

50 years of syntax

The Chomskyan half-century

Due to the limitations of the presenter, this talk is confined to syntax, and does not cover morphology.

An excellent short overview of the British contribution to morphology can be found in:

Katamba, Francis (2000). British Contributions to Morphology. In *Morphology. A Handbook on Inflection and Word Formation*.

Edited by Geert Booij, Christian Lehmann, Joachim Mugdan, with the collaboration of Wolfgang Kesselheim and Stavros Skopeteas. Walter de Gruyter: Berlin/New York. Pp. 149–156

A year of anniversaries

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400 years since Galileo developed the telescope for astronomy

A year of anniversaries

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150 years since the publication of *On the Origin of Species*

A year of anniversaries

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50 years since the
publication of Chomsky's
review of Skinner's
Verbal Behavior

Chomsky's 1959 review of *Verbal Behavior* by B. F. Skinner

“The behavior of the speaker, listener, and learner of language constitutes, of course, the actual data for any study of language. The construction of a grammar which enumerates sentences in such a way that a meaningful structural description can be determined for each sentence does not in itself provide an account of this actual behavior. It merely characterizes abstractly the ability of one who has mastered the language to distinguish sentences from nonsentences, to understand new sentences (in part), to note certain ambiguities, etc. These are very remarkable abilities. [...]

The grammar must be regarded as a component in the behavior of the speaker and listener which can only be inferred, as Lashley has put it, from the resulting physical acts. [...]

And if we allow ourselves to go back just a little further

The Logical Structure of Linguistic Theory

Chapter I: The Nature of Linguistic Theory

1. Descriptive linguistics is concerned with three fundamental problems. On the one hand, the descriptive linguist is interested in constructing grammars for particular languages. At the same time, he is interested in giving a general theory of linguistic structure of which each of these grammars is an exemplification. Finally, he must be concerned with the problem of justifying and validating the results of his inquiries, and demonstrating that the grammars that he constructs are in some sense the correct ones. All three of these problems will occupy us in this investigation of linguistic structure.

The Logical Structure of Linguistic Theory

2.3. Actually, of course, neither goal can be achieved independently. In constructing particular grammars, the linguist leans heavily on a preconception of linguistic structure, and any general characterization of linguistic structure must show itself adequate to the description of each particular language. The circularity is not vicious, however. ^{The fact is simply} ~~It just points out the fact that~~ linguistic theory has two interdependent aspects. At any given point in its development, we can present a non-circular account, giving the general theory as an abstract formal system, and showing which grammar is a particular example of it. Change can come in two ways -- either by refining the formalism and finding new and deeper underpinnings for the general theory, or by finding out new facts about particular

languages, and simpler ways of describing them.

The Logical Structure of Linguistic Theory

The
general theory must meet the condition that all grammars to
which it leads must satisfy whatever ^{external} criteria of adequacy
we can establish. Such a conception of the process of validation
means that one indispensable aspect of the validation of
a grammar of a given language is the construction of grammars
for other languages.

Have we been making progress?

- The top-down, “mathematical” theory constructors have had 50 years to develop syntactic theory
- The bottom-up, “experimental” data collectors, and systematizers have had 50 years to make their contribution to theory development and testing
- Are we much further along?

Yes!

