

# Partial organization in languages: La langue est un système où la plupart se tien(nen)t

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# Maltese *ćerna* 'dusky grouper'



# Restaurant conversation in Malta

Q: What is the fish of the day?

A: *ćerna*

Q: And if we have many of those fish, how do we say that?

A: Oh, *ćeren, cerni, ćerniet, ćrien*, I don't really know!

# Three basic ideas about why languages are organized

- 1. Initial cause:** Languages are the product of an already organized language generating machine, a language organ
- 2. Final cause:** Languages are tools for communication (Fitch's *Mitteilungsbedürfnis*)
- 3. No cause:** Languages are the product of undirected (cultural) evolution with neither plan nor purpose
  1. The languages that we witness are survivors
  2. These languages survive because they work in the sense that a Turing machine works, not because they do anything
  3. A machine cannot work unless it is organized
4. Most likely all three of these views are correct

# Tinguely machine

- <http://www.youtube.com/watch?v=RBoWABk64xQ>

# Evidence for the evolution of languages

- Since Hurford, we distinguish the evolution of the language faculty from the evolution of languages
- The two are distinct but interdependent
- If languages evolve by competition through chance and necessity, then linguistic systems should always be in the process of evolving

# Fully and partially organized systems

- Grammarians and linguists for the last several millennia have assumed that languages are fully organized systems, où tout se tient, where all the pieces fit together
- Is this really true?
- Certain aspects of at least some languages are not fully organized



# Partially organized systems

- Partially organized systems are not discrete and may be indeterminate in some ways
- Partially organized systems are not settled
- The partially organized parts of language systems are not amenable to the default-based methods that have been successfully used to incorporate exceptions into organized linguistic systems

# Signs and portents of partial organization

- Another type of partial organization is one in which there is unresolved competition between two competing subsystems
- Lexeme formation generally works this way but we will not discuss that today
- We will present instead examples of partially organized inflectional systems
- Partially organized inflectional systems have been little discussed outside sociolinguistics

# Signs and portents of partial organization

- Real and convincing cases of partially organized systems in languages support the claim that at least some aspect of the structure of languages results from undirected cultural evolution
- If so, then languages are not entirely the product of either the language organ or socially driven communicative needs

# Preview

- The most popular models of language structure over the last century have assumed that languages are discrete systems où tout se tient
- This idea is often credited to Saussure, though the expression itself is Meillet's
- Some systems of languages do not fit comfortably into this model because they are partially organized
- I have known about such systems for many decades but only recently have I come to understand them at all

# Overview

- Roots and Partial organization
  - Bloomfield's root-forming morphemes
  - Semitic roots
  - Austronesian roots
  - Other English roots: the many verbs RUN
- Competition as partial organization
  - Lexeme formation
  - Cell-mates
  - English adjective comparison: rival realizations

# Roots and partial organization

- One type of partial organization is a sort of organization that only partially accounts for the data
- The organization of roots is of this sort
- If we try to extend the analysis to make the root system fully organized, the analysis itself collapses into tohubohu
- Traditional analyses of root systems going back a millennium have failed because they have not recognized the partial nature of root organization

# Bloomfield's root-forming morphemes in English

- Leonard Bloomfield (1933), *Language*
- Root-forming morphemes
- *glimmer, glitter, glisten, glow, gleam*
- All have meanings related to shining light
- All share the initial cluster *gl*, which is what B identifies as a **root-forming morpheme**

# Bloomfield's root-forming morphemes in English

- The generalization is partial in two ways
  1. If we segment off the *gl-* cluster, we are left in every case with a residue that has no contributing meaning: *-immer*, *-itter*, *-isten*, *-ow*, *-eam*, so only part of the meaning of the word is encoded
  2. Not all words beginning in *gl-* fall under the generalization



# Partially motivated signs

- Saussure distinguished between arbitrary and motivated signs
- Signs may be motivated in a variety of ways
- Signs may be motivated by iconicity of various sorts
- Signs may be structurally motivated
- Motivation may be partial

# Bloomfield's root-forming morphemes in English

- Of the 100 or so different stems in OED with initial *gl-*, 19 have a sense that has to do with shining light (some obsolete or dialectal)
- Of the 100 or so different stems in OED with initial *gl-*, 10 have a sense that has to do with looking in a special manner (some obsolete or dialectal): e.g., *glower*, *glance*, *glimpse*
- There are a few words with both types of senses: *glare*, *glimpse*, *glance*
- The distribution in English is not nearly as significant as in Malay (discussed below) and shows at least two patterns
- Nevertheless, there appears to be some minor regularities

