Non-compositional forms and the continuity assumption

JOHN GRINSTEAD

The Ohio State University

Abstract

It is argued that, though combinatoriality is the characteristic trait of human language, non-compositional forms also play an important role in adult grammars and that they plausibly play an important role in child language development, as well. Specific evidence for this position comes from the utility of assuming that "did" in uninverted child English questions such as "Where you did go?" is, in fact, a non-compositional form that must occur in a syntactic position below the subject because it lacks either tense or agreement. The advantage of such a formulation is that it accounts for the occurrence of both "Optional Infinitive" verbs and the "Optional Inversion" of auxiliary verbs in child English, as a function of one underlying factor: developing verb finiteness. This account hinges on the existence of non-compositional forms in child grammars. Such an account is consistent with the Continuity Hypothesis. In this case, assuming that non-compositional forms exist and play an important role in child language allows for a unified explanation of two otherwise unrelated forms.

Keywords: Continuity Hypothesis, compositionality, subject-auxiliary inversion, Optional Infinitive Stage, combinitoriality.

# La hipótesis de la continuidad y las formas no composicionales

Resumen

A pesar de que la combinatorialidad es el rasgo más característico del lenguaje humano, las formas no-composicionales también juegan un papel importante tanto en las gramáticas adultas como en el desarrollo del lenguaje de los niños. La evidencia específica a favor de esta postura viene de la utilidad de asumir que el verbo auxiliar "did" en las preguntas no invertidas del inglés hablado por niños, tales como "Where you did go?" es, de hecho, una forma no-composicional que debe ocupar una posición sintáctica por debajo del sujeto porque carece tanto de tiempo verbal como de concordancia. La ventaja de esta hipótesis es que explica tanto el fenómeno de los verbos no finitos como el de las preguntas no invertidas en el inglés hablado por niños en función de un factor: la finitud de los verbos. Esta explicación se basa en la suposición de que existen formas no-composicionales en las gramáticas de los niños. Una explicación de esta índole es consistente con la hipótesis de la continuidad. En este caso, la suposición de que existen formas no-composicionales y que éstas juegan un papel importante en el lenguaje de los niños, permite una explicación unificada de dos fenómenos que de otra manera no parecerían tener ningún vínculo entre sí.

Palabras clave: Hipótesis de la continuidad, composicionalidad, inversión sujeto-verbo, verbos no finitos, combinatorialidad.
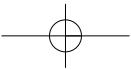
The contrasting perspectives represented in the papers of Roeper and Pérez-Leroux and Lieven and Brandt offer solutions to important problems for understanding language acquisition, though they differ in their assumptions regarding what language is. One empirical assumption about which they disagree, but which could constitute common ground, relates to the status of non-compositional forms (i.e. words or phrases that have a meaning that is not calculated from the sum of its parts) and the role they play in syntactic development. Empiricists assume that constructions – regardless of compositionality – are all there is to syntax, following Goldberg (1995) whose Construction Grammar assumes that all syntactic constructions are inherently meaningful. While this assumption seems improbable, it nonetheless seems likely that constructions do play an important role in adult and child language and recognizing this fact does not take away from Chomsky's (1957) observation that combinatoriality is the characteristic property of human language.

The prospect of there being a kind of middle ground between lexical items and grammatical rules – in fact a continuum, or cline in Goldberg and Jackendoff's (2004) terms – in no way takes away from the significance of Chomsky's important observation. Rather, given that these grammatical elements must exist in the adult language, adopting the perspective that they play an important role in language development, as suggested by Culicover and Nowak (2003) and Tomasello (2003), is consistent with the Continuity Assumption of Macnamara (1982) and Pinker (1984). While it is important to note that there are many examples of combinatoriality in early child language, as Roeper and Pérez-Leroux note, the proposal that dimensions of syntactic knowledge may develop through the middle step of non-compositional forms does not contradict the presence of this early combinatoriality.

