Three fundamental issues in morphology (and also syntax):

I. What connects the phonological and the semantic/syntactic structure of words?
II. What is the nature of the phonological and semantic pieces of word structure and are there morphological pieces without phonological or semantic interpretation (uninterpretable features that nevertheless have an influence on the syntactic structure of words)?
III. What are the principles of composition for elements within words (within sentences)?

Theory resolving these issues would be a complete linguistic theory, not just a theory of morphology.

Two general views about the connection between sound and meaning (structures) in language:

a. Transformational theory (Minimalist Program with Distributed Morphology) single structure, single generative engine leads to strictly local connections
b. Mapping Theories (Jackendoff, Bresnan’s OT/LFG) multiple structures with global evaluation of the relations between structures

Transformational Theory = Distributed Morphology in Minimalist Program
(4) Theory of the Lexicon
   a. What are the features of terminal nodes?
   b. What bundles are possible as terminal nodes?
   c. What distinguishes bundling (fusion) from merger?
   d. What associates case and agreement features with D features and T features?

(5) Theory of roots:
   a. Do the phonological and semantic features of roots separate in a derivation?
   b. Are roots present in the syntax or are there just place holders for roots?
   c. Are there syntactically significant categories of roots (equivalent to asking if roots bundle with features prior to merger)?
   d. Is there root suppletion?

(6) Theory of head movement:
   a. Is there a difference between adjunction and “substitution” (substitution = (re-)merger = move and extend)?
   b. Is head-adjunction possible?
   c. What drives head movement (syntactic affix feature = EPP for heads or general EPP feature…)?
   d. Is there syntactic lowering?

(7) Theory of Agree:
   a. How are case and agreement features distributed?
   b. How are case and agreement features valued?
   c. Is agreement distinct from concord?
   d. Could case and agreement features be added at spell-out?

(8) Theory of Impoverishment:
   a. Is there feature insertion after feature deletion?
   b. Can Impoverishment be triggered by feature structures internal to a terminal node rather than solely by neighboring morphemes?
   c. Should all blocking across positions be treated as deletion via Impoverishment?

(9) Theory of fission:
   a. Is fission (= multiple vocabulary insertion at a single terminal node) always possible, language and morpheme particular, or triggered by particular sets of features (e.g., agreement features)?
   b. Are all features of a terminal node mentioned by a vocabulary item consumed via vocabulary insertion (or are some features “contextual” and remain for “fission”)?

(10) Theory of ordering:
    a. Do all vocabulary items come with an indication of whether they prefix, suffix (infix, etc.) to their host?
b. Are apparent violations of syntactically determined hierarchical organizations of vocabulary items, as in clitic clusters and in cases of fission, limited to situations where all the morphemes prior to vocabulary insertion appear at the same hierarchical level from the syntax?

(11) Fundamental argument against Lexicalist approaches to morphology:

There is no significant set of correlated properties that distinguish lexicon-internal composition from syntactic composition (not in or across phonology, morphology, or semantics).

(12) Specific arguments against standard Lexicalist theory (see, e.g., Lieber 1992):

a. Underspecification. Syncretism requires underspecification of the syntactic features of affixes. If we build words via feature percolation from affixes, there is no way to determine the feature structure of a word built with underspecified morphemes looking only at the information in the word.

b. Asymmetrical blocking across positions. The presence of certain affixes blocks the appearance of others. In certain cases, then, the non-appearance of an affix may signal the same features as the occurrence of an affix, given a different context. The automatic consequences of asymmetrical blocking for the feature structure of words is impossible to capture on standard Lexicalist assumptions.

c. Ordering of morphemes. Lexicalist assumptions force the ordering of morphemes to be determined via subcategorization features on affixes. However, subcategorization without categorization mixes up the choice of an affix for a position bearing certain features with the choice of position for an affix bearing certain features. Lexicalist theories treat affix position for inflectional morphology as essentially templatic, but positioning of inflectional affixes is distinctly non-templatic.

