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# No nouns, no verbs? A rejoinder to Panagiotidis

David Barner<sup>a,\*</sup>, Alan Bale<sup>b</sup>

<sup>a</sup>Laboratory for Developmental Studies, 33 Kirkland Street, Harvard University,  
Cambridge, MA 02138, USA

<sup>b</sup>McGill University, Montreal, Que., Canada

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## Abstract

In response to Panagiotidis' objections (Panagiotidis, 2005) to Barner and Bale (2002), we review the questions of overgeneration and predictability of meaning with regards to narrow syntactic explanations of noun-verb innovation (and specifically the case of non-lexicalist theories of grammar). Regarding overgeneration, it is argued that syntactic proposals, whether lexicalist or non-lexicalist, fail to generate ungrammatical strings of the type described by Panagiotidis, and that the productivity of innovation could not be explained by a rule that did. Also, it is argued that a meta-linguistic theory of innovation could not likely improve on syntactic accounts. Regarding the systematicity of meaning, it is argued that while certain lexicalist theories may be committed to the systematicity of derived meanings, non-lexicalist theories like Distributed Morphology are not. We conclude that the systematic interpretation of purely syntactic features supports a narrow syntactic theory of noun-verb innovation, but that the residual idiosyncrasy argues for a non-lexicalist theory where syntactically generated forms need not have meanings that are completely predictable from those of their syntactic parts and internal structures.

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## 1. Introduction

In our (Barner and Bale, 2002) discussion of possible objections to category-less theories of grammar, henceforth referred to as B&B, we reviewed the problem of apparent

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\* Corresponding author.

E-mail address: [barner@fas.harvard.edu](mailto:barner@fas.harvard.edu) (D. Barner).

partial productivity of noun–verb flexibility in English. While many roots are acceptable in both noun and verb forms (e.g., *swim*, *create*, *saddle*), other roots seem unacceptable (e.g., *Next year John will winter in Honolulu and ??fall in New York*). Although B&B focus discussion on two main hypotheses regarding the generation of such forms, three possibilities exist: (1) particular roots are specified for grammatical category (e.g., +N or +/–V) and are subject to conversion rules that shift noun–verb specification; (2) roots are unspecified for grammatical category and gain their status as noun or verb upon insertion to syntax (e.g., via local relations with c-commanding “f-morphemes” like “D” or “v”); and (3) apparent noun–verb pairs are listed distinctly in the lexicon and are not related linguistically (e.g., by rule or otherwise)—neither the lexicon nor the syntax generates noun–verb flexibility. B&B’s discussion is limited to the first two possibilities since it is assumed, perhaps incorrectly, that the productivity of noun–verb flexibility requires a generative explanation, which the third type of account seems unable to provide. Overgeneration, we claim, is more apparent than real; while many nouns and verbs are deemed unacceptable due to extra-linguistic factors, all such forms may nonetheless be considered grammatical (i.e. potential forms) given either a lexicalist or non-lexicalist account. No grammatical explanation seems able to restrict noun–verb productivity to only acceptable forms. Thus, acceptability judgments regarding noun and verb forms may not provide insight into the question of lexical specification of features such as +/–N and +/–V.

However, Panagiotidis (2005) rejects this analysis on two main fronts, and argues instead that the productivity of noun–verb flexibility cannot be due to narrow syntax. First, according to Panagiotidis, the types of rules that would generate noun–verb innovations would also generate clearly ungrammatical forms. Second, he suggests that if narrow syntax did generate noun–verb innovations we would expect the interpretation of these pairs to be systematically related, which he argues is not the case. As an alternative to narrow syntax, Panagiotidis suggests that “no coinages should be syntactic derivations, but rather, meta-linguistic concoctions” (p. 5). Thus, a version of the third possibility (above) is adopted, whereby noun and verb forms are listed in the lexicon and unrelated linguistically. Any apparent relationship between noun and verb forms is due to non-linguistic processes. Thus, Panagiotidis proposes that analogy and conscious metalinguistic processes better explain noun–verb innovation than do grammatical rules.