What are non-compositional forms and what is their relevance to syntactic development? Jackendoff (1997, 2002) has argued convincingly that the lexicon must contain not only lexical items smaller than a word, such as inflectional morphemes (as assumed by formal linguistics, e.g., Baker, 1988; Pollock, 1989), but also lexical items larger than a word, as formal linguistics tends not to assume. For example, Jackendoff famously points out that idiomatic expressions such as "kick the bucket" or "estirar la pata" mean "die", which is not a compositional meaning derived from the sum of the verb phrase's parts, as combinatorial syntax would predict. Since there are thousands of these constructions, as many as there are adjectives in English, according to Jackendoff (1997), they cannot be considered a peripheral part of the linguistic system. But, are these constructions part of grammar or part of the lexicon? This turns out to be a very difficult question to answer. On the one hand, some idioms have only one or two variable "slots" in them (using Lieven and Brandt's terminology), as in "kick the bucket", which can take varying subjects and tense/aspect information in its slots, e.g. **John** kick**ed** the bucket. **Mary will** kick the bucket. **Peter has** kick**ed** the bucket. In contrast, other, much less constrained constructions, such as resultatives (cf. Goldberg & Jackendoff, 2004) or "NPN" constructions such as "day after day", "strong wind after strong wind", "house by house" or "face to face" (Jackendoff, 2008), specify only the grammatical categories that participate in the construction, along with some minimal semantic constraints that are not completely consistent across tokens. Following Jackendoff and Goldberg's argument, there is no obvious reason why one could not extend this notion of construction to encompass the very core of what generative grammar calls phrase structure rules: that is, constructions with no phonetic content, that nonetheless include syntactic and semantic restrictions. As Culicover and Nowak (2003) observe, there is not a clear
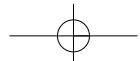
distinction, looking at things this way, between a lexical item and a rule, except that a rule has a "slot" or typed variable in it. While I do not take the position that there are no differences between rules and lexical items, it seems to me that the line is blurry enough for both nativists and empiricists to be concerned with the distinction. In sum, because representing constructional idioms in the lexicon is inescapable for the adult grammar, it seems to me worthwhile to consider them from a nativist perspective and ask whether they can help explain language development.

Empiricists have long argued that the early frozen form constructions used by children are legitimate, important linguistic objects in their communicative systems (cf. Tomasello, 2003, Rojas-Nieto, 2009) and, in fact, are not different from the adult system they envision, with the exception that they have greater scope or abstraction in adult language. Nativists, however, usually include them in their list of uninteresting forms to disregard, since they do not "count" as examples of productive, combinatorial rule use. Culicover and Nowak (2003), however, suggest that items such as these may be an important intermediate step between lexical items that either lack typed variable slots or possibly have only a subset of the ones needed for the adult grammar.

How could such a move help in understanding syntactic development and how can it be interpretable in the framework of generative grammar? In the case of morphological development, it suggests that children's early holophrastic utterances, previously thought of as "frozen forms" could have adult-like syntactic and semantic properties, but be associated with a monomorphemic string of phonemes. For example, when children say something like "quiero" or possibly the more child-like version "quero" (want-1st, singular, present), on this account it is possible that such an utterance has syntactic and semantic features corresponding to the lexical meaning of the verb "to want" and 1st person singular present tense meaning in the adult language, but do not have these features distributed between the (irregular) verb stem "quier-" and the inflectional suffix "-o". Instead, they could be associated with the word as a whole. While this is not the same as a constructional idiom such as "kick the bucket", it is similar in that it lacks combinatoriality, perhaps more along the lines of portmanteau or suppletive morphological forms, such as irregular past tense *went* in English, which also lacks a stem and affixes with combinatorial meaning. Because adults have the ability to perform this kind of non-compositional form-to-meaning pairing in the adult language, there is no reason to suspect – on a formal, nativist account of developmental syntax – that children should not be able to do the same. In fact, to expect that children should not be able to take this very useful step runs counter to the Continuity Assumption (Macnamara, 1982; Pinker, 1984), which states that the rules and representations of child language are constructed of the same material and function in a similar way as those of the adult language. The consequences of such an assumption for nativist theories of developmental syntax are that holophrastic or frozen form expressions find a natural account and do not have to be shunted to the side as inexplicable, peripheral or uninteresting.

Let us examine a concrete case. At the level of phrasal syntax, assuming the existence of non-combinatorial, child-specific forms can help formulate a parsimonious account of seemingly unrelated phenomena, such as the lack of inversion of forms of "do" in wh- questions and the occurrence of nonfinite verbs in root clauses. Brown (1973), Ingram and Tyack (1979) and Erreich (1984), among others, note that children produce uninverted questions such as "*Where you did go?*" (Scott - Ingram & Tyack, 1979, p. 340). At roughly the same point in the development of child English, children also produce nonfinite verbs in
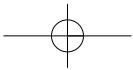
matrix clauses (e.g. Bellugi, 1968). It is possible that each of these constructions (finite verbs and wh- questions) develops independently and is unrelated, as one might predict on an empiricist account, but it is also possible that their delayed development stems from a common cause.