(13) Arguments against A-Morphous approaches to inflectional morphology

a. A-Morphous morphology treats affix position as essentially templatic, but positional of inflectional affixes is distinctly non-templatic. In particular, positional blocking (competition) is between affixes that realize the same sort of features (e.g., subject agreement affixes) and blocking between affixes realizing different types of features is not blocking at a position and exhibits different properties (properties of impoverishment) from competition at a position.

b. A-Morphous morphology can’t separate features realized by an affix or process from features serving as the context for insertion of a particular affix or process. Thus correctly ruling out “*teeths” leads to incorrectly ruling out “shelves,” where plurality seems to be marked both on the root (“shelv” vs. “shelf”) and in the suffix (-s).

I.e., A-Morphous morphology turns out to be the wrong theory of affix position and the wrong theory of affix and process interactions.

(14) With A-Morphous morphology, Distributed Morphology endorses late insertion of affixes, underspecification of affixes, and competition among affixes for insertion. With
Lexicalist theories, DM endorses a syntactic approach to affix position and the morphous nature of morphemes and their realizations (vocabulary items).

0. Some big issues for the theory of morphology:

A. Modularity. The relative autonomy of morphology with respect to syntax and semantics. How much of morphology is “Morphology by Itself,” as Aronoff would have it.

1. More likely autonomous morphophonology:
   a. declension classes
   b. conjugation classes
   c. “theme vowels” (perhaps, if Oltra-Massuet is correct)
   d. stem extensions (perhaps)

2. Less likely autonomous morphophonology
   (constrained/determined by syntax/computational system)
   a. contextual allomorphy
   b. hierarchical organization of affixes
   c. morpheme order
   d. locality constraints on information interactions

B. Globality/locality. Recent Optimality Theoretic approaches to morphology and syntax make the evaluation of morphological well-formedness a global computation at the sentence level. So, at least from the structure of the theory, information anywhere in the sentence might be relevant to the choice of affix or to allomorphy at a particular place in the hierarchical structure of the word or sentence. Locality constraints would either be explicit, violable constraints or would be built into the structure of particular constraints.

(15) The “Best Theory”? The best theory would be the one that imposes the most constraints on the relation between phonology and semantics without being obviously and fatally counterexemplified.

(16) The “Perfect language”? One to one mapping between phonological pieces and semantic pieces, between phonological relations (e.g., adjacency) and semantic relations.

(17) The (apparent) Actual Situation:
   Each language makes a choice of features to express from the “ideal” exhaustive description of linguistic structures (choice of features for syntax, choice of relations in syntax, underspecification of phonological realizations relative to active syntactic/semantic features)
   The problem of expressing multiple semantic relations for single constituents leads to no overt expression of some of the relations
   Various phonological pressures create limited, local opacity – obscuring the one to one relation between phonological pieces and semantic pieces, phonological relations and semantic relations
The actual situation isn’t that far from the “perfect” situation, once we recognize the unidirectional nature of linguistic derivations.

I. Distributed Morphology

(18) A Standard (Strict Lexicalist) View on the Structure of Grammar (i.e., the wrong theory)
Note multiple generative engines for relating sound and meaning

<table>
<thead>
<tr>
<th>Lexicon</th>
<th>Generative engine 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Builds (arbitrary set of) words</td>
<td>Derivational morphology (category changing)</td>
</tr>
<tr>
<td>Inflectional morphology (fills cells in paradigm space)</td>
<td>Generative engine 2 (for paradigm space)</td>
</tr>
<tr>
<td>Syntax</td>
<td>Generative engine 3</td>
</tr>
<tr>
<td>Postlexical phonology</td>
<td>LF</td>
</tr>
</tbody>
</table>

(19) Distributed Morphology and the Minimalist Framework of Chomsky (anti-Lexicalist) Uses single generative engine = the syntax

1. Universal Grammar provides a universal set of "properties" or features

   Universal feature set
   Lg. Features

2. A language chooses a subset of these features to use in grammar (and a child learning the language may lose access to the unchosen features – see the work on early acquisition of language particular phonetics)

3. The language further chooses a subset of this subset for the computational system of syntax and decides how to package the chosen features into the terminal nodes of the syntax (for Chomsky, "lexical items," for Distributed Morphology, "morphemes"). The combination or bundling of features into morphemes for the computational system we'll call fusion
4. These morphemes contain only the features relevant to the computational system of syntax and so lack phonological and purely morphological features, which are inserted in the (morpho)phonology (="late insertion")

5. Spell-out hands the syntactically generated structures to the morphophonology and to LF for interpretation, and this occurs cyclically, at the end of each "phase" (for Chomsky, little v and C, at least, delimit phases)

6. Features added to the syntactic structure in the morphophonology may only be features that could not be part of the "lexical items" (=fused bundles of features that operate in the syntax). One implication of this is that do insertion in English, which involves adding a "little v," must be syntactic and not morphological.

