Bilingualism: Language and Cognition 20 (4), 2017, 698–699 © Cambridge University Press 2016 doi:10.1017/S1366728916001012

On the role of discourse-level information in second-language sentence processing

ELSI KAISER
Department of Linguistics, University of Southern California

(Received: August 15, 2016; final revision received: August 19, 2016; accepted: August 19, 2016; first published online 17 October 2016)

Based on a detailed review of existing studies of high-proficiency second-language (L2) learners who acquired the L2 in adolescence/adulthood, Cunnings (Cunnings, 2016) argues that Sorace's (2011) Interface Hypothesis (IH) and Clahsen and Felser's (2006) Shallow Structure Hypothesis (SSH) do not explain the existing data as well as his memory-based approach which posits that memory-retrieval processes in the L1 and L2 do not pattern alike. Cunnings proposes that L1 and L2 processing differ in terms of comprehenders' ability to retrieve from memory information constructed during sentence processing. He concludes that L2 processing is more susceptible to interference effects during retrieval, and, most relevantly for this commentary, that discourse-based cues to memory retrieval are more heavily weighted in L2 than L1 processing.

In light of the growing body of influential psycholinguistic L1 research on memory encoding, storage and retrieval, applying these ideas to L2 processing is a very welcome and fruitful development. This direction can also inform thinking about individual differences. In general, as Cunnings notes, further L2 research is needed – this is an exciting area for new research.

Let us now turn to Cunnings' proposal that L2 processing relies more heavily on discourse-based cues, when it comes to memory retrieval processes, than L1 processing. For example, Cunnings discusses data on reference resolution and concludes that, when retrieving an antecedent for a reflexive, L2 speakers rely on a referent's status as a discourse-prominent subject more than L1 speakers, who give more weight to syntactic locality cues.

The proposal that L1/L2 processing differences stem from "L1 and L2 speakers differently weighting syntactic and discourse-level cues to memory retrieval" is a very interesting idea, and I wonder whether parts of it could, in principle, still be compatible with the IH and the SSH. In some ways Cunnings' approach is similar to the form-specific multiple-constraints approach proposed by Kaiser and Trueswell (2008; also Kaiser, Runner, Sussman & Tanenhaus, 2009) for reference resolution in L1 processing. According to our form-specific approach, anaphoric forms can differ in how sensitive they are to different properties of the antecedent, i.e., how much the interpretation process relies on different information types. Kaiser and Trueswell found that in Finnish, discourse cues are weighted more heavily for anaphoric demonstrative pronouns than for personal pronouns, which are more sensitive to grammar-based cues. For related crosslinguistic work, see e.g., Schumacher, Roberts and Järvikivi (in press) on German. Kaiser et al. (2009) show that in English picture-NPs (*picture of her/herself*), syntactic cues are weighted more heavily for reflexives than for personal pronouns, which are more sensitive to semantics – though both show sensitivity to BOTH kinds of information.

Although the form-specific multiple-constraints approach focuses on different referential forms and not on memory retrieval in L1/L2 processing, it resembles Cunnings' proposal because both approaches use the notion of DIFFERENT (RELATIVE) WEIGHTS for different information/cue types to explain differences (between referential forms, or between L1 and L2 speakers). This kind of architecture is very flexible, but also rather underspecified.

Indeed, in my opinion, the next step in exploring Cunnings' idea (that L2 learners are over-reliant on discourse-level cues) in a broader context is a TARGETED INVESTIGATION OF SPECIFIC DISCOURSE-LEVEL CUES. This is important because the notion of discourse-based cues, especially in the context of memory retrieval processes involved in linguistic dependencies, is rather broad. Research on discourse covers information structure (e.g., topic, focus, contrast), discourse structure, coherence relations between sentences, implicatures, inferences and many other topics (e.g., Huang, to appear/2017, for an overview) – and many of these influence each other (e.g., ease of interpreting referring expressions depends on the extent/nature of inferences

Address for correspondence:
Elsi Kaiser, Department of Linguistics, 3601 Watt Way, GFS 301, University of Southern California, Los Angeles, CA 90089–1693, USA,
emkaiser@usc.edu

https://doi.org/10.1017/S1366728916001012 Published online by Cambridge University Press

that need to be made). Thus, given the claim that discourse-level cues are heavily weighted, we would like to know more specifics about which ones.

Furthermore, discourse-level cues are often not independent from other levels of linguistic representation. For example, the discourse-level notion of a 'topic' – notoriously hard to define – is not independent of syntax, because subjecthood (usually) makes entities more salient on the discourse level, which many people interpret as making them more topical (which Cunnings also discusses). However, syntactic subjects can be privileged on the discourse level even when they CANNOT be clearly defined as topics (e.g., when the sentence contains another salient/topical argument; Kaiser, 2011), which complicates attempts to separate discourse and syntax. Furthermore, it is also important to consider thematic roles (e.g., agent vs. patient), as an agentivity bias could otherwise be misidentified as a subject bias. As a whole, the relation between discourse-level cues and other levels of linguistic representation (syntax, semantics, phonetics/prosody) is rich and nuanced.

As a result, testing for evidence of an over-reliance specifically on discourse cues (separate from syntactic or semantic cues) is best done by systematically and intentionally manipulating not only the relevant syntactic cues but also various well-defined discourse-level cues. This is a rich area for future investigation, and also relates to the question of why would L2 learners weigh discourse-level cues so heavily – is it because discourse-level information is 'easier' to access, or because syntactic information is 'harder'? If the latter, we might also expect to see an over-reliance on other non-syntactic cues, not just discourse-level cues.

References

Clahsen, H., & Felser, C. (2006). Grammatical processing in language learners. *Applied Psycholinguistics*, *27*, 3–42.

Cunnings, I. (2016). Parsing and working memory in bilingual sentence processing. *Bilingualism: Language and Cognition*, doi:10.1017/S1366728916000675.

Huang, Y. (to appear/2017; online 2013). *The Oxford Handbook of Pragmatics*. Oxford University Press. doi:10.1093/oxfordhb/9780199697960.001.0001

Kaiser, E. (2011). Focusing on pronouns: Consequences of subjecthood, pronominalisation, and contrastive focus, *Language and Cognitive Processes*, *26*, 1625–1666.

Kaiser, E., & Trueswell, J.C. (2008) Interpreting pronouns and demonstratives in Finnish: Evidence for a form-specific approach to reference resolution. *Language and Cognitive Processes*, *23*(*5*), 709–748.

Kaiser, E., Runner, J.T., Sussman, R.S., & Tanenhaus, M.K. (2009). Structural and semantic constraints on the resolution of pronouns and reflexives. *Cognition*, *112*, 55–80.

Schumacher, P., Roberts, L., & Järvikivi, J. (in press). Agentivity drives real-time pronoun resolution: Evidence from German er and der. In press for *Lingua*.

Sorace, A. (2011). Pinning down the concept of 'interface' in bilingualism. *Linguistic Approaches to Bilingualism*, *1*, 1–33.

https://doi.org/10.1017/S1366728916001012 Published online by Cambridge University Press