

Diachronic and functional explanations of typological universals

Theme session at the 49th meeting
of the Societas Linguistica Europaea

Convenors:

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Outline

1. Setting the scene: universals, explanations, motivations and other animals...
2. Why this theme session?
3. Participants

Typological generalizations

	[-time]	[+time]
Descriptive	Absolute and statistical universals	Absolute and statistical diachronic biases
Explanatory	Functional constraints, motivations, principles	Diachronic processes and mechanisms

Typological universals

	[-time]	[+time]
Descriptive	Absolute and statistical universals	Absolute and statistical diachronic biases
Explanatory	Functional constraints, motivations, principles	

e.g. in declarative sentences with nominal Subject and Object, Subject almost always precedes Object (95%)*

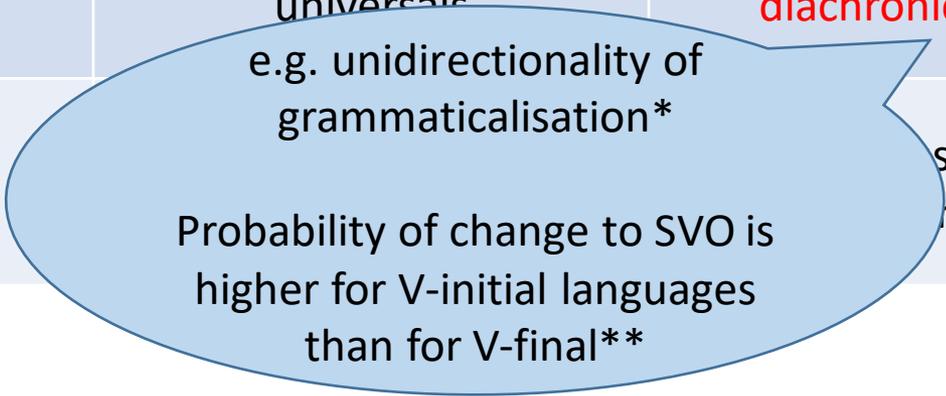
Number: Singular < plural < dual < trial/paucal**

*Greenberg 1966: 77

**Corbett 2000: Ch. 2

Diachronic biases

	[-time]	[+time]
Descriptive	Absolute and statistical universals e.g. unidirectionality of grammaticalisation*	Absolute and statistical diachronic biases
Explanatory	Probability of change to SVO is higher for V-initial languages than for V-final**	causes and mechanisms



*e.g. Lehmann 1982, Haspelmath 1999; but Fischer 2000, Norde 2009

**Croft 2003: 236

Functional explanations

	[time]	[time]
Descriptive	Absolute and static universals	Functional in a broad sense (i.e. adaptation to social, cognitive and environmental conditions and needs)
Explanatory	Functional constraints, motivations, principles	Diachronic processes and mechanisms

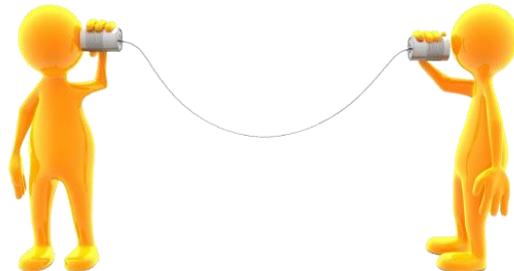
Functional explanations: cognition-oriented

- Conceptual
 - Reflecting conceptual structure, e.g. the principles of analogy and iconicity (e.g. Croft 2003)
- Processing-related
 - Minimizing processing costs, e.g. “Minimize Domains” principle (Hawkins 2004: 31)
- Acquisitional
 - Enhancing learnability (e.g. Blevins 2004), e.g. artificial language learning task shows learners’ preference for consistent head-order (Christiansen 2000)



Functional explanations: communication-oriented

- Speaker-Hearer level
 - maximizing efficiency of communication, e.g. Uniform Information Density Hypothesis (Jaeger 2010): more surprising elements in discourse tend to be longer
- Community level
 - correlations between linguistic complexity and sociolinguistic phenomena, e.g. contact/isolation, small/large community size, etc. (Trudgill 2011)



Other functional explanations

- Environmental and physiological
 - e.g. loss of tones when migrating to very dry areas can be explained by less precise vocal folds vibration in desiccated regions (Everett et al. 2016)



Some problems with functional explanations

- Overlap
 - Givón (1985: 189): Iconicity can be also regarded as a factor that decreases the processing load and makes communication more efficient (cf. Diessel 2008).
 - Competition
 - Haspelmath (2008) argues for an economy-based account of causative constructions, e.g. *kill* vs. *cause to die*, which are a showcase of the principle of iconicity.
 - Level of explanation is unclear
 - Mondorf (2003: 279) suggests that *horror aequi* (avoidance of identity) may be
 - due to inhibition of neural re-activation in order to create refractory phases;
 - due to the tendency to create distinct adjacent elements to facilitate recognition and processing.
- > How deep into the brain and cognition should we dig?

