Generalized Applicatives:
Reassessing the Lexical–Functional Divide[*]

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1 Root versus functional item asymmetry, idealized

The Distributed Morphology system (DM) of Halle and Marantz (1993), Marantz (1997a;b), inter alios, and the Exo-skeletal Syntax system (ESS) of Borer (1998; 2005a;b; 2013) formally develop the traditional intuition that there is a distinction between lexical and functional material. In its extreme, the dichotomy extends to all domains of grammar, as schematically illustrated in (1).

(1)

	Lexical Root	Functional morphology
PHONOLOGY	Early/Free choice	Late/Restricted competition
SYNTAX	No	Yes
SEMANTICS	Rich, encyclopedic	Abstract, fine-semantic

On this view, roots and functional material are as different as they can be. However, closer examination reveals that some of the differences are not absolute. Harley (2014) makes this point, and effectively refines the DM version of the dichotomy, maintaining it in a weakened form. In this short note, I raise the question of whether the dichotomy has been so weakened that a more radical move can be contemplated, that of eliminating the distinction altogether.

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2 Reassessing the asymmetry

2.1 Phonology: The hound problem

Competition for insertion among vocabulary items is a central mechanism in DM. The context for insertion is defined by syntactico-semantic features like [plural], [definite], and [past], and syncretism patterns are captured in terms of underspecification. As Harley explains, the model requires that roots not compete with each other, and for this reason they must not have any such syntactico-semantic features—otherwise a putative suppletive [plural] root *hound* would outcompete any underspecified root such as *cat*, according to Marantz (1997a). Nor can conceptual-encyclopedic features be visible to vocabulary insertion, or else a more fully specified root like *cat* might outcompete a conceptually underspecified root like *animal*. Similarly, in ESS, roots are argued to be devoid of syntactic and semantic features, and both Marantz and Borer have claimed that there is no true root suppletion.

Apparent cases of root suppletion are dealt with in two ways. One is through morphophonological readjustment rules, which can change *mouse* into *mice*. The other is by designating roots as functional, as Marantz suggests for *go~went*.

A central point of Harley's paper is that roots can be suppletive. This makes roots phonologically more like functional material, which uncontroversially can be suppletive, and hence raises the question of whether there is any longer any reason to treat the spell-out of roots and functional material differently.

To allow suppletion of roots, while still denying them the syntactico-semantic features that govern competition among functional vocabulary items, Harley suggests that roots have indices which prevent them from competing with each other. In this way it appears on her proposal that roots are still treated differently from functional vocabulary items. But there are also functional heads which are syntactically indistinguishable but conceptually distinct, so they will apparently need some such device as well.

For example, there are syntactically indistinguishable pairs of prepositions like *in* and *on*. Suppletion is rampant in functional morphology, and there is no reason to think that it cannot also occur among such pairs. In Italian, *in* 'in' has the form *ne-* in the context of the definite article (*nel armadio*, 'in the cupboard'); if that is suppletion, then the hound problem arises just as with lexical roots, since *ne-* does not replace *su* 'on' in the context of a definite article (*sul tavolo* 'on the table').

One fact that might lead one to think that lexical and functional items are treated differently by the spell-out procedure is that lexical words often contrast with function words in the way they are subject to a minimal word constraint. However, this could be strictly structural; each X^{max} or phase must satisfy the minimal word constraint, and functional items normally do not occur in such phrases alone. When they do, as with stranded prepositions, they are subject to the minimal word constraint (hence e.g. *Who did you talk to?* requires a bimoraic /tu:/).

This means that roots can be phonologically null. Due to issues of learnability, it is unsurprising that null roots should be restricted to high frequency verbs with fairly canonical meanings, such as the null 'go' in some Germanic languages discussed by van Riemsdijk (2002) or the verb 'give' in the Muskogean language Koasati (Kimball 1991). The latter is interesting because it takes regular inflectional morphology, with the result that a dative agreement prefix is attached directly to a combination of verbal class marker and subject agreement suffix. For example, the verbal class marker *-k(a)* is shown in (2a) combining with three different subject agreement markers for a regular class 3A verb, and parallel forms of 'give' are presented in (2b) for comparison of the subject agreement.

