

Construction Grammar For Kids

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Abstract

Most accounts of child language acquisition use as analytic tools adult-like syntactic categories and schemas (formal grammars) with little concern for whether they are psychologically real for young children. Recent research has demonstrated, however, that children do not operate initially with such abstract linguistic entities, but instead operate on the basis of concrete, item-based constructions. Children construct more abstract linguistic constructions only gradually – on the basis of linguistic experience in which frequency plays a key role – and they constrain these constructions to their appropriate ranges of use only gradually as well – again on the basis of linguistic experience in which frequency plays a key role. The best account of first language acquisition is provided by a construction-based, usage-based model in which children process the language they experience in discourse interactions with other persons, relying explicitly and exclusively on social and cognitive skills that children of this age are known to possess.

Introduction

Textbook descriptions of children's early language quite often begin with the one-word stage, followed by the two-word stage, followed by the acquisition of grammatical rules. Implicit in this description is the idea that children begin by learning words and then, when they have enough of them, learn to combine them via rules. And the rules are meaningless and abstract from the beginning; at no point do they serve to combine concrete words like *dog* and *bark*, but rather they always operate on lexical categories like noun and verb or syntactic relations like subject and object. So children must also be learning to categorize words and their syntactic relations as they are learning the rules. This “words and rules” approach has been recently championed by Clahsen (1999) and Pinker (1999).

But this approach seems decidedly inappropriate for describing many of children's early linguistic productions. First, virtually all children – more in some languages than in others (and

with individual differences as well) – learn early in development expressions that from an adult point of view contain multiple words, such things as *Lemme-do-it*, *I-wanna-see*, and *Gimme-it* (what Lieven et al. (1992) call “frozen phrases”). These may still be single linguistic units for the child, and so in some sense could be considered words for them; but from a processing point of view the key consideration is that development from this point on will not be a process of building up but rather one of breaking down. Second, by all accounts (and as we will document below), many of young children’s early multi-word productions are not structured by abstract rules but rather by linguistic schemas of a much more concrete nature – what have been called item-based schemas (or constructional islands) tied to concrete lexical content. These schemas become abstract only gradually, and, in at least some theoretical accounts, never become totally abstract and meaningless “rules” even in adulthood (e.g., Fillmore 1989).

The theoretical approach in contemporary linguistic theory that is best able to account for these basic facts of language acquisition is Construction Grammar, especially as embodied in the approaches of Goldberg (1995, in press) and Croft (2001). Most importantly, constructionist approaches such as these enable us to talk about children’s mastery of meaningful linguistic units of different shapes, sizes, and degrees of abstraction, and how these are gradually transformed into more adult-like linguistic constructions. In this essay I explicate some of the essentials of the construction grammar perspective on language acquisition, beginning with construction grammar in general, proceeding to the unique elements of radical construction grammar in particular, and ending with some usage-based processes by means of which children learn, generalize, and use their linguistic constructions (based on the principles presented in more detail in Tomasello (2003)).

Construction Grammar and language acquisition

The fundamental theoretical point is that from a construction grammar perspective, the most basic phenomenon of language is people making whole utterances to one another on particular

occasions of use, using concrete pieces of language. When people repeatedly say “similar” things in “similar” situations, what may emerge over time is a pattern of language use, schematized in the minds of users as one or another kind of linguistic category or construction – with different kinds of abstractions. As opposed to linguistic rules conceived of as algebraic procedures for combining symbols but that do not themselves contribute to meaning, linguistic categories and constructions are themselves meaningful linguistic symbols – since they are nothing other than the patterns in which meaningful linguistic symbols are used to communicate. Thus, the pattern X VERBed Y *the* Z is a construction of English that signifies some kind of transfer of possession (either literal, as in *give*, or metaphorical, as in *advise*); the pattern *The* X signifies a “thing” (in the sense of Langacker 1987); and *The X-er they are the Y-er they are* is an idiosyncratic construction with its own idiosyncratic meaning. The approach of construction grammar thus emphasizes relatively large linguistic structures and focuses, to a relatively large extent, on their concrete dimensions.