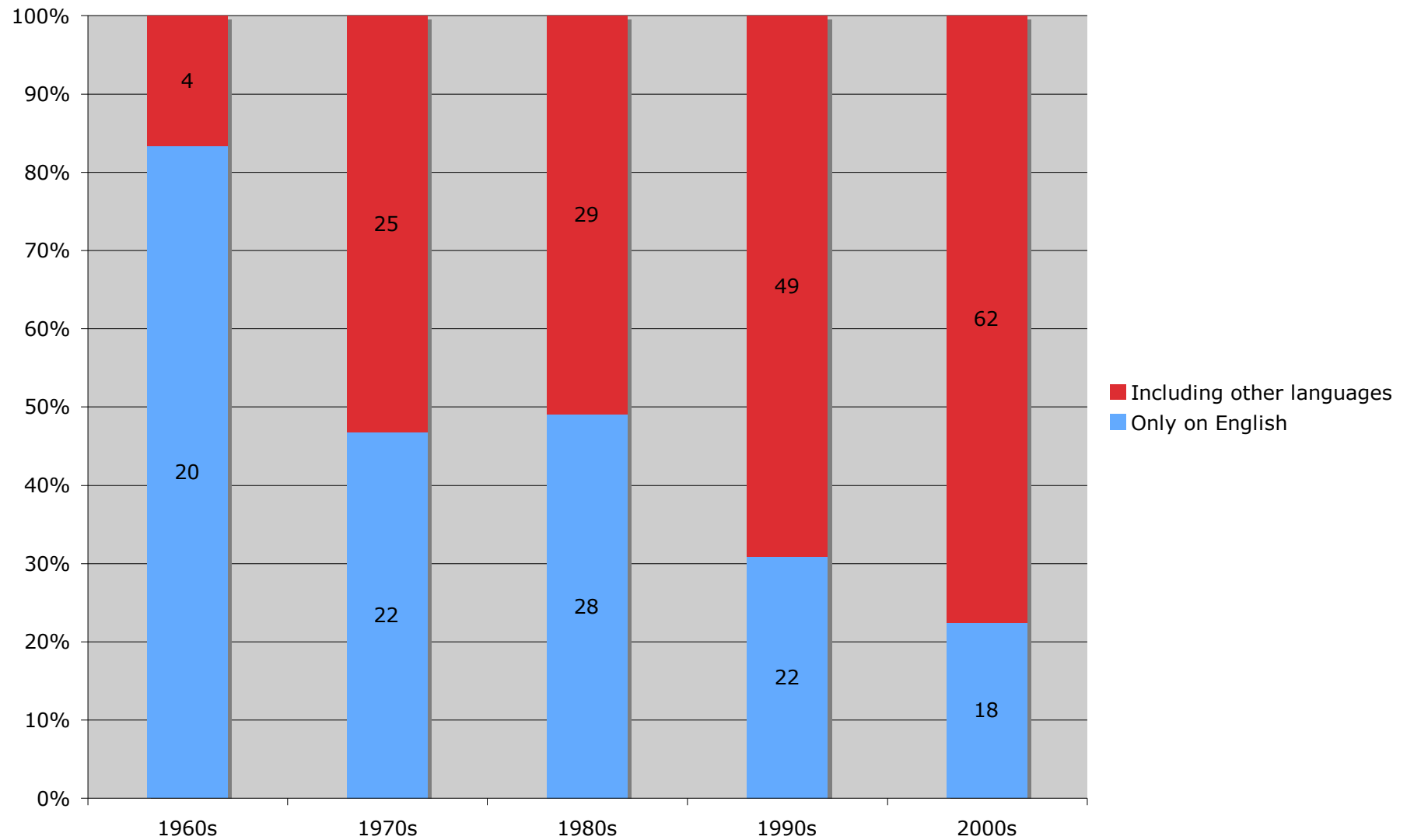
Empirical expansions

- Enormously increased depth of knowledge of the syntactic systems of a range of typologically as well as genetically different languages.
- Enormously increased depth of knowledge of a range of complex syntactic phenomena.

