focus on evolutionary considerations. If such considerations lead to an impasse, the program as a whole may indeed have been (at best) premature' (9). Yet 'talk of optimization' is very much still at the heart of minimalist thinking. ROLE provides no reason why minimalist discussions of optimized computational machinery are incompatible with biology. Conversely, nor are we told why Boeckx's gradualist account of the evolution of syntax can have no place for such concerns of computational efficiency. We are also given no concrete rebuttal of earlier ideas espoused by Boeckx. There is a clear discontinuity between Boeckx's earlier writings and his current position in ROLE, but little clarity with respect to which pieces we are supposed to pick up, and which pieces we are supposed to leave behind.

REFERENCES

Berwick, R. C. & N. Chomsky. 2019. All or nothing: No half-Merge and the evolution of syntax. *PLoS Biology* 17.11, art. e3000539.
Boeckx, C. 2014. *Elementary syntactic structures: Prospects of a feature-free syntax.* Cambridge: Cambridge University Press.
Chomsky, N. 1957. *Syntactic structures.* The Hague: Mouton.
Chomsky, N. 1975. *Reflections on language.* New York: Random House.
Dawkins, R. 2015. *Brief candle in the dark: My life in science.* London: Ecco.
Murphy, E. 2015. Book review: *Elementary syntactic structures: Prospects of a feature-free syntax.* *Journal of Linguistics* 51.3, 682–685.
Murphy, E. 2020. *The oscillatory nature of language.* Cambridge: Cambridge University Press.

*Author's address:*    *Vivian L. Smith Department of Neurosurgery,*
                *McGovern Medical School,*
                *University of Texas Health Science*
                *Center at Houston.*
                *elliot.murphy@uth.tmc.edu*

**David R. Olson,** *Making sense: What it means to understand.* Cambridge: Cambridge University Press, 2022. Pp. xii +196.

Reviewed by NORBERT FRANCIS, Northern Arizona University

Among the different assessments of the author's study of meaning, for readers of a journal of linguistics, this review will attend to only one of its central applications: to the research on language learning and language ability. One aspect of language development in particular stands out. Within this broad category of ability, David R. Olson's research program prompts us to focus on the use of language for the second-order proficiencies (often termed 'higher-order'), beyond the first-order abilities characterized by spontaneous acquisition, uniform development, and

universal attainment. It will be useful to draw the contrast: first-order is evidenced by no significant variation, by middle to late elementary school age, among all normally developing children.

From this point of view, we can take the liberty of characterizing the theory of understanding outlined in this book as being about the development of a second-order pragmatics tied to the closely related second-order competencies of text/discourse comprehension. Developmentally, they are signaled most spectacularly by preschool children's exploration of the Theory of Mind problem and the early language-cognitive attainments of metalinguistic knowledge. Olson was one of the pioneers in the work that highlighted these achievements which mark a qualitative advance in the development of the different aspects of language awareness. The research program that gained impetus about fifty years ago was joined by a generation of psycholinguists who recognized the importance of the above-mentioned distinctions – representative were Gombert's (1992) comprehensive review of the literature and Foster's 'pragmatic development in the linguistic stage' (1990: 111–129).

The central theme of the book revolves around the question of how concepts develop in children. Here, Olson charts out what appears to be the strongest hypothesis in cognitive science in regard to the role that language plays in conceptual development. In contrast to the different proposals of the Representational Theory of Mind (RTM) that favor the view of a division (so to speak, for lack of a better term) between conceptual structure and linguistic knowledge, Olson's proposal for a theory of understanding comes as close as possible to a thoroughgoing integration. His proposal for a theory of understanding rejects 'the possibility of non-linguistic concepts' (35) in that 'mental representations … are exclusively linguistically based' (49). Thus, concepts can be identified as word meanings (71), language making 'introspection and thought possible' (76), such that 'only a linguistic mind … has concepts and beliefs' (168). '[Concepts] are words with a sense and a reference; no word, no concept' (170), 'no language, no representation' (49).

