[REVIEW]

Child Language Acquisition: Contrasting Theoretical Approaches

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1. Introduction

Theories on first language acquisition have centered on a crucial issue regarding whether and to what extent children's first language acquisition can be attributed to an innate mechanism that guides children to acquire their first language. For past decades, two major alternating theoretical approaches have driven the debate regarding this central issue: (i) the *Generativist Approach/Nativist Approach/Universal Grammar (UG) Approach* (henceforth referred to as the *Generativist Approach* in the current paper); (ii) the *Constructivist Approach/Emergenist Approach/Socio-pragmatic Approach/Functionalist Approach/Usage-based Approach* (which we refer to as the *Constructivist Approach* henceforth). The former has its critical origin in the emergence of the Generative Grammar (e.g. Chomsky (1957)), hypothesizing an innate core language endowment in the human species (while claiming that there should still be room for children to learn throughout their development) (e.g. Crain (1991)); the latter adopts a non-generative grammar, such as the Cognitive Grammar (e.g. Langacker (1987)) or the Construction Grammar (e.g. Goldberg (1995)), as its core theoretical framework, presumably denying an innate language endowment guiding first language acquisition (while assuming that the ability to learn language is innate) (e.g. Tomasello (2003)). Attempts have been made thus far to open

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up a mutual and direct dialogue between these two contrastive theoretical frameworks, seeking a bridge between these two alternative standpoints (e.g. Crain and Tomasello (2004)); yet, a number of studies argue for one of the hypotheses while rejecting the other, and the gap between the two approaches still remains wide.

The book reviewed in the current paper, *Child Language Acquisition: Contrasting Theoretical Approaches* (Ambridge and Lieven (2011)), is one of the first innovative attempts to bridge the gap between the opposing claims of these theories. Throughout the book, a large number of case studies favoring one or the other approach are thoroughly analyzed. The authors (Ambridge and Lieven, henceforth abbreviated as A and L) sketch out the fundamental theoretical claims of each of the approaches (Chapter 1) with an in-depth discussion of the core conflict between them which centers on the definition of linguistic representation (Chapter 4). They then broadly review a number of studies investigating children's acquisition of their first language at multiple linguistic levels, with exhaustive coverage ranging from speech sound perception, production and segmentation (Chapter 2), to word learning (Chapter 3), the representation of complex linguistic units, such as inflectional morphology and syntax (Chapters 5–7) and syntactic-semantic representation, including binding, control and quantification (Chapter 8). Each of these chapters shares the same internal structure, in which a few key acquisition debates in each linguistic domain are discussed in light of empirical research from proponents of each approach. At the end of each section, there is a summary table that illustrates evidence for and against both approaches, allowing readers to easily review the evidence and better understand how these theories have been tested at that level of linguistic representation. It should be particularly noted that the goal of A and L is not to hold up these two opposing approaches in competition with each other to select a winner, but “to present the evidence for and against particular generativist-nativist and constructivist proposals regarding the central theoretical debates in child language acquisition (Ambridge and Lieven (2011: 376)).” This goal has been successfully achieved, by means of the aforementioned balanced organization of each chapter; the discussion developed in this book is indeed “fair to—and appropriately critical of—these alternative theoretical approaches (Ambridge and Lieven (2011: 376)).” The conclusion regarding which approach may provide a better account is essentially open for each reader's evaluation. A and L conclude the book by revisiting the debates provided in the previous chapters in terms of methodological issues, the poverty of stimulus, the initial state of language acquisi-

tion, the development of language, and language processing; the last chapter also includes a discussion of related debates, including brain localization of language, modularity and domain specificity of language, atypical language development, and the genetic basis of language (Chapter 9).

In the current paper, we will first focus on a discussion of a critical contrast between the two approaches, i.e. the fundamental difference in the nature of linguistic representation that each theoretical framework posits (Section 2). We will then survey the discussions of the acquisition of inflection, word order, passives and binding, which nicely illustrates the approach in the text of presenting both the strengths and weaknesses of each approach, as well as the points of agreement and disagreement between the two approaches (Sections 3–6). We will lay out the authors' discussion of the future directions for theory-based first language acquisition research (Section 7), followed by some concluding remarks (Section 8).