There are no linguistic entities – lexical or syntactic, concrete or abstract, regular or idiomatic – that are not symbolic (ignoring the phonological level); all have communicative significance because they all derive directly from language use. It is important that in the construction grammar approach, the search is for all kinds of usage patterns, even those of only limited generality. The attempt is thus to account not just for “core grammar” but for all kinds of linguistic items and structures – including idioms, irregular constructions, mixed constructions, and metaphorical extensions – all within one theoretical framework. The level of abstraction at which the speaker is working in particular cases may or may not correspond to the most abstract level the linguist can find; it is in all cases an empirical question that most often needs psychological experimentation. Cognitive linguists and construction grammar linguists such as Langacker (1987), Bybee (1995), Fillmore (1989), Goldberg (1995), and Croft (2001) thus recognize a continuum of meaningful linguistic constructions from morphemes to words to

phrases to syntactic assemblies, with different potential levels of schematization at all levels of complexity.

This perspective – among many other things – allows for new insights in the field of child language acquisition, enabling us to account for language acquisition in a way simply not possible in the “meaningful words and meaningless rules” approach. Most importantly, recent research suggests that young children do not structure their early language with abstract rules of any kind – with the exception that they control from early on some item-based structures with open but still semantically constrained “slots”. For example, in a detailed diary study Tomasello (1992) found that most of his English-speaking daughter’s early multi-word speech revolved around specific verbs and other predicative terms. That is to say, at any given developmental period each verb was used in its own unique set of utterance level schemas, and across developmental time each verb began to be used in new utterance level schemas (and with different Tense-Aspect-Modality, TAM, morphology) on its own developmental timetable irrespective of what other verbs were doing during that same time period. There was thus no evidence that once the child mastered the use of, for example, a locative construction with one verb that she could then automatically use that same locative construction with other semantically appropriate verbs. Generalizing this pattern, Tomasello (1992) hypothesized that children’s early grammars could be characterized as an inventory of verb-island constructions, which then defined the first grammatical categories as lexically based things such as “hitter”, “thing hit”, and “thing hit with” (as opposed to subject/agent, object/patient, and instrument; see also Tomasello & Brooks 1999).

There is good evidence that children’s early language is cognitively grounded in their understanding of specific “scenes” of experience, which correspond in some fairly direct way to whole syntactic constructions. A scene is a coherent conceptual package that contains an event or state of affairs along with one or more participants (Fillmore 1977; Langacker 1987), for example, various “manipulative activity scenes” such as someone pushing, pulling, or breaking an object;

various “figure-ground scenes” such as objects moving up, down, or into a container; and various “possession scenes” such as getting, giving, or having an object (Slobin 1985; Tomasello 1992). Their correspondence to the transitive, intransitive–motion and ditransitive construction respectively is obvious. As development proceeds children come to (i) partition these specific scenes into their various component elements, with different linguistic symbols indicating different components, and (ii) use syntactic symbols such as word order and case marking to identify the role these different components are playing in the scene as a whole. At some later point still they come to categorize these specific scenes into various classes of scenes that may be linguistically partitioned and marked in analogous ways.

Focusing on the most general utterance-level constructions of English, encoding basic scenes of experience, we may – as a result of analyzing children’s utterances – provide the following typology of the major types of children’s early constructions in terms of the nature of the abstractions involved and how syntactic marking is employed.

- Developmentally first (approximately 14 months of age) are **Holophrases**, in which children use a single linguistic symbol (often with a specific intonational contour) to communicate their intentions about a specific experiential scene (e.g., *Birdie! Pick-up!*, *Lemme-see!*, etc.). No syntactic marking is involved.
- Second (approximately 18 months of age) are **Pivot Schemas** and other **Word Combinations** in which children use multiple words to express their communicative intention, thus partitioning the experiential scene into at least two component parts, sometimes with a slot (e.g., *Birdie fly*, *Open box*, *Where’s-the X? X gone*, *More X*). Again no syntactic marking is involved.
- Third are **Item-Based Constructions** (e.g., verb island constructions; approximately 18-20 months of age), in which children use syntactic marking such as word order or

grammatical morphology to indicate explicitly some participant roles in scenes, but they do this differently for different item-based constructions (e.g., *X hit Y*, *X broken*, *Put X in/on Y*, *Hit with Z*, etc.).

- Finally are **Abstract Constructions** in which children express their communicative intentions through utterances that instantiate relatively abstract and adult-like linguistic constructions (e.g., ditransitive, passive, etc.) that syntactically mark participants for verb-general classes of constructions.