Diachronic processes and mechanisms

	[-time]	[+time]
Descriptive	Absolute and statistical universals	Absolute and statistical diachronic biases
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Mutational constraints

- B comes from {A, B, ... N}, and no other source is possible, where B is a construction or category and {A, B, ... N} is a list of sources (Haspelmath, p.c.)
 - Adpositions only come from possessed nouns or verbs
 - Strong correlation between the order of Adposition and Noun Phrase and the order of Object and Verb
 - Anderson (2016): ergative patterns develop from a passive-like pattern in past/perfective (e.g. Indo-Aryan) and accusative from an antipassive-like pattern in present/imperfective (e.g. Georgian)
 - Ergativity split along tense and aspect

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Traditional functionalist view

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Traditional functionalist view

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E.g. Zipf's (1949) Law of Abbreviation: frequent words tend to be shorter. Valid for 1K languages (Bentz & Ferrer-i-Cancho 2016). Explanation: Economy.

Dynamicization of typology

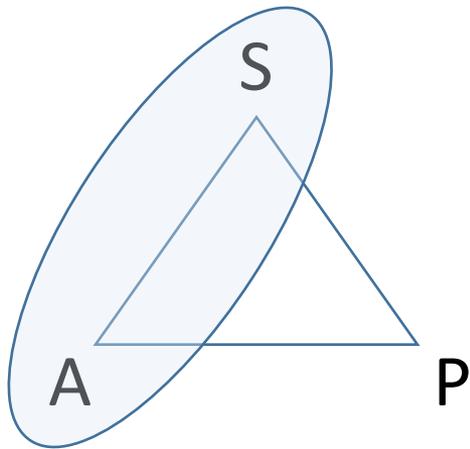
- Greenberg (1966: 186): “Synchronic regularities are merely the consequences of [diachronic] forces.”
- Bickel et al. (2014: 24): “all synchronic observations about language are the result of history, and therefore, any evaluation needs to target **trends in diachrony** rather than current distributions.”
- Bybee (2006: 179): “the **true universals** of language are not synchronic patterns at all, but the **mechanisms of change** that create these patterns.”

Cristofaro 2014

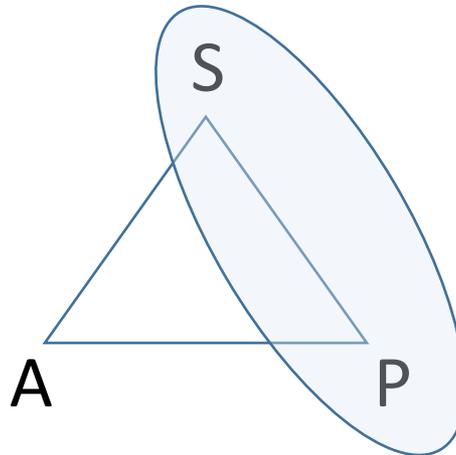
- Functional explanations proposed for distributional patterns should refer to the diachronic processes these patterns are a result of.
- E.g. alignment patterns...

Typical alignment patterns

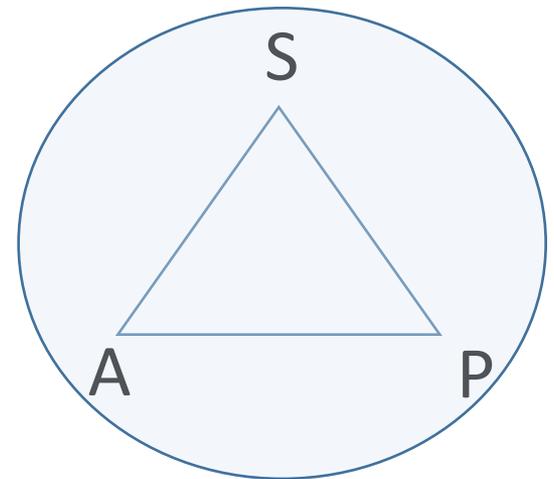
Accusative



Ergative



Neutral



Universal:

Usually, S does not have its own distinctive marking. If there are different markings, it is A and P that are marked differently.