# Partially motivated signs

- Words containing Bloomfield's root-forming morphemes may be partially motivated
- The meaning of the word as a whole is not deducible compositionally from the meanings of its parts and its structure
- Still, we may be deduce part of the meaning of such words from the partial meaning of part of the word
- The systematicity is only partial
- Compare sets like *tactile*, *puerile*, *febrile*, *juvenile*, *sterile*

# Blust on Austronesian roots

- Robert Blust (1988). *Austronesian root theory*
- Stems in Austronesian languages are predominately disyllabic (a relic from Proto-Austronesian)
- Many disyllables contain a recurrent final CVC syllable
- These recurrent final syllables, which Blust called roots, often occur in words with similar meaning

# Blust on Austronesian roots

- The phenomenon was noticed by Brandstetter (1906) in the first systematic work on Austronesian
- The word as a whole is partially motivated, just like Bloomfield's cases
- Once the root has been abstracted, the rest of the word has no detectable value or meaning
- Blust identifies 230 roots of this type in Austronesian languages
- Many of these roots seem to be onomatopoeic

# An example of Blust's method

- Compile all 39 lexemes ending in *-pit* from Wilkinson's (1959) *Malay-English Dictionary*
- Look for common meanings
- 22 out of 39 words ending in the root *-pit* have a sense that can quite plausibly be characterized as referring directly or indirectly to the approximation of two surfaces in a pincer-like fashion
- The next two tables show the 22 semantically related words, followed by the 17 semantically unrelated words

1. (h)apit	pressure between two disconnected surfaces
2. capit	pincers
3. men-cepit	to nip
4. pen-cepit	pincers
5. dempit	pressed together, in contact
6. (h)empit	pressure between two unconnected surfaces
7. gapit	nipper, clamp
8. (h)impit	squeezing pressure
9. jepit	to nip, catch between pincers
10. kapit	support on each side; supporter, second. Of a bridegroom's "supporters" (pengapit) at a wedding. fasten on with slats, as woven grass matting to a frame
11. kempit	carry under the arm
12. kepit	pressure between two connected surfaces
13. lapit	lining, thin partition
14. limpit	in layers
15. lesong pipit	dimple in cheek
16. pipit	mouthpiece of a whistle
17. sempit	confined (of space); cramped; shut in
18. sepit	nipping, to nip
19. simpit	narrow, confined
20. sipit	half closed (of the eye)
21. su(m)pit	chopsticks
22. sumpit	narrow, confined

1. anak ampit	fighting fish ( <i>Betta</i> spp.)
2. apit-apit buron apit-apit	a wasp, sp. Unidentified broadbill, <i>Eurylaemus ochromelas</i>
3. dampit	deaf to warnings; obstinate
4. hempit	shy, timid
5. kayu kampit	name given to the reputed seal of Alexander the Great or to the wood of which it was made
6. kapit	name of the sixth chicky-suit
7. ke(m)pit	earthenware water-jar
8. lampit	sleeping mat
9. lipit kala lipit	a fold or twist (of thread, cotton, etc.) the common house-scorpion
10. pipit	small twittering bird: finch, sparrow
11. pipit	penis of a very young child
12. rempit	strike with a whip or cane
13. ripit	a sweetmeat
14. mempelas ropit	a plant: <i>Tetracera</i> sp.
15. sumpit	shooting with a blowpipe
16. sumpit	sack of matwork for holding rice
17. tempit	cheer of encouragement



# Blust on Austronesian roots

- Blust's Austronesian roots are very similar to Bloomfield's English roots
- Both form partially motivated systems
- Blust's roots are more numerous and more robust than Bloomfield's
- Neither fits comfortably into any standard analysis
- Both have been largely ignored because theories cannot accommodate them