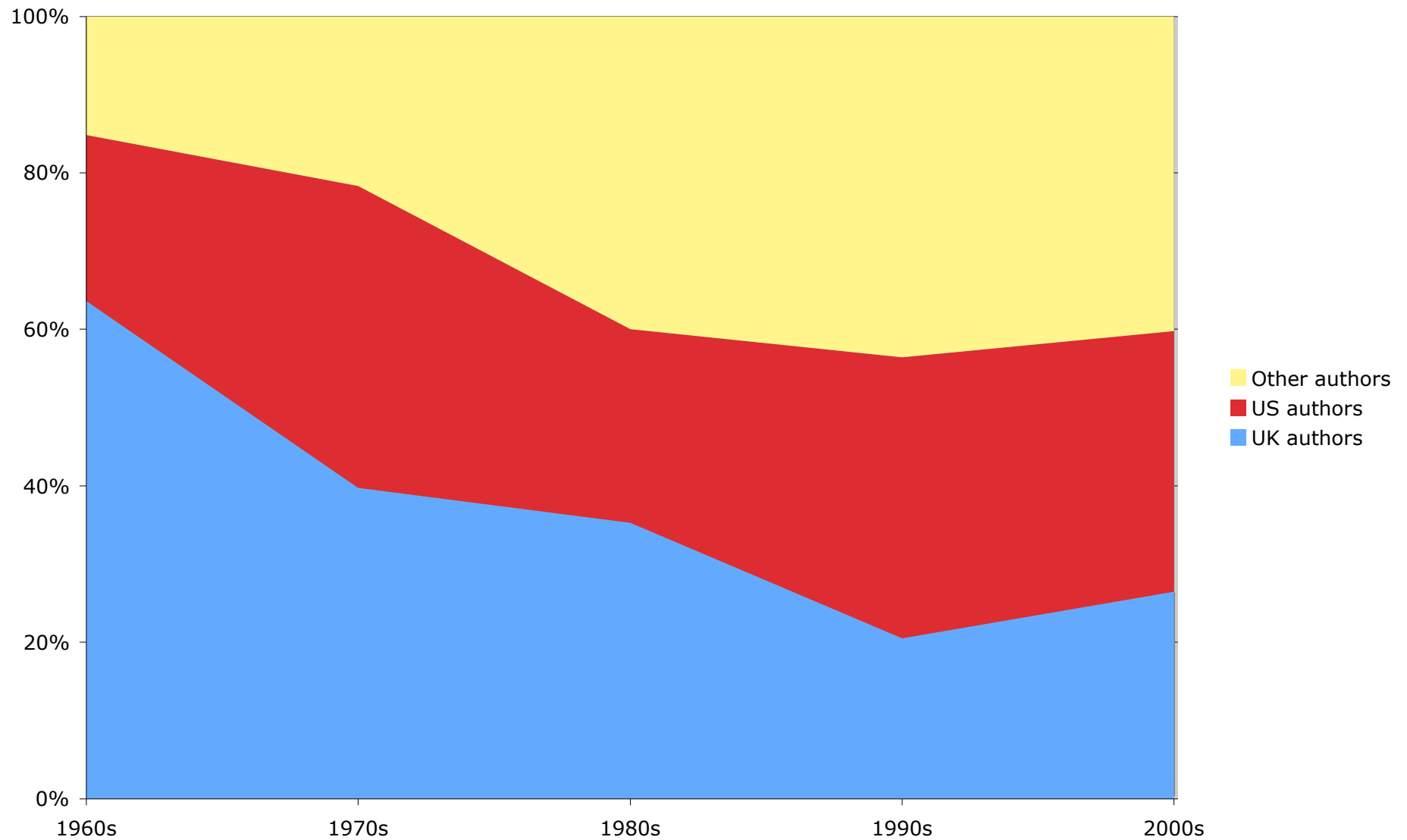
Languages in the *Journal of Linguistics*

Arabic, Bengali, Brazilian Portuguese, Cantonese, Carib languages, Czech, Danish, Dutch, English, Eskimo, Farsi, French, German, Gorum, Greek, Hebrew, Hindi, Icelandic, Indonesian, Inga, Irish, Israeli Sign Language, Italian, Japanese, Jarawara, Javanese, Kam, Kasem, Korean, Latin, Lithuanian, Mambila, Norwegian, Pashto, Polish, Romanian, Russian, Serbo-Croat, Singapore English, Sinhala, Slovene, Spanish, Swedish, Tamil, Telugu, T'in, Welsh, Yup'ik.