Cristofaro 2014

Functional explanation

- The marking of S doesn't matter much: it occurs alone in intransitive clauses.
- A and P are often encoded differently in order to avoid ambiguity in transitive clauses.

(But see the Economy-based explanation in Haspelmath's plenary talk)

Diachronic explanation

- The argument markers come from different source constructions, which undergo grammaticalization and reanalysis:
- A-markers in ergative systems may emerge from agentive markers in passive cxs, as a result of reanalysis
- P-markers in accusative systems may emerge from lexical verbs

Example of grammaticalization

- Twi (Niger-Congo)

a. o-**de** afoa ce boha-m

he-OBJ sword put scabbard-inside

“He put the sword into the scabbard.” (Lord 1993: 63)

b. ɔkɔm **de** me

hunger take me

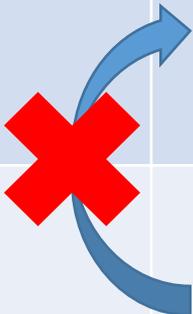
“Hunger takes me.” (Lord 1993: 70, an earlier stage)

Cristofaro 2014

- “When alignment systems originate from the reinterpretation of pre-existing constructions... they are not motivated by any principle pertaining to the encoding of argument roles in themselves.” (p. 288)

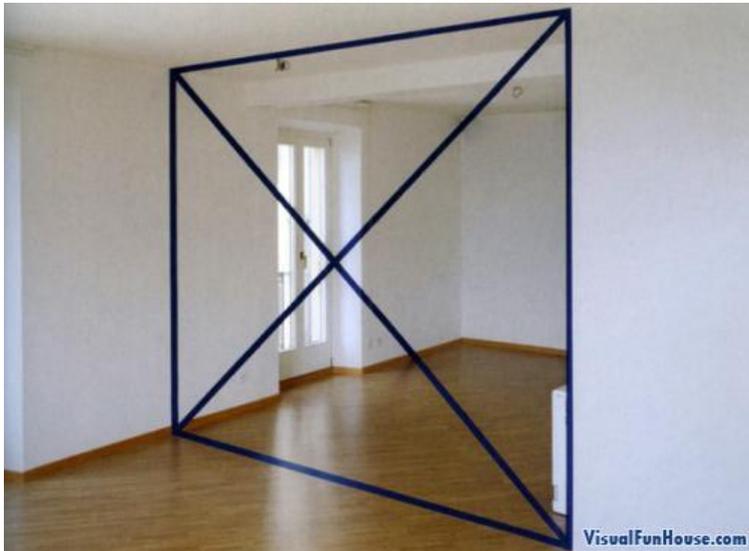
Rejection of functional explanations of universals

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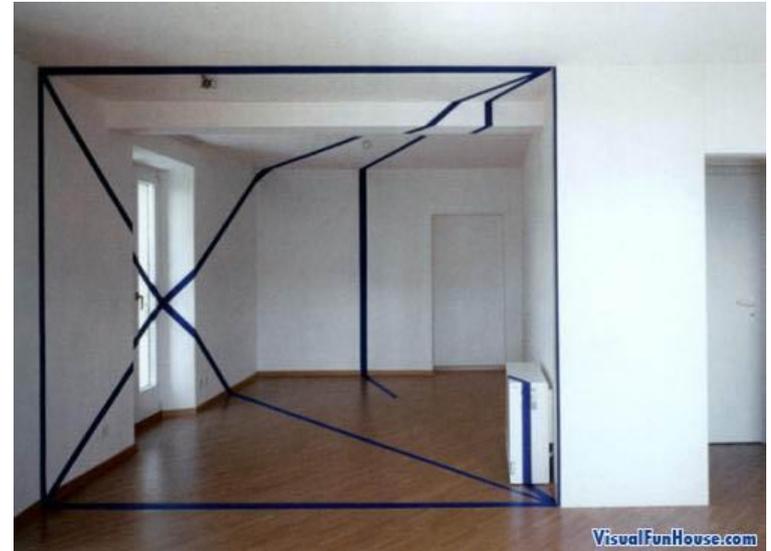


Functionalist illusions?

