Morphosyntax and experimental studies on language

A. BELLETTI
2019-2020
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The experimental approach. Some general considerations

The experimental approach.

Different experimental methods of data gathering:

Behavioral studies

- Grammaticality judgments >> always minimally comparative
  - possibly on a scale
  - possibly on big populations

Grammaticality judgments are a precious source of knowledge on the functioning of the internal grammatical system as they provide information that is not otherwise available through the simple observation of naturalistic data:

They provide **Negative Information**

Schütze and Sprouse 2014 for re-discussion of the issue.
The experimental approach. 
Some general considerations

From classical psycholinguistic tradition:

- **Comprehension** >> picture/videos/scenarios to sentence matching tasks

- **Production** >> eliciting the production of particular structures through some task; most typically through:
  - answering a question (Recall experiment discussed last year on acquisition of VS order, S=new information subject in different multilingual populations)
  - completing a sentence
  - repeating a sentence (ore less; e.g. word repetition)

**Online tasks/procedures:**
- Reading time + accuracy
- Mesuring time in fulfilling the task
- Eye-tracking
- ..........................
- Types of neuroimaging (ERP, fMRI,...)
The experimental approach. Some general considerations

What is crucial in a good experiment, of any of the types mentioned, including grammaticality judgments, is:

- A well defined research question
- A well controlled design, with the conditions under study explicitly defined
- Changes in the sentences (syntactic stimuli) under investigations kept as minimal as possible to approximate as much as possible the optimal situation in which only the property under study is manipulated. (We will see several examples). This is at the core of the experimental scientific method since Galileo (The Galilean Method; cfr. e.g. Chomsky 2002, *On Nature and Language*, CUP). Experimental studies on language are no exception to that.
- Kayne: microcomparisons of closely related languages mimic the lab situation
- Hence, some explicit theoretical hypotheses to put to test are necessary, they are a prerequisite for the beginning of the construction of an experimental task.
The experimental approach. Some general considerations

The dialogue between theory and experimentation is crucial: Linguistic theory feeds the experimental work in generating research questions, which can be properly and explicitly formulated.

At the same time, results from well controlled experiments can illuminate linguistic theory by suggesting possible (re)formulations and precise implementations of the explanatory principle(s) which helped raising the research question. The work on the role of locality in accounting for developmental paths, which we will study in detail, has precisely this property.

We will also try to see other examples, e.g. the role of Binding principle C in guiding possible use and interpretations of lexical noun phrases (Possibly through a presentation).
The *Baseline*

*Baseline, a crucial notion.* Any experiment must have a so called *Control group (CO).*

No experimental result on any population, on any specific construction has a value *per se,* beside pure description. It acquires one only if compared to what is independently determined as the typical behavior of a defined population on the same empirical domain (e.g. a given linguistic construction). E.g:

- children of different ages in typical development (at 3 at 5 etc....)
- children of different ages vs adults (to check for development)
- children with (S)-SLI vs typically developing children of the same age (age –match)
- children with (S)-SLI vs typically developing children of the same language level (language-match; determined through some standardized test)
- agrammatic adults vs adults with no diagnosed pathology
- monolingual children at age X vs bilingual children at the same age X
- bilingual children at age X vs L2 children at age the same age X .................

In conclusion, in order to identify some potential *deviation* or to spot a *developmental path* it is necessary to know what we can expect in the domain under investigation in the relevant population against which the experimental subjects will be studied.

A term of comparison is essential: the *Baseline.*
Main domain that will be investigated:

**Language acquisition** with some occasional reference to different modes of acquisition, such as:

Monolingual, bilingual, L2, SLI, and other types of atypical language growth/ (or manifestations of problematic behavior through language, e.g. Dyslexia, HI), with some comparisons with other forms of language pathologies, such as e.g. (agrammatic) aphasia. Although comparative considerations on multilingualism are developed in some better detail in the first year class.

General leitmotif : The role of the internal grammar in the process of language acquisition (grammar based approach).

