

Do Person/Number Syncretisms Refer to Negative Values?

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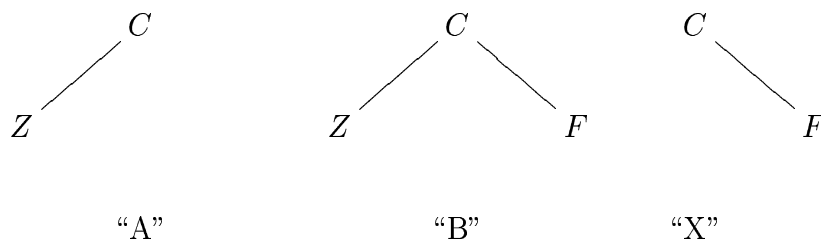
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1. ***Overview: Syncretism across Phi-Featural Categories**

Inflectional *Syncretism* is the identical phonological realization of two distinct morphosyntactic feature complexes¹

- (1) **The Least-Marked/Least-Specified Constraint on Syncretisms:** Let A and B be distinct morphosyntactic categories with respect to a common superordinate category C (e.g. “number”), where the (set of) feature(s) F distinguishes B from A. If A and B are expressed by the same phonological piece α , then either (i) α is the default phonological affix for the superordinate category or (ii) A is the morphosyntactically least marked category within the superordinate category. (That is, A cannot be syncretic with X by (ii))



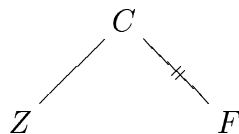
- (2) Case (i): A and B are both expressed by an “elsewhere” item: a phonological piece that realizes C but is underspecified and compatible with either A or B.

Emergence of the Least-Specified:

$/\alpha/ \leftrightarrow C$

- (3) Case (ii): B undergoes *impoverishment* (implemented as delinking) and becomes featurally identical to A during the syntax/phonology mapping.

Emergence of the Least-Marked:



¹At the outset, I will consider syncretism to be the result of systematic properties of morphological features and underspecified lexical entries, and ignore the dead-ending suggestion of accidental homophony. The difference between syncretism, in which an inflectional affix has one lexical entry, and accidental homophony, where it is paired with multiple divergent entries, can in principle be investigated empirically through behavioral and neurophysiological measurements during lexical access tasks.

★**Crucially**: The affix that is the Elsewhere item need not be identical to the affix realizing the least marked item. Though sometimes conflated, the two properties of *least marked within a given representational vocabulary* and *widest distribution within a paradigm* are logically independent. The former is a consequence of markedness as defined within a featural system, the latter is an accident of a sparse vocabulary in the language at hand.

From a learner’s perspective, the Elsewhere item will be deduced through its heterogeneous distribution within a paradigm². The least-marked featural complex, on the other hand, is given by the representation.

The constraint³ in (1) is not an “axiom”, but a consequence of the more general formal restriction that (postsyntactic; Halle and Marantz (1993)) morphological operations *simplify* the output of syntax: they can **delete, but not add** features.

Many accounts of syncretism employ the use of negative feature values in order to create a common class among otherwise disparate categories. For example: English *I was*, *You were*, *She was* shows a 1/3 syncretism in the past singular. A theory which includes negative values could express this syncretism if the vocabulary entry for *was* includes [-2].

However, as consequence of (1) and the featural system assumed (that of Harley and Ritter (2002)), which does not employ negative values for phi-features, it will be shown that **syncretisms in person and/or number inflection do not need to be expressed through reference to a negative feature value.**

2. ★Negative Values: Previous Proposals

At times, sets of phi-features and values are assumed for expediency without attention to the attendant typological or learnability considerations. While there has been a great deal of very fruitful discussion within the phonological literature about privativity vs. equipollence of features⁴, there has been less argument within the morphological literature. Importantly, though:

•Zwicky (1977): Featural systems which contain negative values (e.g. $\pm 1, \pm 2, \pm 3$) would predict *8-way person systems*, which are unattested. Zwicky notes that person morphology does not express distinctions such as inclusive vs. exclusive “you” (e.g. “just addressee(s)” vs “addressee(s) and others”); there is nothing “semantically incoherent” in these sets, but languages simply **do not** grammaticalize these distinctions.

²Here and elsewhere, “paradigm” refers to a group of featural complexes that share a superordinate feature (e.g. “Past”). The present framework, however, ascribes no psychological reality to the row-and-column arrangement that is graphically used to display distinctions within a featural space.