While others have investigated a possible role for analogy in explaining morphological and syntactic productivity (see Bauer, 2001, for an extensive discussion and review of the literature), the particular points that Panagiotidis advances recommend the need for a number of additional distinctions and clarifications in order to evaluate the role of syntax in noun–verb innovation. Below, we review Panagiotidis’ arguments regarding overgeneration and systematicity of interpretation and argue that neither the data he presents nor analogous data from noun–verb innovation provide clear evidence that linguistic rules for generating nouns and verbs result in ungrammatical forms. Also, based on examples from noun–verb pairs and nominal compounding, we argue that a correct distinction between syntactic features and post-syntactic forms reveals clear evidence for systematicity, in keeping with the predictions of a syntactic theory of noun–verb innovation.

## 2. Predicting distribution of forms

In a discussion of lexicalist and non-lexicalist theories of grammar, B&B questions whether data from noun–verb innovation pose a particular problem to a theory of grammar without lexical categories (e.g., +/–N, +/–V). B&B present a small set of examples, and argue that acceptability should be distinguished from grammaticality, since factors other than grammar appear to affect the conditions under which the utterances will be considered acceptable. For example, we argue that innovations like *to spider* might be deemed grammatical due to the fact that the expression is acceptable given a suitable context (e.g., *The agile climber spidered up the mountain*). Also, B&B note a number of innovations from child speech (reported first by Clark, 1982, 1993; Kuczaj, 1978; Maratsos and Chalkley, 1971; Smith, 1933). While Panagiotidis remarks that many such forms are attested or have been attested in previous eras, what is important is that each case was generated without explicit example; each expression was an innovation by synchronic standards and as a result requires a synchronic theory of innovation (e.g., a rule based or other generative system for forming expressions).<sup>1</sup>

However, the purpose of B&B’s discussion was not simply to describe the oddness of certain innovations, but to demonstrate that explaining the acceptability of noun–verb pairs (existing or novel) does not benefit particularly from positing lexical categories. Innovations highlight this point by showing that many judgments do not have a firm grammatical basis, but can be pushed around in a sometimes unsystematic fashion. The examples also demonstrate that new forms can come into being, and that as a result a productive mechanism is required for generating them. Thus, two properties of noun–verb flexibility emerge: (1) innovation is productive; (2) many extra-grammatical factors influence acceptability and obscure the role of grammar. Crucially, B&B assumed that the productivity of innovation forces the lexicalist theory to adopt conversion rules (and to abandon a sense-enumerative approach), which in turn renders the theory (roughly, or almost) “weakly equivalent” to a grammar without lexical categories, at least syntactically. Cases of borderline acceptability and unacceptability are thus equally problematic for lexicalist and non-lexicalist theories. To clarify this point regarding the predictive equivalence of minimal lexicalist and non-lexicalist theories, consider the following models of each:

### Theory 1. *Unspecified roots*

Let  $\Delta$  = the set of roots unspecified for lexical category  $\{R1, R2, R3, \dots, Rn\}$ .  $N$  = the nominalizing affix.  $V$  = the verbalizing affix. Let  $\mu$  = a merger operator.

Word Formation Rule:

If  $X \in \Delta$ , then  $\mu(X, N)$  is a noun and  $\mu(X, V)$  is a verb.

**Proof of over-generation.** Given an arbitrary root,  $A$ , the expression  $\mu(A, N)$  is a noun and  $\mu(A, V)$  is a verb. Therefore,  $A$  can appear either as a noun or a verb.

<sup>1</sup> The fact that the innovative forms were grammatical in past grammars is an independent issue, and seems to reinforce the point that acceptability judgments can be misleading without a full consideration of context, pragmatics, and other extra-linguistic factors.

**Theory 2.** *Specified roots with conversion rules*

Let  $\Gamma$  = the set of lexical nouns  $\{N1, N2, N3, \dots, Nn\}$  and let  $\Delta$  = the set of lexical verbs  $\{V1, V2, V3, \dots, Vn\}$ . Let  $\nu$  = the conversion operator that converts verbs to nouns. Let  $\mu$  = the conversion operator that converts nouns to verbs.

Word Formation Rule:

If  $X \in T$ , then  $\mu(X)$  is a verb. If  $X \in \Delta$ , then  $\nu(X)$  is a noun.

**Proof of over-generation.** Given an arbitrary lexical item  $A$ , if  $A$  is a lexical noun or verb then either  $A \in \Gamma$  or  $A \in \Delta$ . If  $A \in \Gamma$  then  $A$  is a noun and  $\mu(A)$  is a verb. If  $A \in \Delta$ , then  $A$  is a verb and  $\nu(A)$  is a noun. Therefore,  $A$  can appear as a noun or a verb.

