Commentary on Lieven & Brandt and Roeper & Pérez-Leroux

Erika Hoff & Letitia Naigles

To cite this article: Erika Hoff & Letitia Naigles (2011) Commentary on Lieven & Brandt and Roeper & Pérez-Leroux, Infancia y Aprendizaje, 34:3, 309-313, DOI: 10.1174/021037011797238595

To link to this article: https://doi.org/10.1174/021037011797238595

Published online: 23 Jan 2014.
Abstract

Research on young children’s language use and comprehension suggests that 2-year-olds are productive language users. Research on infant learning abilities suggests how that may come to be. The view that language knowledge is abstract and the view that language knowledge is learned from input are not incompatible.

Keywords: Productive language use, infant learning, input.

Comentario sobre Lieven & Brandt y Roeper & Pérez-Leroux

Resumen

Las investigaciones sobre el uso y la comprensión del lenguaje en niños pequeños indican que los niños de 2 años son usuarios productivos del lenguaje. Las investigaciones sobre las habilidades de aprendizaje infantil sugieren cómo sucede esto. Los puntos de vista de que el conocimiento del lenguaje es abstracto y de que el lenguaje es aprendido a partir del input no son incompatibles.

Palabras clave: Uso productivo del lenguaje, aprendizaje infantil, input.
On the first day of class in many courses on language acquisition, students are introduced to a central fact that theories of language acquisition must explain: Human language is productive. That is, language knowledge in adults is not a finite, memorized list of words and sentences, retrieved as the occasion demands. Rather, the number of sentences that a speaker can produce is infinite, and new sentences are constructed in the process of speaking. The question is how does the child who hears a finite number of sentences acquire the ability to produce and understand an infinite number of sentences, most of which have never been encountered before? The paper by Lieven and Brandt (LB) and the paper by Roeper and Pérez-Leroux (RP) are beautifully clear expositions of two contrasting theoretical positions with respect to this question.

The theoretical issue

The question these papers address is actually a three-part question: (1) What is the nature of the knowledge that underlies adults’ language?, (2) What is the nature of the knowledge that underlies children’s early language?, and (3) Where does that knowledge come from? The answer to each question carries implications for the answer to the next.

The constructivist answers, outlined by LB, are (1) Adults’ syntactic knowledge consists of a repertoire of constructions or formulas for producing utterances. (Comprehension is carried out by recovering the underlying construction.); (2) Children’s early language relies on even less abstract representations than adults—including many formulas based on particular lexical items (e.g., formulas for building sentences that can be built around *eat*, *jump*, and *run*) rather than abstract syntactic categories (e.g., formulas for building sentences around *Verbs*); and (3) The process of syntactic development consists of acquiring a repertoire of constructions and formulas and increasingly abstract categories on the basis of experience hearing the language in use.

The generativist answers, outlined by RP, are (1) Adults’ syntactic knowledge consists of a small set of abstract categories and procedures for composing strings by combining those categories in ordered sequences. (Comprehension is carried out by recovering that underlying structure.); (2) Children’s early language makes use of similarly abstract underlying categories and principles; and (3) Children don’t need to learn grammar, as learning is typically defined. The principles and categories of grammar are innate, requiring only minimal exposure to the language to be “triggered”.

The empirical argument

LB present evidence from a variety of data sources to make the argument that one need not attribute very abstract knowledge to children in order to account for what they do. For example, Lieven and colleagues have used a “trackback” method of analyzing adult-child conversation and have shown that very often when a child produces what seems to be a novel utterance, one can actually find the ingredients for that utterance earlier in the transcript. That is, the child has produced a novel utterance not by generating it from scratch but by taking a previous sentence and replacing one content word. Even when children are being more productive than that, one can see evidence of the data-dependent nature of children’s underlying knowledge in relations between the frequency of structures in input and the frequency of children’s production of those structures. The productivity that is a central explanatory challenge is simply not there, upon close examination.
Not so, argues the generativist position. The empirical basis for the generativist position is that even very young children do things that cannot be explained on the basis of their input. Some things cannot be explained at all, such as why do children not make certain errors that learning-from-input procedure ought to produce. For example, children produce “big truck,” “truck big,” and “it big,” but they do not produce “*big it,” which is ungrammatical because adjectives do not modify pronouns. (The argument is that if you need to refer to categories such as pronouns to describe what children must know, then children must be operating with those abstract categories.) Other things cannot be explained in terms of input frequency. RP offer as an example, one Spanish-learning child who at the age of 1;9, most frequently expressed negation with the negative marker in phrase-final position, as in “Nene sienta no,” although this was the least frequent negative structure in her mother’s input.

Other sources of evidence

Two sources of data not considered in these papers argue that children may be more productive and have more abstract categories at an earlier age than do the data LB present. One such data source consists of focused diaries that yield a more complete record of children’s early productions than speech samples. A second is studies of very young children’s comprehension.