³The fact that Noyer (2002) reaches a similar conclusion for cross-conjugation class syncretisms in Greek, with syncretism as the result of either (and only) default conjugation class insertion following impoverishment or elsewhere insertion, is encouraging.

⁴In the liveliest period: Archangeli (1988); Avery and Rice (1989); Ewen and van der Hulst (1987); Steriade (1987); Mohanan (1991), among many others

- Noyer (1998) (among others): [-singular], [-plural] needed for dual/plural syncretism
- Frampton (2002) (among others): [-2] needed for 1/3 syncretism.
- Noyer (1992) (among others): [-1], [-2] needed for incl.we/3 syncretism

Reanalyses of these three phenomena will be offered in turn. These authors agree that the learner seems “biased” against hypothesizing syncretisms that depend on negative values. The implementation of this bias, however, proves challenging, and the current proposal is that the learner never needs to (hence won’t) refer to negative values – they are not part of UG (see also the *Complementarity Bar* of Carstairs (1998)).

Negative Values are also invoked in discussions of “Polarity Phenomena”. Diagonal Syncretisms⁵, e.g. those of the Somali definite article (Corbett, 1998), prompt analyses in terms of alpha notation.

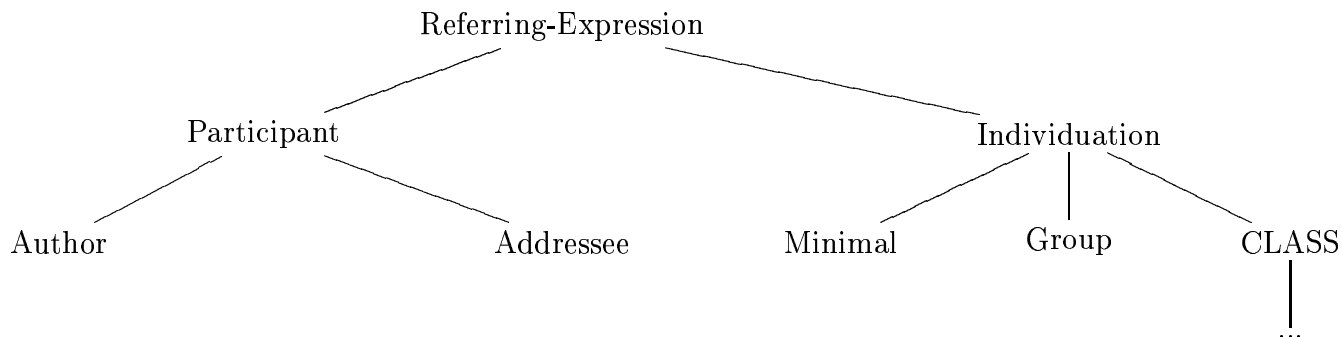
(4)

	[Masc]	[Fem]
[Min]	kii	tii
[Grp]	tii	kii

Though (4) could be analyzed as resulting from both Least-Marked (*kii*) and Least-Specified (*tii*) insertion, universal markedness of gender categories is tentative at best. Moreover, Lecarme (2002) provides thorough arguments that this is not a polarity phenomenon; it results from conjugation class morphology.

3. *A Negative-Value-Free Feature Geometry

Harley and Ritter (2002) proposal for pronouns; extended to agreement here:



Interpretation of the Nodes:

- Instantiation of [Participant] indicates a discourse participant, [Author] is “1st person”, [Addressee] is “2nd person”, both [Author] and [Addressee] instantiate “inclusive we”.
- Under [Individuation]: [Minimal] is “singular”, [Group] is “plural”, both [Minimal] and [Group] instantiate “dual number”. Gender and Noun Class distinctions are made under the [Class] node and won’t concern us much today.

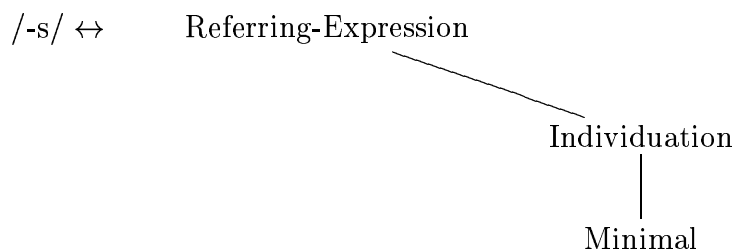
⁵I have quite recently become aware of Béjar and Hall (1999), in which diagonal syncretisms are analyzed as the result of two categories sharing an “equal degree” of markedness; time has precluded finding resonances with their proposal or divergent predictions.

