Blocking and productivity

1 Productivity

(1) Productivity: The gradient well-formedness of derivational formations, e.g. *booklet*, *starlet*, *piglet*, *horselet*, *cowlet* 'a genetically engineered miniature cow', etc. Various productivity indices can be calculated from corpora (Booij 2005:67-71).

(2) One possible view on productivity: The well-formedness of morphological formations (derivation, inflection) depends on multiple factors, including at least phonology, semantics, and pragmatics. These may interact in a quantitative fashion.

2 Blocking

(3) The lexicon:

go	GO	-es	PRES.3.SG
talk	TALK	-ed	PAST
went	GO.PAST		

(4) Lexical Insertion:
(a) Features must be compatible (unification).
(b) Specific beats general (blocking).

(5)

	SELECTED	INCOMPATIBLE	BLOCKED
GO-PRES-1-SG	go	talk, went, -es, -ed	–
GO-PRES-3-SG	go-es	talk, went, -ed	–
GO-PAST-1-SG	went	talk, -es	go, -ed
TALK-PAST-1-SG	talk-ed	go, went, -es	–

3 Blocking in Optimality Theory

(6) The Gricean constraints (Horn 1984, Blutner 2004):

(a) MAX Say as much as you can (i.e. minimize hearer's effort)
(b) DEP Don't say more than you must (i.e. minimize speaker's effort)
(c) *EXPR Be brief: minimize the number of morphemes.

3.1 Total blocking, case #1

(7) The phenomenon: 'go-PAST' → *went*/**go-ed*.

(8) The lexicon:

go['go']
-ed['PAST']
went['go.PAST']

(9)

	'go, PAST'	MAX	DEP	*EXPR
a. ⇒	*went* ['go.PAST']			*
b.	*go-ed* ['go-PAST']			**!
c.	*go*['go']	*!		*
d.	*went-ed*['go.PAST-PAST']			**!

(10) Observation: *went* wins irrespective of ranking. Faithfulness (MAX, DEP) and Markedness (*EXPR) never conflict.

(11) This also works for the following examples (derivational morphology):

fury	*furi+os+ity	well	*good#ly	pink	*pale red
glory	*glori+os+ity	sweep	*broom#∅		
bitch	*dog+ess				
mare	*hors+ess				
first	*one+th				
second	*two+th				

3.2 Total blocking, case #2

(12) The phenomenon: 'tree, MASS' → *wood*/**tree*.

(13) The lexicon:

wood['tree, MASS']	the mass noun *wood*
tree['tree']	the count noun *tree*
fish['fish']	the count noun *fish*

(14) Expressing mass nouns:

	'tree, MASS'	MAX	DEP	*EXPR
a. ⇒	*wood* ['tree, MASS']			*
b.	*tree* ['tree']	*!		*
c.	*fish* ['fish']	*!*		*
	'fish, MASS'	MAX	DEP	*EXPR
d.	*wood* ['tree, MASS']	*	*!	*
e.	*tree* ['tree']	**!	*	*
f. ⇒	*fish* ['fish']	*		*

(15) Expressing count nouns

	'tree'	MAX	DEP	*EXPR
a.	*wood* ['tree, MASS']		*!	*
b. ⇒	*tree* ['tree']			*
c.	*fish* ['fish']	*!	*	*
	'fish'	MAX	DEP	*EXPR
d.	*wood* ['tree, MASS']	*!	**	*
e.	*tree* ['tree']	*!	*	*
f. ⇒	*fish* ['fish']			*

(16) Observation: Again, *wood/fish* (mass) and *tree/fish* (count) win irrespective of ranking. Faithfulness (MAX, DEP) and Markedness (*EXPR) never conflict.

3.3 Partial blocking

(17) How about the following examples:

warm+th	warm#ness
leng+th	long#ness
ethnici+ity	ethnic#ness
divin+ity	divine#ness
productiv+ity	productive#ness
profligac+y	profligate#ness
aberranc+y	aberrant#ness
decenc+y	decent#ness
aud+ible	hear#able
leg+ible	read#able
vis+ible	see#able
divis+ible	divid#able

(18) If the competitors are identical in meaning, then neither blocks the other and the decision is passed on to lower-ranking constraints.

