

Parameters or cues?

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Truscott and Sharwood Smith (henceforth T&SS) attempt to show how second language acquisition can occur without any learning. In their APT model, change depends only on the tuning of innate principles through the normal course of processing of L2. There are some features of their model that I find attractive. Specifically, their acceptance of the concepts of competition and activation strength brings them in line with standard processing accounts like the Competition Model (Bates and MacWhinney, 1982; MacWhinney, 1987, in press). At the same time, their reliance on parameters as the core constructs guiding learning leaves this model squarely within the framework of Chomsky's theory of Principles and Parameters (P&P). As such, it stipulates that the specific functional categories of Universal Grammar serve as the fundamental guide to both first and second language acquisition. Like other accounts in the P&P framework, this model attempts to view second language acquisition as involving no real learning beyond the deductive process of parameter-setting based on the detection of certain triggers. The specific innovation of the APT model is that changes in activation strength during processing function as the trigger to the setting of parameters. Unlike other P&P models, APT does not set parameters in an absolute fashion, allowing their activation weight to change by the processing of new input over time. The use of the concept of activation in APT is far more restricted than its use in connectionist models that allow for Hebbian learning, self-organizing features maps, or back-propagation.

Like other minimalist models, APT model assigns a central role to a universal processor and attributes all language variation to syntactic frames stored inside the lexicon. Chomsky's shift to minimalism brings his theory in line with two consistent emphases in the Competition Model – the centrality of the processor in learning and the encoding of structure on lexical items. The idea that the processor itself is universal was central to the first version of the Competition Model (Bates and MacWhinney, 1982). Since 1978, I have also argued that learning of L1 syntactic classes begins on the level of the individual item and that higher-level syntactic patterns emerge from the gradual formation of lexical groups. Although transfer effects complicate matters in the case of L2 acquisition, the Competition Model continues to develop based on the principles of lexicalist, bottom-up learning organized about a universal processor.

T&SS seem to be picking up on some of these earlier Competition Model accounts in their brief descriptions of

parameter-setting within the processor. For example, they talk about identifying the word 'horse' inside the utterance 'The horse is beautiful' (p. 7). As I have argued in perhaps a dozen articles, this type of learning occurs under the pressure of the processing of item-based constructions that open up positional expectations for particular meaningful elements. In this particular example, the relevant frame is the item-based construction based on the word *the* that opens up a following slot for a common noun. The definite article does not have a clear expectation for a count noun as opposed to a mass noun, but it will not tolerate a proper noun, adverb, or verb. Thus, it provides a highly valid cue to the extraction of the meaning of the following word.

Given this apparent agreement on the facts of learning, it was with some surprise that I read the claim from T&SS that 'the Competition Model posits two distinct types of entities, formal characteristics and processing strategies that use them; each must be acquired' (p. 16). This interpretation seems to reflect a misunderstanding of the Competition Model. In our model, all learning is situated within the lexical frames of individual items. Although Competition Model experiments lump together groups of verbs for the purposes of experimental control and generalizability, the theory has always assumed, and specific studies have consistently demonstrated, that the locus of learning is in the valency frames of individual predicates. The Competition Model assumes that the processor is universal and unlearned. This idea is taken to be a new concept in minimalism, but it has been fundamental to the Competition Model since 1982.

Despite our agreement on the central role of a universal processor, the ATP model differs radically from the Competition Model in its view of what is learned. For ATP, there is a small set of universal functional categories that are innately available to the processor. During processing, those features that are used by a language are activated to a certain level and that is all that is necessary to account for language acquisition. The Competition Model also assumes that acquisition occurs during processing. However, unlike ATP and P&P, it assumes that each predicate has its own unique semantic configuration of roles. For example, the verb *give* has three arguments that include a giver, a recipient, and an object transferred. The verb *chop* has two arguments that include a chopper and an object chopped. We insist on this low-level representation of syntactic arguments because of evidence regarding the item-based nature of early predicate learning, particularly

verb learning, as well as the impossibility of establishing a universal typology of semantically grounded cases. However, we also recognize that young children and beginning second language learners are soon able to generalize across verb frames to extract language-specific higher-order syntactic categories such as subject or instrument. When learners come to form these higher-order categories, they rely on the concepts of perspective and embodiment. The categories organized by perspective emerge not from an autonomous linguistic module, but from general properties of human cognition.

Two decades of work in the P&P framework have failed to yield a uniform universal account of first language acquisition based on parameter-setting. On the other hand, bottom-up, statistical learning accounts, such as the Competition Model, have made continual progress in extending our understanding of the details of L1 learning. However, it might be the case that ATP would still be of some value as an account of second language acquisition. In this area, T&SS rely primarily on data from studies of adverb placement by French learners of English as a second language. The evidence here is that even advanced learners have problems learning to place the adverb before the verb. But, if learners are hearing examples of English constructions with adverbs before the verb, should not this input lead to a retuning of the weight of the feature that determines preverbal placement? Apparently, T&SS hope to solve this problem by suggesting that the errors are due not to faulty L2 learning, but to code-switching from L1. Presumably, they would argue that each French adverb and verb has a frame that was set to an activation level that placed it in preverbal position. When the French speaker comes to producing English, these French lexical frames become activated, despite the fact that the actual words being produced are in English. If ATP is making this claim, then I would say that what T&SS call code-switching is nothing more than a terminological equivalent to what the Competition Model calls lexically-based transfer. But if parameters are in turn lexically based, don't we have a fundamental logical problem? If minimalism links

functional categories to specific lexical items, it vitiates its own claim for their innateness and universality.

It should be possible to examine the exact nature of lexically-based transfer empirically. To begin, we should note that English itself seems to belie the descriptive utility of the single parameter account when it permits sentences such as 'I like to eat sometimes Indian and sometimes Chinese', 'Jim likes always something different in his cereal' or 'You go how often to the store?' If English (or any other language for that matter) were strictly governed by parameters, we would never see the complexity and variation that we really have in syntax. In order to produce the complete set of predictions for lexical transfer effects in adverb placement, one would also have to examine possible cracks in the French system to see where they match up or fail to match up with English. Constructing such a complete contrastive analysis is beyond my ability in French and far beyond the scope of this commentary, but it would be the best way to explore the ATP model empirically. My guess is that, once the contrastive analysis is produced and the relevant studies are run, the results will demonstrate that learners are quick to pick up consistent L2 cues, and that it is inconsistency in L2 that opens up the door for transfer from L1. I hope that T&SS continue to develop their ideas in ways that would eventually lead to such empirical tests.

References

- Bates, E. & MacWhinney, B. (1982). Functionalist approaches to grammar. In E. Wanner & L. Gleitman (eds.), *Language acquisition: The state of the art*, pp. 173–218. New York: Cambridge University Press.
- MacWhinney, B. (1978). The acquisition of morphophonology. *Monographs of the Society for Research in Child Development*, 43 (1), 1–123.
- MacWhinney, B. (1987). The Competition Model. In B. MacWhinney (ed.), *Mechanisms of language acquisition*, pp. 249–308. Hillsdale, NJ: Lawrence Erlbaum.
- MacWhinney, B. (in press). Rethinking the logical problem of language acquisition. *Journal of Child Language*, 30.