As shown by these models, the theories appear to generate the identical set of forms. For the moment, we will ignore the fact that no current proposal limits itself to only the operators and features listed in Theories 1 and 2. However, it should be noted that the consideration of any additional information departs from the question of lexical specification (i.e. to the extent that its content is not related to features like  $+/-N$  and  $+/-V$ , and to the extent that either theory seems equally able to draw freely from the same set of additional syntactic, semantic, phonological, and extra-linguistic mechanisms that might further influence the distribution of noun and verb forms).<sup>2</sup>

Now, consider the types of data that these models of word formation are asked to explain (for more examples, see Marchand, 1969; Clark and Clark, 1979, among others):<sup>3</sup>

- (1) a swim/to swim, a run/to run, a kick/to kick, a jump/to jump, a punch/to punch, some water/to water, some milk/to milk, some juice/to juice, a bike/to bike, a hammer/to hammer, a signal/to signal, a nail/to nail, a finger/to finger, a hand/to hand, a snap/to snap, a sniff/to sniff, a support/to support, a case/to case, a file/to file, a favor/to favor, a like/to like, a hope/to hope, a form/to form, a pattern/to pattern, etc.
- (2) a growth/to grow, a destruction/to destroy, a refusal/to refuse, a rehearsal/to rehearse, a decision/to decide, a coinage/to coin, a derivation/to derive, a pronunciation/to pronounce, a conclusion/to conclude, an invocation/to invoke, an insertion/to insert, a belief/to believe, an acceptance/to accept, an agreement/to agree, an analogy/to analogize, an innovation/to innovate, a concept/to conceive, some advice/to advise, a thought/to think, a strength/to strengthen, etc.
- (3) a screw-driver/?to screwdriver, a battery/?to battery, a foot/?to foot, a boat/?to boat, an adjective/?to adjective, the fall/?to fall, a pigeon/?to pigeon, a bonsai/?to bonsai, a suitcase/?to suitcase, a watermelon/?to watermelon, a tic (as in facial tic)/?to tic, etc.

<sup>2</sup> Readers familiar with the mental imagery debate in cognitive psychology (see Kosslyn, 1994; Pylyshn, in press, for a review) may recall Anderson's (1978) paper where it was argued that depictive and propositional theories of imagery are logically inter-translatable, and thus present a case of structure/process tradeoff. The case of noun-verb specification seems to present a similar case, at least syntactically. However, any structure-process tradeoff does not likely extend to the full elaboration of lexicalist and non-lexicalist accounts, owing to the different predictions generated by each theory regarding meaning and sound (the case of meaning is discussed below).

<sup>3</sup> Note that all theories involved consider gerundive nouns and agentive -er nouns to be nominalizations of verbs, either by conversion or due to the nominal "containing" verb structure. Hence, the data in 1–4 only includes non-gerundive, non-agentive forms.

- (4) an idea/??to idea, an ear/??to ear, some hair/??to hair, some luggage/??to luggage, ??an involve/to involve, a cell/??to cell, a germ/??to germ, an embryo/??to embryo, a heart/??to heart (although this was a verb in the past), a dictionary/??to dictionary, some software/??to software, some cutlery/??to cutlery.

As shown in (1), certain roots seem to switch freely between categories without any overt derivational marking. However, others require overt derivational morphology, as in (2). Roots such as those in (3) can appear flexibly, but seem more acceptable in one form compared to the other. Finally, some forms seem altogether unacceptable, as in (4). The difficulty, it seems, is to posit a descriptive theory that predicts only the acceptable cases. Both of the minimal theories expressed above correctly generate the examples in (1), (2) and (3), but also generate the more questionable forms in (4). In order to account for the forms in (4), a syntactically or morphologically based account has two options. Either it can offer no explanation of the noun–verb correspondences, or it can call all of the questionable forms in (4) grammatical and attribute unacceptability to extra-grammatical factors like encyclopedic knowledge, lack of relevant context for use, etc. (see [Harley and Noyer, 1999a](#); [Marantz, 1997](#); see [Bauer, 2001](#), for a review of possible extra-linguistic constraints on productivity in word formation). No intermediate position seems feasible.

