended domains" (and broadly to increasing likelihood of coreference)

problem:

the universal fixed rankings remain arbitrary

References

- Ariel, Mira. 2004. "The rise (and potential fall) of reflexive pronouns." Ms., Tel Aviv University.
- Chomsky, Noam A. 1981. *Lectures on government and binding*. Dordrecht: Foris.
- Cole, Peter, Gabriella Hermon, and Li-May Sung. 1990. "Principles and parameters of long-distance reflexives." *Linguistic Inquiry* 21, 1-22.
- Cole, Peter & Hermon, Gabriella. 2005. "The typology of Malay reflexives." *Lingua* 115.5: 627-644.
- Cole, Peter, Gabriella Hermon, and C.T. James Huang. 2005+. "Long distance anaphors: an Asian perspective." To appear in *Syntax Companion (SynCom)*, edited by Henk van Riemsdijk and Martin Everaert.
- Comrie, Bernard. 1999. "Reference-tracking: description and explanation" *Sprachtypologie und Universalienforschung* 52: 335-46.
- Everaert, Martin. 1986. *The Syntax of Reflexivization*. Dordrecht: Foris Publications.
- Faltz, Leonard M. 1985[1977]. *Reflexivization: a study in universal syntax*. New York: Garland. (Published version of 1977 UCLA dissertation.)
- Fischer, Silke. 2004. "Optimal binding." *Natural Language and Linguistic Theory* 22:481-526.
- Haiman, John. 1983. "Iconic and economic motivation." *Language* 59: 781-819.
- Hamel, Patricia. 1994. *A grammar and lexicon of Loni, Papua New Guinea*. (Pacific Linguistics) Canberra: Australian National University.
- Keenan, Edward. 2003. "An historical explanation of some binding theoretic facts in English." In: Moore, John & Maria Polinsky (eds.) *The nature of explanation in linguistic theory*. Stanford: CSLI Publications, 153-189.

- Kiparsky, Paul. 2004. "Universals constrain change, change results in typological generalizations." Ms., Stanford University.
- König, Ekkehard & Siemund, Peter. 2000a. "Intensifiers and reflexives: a typological perspective." In: Frajzyngier, Zygmunt & Curl, Traci S. (eds.) *Reflexives: forms and functions* (Typological studies in language, 40) Amsterdam: Benjamins, 41-74.
- König, Ekkehard & Siemund, Peter. 2000b. "The development of complex reflexives and intensifiers in English." *Diachronica* 17.1: 39-84.
- König, Ekkehard & Letizia Vezzosi. 2004. "The role of predicate meaning in the development of reflexivity." In: Wiemer, Björn & Bisang, Walter & Himmelmann, Nikolaus. (eds.) *What makes Grammaticalization? A Look from its Fringes and its Components*. Berlin: Mouton de Gruyter.
- Levinson, Stephen C. 2000. *Presumptive meanings: the theory of generalized conversational implicature*. Cambridge/MA: MIT Press.
- Ljutikova, Ekaterina A. 2001. "Anaforičeskie sredstva." In: Kibrik, A.E. (ed.) *Bagvalinskij jazyk*. Moskva: Nasledie, 615-681.
- Miller, Amy W. 2001. *A Grammar of Jamul Tiipay*. Berlin: Mouton de Gruyter.
- Newman, Paul. 2000. *The Hausa language: an encyclopedic reference grammar*. New Haven: Yale University Press.
- Pica, Pierre. 1987. "On the nature of the reflexivization cycle." *North-Eastern Linguistics Society* 17:483-499. (University of Massachusetts, Amherst, GLSA)
- Polinsky, Maria & Comrie, Bernard. 1999. "Reflexivity in Tsez." In: Raxilina, E.V. & Testelec, Ja. G. (eds.) *Tipologija i teorija jazyka: ot opisaniya k ob"jasneniju*. Moskva: Jazyki russkoj kul'tury, 319-339.
- Reinhart, Tanya & Eric Reuland. 1993. "Reflexivity." *Linguistic Inquiry* 24:657-720.
- Smith, Mark. 2004. "Light and heavy reflexives." *Linguistics* 42.3: 573-615.
- Vennemann, Theo. 1983. "Causality in language change: Theories of linguistic preferences as a basis for linguistic explanations." *Folia Linguistica Historica* 4: 5-26.
- Zipf, George K. 1935. *The psycho-biology of language: an introduction to dynamic philology*. Houghton Mifflin (Republished 1965 by MIT Press.)
- Zribi-Hertz, Anne. 1995. "Emphatic or reflexive? On the endophoric character of French *lui-même* and similar complex pronouns." *Journal of Linguistics* 31: 333-74.

5. Universals of causative verb formation

1. Some universals from the literature

Universal 22: [implicational] UA #286
 If a language has causative verbs derived from transitive bases, then it also has causatives derived from intransitive bases.

Nedjalkov & Sil'nickij (1969:26):

"если в языке существуют каузативные аффиксы, служащие для образования V^j от V^{tr} то в нем существуют и каузативные аффиксы, служащие для образования V^j от V^{in} ...Обратное утверждение не будет верным."

Figure 1.

causatives of intransitives:

		exist	do not exist
causatives of transitives	do not exist	Arabic, Blackfoot, Coos, Estonian, Gothic, Indonesian , Klamath, Takelma,...	Chinese, Haruai, ...
	exist	Abkhaz, Aymara, Evenki, Finnish, Georgian, Hungarian, Japanese, Mongolian, Nanay, Nivkh, Quechua, Sanskrit, Turkish, Tuvan , Yukaghir, Zulu, ...	—

Tuvan (from Sumbatova 1993:254, citing L. Kulikov, p.c.)

(1) a. *ool doŋ-gan*

boy freeze-PST

'The boy froze.'

b. *ašak ool-du doŋ-ur-gan*

old.man boy-ACC freeze-CAUS-PST

'The old man made the boy freeze.'

(2) a. *ašak ool-du ette-en*

old.man boy-ACC hit-PST

'The old man hit the boy.'

b. *Bajyr ašak-ka ool-du ette-t-ken*

Bajyr old.man-DAT boy-ACC hit-CAUS-PST

'Bajyr made the old man hit the boy.'

(3) a. *Bajyr Saryg-ool-ga bižek-ti ber-gen*

Bajyr Saryg-ool-DAT knife-ACC give-PST

'Bajyr gave Saryg-ool a knife.'

b. *ašak Bajyr-dan Saryg-ool-ga bižek-ti ber-gis-gen*

old.man Bajyr-ABL Saryg-ool-DAT knife-ACC give-CAUS-PST

'The old man made Bajyr give a knife to Saryg-ool.'

Indonesian (Cole & Son 2004, ex. 1, 2, 5)

- (4) a. *Cangkir-nya pecah.*
 cup-DEF break
 'The cup broke.'
 b. *Tono me-mecah-kan cangkirnya.*
 Tono ACT-break-CAUS cup-3
 'Tono broke the cup.'
- (5) a. *Adik saya sudah mandi.*
 brother 1SG already bathe
 'My brother has bathed.'
 b. *Dia me-mandi-kan adik saya.*
 he ACT-bathe-CAUS brother I
 'He bathed [= caused to bathe] my brother.'
- (6) a. *Dia meng-goreng ayam untuk saya.*
 he ACT-fry chicken for I
 'He fried chicken for me.'
 b. *Dia meng-goreng-kan saya ayam.*
 he ACT-fry-CAUS I chicken
 '*He made me fry the chicken.' (OK: 'He fried me chicken.')

Universal 23: [implicational]
 If a language has causative verbs derived from ditransitive bases, then it also has causatives derived from intransitive bases.

Comrie (1975:11) "a language forms causatives from verbs with valency $n + 1$ only if it forms causatives from verbs with valency n " (and cf. Dixon 2000:56-9)

Figure 2.

		<i>causatives of transitives:</i>	
		exist	do not exist
causatives of ditran- sitives	do not	Abkhaz, Basque, Dulong/Rawang, Songhai,...	Chinese, Haruai, ...
	exist		
	exist	Tuvan, ...	—

Songhay (Shopen & Konaré 1970, cited after Comrie 1975:9-11)

- (7) a. *Feneter di ba.*
 window the break
 'The window broke.'
 b. *Ali ba-ndi feneter di.*
 Ali break-CAUS window the
 'Ali broke the window.'
- (8) a. *Musa nga tasu di.*
 Mousa eat rice the
 'Mousa ate the rice.'
 b. *Ali nga-ndi tasu di Musa se.*
 Ali eat-CAUS rice the Mousa DAT
 'Ali made Mousa eat the rice.'

- (9) a. *Ali neere bari di Musa se.*
 Ali sell horse the Mousa DAT
 'Ali sold the horse to Mousa.'
 b. **Garba neere-ndi bari di Musase Ali se.*
 Garba sell-CAUS horse the Mousa DAT Ali DAT
 'Garba made Ali sell the horse to Mousa.'

Universal 24: [unrestricted]
 If the causal and the plain verbs have the same shape (=if a language has causal ambitransitives), the plain is always patientive/unaccusative, never agentive/unergative.

(hinted at in Hale & Keyser 1993:99; see also Kazenin 1994)

	PLAIN VERB	CAUSAL VERB ≠	(Hale 2000:159)
(10)	<i>The water boiled.</i> <i>The shirt dried.</i> <i>The ice melted.</i> <i>The glass cracked.</i>	<i>We boiled the water.</i> <i>The sun dried the shirt.</i> <i>The heat melted the ice.</i> <i>The high note cracked the glass.</i>	
(11)	<i>The child laughed.</i> <i>The baby cried.</i> <i>Loretta sang.</i>	<i>*The clown laughed the child.</i> <i>*The noise cried the baby.</i> <i>*We sang Loretta.</i>	

No cross-linguistic evidence, but no (well-)known counterevidence.

Note definitions:

PLAIN VERB = verb denoting non-caused event in a plain/causal verb pair

CAUSAL VERB = verb denoting caused event in a plain/causal verb pair

CAUSAL ≠ CAUSATIVE! (causative: 'derived causal')

Universal 25: [implicational]
 If a language has synthetic causal verbs corresponding to agentive/unergative plain verbs, it also has synthetic causal verbs corresponding to patientive/unaccusative non-causatives.