- Is diachrony a dimension which helps to dispel functional illusions of our pattern-hungry mind?

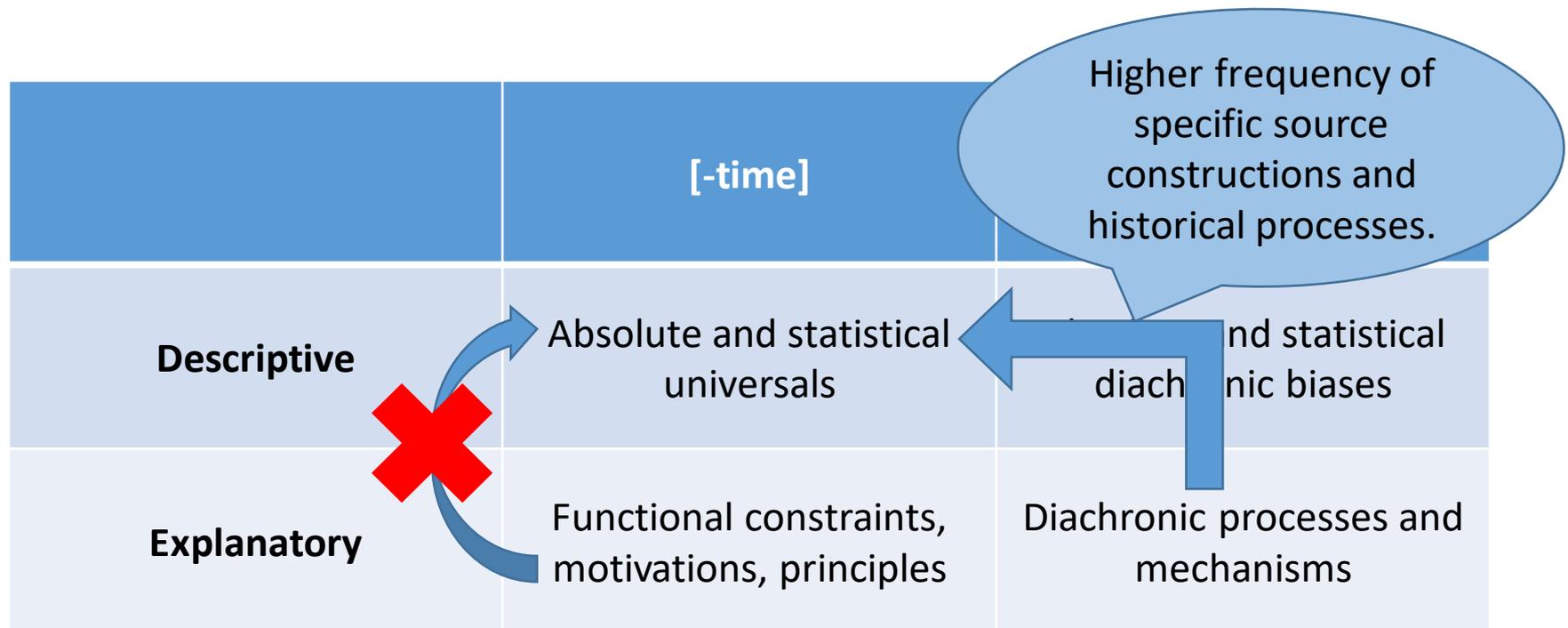


Before diachrony



After diachrony

A diachronic explanation of universals



Remark 1: History of science

- Haspelmath (in prep.): One can come up with a correct explanation even if the exact mechanisms are not known.
 - **Charles Darwin** (1859) successfully explained the origin of species, via variation and selection, without knowing the mechanism of inheritance and of variation. It was only much later that the mechanisms of genetic inheritance and mutation were discovered.
 - **Alfred Wegener** (1912) successfully explained the similarities between the coastlines of the Americas and Europe-Africa by continental drift. The mechanism of plate tectonics was discovered much later.