(2) a. taníh-ka-l,   taníh-k, taníh-híl-k
         gamble-v-1SGS *gamble-v gamble*-1PLS-*v*
         'I gamble'; 'he/she/they gamble(s)'; 'we gamble'
     b. ín-ka-l,   ín-k, í-híl-k
         3IO-*v*-1SGS 3IO-*v* 3IO-1PLS-*v*
         'I give it/them to him/her/them'; 'he/she/they give(s) it/them to him/her/them'; 'we give it/them to him/her/them'

In (3), a stative verb is similarly presented in three forms, to show the agreement paradigm which is used for indirect objects; three parallel forms of the verb 'give' are again presented for comparison.[1]

(3) a. am-ayóh-k,   im-ayóh-k,   kom-ayóh-k
         1SGS-*fear.heights-v* 3S-*fear.heights-v* 1PLS-*fear.heights-v*
         'I fear heights'; 'he/she/they fear(s) heights'; 'we fear heights'
     b. án-k,   ín-k, kón-k
         1SGIO-*v* 3IO-*v* 1PLIO-*v*
         'he/she/they give(s) it/them to me'; 'he/she/they give(s) it/them to him/her/them'; 'he/she/they give(s) it/them to us'

The existence of phonologically null roots is problematic for the proposal of Borer (2013) to identify roots with their phonology, rather than by an index as Harley proposes.

2.2 Semantics: The encyclopedic content of functional heads

It is often implied that the semantics of roots is fundamentally different from that of functional material. Roughly, roots are associated with the kind of rich conceptual–encyclopedic content that distinguishes *camel* from *reindeer*, while functional material is associated with abstract 'fine semantic' content like

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[1] Second person patterns with first person plural, in that the subject agreement suffixes (2sg *-hís* and 2pl *-hás*) appear to the left of *-k* and the stative subject and indirect object prefixes (2sg *cim-* and 2pl *hacim-*, with place assimilation of the nasal) to the left of an overt class 3A root, adjacent to the suffixes in the case of 'give.'

definiteness and past tense, often identified directly with syntactic features. Marantz' suggestion that *go* is a light verb, with no content of the type associated with roots, draws on this intuition, as does Kratzer's suggestion that internal arguments can be associated with idiomatic content, because they are introduced by roots, but external arguments can't, because they are introduced by a functional Voice head.

However, it has proven difficult to operationalize this distinction. Conceptual–encyclopedic content seems to have to take functional material into consideration, at least. For example, *the works* can mean approximately 'everything' in a context such as hamburger toppings, and the definite article and the plural morpheme seem to be required for that meaning to be present.

Thus both DM and ESS allow functional material to be included when encyclopedic content is accessed, late in the derivation. Nevertheless, roots are often assumed to have a special relationship to the encyclopedia; for example it is usually assumed that outside of idiomatic combinations like *the works*, functional items have abstract fine-semantic meanings, rather than rich conceptual content of the kind associated with the encyclopedia. I suggest that at least some functional items must have conceptual content as well, independent of the idioms in which they appear.

One example is certain pairs of prepositions, like *in* and *on* as already mentioned, which behave identically syntactically, just like *cat* and *mouse* do. But unlike [plural] or [definite], the distinction between *in* and *on* is not an independently motivated syntactically relevant feature. For some pairs, such as *over* and *under*, there is enough crosslinguistic data to suggest that the distinguishing feature is never syntactically relevant (that is, no language has a grammatically significant distinction between [up] and [down] like the one observed for [±definite]).

Examples can also be drawn from languages which have rich TAM paradigms. For example, the New Guinean language Yimas is described by Foley (1991) as having nine tenses, including a Perfective used for events occurring earlier today, a Near Past for yesterday, a Far Past for relatively vivid events occurring the day before yesterday or earlier, a Remote Past for less vivid events occurring at least five days ago, and an Irrealis used for legendary events, among other things. The semantic difference between this kind of tense meaning and conceptual-encyclopedic meanings of the sort that distinguish cats from mice would seem to be a matter of degree, rather than of kind.

