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DISCUSSION

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Progress, but not a full solution to the logical problem of language acquisition

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MacWhinney argues that the logical problem of language acquisition is no longer. It was a problem back in the 1970s when the guiding premises of the field were that language structure is highly abstract, that the child's input is a poor source of information about grammar, and that the child's learning mechanisms are inadequate to bridge the gap between the input the child receives and the grammar the child acquires. Now, however, we have new linguistic theories which show that language structure is not abstract but arises from cognition, and we have evidence that input is a rich source of information, and we have reason to believe that the child has a powerful array of learning procedures at his or her disposal. The gap between input and acquisition thought to exist in the 1970s has been closed, and thus, MacWhinney argues, there is no need to attribute innate linguistic knowledge to the child.

There is other evidence one could add to the evidence MacWhinney presents in support of a learning-from-input rather than an expression-of-human-DNA account of language acquisition. Work on input effects on language development has shown that the rate at which children acquire the grammar of their language is influenced by properties of the speech they hear. For example, children who hear more complex speech produce complex speech at an earlier age than children who hear less complex speech (Hoff-Ginsberg, 1998). Children who hear more complex speech also understand complex speech better than children who receive simpler input, and this is true even when the sources of input (teachers) are genetically unrelated to the language learners (Huttenlocher, Vasilyeva, Cymerman & Levine, 2002). The structural properties of children's verb use depend on structural properties of the utterances in which those verbs appear in child-directed speech (Naigles & Hoff-Ginsberg, 1998). Even the acquisition of a feature of grammar that is supposed to be specified in Universal Grammar (*that*- trace phenomena) is affected by exposure to input, as evidenced by findings that bilingual children master this just a little later in each of their

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languages than monolingual children do (Gathercole, 2002). Even if it should turn out to be necessary to stipulate that children come to the language acquisition task equipped with innate knowledge of grammar in order to close the gap between what input explains and what children acquire, innate knowledge cannot explain how input shapes and paces the course of children's grammatical development – as it demonstrably does.

Still, there are problems with the learning-from-input hypothesis that MacWhinney does not acknowledge. One problem is endemic to the nature of the evidence that supports a learning hypothesis, and others are specific to MacWhinney's particular proposal. The endemic problem is that of insufficiency. The logical problem of language acquisition arises, in part, from the stipulations that the input children receive and the learning mechanisms at their disposal are inadequate to support language acquisition. What sort of evidence could prove otherwise? Evidence of input effects and of the existence of learning mechanisms comes in the form of variance in individual differences accounted for. That variance will never be 100%, and in any case it is not the invariance of language acquisition such evidence explains. The hypothesis MacWhinney argues for is that language acquisition can be wholly explained without recourse to innate knowledge, but he doesn't offer, nor can he, an alternative complete account of how that would occur.

MacWhinney only points to where an alternative to nativism might be found, and there are reasons to hesitate in following his directions. First, not everyone believes the premises of cognitive linguistics, on which MacWhinney's argument heavily depends. Even language learning children seem to have their doubts about whether grammar has a semantic basis, choosing phonological over semantic bases for establishing gender categories (Karmiloff-Smith, 1979; Levy, 1983). Second, some of MacWhinney's stipulations regarding how a learning account would work do not quite fit the data. For example, input is only grossly, not finely, tuned (Snow, Perlmann & Nathan, 1987), and children are not necessarily conservative in generalizing from the information given (see the commentary by Naigles). Third, although interesting research has begun to document some of the mechanisms for recovering from overgeneralization on which MacWhinney's argument relies (e.g. preemption, as in Brooks & Tomasello, 1999; Brooks, Tomasello, Dodson & Lewis, 1999), others, such as self-monitoring of errors and tracking indirect negative evidence, are more speculative.

MacWhinney's anti-nativism argument is attractive to many developmental psychologists who regard attributing something to innate knowledge as tantamount to giving up on explaining it. At this point, however, it is premature to claim success for the enterprise of accounting for language acquisition without recourse to some language-specific knowledge. It does not serve the learning-from-input position well to claim more than the data will support. MacWhinney is optimistic that the work in linguistic theory,

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input descriptions, and learning mechanisms will close the gap between input and acquisition, but one cannot fault those in the field who are loathe to give up innate knowledge as a component of the language acquisition mechanism until it is clear it can be done without. It is not clear, yet.

