Blocking
Alec Marantz, marantz@mit.edu

(1) Why do we care about blocking?
   a. lexical relatedness
      rémedy ~ remédial ~ remédiation (Steriade)
      gave ~ give (Pinker)
         i. what are the units of composition within words
         ii. how do the units combine
   b. structure of the grammar
      *Amn’t I ∼ Aren’t I ∼ Am I not (Bresnan)
      glory ∼ glorious ∼ *gloriosity (Aronoff)
      big ∼ bigger ∼ more big (Poser)
         i. does competition govern well-formedness
         ii. how local is competition

(2) a. Locality and syntactic computations
   i. strictly local = merge (sisterhood)
   ii. less local = Agree (& Move) – within a “phase” (cyclic domain)
and subject to “closest” (= relativized minimality)
   b. Locality and morphophonology:
      i. strictly local = “contextual allomorphy”
      = competition among Vocabulary items for
      insertion into a terminal node, with contextual features (subcategorization frames)
      referring to features of sister nodes
         +plural □ /-en/ /{ox, childr}__
         +plural □ /-z/
      ii. less local = “Impoverishment”
      = deletion of features at one terminal node triggered
      by other features either at that terminal node or at a terminal node within the phase of the
      targeted features
         3rd dative □ φ / __[3rd accusative] (Bonet)
         Spanish le lo □ se lo
         (“reflexive” se = default clitic)

(3) Claim: Blocking effects, in which the well-formedness of one structure seems to
block the well-formedness of an otherwise predicted structure, are limited to:
   a. Competition blocking, where the insertion of a more highly specified
      vocabulary item is inserted into a terminal node, blocking a less-highly specified item
      (plural –en blocks plural –z when –en’s special environment is met). Here it is true of
      the grammar as a whole (grammar and Vocabulary) that if the “blocking” item were
      somehow removed from the grammar, the less-specified item would be inserted.
      So, for example, if a speaker cannot retrieve the “fel-” past-tense
      conditioned allomorph for the stem FEEL, s/he might produce “feeled,” which would
      otherwise be blocked by “fel-t.”
b. Impoverishment blocking, where the insertion of a more highly specified vocabulary item at a terminal is blocked by the deletion of relevant features at that node prior to Vocabulary Insertion (Spanish *le* is blocked in the environment next to a third person accusative clitic by *se*). Here it is true of the grammar as a whole (grammar, Vocabulary, impoverishment rules) that if the Impoverishment rule somehow didn’t apply, the more highly specified item would be inserted. So, it appears as if a less-highly specified item is blocking a more highly specified one (the appearance of the emergence of the unmarked).

(4) Cases claimed to be cases of blocking the literature that do not conform to either competition or impoverishment blocking as described in (3) are not blocking at all. That is, the “blocked” structures are ill-formed for reasons independent of any competition.

a. Giererich: “mare” blocks “hors-ess” (cf. “lion” ~ “lioness”) but no one unfamiliar with “mare” would ever produce “hors-ess”; i.e., the ill-formedness of “horse-ess” is independent of any other word or morpheme in the language.

b. Various: “thief” blocks “stealer” but to the extent that “stealer” is bad as describing “one who steals,” this relative ill-formedness is independent of the existence of “thief” (so, for example, “breaker” for “one who breaks things” is on par with “stealer,” yet there is no occupational noun for someone that breaks things (“clumsy oaf” doesn’t make it)).

(5) Important apparent exceptions:

a. “glory” blocks “gloriosity” (= glory+ous+ity)? blocking at the word level under synonymy but – real issue is relating “gloriosity” to “glory” since unrelated synonymous words don’t block each other and “gloriousness” is fine, with the meaning of “gloriosity”

b. i. *Amn’t I :: Am I not
   ii. Isn’t he :: *Is he not
   Bresnan: “Am I not” emerges as grammatical when its otherwise more highly ranked competitor “Amn’t I” is ruled out for independent reasons.
   iii. But, there’s no dialect in which “Am I not” is better than “Is he not,” thus no evidence for blocking of “Is he not” by “Isn’t he”

Outline:

I. Structure of the grammar
II. Competition blocking
III. Impoverishment blocking
IV. Conclusion: Blocking, Decomposition & Late Insertion
I. Distributed Morphology: The Structure of the Grammar

(6) The phonological form of functional morphemes is determined at "vocabulary insertion," i.e., after the syntax.

