perfect is certainly the best currently available. The reconfiguration of the Indo-European verbal system is, however, less likely to have a lasting impact. While Willi's reconstructions are instructive to think with, I suspect I will not be the only one for whom Pre-Proto-Indo-European seems too many light years away.

JAMES CLACKSON
University of Cambridge
jptc1@cam.ac.uk

STEELE (P.M.) (ed.) **Understanding Relations Between Scripts: The Aegean Writing Systems**. Oxford: Oxbow Books, 2017. Pp. xv + 221. £36. 9781785706448.

This book is a collection of nine essays that represent the proceedings of a conference held in Cambridge in 2015. The essays touch on the Bronze Age scripts of Crete (Cretan hieroglyphic, Linear A and Linear B), the Cypriot scripts and Linear B in mainland Greece. To the extent that they can be read or analysed, the scripts appear to be syllabic, or mixed syllabic and ideographic/logographic (some signs stand for an item such as a commodity, animal or human being; there are also numerals, weights and measures).

Scripts that can be read differ from cuneiform syllabic writing (and hieroglyphic Luwian and Egyptian) in not using logograms within a sentence as a substitute for syllabic spelling and in not using determinatives; nevertheless, the scripts, and the culture of writing that lies behind them, are very different from each other, and undeciphered systems such as Cretan hieroglyphic may well include such features. This is suggested by Roeland Decorte in his contribution, 'Cretan "hieroglyphic" and the nature of script'. This essay is essential reading for anyone needing to deal with this earliest Cretan writing system (unique in that around half of the surviving corpus is found on seal-stones). He argues that the standard corpus of Cretan hieroglyphic inscriptions (J.-P. Olivier and P. Godard, *Corpus Hieroglyphicarum Inscriptionum Cretae*, Paris 1996) fails to distinguish clearly between signs and decorative elements on seals, or even to articulate a theory of the relationship between these two elements. Decorte proposes that many semiotically significant elements have been rendered invisible by incorrect 'normalization' in printed editions, and more broadly that, if art is meaningful, then importing a distinction between signs and 'decorative' elements in the seals may be the wrong way forward in understanding the script. The theme of palaeographic accuracy is echoed in Miguel Valério's essay ('Script comparison in the investigation of Cypro-Minoan'), which calls for a detailed study of the Cypro-Minoan script(s) to distinguish graphemes from allographs; on this basis, he argues, the phonetic values of some Cypro-Minoan signs might be guessed at by both careful script comparison with Linear A and internal analysis of the distribution of the Cypro-Minoan signs.

Both Helena Tomas ('Linear B script and Linear B administrative system: different patterns in their development') and Vasillis Petrakis ('Reconstructing the matrix of the "Mycenaean" literate administrations') argue for a rethinking of the relationship between Linear B and the two earlier writing systems on Crete (Linear A and Cretan hieroglyphic), and their administrative contexts. They both acknowledge that Linear A provided the immediate model for the shapes and (probably) values of most Linear B signs, but make an interesting case that Cretan hieroglyphic writing practice played a more significant role in the development of the Linear B literate administration than previously imagined (in spite of the chronological gap in the evidence available to us). Petrakis suggests a fusional coexistence of Cretan hieroglyphic and Linear A systems in the Second Palace period (Late Minoan I), at least in north-central Crete, and sees this as the crucible in which the Linear B administrations of Late Minoan II took shape. An important implication is that Linear B was developed on Crete, rather than mainland Greece or elsewhere.

Philippa Steele and Torsten Meissner ('From Linear A to Linear B: the problem of the backward projection of sound values') set out sober and clear arguments to demonstrate that 'it is legitimate *in principle and as an approximation* to read Linear A with the sound values of Linear B' (93, authors' italics). This is sure to become a standard reference, since most students are taught, on the one hand, that it is methodologically wicked to try to read Linear A with Linear B sound values, but, on the other, that this is what everyone does. Anna Judson in a clear and useful essay discusses the 'additional' signs of Linear B, which mostly spell sequences that could also be written using two syllabic signs (though a_2 [ha] and pu_2 [phu] could not): for example *dwe*, *au*. She shows that many older and still widely held views are probably

incorrect (for example, that the sign *pte* started out representing *pye*). More generally, she argues that these signs are unlikely to shed light on the phonology of the Linear A (Minoan) language; but that they can give an insight into the development of Linear B (seen as an ongoing process, rather than a one-off adaptation).

