

McConnell-Ginet to raise its profile and its status within the discipline: all of us who have followed are indebted to her efforts.

Gender, sexuality, and meaning contains material that might interest researchers in a number of areas (for example, semantics and pragmatics, sociolinguistics and discourse analysis), but it is most obviously addressed to those who work on language and gender. Though much of its content will be familiar to established scholars in the field (I myself had read most of the chapters before, though one or two of the earlier pieces were new to me), it is rewarding to re-read her work in this format. The way the chapters are ordered, introduced and annotated makes the whole volume more than just the sum of its parts. But it probably should not be taken as the definitive summing up: McConnell-Ginet has continued to write since her retirement, and her future contributions to debates on language and gender will undoubtedly deserve the same attention as the ones collected here.

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The Minimalist Program (Chomsky 1995, henceforth MP) has created controversy virtually from the moment it was published.¹ Hailed as the crowning achievement of decades of research on generative grammar (e.g., Uriagereka 1998, Smith 1999, McGilvray 2006), it has also been severely criticized. Some of the criticism went beyond challenging details of MP and questioned its very foundations and scientific justification (e.g., Pullum 1996; Johnson & Lappin 1997; Lappin, Levine & Johnson 2000; Postal 2004, 2009; Seuren, 2004). 'The Minimalist Program ... fails to satisfy basic scientific

[1] I am greatly indebted to Morten Christiansen, Michael Corballis, Peter Culicover, Jeff Elman, Dan Everett, Ray Jackendoff, David Johnson, Robert Levine, Brian MacWhinney, Robert Martin, Paul Postal, Geoffrey Pullum, Geoffrey Sampson, Pieter Seuren, and Stephen Shaw for detailed replies to my inquiries and/or feedback on drafts. The responsibility for any remaining errors is mine.

criteria such as respect for data, unambiguous formulation, falsifiability' (Seuren 2004: 4), and the perspective taken in MP 'explicitly rules out precisely the major theoretical achievements of the past. All of them' (Culicover 1999: 138). Chomskyans have rejected any criticisms (e.g., Smith 1999; Reuland 2001; Roberts 2001; Uriagereka 2001; Chomsky 2002, 2005). One reply to the challenge that with MP Chomsky has abandoned scientific practice seems to confirm such abandonment: 'Can [Chomsky's] goal be pursued by "normal scientific procedure"? ...Why should we expect Chomsky to follow normal scientific practice?' (Fiengo 2006: 471). The answer would simply be because Chomskyan biolinguistics claims to be a scientific enterprise. The present volume could be expected to provide a coherent defense of MP.

Judging by the table of contents the volume could live up to the dust-jacket praise, cover a wide variety of topics, and refute criticism of the biolinguistic enterprise. Twenty-four chapters are thematically grouped into four parts. Part I, 'Overtures', promises an exploration of biological perspectives on language and other cognitive functions, Part II, 'On language', situates linguistics within the natural sciences, Part III, 'On acquisition', focuses on how innate resources accommodate the seemingly effortless language learning by all normal children, and, Part IV, 'Open talks on open inquiries', expands into areas loosely correlated with linguistic theory (e.g., ethics, aesthetics, neural correlates of emotions). Each chapter is accompanied by a discussion section that provides 'spirited exchanges' (1) between the audience and the author. Of course, one should not judge a book by its table of contents. The stark contrast between 'penthouse' advertisement and 'Hinterhof' reality becomes quickly obvious in Chomsky's pedestrian 'Opening remarks', and none of the other collaborators provided a chapter of higher quality. As a result, any reader hoping for honest engagement with long standing criticism or at least some novel insights will likely be disappointed. There are numerous reasons for such disappointment.

First, the quality of writing is surprisingly poor. Presumably editing was kept to a minimum to maintain the flavor of an oral exchange. Yet, this is hardly an excuse for exposing the reader to repetitive passages of irrelevant musings of autobiographical or historical nature, to uninformative platitudes and analogies (e.g., 'we are not angels', 'language is a snowflake', 'children's stories always end happily – that's a law of nature', 'core and "hell on wheels" domains', 'virtual conceptual necessities'), to models of generative grammar that have features allegedly eliminated by MP, and to a plethora of technical terms that are neither defined nor used consistently.