2. The Nature of Linguistic Representation: Crucial Contrast between the Generativist Approach and the Constructivist Approach

A crucial contrast between the Generativist and Constructivist approaches lies in how linguistic representations are viewed. Whereas the theoretical approaches underlying both of these frameworks agree that sentences consist of smaller syntactic categories, such as Nouns, Verbs, they contrast with respect to the hypothesized nature of these syntactic categories, how these syntactic categories are structured into larger units of representation (e.g. phrases and sentences), and how they come to be present in the child's linguistic system. In the Generative Grammar, syntactic categories are present in the child's linguistic knowledge from birth and are universal; the child's task in first language acquisition is to establish an appropriate 'mapping' between linguistic exemplars (input) and the corresponding syntactic categories that exist in their linguistic system from the beginning (e.g. Crain (1991)). In the non-Generative grammars that the constructivists adopt, on the other hand, the syntactic categories are not innately specified in children but are conservatively learned based on the linguistic input a child is exposed to; these categories are built based on the linguistic input. For example, a child learns nouns from the input that is available to him/her repeatedly, using analogy to find common properties shared among all the nouns. Ultimately, a child learns the Noun as a category whose entries exhibit particular syntactic behavioral patterns across the board (e.g. Tomasello (2003)).

they start combining these smaller constructions and form larger, more complex constructions such as NPs, VPs and sentences. The phrases/sentences children learn and store directly from the input are called *holographs*, or *frozen phrases* (e.g. “I’m kicking it”), where there are no adult-like analytical internal structures yet posited; children will *schematize* across these strings to form a more abstract ‘template’ (e.g. “I’m ACTIONing it”), which is called a *lexically specific schema* (e.g. Tomasello (2003)).

A and L also claim that there are some domains in which the Generativist Approach and the Constructivist Approach share (at least seemingly) similar assumptions for linguistic representations while not denying the presence of the fundamental difference in the approaches regarding the linguistic representations in child language and the mechanisms by which children gain access to these representations. They crucially leave the conclusion regarding which approach has a better account as open as possible for the readers. We will now look at specific cases in which the similarities and differences, as well as strengths and weaknesses, in the assumptions of the two approaches and their relative ability to account for the extant data will be illustrated. Specifically, we will survey A and L’s discussions of the acquisition of (i) inflection, (ii) basic word order, (iii) passives and (iv) binding.

3. Inflection—Acquisition of Morphosyntax

A and L discuss three research areas in children’s early inflectional morphemes: (i) *Root Infinitives (RIs)*, (ii) developmental trajectory of morphological productivity, and (iii) rule- vs. analogy-based learning of English past tense marking. They point out that, although these three topics have been discussed independently of one another, they are “tightly interrelated (Ambridge and Lieven (2011: 187)).” For example, a typical child utterance, *He play football*, can be viewed as an exemplar case discussed in all of these three domains, i.e., an utterance like that is indeed an RI, a reflection of the lack of productivity with the third-person singular morpheme *-s*, and a tense marking error in which the child confuses the first- and third-person singular, or he/she has failed to represent the past morpheme *-ed*. Given this, A and L underscore the importance for both Generativism and Constructivism (or any theoretical approaches) to provide a model that can account for all of these phenomena across the board.

A and L view early inflectional morphemes as a domain in which a fundamental contrast between the two approaches clearly emerges. While generativists tend to primarily focus on the nature of the adult-like, end state

of full productive morphological representation, from which they induce the learning process, constructivists prioritize accounting for the actual errors children make, leaving it open how children reach the adult-like stage.

Let us review their analysis of the Generativist and Constructivist accounts of RIs as an example. For generativists' models, A and L discussed *Agreement/Tense Omission Model (ATOM)* (Wexler (1998)), which claims that children undergo a developmental stage at which they optionally omit tense/agreement markers in finite contexts (*Optional Infinitive (OI)* stage). A and L explain that this model accounts for a wide variety of RI cases cross-linguistically; on the other hand, they point out some problems, such as potential over-predictions that this model makes (e.g. Schütze (2001)), as a limitation. They also discuss the *Variational Learning Model (VLM)* (Yang (2002), Legate and Yang (2007)), a parameter-setting-based model for inflectional morpheme acquisition. Legate and Yang (2007) hypothesize a TNS parameter that determines the presence/absence of overt morphological tense marking on verbs, and that children start out with two sets of competing grammars, those where the TNS parameter is set to negative (–TNS grammars) and those where this parameter is set to positive (+TNS grammars). If children receive ample input utterances in a language in which verbs do not mark tense, –TNS grammars win and they set their parameter value to [–TNS]; if children receive input utterances in a language in which verbs mark tense, then +TNS grammars win and they will set the [+TNS] value. While A and L highlight this model's capability to correctly predict cross-linguistic variation in RIs, overcoming, to some extent, the overgeneralization problem that ATOM may exhibit, they point out that the VLM lacks an explanation for potential lexical effects that determine RI behaviors.

