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Jane B. Childers

Trinity University, Jane.Childers@trinity.edu

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Commentary

Jane B. Childers, Trinity University

Early Verb Learners: Creative or Not?

This Monograph describes a longitudinal study of 8 children's first verb uses including an analysis of the variety of words used in conjunction with 34 targeted verbs, the variety of utterances produced, and patterns of developmental change in the first 10 uses of these verbs. This data is important because most diary studies have included very few children at a time and have not focused on the beginnings of verb learning. These results advance our understanding of an early stage of verb learning that has received relatively little attention.

The main controversy discussed by the authors concerns the nature of the young verb learner as a creative user of language or as a more conservative one. Verb researchers tend to view the child on one side of this debate or on the other, and of course, these differing world views influence the kinds of studies conducted and the ways in which data are interpreted. However, there are dangers to both overestimating or underestimating children's knowledge. If we assume more spontaneous creativity by the child than we should, we may begin down a path of experimentation that will ultimately be less fruitful than it would be, while if we ignore creativity that is present, we will miss revealing a capacity of the human mind that is profound. How to resolve this issue is unclear, however the debate is likely to rage for some time.

Putting questions of how to view children's productions in this study aside for a moment, an important contribution of this study is that it sheds light on a stage of verb development that is relatively unexplored. Although a new focus of research is directed at understanding event understanding in infancy (e.g. Wagner & Lakusta, 2009), much of what is known about verb learning concerns children's comprehension and/or production after 24 months (e.g., Fisher, 2002; Theakston, Lieven, Pine & Rowland, 2004). Thus, a better understanding of the initial stages of verb learning is needed. It is difficult to get children younger than 24 months to produce reliable verb

productions in the laboratory, and so sampling (or having their parent record) speech in everyday contexts provides data that to date has been scarce. On the other hand, a great advantage of experimental studies is that a researcher can control how many exposures a child has to a given verb, the specific sentences in which that particular verb has been heard, and the timing of those sentences. In one study in which these factors were controlled, 2 ½-year-old children needed about a week of daily exposure to a verb to produce it (Childers & Tomasello, 2002). A limitation of laboratory studies is that they probably underestimate children's productive abilities because the child has to produce the new verb at the right time in an experimental setting. However, these kinds of studies (e.g., Abbott-Smith, Lieven & Tomasello, 2004; Akhtar & Tomasello, 1997) are important for answering questions about children's ability to be productive, that is, their ability to extend a verb they have not heard in a particular sentence type to a new sentence type.

How creative are these children's productions?

Flexibility in verb uses

An important question in verb learning concerns the scope of an individual verb's meaning early in development. There has been a prevailing view that children are initially context-bound in their verb uses, producing verbs only in particular the situational contexts and failing to extending a new verb very widely (e.g., Huttenlocher, Smiley & Charney, 1983) and recent experimental evidence has partially supported this view (Forbes & Poulin-Dubois, 1997; Maguire, Hirsh-Pasek, Golinkoff & Brandone, 2008). This type of conservatism would be very useful to children given the somewhat idiosyncratic nature of the meaning of an individual verb as well as less organized structure of the verb category compared to the hierarchical structure of concrete nouns. Some of the analyses in this study included semantic flexibility, or the use of a verb with different nouns or in conjunction with different actions. These analyses are important because they show that young children are more flexible in the use of different affected object names than in their use of different agents, and that both of these types of flexibility are more common than is flexibility across different actions (although coding uses across actions was difficult to code from these kinds of records). Thus, these results demonstrate that there are different levels of flexibility, even in the semantic domain, which is important. However, it is still unclear what the scope of meaning is like for these early verb representations because these analyses rest on

children's productions of the new verbs, which are likely affected by a myriad of factors (e.g., objects available, motivation). In addition, even though new objects and agents were produced with the verbs (and these were the most common ways in which children were semantically flexible), it is possible that children were still using the verb in particular situational contexts (and thus, were situationally bound), while mixing which particular entities in that context were named. That is, it is still somewhat unclear from these data how widely these new verbs were used across situational contexts, or how "portable" these verbs were. In my view, this is the kind of contextual boundedness others are reporting in early verb learning (e.g., Huttenlocher et al., 1983). In my lab, we are examining how children might achieve an appropriate level of "portability" (or extension) of a particular new verb by actively comparing the range of situations (Gentner 1983; 1989) in what that verb is heard (Childers, in press; Childers & Paik, 2009).

Because all of the semantic flexibility exhibited in these children's utterances could have stemmed from uses by the adult, what that means in terms of children's verb representations is unclear. If children are using verbs to refer to different agents and to more than one action, but these are all initiated by the adult, could it be that a more superficial imitative process underlies this flexibility? That is, if the process underlying this semantic flexibility is imitative, could their verb representations remain fairly small, restricted, and context bound? This interpretation seems possible. Studies of verb use in everyday contexts are important because they can potentially reveal the breadth and depth of a young child's developing representation of a particular verb. This study provides some helpful data relevant for making inferences about what those representations are like, but a detailed coding of the situations in which a verb is produced (and perhaps whether a particular verb could have been produced but was not) are needed to reveal more fully the scope of children's early verb representations.

