Kamp, Hans. 1973. Free choice permission. *Proceeding of the Aristotelian Society, New Series* 74, 57–74.
Roberts, Craige. 2012. Information structure: Afterword to Roberts (1996). *Semantics and Pragmatics* 5.7, 1–19.

Author's address: School of Foreign Languages, Shenyang Normal University,
Shenyang, Liaoning 110034, China
sylg2012@sina.cn
(Received 3 April 2018)

Andrea Moro, *A brief history of the verb* to be. Cambridge, MA: MIT Press, 2018. Pp. xvi + 288.

Reviewed by GIOSUÈ BAGGIO, Norwegian University of Science and Technology

Andrea Moro has devoted much of his career to the study of copular sentences. In 2010, he published a semi-popular account of his and others' work in this area in a volume in Italian, titled *Breve storia del verbo essere. Viaggio al centro della frase* (Adelphi). The MIT Press recently published a fine translation of that book into English by Bonnie McClellan-Broussard, *A Brief History of the Verb* To Be, expunging the original subtitle: that is perhaps the only unfortunate choice in an otherwise impeccable package; Moro's book really is a theoretical 'journey to the centre of the sentence', while his historical considerations, however informative, merely set the stage for the book's more ambitious undertaking.

Chapter 1 reconstructs the history of logico-linguistic analyses of the verb 'to be' in three instalments. The first examines Aristotle's ground-breaking intuition that the verb 'to be' is not a predicate but the 'name of tense'. Aristotle's focus was on declarative sentences as vehicles of truth, and on logical arguments as means for the transmission of truth. The key to truth and falsehood is the 'combination and separation' of subjects and predicates. There is no difference between 'A man is walking' and 'A man walks': in both cases, the predicate is expressed by the verb 'to walk'; when present, 'to be' only specifies the tense and aspect of the sentence. The protagonists of the second instalment are medieval scholastic philosophers, and in particular Abelard, who was among the first to talk about 'to be' as COPULA: 'the act that, by uniting, generates a new entity' (35). The verb 'to be' allows the very same terms to function as subjects or as predicates in different parts of a syllogism. The notion that the copula composes subject and predicate, generating truth and falsehood, was adopted by Arnaud and the Port-Royalists, who brought to completion the project of reduction of 'to be' to the 'name of affirmation'. The third episode in Moro's historical account is the analysis of identity statements, such as 'The evening star is the morning

910

star', by the early analytic philosophers Frege and Russell. The latter introduced an idea that Moro qualifies as a 'gigantic misconception': that the verb 'to be' is fundamentally ambiguous, such that 'is' in 'Socrates is human' expresses predication, whereas in 'Socrates is a man' it expresses identity – an idea made precise and productive in Montague grammar. Moro shows that identity is always mediated in language by predication, and that 'to be' is not a predicate of identity. In 'Socrates is a man', it makes no sense to ask what man Socrates is, for 'a man' is not used referentially but predicatively. Furthermore, it is not always clear which of the two expressions in a copular sentence is the subject and which is the predicate; for example, in 'symmetric' constructions, such as 'Beauty is truth' and 'Truth is beauty', where the extensions of the terms are equated, and where the terms may switch positions (apparently exchanging grammatical functions) around the verb 'to be'. This is precisely where things get interesting for Moro, and where the historical preamble gives way to the theoretical journey proper.

Chapter 2 is a discussion of successive models of phrase structure and syntactic movement in the generative tradition. Moro argues that the verb 'to be' challenges the postulates (a) that the subject is always the highest NP in a hierarchical struc- ture (or tree) and that only a subject may occur in preverbal position (158), and (b) that an asymmetry is built into how the subject and the predicate are related: [NP [T [V NP]]], where T is the tense node. It is precisely (seemingly) symmetric copular sentences that force a revision of those two postulates. Here, Moro relies extensively on his earlier technical work on the subject (Moro 1988, 1997) and on contributions by others in generative syntax, yet he manages to convey the main ideas with characteristic clarity. Consider a pair of symmetric copular sentences:

(5) A picture of the wall was the cause of the riot.

(6) The cause of the riot was a picture of the wall.

According to postulate (a), the subjects are *a picture of the wall* in (1) and *the cause of the riot* in (2). As in traditional analyses, the two NPs in (1) and (2) may revolve around the verb *to be* and switch positions. According to postulate (b), both sentences have the structure [NP [T [V NP]]], where the second NP functions as the object NP. It should then be possible to extract material from the NP adjacent to the V. Consider now two questions derived from (1)–(2):

(7) Which riot was a picture of the wall the cause of __?

(8) *Which wall was the cause of the riot a picture of __?

The puzzle here is: why does movement yield a grammatical result in (3) but not in (4)? It seems that in (2) the NP that follows *to be* does NOT behave like an object NP, since extraction fails; rather, it behaves like a preverbal subject NP, which normally blocks extraction. A similar pattern is observed for the extraction of the clitic *ne* 'of-it/of-them' in Italian and other phenomena, which Moro discusses in detail.