(7) All words are built from roots (like \(\sqrt{\text{CAT}}\)). So the noun, "cat" is the root \(\sqrt{\text{CAT}}\) with a "little n" nominalizing affix, phonologically realized as zero.

(8) Where the features of roots enter the picture in (6), and what the connection is among the syntactic, semantic, and phonological features of roots, are crucial questions for research (see Embick and others).

(9) The meanings (and pronunciations) of roots are fixed in the environment of the first category-determining head (\(n = \text{noun}, v = \text{verb}, a = \text{adjective}\)) to attach to the root. Any structure attached higher than the first category head above the root must take (and perhaps manipulate) the meaning (and pronunciation) determined in the environment of the lower category head.

(10) This a version of Chomsky's "derivation by phase." Each category head is a phase delimiter, and triggers interpretation of its complement. Heads adjoined via head-movement to another head count as being in the complement of this higher head, so head movement is not an escape hatch for phonological and semantic interpretation in a phase. See Marvin (2002).
Claim (=derivation of “mirror principle” effects):

a. the distribution of information in a word is syntactically determined. So if you want to know why plural occurs outside of a nominalizing head inside a word (*nominaliz-s-ation, vs. *nominaliz-s-ation), you ask, why should plural attach outside of a noun (rather than inside) in the syntax.

b. the distribution of phonological pieces (= Vocabulary Items inserted via competition in the phonology) is also determined syntactically. Thus phonological pieces realizing the same syntactic/semantic features will occur in the same (hierarchical) place in a word.

II. Vocabulary Insertion and Competition Blocking

(12) curious : curiosity :: glorious : *gloriosity  (ok, gloriousness)
curious : curiosity :: libelous : *libelosity  (ok, libelousness)

(13)a. 

```
  n   n
 / \ /  
root root
```

b. 

```
a   n
 /  
root a
```

GLORY  φ  GLORY  -ous  -ness

(14) Generalization: -ity is inserted into an “n” node in the context of little a -able, -al (changeability, usability, nationality…) and also a list of roots (sane, obese, divine…). It does not get inserted next to an “a” node realized as -ous. So curious- must be a root, listed with -ity. (The n node into which –ity is inserted yields the “property” reading, so “gloriousness” refers to the property that “glorious” things possess. I do not assume that there is only a single little n node in English; different feature sets under little n may yield different interpretations and trigger the insertion of different Vocabulary Items.)

(15) When VI (vocabulary item) –ity doesn’t select for an adjective-forming affix – and it doesn’t select –ous – it will not be inserted into the noun-forming terminal node sister to the little a (and will be blocked by –ness). Where VI –ity does select the adjective-forming affix, as it does select –able, then –ness will be blocked by –ity for insertion into the noun-forming terminal node:

(16) -ity blocking -ness

return-abil-ity/*returnableness, refuse-abil-ity/*refuseableness….

(contrast with *glori-ous-ity/gloriousness)
(17) This account of competition blocking predicts apparent doublets (ability/ableness, insanity/insaneness…) just when –ity attaches to a root to create a noun, while a zero little a head attaches to the same root to create an adjective. –ness may then attach to the zero-derived adjective to create a noun:

[ [insane] ity \( _n \) ] \[ [ [insane] \( \_a \) ] ness \( _n \) ]

(18) The account predicts NO doublets when –ity competes with –ness for realization of little n node outside little a node, as in (16).
   a. returnability blocks *returnableness
   b. gloriousness blocks *glorisosity

(19) More apparent “doublets”:
   a. atrocious-ness/atrocity root atroc-, with both atrocious and atrocity built on root with overt a, n, then atrociousness built on adjective atrocious
   b. Where there's apparent “truncation,” and thus root formation, doublets are predicted:
      atrocity/atrociousness
      variety/variousness

(20) Aronoff (1976): where there is a noun form without the –ous related to an adjective with the –ous (glory, glorious), the –ity nominal formed via affixation to –ous is blocked (e.g., since “glory” exists, “gloriosity” is bad).