(20) Competition: -s and –en each have the syntactic feature [+plural] and compete for insertion into a (any) number node from the syntax. Each will carry distinct phonological features and –en carries the contextual feature that limits its insertion to contexts where number is merged with a small set of roots (childr-, ox-).

(21) Operations in Morphophonology

1. (Perhaps) Feature Insertion of purely morphological features:
   - Morphological case, agreement (for Chomsky, feature values, not features)
     - (Given Chomsky’s assumptions, this could be syntactic, given notion of “uninterpretable features” in the syntax)
   - Theme vowels? Stem extensions?

SUPPOSE: Spell-out precisely involves the distribution of values for Case and Agreement features based on AGREE relations, where these features must be handed to the PF side for phonological realization but not to the LF side, where they have no interpretation.

Impoverishment, then, would be part of the process of spell-out, deciding which uninterpretable features are subject to Vocabulary Insertion.

If Impoverishment is at spell-out, rather than during Vocabulary Insertion, we might expect locality conditions on Impoverishment to parallel conditions on Agree, rather than the locality conditions on contextual allomorphy.

See Trommer’s recent work for a view with roughly these properties.

2. Vocabulary Insertion “insert the most highly specified Vocabulary item that fits”
   - (see (20) above)
   - Includes "fission" = repeated Vocabulary Insertion into a single morpheme
   - Operates from roots out, cyclically
   - Is contextually sensitive (outward (upward) to locally c-commanding features without information about vocabulary items, inward (downward) to all features of c-commanded inserted vocabulary items, with context limited to a locality domain
3. **Morphological merger**: rebracketing under adjacency, e.g., for cliticization of “simple clitics” such as the English possessive ‘s, after Vocabulary Insertion

\[\text{[the queen of England] ‘s hat} \quad \text{[the queen of [England’s]] hat}\]

(22) **Functional morphemes:**

- features fully determine meaning (can serve as the context for special meanings of roots (see below) but cannot themselves carry special meanings)

- thus vocabulary items for functional morphemes are purely paradigmatic – should display full “blocking” behavior (‘hit-Ø’ blocks ‘*hitted’), possibility of suppletive allomorphs

(23) **Roots:**

1. are like Saussurian signs in that they are identified by their phonological form and by their meaning(s), which are inexorably linked. Unlike Saussurian signs, roots may have multiple, contextually determined meanings; cf. the root ‘-ceive’ in ‘conceive,’ ‘deceive,’ ‘receive,’ ‘perceive,’ etc. However, they may not have multiple underlying phonological forms (=suppletive allomorphs). This difference follows from the fact that phonological features are part of the language system while root meanings fall under the extra-linguistic conceptual systems of mind. Phonological features form a space for possible root “labels” within a language; the semantic properties of the conceptual system, to the extent that they do define a semantic space, do so outside the linguistic system and cannot serve to create “labels” for roots.

2. may belong to semantic classes, but class features are classificatory, not constitutive

3. have special meanings in particular (local syntactic) environments, meanings listed in the *Encyclopedia*

(24) Since whatever features a root has are not constitutive (exhaustive), **roots are not paradigmatic** and cannot show suppletive allomorphs (allomorphs of roots must be generated via (morpho)phonological rules)

(25) Therefore, “light verbs” like “go,” “come,” “give,” “take,” “have,” are (realize) functional morphemes and contain no roots (cf. “go” ~ “went”)

[[**ONE VIEW OF ROOTS** (see in particular Embick 2000):]

(26) Since the particular identity of a root plays no role in the syntax, we may suppose:

- **Syntax merges only** functional morphemes plus a **root symbol**, placeholder for any root

- **Roots are Vocabulary Items** inserted by Vocabulary Insertion in the Morphophonology.

