Stochastic OT: Aissen on English NP-Internal Possessors

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Refs.:
Anttila (1997), Boersma & Hayes (2001), Hayes (2001) (stochastic OT)
Aissen (2002, 2003), Bresnan, Dingare & Manning (2001), Bresnan, Deo & Sharma (2007) (syntactic applications)

Observation:
Often, the constructions that participate in an alternation are not equally frequent or equally unmarked (or, for that matter, equally "well formed" $\rightarrow$ degrees of acceptability).

(1) *Preferences with optionality in the positioning of English possessives*:
   a. the result of the accident > the accident's result
   b. Mary's sister > the sister of Mary
   c. the boy's uncle > the uncle of the boy
   d. the door of the building > the building's door
   e. someone's shadow > the shadow of someone
   f. the shadow of something > *something's shadow
   g. her money > ?*the money of her

Observation:
Animacy and definiteness scales are independently motivated (Hale (1972), Silverstein (1976)). These hierarchies can be used as primitives to generate sequences of constraints (with a fixed internal order: subhierarchies), via *harmonic alignment* of scales (Prince & Smolensky (2004), Aissen (1999)).

(2) *Harmonic Alignment* (Prince & Smolensky (2004)):
Suppose given a binary dimension D_1 with a scale $X > Y$ on its elements $\{X,Y\}$, and another dimension D_2 with a scale $a > b > ... > z$ on its elements $\{a,b,...,z\}$. The *harmonic alignment* of D_1 and D_2 is the pair of Harmony scales H_X, H_Y:
a. H_X: $X/a \succ X/b \succ ... \succ X/z$
b. H_Y: $Y/z \succ ... \succ Y/b \succ Y/a$
The *constraint alignment* is the pair of constraint hierarchies C_X, C_Y:
a. C_X: $*X/z \gg ... \gg *X/b \gg *X/a$
b. C_Y: $*Y/a \gg *Y/b \gg ... \gg *Y/z$

(3) *Constraint subhierarchies via animacy and definiteness scales*:

a. (i) *SpecN/inanimate $\gg$ *SpecN/animate $\gg$ *SpecN/human

(ii) *CompN/human $\gg$ *CompN/animate $\gg$ CompN/inanimate

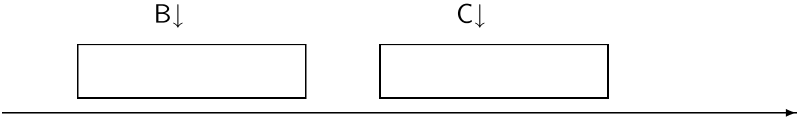
b. (i) *SpecN/indef $\gg$ *SpecN/def $\gg$ *SpecN/name $\gg$ *SpecN/pron

(ii) *CompN/pron $\gg$ *CompN/name $\gg$ *CompN/def $\gg$ *CompN/indef

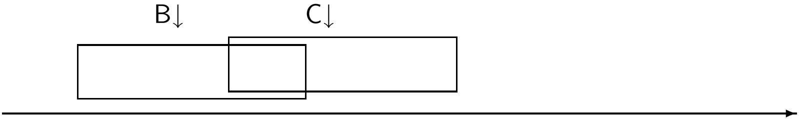
Proposal:

Constraints are not necessarily categorically ordered with respect to each other. Rather, their application domains may *overlap*. An overlap of application domains gives rise to optionality.

(4) *Categorical order of application domains of constraints*:

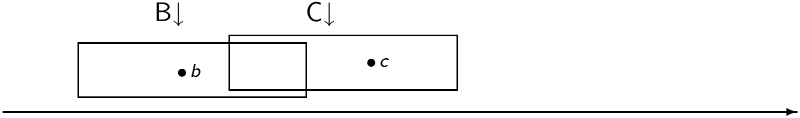


(5) *Overlapping order of application domains of constraints*:

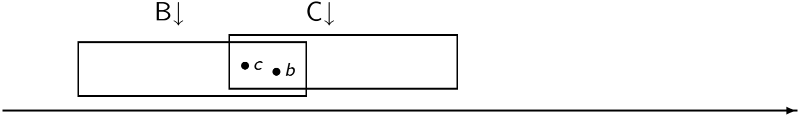


Assumption:
A candidate is evaluated at an *evaluation time*; it is well formed if it is optimal at that point. For an evaluation, an arbitrary point is chosen in the application domain of a constraint. A constraint B is ranked higher than another constraint C at a given evaluation time if the point chosen for B is above the point chosen for C. If the domains of B and C are categorically ordered, then the point for B is always going to be on top of the point for C, and there will be no optionality. However, if the domains of B and C overlap, optionality arises; the winning candidate is determined by whether the point chosen for B is above the point chosen for C or vice versa. (This is basically the concept of ordered hierarchical tie.)
Preferences:
The choice of evaluation point at a given evaluation time is free as such. However, the smaller the common domain of B and C is, the more likely it is that the point chosen for the higher-ranked constraint (say, B) is above the point chosen for the lower-ranked constraint (say, C). Accordingly, the more likely a higher position of B-points vis-a-vis C points at a given evlaution time is, the more the construction favoured by B is going to be preferred over the construction favoured by C; similarly, the more frequent B will be in corpora.

(6) *Typical result*: B $\gg$ C



(7) *Rare result*: C $\gg$ B



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