(21) “virtuosity” CAN’T be related to “virtue” In fact, it’s a noun made from (the root) “virtuoso”

(22) virtue : virtuous : virtuousness *virtuosity
    glory : glorious : gloriousness *gloriosity
    (so "virtuousness" blocks "virtuosity" as "gloriousness" blocks "gloriosity")

(23) Blocking depends on a notion of lexical relatedness that is grounded in decomposition. Words are related to the extent that they share identical pieces. To relate “virtuosity” to “virtue,” one must decompose “virtuosity” so that it contains “virtue.”
But in the resultant structure, one has an “n” attaching outside an “a” into which –ous is inserted. But we know that –ity doesn’t get inserted into such “n” nodes (outside little a –ous) – the default –ness gets inserted. So if “virtuosity” were related to “virtue,” it would be pronounced “virtuousness” (or, again, “virtuousness” blocks “virtuosity”).
Note that the argument here isn’t (just) that a sound/meaning correlation exists locally in the glory portion of glorious. That, by itself, would not predict the badness of *gloriosity on anyone’s theory. Rather, two things are crucial:

a. glorious decomposes structurally into a root/stem and an adjective-forming head

b. to say that any noun pronounced gloriosity or gloriousness is related to the adjective glorious is to say that it embeds the structure containing the stem glory and the adjective-forming head – and that we can recognize the same (identical) pieces across structures.

(25) Given (24), we can say, “if gloriosity were related to glory, it would have to be pronounced gloriousness.” I.e., gloriousness blocks gloriosity.

(26) Only alternative approach to blocking here: blocking is at the word level, and glory itself blocks gloriosity since gloriosity would “mean” the same thing as glory, and identity of meaning at the word level is necessary and sufficient for blocking.

a. take a leak, take a break, take five… all have past tense took blocking

b. *taked – so, (strong) semantic similarity isn't necessary for blocking

(27) Don’t we know that blocking occurs at the word level, as in "thief" blocking "stealer" and "chef" blocking "cooker"?

Does “thief” block “stealer”?

generalization: don’t create agentive –er nominalizations of obligatorily transitive verbs without expressing the object (more complicated than this – real story involves recognizing that agentive –er nominalization nominalizes vPs, not verbs).

“John’s a stealer” has much the same status as “John steals.”

a. “hitter” – specialized baseball meaning, or habitual child misbehaver

b. base-stealer, heart-stealer, rice-cooker

c. ??’breaker” as agentive nominalization is as ill-formed as "stealer," without the existence of a competing thief-like form (cf. heart-breaker)

(28) That is, words like “stealer” that are claimed to be bad through blocking based on semantic similarity of words are always bad for reasons independent of the proposed “blocker” (in this case, “thief”).

(29) Meaning-based blocking predicts semantic drift for “gave,” with creation of “gived” for the general case, reserving “gave” for specific meanings. But such drift doesn’t occur.

(30) If semantics were sufficient account of blocking (“avoid synonymy”), “gloriosity” would simply not mean “glory” – semantic considerations don't explain impossible
words. After all, glory doesn’t block gloriousness, which arguably means the same thing that gloriosity would.