At the same time children are constructing utterance-level constructions such as these, they are also attempting to learn the particular constituents within utterances and what they are doing communicatively. They therefore learn constituent constructions such as NPs, PPs, and verbal complexes with TAM marking at the same time they are learning these utterance-level constructions. These may also be either more concrete or more abstract or some mixture. Overall, then, the major contribution of construction grammar to the study of child language acquisition is that we can describe and explain linguistic units of many different levels of complexity and abstractness – including constructions composed of both concrete and abstract constituents – all in the same theoretical framework. This enables us to account, in a seamless manner, for children’s developing ability to deal with linguistic constructions that are both more complex and more abstract.

Radical Construction Grammar and language acquisition

Croft’s (2001) radical version of construction grammar contains some important additional insights relevant to the question of how children create abstract linguistic constructions and categories. Croft’s primary aim is to apply construction grammar systematically cross-linguistically. In doing this – and based on a very deep analysis of the ways in which linguists actually attribute structure to novel languages – he concludes that not very much in the actual

items and structures of natural languages is universal (although of course much having to do with cognitive structures and communicative functions is). For example, there would seem to be no universal syntactic categories (grammatical relations) of the type subject, direct object, and so forth. But Croft has an even more radical proposal. He claims that the whole notion of syntactic categories as free-floating linguistic entities is wrong-headed. Such things as subjects and direct objects only exist in constructions, and indeed the entities that go by these names are actually different entities when they are in different constructions.

For example, in all of the following examples *John* is traditionally thought of as subject:

John hit Bill.

John was struck by a car.

There is John.

But the properties of the subject in these three different constructions (transitive, passive, and there-construction, respectively) are very different – John is either agent, patient, or located object – although, of course, there are some commonalities as well. Croft seeks to capture the construction-specific nature of these roles, along with their commonalities, by referring to the above examples as having, respectively, a transitive-subject, a passive-subject, and a there-construction-subject. It is exactly this way of conceptualizing and labeling syntactic relations that allows us to account for both continuities and emergent abstractions in the lengthy process of children’s syntactic development.

There is a second very important aspect of this analysis that has crucial implications for how we conceive of the process by which children create linguistic abstractions of various sorts. Croft is very careful to call such things as “transitive-subject” syntactic roles, not grammatical relations, as is common in most theories (both formal and usage-based). This is because he wants to highlight again the fact that such things as subjects and direct objects take their definition from the role they play in larger linguistic constructions. Croft claims that the term grammatical

relations is misleading because it implies that such things as subject are defined by their relations to other items in the construction, rather than, as in his analysis, to their role in the construction as a whole. Transitive-subject defines one role in a complex linguistic gestalt. What this means for theories of acquisition is that we must look at syntactic roles such as “subject” not as word-based categories or relations to be separately learned by distributional analysis or some other categorization process, but rather as roles that emerge naturally (and, in a sense, epiphenomenally) from the abstraction process when children apply it across whole, utterance-level constructions. This can only be done by a complex process such as analogy, which takes into account multiple components simultaneously (see below).

It should be noted that the situation is different with traditional parts of speech, such as noun or verb, sometimes called paradigmatic or lexical categories. Unlike syntactic roles, paradigmatic categories are not explicitly marked in language. That is, whereas such things as subject are symbolically indicated by word order or grammatical morphology in the construction, nouns and verbs have no marking indicating their nature or role (despite the fact that they often have some morphology serving other functions, e.g., plural markers on nouns, that can be used to identify them). Consequently, the category cannot be organized around any specific linguistic symbol, but can only be based on commonalities in the way the members of the category function (i.e., on distribution). And this is another very large difference between syntactic roles and paradigmatic categories. Syntactic roles such as subject do not have specific linguistic items as members, whereas paradigmatic categories such as noun have specific items, such as *dog* and *tree*, as members of the category – once again suggesting that such things as subject are not categories whereas such things as noun are. These considerations suggest that paradigmatic categories such as noun and verb (and noun phrase and verb phrase) can only be formed during development by distributional analyses in which the child begins to see specific linguistic items that behave in the

same way as members of the same category. This is very different from the process of making analogies across constructions and defining functional roles on the basis of that analogy.

Overall, then, radical construction grammar makes two additional important points over and above those made by construction grammar in general. First, syntactic roles are construction-specific and so, in a very direct sense, defined by the construction. Second, the marking of syntactic roles does not indicate syntagmatic relations among words or lexical categories, but rather it indicates the functional significance – the role – of the constituent in the construction as a whole. These two considerations have important implications for how we conceptualize children's constructing the more abstract dimensions of their linguistic competence.