A and L compare these models with the constructivists' account based on the *Model of Syntax Acquisition in Children (MOSAIC)* (Freudenthal et al. (2007)). According to this model, children's non-adult-like inflectional morphemes can be analyzed as the consequence of their reliance on particular types of input utterances in learning, i.e. adults' utterances such as "What does/could he play?," in which the tense/agreement information is marked on the auxiliary verb *does* or the modal verb *could*, not on the main verb *play*, on the basis of which they form non-adult-like sentences like "He play football." A and L point out that a strength of this model is its ability to accommodate the lexical effects that influence RI patterns, but they also address the lack of explanation regarding how children grow out of the RI production stage as a weakness of the MOSAIC-based RI explanation.

4. Basic Word Order—Acquisition of Simple Syntax

The basic word order characterizes one of the most fundamental syntactic aspects of a language. While the Generativist Approach assumes that there are some innate underpinnings that guide children to learn the basic word order in the language they acquire, the Constructivist Approach claims that the basic word order comes to children's grammar by learning from the input.

A widely-assumed model of word order acquisition within the Generative Approach relies on *parameter setting*. Gibson and Wexler (1994) hypothesize a set of three parameters, (i) the *complement-head (head-direction) parameter*, which determines the position of the head relative to the position of its complement in maximal projections, (ii) the *specifier-head parameter*, which determines the position of the specifier relative to the position of the head in maximal projections, and (iii) the *V2 parameter*, which determines whether a finite verb of a declarative main clause always appears as the second constituent; these three parameters are argued to play crucial roles in determining the ordering of the subject, object, and verb. Whereas the parameter-based acquisition model for word order has been widely supported in the Generative framework, A and L point out that the explanation is inconsistent with some findings showing that children, after the age at which the parameters are said to be set, start to exhibit some sensitivity to certain lexical effects in determining the sentence's word order (e.g. Savage et al. (2006)); furthermore, the nature of the learning that allows children to set the value of parameters remains unclear.

Constructivists model children's knowledge of basic word order in terms of the stored holophrases (e.g. "I'm kicking it") and lexically specified schemas (e.g. "I'm ACTIONing it."). For simple transitive sentences which reflect a language's basic word order (e.g. SVO in English), children need to learn a *transitive construction*, i.e. a template for any adult-like transitive sentences, [SUBJECT] [VERB] [OBJECT] (for SVO languages). Because this construction is one of the higher-order lexically specified schemas which is acquired at a later developmental stage through schematization, constructivists predict that the younger children will not be able to produce/comprehend basic, transitive word orders. A cohort of studies provides data to support this prediction, through the analysis of naturalistic utterance data from children (e.g. Pine and Lieven (1993)), elicited production (e.g. Akhtar and Tomasello (1997)), and syntactic priming (e.g. Shimpfi et al. (2007)). Constructivists' findings account well for the lexical effects that

the Generative models fail to capture; however, A and L raise a question regarding what the nature of the early syntactic schemas is, and how they develop in the constructivists' model.

5. Passives—Acquisition of Complex Syntax

We will take passive sentences as a case of complex syntax which exhibits non-canonical word order. Passive sentences that initially emerge in child language are known to be truncated, i.e., *by*-phrases are rarely present in early utterances. Notably, in both the Generativist Approach and the Constructivist Approach, these passive sentences uttered by young children are analyzed to be adjectival passives (e.g. *the car was broken*). However, the internal analyses of seemingly-adjectival passives by children and how children grow out of this stage diverge between the two approaches.

Generativists hypothesize that passive sentences are derived from their corresponding active sentences via syntactic movement, i.e. a Case-driven movement of the internal argument forming an argument chain (A-chain). Earlier work within the Generative Framework (e.g. Borer and Wexler (1987)) argued that children's passives initially lack the formation of an A-chain, because "the ability to form A-chains does not mature until later in development (Ambridge and Lieven (2011: 272))." The initial representation of passives in child language, at a point when A-chain formation is not yet available, lacks the full syntactic representation resulting in the A-movement of the internal argument NP. Hence, children's first passives are equivalent to adjectival passives. Another group of studies, focusing on the fact that children's early passive sentences robustly lack *by*-phrases, claims that children's difficulty in representing full passive sentences lies in their failure to 'transmit' the agent role from the passive morpheme to the NP in the *by*-phrase (e.g. Fox and Grodzinsky (1998)).