This conclusion not withstanding, the research enterprise that seeks to understand language acquisition in terms of input and learning mechanisms can claim many successes. Work on input and learning mechanisms has been an extremely fruitful area of research in developmental psychology. As a result of the work on the nature of input, we know more about children's early social experience world-wide (e.g. Heath, 1983; Slobin, Gerhardt, Kryatzis & Guo, 1996). And, as a result of efforts to find mechanisms of language acquisition, we know more about what children understand and can figure out about their world (e.g. Baldwin, 1993; Saffran, Aslin & Newport, 1996; Marcus, Vijayan, Bandi Rao & Vishton, 1999). As a result of efforts to discover relations between input and acquisition, we know more than we did 30 years ago about why some children have more favourable developmental outcomes than others (e.g. Hart & Risley, 1995; Hoff & Naigles, 2002; Hoff, 2003). As a result of work in this area, the language acquisition process is far less a mystery than it was when Chomsky first pointed out the complexity of what children acquire, but the mystery is not completely solved yet.

REFERENCES

Baldwin, D. (1993). Infants' ability to consult the speaker for clues to word reference. *Journal of Child Language* **20**, 395–419.

Brooks, P. J. & Tomasello, M. (1999). How children constrain their argument structure constructions. *Language* **75**, 720–38.

Brooks, P. J., Tomasello, M., Dodson, K. & Lewis, L. B. (1999). Young children's overgeneralizations with fixed transitivity verbs. *Child Development* **70**, 1325–37.

Gathercole, V. C. M. (2002). Monolingual and bilingual acquisition: learning different treatments of *that*-trace phenomena in English and Spanish. In D. K. Oller & R. Eilers (eds), *Language and literacy in bilingual children*. Clevedon: Multilingual Matters, Ltd.

Hart, B. & Risley, T. R. (1995). Meaningful differences in the everyday experience of young American children. Baltimore: Paul H. Brookes.

Heath, S. B. (1983). *Ways with words: language, life, and work in communities and classrooms*. Cambridge: CUP.

Hoff, E. (2003). The specificity of environmental influence: socioeconomic status affects early vocabulary development via maternal speech. *Child Development* **74**, 1368–78.

Hoff, E. & Naigles, L. (2002). How children use input to acquire a lexicon. *Child Development* **73**, 418–33.

Hoff-Ginsberg, E. (1998). The relation of birth order and socioeconomic status to children's language experience and language development. *Applied Psycholinguistics* **19**, 603–30.

Huttenlocher, J., Vasilyeva, M., Cymerman, E. & Levine, S. (2002). Language input at home and at school: relation to child syntax. *Cognitive Psychology* **45**, 337–74.

Karmiloff-Smith, A. (1979). *A functional approach to child language*. Cambridge: CUP.

Levy, Y. (1983). It's frogs all the way down. *Cognition* **15**, 75–93.

Marcus, G. F., Vijayan, S., Bandi Rao, S. & Vishton, P. M. (1999). Rule learning by seven-month-old infants. *Science* **283**, 77–80.

https://doi.org/10.1017/S0305000904006361 Published online by Cambridge University Press

Naigles, L. & Hoff-Ginsberg, E. (1998). Why are some verbs learned before other verbs? Effects of input frequency and structure on children's early verb use. *Journal of Child Language* **25**, 95–120.
Saffran, J. R., Aslin, R. N. & Newport, E. L. (1996). Statistical learning by 8-month-old infants. *Science* **274**, 1926–8.
Slobin, D. I., Gerhardt, J., Kyratzis, A. & Guo, J. (eds). (1996). *Social interaction, social context, and language: essays in honor of Susan Ervin-Tripp*. Mahwah, NJ: Erlbaum.
Snow, C. E., Perlmann, R. & Nathan, D. (1987). Why routines are different: toward a multiple-factors model of the relation between input and language acquisition. In K. Nelson & A. van Kleeck (eds), *Children's language, vol. 6*. Hillsdale, NJ: Erlbaum.

https://doi.org/10.1017/S0305000904006361 Published online by Cambridge University Press