To understand how the two constructions could be related, it is necessary to understand that the Mainstream Generative Grammar (MGG) account of how verbs come to be marked for tense and agreement assumes that verbs move from an initial syntactic position (the Verb Phrase) to the Inflectional Phrase, a higher syntactic position (evidence for this comes from the difference between, for example, French nonfinite clauses in which the nonfinite verb occurs to the right of negation *Ne pas sembler heureux est une condition pour écrire des romans.* versus finite clauses in which the finite verb must appear to the left of the lower negative element, consistent with the idea that the finite verb has moved to a higher syntactic position: *John n'aime pas Marie*[1]).

Further, the MGG account of subject-auxiliary inversion in wh- questions hypothesizes that verbs make a second move from the Inflectional Phrase (IP) to the syntactic position housing moved wh- elements, the Complementizer Phrase (CP). Importantly, it is assumed that such movements are not random, but rather must obey certain well-formedness restrictions, such as the Head Movement Constraint (Chomsky, 1981), which says that, in this case, a verb may not move from the Verb Phrase to the Complementizer Phrase, without first having stopped in the Inflectional Phrase.

FIGURE 1
*Verbs Must Move Through All Head Positions, By the Head Movement Constraint*
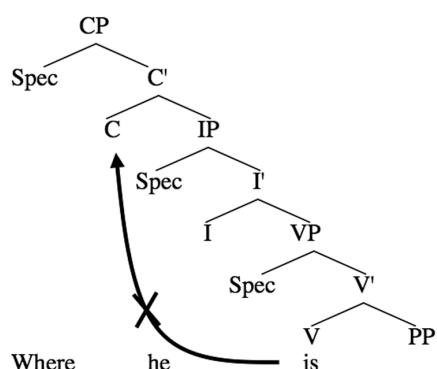
Given the Mainstream Generative Grammar (MGG) account of subject-auxiliary inversion in English, children's uninverted questions and nonfinite verb use could be independent, but it could also be the case that verbs do not move from IP to CP in uninverted questions because they do not check all of the features in IP that they need to in order to move on to CP. IP is posited to carry tense and agreement features and the occurrence of nonfinite verbs in child language has been argued to stem from children lacking either tense or agreement marking on their verbs (cf. Wexler, 1994). Because the nonfinite verb phenomenon calls for an explanation in any event, it would be advantageous if that account could also explain why children fail to invert subjects and verbs in questions at the same time. A problem for such an account is that sometimes the uninverted auxiliary is a form of *do*. In the example given above from Ingram and Tyack (1979), it is *did*. Forms of *do* are generally
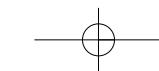
thought to be the "spell-out", in Chomsky's (1989) terms, of tense and agreement features. How, then, could a form such as *did* be produced at all, if it lacks either tense or agreement features? Should it not simply be omitted (as it often appears to)? This is where the constructional idiom concept comes in. The occurrence of underspecified *do* is explicable if we allow forms in child language that have feature specifications that are not identical to the adult forms: in this case, *did* without tense or without agreement.

Under this assumption it should be possible for *did* to link to the main verb from the IP position, without having both tense and agreement features associated with it. On the other hand, the fact that it does not have both features (tense and agreement) associated with it will prevent it from making the next step to the CP position, since doing so would mean "skipping a step", which would be a violation of the Head Movement Constraint.