Panagiotidis' first main objection to B&B's analysis is that if coinages were attributed to narrow syntax as suggested, many ungrammatical forms would result. In support of this, he provides three examples of coinages from Greek that he argues could not have syntactic origins. One is the Greek equivalent of “the bestest” involving ungrammatical iteration of the superlative, while two others involve the lexical merger of functional morphemes to roots. For example, Panagiotidis notes a 1980s manner of referring to significant others that involves the merger of the adverb *etsi* (“thus” or “so”), with a determiner inflected for case, number, and gender (as in 5).

- (5) o/i etsi mu  
the.MASC.SG.NOM/the.FEM.SG.NOM so my  
'My guy/my girl.'

According to Panagiotidis, such coinages, by violating well-known syntactic constraints, could not possibly be derived from narrow syntax. From this, he concludes that “coinages cannot be invoked as support for the productivity of a hypothetical syntactic process that inserts roots into nominal and verbal environments, because this process is capable of violating syntactic rules: in (10) it would violate Full Interpretation by iterating a Grade head, in (11) it would create an illicit \*D. .IP constituent and in (12) it would create an illicit \*D. .Adv constituent” (p. 7). Instead, noun–verb innovations must be derived meta-linguistically, using a variety of strategies including awareness of grammar and analogy.<sup>4</sup>

This argument can be separated into two claims. The first claim is that the grammatical rules that have been proposed to explain noun–verb innovation generate ungrammatical

<sup>4</sup> It should be noted that this objection is orthogonal to the question of lexical specification. Nonetheless, understanding Panagiotidis' arguments is essential to the issues B&B raise, since they point to ways of elucidating the status of noun–verb productivity in deciding between theories of grammar.

expressions. The second claim is that a meta-linguistic account of innovation would improve upon rule-based accounts in terms of descriptive adequacy. Let us examine each claim in turn. First, it seems clear that any posited rule that generates ungrammatical strings should be ruled out by the theory of grammar. However, it is not clear that this objection is supported in the case of the syntactic generation of noun–verb innovations. The objection runs into two problems. First, the syntactic rules that have been proposed to explain noun–verb productivity could not produce the coinages Panagiotidis cites, nor could they generate analogously bad cases (e.g., iteration of the *n* feature, or merger of a determiner head with a nominalizing affix). Second, both syntactic accounts of noun–verb derivation (i.e. lexicalist and non-lexicalist) are able to generate a broad range of acceptable cases, unlike any rule that might directly generate the example in (1). Thus, to argue that posited rules generate ungrammatical forms, it seems that one would need to demonstrate a case of noun or verb innovation that is ungrammatical *as a result of the rule under inspection* (i.e. that generates a syntactic form in violation of some well-known principle of grammar). However, no current theory allows the examples in (2) while simultaneously ruling out those in (4) on syntactic grounds (despite the fact that we may decide they are unacceptable). The onus, then, is on the critic to demonstrate that certain unacceptable cases warrant a theory that precludes them syntactically, and to then construct such a theory for comparison with existing alternatives.

Panagiotidis' second claim amounts to such an effort. The proposal, as noted above, is that noun–verb coinages can and should be attributed to meta-linguistic processes. According to Panagiotidis, “we coin words meta-linguistically using awareness of grammar, analogy and/or treating their ingredients as unanalysable wholes . . . not through narrow syntax” (p. 7). Now, although we believe that the cases of ungrammaticality that Panagiotidis cites do not preclude a rule-based account of noun–verb innovation, these cases might nonetheless indicate a specific meta-linguistic process that could cleanly predict the set of attested noun–verb innovations while ruling out unattested forms. To evaluate such a possibility, we would need to establish the following: (1) the exact nature of the meta-linguistic process, (2) the set of predictions it generates, and (3) whether the meta-linguistic account equals or surpasses the posited grammatical account in describing existing data and predicting patterns of acceptability for novel forms: whether it could predict exactly those cases that are deemed acceptable in (1) through (4), but not the unacceptable cases.