Usage-based processes of language acquisition

Turning now to a consideration of acquisition processes, Construction Grammar allies itself quite naturally with usage-based perspectives in which language structure emerges from language use, both historically and ontogenetically, based not on innate linguistic knowledge, but rather on more general cognitive processes. Thus, from a usage-based perspective linguistic constructions are things that children learn and construct out of the language they hear around them using the same cognitive and social-cognitive skills that they use in other areas of their lives. There are four major processes (or classes of processes) that enable children to construct the abstract dimensions of language: (i) intention-reading/cultural learning, (ii) schematization/analogy, (iii) constraint, and (iv) distributional analysis.

Intention-reading and cultural learning

First, because natural languages are conventional, the most fundamental process of language acquisition is the ability to do things the way that other people do them, that is, social learning broadly defined. The acquisition of most cultural skills, including skills of linguistic communication, depend on a species-unique form of social learning involving intention-reading that is most often called cultural learning, one form of which is imitative learning (Tomasello et al. *Constructions* SV1-11/2006 (www.constructions-online.de, urn:nbn:de:0009-4-6893, ISSN 1860-2010))

al. 1993). This can be seen most clearly in experiments in which young children reproduce an adult's intended action even when she does not actually perform it (Meltzoff 1995) – she is only seen trying to open something not actually opening it – and in which they selectively reproduce only an adult's intentional, but not accidental, actions (Carpenter et al. 1998).

In human linguistic communication the most fundamental unit of intentional action is the utterance as a relatively complete and coherent expression of a communicative intention, and so the most fundamental unit of language learning is stored exemplars of utterances. This is what children do in learning holophrases and other concrete and relatively fixed linguistic expressions (e.g., *Thank You, Don't mention it*). But as they are attempting to comprehend the communicative intention underlying an utterance, children are also attempting to comprehend the functional roles being played by its various components. This is a kind of “blame assignment” procedure in which the attempt is to determine the functional role of a constituent in the communicative intention as a whole – what we may call segmenting communicative intentions. Identifying the functional roles of the components of utterances is only possible if the child has some (perhaps imperfect) understanding of the adult's overall communicative intention – because understanding the functional role of a component X means understanding how X contributes to some larger communicative structure. This is the basic process by means of which children learn the communicative functions of particular words, phrases, and other utterance constituents – and, with help from pattern-finding skills, categories of these.

Schematization and analogy

Second, young children hear and use, on a numbingly regular basis, the same utterances repeated over and over but with systematic variation, for example, as instantiated in item-based schemas such as *Where's-the X?, I wanna X, Let's X, Can you X?, Gimme X, I'm Xing it*. Forming schemas of this type means imitatively learning the recurrent concrete pieces of language for concrete functions, as well as forming a relatively abstract slot designating a relatively abstract

function. This process is called schematization, and its roots may be observed in a variety of primate species who schematize everything from food processing skills to arbitrary sequences in the laboratory (see Conway & Christiansen 2001, for a review).

The variable elements or slots in linguistic schemas correspond to the variable item of experience in the referential event for which that schema is used. Thus, in *Where's-the X* the speaker's seeking is constant across instances but the thing being sought changes across situations; in *I'm Xing it* the acting on an object is constant but the particular action varies. The communicative function of the item in a slot is thus constrained by the overall communicative function of the schema, but it is still somewhat open; it is a slot-filler category in the sense of Nelson (1985). This primacy of the schema leads to the kinds of functional coercion evidenced in creative uses of language in which an item is used in a schema that requires the listener to interpret that item in an unusual way; for example, under communicative pressure a child might say something like "*Allgone sticky*", as she watches Mom wiping candy off her hands. The point is simply that the slots in item-based schemas are functionally defined (they have almost no phonological restrictions, as do many morphological schemas) but this functional definition can be stretched to fit individual cases - which is perhaps the major source of syntactic creativity in the language of one and two-year-old children.

One special form of schematization is analogy – or, alternatively, one special form of analogy is schematization, these differing only in the amount of concrete linguistic material involved. Both exemplify the process by which children try to categorize, in the general sense of this term, whole utterances and/or significant other linguistic constructions. In general, we may say that an analogy can be made only if there is some understanding of the functional interrelations of the component parts of the two entities to be analogized across – at least in the case of syntax (in morphology there can be some analogies based on sound patterns). To understand the analogy “an atom is like a solar system” one has to understand something about

the component parts of atoms and solar systems and how they work and relate to one another in each case; indeed the analogy effaces the particular objects involved altogether (Gentner & Markman 1997).