We have recently reported findings from a “verb diary” study in which we asked eight mothers to record their child’s very first 10 uses of 34 different verbs (Naigles, Hoff & Vear, 2009). We found more variety in the ways in which children use verbs from their very first uses than one would expect if first use is supported by formulas based on memorized strings of input. The logs of children’s first uses of their first verbs show that verb use was not restricted to specific frames—on average, the children used 65% their verbs in multiple syntactic configurations before the 10th instance; the first change in syntactic use (e.g., adding a subject or object to a verb first used in its “bare” form) occurred, on average, 15 days after the first use. Within these first 10 instances, children used 2-argument frames more frequently with transitive than intransitive verbs, showing they had already distinguished these verbs into subclasses. Flexibility was also seen at the individual level: One of the speedy learners produced “Drop,” “I drop,” “I drop something,” and “I dropped it” all within 30 days. Even one of the slower learners produced “I don’t like” and “I like cheese” within a single day. Moreover, the children produced the Subject + Verb and Verb + Object frames with more than 60% of all the target verbs they used, showing that the frames were not restricted to one or two lexical items but had the productivity suggestive of a procedure for sentence production that operates over a fairly abstract category that one is tempted to call Verb. Even within the very first 6 weeks of verb use, four of the eight children were using their verbs in multi-word utterances comprising multiple frames.

Studying children’s comprehension provides another route to discovering syntactic knowledge that might not be revealed in spontaneous speech. There exist considerable data now demonstrating that very young children have knowledge that is more abstract than knowledge of words or even constructions built around content words. Given a string of the form The X is Y-ing the Z, 20 to 25 month olds appear to interpret X as the agent of the verb and Y as a causal, rather than noncausal action. For example, children who hear “the duck is gorping the bunny” look longer at videos where ducks are agents rather than bunnies (Gertner, Fisher & Eisengart, 2006) and longer at videos where ducks and bunnies engage in causal actions rather than noncausal ones (Naigles,
More recently, Wagner and colleagues (Wagner, Swensen & Naigles, 2009) have demonstrated that 29-month-old English learners can distinguish ongoing vs. completed actions based on whether the nonce verbs accompanying them end in ‘ing’ vs. ‘ed’ (e.g., children who hear “she’s kradding it” look longer at the ongoing activity whereas children who hear “she kradded it” look longer at the completed action). Finally, even wh-questions have been found to be understood very early. Seidl, Hollich and Jusczyk (2003) showed one-year-olds videos in which an apple hits a flower, followed by paired pictures of an apple and a flower. The children are asked (a) “what did the apple hit?” and (b) “what hit the flower?” Relative to a baseline, the 20-month-olds preferred the flower for (a) and the apple for (b). This finding has been recently replicated by Goodwin, Jaffery, Piotroski, Fein and Naigles (2010), with 27-month-olds; moreover, Goodwin was able to analyze his participants’ maternal input 4 and 8 months prior to their engagement in this task. In particular, mothers who used more wh-questions with the copula (“What’s in the bag?” “Where is the truck?” “Who is that?”) had children who performed MORE POORLY on the wh-question comprehension task. We conjecture that these copula-heavy interactions may have allowed the children to DELAY their learning about wh-movement, because these questions don’t require wh-movement to be understood (that is, in these questions, the wh-word doesn’t stand for an argument/gap somewhere else in the sentence).

How competent infants resolve the nature-nurture debate

For many developmental psychologists, ceding to the generativist position and the nativism it entails is tantamount to giving up. Is there a way not to give up on development, yet still accord the adult and the fairly young child abstract grammatical knowledge? Studies of infant learning capacities suggest there is. A large body of evidence now reveals that infants can acquire considerable knowledge about the patterns of language, including abstractions from the input (for summaries, see Gerken, 2007; Saffran & Thiessen, 2007). The evidence that children have abstract knowledge at a very early age does not mean that knowledge is innate, if it can be shown that very young infants have the ability to acquire abstract knowledge. The 2-year-old children who show flexible verb use have been listening to and processing speech for some time before they produce their first and flexibly used verbs. Thus, it is perhaps not surprising that they show flexibility of verb use and other signs of abstract representations at an early age (see Snyder [2007], for a concurring view from a generativist framework). In sum, the evidence of abstract knowledge earlier than LB find it does not contradict the general notion that children learn grammar from input. It does argue that the learning occurs earlier in the life of the child than the constructivist position would have it occur. Moving the question earlier changes the question somewhat because if learning is early then it must be accounted for in terms of mechanisms available to very young children (see Naigles, 2002). For developmentalists, the constructivist position of starting with children’s domain-general learning abilities and the information available to them in input is a more congenial approach to explaining development than starting out with attributions of highly abstract innate knowledge. LB have shown how that approach can be profitably pursued. But as LB acknowledge, the constructivist account of language acquisition is as yet incomplete. RP have made it clear that the accomplishments of even very young children are considerable and pose a formidable explanatory challenge.
References