Constructivists, although sharing the same assumption with generativists that children's initial passives are virtually adjectival, hypothesize that the learning of passive sentences begins on an item-by-item basis, with the acquisition of the passive proceeding along the following trajectory: children start by treating their first passive sentences as "holophrases (e.g. *The car's broken*)"; children then go through a stage in which they form "lexically specific formulas (e.g. *The X was broken by the Y*)" and finally reach an adult-like phase in which they are able to implement adult-like, abstract passive constructions (e.g. *X BE/GET VERB by Y*) productively (e.g. Israel, Johnson and Brooks (2000)).

A and L's conclusion on these competing models of passive acquisition is reasonably equivocal, suggesting that there are some domains in which both approaches account for the facts. For example, children's overall poor comprehension of passive sentences and their rare production of *by*-phrases fit very well in the input-based explanatory framework under the Constructivist Approach, which claims that passives, with and without *by*-phrases, are rare in the input and thus children are not able to learn them until a certain age (e.g. Gordon and Chafetz (1990), Svartvik (1966)). On the other hand, studies within the Generative Approach show that 3- and 4-year-old children are able to produce passives with a *by*-phrase when the experiment is designed well (Crain and Fodor (1993)), suggesting the early possession of full knowledge of passive constructions. A and L's conclusion thus remains open, allowing readers to arrive at their own assessments of each theoretical proposal.

6. Binding—Acquisition of Syntactic-Semantic Representation

Characterizing the anaphoric relations between nominal and pronominal expressions in sentences has been a core issue discussed in the Generative Grammar, with constraints on coreference specified in terms of *Binding Principles* (e.g. Reinhart (1983)): a reflexive pronoun must be bound in its local domain (Principle A); a non-reflexive pronoun must not be bound in its local domain (Principle B); referential expressions (R-expressions) must not be bound anywhere (Principle C); crucially, the local domain for binding is determined by the c-command-based syntactic relation between a pronoun and its potential referent. Whereas binding principles provide a systematic explanatory mechanism for pronominal reference in the Generative Grammar, and a number of studies suggest that children possess innate knowledge of the Binding Principles (e.g. Chien and Wexler (1990), Crain and McKee (1986), cf. Lust, Eisele and Mazuka (1992) among others), binding principles have traditionally been outside the scope of Constructivist models; as A and L note, innate binding principles play virtually no role in the Constructivist theory. A and L claim that the developmental patterns of pronoun reference are indeed of interest to the field, and that any theory ought to be able to provide an explanation. Although little is discussed regarding children's pronoun reference from a Constructivist perspective, A and L point out that both generativists and constructivists provide converging predictions, and underscore the necessity for future research on the acquisition of binding from both approaches.

Let us take Principle C-type sentences as an example, in order to illustrate the point A and L make. Consider the following examples, where coreference between an R-expression and a pronoun is not acceptable.

- (2) a. She_{*i} listens to music when Sarah_i reads poetry.
- b. She_{*i} listens to music and Sarah_i reads poetry.
- c. She_{*i} listens to music. Sarah_i reads poetry.

(Ambridge and Lieven (2011: 326))

Among the three cases, only (2a) is viewed as a genuine violation of Principle C, where the R-expression *Sarah* is bound by the pronoun *she*. In (2b, c), *she* does not c-command *Sarah* as they are in separation across non-subordinate clauses/entirely independent sentences; generativists hypothesize that (2b) and (2c) are ruled out by discourse pragmatic principles, independently of Principle C. Likewise, within the Cognitive/Construction Grammar framework, Van Hoek (1997) proposes principles of discourse pragmatics that can account for Principle C-type sentences as in (2). Van Hoek's model relies on *accessibility*, i.e., how easy it is for the potential referent of a pronominal expression to be inferred from the preceding discourse. Interestingly, accessibility is determined on the basis of the sentence structure, rather than the linear order of the words in a sentence, a concept shared by the Generative Approach. The sentence structure that determines accessibility, however, is established by the listener's understanding of what the sentence is about, not by recognizing the sentence structures based on the grammatical roles of each category (such as subject and object of the sentence); in other words, Van Hoek's point is that the syntactic structure of a sentence, serving as the foundation for Principle C formulation, "is a reflection of its semantic structure (Ambridge and Lieven (2011: 328))." A and L discuss Harris and Bates (2002), which attempts to tease apart these two accounts, examining sentences such as:

- (3) a. He_{*i} threatened to leave when Billy_i noticed that the computer had died.
- b. He_{*i} was threatening to leave when Billy_i noticed that the computer had died.