In the case of syntactic constructions, analogies are made not on the basis of surface form but on the basis of the functional interrelations among components in the two constructions being analogized. Thus, the *X is Y-ing the Z* and the *A is B-ing the C* are analogous because the same basic relational situation is being referred to in each case, and X and A play the role of actor, Y and B the activity, and Z and C the undergoer. In this way, different constructions develop their own syntactic roles, first locally in item-based constructions (e.g., “thrower” and “thing thrown”), and then more globally in abstract constructions (e.g., transitive-subject, ditransitive-recipient). There may even emerge late in development, in some languages, a super-abstract Subject-Predicate construction containing an abstract syntactic role such as “subject” more generally, based on abstractions across various abstract constructions. It is possible that perceptual similarity (or even identity) of the objects involved in analogies, while not strictly necessary, does in many cases facilitate human beings in their attempts to make analogies (the study of Childers & Tomasello (2001) provides support for this hypothesis). If so, this explains why children begin by schematizing across utterances with common linguistic material, thus creating item-based constructions, before they attempt to make totally abstract analogies based on a structure mapping involving little or no common linguistic material across utterances, thus creating abstract constructions.

An important part of item-based and abstract constructions is various kinds of syntactic marking, specifically indicating the syntactic roles that participants are playing in the scene or event as a whole. For example, English-speaking children learn at some point that *X's VERBing me* means that X is doing something to me, *I'm VERBing X* means that I am doing something to X, and *X's getting VERBed* means that something is being done to X. The construction thus

structures the interrelations among the basic events and participants in the referential scene, and children learn this. Indeed, one of the major functions of particular patterns of grammatical morphology in constructions (some particular instances of which seem to have only a very bleached-out meaning individually, as in the passive above) is to enable the recognition of the construction as an independent symbolic unit in which certain roles reside (Croft 2001).

Constraints on generalization

Third, constraints to the schematization/abstraction process are of course necessary. These are provided by the usage-based principle of entrenchment and the pragmatic principle of competition (contrast, preemption). Entrenchment simply refers to the fact that when an organism does something in the same way successfully enough times, that way of doing it becomes habitual and it is very difficult for another way of doing that same thing to enter into the picture. Preemption, or contrast, is a communicative principle of roughly the form: if someone communicates to me using Form X, rather than Form Y, there was a reason for that choice related to the speaker's specific communicative intention. This motivates the listener to search for that reason and so to distinguish the two forms and their appropriate communicative contexts. Together, entrenchment and preemption may be thought of as a single process of competition in which the different possible forms for effecting different classes of communicative functions compete with one another based on a number of principles, including frequency/entrenchment.

It is nevertheless true that we know very little about the specifics of how constraints on generalization work. Thus, we know very little about the nature and frequency of the syntactic overgeneralization errors that children make at different developmental periods (most of what we know comes from Bowerman's 1982, diary records). Further, there is only one empirical study evaluating the effectiveness of entrenchment in preventing syntactic overgeneralizations (Brooks et al. 1999), and that study has no direct measures of the exact frequency of the verbs involved. Similarly, there is only one study of preemption and of semantic classes of verbs as constraining

factors (Brooks & Tomasello 1999), and this study worked with only a narrow range of structures and verbs. And so, until we actually do some of the empirical work necessary, and see how these general principles actually work when applied to specific linguistic items and structures in specific languages, we will still be doing a fair amount of hand waving about how children make exactly the generalizations they do and not others. It is thus true that constraining linguistic generalizations appropriately is the aspect of the construction-based, usage-based theories that, at the moment, are its weakest link.

Distributional analysis

Finally, paradigmatic categories such as noun and verb provide language learners with many creative possibilities, as they enable learners to use newly learned items in the way that other “similar” items have been used in the past – with no direct experience. These categories are formed through a process of functionally based distributional analysis in which concrete linguistic items (e.g., words or phrases) that serve the same communicative function in utterances and constructions over time are grouped together into a category. Thus, noun is a paradigmatic category based on the functions that different words of this type serve within nominal constructions – with related categories being such things as pronouns, common nouns, etc., based on the related but different functions these perform. Paradigmatic categories are thus defined in functional terms by their distributional-combinatorial properties: nouns are what nouns do in larger linguistic structures. This provides the functional basis by means of which these paradigmatic linguistic categories cohere.