In the case of noun–verb innovation, it is not clear to us how the type of meta-linguistic explanation suggested by Panagiotidis could satisfy these requirements. Analogy for example, is notoriously unconstrained and as a result unpredictable (although it can often be diagnosed post hoc). As noted by Bauer (2001), while grammar defines potential words and distinguishes them from strings that are not potential words, analogy permits the creation of almost any form, so long as there exists a suitable pattern from which it can be formed. If anything, it seems that analogy could generate a broader set of forms than narrow syntax. For this reason, we have difficulty imagining how analogy might account for attested noun–verb innovation without suffering similar or worse problems of overgeneration than the syntactic alternatives. Worse, though, is that we cannot reach this conclusion with any certainty, since it is not clear what constraints a theory of analogy might draw on to solve noun–verb innovation. In the best case, analogy could be attributed a representation not distinguishable from the models of Theories 1 and 2. It seems to us that any model powerful enough to

account for the productivity of noun–verb innovation would require the same types of additional information needed by a theory that employs narrow syntactic derivations. Short of a concrete proposal, this question seems difficult to assess.

Based on existing distributional data, we believe that the following conclusions fairly summarize the status of meta-linguistic explanation for the case of noun–verb innovation: (1) noun–verb innovation is productive; (2) thousands of acceptable noun–verb pairs exist; (3) the types of syntactic rules that have been proposed to explain innovation do not result in clear syntactic violations; (4) many generated strings seem nonetheless unacceptable; (5) the details of meta-linguistic processes like analogy are not sufficiently specified to generate clear predictions; and (6) to the extent that a meta-linguistic account is sufficiently productive to handle innovation, it seems to suffer at least as much from overgeneration as narrow syntax. From these points we conclude that existing syntactic accounts of noun–verb innovation are highly explanatory, though they generate many unacceptable forms. Also, it seems that a meta-linguistic account of noun–verb innovation may not be sufficiently specified to generate clear predictions, but if specified would appear to encounter the very same problems seen in syntactically and morphologically based accounts. Given the distributional evidence considered thus far, it seems tempting to preserve a grammatical account of noun–verb innovation and allow that many forms may be unacceptable due to factors not related to syntax or morphology per se (e.g., extra-linguistic factors such as those discussed in B&B). Also, a re-examination of lexicalist and non-lexicalist theories of grammar appears to support B&B’s conclusion that overgeneration data do not favor one account over the other.

### 3. Systematicity of meaning

We now turn to Panagiotidis’ discussion of the predictability of meaning in noun–verb innovation. Here, Panagiotidis claims to have found a more serious problem for theories with category-free roots, which is that “in overwhelmingly many instances, the problem seems to be not whether a root like  $\sqrt{\text{spider}}$  can be inserted within a CP as well as a DP, but rather for what reasons a root like  $\sqrt{\text{spider}}$  ends up with different, idiosyncratic and unpredictable interpretations depending on whether it is inserted within a DP, becoming a noun, or a CP, becoming a verb” (p. 7).<sup>5</sup> Here, Panagiotidis contrasts the predictability of meaning for nominalizations like *destruction* with the unpredictability of verbs like *to spider*.<sup>6</sup> However, it seems that such idiosyncrasy in meaning between noun and verb forms

<sup>5</sup> We bypass Panagiotidis’ second objection of this section, since it begs the question of the discussion: “Another germane criticism of B&B’s account . . . runs like this: there is a number of nouns that seem to avail themselves of no corresponding verb, no matter how we stretch our capability for coining; some examples include: poem, dialogue, sonnet, limerick, alexandrine.” The primary discussion of B&B’s Section 3.1 (*First problem: why isn’t root-x used as a verb?*) is devoted to addressing this point; the conclusion, as noted above, is that lexicalist theories fare no better in restricting the application of conversion rules for these cases than underspecification does in limiting insertion to noun and verb contexts.

<sup>6</sup> Interestingly, this argument is made by Clark and Clark (1979), but in the opposite way. They argue that many common denominal verbs could not be derived syntactically due to idiosyncrasy and lack of corresponding noun, but that these arguments do not apply to innovations (i.e. “expressions we have never heard before” in their words).

is widespread, and not limited to marginal innovations. Many seemingly systematic syntactic conversions are accompanied by unsystematic interpretations. For example, even the meaning of *destruction* is not entirely predictable. On the contrary, it appears that all derived nominals are to some degree idiosyncratic in meaning, as pointed out by Chomsky (1970), who lists examples such as *laughter, marriage, construction, actions, activities, revolution, belief, doubt, conversion, permutation, trial, residence, qualifications, specifications*, etc. (see Bauer, 2001, for more examples and discussion). Also, this apparent lack of systematicity of meaning is not confined to nominalizations. For example, nominal compounding results in multiple interpretations, which differ from item to item. While a doghouse is a house for dogs, a girlfriend normally does not mean a friend for girls, but a “friend” that is a girl. Also, some examples can shift meaning: a chainsaw can be either a saw made partially of chain, or a saw for cutting chain.