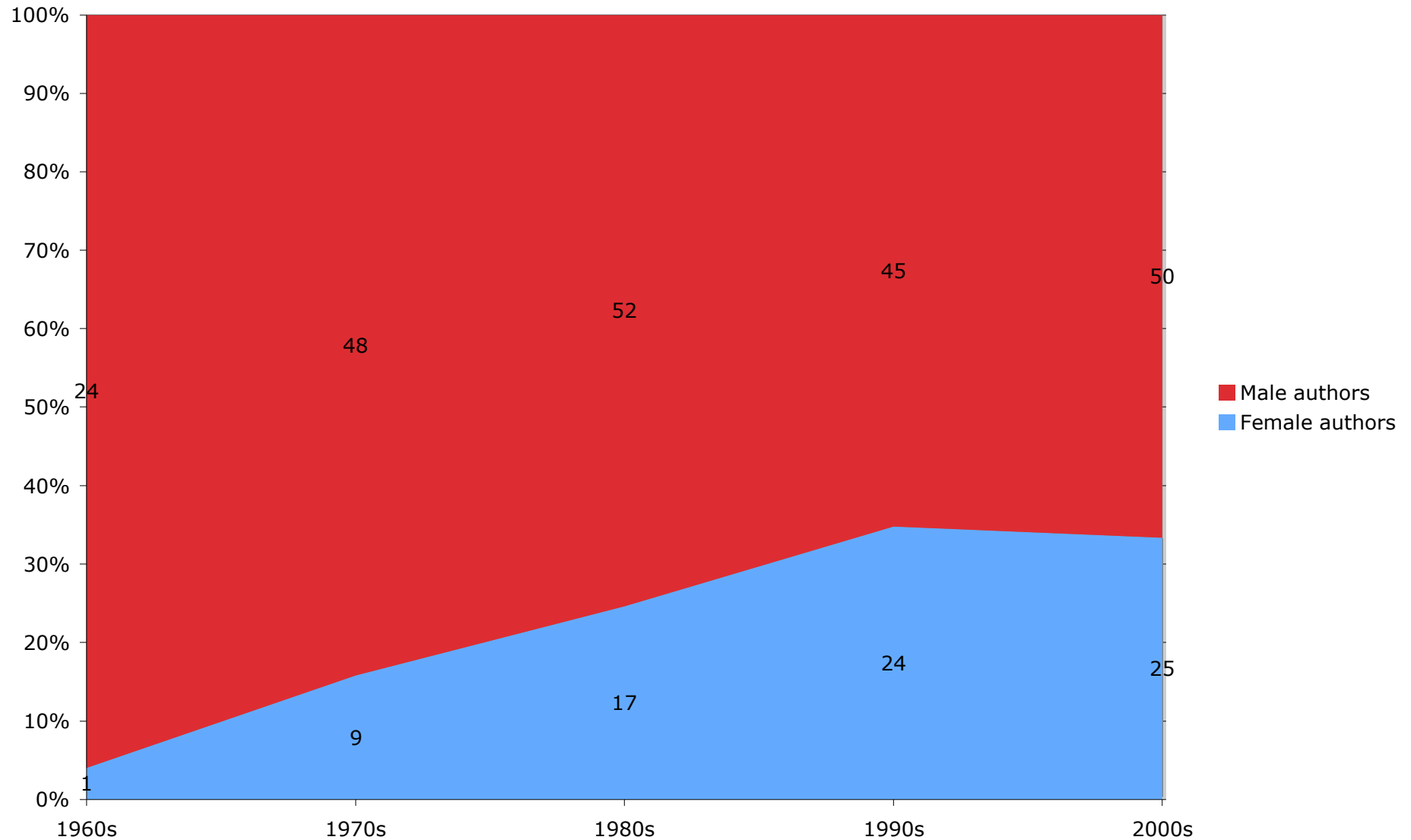
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