It is important to emphasize that this same process of functionally based distributional analysis also operates on units of language larger than words. For example, what is typically called a noun phrase may be constituted by anything from a proper name to a pronoun to a common noun with a determiner and a relative clause hanging off it. But these may all be treated as the same kind of unit for purposes of some syntactic operations. How can this be – given their

very different surface forms? The only reasonable answer is that they are treated as units of the same type because they all do the same job in utterances: they identify a referent playing some role in the scene being depicted. Indeed, given the very different form of the different nominals involved, it is difficult to even think of an alternative to this functionally based account.

Categorization is one of the most heavily researched areas in the cognitive sciences, including developmental psychology, but precisely how young children form categories in natural languages – a process of grouping together not items of perceptual or conceptual experience but rather items used in linguistic communication – has been very little investigated. But it is only by investigating how children identify and equate the functional roles linguistic items play in the different constructions of which they are a part that we will discover how children build the abstract categories responsible for so much of linguistic creativity.

Producing utterances

If children are not putting together creative utterances with meaningful words and meaningless rules, then what exactly are they doing when they produce an utterance? In a construction-based, usage-based view, what they are doing is constructing utterances out of various already mastered pieces of language of various shapes, sizes, and degrees of internal structure and abstraction – in ways appropriate to the exigencies of the current usage event. To engage in this process of symbolic integration, in which she fits together into a coherent whole such things as an item-based construction and a novel item to go into the slot, the child must be focused on both form and function.

Lieven, Behrens, Speares and Tomasello (2003) addressed this issue in a naturalistic study of one 2-year-old child learning English. The novelty was that this child's language was recorded using extremely dense taping intervals – 5 hours per week for 6 weeks, roughly 5 to 10 times denser than most existing databases of child language and accounting for approximately 8 to 10% of all of the child's utterances during this period. In order to investigate this child's constructional

creativity, all of her 537 utterances produced during the last one-hour taping session at the end of the 6 week period were designated as target utterances (295 multi-word utterances). Then, for each target utterance, there was a search for “similar” utterances produced by the child (not the mother) in the previous 6 weeks of taping. The main goal was thus to determine for each utterance recorded on the final day of the study what kinds of syntactic operations were necessary for its production, that is to say, in what ways did the child have to modify things she had previously said (taken as an indication of her “stored linguistic experience”) to produce the thing she was now saying.

What was found by this procedure was the following:

- 21% of all of this child’s utterances on the target day (single word and multi-word) were novel utterances; 79% were things she had said before
- 37% of the multi-word utterances on the target day were novel utterances; 63% were things she had said before (in exactly the same form)
- of the novel multi-word utterances, 74% consisted of repetition of some part of a previously used utterance with only one small change, for example, some new word was “filled in” to a slot or “added on” to the beginning or end. For example, the child had said many hundreds of times previously *Where’s the _?*, and on the target tape she produced the novel utterance *Where’s the butter?* The majority of the item-based, utterance-level constructions that the child used on the last day of the study had been used by the child many times during the previous six weeks
- 26% of the novel multi-word utterances on the last tape (a total of 5% of all utterances during the hour) differed from things this child had said before in more than one way. These mostly involved the combination of “filling in” and “adding on” to an established utterance-level construction, but there were several utterances that seemed to

be novel in more complex ways

It is important to note that there was also very high functional consistency across different uses of this child's utterance-level constructions, that is, the child filled a given slot with basically the same kind or kinds of linguistic items or phrases across the entire six week period of the study.

Based on these findings, we might say that children have three basic options for producing an utterance on a particular occasion of use.

- First, they might retrieve a functionally appropriate concrete expression and just say it as they have heard it said (and probably said it before themselves). For example, they say “*Up!*” or “*There-ya-go*”.
- Second, they might retrieve an utterance-level construction and simultaneously “tweak” it to fit the current communicative situation. The basic ways they can do this are:
 - filling a new constituent into a slot in the item-based construction (e.g., *I wanna* _ and *ball* combine to make “*I wanna ball*”);
 - adding a new constituent onto the beginning or end of an utterance-level construction or expression (e.g., *Throw it* and *here* combine to make “*Throw it here*”); and
 - inserting a new constituent into the middle of an utterance-level construction or expression (e.g. the way a German child might insert *auch* (‘too’) into a schema position where nothing had ever before appeared).
- Third, a child might produce an utterance by combining constituent schemas without using an utterance-level construction. In the absence of an utterance-level construction, they presumably do this on the basis of various kinds of pragmatic principles governing the ordering of old and new information, etc. – although there is very little relevant research here. The idea is very close to Braine's (1976) “groping patterns”.