		'productive, NOUN'	MAX	DEP	*EXPR
a.	⇒	*productiv+ity* ['productive-NOUN']			**
b.	⇒	*productive#ness* ['productive-NOUN']			**

(19) If the competitors differ in meaning, faithfulness will block one or the other, depending on the input:

		'cutter with knife-properties'	MAX	DEP	*EXPR
a.	⇒	*knife* ['cutter with knife-properties']			*
b.		*cutt#er* ['cutter']	*!		**
		'cutter'	MAX	DEP	*EXPR
c.		*knife* ['cutter with knife-properties']		*!	*
d.	⇒	*cutt#er* ['cutter']			**

(20) A different explanation (Haspelmath, citing Plank 1981 and Rainer 1988): The more frequent the blocking word is, the greater is blocking strength. The following frequencies are from Francis and Kučera 1982 (cf. Giegerich 2001):

			+		#
(a)			leng+th	(139)	long#ness
			accurac+y	(36)	accurate#ness
			vis+ible	(34)	see#able
			productiv+ity	(17)	productive#ness
			curi+os+ity	(23)	curious#ness
			warm+th	(28)	warm#ness
			divin+ity	(10)	divine#ness
			decenc+y	(11)	decent#ness
			aud+ible	(4)	hear#able
			divis+ible	(4)	divid#able
			ethnici+ity	(0)	ethnic#ness
			profligac+y	(0)	profligate#ness
			aberranc+y	(0)	aberrant#ness
			leg+ible	(0)	read#able
(b)	sweep	(54)			*broom#∅
	well	(15)			*good#ly
	piety	(4)			pious#ness
	first	(1,031)	*one+th		
	second	(334)	*two+th		
	third	(184)	*three+th		
	glory	(23)	*glori+os+ity		
	fury	(19)	*furi+os+ity		
	mare	(18)	*hors+ess		
	bitch	(8)	*dog+ess		

3.4 Quantitative blocking

(21) Another constraint from the 'be brief' family: *Cont(ent).

(22) Expressing mass nouns

	'tree, mass'	Max	Dep	*Expr	*Cont
a. ⇒	*wood* ['tree, mass']			*	*
b.	*tree* ['tree']	*!		*	
c.	*fish* ['fish']	*!*	*	*	
	'fish, mass'	Max	Dep	*Expr	*Cont
d.	*wood* ['tree, mass']	*	*!	*	*
e.	*tree* ['tree']	**!	*	*	
f. ⇒	*fish* ['fish']	*		*	

(23) Expressing count nouns

	'tree'	Max	Dep	*Expr	*Cont
a.	*wood* ['tree, mass']		*!	*	*
b. ⇒	*tree* ['tree']			*	
c.	*fish* ['fish']	*!	*	*	
	'fish'	Max	Dep	*Expr	*Cont
d.	*wood* ['tree, mass']	*!	**	*	*
e.	*tree* ['tree']	*!	*	*	
f. ⇒	*fish* ['fish']			*	

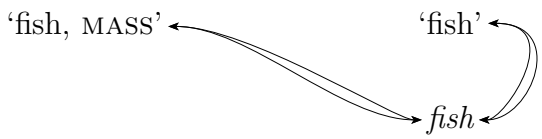
(24) Two possible languages:

#1: Max ≫ *Cont
#2 *Cont ≫ Max

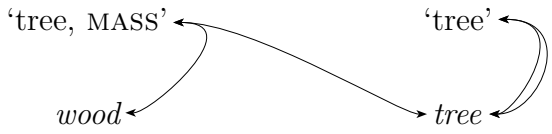
	Output #1	Output #2
'tree, mass':	*wood*[tree, mass]	*tree*[tree]
'fish, mass':	*fish*[fish]	*fish*[fish]
'tree':	*tree*[tree]	*tree*[tree]
'fish':	*fish*[fish]	*fish*[fish]

(25) Observation: Marked content ('tree, mass') can be expressed by a marked or an unmarked form (*wood*, *tree*); unmarked content ('tree') can only be expressed by unmarked form (*tree*).

(26) Ambiguity, no blocking



(27) Ambiguity, partial blocking



(28) For *tree*, the mass reading is marked, the count reading unmarked.

(29) t-orders (see separate sheet)

Bibliography

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