Eyes vs. appendix

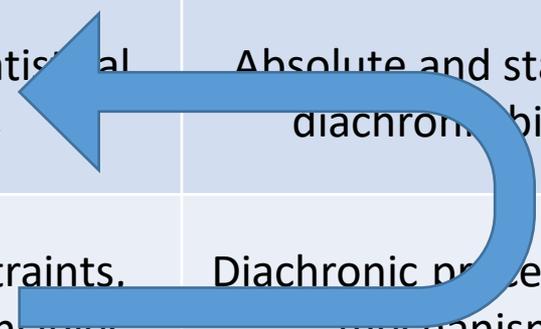
- One needs “diachronic” evidence to explain why the Homo sapiens has the appendix.
- In contrast, the functions of eyes are self-evident.
- Are language universals more like appendices or more like eyes?
 - E.g. word order universals vs. Zipf’s Law of Abbreviation (frequent words tend to be shorter)

Remark 2: Functional explanations of diachronic processes

- Diachronic processes are driven by the communicative needs of speakers, and therefore are functionally motivated
 - E.g. Fischer (this session) on analogy and iconicity in grammaticalization

Indirect causality?

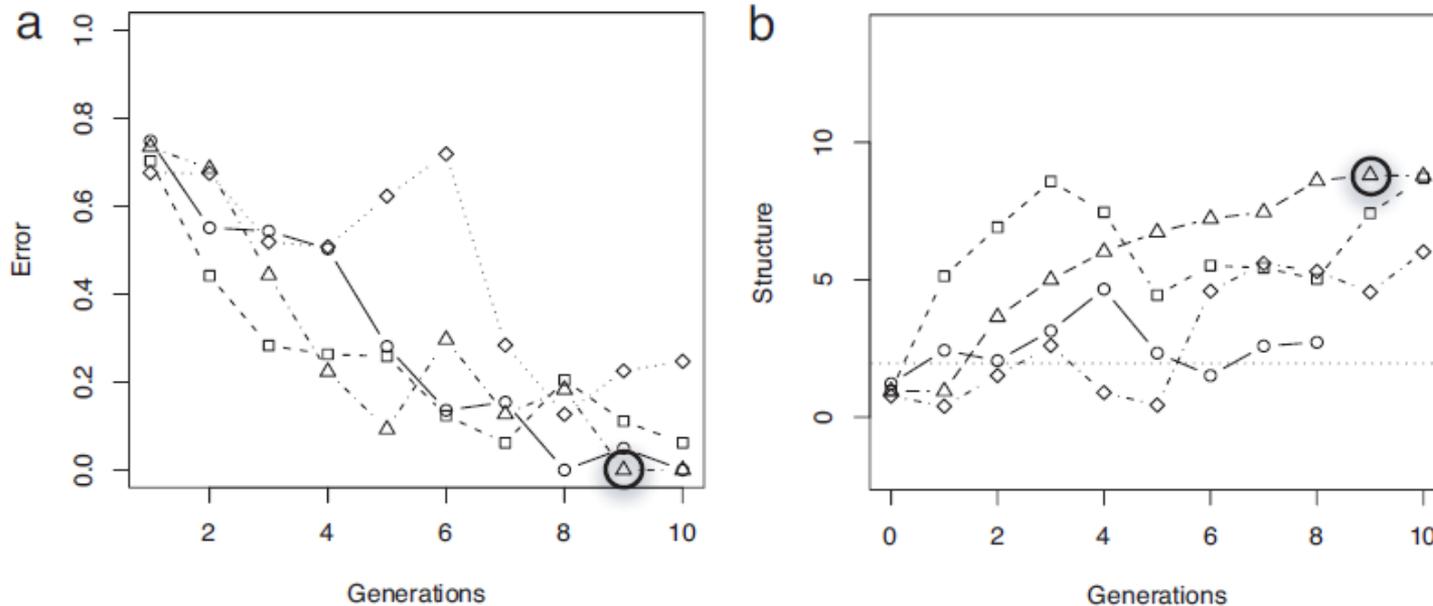
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Remark 3: Logic of falsification

- How can one falsify a functional-adaptive explanation?
- The appropriate diachronic evidence would show a gradual adjustment of the linguistic system in line with the proposed functional principle, or a lack of such adjustment.
- So far, there are not many such studies based on natural language data, but there are popular alternative approaches:
 - Evolution experiments with artificial languages (e.g. Kirby et al. 2008)
 - Computational models of language evolution (e.g. Steels et al. 2013)