Obviously, children are likely to be productive in their verb uses at some point in development. Adults are productive verb users, creating new verbs (e.g., 'texting') and extending existing patterns of use to those new word ("I'll text you later). The debate centers on how early children are productive (i.e., spontaneously creative in ways that go beyond the input) because later productivity allows for the possibility that children could learn to be productive, while early productivity suggests mechanisms that support that creativity could be innate. These data do not bear directly on this question because, without the input, we are unable to discern how these children's flexible

productions are tied to specific utterances they may have heard from an adult. That is, the question of productivity requires an evaluation of the strength of the link from parent speech to child speech. However, this limitation does not mean that these data are not important.

The question of whether children can go beyond the input in the early stages of verb learning will be difficult to test. It will be difficult to record all of the input for a particular verb and then compare it to the child's production of that verb to reveal new productions not heard. Other arguments of creativity in productions have included a discussion of errors made that would not fit the input, and of errors that are possible but are never made. For example, Bowerman's (e.g., 1982) description of verb errors in older children is important because, by these ages, her children were producing errors that do not fit anything an adult English-speaker would say. In addition, laboratory studies in which exposure to the number and types of sentences in which a novel verb is heard, with methodologies that are sensitive to toddler abilities, make it possible to control the input and address the question of productivity. Given that we currently have very little of either type of data (diary or laboratory) for this stage of verb acquisition, a major contribution of the present study is that it demonstrates the kinds of flexibility children can produce in the early stages of verb learning, even though this flexibility may have direct links to specific utterances created by an adult.

Flexibility in utterances

Even though flexibility is not the same as productivity, it is important that these researchers examined the utterances children produced and evaluated them for flexibility as well. These analyses show that these children were producing verbs in more than one type of utterance. However, most of the data reported here concerns 1- and 2-word utterances and thus, it is unclear whether these utterances are scaffolded by an underlying structured grammar. Lois Bloom's (1993) and Martin Braine's (1971) work demonstrate the same tensions as reflected in this current work. For example, Braine pointed out that there are too few words in the utterances to be sure of whether the child has a grammatical category or does not. Thus, some of the differences between the present study and Tomasello (1992) reflects the tension between a rich (L. Bloom-like) interpretation of utterances as seen here, and a more conservative analysis of utterances as used by Braine and Tomasello. (And, although we usually prize conservatism in science, as noted, being *overly* conservative has its own limitations.)

In addition, children were using utterances to command and to describe but, at the same time, there are many more communicative functions that could be expressed. This could be viewed as pragmatic flexibility as Naigles et al. argue, or it could be viewed as a restricted set of communicative functions. These are just the type of utterances parents are likely to use frequently with young children: commands and descriptions of events. Thus, the tendency for children to use these forms could be evidence of a link between parent and child speech in this study.

Are individual differences important?

Another major contribution made by this monograph is that it provides a sense of individual variation in verb learning in this sample. However, as Naigles et al. note, this range is not fully representative of the actual range of variation, or even of the range of parents who initially agreed to participate in this labor intensive study. Instead, a surprising number of families initially agreed but found that their children were not producing verbs. In addition, several families began the study but had to drop out because their children were too verbal. Thus, the range represented here represents a mid-range of children who were neither too verbal nor not verbal enough at the time of the study, and the interpretation of the results should be made with these participant characteristics in mind. Perhaps the variability in development in this study is even more surprising then, given the fact that children at each end of variation were not included. The careful analysis by these researchers provides important information about different trajectories children take in verb learning, which is important for researchers, parents and speech therapists alike for understanding ways in which normal language development unfolds.

Are there specific verbs that provide a particular benefit in verb learning?

Finally, the evidence presented in this monograph addresses questions about whether the acquisition of some verbs is more useful for breaking into the verb lexicon. An advantage nouns have over verbs is that the nouns that refer to concrete objects can be ordered hierarchically within a category. Thus, researchers can examine the acquisition of nouns at different levels of a hierarchy, and have found an early tendency for children to learn nouns for entities at the basic level as opposed to the superordinate or subordinate levels (e.g., Rosch, 1978). Verbs in a language do not appear to have a clear basic level or a single hierarchical structure. There is a small set of verbs that is

fairly general ('light verbs'). As Naigles et al. note, there are researchers who have proposed that this set is especially important in verb learning because these general verbs can help the child discover patterns of syntax that hold for groups of verbs. However, it has been unclear whether these verbs actually serve this function of 'pathbreaking' and there is no evidence that they do so here. Even if this small set of very general (light) verbs does provide important data to the child, this is obviously not the same as the 'basic level' in noun learning. Thus, instead of thinking of verb learning as proceeding along a particular dimension in a hierarchy, children appear to be learning both general and more specific verbs at the same time, as the study reported in this Monograph demonstrates effectively. In addition, verbs seem to group into clusters of meaning, or clusters of verbs that share sets of syntactic frames, instead of being hierarchically structured across the verb category, and thus it is unclear whether general extension strategies across different verbs would actually be useful. Children may be better served by being conservative in verb learning, given the major differences in the meaning of individual verbs, and the differences in the range of syntactic frames that particular verbs allow.

Conclusion

The study reported here is important because it includes several children, focuses on early verb uses, and reveals information about those uses across semantic and syntactic contexts. Future studies are needed to clarify the scope of children's early verb representations, and the relationship between parental input and children's productions. However, this study makes an important contribution to the field by revealing more about an early stage of verb learning that is poorly understood. Thus, this study provides an important link between studies of infants' event processing and studies of verb learning after 24 months, a link that is important for understanding the entirety of verb development.

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