

Why assume UG?

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Neurolinguistic postulate: UG is a specific predisposition of the human brain

- In principle, everything of the language faculty that is innate must be translatable into genetically guided differentiation and organization of the human brain.
- In principle, everything that is characteristic of the language capacity of individuals, must be translatable into neuronal storage and processing. [Fanselow, Kliegl & Schlesewsky 1999: syntactic principles *are* processing principles]
- Thus, UG is one of the starting conditions for the human brain; it leads to a *specific* processing behavior of the brain.

Earlier considerations of UG have lead to a paradox (Fanselow 1992)

- Some putative syntactic universals claimed in the literature are so specific that they can never be assumed to be innate.
- Some other putative syntactic universals that are general enough to be innate can be traced back to other conceptual systems (in particular, the visual or geometric system)

As an example, the metaprinciples drawn on by Eisenbeiß (2002) in a study on language acquisition are not specific for language

- Input (output) specificity: A rule α is not applied in the domain of the rule β , if the domain (range) of α properly includes the domain of β .
- Structural dependency: Rules specific for a level of representation only refer to functional units of this level and the relations between them.
- Economy of representation and derivation: Representations only contain necessary symbols. Rules only apply in order to satisfy well-formedness conditions.
- Preservation of relations: Every mapping between levels of representation preserves the asymmetric relations that hold between the involved elements.

Linguistic diversity is affected by UG because language change is filtered by language acquisition

- Whatever linguistic means a community may have acquired must pass the filter of language acquisition in order to become relevant in the course of time.
- Different frequencies in the input varieties lead to different awareness of the language learners as far as they try to imitate the input.
- Language learners also try to detect the productive ‘rules’ by decomposing and categorizing the memorized utterance chunks, and by generalizing the categories involved.
- All structure-sensitive linguistic processing in the child is governed by UG.

The imitation faculty is the motor for language acquisition

- Every child tries to imitate gestures (of all kind) that have specific communicative content.
- ***Mirror-neuron hypothesis*** (Rizzolatti et al. 1996):
If an ape sees another ape handling in specific ways, a part of the motoric region of its brain becomes active (as if the ape tries to imitate the hand movements):
⇒ Manual gestures play an important role in the evolution of language (as well as in the evolution of other kinds of intentional actions).
⇒ Assumption: mirror-neurons have also been developed for vocalic gestures [see also the motor theory by Liberman 1957].

Two innate features of language that may have derived from its motoric origin

- ***Iconicity***: Features of utterances mirror features of meaning [which enables effective parallel processing as well as default interpretation]
- ***Structure-sensitivity***: Generalizations based on features of utterance structure are more feasible than those based on features of associated meanings or contexts [which allows us to establish ‘rules’ with discrete elements, thus relieving memory and improving expressivity]

Economy: Structural decomposition in the presence of frequent structural features reduces memory load.

It is applied only if it improves understanding and the expression of intentions.

Some further properties of UG

(often taken for granted, but only resulting from
specific brain organization)

- ***Distinctive features***: The elementary linguistic units ('phonemes' or 'signemes') are characterized by distinctive features [which allows us to ignore noise]
- ***Double Articulation***: The elementary units themselves do not bear meaning [which allows for a large lexical inventory]
- ***Categorization***: The lexical inventory is partitioned into at least two categorial types: nouns (relating to 'spatial' objects) and verbs (relating to 'temporal' events) [which allows for clause-internal combinatorics and recursivity]
- ***Argument hierarchy***: The arguments of a predicate are strictly ordered.

UG properties concerning predication and reference

- ***Predication***: all lexical items are predicates, making it possible to subsume an instance under some conceptual category (which allows us to express propositions).
- ***Reference***: an instance can be anchored in some context (which allows us to relate propositions with external states of affairs).
- ***Adjunction***: predications can be combined under the condition of argument sharing (which allows for more complex propositions).
- ***Reference-tracking***: a series of predications can stick to the same instance (which allows for fast but unambiguous discourse).

UG and typological variation

- All the properties just mentioned are common to all languages, hence true candidates of UG features.
- These properties do not emerge automatically from a global neuronal organization, and do not depend on other conceptual domains, hence, they are true candidates of an autonomous linguistic capacity, genetically determined.
- The way in which these properties are implemented in the brain depends on the input of language learning, and is thus subject to typological variation.

Some theoretical aspects of typological variation

- The realization of certain formal features (such as morphological case) depends on (differently weighted) conceptual scales concerning animacy and referential specificity.
- Word order depends on (differently weighted) factors of language processing such as information structure (topic and focus) and locality.
- In general, languages differ in the way in which universal constraints concerning alignment, faithfulness (expressivity) and markedness (economy) are ranked with respect to each other (due to the fact of whether they can be violated or not).

Illustration: Typology of linking splits (Stiebels 2002)

- a. Argument roles: $[+hr] > [+lr]$ ‘there is a higher/a lower role’
‘Marking an object is preferred over marking a subject.’
- b. ... to be realized in the context of a cognitive scale: **A** > **B**
- | | | | |
|--------------|---|-------------|-------------------------|
| 1/2 person | > | 3 person | discourse participation |
| animate | > | inanimate | animacy |
| specific | > | nonspecific | referential prominence |
| dynamic | > | static | aktionsart |
| imperfective | > | perfective | aspect |

Harmonic alignment yields the following markedness hierarchies:

- a. Differential object: ‘Avoiding accusative in B-contexts (3 person, inanimate, ...) is better than avoiding it in A-contexts (1/2 person, animate, ...)’ $*(+hr)/B \gg *(+hr)/A$
- b. Differential subject: ‘Avoiding ergative in A-contexts is better than avoiding it in B-contexts’ $*(+lr)/A \gg *(+lr)/B$

Typology: Max(+hr) and Max(+lr) can intervene differently.

Consequences for language acquisition

The language learner must have a device to evaluate

- ... in what respect cognitive scales can become important for the realization of linguistic features such as morphological case (harmonic alignment).
- ... and in what respect processing factors such as information structure can become important for variations in word order (optimal interpretation).

More general, the language learner must be able

- to construct for each linguistic feature f a set of relevant constraints, such as $MAX(f)$, $*(f)$, and $ALIGN(f, x)$
- and to determine the ranking of the constraints on the basis of instances in which some of the constraints are violated.

Typology without some concept of UG is misguided

- Under the assumption that linguistic diversity is the result of language change and that all language change must pass the filter of language acquisition, UG becomes an important notion also for linguistic typology.
- Linguistic typology can establish a set of categorial features and a set of constraints that determine how these features are realized under varying conditions.
- It is, then, a matter of discussion of how much of this framework is dealt with other cognitive domains and what remains to be specific for the linguistic domain.
- In any case, UG is a description of the (genetically transferred) information for the brain of how it has to process chunks of memorized linguistic input.

Conclusion

- Linguistic typology, which compares structural properties of languages on a broad basis, can give evidence for what we have to assume to be part of UG.
- For this reason, it is advisable for typologists to design language descriptions under the view of the language learner, who starts with nothing but UG and other, more general, learning devices.

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