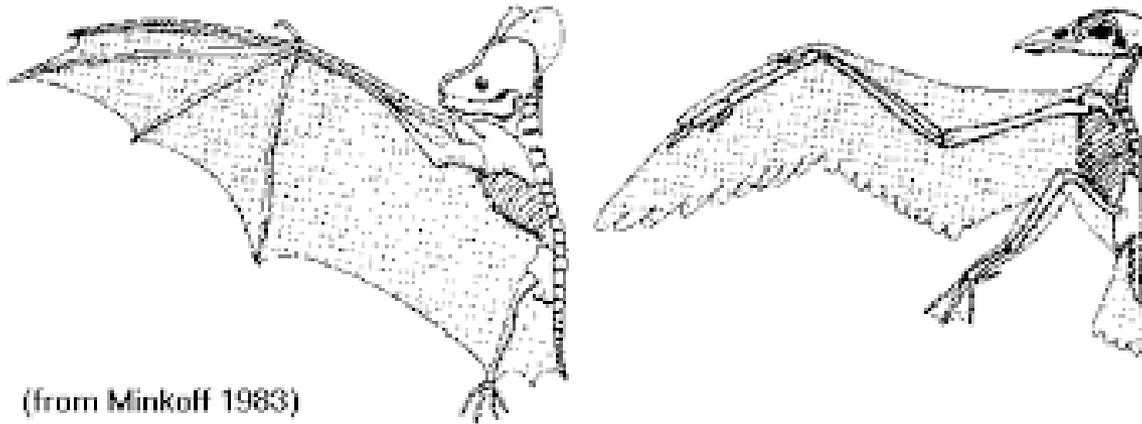
Kirby et al. 2008



A language evolution experiment, which shows that the learnability of an artificial language increases (the transmission errors decrease) with time, and so does the level of structuredness of the language.

Different sources, similar functions

- Looking at source constructions only is not sufficient!



Linguistic example: plural marking

- Sources:

- phonological erosion:

- English *day/day-s* < Proto-Germanic *dag-z/dag-az*

- from quantifier:

- Bengali *chēlē-rā* '(some) of child(ren)' > 'children'

- from distributive:

- Southern Paiute *qa'ni* 'house', *qaŋqa'ni* 'house(s) here and there' > 'houses'

- Function:

- Haspelmath & Karjus (2017) show that zero singulars vs. overt plurals are functionally adaptive.

Possible synthesis of functional and diachronic explanations

- Despite substantial cross-linguistic diversity, languages exhibit “**recurrent solutions across time and space**” and tend towards “**evolutionary stable strategies**”, which are the result of “myriad interactions between **communicative, cognitive, and processing constraints** which reshape existing structures through use” (Evans & Levinson 2009: 444)

Questions for this theme session

1. What does it mean, to explain a typological universal?
2. Can typological universals be a result of coincidence or should they be seen as a result of convergence?
3. How can one falsify a functional-adaptive explanation? What kind of evidence does one need?
4. Do we always need to know a specific diachronic mechanism for proposing a functional explanation?
5. Should functional-adaptive explanations and diachronic ones be regarded as independent phenomena or are they causally/dialectically linked?

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1. Setting the scene: universals, explanations, motivations and other animals...
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Participants (1)

- Diachronic explanations are (at least, in some cases) more adequate than functional ones:
 - Sonia Cristofaro
 - Eitan Grossman
 - Eugen Hill
- (Some) functional explanations are valid:
 - Balthasar Bickel & Damian Blasi (diachronic evidence, experiments)
 - Martin Haspelmath & Susanne M. Michaelis (typological and diachronic evidence, including evidence from creoles and pidgins)
 - Karsten Schmidtke-Bode (typology, diachrony and usage)
 - Ilja Seržant (historical evidence)
 - Anita Slonimska & Sean Roberts (typological evidence)
 - Paul Widmer, Manuel Widmer, Sandra Auderset, Johanna Nichols & Balthasar Bickel (historical, typological and biological evidence)

Participants (2)

- There are causal links between functional and diachronic explanations:
 - Olga Fischer (iconicity and analogy -> grammaticalization)
 - Borja Herce Calleja (conceptualization and experience -> diachronic sources)
- New quantitative data and methods can help us decide on the potential relevance of different explanations:
 - Michael Cysouw (areal and dialectal data)
 - Natalia Levshina (evidence from corpora and artificial language learning experiment)
 - Annemarie Verkerk & Andreea Calude (phylogenetic comparative methods)

Special thanks

- to Martin Haspelmath, who came up with the idea for this theme session and has shared many thoughts with us (see also his Diversity Linguistics blog*)
- to the European Research Council, for bringing us together in Leipzig



* <http://dlc.hypotheses.org/909>

These slides are available from

www.natalialevshina.com/presentations.html

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