(Ambridge and Lieven (2011: 329))

The binding-based account, assuming that (3a) and (3b) share the same syntax, predicts that the unacceptability of these two sentences would be equal, because both exemplify a Principle C violation; Van Hoek's model, on the other hand, assumes that the aspect difference between (3a) and (3b) affects accessibility (with (3b) being more accessible, because it yields 'scene-setting' while (3a) simply denotes an event). Considering this unsolved issue, A and L analyze the results of experiments Harris and Bates conducted with

adults, and conclude that the data from adults are overall equivocal. A and L highlight the necessity of expanding this line of research, importantly involving children, in order to tease apart these contrasting predictions.

7. Relevant Debates and Future Directions

A and L devote the last chapter (Chapter 9) of the book to a discussion of related debates regarding modularity, domain specificity and brain localization of language, atypical language development, a critical period for language learning, the genetic basis of language and its evolution, and language change. While recognizing the value of broadening the scope of theory-based language acquisition research, they acknowledge the difficulties in using cases from these related domains as the basis for wider-ranging theoretical claims. For example, they argue that evidence from brain damage cases *per se* does not straightforwardly support either genuine domain specificity or genuine domain generality (e.g. MacWhinney et al. (2000), Willems and Hagoort (2007)). Likewise, whereas A and L acknowledge the identification of the FOXP2 gene from research on a family with a genetically transmitted language disorder (e.g. Enard et al. (2002), Vargha-Khadem et al. (1995)), they call our attention to the complexity of gene-behavior relationships, and suggest that the extent to which the FOXP2 gene is specific to language still requires detailed investigation.

A and L conclude the final chapter by revisiting fundamental theoretical concepts such as the poverty of stimulus, the initial state of language and its development. Indeed, these concepts have been viewed as the ultimate source of the dissociation between the generativists and the constructivists; “nativists BELIEVE in continuity and constructivists BELIEVE in development (Akhtar (2004: 461)).” A and L sketch out the critical disagreement between the two approaches regarding these fundamental concepts, while still avoiding providing an absolute verdict regarding which theory defeats which. For example, as concerns the poverty of stimulus, A and L suggest that while “a learner who formed all possible generalizations would never arrive at the correct generalization (Ambridge and Lieven (2011: 371)),” the major point of divergence among the Generativist and Constructivist Approaches regards the consequences of this fact. Whereas the generativists conclude that the generalizations that the learners draw must therefore be innately specified, the constructivists state that the learner’s generalization formation is instead guided by their understanding of meaning. A and L claim that it remains an open empirical question whether linguistic input is

indeed informative enough for children to formulate the generalizations that are required for adult-like productivity in this way.

8. Concluding Remarks

As has been discussed above, A and L provide a well-balanced survey of a number of case studies to outline agreements and disagreements between two major alternative theoretical approaches to language acquisition, the Generativist Approach and the Constructivist Approach. The text remains largely neutral regarding which approach may provide a better account for various phenomena about child language, inviting readers to form their own conclusions. This book indeed serves as an extraordinarily comprehensive review of evidence for and against the two rival theories, which should benefit researchers as a detailed encyclopedic contribution to the literature. Furthermore, this textbook should provide advanced undergraduate and graduate students in linguistics with a better understanding of the fundamental claims of these approaches and of the overarching goals of theory-based first language acquisition research, through a well-balanced comparison of the two theories, without adjudicating between them. A potential weakness of this book is that it lacks substantial discussion of child language processing. Given the theoretical importance of achieving a better understanding of the precise nature and role of the input in language acquisition, increasing attention is being paid in language acquisition research to how the input is actually parsed and encoded by children (e.g. Omaki (2010)). Inclusion of the discussion of this line of research would strengthen this book's coverage. Still, with their thorough and detailed analyses of the large amount of empirical data covered, toward comparing and contrasting (but not adjudicating among) rival theories, this book surely serves as a premiere text for demonstrating how theory-driven language acquisition studies have increased, and will increase, our understanding of the nature of human language.

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