James McGilvray, ed. *The Cambridge Companion to Chomsky*. 2nd ed. Cambridge University Press 2017. 365 pp. $85.99 USD (Hardcover ISBN 9781107165892); $32.99 USD (Paperback ISBN 9781316618141).

The second edition of *The Cambridge Companion to Chomsky* follows the first edition in being split into three parts, each discussing an intellectual field to which Noam Chomsky provided a major contribution. All the chapters are new and were written specifically for this edition, and most of the contributors are new, with only a handful having written a chapter for the previous edition. The contributors are longstanding experts in their fields who wrote their chapters to be accessible to a general intelligent audience. That said, however, since one of the aims of this new edition is to address specific changes in Chomsky's linguistics since 2005, some chapters assume a basic understanding of generative linguistics.

The first part of the book, *The Science of Language: Recent Change and Progress*, begins with Howard Lasnik's excellent introduction to generative grammar and the motivations underlying various aspects of the Minimalist Program. In the next chapter, Samuel Epstein, Hisatsugu Kitahara, and Daniel Seely discuss Chomsky's claim that the faculty of language may be a 'perfect solution' to the interface systems. The language faculty has two interfaces, one with the sensorimotor systems and another with the conceptual-intentional systems, and the outputs of the language faculty must be understood by both these systems. The claim is that the language faculty is in a sense the most optimal solution meeting the interface conditions at these two interfaces. Epstein, Kitahara, and Seely also discuss the various proposals in regard to the relation between the language faculty and these two interfaces. The third chapter is by Norbert Hornstein, who provides a thorough and illuminating discussion of Merge, which is the label Chomsky uses to refer to the basic recursive operation that underlies language. Hornstein explains the central role that Merge plays in efforts by biolinguists to explain the structure of language as well as its evolution. In the fourth chapter, Robert Berwick discusses his claim that 'the entire 60 plus-year narrative arc of Generative Grammar has sought to characterize the human 'language capacity' (LC) as a constrained, evolvable trait or phenotype developing from some particular genetic basis, what biologists call its genotype and which Chomsky called 'Universal Grammar' (UG)' (87). Berwick argues that the way biolinguistics understands the evolution of language is currently the best hypothesis consistent with the available data. This is an internalist biologically-phenotypically orientated approach. Berwick also discusses the evidence in favour of the claim that Merge is the basic property of language, one that is responsible for the hierarchical and recursive symbolic system that is unique to humans.

In the fifth chapter, Hagit Borer discusses the way in which Chomsky's linguistics deals with lexical items and the information that they contain. What do speakers of, say, English know about particular words, and how is such knowledge related to the syntax? The sixth and last chapter of the first section by linguist Massimo Piattelli-Palmarini and physicist Giuseppe Vitiello shows the parallels between certain aspects of Chomsky's recent work and the explanatory tools of Quantum Field Theory in physics ('the modern physics covering also macroscopic objects at room temperature' (135)). Chomsky argued that there are three factors in language design: the growth and development of the language faculty and its evolution depends on genetic factors, the input from the environment, and other nature-based principles such as those explored in physics and chemistry. Piattelli-Palmarini and Vitiello compare Feynman's sum of all histories to Chomsky's unrestricted Merge, and argue that the 'idea that a particle does anything it pleases, goes anywhere, forward or backward in time, until one computes the so-called path integral under the constraint of minimal action [i.e., Feynman's sum of all histories], is a close parallel (we think) to Chomsky's suggestion

that the most elementary syntactic operation (recursive binary Merge) operates totally freely until it interfaces with the interpretive apparatus, where it meets the constraints of minimal computation and strict locality' (135). Piattelli-Palmarini and Vitiello argue that Merge is the product of a third-factor Quantum Field Theory effect.

The second section, *The Human Mind and Its Study*, opens with David Poeppel's discussion of Chomsky influence on the neuroscience of language. Poeppel aims to answer the following question: 'What is the state of the neuroscience of language – and cognitive neuroscience more broadly – in light of the linguistic research, the arguments, and the theories advanced in the context of the program developed over the past 60 years by Noam Chomsky?' (155). The aim of this program, as this book's editor McGilvray puts it, 'is the construction of a computational theory of the operations of the language faculty's core, a theory that conceives of language as a biological object at an "abstract level"' (21). Poeppel's work attempts to match the study of language as Chomsky sees it with research in cognitive neuroscience. He is critical of 'current research that focuses on big (brain) data, relying on no more than the principle of association, often with implicit anti-mentalist sentiments, typically skeptical of the tenets of the computational theory of mind, associated with relentless enthusiasm for embodied cognition, the ubiquitous role of context, and so on' (155). Poeppel asks why a large proportion of current research on the neuroscience of language has embraced these ideas and argues that Chomsky's approach is more likely to yield substantive progress. The eighth chapter in this collection is by the editor, who discusses Chomsky's view of cognitive science, its motivations, and what might be the best way to pursue its study. McGilvray outlines Chomsky's notion of an internalist study of the mind. In the ninth chapter Paul Pietroski discusses Chomsky's endorsement of an internalist form of semantics. Pietroski discusses the current orthodoxy that sees semantics in externalist and referentialist terms, and argues against it by showing where it fails. He argues that there are no fixed word-world relations of the sort externalists posit. Piestroski then outlines what an internalist semantics looks like by arguing that meanings are instructions for how to assemble concepts internal to the mind.

John Collins discusses Chomsky's view of cognitive architecture, specifically showing how Jerry Fodor's notion of module is not the same as what Chomsky takes to be a mental module. John Mikhail's discussion and elaboration of Chomsky's remarks on moral philosophy ends the second section of the book. John Rawls famously suggested in *A Theory of Justice* that what he called a sense of justice in humans can be understood along the lines of Chomsky's theory of language. The parallel between language and morality that Mikhail argues for is threefold: first, that in both cases individuals develop intricate and more or less uniform systems. Second, that these systems are both generative insofar as, in the case of morality, they allow individuals to make stable moral judgements about new cases. And, third, that there is a profound gap between the properties of these acquired systems and the restricted environmental input that lead to their formation.

The third and final part of the book, *Chomsky on Politics and Economics*, opens with Charles Derber's discussion of the moral basis of Chomsky's political economy. Derber discusses Chomsky's critique of capitalism and contrasts it with the views of Milton Friedman. Chomsky's view of the 'good society' and its prospects is also discussed. Next Anthony DiMaggio discusses the current status of Edward Herman and Chomsky's work on propaganda and the corporate media, and the way in which they support and maintain corporate and state power. In the fourteenth chapter Greg Grandin discusses Chomsky's involvement in Central and South America. Grandin argues that 'The non-deterministic ways Chomsky "understands history" – unburdened by the kind of teleology associated with Kant and Marx – allows him to judge policies by more modest criteria than necessity or inevitability: to what degree do they allow people to live in dignity, in relation to other possible options?' (296). Irene Gendzier ends the final chapter with a discussion of Chomsky's views on the

Israel/Palestine conflict. She details the history of the conflict and explains the reasons for the deep involvement of the US. The US provides an incredible amount of financial and political backing to Israel—without which it would not be able to commit its crimes against the Palestinians. If this is the case, then Gendzier argues that we must mobilize pressure on the US, which holds the keys to policy changes in the Israel/Palestine conflict. Such a mobilization assumes a level of intellectual and political education and awakening that needs to arise in those committed to peace and justice in the Middle East, and this is especially so amongst the silent and complicit intellectuals who provide cover for state crimes.

Eran Asoulin, Macquarie University