

Autonomy of syntax: Advantages for experimental cognitive science

Throughout *Syntactic structures* Chomsky derives formal methods for verifying and analysing human language syntax (Chomsky 1957). By segregating syntax from semantics Chomsky argues that ‘*we are forced to conclude that grammar is autonomous and independent of meaning*’ (Chomsky 1957, p. 17). While Chomsky has proven that it is possible to construct syntax computationally, he raises a plenitude of questions about language ambiguity and semantics.

This paper argues how this generative approach is - and has been - an advantage in the field of experimental cognitive science. By explaining how generative theories of language can instruct the search for meaning representation in a cognitive system, this paper proceeds to relate this search to a paper on language acquisition (Chater et al. 2006)¹, before concluding on the prospects of the current line of research.

The idea of the autonomous syntax has been further developed in the generative school, which argues that children are equipped with a ‘language acquisition device’ (LAD), that allows children to construct grammar patterns. Chomsky argues that semantic representations can ‘profitably’ refer to this LAD to encode semantics (Chomsky 1957, p. 54). If this is indeed the case, the search for language and meaning representation in cognitive systems can be narrowed down to finding this LAD, i.e. uncovering the cognitive processes for acquiring language and assigning meaning to it (Chomsky 1957, p. 108, Chater et al., 2006).

A paper on probabilistic modelling provides one way of attacking the problem of language acquisition by assigning probability scores to language structures (Chater et al. 2006). Such modelling can serve as a way of assessing the question of how language is acquired, by comparing probabilities across models of learning (ibid.). This is a tangible example on how Chomsky’s theories on syntax directly impacts the research on cognitive science. Independently on whether one believes in the idea of the LAD, this probabilistic framework still contributes to investigate the acquisition of language, and would not likely have been invented without Chomsky.

As an extremely complex area of research cognitive science, much research, such as the above, builds on Chomsky’s idea of autonomous syntax (Jurafsky and Martin 2006)². Regardless of the opinion on the innateness of language acquisition, the idea has, as a minimum, provided a basis for falsification and arguably served as a stepping stone for an understanding of the capabilities of the human brain to internalise and use language.

¹Nick Chater and Christoph D. Manning, *Probabilistic model of language processing and acquisition*, Trends in Computer Science, Vol. 10 No. 7, July 2006.

²Daniel Jurafsky and James H. Martin, ‘*Speech and Language Processing: An introduction to natural language processing*’, Pearson 2006.