We may call these operations ‘usage-based syntactic operations’ (Langacker’s 1987 term is “symbolic integration”) because the child does not begin with words and morphemes and glue them together with contentless rules; rather, she starts with already constructed pieces of language of various shapes, sizes, and degrees of abstraction (and whose internal complexities she may control to varying degrees), and then “cuts and pastes” these together in a way appropriate to the current communicative situation. It is important to note in this metaphor that to cut and paste effectively a speaker is always making sure that the functions of the various pieces fit together coherently in the intended manner – one does not cut and paste indiscriminately in a word processing document but in ways that make sense semantically. These processes may also work at the level of utterance constituents and their internal structure.

There may be differences in the way individual children use these three strategies, but it is likely that all children early in development learn at least some utterance-level constructions and expressions as production units that allow them to fluently and efficiently express entire communicative intentions (at the very least such things as *Thank-you* and *Bye-bye*, but also many frequent utterance schemas like *I wanna X*, *Where’s-the X?*, or similar things). Utterance-level constructions – both item-based and more abstract – are thus a major, if not the major, target of children’s early language-learning efforts, a major way-station on the road to more adult-like linguistic competence. Nominal and clausal constructions, as major constituents of utterance-level constructions, are also major targets of children’s early language-learning efforts as they enable the fluent expression of recurrent utterance sub-functions flexibly in novel utterances.

There are certainly important cross-linguistic differences in how all of this works, but in some cases it is simply a case of children working with bound morphemes rather than words, in many of the same ways outlined above. That is to say, there is no difference in principle between an English-speaking child learning an utterance-level construction with 3 adult words and an open slot, and an Inuktitut child learning an utterance-level construction with one free morpheme, two

bound morphemes, and an open morpheme slot (see Dabrowska's, 2001, characterization of syntactic constructions as "big words").

Conclusion

There are currently two theories about how children acquire a language. The first is generative grammar, according to which all human children innately possess a universal grammar, abstract enough to structure any language of the world. Acquisition then consists of two processes: (1) acquiring all the words, idioms, and quirky constructions of the particular language being learned (by "normal" processes of learning); and (2) linking the particular language being learned to the abstract universal grammar. This approach creates two major problems. The first is how any given child, learning any given language, can link the abstract categories of the innate universal grammar to the particulars of the particular language she is learning (the linking problem). The second is how to account for changes in children's language over time, given that the innate universal grammar itself does not change across development (the continuity problem).

The second theory – one version of which has been presented here (see Tomasello 2003, for more detail) – bases itself on more cognitively and functionally based approaches to language such as Construction Grammar. It is thus a single process theory. Children acquire the more regular and rule-based constructions of a language in the same way they acquire the more arbitrary and idiosyncratic constructions: they learn them. And, as in the learning of all complex cognitive activities, their initial learning is of concrete things – particular words (e.g., *cat*), complex expressions (e.g., *I-wanna-do-it*), or mixed constructions such as *Where's-the ___* (which are partially concrete and partially abstract) – which is then followed at some point by the construction of abstract categories and schemas out of these concrete pieces of language. They do this only gradually and in piecemeal fashion, with some categories and constructions appearing much before others that are of a similar type from a formal perspective – due quite often to differences in the language that individual children hear ("input").

The interesting point is that even if there were something like an innate universal grammar, children would still need to engage in processes such as those enumerated in this paper – by everyone’s admission – in order to acquire the many lexical symbols, fixed expressions, schematic idioms, and grammatical conventions of their particular language. Given the relative success of this approach and even of connectionist models – employing only a subset of the processes we have outlined – the question becomes why we need a second mechanism of acquisition or a universal grammar at all. My answer is that we do not, and indeed most of the linguistic phenomena that supposedly require an innate universal grammar (e.g., such Chomskyan things as the subadjacency constraint, the empty category principle, the binding principles, etc.) are theory internal affairs and simply do not exist in construction-based theories of language – full stop. But acquisition theorists certainly do need a rigorous theory of language, and at the current moment Construction Grammar seems to be the theory that fills that bill best.