The last problem is especially troublesome given the intended multidisciplinary audience. Conventions need to be explained and used consistently. Yet, the linguistic contributions present a bewildering variety of types of syntactic tree diagrams. This seems entirely unmotivated given that all participants subscribe to essentially the same theoretical framework.

Luigi Rizzi acknowledges that ‘our non-linguistic friends’ (213) need illustrative examples but provides no explanation for his tree diagram labels (214). Non-linguists will not understand these diagrams, and readers run the risk of being confused by the different labeling conventions used by various authors. Anyone seeking clarification in important MP resources (e.g., Chomsky 1995, Hornstein 2009) is sure to encounter additional label-name varieties in these texts.

Furthermore, it should not be left to the reader to discover Chomsky’s obvious misinterpretation of another participant’s contribution: ‘Randy Gallistel was telling us about jays that can count to many thousands’ (391). Gallistel told no such thing but said ‘In times of plenty ... jays, gather food and STORE IT in more than ten thousand different caches’ (61, my emphasis). It seems that many contributors expected extensive editing but the editors expected perfect manuscripts. The reader is left with the unfortunate consequences of these mismatched expectations.

Another serious flaw of the volume is the absence of any engagement with current critique of the work presented. The reference section is almost devoid of entries for authors who work outside the Chomskyan framework, containing no publications of Culicover, Everett, Lakoff, MacWhinney, Partee, Pollard, Pullum, Sag, Sampson, Smolensky, and Tomasello, and no recent publications of Chater, Christiansen, Elman, and Postal. There are, however, frequent jabs at unnamed Quinians and behaviourists, and several instances of severe distortion of work in competing frameworks (to be discussed below). This biased treatment creates the misleading impression that, by now, the biolinguistic enterprise is universally accepted.

Some contributors provide disclaimers suggesting they have no confirmed results to report: ‘All of these studies are very recent and more data is needed, but they nevertheless point in a direction that is very suggestive, albeit premature’ (Núria Sebastián-Gallés, 345). Also one encounters a bizarre notion of ‘solve’: ‘we solved Plato’s Problem, at least conceptually (though not in detail)’ (Cedric Boeckx, 49) and a tendency to draw far-reaching conclusions from meager empirical evidence. Christopher Cherniak discusses research showing that connections in the nervous system of the nematode *Caenorhabditis elegans*, as well as in certain parts of the brains of rats, cats, and macaques, are placed so as to minimize wirelength, and takes this to indicate neural optimization in human brains, concluding that ‘neuro-anatomy is intimately meshed with the computational order of the universe’ (116). Marc Hauser uses his finding that in experimental settings cotton-top tamarins and common marmosets prefer lullabies to German techno tunes and slow to fast tempos to support his hypothesis that we share innate musical preferences with these species (317–318). However, the monkeys also prefer silence over any kind of music, and during the discussion Hauser reveals that ‘we are at such an early stage of this work that it is hard to make much sense of it’ (326).

The following chapters, one might think, might be where the most severe criticisms of MP would be addressed. One such criticism was that MP has abandoned scientific practice and rests on mainly unconfirmable claims. One would expect that any detailed explanation of Universal Grammar (UG) would respond to this charge. But in Itziar Laka's chapter, 'What is there in Universal Grammar?' (as elsewhere), this hope is vain. After ploughing through a mixture of nostalgia about Chomsky's *Syntactic Structures* (1957) and review of *Verbal Behaviour* (1959), and incomplete accounts of rather dated categorical-perception research, one discovers that none of Laka's candidates passes the test for UG. That is none of them is innate, species- and domain-specific. In addition to this sobering result the chapter also reveals the potential to confuse readers.