(27) Semantic interpretation must have access to any free choices in vocabulary insertion, where choice of root within a particular environment would always involve free choice. Therefore, **semantic interpretation isn’t simply interpretation of LF**, but interpretation of any (free) choices made in the derivation (choice of morphemes, choice of which morphemes to “merge” into tree structures, free choice of Vocabulary Items)
(28) Since syntactic combination is independent of particular roots and since even "syntactic" category formation (N, V, A) is negotiated in the syntax, most sentences and most words generated by the syntax will be semantically odd after root insertion]

II. Transparency

(29) Fusion, the pre-syntactic bundling of features to create merge-able nodes for the syntax

(30) Syntactic affixation is head movement, constrained by the syntax (although perhaps triggered by “affix” features of the heads equivalent to the EPP features that drive overt A or A-bar movement of constituents).

(31) Fission during vocabulary insertion allows for multiple vocabulary items corresponding to a single syntactic node, although only at a single level of hierarchical structure

(32) The limits on fusion, fission and syntactic node manipulation insure a relative transparency of morphology (i.e., morphophonology) to syntax and to LF

(33) Violations of transparency:
   A. Many-to-one mappings of features to vocabulary items
      1. for nodes, fusion but fusion will have syntactic consequences

         Bobaljik Germanic verb-movement parameter is accounted for by whether or not agreement and tense features are bundled into a single node in the syntax

         Pyllkänen A language will allow benefactive applicative constructions that relate an event to an individual only if voice and little v are not bundled into a single syntactic constituent

      2. at a node, underspecification yields the ambiguity of, "I/you/we walk to school each day"

   B. One-to-many mapping of feature bundles onto vocabulary items
      1. for nodes (multiple nodes corresponding to a single bundle), fission no syntactic consequences of fission operates at a single hierarchical level

      2. at a node, contextual allomorphy cat-s, ox-en

(34) residual templatic effects
    clitic ordering
    complementary distribution of clitics
    (see Bonet, Legendre, Anderson, Grimshaw)
III. Underspecification

The underspecification of morphemes relative to the syntactic features that they express causes problems for any lexicalist theories that require that one build up the feature structure of a word from the features of its parts. Underspecification favors paradigmatic theories that acknowledge that the feature structure of a word depends in part on the total set of affixes in a language, not just on the affixes that happen to be included in the word. That is, competition among affixes for the expression of sets of features determines what features a word may express and explains “blocking” effects in morphology. However, contra paradigm theories and A-Morphous morphology, this competition is local to terminal nodes from the syntax and doesn’t directly implicate paradigms in any crucial sense.

<table>
<thead>
<tr>
<th>present tense</th>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>first</td>
<td>walk-Ø</td>
<td>walk-Ø</td>
</tr>
<tr>
<td>second</td>
<td>walk-Ø</td>
<td>walk-Ø</td>
</tr>
<tr>
<td>third</td>
<td>walk-s</td>
<td>walk-Ø</td>
</tr>
</tbody>
</table>

-s third singular present -Ø (present) default

How do we express the generalization that zero is the default expression of present tense in English? If we build words from underspecified lexical entries, then we need to allow an underspecified verb form to be compatible with any subject whose features do not contradict the features of the verb. But that would allow:

(35) *He walk to school every day.

So, rather, we need to fill in the underspecified features of the –Ø default ending prior to the syntax. But the fact that –Ø can express any combination of person and number features except third singular is clearly related to the fact that there exists only one other competing present tense ending, one that expresses third singular. Without competition among vocabulary items for expression of feature sets we cannot account for the patterns of underspecification we see cross-linguistically.

IV. Fission

Fission involves multiple vocabulary insertion at a single node from the syntax.
(36)  Georgian

a.  v-xatav  I draw him
b.  [v]-xatav-t  We draw him
c.  m-xatav  You draw me
d.  [g]-xatav  You draw us
e.  m-xatav-t  Y’all draw me
f.  g-xatav-t  We draw you or y’all
g.  [g]-xatav-t  Y’all draw us

(37)  Walpiri (Halle, Hale)

njurula-Lu ka[nku]-tju-[u] patju nja-nji
2pl-ERG PRES-2-1-PL 1sg see-NONPAST

AGR Subj

(38)  Note the problem of affix ordering. Bonet was the first to demonstrate that systems of clitics involve ordering and complementary distribution effects that cannot be reduced to syntax or to (regular, phonotactic) phonology.

(39)  Catalan, opaque clitic clusters

[į]\ []

3DatS (z for 3Acc.Masc.Plural)

(40)  Clitics: terminal nodes all attracted to the same location in the syntactic tree (perhaps T in Romance, C in second-position languages).

