

## Some notes on the centrality of Chomsky's methodology to the cognitive sciences

Nicholas Allott



Chomsky changed the way that I thought long before I met him. Unlike many of the other contributors to this book, I haven't studied with him, and I don't have stories about him to share. What I will mostly do here instead is

to comment on some of Chomsky's ideas which, in my view, are fundamental to the study of language and cognition (including, but going beyond, generativist work in syntax, which is well covered by other contributors here).

### *Some personal notes*

I happened to encounter Chomsky's work in politics, linguistics and philosophy just about simultaneously. I was starting an MA in linguistics at University College London, with no academic background in the subject. The convenor of the won-

derful course which allowed this unusual entry into the field was Neil Smith (for whose connections with Chomsky see his essay in this volume) and one of the lecture series – on pragmatics – was given by Deirdre Wilson, who did her PhD with Chomsky. When I went on to doctoral studies with Deirdre as my first supervisor and Neil my second I was delighted to realise that I had become a kind of academic grandchild of Chomsky's on two sides.

The MA in linguistics at UCL also included an excellent introduction from the independent-minded generativists there to P&P-era and Minimalist syntax. But my personal inclination has always been towards Chomsky's broader project of studying language as a mirror of the mind, and the implications for philosophy and cognitive science. I go back again and again to *Cartesian Linguistics* and *New Horizons in the Study of Language and Mind*, far more than to (for example) *Syntactic Structures* or *Minimalism*.

At the same time, a old friend had introduced me to Chomsky's political work, and I found myself embarking on the crash course in international relations and left libertarian thought that you get from going through Chomsky's back catalogue and chasing up some of the many works he recommends: essential preparation, as it turned out, for involvement in the

Stop the War movement when it sprang into being in the autumn of 2001, all of which is another story.

### *Chomsky's centrality to cognitive science*

The crucial ideas of Chomsky's that I want to set out are connected in various ways, and it's somewhat arbitrary to divide them up, but I will discuss them in this order: i) the Galilean style; ii) the suggestion that progress will mostly come from studying relatively discrete mental systems in abstraction from the rest of cognition; and iii) the requirement that theories be explicit.

### *The Galilean style*

What Chomsky calls the 'Galilean style' in theorising<sup>1</sup> seems to be essential to systematic investigation of nature. It involves abstracting away from much of the messy detail of phenomena with the aim of developing law-like accounts of underlying regularities. Explained like this, it strikes most scientists as obvious, but in the study of language it certainly bears restating. As most readers of this book will know, many linguists still feel that the great diversity of linguistic phenomena somehow refutes generative syntax – ignoring the crucial point that only *analyses* of data can clash with theories.

Similarly, a lot of work in linguistic pragmatics seems to be motivated by another view that flies in the face of the Galilean style: that it is illegitimate to abstract away from certain important aspects of people's experience. But if you want to understand (say) how language mediates certain social relations, it may very well be necessary first to develop a theory of language by abstracting away from language use, and to develop a theory of the essential core of communication by trying to answer a basic question: how can a speaker and a hearer coordinate on a thought, given the polysemy and open texture of language?<sup>22</sup> Both these research programmes are thoroughly Galilean in Chomsky's sense – along, arguably, with all serious work in the sciences.

### *Mental organs*

A related claim is that progress is likely to be made in the cognitive sciences by focussing on discrete mental systems which underlie abilities, particularly those systems with a large innate component. This is the view that Chomsky has sometimes called the 'new organology'. It obviously receives support from the success of the generative grammar research programme. A number of other such mental organs or faculties have been investigated in detail since Chomsky suggested this

research strategy, including the number sense (or senses), mindreading/theory of mind, folk physics, utterance interpretation, and moral grammar.

Given these successes, some of them spectacular, I think it is important to be aware that the strategy wasn't always obvious. Of course, it still faces resistance: there are many in psychology and linguistics who dislike talk of innate domain-specific capacities. Pursuing alternative research strategies is fine, I suppose, but something close to Chomsky's recommended programme has been central to most of the interesting work in cognitive science, and I think it's accurate to say that there has been essentially no success in explaining human linguistic abilities in work based on the assumption that there is no dedicated innate language faculty.

### *Explicitness*

The last of the three ideas I want to discuss is Chomsky's requirement that theories be explicit. This is often specified with reference to syntax: the system that syntacticians postulate should be freestanding, in the sense that it should not tacitly presuppose part of the competence that they are trying to explain, as traditional grammars do.

That much is, or should be, a commonplace of introductory

linguistics courses. What is perhaps less often discussed is the desirability of extending this kind of rigour to cognitive science more generally. One such discussion is at the foundation of Deirdre Wilson and Dan Sperber's relevance theory, which attempts to bring explicitness in Chomsky's sense to theorising about communication, improving on Grice's well-known framework. Grice tried to explain how one can be rationally justified in taking a speaker as conveying an implication; but what the implication is in each case is largely left to intuition. An explicit theory would instead generate it.

It's important to see that this explicitness is not the same as formalization, setting out one's theory in a logical or mathematical system of notation. Formalisation doesn't entail explicitness: one can present in formal terms a theory that is not fully explicit. Again, a good example comes from pragmatics. There is an approach that formalises Gricean inference in game-theoretic terms as a strategic choice between meanings. This approach is formal but not explicit, given that it does not attempt to show how the rival candidate meanings are generated.

As Chomsky has said, one should only formalise when there's some particular reason for doing so. Formalisation is not a criterion of adequacy for theories in cognitive science. Explicitness, on the other hand, seems to be essential.

## *Envoi*

My aims when I set out to write this piece were to stand as a representative of the very large number of researchers whose work has been shaped by Chomsky's without their having had extensive direct contact with him, and to sketch out briefly how profound – and profoundly beneficial – his influence has been in linguistics and cognitive science beyond work on syntax. On a personal note, the centrality of Chomsky's thought to my academic life can perhaps be gauged from the fact that in trying to do that I have appear to have produced a kind of *apologia pro vita sua*. It's a great honour and a pleasure to be able to thank him here: Thank you, Noam, and happy birthday!

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<sup>1</sup> Following the physicist Steven Weinberg.

<sup>2</sup> Another point that Chomsky has made is relevant here: just because some phenomenon is socially or personally important it doesn't follow that there is any corresponding underlying law-like system to be found.