In a book review we will not be able to properly take up the debate on the evidence for how autonomous or how integrated language and thought are in either a parallel or a single/unified unfolding of linguistic and conceptual development. However, there is one version of RTM (full disclosure: the present reviewer favors one of its versions) that will take seriously the tour de force critique of Chapters 1–14, i.e. the entire volume. This view will be taken for the purpose of suggesting a partial convergence, an attempted approximation at least, between a version of RTM and Olson's proposal.

For this discussion, let us consider the category of the school-related and literacy-related 'secondary discourse' abilities (Gee 1996), and, more broadly, second-order comprehension, inaugurated by the precursors of Theory of Mind in three-year-old children (enabled by their emerging syntax). Recall that this is the aspect of language ability that we have singled out for assessing the claims of *Making Sense*.

912

For this domain, a theory assuming an autonomous representation for conceptual structure must accept an interface with the linguistic competencies so prolific, direct, and unmediated that the connections between language and concepts appear, in fact, as seamless. In general (applicable to all domains of language use), with few exceptions, each entry in the mental lexicon links, immediately and automatically, its phonology and morphology/syntax to semantics. In this way language presents itself, developmentally, as the indispensable tool of cognitive development, there being no viable information processing device ('channel') that could substitute for it. The possible alternatives also come to serve this function, but they cannot substitute for language. For example, the visual system could only substitute for it partially, unless it is pressed into service, precisely, for LANGUAGE acquisition and LINGUISTIC processing. The results of natural experiments comparing deaf children's cognitive development between the condition of full access to the linguistic system via early exposure to sign language and denial of usable language input (Gagne & Coppola 2017) are largely compatible with Olson's hypothesis. At the same time, the results are also consistent with the indispensable-interface-between-language-and-thought hypothesis. The latter would add that failure to acquire language does not block all conceptual development, suggesting that 'no word, no concept' is too strong, even in the case of a total aphasia. For now we can consider a partial convergence on the question of the second-order capabilities: the qualitative advance of metacognition and 'higher-order pragmatics' in the full mastery of the concept of understanding depends entirely on language acquisition.

Chapters 8–11 present the argument, convincingly it seems to this reviewer, that not only higher-order Theory of Mind (Miller 2022), but even the early childhood transitional achievements of understanding of belief would be inconceivable without the parallel advances of language development. Theories that minimize the role of language in cognitive development, both of our converging hypotheses would claim, cannot account for the findings of language acquisition research. A related line of work on this problem has examined the relationship between grammatical development and the use of mental verbs, related in turn to the 'syntactic boot-strapping' hypothesis. For example, how does the acquisition of complex complement clauses favor the understanding of belief and the emerging ability in children to ascribe belief and false belief (114–115)?

In this passage, a key section, 'Two systems theory' (116–118), makes reference to a pivotal idea: how the theory of second-order concepts of understanding are related to the System 1–System 2 framework of Stanovich (2011). This link deserves a more extensive discussion of its own. But for now, we can consider the dimension that appears as most relevant to the examples discussed in the book from previous research related to the factor of context. The important distinction is between the 'contextualized' features associated with System 1 and the 'decontextualized' of System 2. The latter, from System 2, may be better thought of as the ability to use language more deliberately and reflectively in

913

regard to context, as typically no meaningful text or discourse can be completely stripped of it.

Here, we can review the studies on the say–mean distinction (20–21, 101–102). What makes the say–mean problem difficult for young children is the distracting contextual information about puppets' intention, what they might have 'meant', as opposed to their actual words. Older children can bracket the context, refocus attention, and report correctly what was said. As children approach school age, around four or five, they have begun to develop the idea, somehow, that the actual words matter. In parallel, the emerging ability to reliably reflect on one's understanding helps us to compensate for the bias of context when it leads us astray and use context productively when we can align it and confront it with so-called bottom-up information. This is the verifiable evidence, what the words actually say. Chapter 13, 'Understanding in everyday life', about how the expectations of prior knowledge and commitment affect our comprehension, offers relevant examples from a familiar realm of public language use. Readers will notice that all of the above informs the debate on whether Theory of Mind is subserved by a domain-specific cognitive component or forms part of a broader domain-general set of proficiencies showing continuum with the second-order discourse comprehension capabilities that are open-ended.