(41)  a.  Fission: multiple vocabulary items at a single hierarchical level in the syntactic structure.
    b.  Clitics: multiple vocabulary items interacting at, apparently, a single hierarchical level in the syntactic structure.

The behavior of clitics and the behavior of the results of fission look similar – multiple sets of features, multiple vocabulary items at a single hierarchical level. Walpiri, Georgian, Catalan: ordering of VI’s not explained by syntax, fission, or vocabulary insertion
(42) Georgian, again: complementary distribution not explained by fission or vocabulary insertion

Georgian:
a. g-xatav I draw you
b. v-xatav I draw him (where’s the g- in a.?)
b. m-xatav You draw me
c. v-xatav-t We draw him
d. m-xatav-t Y’all draw me
e. g-xatav-t We draw you or y’all
f. gv-xatav You draw us
g. gv-xatav-t Y’all draw us

Georgian VI’s (direct objects are dative in Georgian):
1, DAT, pl
1, DAT
2, DAT
1
2

Why not, g-v-xatav for ‘I draw you’?

(43) This sort of templatic effect requires Impoverishment (feature deletion prior to Vocabulary Insertion) OR SOMETHING.

V. Contextual allomorphy

(44) What information can act as context for Vocabulary insertion?

(45) Inner sensitivity to particular vocabulary item:
ox-en cat-s
    believe-abil-ity, glory-ous-ness

(46) Outer sensitivity to syntactic features:
    – see the example in (48)

(47) Bobaljik (2000):
    given cyclic Vocabulary Insertion, from root out, we expect
    inner sensitivity to identity of vocabulary items (if VI’s replace feature bundles,
    then sensitivity only to VI’s, not to original set of features)
    outward sensitivity only to feature bundles, not to VI’s (in a local domain)
(48) AgrS  
    AgrS [ls]  AgrO  
    F  AgrO [3p]  
    T  F  
    V  T [Pres]  
structure for verb in, “I’m bring tasty rotten (mouse) heads.”

(49) “Vocabulary insertion begins with the most deeply embedded node (V) replacing this node with the phonological string [A – details irrelevant, and I don’t have the necessary fonts on my computer to reproduce the phonological forms –a.m.] along with this stem’s Class II diacritic. The second step of vocabulary insertion replaces the T terminal node with the appropriate tense morpheme [B]. At this next point of insertion (F), the insertion of the Class II marker is triggered by the diacritic on the (previously inserted) verb stem but the particular allomorph for this marker…is determined by the more peripheral agreement features [ls] (subject) and [3p] (object). Next, the appropriate 3rd person object agreement is selected from the table in (8), making crucial reference to the features of the subject agreement node. Finally, the appropriate subject prefix is selected. At this point, all other syntactic features have been expressed, i.e., replaced with the appropriate phonological strings. The subject agreement prefix therefore shows no allomorphy for the features at the object agreement position; nor could it have done so as the features are no longer there.”

VI. Syntax vs. templates

(50) If Distributed Morphology were wrong, and syntax didn’t determined the location of morphemes (and their phonological realizations) in words and phrases, what would account for the positioning of affixes in complex words? The usual alternative proposed is templatic structure, either in a “filler/slot” arrangement or created via morphophonological levels, as in the lexicalist work of Lieber and Inkelas.
(51) Typical templatic structure: Navajo verb structure (data from Speas):

<table>
<thead>
<tr>
<th>ADV</th>
<th>Iter</th>
<th>DistPl</th>
<th>AGRo</th>
<th>DeicS</th>
<th>ADV</th>
<th>Mode</th>
<th>AgrS</th>
<th>Voice</th>
<th>Stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

1 manner, direction, etc. – open class, potentially iterative (i.e., not blocking)
2 ná
3 da
4 person, #
5 {ji, ‘a, hwi} indefinite or “4th person”
6 adverbial, aspectual – open class
7 {i, yi, ni, si, o}, perf., inperf., prog., optative
8 person, #
9 {1, d, l} +/-transitive, +/-active

(See now also K. Rice’s analysis of Athapaskan (Slave) morpheme order)

(52) NOTE: these slots have labels, i.e., are featurally coherent. Ordering is related either to particular vocabulary items (2, 3) or to a functional head, with the exception of the adverb positions. That is, the templatic “analysis” here is just a summary description of some distributional facts and doesn’t depend on any special notion of template or slots.