# Georges Bohas: roots and beyond in Semitic

- In a series of articles, Georges Bohas has claimed that tri-consonantal Semitic roots are semantically constant
- B claims further, beyond this traditional observation, that sets of roots that share two consonants are semantically related, e.g. roots with the consonants *b* and *t* are related to ‘cutting’
- B calls this two-consonant “base” the **etymon**
- Even more abstractly, B recognizes meanings for what he calls a **matrix**, which is composed of sequences of phonological features, e.g., [labial] x [coronal] ‘to deliver a blow with a sharp object’
- B claims that the entire Arabic lexicon is organized in this manner
- “We consider matrices to be primitive in terms of lexical organization.”
- Unfortunately, B makes no attempt to show how the meanings of individual lexical entries can be predicted combinatorially from the meanings of matrices, etyma, and roots

# Sample Arabic root from Bohas (btr)

<b>Batara</b>	<b>'to cut the tail of an animal', 'to cut, to remove by cutting'</b>
<b>batira</b>	<b>'to have a tail cut off'</b>
<b>'abtarā</b>	<b>'to cut the tail of an animal / to keep someone from having children (said of God)'</b>
<b>inbatara</b>	<b>'to be cut'</b>
<b>bātīrun</b>	<b>'which cuts, sharp (sabre)'</b>
<b>'abtaru</b>	<b>'cropped, an animal with its tail cut off'</b>
<b>'abātīrun</b>	<b>someone who does not have children / who abandons and gives up his family'</b>

# Sample Arabic etymon from Bohas (bt)

<b>batta</b>	<b>'to cut, to remove by cutting'</b>
<b>batara</b>	<b>'to cut the tail of an animal' 'to cut, to remove by cutting, to remove'</b>
<b>inbata'a</b>	<b>'to be separated, isolated, removed from a whole or from other parts'</b>
<b>bataka</b>	<b>'to cut, to remove' 'to separate a part from its whole'</b>
<b>batala</b>	<b>'to cut, to remove' 'to separate a part from its whole'</b>
<b>balata</b>	<b>'to cut, to remove, to separate, to divide by cutting'</b>
<b>barata</b>	<b>'to cut'</b>
<b>sabata</b>	<b>'to cut, to remove by cutting' 'to shave (a head)'</b>

# Sample Arabic matrix from Bohas ([labial] x [coronal])

batta	‘to cut, to remove by cutting’
batara	‘to cut the tail of an animal, to dock it’
batala	‘to cut, to remove’
barata	‘to cut’
balata	‘to cut, to remove, to separate, to divide by cutting’
baḍaḥa	‘to splinter, to tear’
baḍaḥa	‘to cleave (the tongue of a camel)’
bazzun	‘a sword’
bazala	‘to splinter’
baḍa‘a	‘to splinter, to cut, to remove’
batṭa	‘to open an ulcer’
baṭara	‘to splinter, to lance (an ulcer)’
tabba	‘to cut, to remove by cutting’
ḥaḍafa	‘to remove’
ḍubāb	‘the sharp edge or point of a sword’
šabara	‘to tear or cut lengthwise (a material)’
‘aḍiba	‘to have a cleft ear’
hadaba	‘to cut, to fell something with a sharp instrument’
fa’asa	‘to strike someone with an axe’
fa’sun	‘an axe’
fatta	‘to split (stones)’

# Sample Arabic matrix from Bohas ([labial] x [coronal])

farata	<b>'to pierce, to puncture, to empty'</b>
farasa	<b>'to tear into (prey)'</b>
farasa	<b>'to cut, to split in half'</b>
farada	<b>'to make notches or slashes in a piece of wood'</b>
fasa'a	<b>'to tear, to lacerate'</b>
faṭara	<b>'to split, to set about splitting something in two'</b>
faṭama	<b>'to cut by making an incision'</b>
ṣafaḥa	<b>'to hit someone with the flat part of a sabre or another instrument'</b>
ṣafratun	<b>'knife, cutlass, a cobbler's tool'</b>
ṣaḥḥatun	<b>'a sabre with a big blade'</b>
sāfa	<b>'to strike with a sabre'</b>
sayfun	<b>'sabre'</b>

# Forms containing Semitic roots are partially organized

- All Semitic languages investigated to date, except to some extent Maltese, exhibit root-and-pattern morphology in all verb forms and in a subset of noun forms
- Neither the roots nor the patterns have constant meaning in any Semitic language so far investigated
- The meanings of the roots and patterns cannot predict the meanings of lexical entries combinatorially
- Partial correlations of root and pattern with meaning are never trivial in any Semitic language