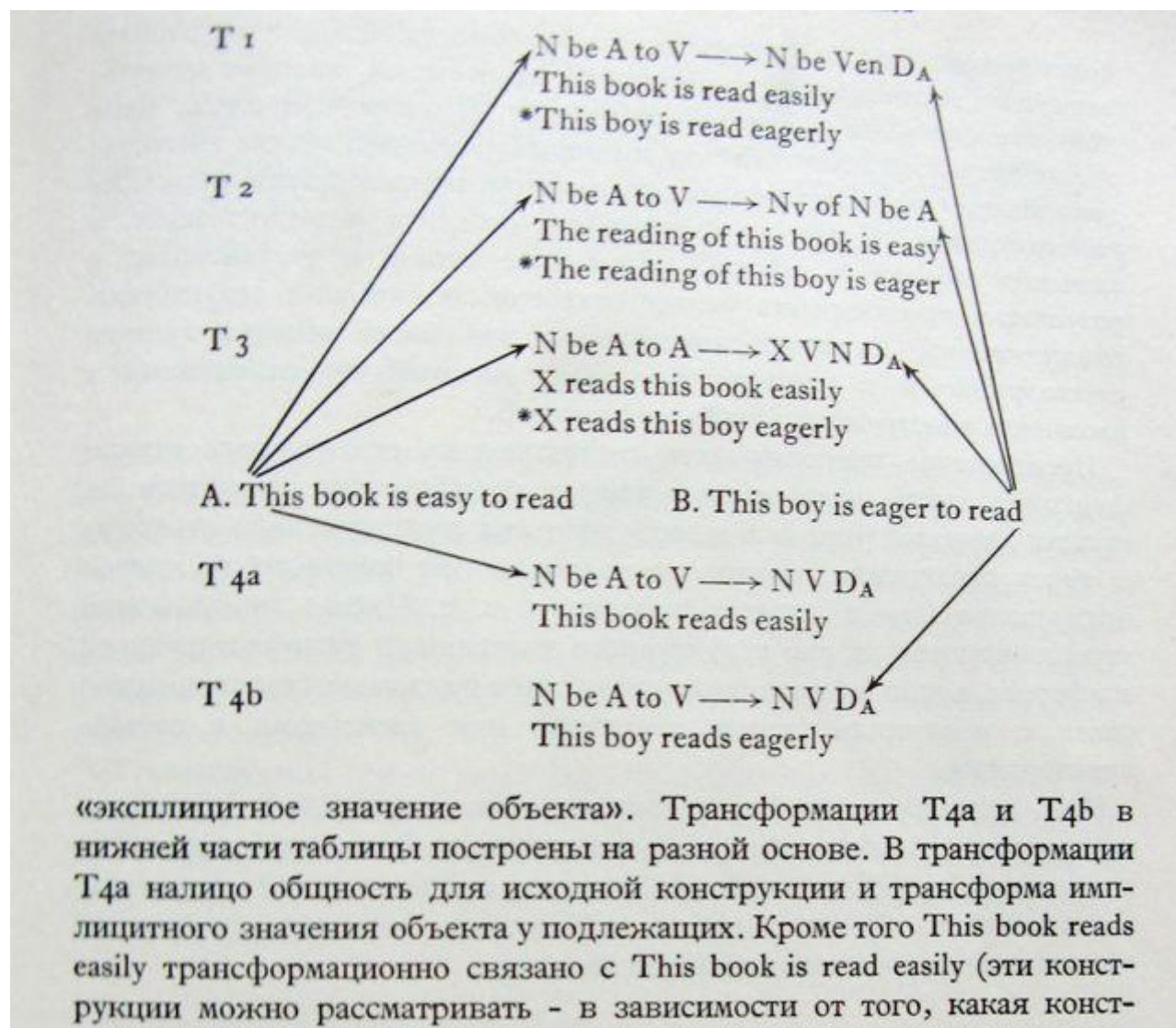
... and the authors