- Presentations of results and discussions based on often current or anyway recent research.
Contents

◦ Slides of the classes available at:
  http://www.ciscl.unisi.it/didattica.htm

◦ Basic reference:
  ◦ and
  ◦ + some integrated references (later on, for presentations in class).
    ◦ Cfr. also some of the contributions in:
      ◦ Roberts, I. The Oxford Handbook of Universal Grammar, Oxford University Press, 2017
The Acquisition of Italian

Morphosyntax and its interfaces in different modes of acquisition

Adriana Belletti
Maria Teresa Guasti

John Benjamins Publishing Company
Contents

Research seminars:
Check the event listed on the DISPOC and on the CISCL websites (generally on Tuesday)

Tuesday November 26th (12-14 room E)

Artemis Alexiadou (Humboldt Universität zu Berlin)

*Partitive case: a view from Greek diachrony*
Themes

Types of object A’-dependencies and their acquisition:

- Relative clauses: Subject Relatives vs Object Relatives
- A different object A’-dependency: Object-topicalization in CILD
- Aspects of the acquisition and derivation of (Romance) clitic pronouns
- Another type of (Object) A’-dependency: Subject vs Object Clefts and their presence in answering strategies
- Aspects of the acquisition of (types of) passive, also in comparison with CILD and the syntax of causatives and their relation with passive, with impersonal and reflexive constructions
- On a-marking of direct objects in a comparative perspective: Differential Object Marking/DOM and Left peripheral (a)-topics
- Poverty of the stimulus and children’s grammatical creativity
- Theoretical hypotheses at the base of the research questions are supported and refined through experimental results (beyond grammaticality judgments)
Two final general considerations:  
1. Production and comprehension

- In production, speakers have ‘choices’: their internal grammar may take (automatic) decisions which may be due to:
  - Choice of the ‘optimal’ solution in the well functioning system (cfr. use of PORs instead of ORs by Italian speaking adults)
  - Choice of computations ‘avoiding’ the insurmountable difficulty in the malfunctioning system (cfr. use of DP instead of clitic; different types of ORs in Hebrew speaking children with SLI)

- In comprehension, speakers are faced with material which is presented to them and which their internal grammar must analyze. Hence, ‘no choices’.

- Whereas the role of external factors – such as e.g. time pressure – may be more prominent in production than in comprehension yet the null assumption is that the speaker’s internal grammar is equally directly involved in both. This grammar-based assumption naturally leads to the expectation that production and comprehension should give the same comparable results, once potentially relevant external conditions and the grammatical factors leading to optimal choices or avoidance are factored out. Whence the importance of always comparing production and comprehension.

- Under the (null) assumption just described that both production and comprehension are grammar-based, the comparison between production and comprehension may also be especially revealing of the properties of the functioning of the internal system and the principles operating in it (e.g. why some solution appears to be ‘optimal, simpler, favored ....).”

- Moreover, the comparison may reveal specific properties of a malfunctioning or delayed system.
1. Measuring (the planning of) production

How do we plan our productions?

Time measures are hard to obtain in order to value the time of planning in production. In contrast, they are currently used in comprehension studies, as mentioned.

E.g.: Do we first decide on V and its arguments? Or do we start with the nominal arguments and then associate them to a V?

- Is there a difference between associating a nominal DP-object to V compared to a nominal DP-subject?

Recent studies based on a V-final language like Japanese (by C. Phillips and colleagues) seem to suggest that **OV is accessed to faster than SV**. This is somehow consistent with the linguistic analysis (see h.o. of first year), according to which the relation between V and its Internal Argument/IA is stricter (first Merge) than the one between V and the External Argument/EA (mediated through ‘v’ and then through T, the subject of the clause).

The theoretical analysis appears to be directly reflected in actual production.
2. The dialog theory-experimentation: Merge and brain imaging

“According to most linguists, the syntactic structure of sentences involves a tree-like hierarchy of nested phrases, as in the sentence [happy linguists] [draw [a diagram]]. Here, we searched for the neural implementation of this hypothetical construct. Epileptic patients volunteered to perform a language task while implanted with intracranial electrodes for clinical purposes. While patients read sentences one word at a time, neural activation in left-hemisphere language areas increased with each successive word but decreased suddenly whenever words could be merged into a phrase. This may be the neural footprint of “merge,” a fundamental tree-building operation that has been hypothesized to allow for the recursive properties of human language.”

PNAS 2017 May, 114 (18) E3669-E3678. https://doi.org/10.1073/pnas.1701590114