[T]he syntactic structures of human languages can resemble matryoshkas, those Russian wooden dolls you open to find smaller but identical dolls nested inside. Consider for instance the English sentence:

- (1) The girl the boy saw thinks the parrot likes cherries
 Here, we find sentences nested inside sentences, and there is no grammatical limit to the number of times I can make a bigger doll, a longer sentence. (337)

On non-MP interpretations, sentence (1) is not an example of center-embedded recursion. It has a restrictive relative clause inside the subject 'the girl (who) the boy saw' and a complement clause object. Each manifests one level of embedding. This means that (1) does not have a matryoshka-like structure. Under current minimalist analysis branching can only be binary. This creates many extra embeddings (of which many branches are empty). Here it may be correct to speak of matryoshka-like structures. But calling these structures 'sentences' is misleading even in minimalist terms. Finally, well-known challenges to MP are simply ignored. Laka claims: 'Of course, [recursion] is not only a property of English, but a property of language, and the fact that all human grammars can build these matryoshka-structures tells us that this is a very essential aspect of human language' (337). Any reader familiar with the issue knows that findings on Pirahã challenge this universality claim (Everett 2005).² Laka sees no need to even mention a challenge she could not have been unaware of. None of these shortcomings are corrected in the discussion. Instead, readers are subjected to a history lecture, tracing the role linguistic universals might have played in the work of Aristotle, the Stoics, medieval magicians, Port Royal

[2] Everett's work had received massive attention and was considered as serious threat to the UG hypothesis (e.g., Jackendoff & Pinker 2005). Challenges of this work (e.g., Nevins et al. 2009) had not been published when the conference in the Basque Country took place (summer 2006). The complete absence of any critical discussion of this work is remarkable.

Grammarians, Locke, Hume, Thomas of Erfurt, and Radulphus Brito. It is unclear how these remarks contribute to a state-of-the-art account of WHAT UG is.

Noam Chomsky's own contributions warrant detailed scrutiny. The editors promise that in the final chapter 'virtually all of the different threads spun during the conference finally come together' (9). The reader is told that 'with his vast knowledge and perspective [Chomsky] ... insists on the strangeness of the amnesia that has struck the cognitive sciences in the last couple of decades' (9). Strange indeed is that Chomsky seems unwilling to share his vast knowledge. Instead of correcting the vagueness and factual errors contained in the contributions, he muses about dinner conversations concerning Greek philosophy and offers trivial speculations about why some activities are competitive sports and others not. Further, he seems to abandon the notion of grammaticality entirely: 'Are [ungrammatical expressions] proper strings or not ... it makes no difference what answer you give – they are what they are, they have the interpretation they have – it's given to you by the linguistic faculty' (389). As a state-of-the-art account of the ontology of personhood, he provides two fairytale examples (a handsome prince who turned into a frog and baby-donkey Sylvester who turned into a rock, 382). From this data set he induces that infants already have a deep understanding of psychic continuity over time. Chomsky calls this a typical case of a 'semantic or conceptual property that is impossible to identify in material terms ... [showing] that there is simply NO NOTION OF REFERENCE in natural language' (383, my emphasis). Drawing such an astounding conclusion from a superficial discussion of fairytales could hardly be justifiable even if one subscribes to Chomsky's understanding of scientific work: 'It's called myth, or magic, or in modern times you call it science ... they're all sort of like that: there's some considered reflection on what's going on' (383).

Several times Chomsky misinterprets work in the cognitive sciences. One example is this account of Jeffrey Elman's early work:

One of the most quoted connectionist papers is Jeffrey Elman's work on how you can get two nested dependencies. This is true, you can write a program that will do that. But Elman's program totally breaks down when you get to three, and you have to rewrite the whole program. In Turing machine terms, the control unit has to be totally changed, which means you're not capturing the rules. And to make things worse, his approach also works for crossing dependencies, so in the case of the example earlier:

- (4) *The men who John see is tall.
it works just as well for those. (392)

This passage reveals fundamental misunderstanding. First, Elman nowhere identified a need for reprogramming a simple recurrent network (SRN) to go

from two to three levels of nesting.³ Second, the work with SRNs has shown that they perform very similarly to humans when dealing with nested and crossing dependencies. What is difficult for humans to process is difficult for SRNs and what is easy for humans is easy for SRNs. Third, an SRN trained on English input would not handle the ungrammatical (4) ‘just as well’ as a grammatical expression. What Elman found is that SRNs generalize beyond the training set and can ‘recognize’ novel sentences as grammatical or ungrammatical. This work has been reported in detail and been replicated numerous times by different researchers (e.g., Elman, 1990, 1991, 1993; Christiansen & Chater 1999). Yet, Chomsky continues to misrepresent it as if he were not familiar with it.