# The organization of inflectional morphology

- Inflection is a mapping between two very different kinds of sets of objects: syntax and phonology
- Inflection is the realization of syntactic objects as phonological forms
- Inflectional realization systems often exhibit allomorphy
- Inflectional allomorphs are almost invariably organized in terms of complementary distribution



# Complementary distribution as default inheritance in network morphology

- Brown and Hippisley (2012) provide a computationally implementable general account of complementary distribution in inflectional morphology
- The most important mechanism in this account is default inheritance within a network
- Default inheritance encodes the system of defaults very elegantly within network morphology
- More specific variants or lexical specifications override the default
- the default emerges where it is not overridden

# A case of noncomplementary distribution in inflection: The English comparative

- The comparison of adjectives (degree) in English is famously expressible by two means, the suffixes *-er*, *-est* and the adverbs *more*, *most*
- Degree is usually considered to be syntactic rather than lexemic and hence inflectional (Zwicky 1989)
- the adverbial expressions of degree is accordingly termed **periphrastic morphology**
- Periphrastic forms are usually treated as cells in a lexemic paradigm alongside affixed forms
  - Latin perfect passive
  - Romance perfect

# The distribution of the rival realizations of degree in English

- The two means of expressing the comparative/superlative degrees in English appear at first glance to be in complementary distribution, like other competing inflectional realizations:
  1. Words of one syllable generally take *-er/-est*
  2. Two-syllable words ending in *-y* take *-er/-est*: *sillier*, *livelier*, but *\*foolisher*, *\*rampanter*
  3. Predicate-only adjectives take only the periphrastic form: *\*awarer*, *\*afraider*, *\*contenter*
  4. Elsewhere, only periphrastic forms occur, notably with adjectives of more than two syllables

# Not so simple

- There are many exceptions and uncertainties
- Some one-syllable words avoid *-er*: ?*apter*
  - Clearly borrowed words avoid *-er/-est*: \**loucher*
- Most exceptions and uncertainties occur among two-syllable words
  - Many two syllable words not ending in unstressed syllable other than *-y* prefer *-er/-est*: *stupid, narrow, noble, simple, clever*
  - But some words of this type prefer periphrasis: *vapid, callow, ample*
  - The one word *likely* accounts for most cases of periphrasis among *-y* words (Kyto and Romaine 1997)

# Linguists differ sharply about individual words

- Zwicky (1989) says that di-syllabic words with tense vowels in their final syllable take *-er/-est*:
  - *profound, polite, sincere, obscure*
  - *shallow,*
- As far as I can tell, di-syllabic words with tense (unstressed) vowels in their final syllable accept both forms, with some lexical preference for one form or the other but a great deal of uncertainty

# Not so simple

- Zwicky quotes Evans and Evans (1957): “But this is a description of what usually happens, not of what must happen. Mark Twain wrote: *the confoundedest, brazenest, ingeniosest piece of fraud.*”
- Jespersen (1949, p. 347) writes that “a good deal is left to the taste of the individual speaker or writer” and that the “rules given in ordinary grammars are often too dogmatic.”
- “Disyllabic words have always been subject to more variation.” (Kytö and Romaine 2000, p. 180)
- Frequency plays an important role among two-syllable words (Graziano-King 1999)
- A number of authors say that there are stylistic differences between the two, with the periphrastic form more common in written registers

# How long has this been going on?

- The two strategies are very old
- Latin had both, with the periphrastic expressions *magis* and *plus* used for participles and other forms
- Romance lost the suffixed forms fairly early on
- Germanic had both the suffixed forms
- Other Germanic languages, including Modern German, continue to have only the suffixed forms

# How long has this been going on?

- There are Old English examples of the periphrastic construction with the adverbs *ma*, *bet*, and *swiðor*:
  - *Ɗaet hi syn sylfe ma gode ðonne oðre men*
  - “that they themselves are *more good* than other men”
- There are even examples of double periphrastics in OE
- OE examples of these adverbs with participles (usually past) in predicate position are attested
- The periphrastic use of *more* increased in Middle English, with support from French and Medieval Latin
- The modern distribution developed gradually over a period of centuries (Kytö and Romaine (1997))



Victorina González-Díaz  
*English Adjective Comparison: A  
Historical Perspective*