'O'dham (Hale 2000:157-8)

(12)	a. <i>hu/uñ</i>	'descend'	<i>hu/uñ-id</i>	'lower'
	b. <i>cesaj</i>	'rise'	<i>cesaj-id</i>	'raise'
	c. <i>ha:g</i>	'melt (intr.)'	<i>ha:g-id</i>	'melt (tr.)'
	d. <i>heum</i>	'get cold'	<i>heum-cud</i>	'make cold'
(13)	a. <i>ñe'ë</i>	'sing'	<i>ñe'i-cud</i>	'*make sb. sing' ('sing for sb.)'
	b. <i>cikpan</i>	'work'	<i>cikpañ-id</i>	'*make sb. work' ('work for sb.)'
	c. <i>gikuj</i>	'whistle'	<i>gikuj-id</i>	'*make sb. whistle' ('whistle for sb.)'

Hale does not actually make such a claim. He seems to claim the following (2000:160):

If a language has a class of root-related causal-plain verb pairs, then this class will contain *break*-type verbs (= unaccusatives), but not *laugh*-type verbs (=unergatives).

But this is not a valid universal, because there are languages like Indonesian (see 4-5) where the agentive / patientive (= unergative / unaccusative) distinction is irrelevant, and agentive verbs can also be the base of derived causatives.

So all we can claim is that there is a universal preference for the 'O'odham type, i.e. for causatives to be derived from unaccusatives. But languages can also extend their causative pattern further to unergatives (as in Indonesian) and transitives (as in Japanese).

Figure 3.

		<i>causatives of patientives/unaccusatives:</i>	
		exist	do not exist
causatives of agentives /unergatives	do not exist	'O'odham, Navajo, Slave, ...	Chinese, Haruai, ...
	exist	Indonesian, Japanese, ...	—

Universal 26: [unrestricted]
True causal / plain verb pairs are possible only if the causative verb meaning does not contain agent-oriented manner specifications.

(Haspelmath 1993:94)

- (14) Turkish (Comrie 1975:6)

Dişçi mektub-u müdür-e imzala-t-tı.
dentist letter-ACC director-DAT sign-CAUS-PST

'The dentist made the director sign the letter.'

(= 'The dentist did something that caused the director to sign the letter.')

- (15) *I opened the door.* (= 'I did something that caused the door to become open.')

The door opened.

- (16) *The pig splashed mud on the wall.* (Hale & Keyser 1993:89)

Mud splashed on the wall.

- (17) *Leyla broke the pot.* (= 'Leyla did something that caused the pot to break.')

The pot broke.

- (18) *The tailor cut the cloth.* (Haspelmath 1993:93)

**The cloth cut.*

- (19) *Roy wrote a new novel.* (Levin & Rappaport Hovav 1995:102)

**A new novel wrote.*

- (20) *We smeared mud on the wall.* (Hale & Keyser 1993:89)

**Mud smeared on the wall.*

Hale & Keyser (1993:90):

"The manner component modifiers of the verbs of [15-17] are primarily "internal" in their orientation... Thus, "splashing" describes the configuration and motion of the liquid or liquid-like matter corresponding to the internal subject [=patient] of the verb *splash*... By contrast, transitive verbs of the type represented by [18-20] invoke a manner component that relates, not internally to the lexical argument structure, but to the external argument, or "agent"." (cf. also Hale & Keyser 2002:35-6)

Haspelmath (1993:94):

"A verb meaning that refers to a change of state ... may appear in an inchoative / causative alternation unless the verb contains agent-oriented meaning components or other highly specific meaning components that make the spontaneous occurrence of the event extremely unlikely."

Universal 27:

In the class of verbs that show a plain/causal alternation, 'freeze'-type ("**automatic**") verb meanings tend to be expressed as simple/causative verb pairs, whereas 'break'-type ("**costly**") verb meanings tend to be expressed as anticausative/simple verb pairs.

(Haspelmath 1993:104, cf. also Croft 1990)

examples:

(21)	a. Indonesian	b. Japanese	c. Swahili	d. Arabic
'freeze' (intr.)	<i>mem-beku</i>	<i>kooru</i>	<i>ganda</i>	<i>ta-jammada</i>
(tr.)	<i>mem-beku-kan</i>	<i>koor-aseru</i>	<i>gand-isha</i>	<i>jammada</i>
'break' (intr.)	<i>patah</i>	<i>war-eru</i>	<i>vunj-ika</i>	<i>in-kasara</i>
(tr.)	<i>me-matah-kan</i>	<i>waru</i>	<i>vunja</i>	<i>kasara</i>

Figure 4.

		<i>automatic verb meanings ('freeze')</i>	
		simple/causative	anticausative/simple
<i>costly verb meanings ('break')</i>	anticausative/simple	Finnish, Hebrew, Japanese, Swahili, Turkish, ...	Arabic, ...
	simple/causative	Indonesian, ...	—

"**Automatic**" verb meanings show a much greater likelihood of causative encoding, whereas "**costly**" verb meanings show a much greater likelihood of anticausative encoding:

Haspelmath 1993: 30 verb meanings in 21 languages; verb meanings ranked by ratio of anticausative to causative encoding (non-directed pairs omitted):

Table 1: 30 verb meanings, from "most automatic" to "most costly"
(Haspelmath 1993:104)

		verbs	Anticausatives	Causatives	A/C ratio
18.	'boil'	21	0.5	11.5	0.04
25.	'freeze'	21	2	12	0.17
29.	'dry'	20	3	10	0.30
1.	'wake up'	21	3	9	0.33
20.	'go out/put out'	21	3	7.5	0.41
11.	'sink'	21	4	9.5	0.42
8.	'learn/teach'	21	3.5	7.5	0.47
13.	'melt'	21	5	10.5	0.48
31.	'stop'	21	5.5	9	0.61
23.	'turn'	21	8	7.5	1.07
26.	'dissolve'	21	10.5	7.5	1.40
3.	'burn'	21	7	5	1.40
14.	'destroy'	20	8.5	5.5	1.55
27.	'fill'	21	8	5	1.60
22.	'finish'	21	7.5	4.5	1.67
7.	'begin'	19	5	3	1.67
10.	'spread'	21	11	6	1.83
24.	'roll'	21	8.5	4.5	1.89
16.	'develop'	21	10	5	2.00
15.	'get lost/lose'	21	11.5	4.5	2.56
21.	'rise/raise'	21	12	4.5	2.67
28.	'improve'	21	8.5	3	2.67
19.	'rock'	21	12	4	3.00
17.	'connect'	21	15	2.5	6.00
12.	'change'	21	11	1.5	7.33
9.	'gather'	21	15	2	7.50
5.	'open'	21	13	1.5	8.67
2.	'break'	21	12.5	1	12.50
6.	'close'	21	15.5	1	15.50
30.	'split'	20	11.5	0.5	23.00
total		636	243	164.5	

Statistical ranking, not strict ranking – no strict implications. (But statistical implications are valuable, too!) To simplify the presentation, below I will only look at 'freeze' and 'break'.

Universal 28:

28a. If a language that has causatives of transitives has several causatives of different length, then the longer affixes tend to be used with transitive bases, and the shorter affixes tend to be used with intransitive bases.

(Nedjalkov & Sil'nickij 1969:27)

28b. If a language that has causatives of unergatives has several causatives of different length, then the longer affixes tend to be used with unergative bases, and the shorter affixes tend to be used with unaccusative bases.

Georgian: causatives of intransitives: *a-X-eb-* *a-duγ-eb-s* 'boils (tr.)'
 causatives of transitives: *a-X-ineb-* *a-c'er-ineb-s* 'makes write'

Hale & Keyser (1987:25)

"In Athapaskan languages, for example, the [plain/causal] alternation is marked in the simplest manner, by choice of the so-called 'classifier'..., while the transitivity of unergative verbs like 'walk' and 'run' involves not only this classifier element but special causative prefix morphology as well."

2. The Spontaneity Scale and its predictions: "deductive universals"

Events can be arranged on a scale in the order of **decreasing likelihood of spontaneous occurrence** (as conceptualized by the speaker):

(22) The Spontaneity Scale

ditransitive > monotransitive > unergative > internal unaccusative > automatic > costly > agentful

di-transitive	mono-transitive	unergative	automatic	costly	agentful
'give'	'cut'	'play'	'freeze'	'break'	'be cut'
transitive		intransitive			
agentive			patientive		
		unergative	unaccusative		
no agent-oriented manner specification in causal member					agent-oriented

Figure 5: *The seven positions on the Spontaneity Scale and how they are related to the concepts used in §1*

Higher frequency of occurrence generally results in: (cf. in possessive constructions:)

- (i) greater chance of synthetic expression (id-i vs. il-ktieb tieghi)
- (ii) greater chance of shorter expression (moglie-ma vs. mia terra)
- (iii) greater chance of zero expression (id Sandro vs. il-ktieb ta' Sandro)

(i) The events higher on the scale show a lower proportion of caused occurrences, **so they are less likely to be expressed synthetically**:

Universal 29: [implicational]
 If a language has any synthetic causal verb, it also has a synthetic causal corresponding to all plain verbs that are lower on the Spontaneity Scale.

N = non-derived

C = synthetic causative (vs. basic plain)

... = only periphrastic causative

A = anticausative (A) = expressed by anticausative if at all

examples of languages with different cut-off points:

Table 2

	mono-transitive ('cut')	unergative ('laugh')	automatic ('freeze')	costly ('break')	agentful ('be cut')
lg-1
lg-2	(A)
Romanian	N	(A)
English	N	N	(A)
Arabic	A	A	(A)
Indonesian	...	C	C	C	(A)
Japanese	C	C	C	A	(A)

(ii) The events higher on the scale show a lower proportion of caused occurrences, **so derived causals tend to be expressed in a longer way:**

Universal 30: [implicational]
The higher the base of a derived causal is on the Spontaneity Scale, the longer is the causative marker.

examples of languages with different cut-off points: **Table 3**

	mono-transitive ('cut')	unergative ('laugh')	automatic ('freeze')	costly ('break')
?	(C-lng)	(C-lng)	C-lng	C-sh
Navajo	(C-lng?)	C-lng	C-sh	C-sh
Musqueam	C-lng	C-lng	C-sh	C-sh
Georgian	C-lng	C-sh	C-sh	C-sh

(23) Musqueam Halkomelem (Suttles 2004:234-7), *-t* vs. *-stəx^w*

unaccusative	<i>c'él?</i>	'land atop'	<i>c'él?-t</i>	'put it on top'
	<i>q^wə́s</i>	'go into the water'	<i>q^wsə́-t</i>	'put it into the water'
	<i>kwéyax-əm</i>	'move'	<i>kwéyax-t</i>	'move it'
unergative	<i>ʔíməx</i>	'walk'	<i>ʔíməx-stəx^w</i>	'make him walk'
	<i>ʔə́ltən</i>	'eat (intr.)'	<i>ʔə́ltən-stəx^w</i>	'feed him'
transitive	<i>k'^wéc</i>	'see'	<i>k'^wéc-stəx^w</i>	'show it to him'
	<i>t'^θx^wéls</i>	'wash'	<i>t'^θx^wéls- stəx^w</i>	'have him wash it'

(iii) The events higher on the scale show a lower proportion of caused occurrences, **so derived causals are more likely to occur:**

Universal 31: [implicational]
If a language has any derived causals (=causatives), it also has derived causals for any base higher on the Spontaneity Scale.

examples of languages with different cut-off points: **Table 4**

	mono-transitive ('cut')	unergative ('laugh')	automatic ('freeze')	costly ('break')	agentful ('be cut')
lg-3	A	A	A	A	(A)
lg-4	N	N	N	N	(A)
lg-5	deriv-C	A	A	A	(A)
lg-6	deriv-...	N	N	N	(A)
Arabic	deriv-...	deriv-...	A	A	(A)
English	deriv-...	deriv-...	N	N	(A)
Japanese	deriv-C	deriv-C	deriv-C	A	(A)
Indonesian	deriv-...	deriv-C	deriv-C	deriv-C	(A)
lg-7	deriv-...	deriv-C	deriv-C	deriv-C	deriv-C

(iv) Conversely, the events lower on the scale show a higher proportion of caused occurrences, **so derived plains are more likely to occur:**

Universal 32: [implicational]
If a language has any derived plains (=anticausatives), it also has derived plains for any base lower on the Spontaneity Scale.

examples of languages with different cut-off points: **Table 5**

	mono-transitive (‘cut’)	unergative (‘laugh’)	automatic (‘freeze’)	costly (‘break’)	agentful (‘be cut’)
lg-3	deriv-A	deriv-A	deriv-A	deriv-A	(deriv-A)
lg-5	C	deriv-A	deriv-A	deriv-A	(deriv-A)
Arabic	...	...	deriv-A	deriv-A	(deriv-A)
Japanese	C	C	C	deriv-A	(deriv-A)
English	...	...	N	N	(deriv-A)
Indonesian	...	C	C	C	(deriv-A)
lg-7	...	C	C	C	C

(v) In addition, there are a number of **unrestricted (i.e. non-implicational) universals whose general direction is predicted, though their precise cutoff point do not follow directly from the general effects of frequency:**

Universal 33: [cut-off point for universal 29]
All languages have synthetic causals for costly plains and other plains lower on the Spontaneity Scale.

(Because beyond this point, the proportion of caused occurrences is so high that periphrastic causatives are too unlikely.)

This excludes the logically possible types "lg-1" and "lg-2": **Table 6**

	mono-transitive (‘cut’)	unergative (‘laugh’)	automatic (‘freeze’)	costly (‘break’)	agentful (‘be cut’)
lg-1
lg-2	(A)
Romanian	N	(A)
English	N	N	(A)
Arabic	A	A	(A)
Indonesian	...	C	C	C	(A)

These would be languages that have only periphrastic expressions for 'break' or even 'cut', e.g. 'break' is expressed as 'make break', or 'cut' as 'make undergo-a-cutting-process'.

Universal 34: [cut-off point for universal 31]
 No language has non-derived causals for unergatives or other plains higher on the Spontaneity Scale.

(Because beyond this point, the proportion of caused occurrences is so low that non-derived causals are too unlikely.)

This excludes the logically possible types "lg-3"- "lg-6":

Table 7

	mono-transitive ('cut')	unergative ('laugh')	automatic ('freeze')	costly ('break')	agentful ('be cut')
lg-3	A	A	A	A	(A)
lg-4	N	N	N	N	(A)
lg-5	deriv-...	A	A	A	(A)
lg-6	deriv-...	N	N	N	(A)
Arabic	deriv-...	deriv-...	A	A	(A)
English	deriv-...	deriv-...	N	N	(A)
Turkish	deriv-C	deriv-C	deriv-C	A	(A)
Indonesian	deriv-...	deriv-C	deriv-C	deriv-C	(A)

These would be languages that either have only ambitransitive verbs for 'laugh/make laugh' or even 'cut/make cut' (e.g. 'I made her laugh' would be expressed by 'I laughed her'; 'I made her cut the bread' would be expressed by 'I cut her the bread').

Or they have anticausatives for the plain verb: 'laugh' would be expressed as 'undergo laughing (tr.)', and 'cut bread' would be expressed as 'make onself cut bread'.

Universal 35: [cut-off point for universal 32]
 No language has non-derived (or other) plain verbs for agentful processes or other plains lower on the Spontaneity Scale.

(Because beyond this point, the proportion of caused occurrences is so high that non-derived plains are too unlikely.)

This excludes the logically possible type "lg-7":

Table 8

	mono-transitive ('cut')	unergative ('laugh')	automatic ('freeze')	costly ('break')	agentful ('be cut')
Arabic	deriv-...	deriv-...	A	A	(A)
English	deriv-...	deriv-...	N	N	(A)
Turkish	deriv-C	deriv-C	deriv-C	A	(A)
Indonesian	deriv-...	deriv-C	deriv-C	deriv-C	(A)
lg-7	deriv-...	deriv-C	deriv-C	deriv-C	deriv-C

This would be a language where 'cut' is expressed as 'make be-cut'.

3. Universals 22-28: Spontaneity vs. alternative explanations

Universal 22:

If a language has causative verbs derived from transitive bases, then it also has causatives derived from intransitive bases.

Universal 23:

If a language has causative verbs derived from ditransitive bases, then it also has causatives derived from intransitive bases.

- These universals follow directly from the deductive universals 29 and 34.

That the favored status of causatives from intransitive bases has to do with frequency of use is hinted at in Nedjalkov & Sil'nickij (1969:26):

"В этой же связи следует отметить гораздо бо́льшую частотность ситуаций, отображаемых V^j от V^{in} (типа 'сжечь'), чем ситуаций, отображаемых V^j от V^{tr} (типа 'велеть сжечь')."

"Note in this connection the much higher frequency of situations representing causatives from intransitives (like 'burn (something)') than situations representing causatives from transitives (like 'make (someone) burn (something)')

An **alternative explanation** (the only one I know) is found in Comrie (1975:11):

- Assume the Syntactic Functions Scale ("Case Hierarchy") of Keenan & Comrie 1977 as part of universal grammar:

Subject – DO – IO – Obl – Gen – OComp)

- Assume that the Causee is underlyingly a Subject, but must be demoted in causatives; it takes the highest available position on the Scale.
- Assume that the demotion can be limited by languages, so that it is allowed "only down to a certain level on the Scale, but no further".
 Songhay, Basque: allow demotion to IO, but no further
 Indonesian etc.: allows demotion to DO, but no further

All these assumptions (presumably all part of universal grammar) can be dispensed with on the frequency-based explanation.

(Sometimes language-particular accounts of the restricted productivity of causatives are given; e.g. Alalou & Farrell 1993 for Middle Atlas Berber, Cole & Son 2004 for Indonesian. Such accounts could be correct, but the universal preference and its explanation reduce the motivation for them.)

Universal 24:

[unrestricted]

If the causal and the plain verbs have the same shape (=if a language has causal ambitransitives), the plain is always patientive/unaccusative, never agentive/unergative.

- This universal follows directly from the deductive universal 34.

I know of **no alternative explanations**.

exceptions: (Levin & Rappaport Hovav 1995:111)

- (24) a. *The soldiers marched to their tents.*
 b. *The general marched the soldiers to their tents.*
 (25) a. *The horse jumped over the fence.*
 b. *The rider jumped the horse over the fence.*

This is possible with manner of motion verbs in English, as well as with a few others (*The baby burped/The nurse burped the baby; The flashlight shone/We shone the flashlight*). It seems to be very rare cross-linguistically.

Such occasional violations of a cut-off point universal are not a problem for the frequency-based explanation.

Universal 25: [implicational]
 If a language has synthetic causal verbs corresponding to agentive/unergative plain verbs, it also has synthetic causal verbs corresponding to patientive/unaccusative non-causatives.

- This universal follows directly from the deductive universal 29.

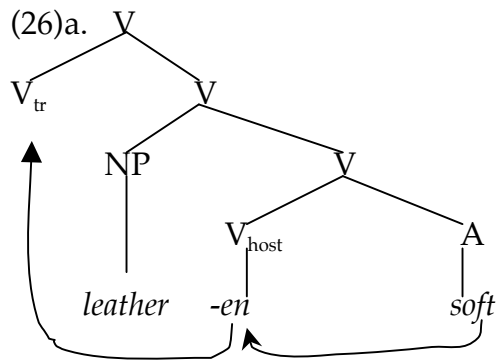
An elaborate **alternative explanation for the preference for causative/unaccusative pairs (over causative unergative pairs)** has been offered by Hale (2000) (see also Hale & Keyser 1993, 2002).

Universal Grammar offers four different possibilities for heads (X) to combine with other elements:

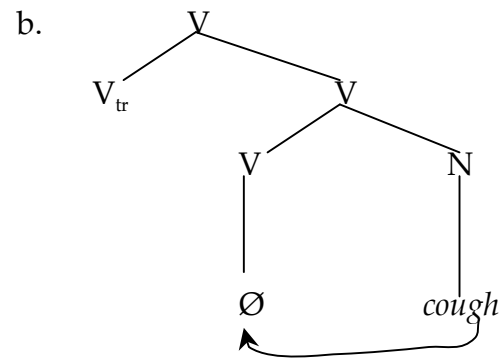
Figure 6. (Hale 2000:162; Hale & Keyser 2002:13)	head X takes complement C	head X takes no complement
head X takes specifier S	(b) <div style="text-align: center;"> <pre> X / \ S X / \ X C (spec) (head) (compl) book on shelf </pre> </div>	(c) <div style="text-align: center;"> <pre> X / \ S alpha / \ alpha X (spec) (host) (head?) leather became soft </pre> </div>
head X takes no specifier	(a) <div style="text-align: center;"> <pre> X / \ X C (head) (compl) cut grass </pre> </div>	(d) <div style="text-align: center;"> <pre> X / (head) book </pre> </div>

Hale 2000:163: "The existence of these types, it is reasonable to assume, is universal and invariant... (but) nothing forces a one-to-one correspondence between the structural projection of a nuclear element and the morphosyntactic category which realizes it (English: P, A, V, N)."

"If adjectives are (c)-class heads and nouns are (d)-class heads, the difference among verbs derived from them follows pretty straightforwardly..."



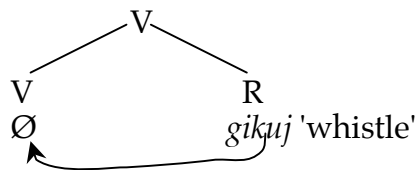
*the leather softens/
(someone) softens the leather*



*(someone) coughs/
(someone) coughs someone

This explanation is OK for deadjectival and denominal verbs, but it cannot be extended to other verbs. But Hale does just this:

(Hale 2000:167; Hale & Keyser 2002:138) "It is **the behavior of a verb**, not its form, which **gives evidence of its argument structure**. Since the [unergative verbs] behave as they do, their argument structure type is defined straightforwardly..."



"Since [this figure] is an (a)-type structure, **it follows** that it cannot be further transitivized as a causative."

But the behavior that gives evidence of its argument structure is precisely the behavior with respect to causativization! The reasoning is completely circular.

Note also that the interesting observation made by Hale, that "the **same** verbs fall into the alternating and non-alternating classes in unrelated languages" (2000:160) refers exclusively to **verb meaning**. Hale has not shown that they are similar with respect to other grammatical behavior. So it is not surprising that an explanation where meaning plays no role fails.

Universal 26: [unrestricted]
True causal/plain verb pairs are possible only if the causative verb meaning does not contain agent-oriented manner specifications.

- This universal follows directly from the deductive universal 35.

alternative explanation (sketched) in Hale & Keyser (1993:91), Hale & Keyser (2002:34-37):

Agent-manner features (notation: _(i)) need an external binder; patient-manner features can be internally bound:

- (27) a. *Leecil*_(i) *smeared*_(i) *saddle soap* *on my chaps.*
 b. **Saddle soap* *smeared*_(i) *on my chaps.*
- (28) a. *The pigs* *splashed*_(p) *mud*_(p) *on the wall.*
 b. *Mud*_(p) *splashed*_(p) *on the wall.*

Hale & Keyser (1993:90-91): "...the manner component of the verb smear receives no licensing index in the LRS [lexical relational structures] representation...The intransitive variant is formed by moving the internal subject into [Spec, IP]. If this raising process applied to the verbs in question, the appearance of an external argument would be blocked. This would prevent licensing of the manner component of these verbs, violating Full Interpretation."

This seems to be just a fancy way of saying that verbs with an agent-oriented manner component need to occur with an expressed agent

Exceptions: St'át'imcets (=Lillooet) Salish (Davis 2000:42-3)

(29) intransitive (agentful)		transitive	
<i>qaŋt</i>	'be hit (by thrown object)'	<i>qaŋt-š</i>	'hit (by throwing)'
<i>ʔuš</i>	'get thrown out'	<i>ʔuš-č</i>	'throw out'
<i>q'wəl</i>	'be cooked'	<i>q'wəl-ən</i>	'cook'
<i>ʔácχ</i>	'be seen'	<i>ʔácχ-ən</i>	'see'
<i>ɬwal</i>	'be abandoned'	<i>ɬwəl-ən</i>	'abandon'

Such occasional violations of a cut-off point universal are not a problem for the frequency-based explanation.

Universal 27:

In the class of verbs that show a plain/causal alternation, 'freeze'-type ("automatic") verb meanings tend to be expressed as simple/causative verb pairs, whereas 'break'-type ("costly") verb meanings tend to be expressed as anticausative/simple verb pairs.

- This universal follows directly from the deductive universal 31-32.

I know of **no alternative explanation**.

The automatic/costly distinction as a challenge (I-II):

(I) **Levin & Rappaport Hovav** (1995:ch. 3) seem to assume that *additional morphology means additional meaning* (p. 87-88) – English 'break (intr.)' is derived from 'break (tr.)' (p. 108):

- (30) transitive *break*
 LSR [[*x* DO-SOMETHING] CAUSE [*y* BECOME *BROKEN*]]
 Linking rules
 Argument structure *x* <*y*>
- (31) intransitive *break*
 LSR [[*x* DO-SOMETHING] CAUSE [*y* BECOME *BROKEN*]]
 Lexical binding Ø
 Linking rules
 Argument structure <*y*>

Since intransitive 'break' requires an additional operation, it is expected that it should be coded as **anticausative** in languages with morphological coding of plain/causal pairs.

Cf. also Koontz-Garboden's (2005) **Principle of Monotonic Composition** (inspired by Levin & Rappaport Hovav's (1998:103) discussion of monotonicity): "The idea is that while meaning, in the form of event structure operators, can be added to an event structure as a consequence of word formation processes for example, meaning may not be removed."

Counterevidence: plain/causal alternations showing **causative** coding

Saving monotonicity:

Plains are in fact (conceptualized as) **internally caused verbs** (i.e. almost a type of unergative; typical internally caused verbs are *rot*, *rust*, *decay*, *blossom*, *deteriorate*):

"It is likely that this cross-linguistic variation arises because the meaning of a verb such as melt is consistent with its describing either an internally or an externally caused eventuality. In fact, it should be possible to verify this prediction by looking at the range of subjects found with melt in various languages; presumably, in languages where melt is internally caused, it will only be found with ice or ice cream or other substances that melt at room temperature as its subject when intransitive (Levin & Rappaport Hovav 1995:100)."

French	<i>fondre/faire fondre</i> 'melt (intr.)/melt(tr.)'
Arabic	<i>saaha/sayyaha</i>
Finnish	<i>sulaa/sula-ttaa</i>
Georgian	<i>ga-dn-eba/ga-a-dn-obs</i>
Hindi/Urdu	<i>pighal-naa/pighl-aa-naa</i>
Hungarian	<i>olvad/olvasz-t</i>
Indonesian	<i>men-cair/men-cair-kan</i>
Lezgian	<i>c'uru-n/c'uru-run</i>
Mongolian	<i>xajl-ax/xajl-uul-ax</i>
Turkish	<i>eri-mek/eri-t-mek</i>

(II) Haspelmath (1993:87) assumed a similar principle (cf. also Jacobsen 1985):

"The formally derived (or marked) words are generally also semantically derived in that they have some additional meaning element that is lacking in the formally basic (or unmarked) word. This correlation between the formal and the semantic basic-derived (or markedness) relationships has been identified as an instance of **diagrammatic iconicity**."

But he assumed a different semantic relationship between inchoatives (=plains) and causals:

- (32) 'break (intr.):' [*y* BECOME *BROKEN*]]
 'break (tr.):' [[*x* DO-SOMETHING] CAUSE [*y* BECOME *BROKEN*]]

Counterevidence: plain/causal alternations showing **anticausative** coding (as was recognized by Mel'čuk 1967, who used such cases to argue against an iconicity/monotonicity principle).

Saving iconicity / markedness:

"Iconicity in language is based [not on objective meaning but] on conceptual meaning... Events that are more likely to occur spontaneously will be associated with a conceptual stereotype (or prototype) of a spontaneous event, and this will be expressed in a structurally unmarked way." (Haspelmath 1993:106-7)

Better alternative solution: discard monotonicity/iconicity/markedness, explain coding asymmetries by frequency asymmetries.

Universal 28:

28a. If a language that has causatives of transitives has several causatives of different length, then the longer affixes tend to be used with transitive bases, and the shorter affixes tend to be used with intransitive bases.

(Nedjalkov & Sil'nickij 1969:27)

28b. If a language that has causatives of unergatives has several causatives of different length, then the longer affixes tend to be used with unergative bases, and the shorter affixes tend to be used with unaccusative bases.

- These universals follows directly (as special cases) from the deductive universal 30.

I know of **no alternative explanation**.

A length difference has also been observed for different types of causatives, not just for different bases (cf. Dixon 2000:74-78):

(33)	indirect causative	direct causative
a. Amharic (Haiman 1983:786, Hetzron 1976:379)	<i>as-bälla</i> CAUS-eat 'force to eat'	<i>a-bälla</i> CAUS-eat 'feed'
b. Hindi (Dixon 2000:67, Saksena 1982)	<i>ban-vaa-</i> be.built-CAUS 'have sth. built'	<i>ban-aa-</i> be.built-CAUS 'build'
c. Jinghpaw	<i>-shangun</i>	<i>sha-</i> (Maran & Clifton 1976)
d. Creek	<i>-ipeyc</i>	<i>-ic</i> (Martin 2000)

(34)	longer marker	shorter marker
	action	state
	transitive	intransitive
	causee having control	causee lacking control
	causee unwilling	causee willing
	causee fully affected	causee partially affected
	accidental	intentional
	with effort	naturally

It is plausible to assume that the same explanation holds here – the causatives with longer markers are those that occur less often than those with the shorter marker.

4. Evidence from usage frequency for the Spontaneity Scale

claim: the higher a verb meaning is on the Spontaneity Scale, the less frequently it will occur in a caused context, i.e.

increasing frequency:

'make sb. cut sth.' – 'make sb. talk' – 'make sth. freeze' – 'make sth. break' – 'make sth. be cut '
(=break sth.) (=cut sth.)

Ideally to be tested on a language that uses the same causative construction for all these types, in the best case ambitransitives – but such languages don't exist!

Very preliminary suggestive data from English [please don't quote!]
(BNC; boldface percentages from Wright 2001:127-28):

	causal		plain	
agentful	<i>cut</i>	100%	<i>undergo</i> <i>cutting</i>	0%
costly	<i>break (tr.)</i> <i>open (tr.)</i> <i>split (tr.)</i>	90% 80% 78%	<i>break (intr.)</i> <i>open (intr.)</i> <i>split (intr.)</i>	10% 20% 22%
(intermediate)	<i>burn (tr.)</i>	76%	<i>burn (intr.)</i>	24%
automatic	<i>melt (tr.)</i> <i>freeze (tr.)</i> <i>dry (tr.)</i> <i>sink (tr.)</i>	72% 62% 61% 58%	<i>melt (intr.)</i> <i>freeze (intr.)</i> <i>dry (intr.)</i> <i>sink (intr.)</i>	28% 38% 39% 42%
internally caused	<i>sprout (tr.)</i> <i>rot (tr.)</i> <i>rust (tr.)</i>	33% 14% 5%	<i>sprout (intr.)</i> <i>rot (intr.)</i> <i>rust (intr.)</i>	67% 86% 95%
agentive intransitive	<i>make laugh</i> <i>make cry</i> <i>make jump</i> <i>make vomit</i> <i>make dance</i> <i>make weep</i> <i>make sing</i> <i>make wait</i>	20.8% 6.0% 5.6% 2.6% 1.8% 1.1% 0.4% 0.4%	<i>laugh</i> <i>cry</i> <i>jump</i> <i>vomit</i> <i>dance</i> <i>weep</i> <i>sing</i> <i>wait</i>	...
transitive	<i>make throw</i> <i>make buy</i> <i>make accept</i> <i>make kill</i> <i>make avoid</i> <i>make hit</i> <i>make build</i> <i>make destroy</i> <i>make teach</i>	0.13% 0.11% 0.10% 0.05% 0.05% 0.03% 0.01% 0.00% 0.00%	<i>throw</i> <i>buy</i> <i>accept</i> <i>kill</i> <i>avoid</i> <i>hit</i> <i>build</i> <i>destroy</i> <i>teach</i>	100% 100%

Table 9.

References

- Alalou, Ali & Patrick Farrell. 1993. "Argument structure and causativization in Tamazight Berber." *Journal of African Languages and Linguistics* 14: 155-186.
- Bybee, Joan L. 1985. *Morphology: A study of the relation between meaning and form*. Amsterdam: Benjamins [Typological Studies in Language 9]
- Cole, Peter & Min-Jeong Son. 2004. "The Argument Structure of Verbs with the Suffix-kan in Indonesian." *Oceanic Linguistics* 43.2
- Comrie, Bernard. 1975. 'Causatives and universal grammar'. *Transactions of the Philological Society* 1974: 1-32.
- Comrie, Bernard. 1976. 'The syntax of causative constructions: cross-language similarities and divergences'. In Masayoshi Shibatani, ed.: *The Grammar of Causative Constructions*, 261-312. New York: Academic Press.
- Croft, William. 1990. "Possible verbs and the structure of events." In: Tsohatzidis, S.L. (ed.) 1990. *Meanings and prototypes: Studies in linguistic categorization*. London: Routledge, 48-73.
- Davis, Henry. 2000. "Salish Evidence on the Causative-Inchoative Alternation." In Wolfgang U. Dressler, Oskar E. Pfeiffer, Markus Pöchtrager and John R. Rennison (eds.), *Morphological Analysis in Comparison*. Amsterdam, Philadelphia: John Benjamins, 25-60. (=Current Issues in Linguistic Theory. Vol. 201.)
- Dixon, R.M.W. 2000. "A typology of causatives: form, syntax and meaning." In: *Changing valency*, ed. by R.M.W. Dixon & Alexandra Y. Aikhenvald. Cambridge: Cambridge University Press, 30-83.
- Geniušienė, Emma. 1987. *The typology of reflexives*. Berlin: Mouton de Gruyter [Empirical Approaches to Language Typology, 2.]
- Guerssel, Mohamed & Hale, Kenneth & Laughren, Mary & Levin, Beth & White Eagle, Josie. 1985. "A cross-linguistic study of transitivity alternations". *Chicago Linguistic Society* 21, part 2: 48-62.
- Haiman, John. 1983. "Iconic and economic motivation." *Language* 59: 781-819.
- Hale, Ken. 2000. "A Uto-Aztecan ('O'odham) reflection of a general limit on predicate argument structure." In: Casad, Eugene H. & Willett, Thomas L. (eds.) *Uto-Aztecan: Structural, temporal and geographic perspectives: Papers in Memory of Wick R. Miller by the friends of Uto-Aztecan*. Hermosillo, Sonora: Universidad de Sonora, 155-169.
- Hale, Kenneth L. and Keyser, Samuel Jay. 1987. *A view from the middle*. (MIT Working Papers in Linguistics, 10.) Cambridge, MA: MIT.
- Hale, Kenneth L. and Keyser, S.J. 1993. "On argument structure and the lexical expression of syntactic relations." In Hale, K. and S.J. Keyser, eds. *The view from Building 20: Essays in honor of Sylvain Bromberger*. Cambridge, MA: MIT Press.
- Hale, Kenneth L., and Samuel Jay Keyser. 2002. *Prolegomenon to a theory of argument structure*. Cambridge, MA: MIT Press.
- Haspelmath, Martin. 1993. "More on the typology of inchoative/causative verb alternations." In: *Causatives and transitivity*, ed. by Bernard Comrie and Maria Polinsky, 87-120. Amsterdam: John Benjamins.
- Haspelmath, Martin. 2006+. "Against markedness (and what to replace it with)." To appear in *Journal of Linguistics* 42.1
- Hetzron, R. 1976. "On the Hungarian causative verb and its syntax." In: Shibatani, M. (ed.) *The grammar of causative constructions*. N.Y.: Academic Press, 371-98.

- Jacobsen, Wesley M. 1985. "Morphosyntactic transitivity and semantic markedness". *Chicago Linguistic Society* 21, part 2: 89-104.
- Kazenin, Konstantin. 1994. "On the lexical distribution of agent-preserving and object-preserving transitivity alternations." *Nordic Journal of Linguistics* 17.2:141-154.
- Keenan, Edward L. & Comrie, Bernard. 1977. "Noun phrase accessibility and universal grammar." *Linguistic Inquiry* 8: 63-99.
- Keyser, Samuel J.; and Roeper, Thomas. 1984. "On the middle and ergative constructions in English". *Linguistic Inquiry* 15: 381-416.
- Koontz-Garboden, Andrew. 2005. "On the typology of state/change of state alternations." To appear in *Yearbook of Morphology* 2005.
- Levin, Beth & Rappaport Hovav, Malka. 1995. *Unaccusativity*. Cambridge/MA: MIT Press.
- Maran, L.R. & Clifton, J.R. 1976. "The causative mechanism in Jinghpaw." In: Shibatani, M. (ed.) *The grammar of causative constructions*. N.Y: Academic Press, 443-58.
- Martin, Jack B. 2000. "Creek voice: beyond valency." In: *Changing valency*, ed. by R.M.W. Dixon & Alexandra Y. Aikhenvald. Cambridge: Cambridge University Press, 375-403.
- Mayerthaler, Willi. 1981. *Morphologische Natürlichkeit*. Wiesbaden: Athenaion [Linguistische Forschungen 28]
- Mel'čuk, Igor' A. 1967. "K ponjatiju slovoobrazovanija". *Izvestija Akademii Nauk SSSR, serija literatury i jazyka* 26.4: 352-362.
- Nedjalkov, Vladimir P. 1969. "Nekotorye verojatnostnye universalii v glagol'nom slovoobrazovanii". In: Vardul', I.F. (ed.), *Jazykovye universalii i lingvističeskaja tipologija*, 106-114. Moskva: Nauka.
- Nedjalkov, Vladimir P. 1990. "Das Verhältnis zwischen semantischen und formalen Oppositionen in verbaler Derivation". Ms., Institute of Linguistics, Academy of Sciences, Leningrad/St. Petersburg.
- Nedjalkov, Vladimir P.; and Sil'nickij, G.G. 1969. "Tipologija morfoložičeskogo i leksičeskogo kauzativov". In: Xolodovič (ed.) 1969: 20-50.
- Nedjalkov, Vladimir P., and Silnitsky, G.G. 1973. The typology of morphological and lexical causatives. In *Trends in Soviet theoretical linguistics*, ed. by Ferenc Kiefer, 1-32. Dordrecht: D. Reidel Publishing.
- Rappaport Hovav, Malka, and Beth Levin. 1998. Building verb meanings. In *The projection of arguments: Lexical and compositional factors*, ed. by Miriam Butt and Wilhelm Geuder, 97-134. Stanford, CA: CSLI Publications.
- Shopen, Timothy & M. Konaré. 1970. "Sonrai causatives and passives: transformational vs. lexical derivations for propositional heads." *Studies in African Linguistics* 1:211-54.
- Sumbatova, Nina R. 1993. "Causative constructions in Svan: further evidence for role domination." In: Comrie, Bernard & Polinsky, Maria (eds.) 1993. *Causatives and transitivity*. Amsterdam: Benjamins, 253-70.
- Suttlés, Wayne. 2004. *Musqueam reference grammar*. Vancouver: University of British Columbia Press.
- Wright, Sandra Kimberly. 2001. *Internally caused and externally caused change of state verbs*. Ph.D. dissertation, Northwestern University (Evanston, IL).
- Xolodovič, Aleksandr A. (ed.). 1969. *Tipologija kauzativnyx konstrukcij: Morfoložičeskij kauzativ*. Leningrad: Nauka.

6. Universals of word order

1. Word order in generative grammar and in typology

Word order is perhaps **the most widely discussed grammatical phenomenon in Chomskyan generative grammar** (it's much less prominent in other grammatical frameworks such as Relational Grammar, Lexical-Functional Grammar, Role and Reference Grammar, Functional Grammar).

Word order is also the area with the best-known **typological correlations/implicational universals** (the "Greenbergian word order correlations", Dryer 1992).

Greenberg (1963) was building on the work of predecessors such as Schmidt (1926):

Universal 36:	UA #2000
If the genitive precedes the noun it modifies, the language has suffixes and postpositions; if the genitive follows the noun, the language has prefixes and prepositions.	

Schmidt 1926:382

"Steht der affixlose Genitiv vor dem Substantiv, welches er näher bestimmt, so ist die Sprache eine Suffixsprache eventuell mit Postpositionen, steht der Genitiv nach, so ist sie eine Präfixsprache eventuell mit Präpositionen."

Universal 37:	UA #2000
If the genitive precedes the noun, the object precedes the verb; if the genitive follows the noun, the object follows the verb.	

Schmidt 1926:384

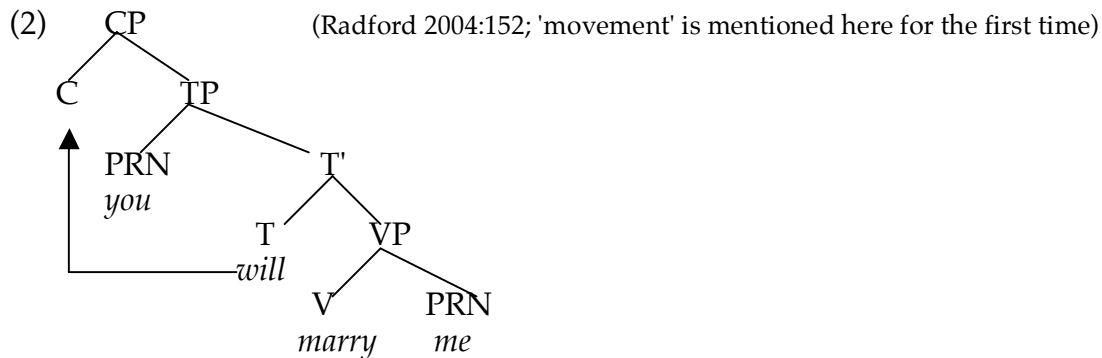
"...wird die Voranstellung des Akkusativs vor das Verb in den weitaus meisten Fällen in solchen Sprachen geübt, die auch den Genitiv voranstellen, und ebenso findet sich Nachstellung des Objektes überwiegend in den Sprachen mit Genitivnachstellung."

– But generative grammarians have typically been occupied with rather different phenomena than word order typologists – because they have been prominently concerned with achieving elegant/ cognitively realistic descriptions of individual languages.

2. Verb positioning in generative grammar

verb-subject inversion in English:

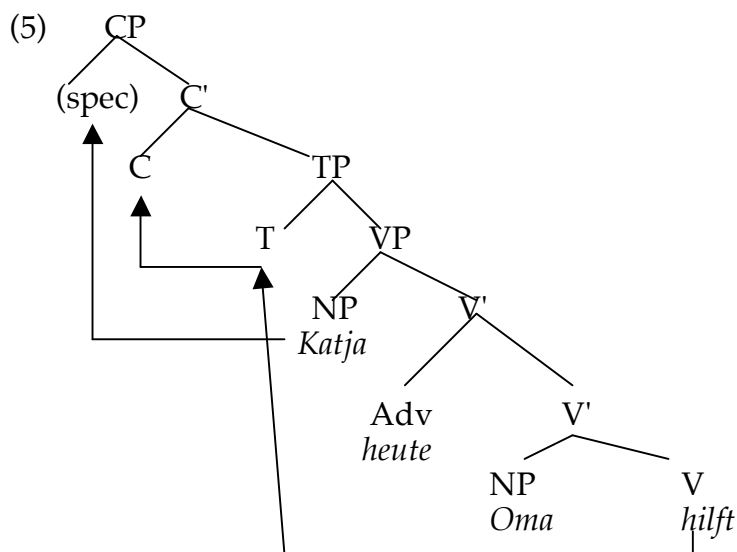
- (1) a. *You will marry me.*
b. *Will you marry me?*



verb-second word order in German (and other Germanic languages):

- (3) a. *Katja hilft heute Oma.* 'Katja is helping granny today.'
 b. *Heute hilft Katja Oma.*
 c. *Oma hilft Katja heute.*

- (4) *...dass Katja heute Oma hilft.* '...that Katja is helping granny today.'



- such abstract movement operations lead to elegant accounts of underlying word order in these languages
- but often these accounts do not make any further claims

Radford 2004:

- why should auxiliaries move from T to C in questions?
- C is a strong head; a strong head position has to be filled
- in main-clause questions, it is filled by a null question particle Q
- Q is affixal and therefore must attach to something;
it bears a strong tense feature and hence attracts the head of TP

analogously for German:

- C is filled by a null declarative particle(?)
- but why is spec-C filled in declaratives but not in questions?

- such abstract analyses only become interesting when they make falsifiable predictions (e.g. V-to-T movement only occurs when the verb bears significant agreement morphology; cf. older English/French vs. modern English)

	subject	T	NEG	V	object
(6) a. French	<i>Aïcha (n')</i>	<i>aime_i</i>	<i>pas</i>	<i>t_i</i>	<i>Mahmoud.</i>
b. 16th c. English	<i>Julia</i>	<i>loves_i</i>	<i>not</i>	<i>t_i</i>	<i>Romeo.</i>
c. modern English	<i>Pedro</i>	<i>(does)</i>	<i>not</i>	<i>love</i>	<i>Dolores</i>
d. Haitian	<i>Boukinèt</i>		<i>pa</i>	<i>renmen</i>	<i>Bouki</i>

? Universal 38:

If a VO language has significant subject-agreement morphology on its finite verb, it has a postverbal negative particle (and vice versa?).

(cf., e.g., DeGraff 1997)

3. The Greenbergian Word Order Correlations

Universals 39ff:

If a language has dominant VO (=verb-object) order, it tends to have the orders in the left-hand column of Table 1; if a language has dominant OV (=object-verb) order, it tends to have the orders in the right-hand column.

Table 1. Correlation pairs reported in Dryer 1992

VO correlate	OV correlate
adposition - NP	NP - adposition
copula verb - predicate	predicate - copula verb
'want' - VP	VP - 'want'
tense/aspect auxiliary verb - VP	VP - tense/aspect auxiliary verb
negative auxiliary - VP	VP - negative auxiliary
complementizer - S	S - complementizer
question particle - S	S - question particle
adverbial subordinator - S	S - adverbial subordinator
article - N'	N' - article
plural word - N'	N' - plural word
noun - genitive	genitive - noun
noun - relative clause	relative clause - noun
adjective - standard of comparison	standard of comparison - adjective
verb - PP	PP - verb
verb - manner adverb	manner adverb - verb

Each of the correlation pairs also tends to correlate with each of the other correlation pairs. So in fact we have 14! universals here.

4. The head directionality parameter

4.1. Heads vs. complements (vs. specifiers)

Chomsky & Lasnik (1993:518)

"We assume that orderings are determined by a few parameter settings. Thus in English, a *right-branching* language, all heads precede their complements, while in Japanese, a *left-branching* language, all heads follow their complements; the order is determined by one setting of the head parameter."

earlier discussions in Lightfoot (1979:52), Hawkins (1983), Haider (1986:130-141); following Vennemann's (1974) pre-X-bar-theory account in terms of the quasi-semantic notions "operator" / "operand" (roughly, 'modifier / head')

Lightfoot (1979:52) also includes "specifiers":

"...This permits a grammar to have specifiers of all categories either preceding or following the head; thus *all* specifiers will be on the same side...if the specifier precedes the head, the complement will follow it, and vice versa...So in English all specifiers precede the head and all complements follow."

- | | | | |
|-----|--|-----|--|
| (7) | [<i>the</i> dog]
[<i>has</i> gone]
[<i>right</i> to the kennel] | (8) | [the picture of <i>Mary</i>]
[lies on <i>the table</i>]
[on <i>the table</i>] |
|-----|--|-----|--|

But how are *operand/operator*, *head/dependent*, *head/complement/specifier* defined?

- Are articles and auxiliaries specifiers or heads?
- Are possessive NPs complements or specifiers?
- How do relative clauses and manner adverbs fit in?
- Wouldn't the order of adjectives, demonstratives, numerals and degree adverbs be predicted to correlate as well?

(I have not found clear answers to these questions. The head directionality parameter's predictions are never discussed in detail, not even in Zepter 2003.)

4.2. What to do with exceptions

None of the correlations is exceptionless. All are statistical universals:

Dryer 2005d,b	verb-object	object-verb
prep-noun	417	10
noun-postp	38	427

Table 2.

Dryer 2005a,b	verb-initial	verb-final
prep-noun	89	8
noun-postp	6	331

Table 3.

Dryer 2005d,e	verb-object	object-verb
noun-genitive	352	30
genitive-noun	113	434

Table 4.

Dryer 2005d,f	verb-object	object-verb
noun-relative	370	96
relative-noun	5	109

Table 5.

Dryer 2005e,f	noun-genitive	genitive-noun
noun-relative	291	135
relative-noun	1 (Tigré)	107

Table 6.

Dryer 2005d,g	verb-object	object-verb
AdvSub-clause	279	54
clause-AdvSub	3 (Buduma, Guajajara, Yindjibarndi)	136

Table 7.

If the correlations are to be explained by a head directionality parameter, why would there be exceptions? The directionality parameter predicts that such languages should not be acquirable.

Is UG perhaps only a kind of preference structure? Prepositions or prenominal relative clauses in OV languages would be dispreferred by UG, but still learnable (or perhaps by a non-core, non-UG general learning mechanism).

Prediction: **rare types should be harder to learn**
(no evidence for this prediction; Newmeyer 1998:§3.3)

4.3. What to do with relative quantities

Baker (2001: 134):

"Since the difference between English-style and Japanese-style word order is attributable to a single parameter [Head Directionality], there is only one decision to make by coin flip: heads, heads are initial; tails, heads are final. **So we expect roughly equal numbers** of English-type and Japanese-type languages.... Within the head-initial languages, however, it requires two further decisions to get a verb-initial, Welsh-type language [the Subject Placement Parameter and the Verb Attraction Parameter]: Subjects must be added early *and* tense auxiliaries must host verbs. If either of these decisions is made in the opposite way, then subject-verb-object order will still emerge. **If the decisions were made by coin flips, we would be predict that about 25 percent of the head-initial languages would be of the Welsh type and 75 percent of the English type.** This too is approximately correct ..."

Newmeyer (2005:§3.2.2.4):

"There are serious problems as well with the idea that **the rarity of a language type is positively correlated with the number of 'decisions'** (i. e. parametric choices) that a language learner has to make. Baker's discussion of verb-initial languages implies that for each parameter there should be a roughly equal number of languages with positive and negative settings. **That cannot possibly be right.** There are many more non-polysynthetic languages than polysynthetic ones, despite the fact that whether a language is one or the other is a matter of a yes-no choice. The same point could be made for subject-initial head-first languages vis-à-vis subject-last ones and nonoptional polysynthesis languages vis-à-vis optional polysynthetic ones."

4.4. The challenge from Antisymmetry

Kayne (1994:47):

"If UG unfailingly imposes [Specifier-Head-Complement] order, there cannot be any directionality parameter in the standard sense of the term. The difference between so-called head-initial languages and so-called head-final languages cannot be due to a parametric setting whereby complement positions in the latter type precede their associated heads."

All complement-head orders must be derived by movement (e.g. clause-COMP structures are derived from COMP-clause by movement of the clause into spec-COMP) – but is there perhaps a cross-categorical movement parameter?

typological evidence for antisymmetry:

- only postpositions show agreement with their NP complements
- *wh*-movement is generally absent from SOV languages
- verbs only move to the initial position (to COMP), never to final position
- *that*-trace effects are found only with initial complementizers
- there are no languages with number agreement only with postverbal subjects

5. Hawkins's processing-based explanation of the word order correlations

5.1. Early immediate constituents

basic insight: **word orders are often optimized for processing**; this is found both in performance and in competence (=both in language use and in grammars)

language use: e.g. ordering of postverbal PPs

- (9) a. *The woman*_{VP}_{[waited}_{PP1}_[for her son]_{PP2}_{[in the cold but not unpleasant wind]]].}
 b. *The woman*_{VP}_{[waited}_{PP2}_[in the cold but not unpleasant wind]_{PP1}_{[for her son]]].}

Table 8: English Prepositional Phrase Orderings by Relative Weight (Hawkins 2000:237)

n = 323	PP2 > PP1 by 1 word	by 2-4	by 5-6	by 7+
[V PP1 PP2]	60% (58)	86% (108)	94% (31)	99% (68)
[V PP2 PP1]	40% (38)	14% (17)	6% (2)	1% (1)

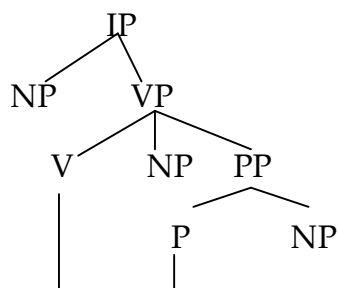
PP2 = longer PP; PP1 = shorter PP

An additional 71 sequences had PPs of equal length (total n = 394)

5.2. Explaining the Greenbergian correlations

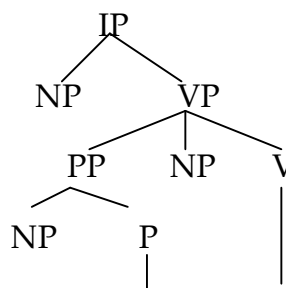
Object-Verb order and Adposition-NP order:

(13) a.



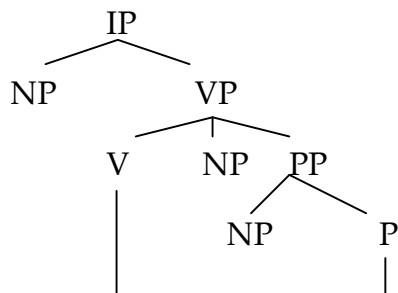
SVO and prepositional (common)
IC-to-word ratio: 3/4 (75%)

b.



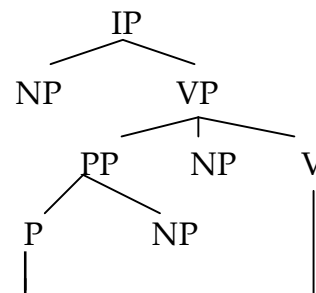
SOV and postpositional (common)
IC-to-word ratio: 3/4 (75%)

c.



SVO and postpositional (rare)
IC-to-word ratio: 3/6 (50%)

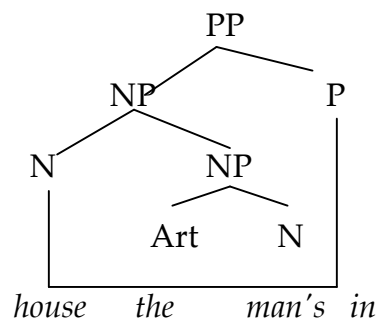
d.



SOV and prepositional (rare)
IC-to-word ratio: 3/6 (50%)

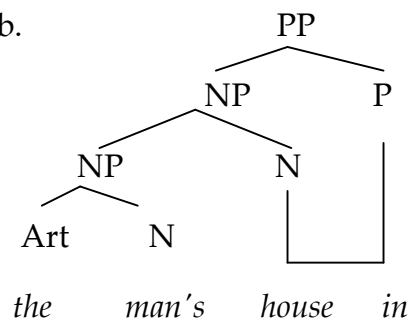
Genitive-Noun order and Adposition-NP order:

(14) a.

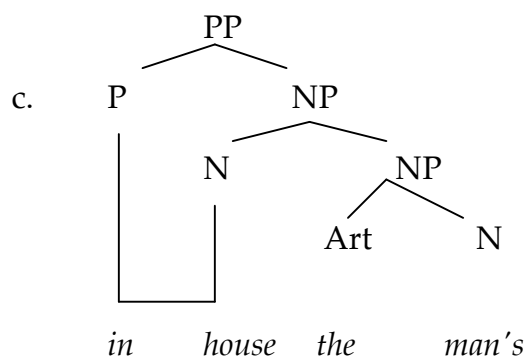


Noun-Genitive and postpositional
(rare)
IC-to-word ratio: 2/4 (50%)

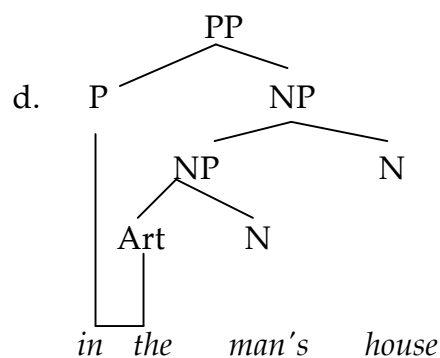
b.



Genitive-Noun and postpositional
(common)
IC-to-word ratio: 2/2 (100%)



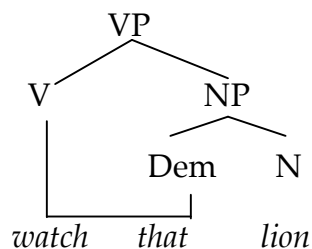
Noun- Genitive and prepositional
(common)
IC-to-word ratio: 2/2 (100%)



Genitive-Noun and prepositional
(rare)
IC-to-word ratio: 2/4 (50%)

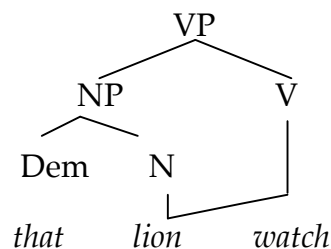
5.3. The noncorrelating categories: nominal modifiers (demonstratives, adjectives, numerals)

(15) a.



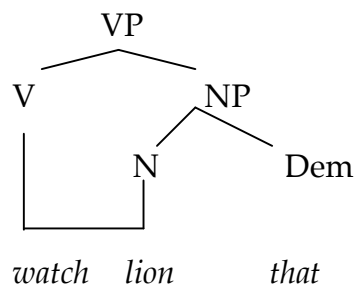
Verb-Object and Dem-Noun
(rare)
IC-to-word ratio: 2/2 (100%)

b.



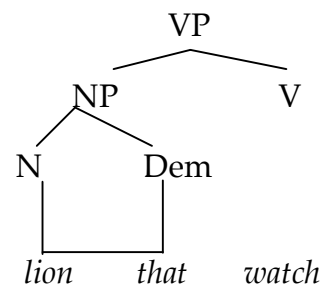
Object-Verb and Dem-Noun
(common)
IC-to-word ratio: 2/2 (100%)

c.



Verb-Object and Noun-Dem
(common)
IC-to-word ratio: 2/2 (100%)

d.



Object-Verb and Noun-Dem
(rare)
IC-to-word ratio: 2/2 (100%)

cross-linguistic distribution: **Table 10.**

Dryer 2005d,h	verb-object	object-verb	(genera / languages)
noun-demonstrative	79/322	60/118	
demonstrative-noun	75/147	122/285	

(no statistical significance according to Dryer, because the trend is not geographically consistent; several macro-areas reverse the trend)

Adjectives have long been known to show less clear correlations (see Dryer 1988, 2005c):

Schmidt 1926:479-83	verb-object	object-verb	VO/OV	noun-adjective	adjective-noun	NA/AN
genitive-noun	18	49	7	39	49	4
noun-genitive	28	5	3	23	10	4

Table 11.

5.4. Word order asymmetries

(16) Maximize On-line Processing (MaOP)

"The human processor prefers to maximize the set of properties that are assignable to each item X as X is processed, thereby increasing **On-line Property to Ultimate Property ratios**. The maximization difference between competing orders and structures will be a function of the number of properties that are misassigned or unassigned to X in a structure/sequence S, compared with the number in an alternative." (Hawkins 2004: 51)

The processor not only prefers minimal domains, but also maximal on-line property assignments. "Garden path" sentences, where misassignment can occur, are dispreferred:

- (17) *Zoo-ga kirin-o taoshi-ta shika-o nade-ta.*
 elephant-NOM giraffe-ACC knock.down-PST deer-ACC pat-PST
 'The elephant patted the deer that knocked down the giraffe.' (Hawkins 1990:253)

At the point where only the first three elements have been processed...

- (18) *Zoo-ga kirin-o taoshi-ta ...*
 elephant-NOM giraffe-ACC knock.down-PST

...a different analysis ('The elephant knocked down the giraffe') is very likely, and misassignments are bound to occur. This is dispreferred.

Competing motivations (Hawkins 2002):

Table 12.

Dryer 2005d,f	verb-object	object-verb
noun-relative	<ul style="list-style-type: none"> • Minimize Domains (MiD) • Maximize On-line Processing (MaOP) 370 languages	<ul style="list-style-type: none"> • Maximize On-line Processing (MaOP) 96 languages
relative-noun	– 5 languages	<ul style="list-style-type: none"> • Minimize Domains (MiD) 109 languages

Minimize Domains and Maximize On-line Processing in competition in basic clause order:

MaOP prefers the order subject before object (because several properties of objects depend on subjects; semantic roles, quantifier scope, c-command)

Table 13. *Efficiency Ratios for Basic Word Orders* (Hawkins 2004:231)

		IC-to-word ratios (aggregate)	OP-to-UP ratios
<i>mS</i> [<i>VmO</i>]	IP CRD: 2/3=67% VP CRD: 2/2=100%	84%	high
[<i>V</i>] <i>mS</i> [<i>mO</i>]	IP CRD: 2/2=100% VP CRD: 2/4=50%	75%	high
[<i>VmO</i>] <i>mS</i>	IP CRD: 2/4=50% VP CRD: 2/2=100%	75%	lower
<i>Sm</i> [<i>OmV</i>]	IP CRD: 2/3=67% VP CRD: 2/2=100%	84%	high
[<i>OmV</i>] <i>Sm</i>	IP CRD: 2/4=50% VP CRD: 2/2=100%	75%	lowest
[<i>Om</i>] <i>Sm</i> [<i>V</i>]	IP CRD: 2/3=67% VP CRD: 2/4=50%	59%	lower

Assumptions (cf. Hawkins 1994:328-339):

Subjects and objects are assigned left-peripheral constructing categories for mother nodes in head-initial (VO) languages, i.e. *mS*, *mO*; and right-peripheral constructing categories in head-final (OV) languages, i.e. *Sm*, *Om*; VP dominates V and O (even when discontinuous), these VP constituents being placed within square brackets [...]; IP dominates S and VP; S = 2 words, O = 2, V = 1; V or O constructs VP, whichever comes first (if O, then VP is constructed at the point *m* which projects to O by Mother Node Construction and to VP by Grandmother Node Construction, cf. Hawkins 1994).

- (19) Minimize Domains: SVO, SOV > VSO, VOS, OVS > OSV
 Maximize On-line Processing: SOV, SVO, VSO > VOS, OSV > OVS
 combined: SOV, SVO > VSO > VOS > OVS, OSV

5.5. Exceptions, relative quantities, asymmetries

- Hawkins's approach allows exceptions, because relatively inefficient languages are learnable. Like inefficient structures elsewhere in the grammar, they can arise occasionally as side effects of other changes.
- Hawkins's approach makes predictions about relative quantities of languages. The better motivated a structure is, the greater the likelihood that it will occur in languages.
- The competing motivations MiD and MaOP predict both symmetries and asymmetries.

6. An Optimality approach to word order typology: Zepter 2003

HEAD LEFT: A head precedes its complement.

HEAD RIGHT: A head follows its complement.

BRANCHING RIGHT: Of two non-terminal sister nodes, the one that is part of the extended projection line follows (= specifiers, phrasal adjuncts, complex functional heads precede their sister nodes)

LEX HEAD EDGE: A lexical head surfaces at an edge of LexP.

GENERALIZED SUBJECT: An XP which is part of a clause has a specifier.

optimal VOS (p. 42):

	LEX HD EDGE	HEAD LEFT	GEN SUBJECT	BRANCH RIGHT	HEAD RIGHT
—> VOS				*	*
VSO			*!		**
SOV		*!			
SVO	*!				*

optimal VSO (p. 53):

	LEX HD EDGE	HEAD LEFT	BRANCH RIGHT	GEN SUBJECT	HEAD RIGHT
VOS			*!		*
—> VSO				*	**
SOV		*!			
SVO	*!				*

optimal SVO (p. 76):

	HEAD LEFT	GEN SUBJECT	BRANCH RIGHT	LEX HD EDGE	HEAD RIGHT
VOS			*!		*
VSO		*!			**
SOV	*!				
—> SVO				*	*

optimal SOV (p. 79):

	HEAD RIGHT	HEAD LEFT	BRANCH RIGHT	GEN SUBJECT	LEX HD EDGE
VOS	*!		*		
VSO	*!*			*	
—> SOV		*			
SVO	*!				*

References

- Baker, Mark C. 2001. *The atoms of language: The mind's hidden rules of grammar*. New York: Basic Books.
- Chomsky, Noam, and Lasnik, Howard. 1993. "The theory of principles and parameters." In: Jacobs, Joachim et al. (eds.), *Syntax*, vol. 1, 506-569. Berlin: de Gruyter.
- DeGraff, Michel. 1997. "Verb syntax in, and beyond, creolization." In: Haegeman, Liliane (ed.) *The new comparative syntax*. London: Longman, 64-94.
- Dryer, Matthew S. 1988. "Object-verb order and adjective-noun order: dispelling a myth." *Lingua* 74: 77-109.
- Dryer, Matthew S. 1989. 'Large Linguistic Areas and Language Sampling', *Studies in Language* 13: 257-292.
- Dryer, Matthew S. 1991. 'SVO Languages and the OV:VO Typology', *Journal of Linguistics* 27: 443-482.
- Dryer, Matthew S. 1992. 'The Greenbergian Word Order Correlations', *Language* 68: 81-138.
- Dryer, Matthew S. 2005a. "Order of Subject, Object and Verb." In: *WALS*, 330-33.
- Dryer, Matthew S. 2005b. "Order of Adposition and Noun Phrase." In: *WALS*, 346-49.
- Dryer, Matthew S. 2005c. "Order of Adjective and Noun." In: *WALS*, 354-7.
- Dryer, Matthew S. 2005d. "Order of Object and Verb." In: *WALS*, 338-41.
- Dryer, Matthew S. 2005e. "Order of Genitive and Noun." In: *WALS*, 350-53.
- Dryer, Matthew S. 2005f. "Order of Relative Clause and Noun." In: *WALS*, 366-69.
- Dryer, Matthew S. 2005g. "Order of Adverbial Subordinator and Clause." In: *WALS*, 382-85.
- Dryer, Matthew S. 2005h. "Order of Demonstrative and Noun." In: *WALS*, 358-61.
- Greenberg, Joseph H. 1963. "Some universals of grammar with particular reference to the order of meaningful elements." In: Greenberg, Joseph H. (eds.) *Universals of grammar*, 73-113. Cambridge, Mass.: MIT Press.
- Haider, Hubert. 1986. "Who is afraid of Typology?" *Folia Linguistica* 20: 109-146.
- Haspelmath, Martin & Dryer, Matthew S. & Gil, David & Comrie, Bernard (eds.) 2005. *The World Atlas of Language Structures*. Oxford: Oxford University Press.
- Hawkins, John A. 1983. *Word Order Universals*. New York: Academic Press.
- Hawkins, John A. 1990. "A parsing theory of word order universals." *Linguistic Inquiry* 21: 223-261.

- Hawkins, John A. 1994. *A Performance Theory of Order and Constituency*. Cambridge Studies in Linguistics, vol. 73. Cambridge: Cambridge University Press.
- Hawkins, John A. 1999. "Processing complexity and filler-gap dependencies across grammars." *Language* 75.2
- Hawkins, John A. 2000. "The relative order of prepositional phrases in English: Goying beyond manner-place-time." *Language Variation and Change* 11:231-66.
- Hawkins, John A. 2004. *Efficiency and Complexity in Grammars*. Oxford: Oxford University Press.
- Kayne, Richard S. 1994. *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.
- Lightfoot, David. 1979. *Principles of Diachronic Syntax*. Cambridge: Cambridge University Press.
- Newmeyer, Frederick. 1998. "The irrelevance of typology for grammatical theory." *Syntaxis* 1: 161-197.
- Newmeyer, Frederick J. 2005. "Parameters, performance and the explanation of typological generalizations." Ch. 3 of forthcoming book: *Possible and probable languages: a generative perspective on linguistic typology*. Oxford: Oxford University Press.
- Radford, Andrew. 2004. *Minimalist syntax: exploring the structure of English*. Cambridge: Cambridge University Press.
- Schmidt, P. Wilhelm S.V.D. 1926. *Die Sprachfamilien und Sprachenkreise der Erde*. Heidelberg: Winter.
- Vennemann, Theo. 1974. "Topics, subjects and word order: from SXV to SVX via TVX," in J. Anderson & C. Jones (eds) *Historical Linguistics I: syntax, morphology, and internal and comparative reconstruction*. Amsterdam, North Holland.
- WALS: see Haspelmath et al. 2005.
- Zepter, Alexandra. 2003. *Phrase structure directionality: having a few choices*. Ph.D. dissertation, Rutgers University.