(53) So, standard templatic analyses generally do not contain “grab-bag” slots for heterogeneous class of mutually blocking morphemes (Anderson’s A-morphous Morphology rule blocks are in fact such “grab-bag” slots for inflectional morphemes). If templatic positions are featurally coherent, as they are in Navajo, then they present the data for morphological and syntactic analysis, not some theoretical alternative to a syntactic account of morpheme order. In fact, Rice pursues such a syntactic account.

(54) But, for Inkelas (1993), following Lieber, templatic morphology precisely includes such “grab-bag” slots for heterogeneous classes of mutually blocking morphemes.

(55) Nimboran verb structure, standard templatic analysis (flat structure):

<table>
<thead>
<tr>
<th>root</th>
<th>PSubj</th>
<th>DuSubj</th>
<th>MObj</th>
<th>Part</th>
<th>InDuSubj</th>
<th>Loc</th>
<th>Iter</th>
<th>tense</th>
<th>AgrS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>X</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

PObj__________
Durative________

1 Single vocabulary item, competes with DuSubj, InDuSubj
2 DuSubj, single VI, competes with DuSubj, InDuSubj
   PObj, single VI, competes with MObj
   Durative, single VI
3 MObj, single VI, competes with PObj
X Class of particles, foundation of 1-8, with root, determines meaning of verb
4 InDuSubj inclusive dual subject, single VI, competes with DuSubj, PISubj
Inkelas' hierarchical interpretation of the Nimboran templatic structure:

- **Loc**, group of locative suffixes
- **Iter**, iterative suffix
- **AgrS**, set of person agreement suffixes

Inkelas' hierarchical interpretation of the Nimboran templatic structure:

\[
\begin{array}{cccccccc}
\text{G} & \text{F} & \text{E} & \text{D} & \text{C} & \text{B} & \text{A} \\
2 & 3 & 4 & 5 & 6 & 7 & 8
\end{array}
\]

(56) Inkelas: affixes block other affixes by occupying hierarchical positions and raising the level of the word (A-G) beyond the subcategorization level of the affixes they block.

(57) Thus, blocking behavior (mutual exclusivity between/among morphemes) determines position of morphemes in the word tree and vice-versa.

(58) Individual Particles of position X show a variety of blocking behavior. Some particles block as far as slots 5 and 6, while other block only into 2 and 3. Inkelas accounts for the blocking behavior of PARTs by having them occupy different sets of hierarchical levels. They attach to one level and create structures of some higher level, sweeping out a certain number of positions and thus preventing the insertion of morphemes that are subcategorized to occupy these positions.

(59) However, the labeled slot analysis in (55) describes all the data presented by Inkelas; that is, PARTs always seem to occur in the same position, no matter what their blocking behavior. There is no evidence presented by Inkelas that a PART that blocks positions 5 and 6 appears anywhere but between positions 2 and 4. Thus, although Inkelas' theory predicts that a morpheme should appear hierarchically in a structure according to its blocking behavior rather than according to the features it realizes, she presents no forms that illustrate such "mobile" classes of morphemes that "jump around" in a structure depending on what they block.

That is, the templatic view correlates (linear and hierarchical) position with blocking behavior (you occupy a slot, which determines your position, and also prevents other morphemes from occupying the same slot). But the Nimboran facts and the facts of all languages I've seen analyzed show that positioning and blocking are not correlated – a fixed template defined in terms of the features realized by the templatic slots is sufficient to describe the order of morphemes. What is correlated, as is clear from standard templatic analyses, are features and positioning, i.e., "slots" are associated with the features that are expressed by morphemes in those slots.
(60) Distributed Morphology: If affixes are competing for the same terminal node, then they block each other, with the most highly specified affix winning (pace cases of fission). Blocking at a position is thus featurally coherent (blocking is between VIs that carry the same type of feature) and asymmetric (one VI is always the winner over another in any given situation).

Otherwise, in cases of blocking or mutual exclusivity involving VIs inserted at different terminal nodes in a structure, “blocking” must be accomplished via impoverishment across positions (one morpheme or vocabulary item deleting features in another morpheme before vocabulary insertion at the other morpheme).

