

Deriving Polarity Effects in Inflectional Morphology

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1. Introduction: Polarity effects are complementary distributions of inflectional markers such that syncretism constitutes itself in mirror-image identity of non-contiguous paradigmatic cells (Baerman et al. 2005:104). Examples from Somali and Old French are given in (1). This “chess board” distribution of inflectional markers does not seem to be analysable with recourse to natural classes (Baerman et al. 2005:111). Previously suggested approaches to these data include α -notation (Chomsky and Halle 1968), marker homophony, and Rules of Referral or Impoverishment, respectively (Noyer 1997, Bobaljik 2002, Stump 1993, 2001). The main goal of this talk is to propose a new, theory-neutral analysis of polarity effects resting upon the idea that the choice of marker for a given feature specification is determined by the choice of marker for a minimally different specification.

2. Background Assumptions: One assumption underlying the new approach is that matching of phonological forms with morphological or syntactic specifications can be effected by three basic strategies: (i) targeting minimal ambiguity with maximal formal inventory (yielding no syncretisms), (ii) employing syncretisms in natural classes, and (iii) targeting minimal ambiguity with minimal formal inventory (yielding evenly distributed syncretisms). While strategy (i) is extremely rare and strategy (ii) is the most common in natural languages, polarity effects are instantiations of strategy (iii). From this point of view, polar distribution of inflectional markers is in no way unexpected, but the most efficient way of referring to feature specifications minimally ambiguously with a minimal formal inventory. A second background assumption made here is that grammatical categories are represented as decomposed into geometrically organized privative features (see Harley and Ritter 2002).

3. Analysis: In the main part of my talk I present the implementation of the new approach. Let me sketch the analysis by means of the Old French data. The number and case features are represented as shown in the geometry in (2): the node IND corresponds to singular and IND|GROUP is the specification of plural; CASE and CASE|OBJ refer to nominative and objective, respectively.



Strategy (iii) enforces a minimal formal inventory, but at the same minimal ambiguity. This last requirement can be formulated as a principle which I would like to call “Discreteness of Environment”:

(3) **Discreteness of Environment.** Adjacent nodes in the geometry must be marked differently. The insertion rules for the Old French nominal system are $/-s/ \leftrightarrow [\text{case|obj ind|group}]$, and $/-\emptyset/ \leftrightarrow []$. The paradigm develops in such a way that at first the most specific feature configuration CASE|OBJ IND|GROUP is associated with the matching marker $/-s/$ (Specificity Principle). Now the system detects the most proximate environments CASE IND|GROUP and CASE|OBJ IND. The transition to either of these specifications (or cells, if paradigms are assumed to be real entities) is achieved by a transition to an adjacent node in the feature geometry (GROUP→IND and OBJ→CASE, respectively). Here $/-\emptyset/$ is the only marker that can be inserted. The marker $-\emptyset$ also matches the specification CASE IND; however, the insertion of this marker is prevented by the Discreteness Principle, as the adjacent nodes CASE IND and CASE|OBJ IND/ CASE IND|GROUP would then not be marked discreetly, thus the node transitions would be ambiguous. In this case the choice of marker is determined by a condition on vocabulary insertion, “Minimality”:

- (4) **Minimality.** If the association of a marker M_1 with a matching morphological environment $[\alpha]$ violates a principle P, then insert a marker M_2 that meets P iff. the feature specification of M_2 is minimally distinct from that of M_1 .

This principle has the effect that whenever a marker matches a feature specification but is prohibited by the Discreteness Principle, a marker with a minimally different specification is chosen to fill the given environment.

4. Consequences of the Analysis: The new analysis has the advantages that it can be implemented in any morphological theory, and that only two insertion rules are needed to model polarity effects, while the morphology is now making use of two principles, the latter of which is an independently well motivated assumption underlying syntactic derivations (Chomsky 2000, 2001).

(1) a. *Somali definite article*

(Baerman et al. 2005:104, Saeed 1999:112)

	SINGULAR	PLURAL
F	-ta	-ka
M	-ka	-ta

b. *Old French masculine o-stems*

(Rheinfelder 1976)

	SINGULAR	PLURAL
NOM	-s	-∅
OBJ	-∅	-s

References

- Baerman, Matthew, Dunstan Brown and Greville G. Corbett (2005): *The Syntax-Morphology Interface: A Study of Syncretism*. Cambridge University Press, Cambridge.
- Bobaljik, Jonathan (2002): Syncretism without Paradigms: Remarks on Williams 1981, 1994. In: G. Booij and J. van Marle, eds, *Yearbook of Morphology 2001*. Kluwer, Dordrecht, pp. 53–85.
- Chomsky, Noam (2000): Minimalist Inquiries: The Framework. In: R. Martin, D. Michaels and J. Uriagereka, eds, *Step by Step: Essays on minimalist syntax in honor of Howard Lasnik*. MIT Press, Cambridge, Mass., pp. 89–155.
- Chomsky, Noam (2001): Derivation by Phase. In: M. Kenstowicz, ed., *Ken Hale: A Life in Language*. MIT Press, Cambridge, Mass., pp. 1–52.
- Chomsky, Noam and Morris Halle (1968): *The Sound Pattern of English*. Harper Row, New York.
- Harley, Heidi and Elizabeth Ritter (2002): ‘Person and Number in Pronouns: A Feature-Geometric Analysis’, *Language* **78**(3), 482–526.
- Noyer, Rolf (1997): *Features, Positions and Affixes in Autonomous Morphological Structure*. Garland, New York.
- Rheinfelder, Hans (1976): *Altfranzösische Grammatik. Formenlehre*. Vol. 2, Hueber, München.
- Saeed, John (1999): *Somali*. John Benjamins, Amsterdam.
- Stump, Gregory T. (1993): ‘On Rules of Referral’, *Language* **69**(3), 449–479.
- Stump, Gregory T. (2001): *Inflectional Morphology*. Cambridge University Press, Cambridge.