- Subtrees can receive *default interpretations*; for example, a root node with no [Participant] node is interpreted as “3rd” person.
- (5) **Markedness of Morphosyntactic Representations:** The more nodes that are instantiated means the more marked the representation. The crosslinguistic markedness of *inclusive we* and *dual number*, instantiating extra nodes, results.

4. ***Elsewhere Matching: A Consequence of Underspecified Lexical Entries**

The first cause of syncretism is “Emergence of the Least Specified”⁶: after (morpho)syntax creates these featural representations, they are mapped to phonology. Since affixes differ in their degree of featural specification, there are conditions on realization:

- (6) **The Specification Conditions for Affix Realization** (based on Halle (1997)).
- (A) *The Subset Clause:* A phonological exponent realizes a morpheme in the terminal string if the item matches all or a subset of the grammatical features specified in the terminal morpheme. Insertion does not take place if the Vocabulary item contains features not present in the morpheme.
- (B) *The Maximal Subset Clause:* Where several Vocabulary items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen.
- (7) The *-s* in (*walks*) realizes the following geometry⁷:



- (8) /∅/ ↔ elsewhere

Though this example makes it look so, elsewhere items are not necessarily phonologically null:

- (9) Dutch strong adjectival inflection (Sauerland, 1996):

	Non-Neuter	Neuter
[Min]	e	∅
[Grp]	e	e

Here, the zero is the most highly specified (Neuter, [Min]), and *-e* is the elsewhere item.

⁶Though underspecification is shared with alternative frameworks, rules of referral (Zwicky, 1985; Stump, 1993) that are not *structure-removing* are excluded in the present theory, and disjunctive specification is avoided as a learning principle.

⁷Affixes which match feature geometries can be marked for “strict” matching; when an affix’s realization contains a superordinate node, it will only be inserted if its subordinate nodes match *exactly*.

5. *Impoverishment: A Consequence of Representational Change

Bonet (1991): during the syntax-phonology mapping *impoverishment* can occur, altering the feature geometry of terminals. Implemented here as the *delinking* (recall autosegmental phonology) of a node from the feature-tree, removal of this node leads to an often unexpected realization for an affix in a particular syntactic context. The effect is *contrast neutralization*⁸.

(10) *A Pedro, el premio, **se lo** dieron.* (**le lo*)

(11) Usually the 3rd dative clitic in Spanish is *le*, not *se*. The vocabulary items include:
 /me/ ↔ [Author,Dative,Argument]
 /le/ ↔ [Dative, Argument]
 /se/ ↔ [Argument]

The features of the clitic undergo impoverishment that removes the case feature *in the environment of a neighboring accusative clitic*: [~~Dative~~,Argument]. Due to the Subset Clause, only *se* can be inserted. It's a case of "Emergence of the Least Specified".

No Negative Values Needed in Dual/Plural Syncretism⁹: Northern Sámi makes a three-way number distinction in verbal agreement.

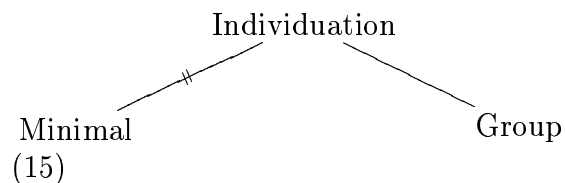
(12) Dat guokte mánat **bohtiba** deike.
 Those two children come-dl here.

When the argument is indefinite, however, the following neutralization occurs:

(13) Guokte mánat **bohte** deike.
 Two children come-pl here.

(14) Mánat **bohte** deike.
 Children come-pl here.

The dual-plural syncretism is the result of the following delinking rule (Vinka, 2001):



Recall that [Minimal] alone is "singular"; [Group] alone is "plural"; interpretation of [Minimal][Group] is "dual". A delinking of [Minimal] in the configuration above will result in *an expression of dual that is identical to plural*.

⁸Impoverishment may improve the computational efficiency of lexical access (Frampton, 2002). For phonological realization to occur, the list of affixes that share a superordinate feature must be further compared with respect to the Maximal Subset clause. Impoverishment reduces the number of evaluations of the binary predicate **Subset** as there are less features to compare.

⁹This constitutes the most illustrative case for negative values in Number syncretism. Noyer (1998) discusses the interaction of impoverishment with stem suppletion in Nimboran durative; space limits a discussion here.