Therefore, competition blocking is at a position, but between vocabulary items that spell-out the same types of features.

Impoverishment blocking is between positions, and between independent morphemes (usually different sorts of features, but one agreement morpheme might impoverish features on another, in which case the same sorts of features are involved)

So, blocking behavior between vocabulary items with different sorts of features will not be correlated with position (although impoverishment requires a structural locality between the morphemes involved).

(61) Inkelas: since words are built through free combination of morphemes in the lexicon, blocking at and across positions is symmetrical; for example, one could choose to use a PART, which would block also using an Object agreement morpheme, since PART fills the space in the word where ObjAggr fits, or one could choose to use ObjAggr, which would block any PART, since ObjAggr would fill the space in the word where PART fits. If one could interpret a word with PART but without (overt) ObjAggr as if the plural ObjAggr were there, one should be able to interpret a word without an overt PART but with plural ObjAggr as if the PART were there. However, blocking in fact is always asymmetrical, as predicted by the DM theory. If PART impoverishes ObjAggr, a word with an overt PART can be interpreted as if the ObjAggr were there (since if it is there in the syntax, it is Imperforished prior to Vocabulary Insertion), but a word with an overt ObjAggr can not be interpreted as if a PART were there (since if the PART were in the syntactic structure, it would serve as the locus for Vocabulary Insertion and the ObjAggr would be Imperforished prior to Vocabulary Insertion).

(62) Similarly, Inkelas has no explanation for why a word with a plural morpheme may be interpreted as having a dual subject only if the dual morpheme is blocked by another morpheme from appearing in the structure. For Inkelas, there is no connection between the morphemes that you didn’t use to build a word and the interpretation of the word. For DM, the dual Vocabulary Item will win the competition for insertion at a morpheme with the features for dual unless another Vocabulary Item or morpheme Impoverishes a number feature of the morpheme, preventing the dual VI from winning the competition and causing the less marked plural to win. Thus a plural VI in the same word as a VI that Impoverishes number to block the dual VI is predicted to be interpretable as dual.

(63) Blocking at a position: most highly specified VI is inserted:

a. [ngedou]-[k-d-u] ‘we two will draw here'
   dual-Fut-1st

b. [ngedő]-[<i>-d-u] ‘we (many, but not two) will draw here'
   plur
So, more highly specified 'k' (dual) blocks less specified <i> (plural) when subject number is dual.

(64) Blocking across positions: Impoverishment causes less specified form to block more specified form

a. \[\text{ngedōi}]-[<i>-tam-t-u] \text{ 'we two (or many) are drawing'}\]
   \[\text{plur-DUR-Pres-1}\]

b. \*[\text{ngedōi}]-[k-tam-t-u]

Here the Durative particle "tam" impoverishes subject number across positions (from an aspect position, DUR impoverishes agreement on tense), causing a less specified plural form to block the more specific dual form in the expression of dual subject number.

DUR impoverishes AgrO, Dual in AgrS#
(overt) PART impoverishes DUR, AgrO

(65) In considering why you might believe that DM is correct in insisting on the syntactic source for morpheme ordering, recall what the alternatives are and why they’re demonstrably wrong. Adopting a lexicalist account like Lieber’s or Inkelas’ commits you to predicting a correlation between blocking (mutual exclusivity) and position and to predicting symmetrical blocking. In addition, you’re committed to saying that there is nothing to say about the order of inflectional affixes based on their features. Adopting an A-Morphous account like Anderson’s also commits you to predicting a correlation between blocking and position and to saying that there is nothing to say about the order of inflectional affixes based on their features. However, because Anderson adopts a realizational approach to inflection (late insertion), he does predict asymmetrical rather than symmetrical blocking.
VII. More on the Nature of Impoverishment

Noyer (1998) argues that Impoverishment needs to be followed by unmarked feature insertion:

For Nimboran, [-sg –pl] □ [-sg] □ [-sg +pl] (dual Impoverishes to plural)
evidence: dual has special number morphology, but in certain environments, this is blocked and we see explicitly [+pl] morphology, rather than either [-sg] or [-pl] morphology.

Daniel Harbour (MIT), The Kiowa Case for Feature Insertion (from a MMM abstact) extends Noyer’s arguments to Kiowa.
[I thought about including Kiowa examples, but the system is just too horrendously complicated]

“Morphology must do more than merely insert vocabulary items. It must also insert morphosyntactic features. This predicts the possibility of disagreement between morphosyntax and semantics and, I claim, one sees this in Kiowa, an Oklahoman language (Harrington 1928, Watkins 1984).