2.3 Syntax: Subcategorization

The most resilient part of the dichotomy between roots and functional heads is the idea that all of the syntax resides in the functional heads, and that roots are syntactically featureless. But this assumption is controversial (see e.g. Ramchand 2008 for dissent), and even Harley assumes that something functionally similar to syntactic selection is available for roots:

"Even the 'literal' meaning of a root is only well-formed if its type-theoretic restrictions are satisfied by the entities with which it is merged" (p. 17 of ms.).

Without an assumption like this it is difficult to explain subcategorization violations.

Consider for example the difference between *look* or *gaze* or *glance*, which require a preposition to introduce their internal argument, and *watch* or *see* or *notice*, which don't allow one, as illustrated in (4).

(4)   a.   I looked at the orchestra.
       b. *I looked the orchestra.
       c.   I watched the orchestra.
       d. *I watched at the orchestra.

Some syntactically relevant feature distinguishes these two structures, be it subcategorization for P, assignment of case, type-theoretic restrictions, or something else. Contrary to the most radical DM and ESS proposals, it appears that the root *look* is specified differently from the root *watch* in a way which allows *look* to be inserted into structures which surface with *at*, and which allows *watch* to be inserted into structures which surface without *at*.

3   Generalized applicatives

In the systems developed by Borer (2005b) and Ramchand (2008), arguments are not introduced by lexical roots but by functional heads which are either event-denoting or temporal-aspectual in nature. In effect, every direct object is like an applicative argument. Thus, I will refer to the overall approach by the term 'generalized applicatives' or GA.

In the GA model, the spell-out of the cluster of argument-introducing heads (such as Ramchand's contextually defined *initiation, process* and *result*) can be handled by the same mechanism of vocabulary insertion that handles the spell-out of functional material. In this approach the root can be dispensed with altogether as a distinct class of element, in every module of grammar.

Harley (2014) gives three arguments for roots merging with arguments. The first one is that if arguments of N are merged with the root, then *one*-replacement can be analyzed as targeting a higher category, such as *n*. But as she notes in note 22, the same analysis can be had without merging objects with roots, if additional functional heads are recognized below the category targeted by *one* (e.g. as in Borer 2005a; see also Adger 2013 for arguments that underived nouns never take complements directly).

Harley's second argument is that verb meaning can be dependent on the kind of object, but not on the kind of subject. Again, on the GA model, this would suggest that the domain of idiosyncratic information contains the lower argument-introducing heads, but not the highest one.

Harley's third argument is root suppletion in Hiaki for number of the object; again, this would mean that the GA low 'applicatives' (such as Ramchand's *proc*) can be specified for the number features of their specifiers, or that the exponents lexicalizing those same low heads can be contextually sensitive to the number features of their specifiers.

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All three arguments are based on the observation, dating back at least to Marantz (1984), that internal arguments are more closely linked to the lexical predicate than are external arguments (see also Lohndal 2014 for recent discussion). The same can be said of adpositions; they can form idiomatic meanings together with an internal argument (cf. e.g. *in time* 'eventually' vs. *on time* 'punctual'), but arguably not an external argument. Yet the categorial rigidity of adpositions suggests that they should not be treated as roots in the DM or ESS systems.

4 Conclusion

A radical separation of roots and other lexical material something like that in (1) has been entertained in the DM literature, and recently also promoted vigorously in the ESS framework. It amounts to a kind of restrictiveness, in that it strictly links several disparate facts: for example, if a syntactic object manifests syntactic features, then it must be a functional item, and hence it cannot be suppletive; if a exponent exhibits suppletion, it must be lexical, and hence must lack syntactic features. A restriction on grammar represents the discovery of meaningful constraints and hence leads to understanding.

Harley's paper is a sober reassessment of that separation, and concludes quite reasonably that it has been overstated, in particular with regard to phonology. The semantic distinction has never been entirely clear, and I have suggested that (1) overstates the semantic distinction in any case.

But if roots and functional formatives are not qualitatively distinct in their semantics or phonology, then they can only be distinct from each other in their syntax. This vastly reduces the sense in which the distinction can be meaningfully restrictive. A grammar in which there are some lexical items with syntactic features, and others with no syntactic features, it not in virtue of this fact more restrictive than a grammar in which there is only one type of lexical item; rather it is less restrictive.

This leads to the question whether there is any difference between lexical and functional items after all.

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