One final example may give the reader a sense of the truly mediocre level of what is offered in this volume. To provide some background information: one proposal in support of MP, the strong minimalist thesis, suggests that language is ‘an optimal solution to conditions imposed by the interface conditions’ (126; see also Chomsky 1995, Hornstein 2009). And, there ‘are more radical proposals under which optimal satisfaction of semantic conditions becomes close to tautologous’ (28). Critics observe that evolution does not provide optimal solutions and that Chomsky misinterprets the insights of Gould & Lewontin (1979). Furthermore, MP is so vague that it would be impossible to decide what an optimal solution to such a hopelessly underspecified problem would be (e.g., Johnson & Lappin 1997, Lappin et al. 2000, Seuren 2004). Instead of addressing such criticism, Chomsky remarks: ‘I think there’s every option open from a perfect solution to a minimax problem to a worst possible solution, which is one damn thing after another. Anywhere in there could be some kind of answer to this question’ (386).

Chomsky’s own ‘science’ works like this: ‘You just see that some ideas simply look right, and then you sort of put aside the data that refute them and think, SOMEBODY ELSE will take care of it’ (36, my emphasis). This method allows him to be vastly more efficient than traditional scientists. He is untroubled by counterevidence because sooner or later somebody else will take care of it. And there is, of course, also no need for conducting experiments or gathering data. After discussing very briefly some differences between human and bee communication, Chomsky demonstrates his infallible abductive instinct. Claiming that both systems share some ‘minimal search principle’, he proposes: ‘And maybe that’s the answer. A shot in the dark, but I think it might be a direction to look’ (35). The following exchange between Chomsky, who has no training in genetics and never completed any work in

[3] In personal communication Elman remarks ‘It’s not clear to me what “reprogramming” an SRN would entail, actually’.

that field, and distinguished geneticist Gabriel Dover, illustrates Chomskyan ‘science’.

Dover: ... the whole thrust of modern-day genetics is going against [your] ideas of laws of form and principles of natural law ... nothing seems to be obeying laws of form, out of the reach of genes.

Chomsky: That can't be. I mean, take, say, the division of cells into spheres, not cubes. Is there a gene for that?

Dover: Yes, of course there is ... there are tens upon tens, if not hundreds, of genes directly responsible for very wide-ranging differences in the shapes, sizes, numbers, divisions, life spans, senescence, functions, and behavior of the several hundred types of cells in our species. Cells are not soap bubbles. There are constraints of course but these are a matter largely of history not of physics, over and above the obvious physics/chemistry of molecular contacts.

Chomsky: No there isn't such a gene. Cells form spheres because that is the least-energy solution ... If particular combinations of proteins and molecules and so on do particular things, that is because of physics and chemistry. ... all of that is presupposing massive amounts of maybe unknown physical and chemical principles, which are leading things in a certain direction, kind of like cell division into spheres. I mean, there may be a couple of genes involved, but fundamentally it is physical principles. (38–39)

Here the Chomskyan scientist does not use work he has completed himself to refute an expert. Instead, he relies on his abductive instinct, telling him that ‘conceptually it has to be like this’ (40), that his view is ‘close to true ... so close to true that you think it's really true ... overwhelmingly true’ (393).

Presumably, for readers who doubt the legitimacy of criticism of the biolinguistic enterprise (e.g., Pullum 1996, Johnson & Lappin 1997, Levine & Postal 2004, Postal 2004, Seuren 2004), *Of Minds and Language* could be an eye-opener. But readers interested in an accurate account of recent findings in linguistics, psycholinguistics, language acquisition, cognitive neuroscience, comparative cognitive psychology, and evolutionary biology should direct their attention elsewhere.

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