Another example of apparently idiosyncratic meaning shifts comes from examples of denominal verbs. Here, certain highly systematic relationships appear to exist between particular nominals and their derived verbs (see Hale and Keyser, 1993; Kiparsky, 1997, etc.). However, even in this case, the apparent systematicity is accompanied by idiosyncrasy. For example, Buck (1997) provides a long list of nouns that can also appear as locative verbs, but notes that the locative interpretation is regulated contextually for many items, given the natural origin of the object denoted by the derived noun. The interpretation of verbs such as *seed, skin, and feather* all depend on their nominal complements. This is demonstrated by the examples in (6)–(10):

- (6) a. The chef laboriously peeled the dates.  
b. Thankfully, the grower had already pitted them.
- (7) a. The cowboy saddled the horse.  
b. He then remembered he forgot to shoe it first.
- (8) a. The landscaper seeded the lawn.  
b. The chef seeded the grapes.
- (9) a. The hunter feathered the arrow.  
b. Shortly thereafter, he feathered the goose.
- (10) a. The musician skinned the drum.  
b. The hunter skinned the lion.

In (6) the apparent direction of transfer of peels and pits is from the dates. In (7) the saddle and shoes are transferred onto the horse. However, in examples (8)–(10) the direction of transfer is shifted according to whether seeds, feathers, and skins occur naturally in the source/goal (i.e. grape, goose, lion, lawn, arrow, and drum). To this extent, at least, narrow syntactic features seem incapable of predicting interpretation. Other considerations appear to be necessary (e.g., a notion of where seeds and feathers originate; see Buck, 1997, for her proposal, and Kiparsky, 1997, for semantic considerations of how denominal verb distribution might otherwise be constrained).

Based on these examples and others like them (see Bale and Barner, *under review*; Barner and Snedeker, *in press*, for discussion of the mass-count distinction), we must agree with Panagiotidis’ point that the relationship between noun and verb forms of roots is often highly idiosyncratic, and cannot be predicted on the basis of narrow syntactic rules that are restricted to specifying purely formal features like +/–N and +/–V. However, we do not

agree that such idiosyncrasies amount to evidence against the syntactic origin of noun and verb forms.

To clarify this, consider the following. First, assume that nominal innovation involves the specification of a root for a syntactic feature such as +N (abstracting away from particular mechanisms). Second, assume that this feature, +N, has the same interpretation under all circumstances, and thus that its interpretation is systematic. Nothing in these two assumptions forces Panagiotidis' conclusion that the meanings of words should be predictable. Instead, an additional posit would be required, stating, for example, that the semantic information provided by a root must be uniform across instances of nominalization and verbalization.

However, this posit is not a necessary one, as demonstrated by the case of Distributed Morphology (DM), which was created specifically to explain syntactic systematicity while permitting semantic and phonological idiosyncrasy. According to DM, vocabulary items (i.e. the phonological strings that correspond to abstract morphemes) are related to special meanings via the Encyclopedia, which is described as a list of idioms, where the term "idiom" can refer to "any expression (even a single word or subpart of a word) whose meaning is not wholly predictable from its morphosyntactic structural description" (Harley and Noyer, 1999b: 8). Special meanings are listed "relative to the syntactic context of the roots, within local domains" (Marantz, 1997: 4). It is thus an explicit component of DM that vocabulary items do not need to have meanings that are predictable on the basis of their syntactic properties.<sup>7</sup> This stands in contrast to existing lexicalist proposals. As noted by Marantz, the idea for lexicalism is that "words can have special meanings of the sort that roots might have, but syntactically derived structures must have meanings predictable from the meanings of their parts and of their internal structures" (p. 7).