FIGURE 2
*The Structure of an Uninverted Wh- Question in Child English*
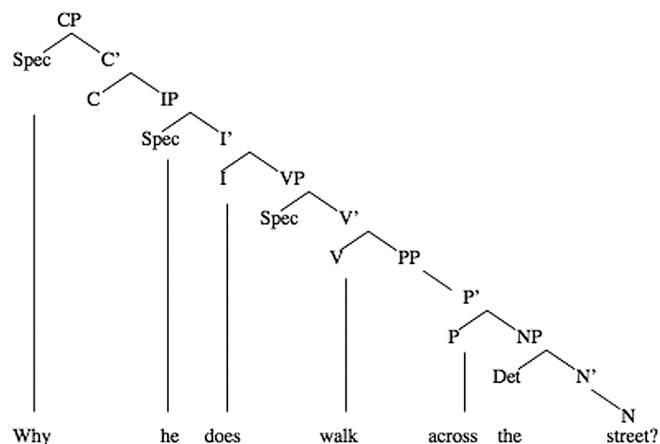
If noninversion in wh- questions were at least partly a function of the nonfiniteness of verbs in child English, then one would predict that children's judgments of finiteness should predict their judgments of inversion, which is what have shown for a sample ($n = 63$) of child English speakers ($r^2 = .28$, $p < .001$) in Grinstead, Warren, Ricci and Sanderson (2009). This account is only possible if forms such as *did* can occur without an adult-like distribution of syntactic features, which is expected if children take advantage of non-compositional forms as a normal part of adult linguistic competence and turn out to be a useful language learning tool.

Notes

¹ Examples from Pollock (1989, pp. 367-374).

References

BAKER, M. (1988). *Incorporation: A theory of grammatical function changing*. Chicago: University of Chicago Press.
BELLUGI, U. (1968). Linguistic Mechanisms Underlying Child Speech. In E. Zale (Ed.), *Language and Language Behavior* (pp. 36-50). New York: Appleton-Crofts.
BROWN, R. W. (1973). *A first language: The early stages*. Cambridge, MA: Harvard University Press.
CHOMSKY, N. (1957). *Syntactic Structures*. The Hague: Mouton De Gruyter.
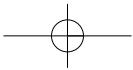
CHOMSKY, N. (1981). *Lectures On Government And Binding: The Pisa Lectures.* Berlin: Mouton de Gruyter.

CHOMSKY, N. (1989). Some Notes on Economy of Derivation and Representation. *MIT Working Papers in Linguistics, 10*, 43-74.

CULICOVER, P. W. & NOWAK, A. (2003). *Dynamical Grammar: Minimalism, Acquisition, And Change.* New York: Oxford University Press.

ERREICH, A. (1984). Learning how to ask: Patterns of inversion in yes/no and wh-questions. *Journal of Child Language, 11*, 579-592.

GOLDBERG, A. E. (1995). *Constructions: A Construction Grammar Approach To Argument Structure.* Chicago, IL: University of Chicago Press.

GOLDBERG, A. E. & JACKENDOFF, R. (2004). The English Resultative as a Family of Constructions. *Language, 80* (3), 532-568.

GRINSTEAD, J., WARREN, V., RICCI, C. & SANDERSON, S. (2009). Finiteness and Subject-Auxiliary Inversion in Child English. In J. Chandlee, M. Franchini, S. Lord & G.-M. Rheiner (Eds.), *Proceedings of the 33rd annual Boston University Conference on Language Development* (pp. 211-222). Boston University: Cascadilla Press.

INGRAM, D. & TYACK, D. L. (1979). Inversion of subject NP and Aux in children's questions. *Journal of Psycholinguistic Research, 8* (4), 333-341.

JACKENDOFF, R. (1997). *The Architecture Of The Language Faculty.* Cambridge: Massachusetts Institute of Technology Press.

JACKENDOFF, R. (2002). *Foundations of Language.* New York: Oxford.

JACKENDOFF, R. (2008). *Construction After Construction* and Its Theoretical Challenges. *Language, 84* (1), 8-28.

MACNAMARA, J. (1982). *Names for things: A study of child language.* Cambridge, MA: Bradford Books/MIT Press.

PINKER, S. (1984). *Language learnability and language development.* Cambridge, MA: Harvard University Press.

POLLOCK, J.-Y. (1989). Verb Movement, Universal Grammar, and the Structure of IP. *Linguistic Inquiry, 20* (3), 365-424.

ROJAS NIETO, C. (2009). Before grammar: Cut and paste in early complex sentences. In J. Grinstead (Ed.), *Hispanic Child Languages: Typical and impaired development* (pp. 143-174). Amsterdam: John Benjamins.

TOMASELLO, M. (2003). *Constructing a language : a usage-based theory of language acquisition / Michael Tomasello.* Cambridge, MA: Harvard University Press.

WEXLER, K. (1994). Optional Infinitives, Head Movement and the Economy of Derivations. In D. Lightfoot & N. Hornstein (Eds.), *Verb movement* (pp. 305-362). Cambridge, UK: Cambridge, University Press.