Importantly, the System 1–System 2 distinction complements the major auxiliary theme of the book: how the affective perceptions of understanding are related to the attainment of the concept of understanding. While the 'first person' subjective sensation and the objective achievement maintain a close relationship of interface, they do so as interacting systems (40–47, 113). While they share features, in the manner of 'overlap' (48) perhaps, the systems, by hypothesis, are distinct. This line of discussion, also developed across all the chapters, calls attention to the relative lack of interest among investigators in the 'first person' faculties. The unfortunate disinterest in studying the affective processes follows from the idea that they consist in the (first-order) intuitive notion of 'making sense' that is private and is often not available to introspection. As a 'lived subjective experience' (46) the emotive state is not subject to judgment of true or false.

The FEELING OF UNDERSTANDING is the System 1 counterpart, the subjective state evoked by experience, mediated in turn by prior knowledge and intuition. It is conscious and with a content, but not a conceptual content, and thus within the range of non-linguistic beings. Considering here the sentient/sapient distinction, the latter involves the ability to ascribe emotions, beliefs, and reasons, including judgment that goes beyond 'appraisal' of situation, thanks only to language. The 'objective identity conditions for correctly ascribing understanding are impersonal' (52). In contrast, we evaluate the personal 'ways of experiencing' or 'ways of knowing' in terms of expectation, commitments and what can be taken as real. While criteria are typically local and context-dependent, the feeling of understanding is not a defective or primitive state to be overcome, but should be taken as a mode of experience

that language makes it possible to reflect on. With the means for reckoning with, gauging and valuating both sensations and understandings, its interaction with the System 2 domains deserves greater attention by research.

It is with the acquisition of language that children acquire the concept of mind and the ability to form beliefs and reasons, and ascribe them to others and to themselves (a second-order capability). Only with language can children come to deliberately reflect on beliefs and reasons (their own and of others), especially as they take them to be false. The System 2 procedures of understanding require the assessment of evidence and its alignment with the evidence brought forward by others ('agreement'). In other words, belief is provisionally deferred as evidence and agreement are evaluated. Crucially, correct understanding, failure to understand, and false belief can be attributed to others and to oneself. In both oral discourse processing (listening) and reading this ability to ascribe understanding and misunderstanding to oneself stands as one of the central attainments of advanced System 2 language awareness – comprehension monitoring.

The monitoring of discourse/text comprehension for meaning proceeds in both oral and written modalities. However, the exceptional properties of written text for this purpose set visual processing of language apart, and this is the reason why Olson and his co-workers have over the years emphasized the resource of literacy in their research program on language awareness. Reading and writing revolutionize the System 2 tasks of learning and understanding in development, beginning with schooling, as they did historically with the invention of writing. The book takes note of this controversy in passing, but the connection between the present discussion of how we should study understanding in general and previous work on literacy and language awareness is important to take into account. Readers will find in this retrospective (for example in Olson 1994) an interesting continuity.

## REFERENCES

Foster, Susan. 1990. *The communicative competence of young children: A modular approach*. London: Longman.

Gagne, Deanna & Coppola, Marie. 2017. Visible social interactions do not support the development of false belief understanding in the absence of linguistic input: Evidence from deaf adult homesigners. *Frontiers in Psychology* 8, 1–21.

Gee, John Paul. 1996. *Social linguistics and literacies: Ideology in discourses*. Hoboken, NJ: Taylor & Francis.

Gombert, Jean Émile. 1992. *Metalinguistic development*. Chicago: University of Chicago Press.

Miller, Scott. 2022. *Advanced theory of mind*. Oxford: Oxford University Press.

Olson, David. 1994. *The world on paper*. Cambridge: Cambridge University Press.

Stanovich, Keith. 2011. *Rationality and the reflective mind*. Oxford: Oxford University Press.

*Author's address:*  *College of Education, Box 5774,*
  *Northern Arizona University,*
  *Flagstaff, Arizona 86011, USA*
  *norbert.francis@nau.edu*

915