DM explicitly abandons the notion of semantic uniformity of roots across syntactic contexts and instead treats words as idiomatic wholes. Therefore, to the extent that a theory such as DM can be made to work, a grammatical theory of noun–verb innovation is not precluded by the phenomena of semantic idiosyncrasy. We agree with Panagiotidis that if semantic uniformity were required by generative theories of grammar, then a grammatical account for noun–verb innovation would be severely weakened.<sup>8</sup> Thus, we see Panagiotidis's arguments to have particular force in evaluating theories that attempt to derive systematic meanings using syntactic operations. However, the arguments do not apply to DM. In the case of noun–verb pairs in English, their shared properties (e.g., shared sound and meaning) can be attributed to the properties of underlying roots. The

<sup>7</sup> Based on this it should not be surprising that two roots that have different nominal interpretations should also have correspondingly different interpretations as verbs (e.g.,  $\sqrt{mother}$  and  $\sqrt{father}$ ). It is not clear why this type of idiosyncratic difference in meaning should preclude broader syntactic systematicities of the type described by Hale and Keyser (1993), despite Culicover and Jackendoff's (in press) complaints to the contrary.

<sup>8</sup> As noted by Marantz (1997), this point is made best by Chomsky (1970) in his arguments against lexical specification of grammatical category, and against generating derived nominals via transformations. Chomsky's "lexicalist hypothesis" was stated, in part, as follows: "Let us propose, then, as a tentative hypothesis, that a great many items appear in the lexicon with fixed selectional and strict sub-categorization features, but with a choice as to the features associated with the lexical categories noun, verb, adjective. The lexical entry may specify that semantic features are in part dependent on the choice of one or another of these categorial features" (p. 22).

systematic interpretation shared by all nouns and verbs can be attributed to the nominalizing and verbalizing heads, and the idiosyncratic aspects of interpretation and phonology can be attributed to encyclopedic interpretation and vocabulary insertion, respectively.

To summarize, a brief review of data regarding common noun–verb pairs supports Panagiotidis' conclusion that pairs often have meanings that are related in an unsystematic fashion. This suggests that meanings cannot be derived wholly via operations in the syntax. As a result, the data from idiosyncrasy are consistent with a non-lexicalist theory of grammar like DM, since such a theory is able to explain the syntactic generation of noun–verb pairs without positing semantic systematicity. However, it is unclear how a non-grammatical theory might offer a better explanation of the facts. As with the case of noun–verb distribution, a meta-linguistic mechanism such as analogy seems to make no clear predictions regarding meaning, and gives no indication of being more explanatory than a syntactic account. In fact, it seems unlikely that the idiosyncratic component of word meanings can be captured by any unified scientific theory that hopes to generate one meaning from another.

#### **4. Conclusion**

In response to Panagiotidis' objections to B&B, we have reviewed the questions of overgeneration and predictability of meaning with regards to narrow syntactic explanations of noun–verb innovation (and specifically the case of non-lexicalist theories of grammar). Regarding overgeneration, it was argued that syntactic proposals, whether lexicalist or non-lexicalist, fail to generate ungrammatical strings of the type described by Panagiotidis, and that the productivity of innovation could not be explained by a rule that did. Also, it was argued that a meta-linguistic theory of innovation could not likely improve on syntactic accounts. Regarding the systematicity of meaning, it was argued that idiosyncrasy is widespread and that therefore theories that hope to derive meaning syntactically may not be feasible. However, it was noted that while certain lexicalist theories may be committed to the systematicity of derived meanings, non-lexicalist theories like Distributed Morphology are not. Instead, DM was created specifically to account for syntactic systematicity while permitting phonological and semantic idiosyncrasy. It was concluded that the systematic interpretation of purely syntactic features supports a narrow syntactic theory of noun–verb innovation, but that the residual idiosyncrasy argues for a non-lexicalist theory where syntactically generated forms need not have meanings that are completely predictable from those of their syntactic parts and internal structures.

Finally, given the discussion above, it seems reasonable to maintain our claim that a non-lexicalist theory of grammar offers a simpler view of acquisition. While neither lexicalist nor non-lexicalist accounts are themselves simple (since simplicity in one part of a grammar will almost always involve added complexity elsewhere), the latter type of grammar may be simpler to acquire. Both lexicalist and non-lexicalist theories require the acquisition of syntactic features and rules for generating phrases. However, only the lexicalist view also requires that children acquire lexical conversion rules and that

individual roots be specified for lexico-syntactic features via item-based distributional analysis. Also, a non-lexicalist view of acquisition erases the mystery of how children could ever gain evidence for which of two forms (i.e. noun or verb) is more basic and which is derived. If all words are products of the syntax, then children may only need to acquire the syntactic structures for forming them; the need to acquire *both* syntactic rules *and* lexical rules disappears, as do lexical nouns and verbs.

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