All of the essays contain contributions of real interest and value; it has not been possible to discuss them all. Many of the contributors are younger scholars, and some chapters would have benefited from a thorough editorial process or peer review. This is a danger in conference proceedings, and the benefit of a rapid, guaranteed publication has to be weighed against the very real advantages of peer review to an early-career author. In thematic collections, an index is extremely helpful, since contributors inevitably cover aspects of the same material, often with different views or from different viewpoints.

STEPHEN COLVIN
University College London
s.colvin@ucl.ac.uk

VATRI (A.) **Orality and Performance in Classical Attic Prose: A Linguistic Approach**. Oxford: Oxford University Press, 2017. Pp. xvi + 334. £75. 9780198795902.

When students struggle with the syntax of a Greek sentence, we frequently encourage them to find the subject and the verb, wherever they are in the clause, and work from there. While this approach instils a healthy awareness of the underlying structure of a sentence, it also distances the reader from how an ancient audience would have encountered the text: as a linear sequence of words, each one of which needed to be processed, at least provisionally, before moving onto the next. The ultimate purpose of Vatri's book is to assess how difficult this would have been for a native speaker and, in particular, whether the level of difficulty was systematically higher in texts that could be processed 'off-line' (such as Thucydides, whose readers would be able to go back and reread obscure passages) than in those that had to be processed 'on-line' (such as a courtroom speech) and so would potentially have been optimized for real-time comprehension.

Before embarking on such a project, substantial methodological groundwork has to be laid, and, to Vatri's credit, he devotes considerable space to this task. In the first two chapters, he sets out what he means by orality in the context of Attic prose and then investigates the contexts, public and private, in which readers and listeners experienced texts. In chapter 3, he establishes the basic division of texts into 'scripts', which were intended for oral performance in the first instance, and 'scriptures', which were primarily received as written texts, and reviews how this dichotomy plays out in different genres. Chapter 4 draws on ancient critics' discussion of clarity (σαφήνεια) and modern psycholinguistic studies of language comprehension to work out what sort of structures are likely to have been harder or easier to process, exploring the role of prosody – especially pauses – in making clear in oral speech, but not in punctuation-free written texts, what goes with what.

Vatri is admirably meticulous in these preliminaries, which, in addition to covering theoretical points, also deal with more specific questions arising from discussion of the oral and written reception of Attic prose, such as the disputed relationship between Antiphon's *Tetralogies* and the courtroom speeches or that between the two versions of Demosthenes' *Third Philippic*. Many of the linguistic findings also deserve the attention of classicists. For instance, we learn that, while paratactic constructions are easier for speakers to produce, hypotactic ones can be easier for listeners to process, since semantic connections within the sentence are made more explicit. Similarly, one should not assume that hyperbaton is a high-flown literary feature that would always have been hard to comprehend: it is common enough in everyday speech in many modern languages.

But the downside to Vatri's thoroughness in the first four chapters is that he is left only one chapter (195–257) for the study itself, and here more expansiveness would have been welcome. For his analysis of the relative difficulty of processing scripts and scriptures, he selects a contrastive corpus of, first, speeches that could actually have been delivered more or less as we have them (for example, Antiphon 1 and Lysias 12) and, secondly, those that were primarily designed for literary consumption (for example, Antiphon 4, Thucydides 2.35–46 and Plato's *Apology*). Using a dependency model of grammar to track which words create expectations for which other words, and noting where ambiguities arise (for example, whether πάντων should be understood as masculine or neuter), Vatri counts the number of places where these texts would have been hard to process because an initial parsing of a word would