“Data. Kiowa has a system of rich, fusional, prefixal agreement, representing three arguments: agent, goal, and object. I show that the morphological structure of the prefix is isomorphic to the syntactic argument structure in a way easily capturable by postsyntactic theories like Distributed Morphology. I show also that the four agreement subsystems (intransitive, transitive, and two types of ditransitive) display strong morphological and phonological uniformities, inferring [sic.] that a unified analysis should be given for all four.

“A difficulty for a unified approach comes from some ditransitive prefixes. Object agreement has many different allomorphs. Three types of allomorphy are, I argue, conditioned by the feature [-singular] on agents and goals. Sometimes, however, [-sg] cannot be present in the output of the syntax and yet the [-sg] allomorph surfaces. For instance, the áu allomorph for [+sg] objects is generally restricted to ditransitives with [-sg] goals: because 'us' is [-sg], 'he-to.us-it' (dáu) should and does have áu, and because 'you.sg' is [+sg], 'I-to.you.sg-it' (gyá) should not and does not have áu. However, áu unexpectedly emerges in, for instance, 'he-to.you.sg-it' (gáu).

[So +sg on the 2nd person goal is impoverished in this context, leading to default insertion of –sg as a feature and then insertion of a –sg vocabulary item (allomorph)]

“These 'exceptional' prefixes are regular in all other ways, however - note, for instance that both prefixes for second singular goals have high tone and begin with g. So, clearly, they should not be regarded as unanalyzable wholes. Feature insertion is the only way to maintain a unified analysis. Moreover, features are correctly predicted to be inserted elsewhere in the language, accounting for further allomorphy effects.

“On evidence from null subjects, null objects, and reflexives, I argue that minus is the unmarked value of [-sg]. So, my analysis accords with Noyer's 1998 proposal that only unmarked features are insertable.”
(67) Potawatomi impoverishment at a distance:

Plural (and obviative) are impoverished, over tense, when there’s a first person plural subject.

a. n-wapm-a-mun-ik  n-wapm-a-mun ‘we see them’
b. n-wapm-uk-nan-uk ‘they see us’
c. k-wapm-a-wa-k ‘you(pl) see them’

It’s not phonological (or Vocabulary Item) mun/mn that causes the Impoverishment but specifically the first person subject features:

d. n-wapm-a-mn-(w)apunin-uk  n-wapm-a-mn-(w)apun ‘we saw them’
e. k-wapm-a-m-wapunin-uk ‘you(pl) saw them’
f. n-wapm-uk-mun-(w)apunin-uk ‘they saw us’

VIII. Modularity and Globality

(68) OT approaches to morphology such as Bresnan’s and approaches to grammar such as Sadock’s Autolexical Syntax assume mappings between independently generated structures related on sound on the one hand and meaning on the other. These approaches recognize that languages somehow aim for isomorphy between these sound- and meaning-related structures, such that there is an ideal procedure mapping each terminal element of one structure onto a terminal element of the other and, recursively, each relation between elements of one structure onto a relation between elements at the other. However, these approaches must enforce transparency and locality via specific, violable constraints. No strong predictions, of the sort discussed above, about the locality of information relations in the connection between PF and LF follow from the basic assumptions of these approaches, as they do from the basic structure of Distributed Morphology/Minimalist Program.

(69) The key to the predictive power of DM/MP is the commitment to the transformational program, which relies on a single generative engine in the derivation of linguistic structures. Both PF and LF must be constructed through the generative processes of the syntax. In short, the strict apparent isomorphy between sound and meaning structure is explained on the present approach through the assumption that there is essentially only one structural representation of a sentence. Isomorphy follows from identity.

(70) DM/MP claims that any adequate account of how you build linguistic structure at all – how you put the minimal combinatorial elements together – will also be an account of the mapping between PF and LF. That is, pursuing just the theory of how, for example, c-structure is generated within LFG will necessarily involve reconstructing all of the machinery of the Minimalist Program. DM claims, similarly, that any account of how phrases are built from word-size units will, necessarily, recreate all the machinery of DM for word-internal structure.
References: