Extended Exponence by Enrichment: Argument Encoding in German, Archi, and Timucua

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1 Introduction

This paper is concerned with a principled approach to cases of extended (or multiple) exponence, as postulated in Matthews (1972:82) for Greek verb inflection (perfect forms in particular), and in Matthews (1974:149) for English verb inflection (among other phenomena). Extended exponence characterizes those cases of morphological realization where a single morpho-syntactic property seems to be expressed by more than one exponent (i.e., inflection marker, in the cases to be considered here). Extended exponence raises a problem in Distributed Morphology. The solution that I propose centers around a new type of rule that applies to syntactic operations before morphological realization takes place, and that I call *enrichment*. Enrichment rules are complementary to well-established *impoverishment* rules. They make it possible to account for extended exponence without invoking a concept of *secondary exponence* via contextual features. The empirical evidence that I discuss comes mainly from the interaction of argument encoding and number/person marking in German, Archi, and Timucua (with case-marking of nouns in the first two cases, and agreement morphology on verbs in the latter), but I also address verb inflection in Tamazight Berber.

Let me begin by introducing the phenomenon of extended exponence on the basis of case-marked plural forms of nouns in German. As shown in (1), plural can be marked twice on nouns in dative (DAT) contexts in German (see, e.g., Eisenberg (2000), Wiese (2000)). The inflected nouns in (1-a,c) involve the co-occurrence of a plural marker (*er* in (1-a), which is common for neuter stems such as *Kind* ('child'), and *e* in (1-c), which is the unmarked plural marker for masculine stems like *Tisch* ('table')), and a DAT plural marker *n*. This *n* must be a DAT plural marker rather than a simple DAT marker because it does not show up in the singular; cf. (1-b, d).

(1) a. Kind-er-n b. *Kind-n (German)
child-PL-DAT.PL child.SG-DAT.PL

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c. Tisch-e-n
table-PL-DAT.PL
d. *Tisch-n
table.SG-DAT.PL

Basically the same phenomenon exists in the Daghestanian language Archi; see Kibrik (1991, 2003), Mel'čuk (1999). Archi exhibits an ergative-absolutive (ERG-ABS) pattern of argument encoding. For a stem like *gel* ('cup'), the ERG plural is created by adding the plural marker *um* and the ERG plural marker *čaj* (in that order); for a stem like *qIin* ('bridge'), the ERG plural is derived by adding the plural marker *or* and, again, the ERG plural marker *čaj*; see (2-a, c). As before, it is clear that *čaj* must be a marker of both case (ERG) and number (plural): This marker cannot be used in the singular, where the case markers *li*, *i* are used for marking ERG instead; see (2-b, d).

(2) a. gel-um-čaj
cup-PL-ERG.PL
b. gel-li
cup.SG-ERG
(Archi)
c. qIinn-or-čaj
bridge-PL-ERG.PL
d. qIonn-i
bridge.SG-ERG

A similar phenomenon can be found in the domain of verb inflection in Timucua, an extinct language isolate from Florida (cf. Mithun (1999:520); the following discussion is based on Granberry (1990)). Arguments are encoded by head-marking, i.e., case-sensitive agreement morphology on the verb; the pattern is a nominative-accusative one (NOM-ACC).[1] The internal argument of a transitive verb is encoded by an "object", i.e., ACC prefix; other primary arguments, including the external argument of a transitive verb, are encoded by a "subject", i.e., NOM prefix (which precedes the ACC prefix in transitive contexts; the two markers occupy positions no. 1 and 2 in the template identified by Granberry). These prefixes encode person (but not number) in addition to case: There are two 1.NOM markers *ho-* and *ni-* (which "occur with approximately equal frequency"; Granberry (1990:86)); there is a 2.NOM marker *ci-*; and the 3.NOM marker is null: *Ø-*. Many more types of affixes show up on the inflected Timucua verb, but they are all suffixes. Among these are (in 7th position in Granberry's template) number markers indicating plural. Crucially, these plural markers also involve case (NOM) and person (local vs. 3) information and thus qualify as combined PERS.NUMBER.NOM markers (not too unlike typical subject agreement markers in Indo-European languages like German or Icelandic). The markers are *-bo* (for 1./2.PL.NOM arguments) and

[1] Assuming case-assignment to depend on Agree operations involving matching features (in the sense of Chomsky (2001)), we can assume that a given structural case (like NOM) is present both on the case-marked DP and the case-marking head.

-ma (for 3.PL.NOM arguments). Examples that illustrate the co-occurrence of the two types of markers, and hence the double realization of case and person features, are given in (3). (3-a, c, e) involve singular subjects (1st, 2nd, 3rd person), with a prefix encoding person and case; (3-b, d, f) are corresponding examples with plural subjects (1st, 2nd, 3rd person) that exhibit extended exponence of case and person marking in Timucua.[2]

(3) a. ho-ini-ta-la
1.NOM-be-ASP-LOC
'I am.'

b. ni-huba-so-si-bo-te-la (Timucua)
1.NOM-love-TR-REC-1/2.NOM.PL-ASP-LOC
'We love each other.'

c. ci-huba-so-te-le
2.NOM-love-TR-ASP-LOC
'You$_{sg}$ love (someone).'

d. ci-huba-so-bo-te-le
2.NOM-love-T-1/2.NOM.PL-ASP-LOC
'You$_{pl}$ love (someone).'

e. ano Ø-hewa-na-no
man 3.NOM-speak-ASP-LOC
'The man is speaking.'

f. Ø-ini-ma-bi-la
3.NOM-be-3.NOM.PL-ASP-LOC
'They are just now.'

To sum up so far, extended exponence shows up in the argument encoding systems of languages as diverse as German, Archi, and Timucua: A given number, person, or case feature can be realized on two different exponents within a single morphological object.[3] It goes without saying that these three constructions by no means exhaust the possibilities of extended exponence in natural language; but they may suffice as an illustration of the basic phenomenon.[4]

[2]For present purposes, we need not worry about the markers for ASP (aspect; here: durative or bounded action), LOC (or TENSE: proximate vs. distant time), TR (transitivity), and REC (reciprocity); also note that *te/ta*, *le/la* are variants.

[3]In fact, Granberry (1990:91) notes that "optionally and rarely used subject pronouns" can show up in the final position (his no. 13) in the inflected verb in Timucua in question environments, and that these are typically in complementary distribution with the two NOM markers discussed in the main text, but "very infrequently, slots 1, 7, and 13 are all filled". This would amount to a triple realization of case and person. However, it seems likely that these subject pronouns are clitics attached in the syntax, and thus not part of the inflected verb. Consequently, there are two (rather than three) positions where case and person are marked on the verb in Timucua.

[4]That said, there are several cases where extended exponence has been argued to show up that may not be fully convincing upon closer inspection. For instance, Matthews (1974) argues for extended exponence on the basis of German plural formation per se, based on the fact that plural may be realized by a combination of segmental plural marker (like *er*; see (1)) and Umlaut of the stem vowel, as in *Buch* ('book') vs. *Büch-er* ('books'). However, this evidence for extended exponence loses its force if we assume that Umlaut is encoded on plural markers as an abstract ('floating') feature

Whether extended exponence poses a problem for a given theory of inflectional morphology depends on particulars of the approach. Extended exponence is a priori unexpected under strict lexical-incremental approaches like that of Wunderlich (1996). The reason is that in these theories, morpho-syntactic features of inflected word forms are contributed by the inflection markers themselves as a result of an affixation operation, and thus do not exist independently of these markers. These approaches are designed in such a way that a given feature can only be introduced by one inflection marker; it is this (and only this) feature that is then relevant in the syntax. Consequently, something extra must be assumed in these approaches to handle extended exponence. In contrast, extended exponence is expected in inferential-realizational theories of inflectional morphology, such as the stem/word-and-paradigm approaches developed by Matthews (1972), Anderson (1992), Aronoff (1994), and Stump (2001): Here morpho-syntactic features exist independently of particular inflectional markers, and if a given feature has more than one exponent, this is unproblematic as long as the two markers realizing the same feature show up in separate rule blocks.

In what follows, I sketch the main tenets of Distributed Morphology, and I address the question of how extended exponence is accounted for in this approach (which qualifies as lexical-realizational in Stump's (2001) taxonomy).

2 Distributed Morphology

Distributed Morphology (Halle and Marantz 1993) relies on post-syntactic ('late') insertion of vocabulary items into functional morphemes: It is assumed that functional X^0 categories contain fully specified bundles of morpho-syntactic features in the syntax; however, they do not yet contain phonological material. Inflection markers are vocabulary items that pair phonological and (often underspecified) morpho-syntactic features; they are inserted post-syntactically in accordance with the Subset Principle, which (in Halle's (1997) formulation) states that a vocabulary item V is inserted into a functional morpheme M if (i) the morpho-syntactic features of V are a subset of the morpho-syntactic features of M, and (ii) V is the most specific vocabulary item that satisfies (i). At least for present purposes, specificity can be understood in such a way that quality of morpho-syntactic features outranks quantity (see Müller 2005; also Lumsden 1992, Noyer 1992): A vocabulary item V_i is more

(cf., e.g., Wiese 1996). Similar conclusions may be drawn in the case of deverbal noun formation in Kujamaat Jóola discussed in Aronoff and Fudeman (2005:154), where a class marker change is accompanied by vowel tensing.

specific than a vocabulary item V_j if there is a class of features $\mathbb{F}$ such that (i) V_i bears more features belonging to $\mathbb{F}$ than V_j does, and (ii) there is no higher-ranked class of features $\mathbb{F}'$ such that V_i and V_j have a different number of features in $\mathbb{F}'$. As for the rankings of feature classes presupposed here, I assume a hierarchy *tense* > *person* > *number* > *gender* for the verbal domain, and a hierarchy *number* > *class* > *case* for the nominal domain.

A central assumption of Distributed Morphology is that mismatches between morphology and syntax can be resolved both by invoking underspecification of inflection markers and by post-syntactic impoverishment operations that delete morpho-syntactic features before vocabulary insertion takes place (see Bonet 1991, Halle and Marantz 1993, Trommer 1999, Bobaljik 2002, Frampton 2002, Müller 2005); impoverishment brings about what Halle and Marantz call a "retreat to the general case". Both underspecification of vocabulary items and impoverishment can account for situations where distinctions made in the syntax are neutralized in morphology, as in cases of syncretism. However, whereas the former means treats syncretism as an accidental property of lexical items, the latter derives instances of syncretism that instantiate system-defining patterns.

As it stands, the Subset Principle ensures that only one vocabulary item can be inserted into a given functional morpheme. This is not the case when a further post-syntactic operation has applied, viz., fission. The notion of fission adopted here goes back to Noyer (1992) and Frampton (2002): On this view, vocabulary insertion into a fissioned morpheme discharges the features in the morpheme that are matched by the (often underspecified) vocabulary item, but leaves the remaining features available for subsequent insertion; and so forth.[5] The extent to which fission can or must be postulated partly depends on assumptions about the number and type of functional categories in the syntax. For instance, if there are functional projections Agr and T that combine with V to yield a complex word form V-T-Agr, separate inflection markers for T and Agr can be inserted without assuming any fission. If, on the other hand, semantically empty functional categories (like Agr) are excluded on general grounds, and the Φ-features and number features relevant for (subject) agreement are thus part of T in the same way that tense features are (see, e.g., Chomsky 2001), then T must be subject to fission in V-T structures if there is more than one inflection marker present.[6] Similar conclusions hold for noun

[5]Halle and Marantz (1993) employ a radically different concept of fission.

[6]A concatenation of V and associated functional categories can be effected by head movement in the syntax, or by lowering, in the syntax or post-syntactically, before morphology; see Embick and Noyer (2001).

inflection: If there are separate markers for number and case on a noun, this may be due to insertion into separate functional K(ase) and Num heads that have combined with N, or it may be due to multiple insertion into a fissioned single K/Num head; and the latter must be assumed if there are no semantically uninterpretable functional heads – (structural) K is not interpretable. I adopt the meta-theoretic ban on uninterpretable functional heads; accordingly, fissioned morphemes will be far from exceptional.

The question arises of whether extended exponence follows naturally under these assumptions. The answer is no: For every functional morpheme bearing a fully specified set Σ of morpho-syntactic features $\sigma_1, \ldots \sigma_n$, each σ_i can be realized by at most one vocabulary item; given the Subset Principle, this is trivially so for non-fissioned morphemes, and given the concept of feature discharge underlying fission, it is also the case for fissioned morphemes.

To reconcile extended exponence with the Subset Principle and feature discharge in fissioned morphemes, Noyer (1992) introduces the concept of *secondary exponence* of morpho-syntactic features: A vocabulary item vi_i that participates in extended exponence and looks like it bears the features σ_1, σ_2, and σ_3, with σ_3 also borne by some other vocabulary item vi_j that has already been inserted, is assumed to actually bear only the features σ_1 and σ_2 as primary features; but it is presupposed that σ_3 has already been discharged when vi_i is inserted. This is formally encoded by adding σ_3 to vi_i as a secondary, contextual feature, signalled by brackets.[7] To illustrate the approach to extended exponence in terms of secondary features, I sketch Noyer's Distributed Morphology analysis of verb inflection in Tamazight Berber.

3 Noyer's Analysis of Verb Inflection in Tamazight Berber

Consider Table 1 (Noyer 1992:145–149). Noyer argues that 2nd person can be expressed twice in a single verb form. The prefix *t-* is a general marker for [2]. In the two 2nd person singular environments, the suffix *-d* is a singular marker that is confined to [2] contexts; i.e., it also marks [2]. Thus, there is extended exponence. Similarly, the plural suffix *-m* is restricted to [2].MASC contexts, and this instantiates another case of extended exponence. Noyer's proposal is as follows: In the syntax, V is combined with a functional morpheme F that

[7] Also see Frampton (2002); and Wunderlich (1996) for the same strategy in a lexical-incremental approach. An alternative would be to assume that the features that give rise to extended exponence are located in different syntactic morphemes to begin with; see Stump (2001:277, note 3). However, such a solution would likely involve an implausible syntax, and does not seem to have been widely pursued for this reason.

bears fully specified person, number and gender features. The impoverishment rule in (4) applies to F post-syntactically (but before vocabulary insertion); it ensures that no marker specified for gender can be inserted in 2.SG contexts.

dawa ('cure')	SG	PL
1	dawa-ɣ	n-dawa
2 MASC	t-dawa-d	t-dawa-m
2 FEM	t-dawa-d	t-dawa-n-t
3 MASC	i-dawa	dawa-n
3 FEM	t-dawa	dawa-n-t

Table 1: Tamazight Berber Prefix Conjugation

(4) [±fem] → Ø/[2],[–pl]__

The vocabulary items that can be inserted into F morphemes are listed in (5); whether these items are realized as prefixes or suffixes depends on an additional, specific linearization feature encoding just this (/α-/ vs. /-α/); given that F is subject to fission, this implies that morphological structure is to a certain extent autonomous: Multiple insertion into a fissioned morpheme F can lead to a discontinuous (combined prefix and suffix) realization of F.

(5) a. /n-/ ↔ [1],[+pl]
b. /-ɣ/ ↔ [1]
c. /t-/ ↔ [2]
d. /-m/ ↔ [+pl],[–fem] ([2])
e. /i-/ ↔ [–pl],[–fem]
f. /t-/ ↔ [–pl],[+fem]
g. /-d/ ↔ [–pl] ([2])
h. /-n/ ↔ [+pl]
i. /-t/ ↔ [+fem]

The vocabulary items in (5) are ordered from top to bottom according to decreasing specificity (given the hierarchy *person* > *number* > *gender*). Successive insertion of these vocabulary items into fissioned F morphemes in accordance with the Subset Principle produces the paradigm in Table 1. Importantly, the two markers /-m/ and /-d/ must be characterized by secondary features ([2]) that presuppose an earlier discharge of [2] by another vocabulary item (viz., /t-/). Initially, one might think that this consequence could be avoided if two functional morphemes were identified that might bear person features – one for the prefix position, and one for the suffix position (cf. the last footnote). However, Noyer (1992) argues convincingly that this cannot be assumed because of *discontinuous bleeding* effects: Insertion into the prefix position may in principle bleed subsequent insertion into a suffix position, and vice versa. Thus, it can be concluded that extended exponence exists in

the Tamazight Berber prefix conjugation (in those domains where there is no discontinuous bleeding), and secondary features are a straightforward way to handle it.

Still, secondary exponence is not an unproblematic concept. For one thing, it complicates the ontology. For another, it threatens to undermine the notion of feature discharge underlying fission. Furthermore, it may raise problems for determining specificity: Should secondary features be taken to count for the purposes of specificity or not? Both possibilities are compatible with the system of markers in (5), but the question is nevertheless a real one.

In what follows, I sketch an alternative to Noyer's system that does without secondary features. In doing so, I assume that his analysis is otherwise correct as it stands, even though alternative analyses are conceivable.[8]

4 Enrichment

Given that Distributed Morphology crucially relies on *impoverishment*, i.e., deletion of features between syntax and morphology, conceptual considerations would seem to suggest the existence of a complementary operation that adds features between syntax and morphology. I would like to suggest that this is indeed the case, and I will call the relevant operation *enrichment*.[9] Thus, suppose that morpho-syntactic features can be added post-syntactically before vocabulary insertion takes place. As is well known, adding material faces a problem that deleting material does not have: Deletion applied to some struc-

[8] An analysis in terms of (4) and (5) is arguably not yet optimal in that it fails to resolve all instances of syncretism: There are still two different /t-/ markers. Related to this fact is the observation that Noyer's analysis of Tamazight Berber does without a decomposition of person features (see below). This might make it possible to treat 2nd/3rd person as a natural class, and thus account for the syncretism just mentioned. What is more, it might offer a way to dispense with the assumption that the system involves exended exponence (if, e.g., 2nd person is formally characterized as the combination of two primitive features α, β, the prefix might bear only α, and the suffix only β).

[9] The impoverishment/enrichment dichotomy parallels the MAX/DEP constraint dichotomy in optimality theory (Prince and Smolensky 2004). Note in particular that the optimality-theoretic approach to inflectional morphology suggested in (Wunderlich 2004) can be viewed as related to the present approach: An optimal violation of some MAX constraint can effect a non-realization of input features (which produces impoverishment effects); and an optimal violation of some DEP constraint can trigger a realization of features in the morphological output that are not present in the input. This option of capturing enrichment effects is not pursued by Wunderlich, though.

ture can only affect material that is part of the structure; but with insertion, things are more complicated because it is a priori unclear exactly what kind of material can or must be inserted into a given structure.[10] In view of this, I suggest that enrichment is highly restricted: It can only insert features into a given structure that are already present; enrichment is doubling.[11]

With this in mind, let us return to the Tamazight prefix conjugation. The post-syntactic enrichment rule applying to (V-)F that makes it possible for 2nd person to be expressed twice in a single domain is (6): A copy of [2] is made, and both copies are available for vocabulary insertion into F.

(6) Ø → [2]/[2]__

This is basically all there is to be said: The vocabulary items still produce the correct paradigm when we replace the secondary, contextual ([2]) features on /-m/ and /-d/ with regular person features; /-m/ and /-d/ now unequivocally qualify as very specific (given the hierarchy *person* > *number* > *gender*), but this does not create any problem of unwanted competition. The revised system of vocabulary items is given in (7). The only noteworthy change (apart from the removal of the brackets for contextual features) is that, for reasons of compatibility with later parts of the present paper, I assume that person features are to be decomposed into combinations of more primitive features like [±1], [±2] (where [+1,–2] = 1st person, [–1,+2] = 2nd person, [–1,–2] = 3rd person, and [+1,+2] = 1st person inclusive). ([–1,+2] must now replace [2] in (4) and (6).)

(7) a. /-m/ ↔ [–1,+2],[+pl],[–fem]
b. /n-/ ↔ [+1,–2],[+pl]
c. /-d/ ↔ [–1,+2],[–pl]
d. /-ɣ/ ↔ [+1,–2]
e. /t-/ ↔ [–1,+2]
f. /t-/ ↔ [–pl],[+fem]
g. /i-/ ↔ [–pl],[–fem]
h. /-n/ ↔ [+pl]
i. /-t/ ↔ [+fem]

[10]This is an instance of what can be called "Potter's Problem", as identified by Prof. McGonagall: 'So ... today we are starting *Vanishing Spells*. These are easier than *Conjuring Spells*, which you would not usually attempt until NEWT level, but they are still among the most difficult magic you will be tested on in your OWL.' She was quite right; Harry found the Vanishing Spells horribly difficult." (J.K. Rowling, Harry Potter and the Order of the Phoenix. London: Bloomsbury, 2003:232.)

[11]Also note that enrichment is fundamentally different from dissociation (see Embick 1998, Embick and Noyer 2001): Dissociation is a post-syntactic operation that introduces *new* features as part of *new*, 'dissociated' morphemes.

5 Enrichment Rules for German, Archi, and Timucua

Let me finally return to the examples of multiple exponence introduced in section 1, and sketch analyses in terms of enrichment. Recall from (1) that plural can be marked twice with German noun inflection in DAT contexts of several inflection classes (cf., e.g., *Kind-er-n* ('child-PL-DAT.PL') or *Tisch-e-n* ('table-PL-DAT.PL')). Assuming (as seems plausible) that there is only a single Kase/Number head K/Num that accomanies an N stem in the syntax in German, the enrichment rule in (8) provides two [+pl] features in this functional morpheme in DAT environments, so that plural can be marked twice.[12]

(8) $\emptyset \rightarrow$ [+pl]/[+pl],[dat]_

The additional *n* marker that signals extended exponence in DAT plural contexts shows up only in a proper subset of the inflection classes in German declension: It occurs with inflection classes that have /-e/ or /-er/ as the plural marker (with and without Umlaut, and in all genders), but it does not occur with inflection classes that have /-n/ or /-s/ as the plural marker (cf. the DAT plural forms *Mensch-en* vs. **Mensch-en-(e)n*, *Auto-s* vs. **Auto-s-(e)n*). This can be accounted for in various ways. Given the assumptions about class feature decomposition made in Alexiadou and Müller (2005) in order to account for instances of trans-paradigmatic syncretism, one might argue that the inflection classes that give rise to extended exponence form a natural class characterized by a primitive inflection class feature (like [+δ]). The enrichment rule in (8) might then be confined to [+δ], so that the DAT plural marker /-n/ could be radically underspecified with respect to inflection class, and still only be inserted in the proper contexts. Alternatively, enrichment might apply throughout, with the vocabulary item /-n/ confined to [+δ] environments. However, under either approach a peculiar fact could not be accounted for, and would have to remain purely accidental: All inflection classes that have a general plural marker /-e/ or /-er/ permit a DAT plural marker /-n/; and all inflection

[12]To simplify the exposition, DAT is encoded by a single primitive feature [dat]. However, based primarily on the related (but much more elaborate) system of determiner inflection, there is good reason to assume a decomposition of case features in German (like [±gov(erned)], [±obl(ique)]), which then makes it possible to account for various kinds of syncretism by generating natural classes of cases. See Bierwisch (1967) and Alexiadou and Müller (2005), which forms the background to the present discussion – however, this study differs from the present approach in addressing the extended exponence problem in DAT plural contexts in a brute force way, by treating *ern*, *e-n* in *Kindern*, *Tischen* as non-composite markers.

classes that have /-n/ or /-s/ as a general plural marker disallow an additional DAT plural marker /-n/ (there is more than one class at least in the cases of /-e/ and /-n/, based on differences in the singular, and with respect to Umlaut). This suggests a different approach according to which both the enrichment rule in (8) and the feature specification associated with the DAT plural marker /-n/ are not restricted to certain inflection classes; rather, the illegitimate combinations are excluded on prosodic grounds.[13] Thus, (simplified) vocabulary items like the following can be assumed for German noun inflection:

(9) a. /-er/ ↔ [+pl],[+α,+β,+γ] b. /-e/ ↔ [+pl],[–β,+γ]
c. /-n/ ↔ [+pl],[dat]

The features [±α], [±β], [±γ] are primitive class features in the system laid out in Alexiadou and Müller (2005). The exact status of these features is irrelevant in the present context. The only thing that is important here is that class features outrank case features on the hierarchy of features. Thus, /-er/, /-e/ are inserted into fissioned K/Num morphemes before /-n/ is.

Turning next to noun inflection in Archi, recall that an ERG plural marker *čaj* is added to bare plural markers like *li*, *or* (depending on inflection class); cf. (2). Extended exponence of plural marking in Archi can be captured by an enrichment rule like (10-a) (which parallels (8)), together with vocabulary item specifications like those in (10-b, c, d) (where [+α], [–α] are abbreviations for more articulate inflection class specifications). Cyclic insertion into a fissioned K/Num morpheme according to the feature hierarchy *number* > *class* > *case* then ensures that the correct orders *um-čaj*, *or-čaj* are generated.[14]

[13]For instance, Eisenberg (2000:161) suggests that the DAT plural marker /-n/ is obligatorily non-syllabic, in which case combinations like ***-n-n*** and ****s-n*** may be blocked by general phonological requirements on syllable structure in German. Alternatively, if there is no such restriction on /-n/, a morpho-phonological rule might be invoked that blocks ****-n-en*** and ****-s-en*** structures in DAT plural contexts.

[14]Note that extended exponence of plural marking along these lines is not confined to ERG environments in Archi; it affects all cases, except for the absolutive (which is not marked at all – with only markers like *um*, *or* showing up in the plural); cf., e.g., *gel-um-če-n* ('cup-PL-ERG.PL-GEN'), *gel-um-če-qlis* ('cup-PL-ERG.PL-PART'), where *čaj* emerges as *če*. This may either be viewed as an instance of parasitic (Priscianic) formation, where oblique case forms are derived from the ERG form (Matthews 1972, Mel'čuk 1999:8, for the case at hand), or as an indication that cases in Archi are to be decomposed into combinations of more primitive features, with ERG characterized by a primitive feature (like [+gov] or [+obl], depending on the syntactic analysis of ERG case) that is part of the specification of all other cases (except for the absolutive); see Kibrik (2003:60–61). I adopt the latter view here.

(10) a. $\emptyset \rightarrow$ [+pl]/[+pl],[erg]_ b. /um-/ $\leftrightarrow$ [+pl],[+α]
c. /-or/ $\leftrightarrow$ [+pl],[–α] d. /čaj/ $\leftrightarrow$ [+pl],[erg]

Consider finally extended exponence in Timucua, where NOM and person is expressed twice – by prefixes that encode case and person, and by suffixes that encode case, person, and number (see (3)). The enrichment operation affecting T morphemes that underlies the phenomenon is given in (11-a), and some entries of vocabulary items are provided in (11-b–f).[15]

(11) a. $\emptyset \rightarrow$ [μ1,ν2],[nom]/[μ1,ν2],[nom]_
b. /ho-/ (/ni-/) $\leftrightarrow$ [+1,–2],[nom]
c. /ci-/ $\leftrightarrow$ [–1,+2], [nom] d. /Ø-/ $\leftrightarrow$ [–1,–2], [nom]
e. /-bo/ $\leftrightarrow$ [nom],[+pl] f. /-ma/ $\leftrightarrow$ [–1,–2],[nom],[pl]

To conclude, the existence of post-syntactic enrichment is expected for reasons of symmetry alone in Distributed Morphology (given post-syntactic impoverishment); and by assuming enrichment, extended exponence can be accounted for without secondary features. The present analysis differs from one in terms of secondary features in an important respect: Just as system-wide, non-accidental patterns of syncretism can be better accounted for by impoverishment than by accidental feature specifications of individual vocabulary items (Bobaljik 2002), only enrichment (and not an approach in terms of secondary features) makes it possible to treat extended exponence as a system-wide property. For instance, the fact that case and person can be realized twice on verbs in Timucua can be expressed as such by enrichment rule (11-a), and is thus more than an accidental by-product of individual marker specifications.[16]

Finally, and from a more general point of view, an enrichment-based approach does not imply that extended exponence is a completely unmarked phenomenon that comes for free (as in Stump 2001, Anderson 2005). Rather, it

[15]The case, person, and number features in T can be realized both by prefixation and by suffixation, as argued by Noyer (1992) for Tamazight Berber. μ, ν are variables over feature values (+,–). /-bo/ is the elsewhere marker for NOM plural; it is blocked in 3rd person contexts by the more specific NOM plural marker /-ma/. As it stands, the feature hierarchy predicts suffixation to precede prefixation, except with underspecified /-bo/, where the order is reversed. This consequence is empirically unproblematic; but it can be avoided by assigning to /-bo/ the person specification [μ1,–μ2].

[16]Another difference concerns cases where, in an approach in terms of secondary features, one and the same inflection marker would have to act as a primary exponent of a morpho-syntactic property in one context, and as a secondary exponent of the same morpho-syntactic property in another (see Stump 2001:162–163, on Swahili verb inflection). These cases are unproblematic in the present analysis.

always takes a specific post-syntactic operation to bring it about: In the unmarked case, a single morpho-syntactic feature is not realized by more than one exponent (cf. Wurzel 1984).

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