In Chapter 3, Moro argues that a solution to this puzzle requires essentially three moves. First, the structure [NP [T [V NP]]] is simplified as [NP [T NP]],

where 'to be' is the direct expression of the head T: following Aristotle, 'to be' is the 'name of tense'. Second, due to the unaccusative nature of the constructions that 'to be' gives rise to, the preverbal position is assumed to be created empty in the 'base structure': [__[T [NP NP]]]; the subject is generated in a lower position and may be raised to preverbal position. Third, postulate (a) is replaced with the weaker postulate that there be an NP in preverbal position, which may be a subject OR A PREDICATE. From the base form [__[T [NP NP]]], one derives two structures: one in which the SUBJECT NP is raised [NP [T [__NP]]] ('canonical copular sentences'), and another in which the PREDICATE NP is raised [NP [T [NP __]]] ('inverse copular sentences'). The solution hinges on a locality condition requiring that extraction of material is blocked only from the subject NP. In a canonical copular sentence, such as (1), what follows *to be* is the predicate NP: extraction is licensed, hence (3) is grammatical. In an inverse copular sentence, such as (2), the postverbal NP is the subject: extraction is blocked, so (4) is ungrammatical. What is the nature of this locality condition? Moro writes that 'we must always check whether what is raised to the preverbal position is a subject (canonical copular sentences) or a predicate (inverse copular sentences)' (171), but how can we know which is which? At least in the examples above, semantics suggests the answer: *a picture of the wall* is the subject, and being a cause of the riot is the predicate; 'a picture can have the property of causing something, but a cause can't have the property of photographing' (164). In Moro's proposal, little room is left for the standard 'configurational definition of grammatical functions' (153), one of the main 'dogmas' of syntactic theory (119, 125, 192). The proper analysis of copular sentences, then, is one that allows suitable factors (e.g. semantics) to determine the subjects and predicates, and to ensure that relevant locality constraints apply.

In Chapter 4, Moro discusses the implications of his model for empirical research on language acquisition, language evolution, and language in the brain. The focus is on the nature and origins of locality conditions. More specifically, Moro sets out to explain why, in the base structure [__[T [NP NP]]], one of the NPs MUST move to preverbal position. The explanation lies in a weaker version of Kayne's (1994) Linear Correspondence Axiom (LCA), which says that hierarchical prominence of phrases in a syntactic structure corresponds to precedence of those phrases in the sentence's linear sequence. Moro argues that syntactic structures must satisfy the LCA only when sentences must be actually pronounced, but that before encoding they can form symmetric structures (199–200). Movement is a kind of 'rescue mechanism' that 'returns structures to an asymmetric configuration compatible with placement in a linear sequence' (200). This may also explain why the phonological image of lower copies of moved elements MUST be deleted: not because of a putative extra-grammatical principle of 'computation minimization' (Chomsky 2005, Berwick & Chomsky 2015), but because a residual lower copy that still shows up in its position in a linear order representation of the sentence violates the LCA. But why is the LCA there at all? Moro points to the difficulties involved in answering this kind of question, but he also notes that a hint is provided by the fact that structural constraints effectively

assist language acquisition: a language where all forms are interpretable may be maximally expressive but much harder or impossible to learn.

A Brief History of the Verb To Be is a must-read for anyone who is interested in the syntax of copular sentences. But Moro's book has merits that go beyond that. First, it invites the reader to consider the shape and role of theoretical linguistics in the present 'new age of empiricism', where data and models of data challenge the centrality and priority of formal theories of mental structure in the cognitive sciences. Moro is right in believing that a blend of generative syntax and logical semantics is still our best hope: 'today, the fruits of this union perhaps represent the most promising field of research in formal linguistics' (56). No other set of theories or research program has been able to model as successfully the four key characteristics of language: (i) its formal structure, (ii) its generative nature, (iii) its boundaries (languages only vary within limits), and (iv) its interpretability in semantic terms. Moro views linguistics as a mature empirical science that starts off with careful scrutiny of cross-linguistic data (e.g. at the outset of the book, he reminds us that the verb 'to be' does not exist in every language), and that builds theories and models that should generate interesting experimental questions (37, 83, 194, 209, 219). These may not be questions about the reality of Merge or Move, but about the neural structures that EXPLAIN the core features of language, (i)–(iv). Moro is especially interested in finding out what, if anything, in the brain explains the fact that not all languages are 'possible languages' (iii) (Musso et al. 2003; Moro 2008, 2016). A particular merit of Moro's book, and possibly its greatest achievement, is that it encourages readers to ask their own questions at almost every turn of the argument. A recurring question I had while reading *A Brief History of the Verb* To Be was this: what exactly is there at the 'center of the sentence'? I suspect Moro would answer: the base structure of copular sentences with its empty preverbal position, plus rules for generating canonical and inverse copular sentences and locality constraints applying in this case. However, Moro's arguments also make room for a different answer. The formal machinery he sets up requires one to know which NPs in the base structure express the subject and the predicate. At least in some cases, these decisions cannot be made unless logic and semantics are factored in. Thus, the 'journey to the centre of the sentence' may happen aboard the ship of syntactic theory, but what we find when we reach the final destination may not be entirely syntactic in nature.

REFERENCES

Berwick, Robert C. & Noam Chomsky. 2015. *Why only us: Language and evolution*. Cambridge, MA: MIT Press.
Chomsky, Noam. 2005. Three factors in language design. *Linguistic Inquiry* 36, 1–22.
Kayne, Richard S. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press.
Moro, Andrea. 1988. Per una teoria unificata delle frasi copulari [Towards a unified theory of copular sentences]. *Rivista di Grammatica Generativa* 13, 81–110.
Moro, Andrea. 1997. *The raising of predicates: Predicative noun phrases and the theory of clause structure*. Cambridge: Cambridge University Press.
Moro, Andrea. 2008. *The boundaries of Babel: The brain and the enigma of impossible languages*. Cambridge, MA: MIT Press.

Moro, Andrea. 2016. *Impossible languages*. Cambridge, MA: MIT Press.

Musso, Mariacristina, Andrea Moro, Volkmar Glauche, Michel Rijntjes, Jürgen Reichenbach, Christian Büchel & Cornelius Weiller. 2003. Broca's area and the language instinct. *Nature Neuroscience* 6, 774–781.

Author's address: *Department of Language and Literature,*
Norwegian University of Science and Technology,
7491 Trondheim, Norway
giosue.baggio@ntnu.no

(Received 11 June 2018)

914