Comparison with a binary-system:

The Sámi dual/plural neutralization can also be expressed in a system such as that proposed by Noyer (1998), with \pm singular and \pm plural:

- (16) Dual = [-singular, -plural]. (A feature cooccurrence restriction is needed to rule out [+singular, +plural]; such a restriction is avoided in the H&R geometry.)

Impoverishment deletes [-plural], followed by a “redundancy rule” which inserts [+plural] as the unmarked value when there is no specification for that feature:

- (17) [-singular, -plural] \rightarrow [-singular, ~~plural~~] \rightarrow [-singular] \rightarrow [-singular, +**plural**]
 (“Dual” becomes “Plural”)

Any system with binary features forces the learner to additionally discover the unmarked value for a given feature, with UG providing no assistance or preference.

Moreover, what would block Sámi-prime, with a difference in structural description for the impoverishment, resulting in an unexpressible form:

- (18) [+singular, -plural] \rightarrow [+singular, ~~plural~~] \rightarrow [+singular] \rightarrow [+singular, +**plural**]
 (“Singular” becomes “Illicit Combination” (!))

Or, Sámi-prime-prime, in which both number features undergo impoverishment? (Assume that [-singular] is the unmarked value for that feature, as [+plural] is unmarked, by hypothesis):

- (19) [+singular, -plural] \rightarrow [~~singular~~, ~~plural~~] \rightarrow [] \rightarrow [-**singular**, +**plural**]
 (“Singular” becomes “Plural”)

Sámi-prime-prime is a language in which **singular and plural are syncretic to the exclusion of dual**, which maintains a distinct form. *No such language is attested* (as far as all typological searches, including Corbett (2000) show). Such a syncretism is impossible in the H&R geometry based on the constraint in (1), but nothing rules it out formally in a paired-binary system.

Interim Summary: Dual/plural syncretism in certain environments occurs when an impoverishment rule operates on a marked form, modifying the representation so as to result in identical phonological realization. Markedness is directly determined by structural complexity in a privative-featured geometry.

6. *Germanic 1/3 Syncretism

1/3 syncretism has been rampant throughout Germanic for at least 1,000 years. As a familiar case, consider the English copula paradigm:

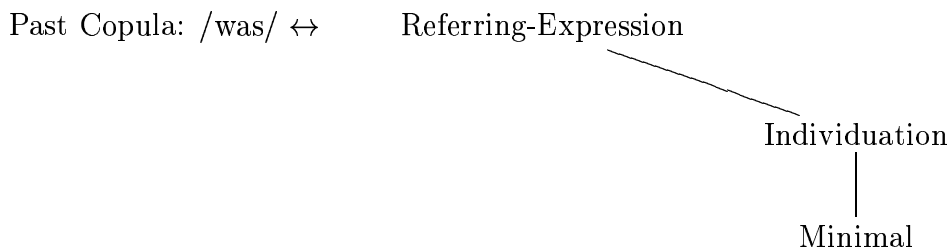
	[Min]	[Grp]
(20) [Auth]	was	were
[Addr]	were	were
[Ref]	was	were

Frampton (2002) proposes an impoverishment rule which deletes the (positive or negative) value of [1] (where 1st = [+1,-2] 2nd=[+2,-1] and 3rd = [-1,-2]):

- (21) Past Copula: $\pm 1 \rightarrow \emptyset$
 Past Copula: /was/ \leftrightarrow [-2]

While the present proposal shares the intuition that an impoverishment rule is at work, we part company with the need to refer to negative values. The fact that the impoverishment results in the least marked Person complex (recall that a bare [Ref] node is least marked and receives the interpretation of “3rd person”) results in a syncretism that falls under the constraint in (1).

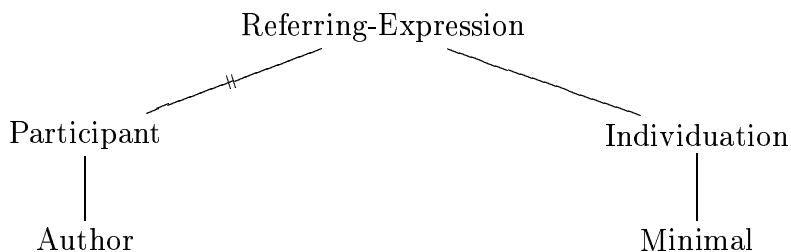
- (22) **Least-Marked Representation and Exponent:**



- (23) **Least-Specified Exponent:**

Past Copula: /were/ \leftrightarrow *Elsewhere*

- (24) **Delinking Operation:**



The delinking operation in (24) occurs throughout Germanic, feeding insertion of the Least-Marked; 1/3 syncretism of this sort in the Singular Past obtains in German, Icelandic, and Old English, with effects on suppletion as well; note also that there are cases with distinct 2sg and pl; these are straightforward and skipped here for the sake of time, with hopes that the general logic has been illustrated.