III. Impoverishment Blocking

(31) Inkelas (1993) Nimboran verb structure, standard templatic analysis (flat structure):

<table>
<thead>
<tr>
<th></th>
<th>root</th>
<th>Plsubj</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>
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<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1 | Single vocabulary item, competes with DuSubj, InDuSubj
| 2 | DuSubj, single VI, competes with DuSubj, InDuSubj
|   | PlObj, single VI, competes with MObj
|   | Durative, single VI
| 3 | MObj, single VI, competes with PlObj
| X | Class of particles, foundation of 1-8; with root, determines meaning of verb
| 4 | InDuSsubj inclusive dual subject, single VI, competes with DuSubj, PlSubj
| 5 | Loc, group of locative suffixes
| 6 | Iter, iterative suffix
| 7 | AgrS, set of person agreement suffixes

(32) The “dual” vocabulary item is more highly specified that the default “plural” vocabulary item, and so is inserted into the number agreement node, blocking the plural, when the subject is dual. This is competition blocking.

Blocking at a position: most highly specified VI is inserted:

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

(33) The Durative morpheme impoverishes number features on the number agreement node, destroying the features that the “dual” vocabulary item needs for insertion, so in the context of a Durative, the default “plural” vocabulary item is inserted when the subject is dual.
Blocking across positions: Impoverishment causes less specified form to block more specified form
a. \([\text{ngedóí}]-[<i>-\text{tam-t-u}]\) 'we two (or many) are drawing'
   plur-DUR-Pres-1
b. \(*[\text{ngedóí}]-[k-\text{tam-t-u}]\)

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.

(34) Potawatomi impoverishment at a distance:

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

a. \(*n-\text{wapm-a-mun-ik} \sqsubseteq n-\text{wapm-a-mun} ‘we see them’\)
   AGR-see-D/I-AGR-Plural
b. \(n-\text{wapm-uk-nan-uk} ‘they see us’\)
c. \(k-\text{wapm-awá-k} ‘you(pl) see them’\)
   (agreement morpheme that’s the locus of the impoverishing features has been underlined)
so, less marked \(n-\text{wapm-a-mun}\) blocks the expected but more marked \(*n-\text{wapm-a-mun-ik}\)

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

d. \(*n-\text{wapm-a-mn-(w)apun-uk} \sqsubseteq n-\text{wapm-a-mn-(w)apun ‘we saw them’}\)
   AGR-see-D/I-AGR-past-Plural
e. \(k-\text{wapm-a-m-wapun-uk ‘you(pl) saw them’}\)
f. \(n-\text{wapm-uk-mun-(w)apun-uk ‘they saw us’}\)


Paradigm of one Polish noun class mostly for masculine singular nouns
(36)

<table>
<thead>
<tr>
<th>Class</th>
<th>1</th>
<th>2a</th>
<th>2b</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>Nom</td>
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<td>polak+-</td>
<td>kon+-</td>
<td>pies+-</td>
<td>pan+-</td>
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<td>polak+a</td>
<td>koni+a</td>
<td>ps+a</td>
<td>pan+a</td>
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<td>polak+owi</td>
<td>koni+owi</td>
<td>ps+u</td>
<td>pan+u</td>
</tr>
<tr>
<td>Inst</td>
<td>profesor+em</td>
<td>polaki+em</td>
<td>koni+em</td>
<td>ps+em</td>
<td>pan+em</td>
</tr>
<tr>
<td>Loc</td>
<td>profesorz+e</td>
<td>polak+u</td>
<td>koni+u</td>
<td>psi+e</td>
<td>pan+u</td>
</tr>
<tr>
<td>Voc</td>
<td>profesorz+e</td>
<td>polak+u</td>
<td>koni+u</td>
<td>psi+e</td>
<td>pani+e</td>
</tr>
</tbody>
</table>
Class  5  6  7
Nom  kupiec+  dwor+  kraj+
Gen  kupc+a  dwor+u  kraj+u
Dat  kupc+owi  dwor+owi  kraj+owi
Inst  kupc+em  dwor+em  kraj+em
Loc  kupc+u  dworz+e  kraj+u
Voc  kupcz+e  dworz+e  kraj+u

Summary of affixes
Class   1  2  3  4  5  6  7
Nom/Acc - - - - - - -
Gen/Acc a a a a a u u
Dat owi owi u u owi owi owi
Inst em em em em em em em
Loc e u e u u e u
Voc e u e e e e e u

(37) The vocabulary items for case
- [Nom] ø  Null
- [Gen] ø  /a/
- [Dat] ø  /owi/
- [Inst] ø  /em/
- [Loc] ø  /e/
- [Voc ] [ ] ø  /u/  (default)

(38) If we tried to analyze the paradigm in (36) without impoverishment, we would end up with a number of –u vocabulary items, each specified to attach to a particular list of stems. Instead of treating –u as a general case/number default vocabulary item, as it clearly is, we would multiply –u’s and make each a highly marked VI.