Since we're looking: male and female



although in some ways we've become more parochial



Displacement

- Postulation of transformations relating *wh*-questions to the syntax of declaratives
- Ross's exploration of the constraints limiting all non-gap leaving long-distance movement (not only *wh*-movement)
- Gazdar *et al*'s demonstration that movement can be implemented within a context-free system, and that at least some of the constraints can be insightfully captured.
- Chomsky's development of a potentially parameterised, theory of movement constraints (subjacency, the ECP, the CED (Huang), "Barriers")
- The development of a theory of intervention effects (Rizzi: Relativized Minimality)
- The detailed description of languages with no overt *wh*-movement (Huang) and the discovery that some island effects are still observed, leading to the development of a theory of Logical Form
- The detailed description of languages with multiple *wh*-movement (Rudin, Bošković and others)
- Detailed comparison of dependencies with and without overt pronouns (see e.g. Alexopoulou 2006 on resumption in relatives)

Displacement

Building on results:

Haegeman 2007 develops an account of the apparent “truncation” of e.g. temporal clauses in English compared to matrix clauses—

His text we’ll discuss tomorrow, and your text we’ll consider on Thursday

*His text we’ll discuss tomorrow, when your text, we’ll already have considered.

—which relies on, among others, Geis’ (1970) demonstration that temporal clauses show the hallmarks of movement, Rizzi’s Relativized Minimality (as further developed by subsequent authors), Bhatt & Pancheva’s 2006 analysis of conditionals as also involving displacement.

Wagers & Phillips 2009, building on earlier psycholinguistic work, argue that the human parser makes use of knowledge of grammatical constraints, by showing experimentally that it actively looks for a second gap having encountered a filler with a gap in the first conjunct of a coordination. To make this argument they make use of Ross’s establishment of the coordinate structure constraint and the special case of its relaxation, Across-The-Board movement, as well as the work on parasitic gaps initiated by Chomsky’s work in Barriers (but more recently taken up again by Nunes and subsequent authors).

And our theories?

- Only just before our year zero of 1959 Chomsky had shown that natural language could not be adequately captured by a finite state grammar. This was a crucially important demonstration that is still highly relevant today.
- He also argued that the dependencies in the English auxiliary system, as well as the relation between active and passive, *suggested* context-free grammars were also inadequate.
- This second argument was shown to be invalid as it stood, most dramatically by the development of an elegant account of the relevant phenomena in GPSG.
- However GPSG was in turn shown to be inadequate as a theory of natural language by Schieber's 1987 proof that there were dialects of Swiss German exhibiting the kind of cross-serial dependency known to be beyond the weak expressive power of context-free grammars.
- That still leaves in the running a number of (potentially) competing theories, including CCG, TAG, LFG, HPSG, Word Grammar, Cognitive Grammar, Construction Grammar, Dynamic Syntax, Minimalism.
- Within these, there have been advances (and of course some retreats). Consider for example the proposal that long-distance movement takes place in a number of smaller steps. Or the eventual rejection of Hale's proposal much discussed in the 1980s that there was a parameter distinguishing configurational and nonconfigurational languages.

Where do we go from here?

Vision? Wishlist?

- A rapprochement of syntax (and linguistics more generally) with cognitive neuroscience (cf. Poeppel & Embick 2005)
- Integration of further research into different models of learning, variation, and the implications of the acquisition process for language change (cf. Yang 2002, Kirby 2007)
- Rapprochement with computational linguistics

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“There can be no definitive formalization of syntactic theory at this point, and in the study that follows many more questions are asked than answered. Lack of data is the fundamental reason for this. There simply is not enough detailed syntactic work available, in the proper form, for theoretical conclusions to be able to receive empirical confirmation.”

Back to work!

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