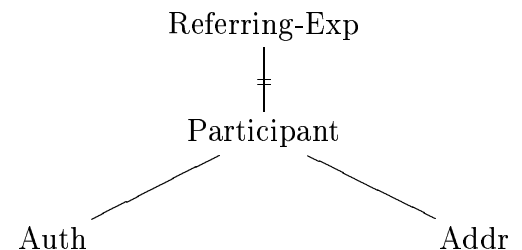
An important consequence of the analysis in terms of impoverishment is that it maintains the rigidity of syncretism in the paradigm. Even if a [Auth], [Min] suffix were introduced into the lexicon, it would never be used due to the fact that [Auth] is systematically delinked. For language change to affect the paradigm, both a new lexical item must be learned **and** the delinking rule must be lost. Thus, as Frampton (2002) notes, impoverishment introduces a bias towards diachronic loss of paradigmatic distinctions that an account based on accidental homophony cannot.

7. *Mam Person Syncretism: Inclusive ‘We’ and 3

- (25) Mam (Mayan) emphatic possessor morphology, from England (1983); note that verbal agreement with the ergative argument is identical:

Possessor	<i>x’s cat</i>
1sg	n-wi:xh-a
2sg	t-wi:xh-a
3sg	t-wi:xh
1excl	q-wi:xh-a
1incl	q-wi:xh
2pl	ky-wi:xh-a
3pl	ky-wi:xh

- (26) We notice that */-a/* shows up when there is either [Author] or [Addressee] present, but not both. Noyer (1992) invokes “alpha notation” for this case; */-a/* ↔ [α me, - α you]. Not only does our geometry does not include negative values; this is an extremely powerful specificity condition (perhaps too much so). Recall that inclusive-we is represented by instantiation of [Auth] and [Addr] (see also Hale (1973); Dalrymple and Kaplan (2000)).
- (27) ***We-simplification (Mam)***: In a geometry with a [Participant] node and both an [Author] node and an [Addressee] node, the [Participant] node (and its dependents) are delinked from the geometry before its spell-out.



- (28) The current proposal:
/-a/ ↔ [Participant Node]
/∅/ ↔ [Referring Expression]

Given that the interpretation of a bare [Ref] node is also “3rd person”, the fact that *inclusive we* and *3rd sg/pl* form a natural class for the (lack of enclitic) results.

Moreover, the natural class of enclitic-taking forms is the result of underspecification of /-a/; [Participant] is sufficient¹⁰.

Further evidence for the crosslinguistic tendency to simplify “we” can be found in the Algonquian inclusive, for which the delinking rule has the same structural description (Nevins, 2002) differing only in structural change, the node level at which delinking occurs. Other examples can be found in colloquial French, where *on*, an impersonal pronoun used for 1st person plural instead of *nous*; see also Brazilian Portuguese *la gente*.

8. Contributions

- ★ A (falsifiable) constraint on inflectional syncretisms has been proposed
- ★ The Harley & Ritter geometry is restricted so as to disallow the kinds of Number syncretism that binary systems (even with impoverishment only) can produce.
- ★ Surprising Person syncretisms such as 1/3 and we-incl/3 are the result of impoverishment operations yielding emergence of the Least Marked; this is a consequence of an modification of the representation prior to spellout.
- ★ Syncretisms such as 1/2 are the result of an underspecified affix being inserted; this depends on the arrangement of the lexicon.
- ★ Though far from being comprehensive, the logic of Person/Number syncretisms without negative values or alpha notation has been illustrated.
- ★ The absence of negative morphosyntactic feature values in Universal Grammar makes the learner’s task easier with respect to deducing “markedness”; in addition, the typological overgeneration of binary systems is avoided.

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¹⁰The spellout of the number prefixes depends on information about the person of the argument: $g \leftrightarrow$ [Group] in the env. of [Auth], and a morphologically “opaque” derivation obtains, in which a cyclic spellout orders impoverishment between spellout of the prefix and suffix.

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