(39) Since, with the exception of the one given last, the items in (37) each have a single specified case feature, there will never be occasion to select the last one – the default. Given the principle of competition, we can implement formally the insertion of the default exponent /u/ by impoverishment, i.e., by deleting the Case features in morphemes where they attach to stems of a particular class.

(40) If a stem impoverishes the Case feature X, we will give it the feature [-X]. With that notation, the relevant impoverishment rules are given in (41).

(41) impoverishment rules triggered by features of the noun stem/root
i. Gen ø  / [-Gen] + ______
ii. Dat. ø  / [-Dat] + ______
iii. Loc ø  / [-Loc] + ______
iv. Voc ø  / [-Voc] + ______
Note that not all possible combination of impoverishment features are exemplified. The seven classes in (36) are defined by the impoverishment features as shown in (42).

(42) The classes in (36) identified by which case features they impoverish
   1. null
   2. [-Loc, -Voc]
   3. -Dat
   4. [-Dat, -Loc]
   5. -Loc
   6. -Gen
   7. [-Gen, -Loc, -Voc]

(43) The restrictions on the distribution of impoverishment features suggests the following implicational generalizations among impoverishing features:

   (in addition to these generalizations, neither Nom nor Instr impoverish)

*[-Gen,-Dat] No noun impoverishes both Gen and Dat
*[-Dat,-Voc] No noun impoverishes both Dat and Voc
-Voc --> Loc Nouns that impoverish Voc, impoverish also Loc
[-Gen,-Loc] --> -Voc Nouns that impoverish Gen and Loc impoverish also Voc

(44) The important point here is that the distribution of \( -u \) across the case endings is a property of classes of roots. This is thus a classic situation of impoverishment – blocking of vocabulary items across positions, from the root to the case/number position. In such a situation, as predicted, we have the appearance of a less marked form (with default \( -u \)) blocking a more marked form (with one of the more specified case VI’s in (37)). The generalizations about impoverishment classes in (43) show that the distribution of the default \( -u \) is a property of stems, not of the \( -u \) suffix itself.

IV. Conclusion: Blocking, Decomposition & Late Insertion

(45) The distinction between competition blocking and impoverishment blocking depends on a decomposition of words that places the local form/meaning correlations relevant to grammar at the positions of nodes in syntactic tree structures, nodes that are the locus of vocabulary insertion.

(46) Distributed Morphology: If affixes are competing for the same terminal node, the most highly specified affix wins and blocks insertion of the other affixes. 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 spelling out different sorts of features, but one agreement morpheme might impoverish features on another, in which case the same sorts of features are involved)

(47) Understanding blocking requires at least:

a. Lexical relatedness, defined in terms of sharing of pieces and thus dependent on decomposition. The connection between *glory* and *gloriosity*, for example, depends on this strong notion of lexical relatedness.

b. Competition blocking (emergence of the marked) depends on late insertion (i.e., presence of features being realized prior to the insertion of phonological material that realizes these features). Standard lexical approaches to morphology, in which syntactic and semantic features are carried into structures by lexical items that also carry phonological features cannot provide an adequate account of competition blocking.

c. Impoverishment blocking (emergence of the unmarked) depends on late insertion and on a locality domain defined in syntactic terms (thus, late insertion after the syntax)

(48) Blocking provides strong support for many of the key features of Distributed Morphology

References:


Steriade D. ~2000. Lexical conservatism and the notion base of affixation. UCLA ms, available from Donca’s web sites.