- This 2008 corpus-based study is the most comprehensive description of the rivalry between the two forms, both synchronic and diachronic
- G-D concludes that, though one predominates in certain environments, the distribution is not discrete and has never been

<b>Type</b>	<b>Adjective</b>	<b>Inflectional</b>	<b>Periphrastic</b>
<i>-ly class</i>			
	lonely	11 (73%)	4 (27%)
	lowly	6 (46%)	7 (54%)
	friendly	47 (41%)	67 (59%)
	lively	55 (60%)	37 (40%)
<i>-y class</i>			
	weighty	19 (76%)	6 (24%)
	scary	8 (57%)	6 (43%)
	ready	23 (31%)	52 (69%)
	empty	11 (68%)	5 (32%)
	angry	38 (57%)	29 (43%)
	shaky	7 (88%)	1 (22%)
	glossy	7 (70%)	3 (30%)
	risky	39 (49%)	41 (51%)
	sleepy	3 (33%)	6 (67%)
	clumsy	12 (75%)	4 (25%)
	cloudy	3 (27%)	8 (73%)
	cosy	20 (59%)	14 (41%)
<i>Syllabic /l/ class</i>			
	noble	20 (65%)	11 (35%)
	feeble	11 (61%)	7 (39%)
<b>Total</b>		<b>340 (53%)</b>	<b>308 (47%)</b>

# Distribution of two strategies for disyllables in BNC (from González-Dias)

<b>Position</b>	<b>Inflectional</b>	<b>Periphrastic</b>	<b>Total</b>
<i>Attributive</i>	152 (67.9%)	72 (32.1%)	224 (34.4%)
<i>Predicative</i>	179 (44.4%)	224 (55.6%)	403 (62.2%)
<i>Postpositive</i>	9 (42.9)	12 (57.1)	21 (3.2%)
<i>Overall distribution</i>	340 (52.5%)	308 (47.5%)	648 (100%)

# Syntactic function and second term of comparison, cross-tabulation

		<b>Predicative</b>	<b>Attributive</b>	<b>Postpositive</b>	<b>Total</b>
<i>Without than-phrase</i>	<b>Inflected</b>	119 (40%)	148 (68%)	4 (29%)	271 (51%)
	<b>Periphrastic</b>	181 (60%)	70 (32%)	10 (71%)	261 (49%)
	<b>Total</b>	300	218	14	532
<i>With than-phrase</i>	<b>Inflected</b>	60 (58%)	4 (67%)	5 (71%)	69 (59%)
	<b>Periphrastic</b>	43 (42%)	2 (33%)	2 (29%)	47 (41%)
	<b>Total</b>	103	6	7	116
<i>Total</i>	<b>Inflected</b>	179 (44%)	152 (68%)	9 (43%)	340 (52%)
	<b>Periphrastic</b>	224 (56%)	72 (32%)	12 (57%)	308 (48%)
	<b>Total</b>	403	224	21	648

# Non-discrete grammar

1. *-er* is much more likely with monosyllables but not with very infrequent or phonologically marked forms
2. The two systems are about equally probable with bisyllables ending in *-y* but with some lexical weight
3. *-er* is less likely with bisyllables ending in *-le*
4. *-er* is much more likely in attributive position
5. *-er* is much less likely in predicative position
6. This distribution has been fairly stable for a millennium
7. There is no complementary distribution and no general default

# Conclusion

- Languages contain stable partially organized subsystems
- Some of these subsystems consist of partially motivated patterns of signs
- Some of these subsystems consist of unresolved but stable competitions between rival expressions
- If we believe that languages are discrete we will be blind to regularities of these types

# An excursus on Subliminalism

- Minimalism is driven by an esthetic desire to have the principles behind language be as simple as possible
- In standard minimalism these principles include merge, derivation by phase, and the distinction between interpretable and uninterpretable features
- Some of the principles are more like stipulations
- **Subliminalism** does without any principles or stipulations

# A subliminalist grammar of flags

- Two guidelines, neither of which must always be observed and both of which are derived from the most basic principle: **be organized**
- Symmetry: flags should be as symmetrical as possible
- The rule of tincture: colors should not touch
  - This is a heraldic principle but it is a corollary of visual distinctness generally observed in design
  - When colors might touch, fimbriation intervenes: a white border separating the colors