References

- Bowerman, Melissa (1982). Reorganizational processes in lexical and syntactic development. In Gleitman, Lila & Eric Wanner (eds.) *Language acquisition: The state of the art*. Cambridge: Cambridge University Press.
- Braine, Martin (1976). *Children's first word combinations*. Monographs of the Society for Research in Child Development 41(1).
- Brooks, Patricia & Michael Tomasello (1999). How young children constrain their argument structure constructions. *Language* 75: 720-738.
- Brooks, Patricia, Michael Tomasello, Lawrence Lewis & Kelly Dodson (1999). Children's overgeneralization of fixed transitivity verbs: The entrenchment hypothesis. *Child Development* 70: 1325-37.
- Bybee, Joan (1995). Regular morphology and the lexicon. *Language and Cognitive Processes* 10: 425-455.
- Carpenter, Malinda, Nameera Akhtar & Michael Tomasello (1998). Sixteen-month-old infants differentially imitate intentional and accidental actions. *Infant Behavior and Development* 21: 315-30.
- Childers, Jane & Michael Tomasello (2001). The role of pronouns in young children's acquisition of the English transitive construction. *Developmental Psychology* 37: 739-748.
- Clahsen, Harald (1999). Lexical entries and rules of language: A multidisciplinary study of German inflection. *Behavioral and Brain Science* 22: 980-999.
- Conway, Christopher M. & Morten H. Christiansen (2001). Sequential learning in non-human primates. *Trends in Cognitive Sciences* 5: 529-546.
- Croft, William (2001). *Radical Construction Grammar*. Oxford: Oxford University Press.
- Dabrowska, Ewa (2001). Learning a morphological system without a default: The Polish genitive. *Journal of Child Language* 28: 545-574.

- Fillmore, Charles (1977). The case for case reopened. In Cole, Peter (ed.) *Syntax and semantics 8: Grammatical relations*. New York: Academic Press.
- Fillmore, Charles (1989). Grammatical construction theory and the familiar dichotomies. In Dietrich, Rainer & Carl Friedrich Graumann (eds.) *Language Processing in Social Context*. North Holland: Elsevier Publishers.
- Gentner, Dedre & Arthur B. Markman (1997). Structure mapping in analogy and similarity. *American Psychologist* 52: 45-56.
- Goldberg, Adele E. (1995). *Constructions: A construction grammar approach to argument structure*. Chicago: University of Chicago Press.
- Goldberg, Adele E. (in press). *Constructions at work*. Oxford: University of Oxford Press.
- Langacker, Ronald W. (1987). *Foundations of cognitive grammar*. Volume 1. *Theoretical Prerequisites*. Stanford, CA: Stanford University Press.
- Lieven, Elena, Heike Behrens, Jenny Speares & Michael Tomasello (2003). Early syntactic creativity: A usage based approach. *Journal of Child Language* 30: 333-370.
- Lieven, Elena, Julian Pine & Helen Dresner Barnes (1992). Individual differences in early vocabulary development. *Journal of Child Language* 19: 287-310.
- Meltzoff, Andrew N. (1995). Understanding the intentions of others: Re-enactment of intended acts by 18-month-old children. *Developmental Psychology* 31: 838-850.
- Nelson, Katherine (1985). *Making sense: The acquisition of shared meaning*. New York: Academic Press.
- Pinker, Steven (1999). *Words and rules*. New York: Morrow Press.
- Slobin, Dan Isaac (1985). Crosslinguistic evidence for the language-making capacity. In Slobin, Dan Isaac (ed.) *The crosslinguistic study of language acquisition*. Volume 2. *Theoretical issues*. Hillsdale, NJ: Lawrence Erlbaum Associates.

- Tomasello, Michael (1992). *First verbs: A case study of early grammatical development*. Cambridge: Cambridge University Press.
- Tomasello, Michael (2003). *Constructing a Language: A Usage-Based Approach to Child Language Acquisition*. Cambridge, MA: Harvard University Press.
- Tomasello, Michael & Patricia Brooks (1999). Early syntactic development: A construction grammar approach. In Barrett, Martyn (ed.) *The Development of Language*. Hove: Psychology Press.
- Tomasello, Michael, Ann C. Kruger & Hillary H. Ratner (1993). Cultural learning. *Behavioral and Brain Sciences* 16: 495-552.