When is a syncretism more than a syncretism? Impoverishment, metasyncretism and underspecification.

Heidi Harley, University of Arizona
hharley@email.arizona.edu

1 Introduction: Syncretism and Distributed Morphology

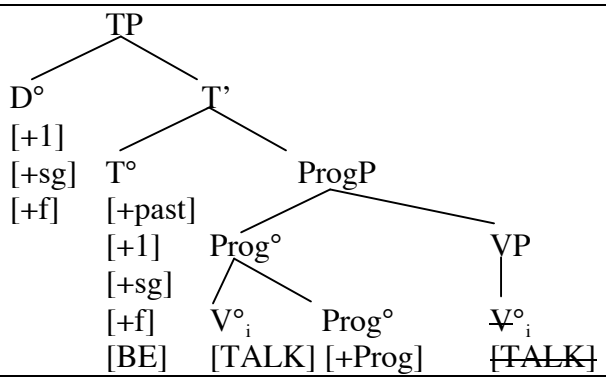
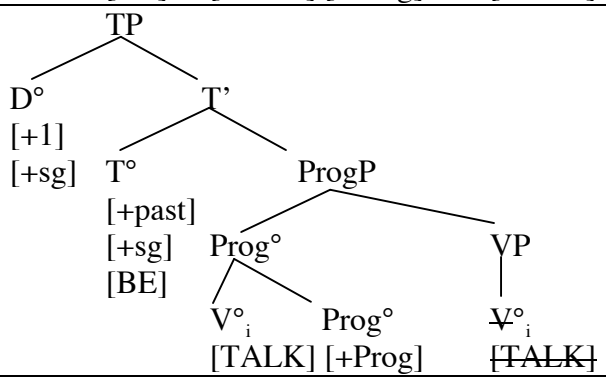
Syncretism occurs when different combinations of morphosyntactic feature values are represented by the same form. For instance, of the various forms of the past tense of the English verb *to be,* 1 sg and 3 sg syncretize, and so do 2 sg, 1 pl, 2 pl and 3 pl.

(1)

be, *past*	sg.	pl.
1	*was*	*were*
2	*were*	*were*
3	*was*	*were*

In Distributed Morphology terms, syncretism occurs when the same Vocabulary Item discharges the positions-of-exponence associated with more than one feature bundle (when a single vocabulary item 'realizes' more than one combination of features in a syntactic terminal node). In (2), a DM derivation of the surface form of the sentence *I was talking* is provided, so that the realizational nature of the theory is clear, as well as the relationship between the syntactic derivation and the surface form.

(2) A Distributed Morphology Derivation:

	Operation		**Output**
a.	**Syntax:** Construct Numeration by selecting feature (bundles).	a.	{BE, [+1, +sg, +f]$_D$, [+past]$_T$, TALK, [+Prog]}
b.	**Syntax:** Construct interpretable sentence structure by Merge, Move of feature (bundles). (The output of this step is sent to LF for semantic interpretation, and to PF for Spell-Out.)	b.	
c.	**Morphology:** Manipulate makeup of terminal bundles to conform to language-specific requirements (e.g. by Impoverishment, on which more anon).	c.	
d.	**Morphology:** Realize (or ‘discharge’) the terminal nodes of the syntactic tree by inserting Vocabulary Items into them, giving them phonological content.	d.	[[/aj/]$_D$ [[/wʌz/]$_{T°}$ [[[/tɑk/]$_V$[/ɪŋ/]$_{Prog}$] $_{Prog}$]$_{T’}$]$_{TP}$
e.	**Phonology:** Make morphophonological and phonological alterations to input as necessary to arrive at the optimal phonological form	e.	[ˈajwəzˈtʰɑkɨn]

In most realizational morphological theories, including DM, it is a methodological assumption underspecification is the most desirable way to treat syncretism is via underspecification. Only if underspecification fails should more powerful tools of the theory be appealed to, such as an Impoverishment rule (DM) or a Rule of Referral (Paradigm Function Morphology, others).

Williams 1994 pointed out that meta-patterns of syncretism exist in some grammars, and argued that a notion of a meta-paradigm as a primitive property of the grammar was necessary to capture these general patterns. Bobaljik 2001 and Frampton 2002 have shown, however, that metaparadigms aren't necessary or desirable; in DM, pre-realization Impoverishment rules can do the same job (as can pre-realization Rules of Referral in formalisms like Paradigm-Function Morphology, though the case for the more powerful RoR as against more restrictive Impoverishment would have to be argued.)[1]

In this paper, I will rexamine and repeat the core message of Bobaljik 2001 and Frampton 2002, illustrating with several examples. I will, additionally, show that underspecification of VIs is not necessarily an especially important source of syncretism, Panini notwithstanding. I will also argue that Impoverishment could be the answer in cases where previous analyses have appealed to brute-force VI ordering and/or negative feature specifications, as argued by Nevins 2003. Finally, I will argue that metasyncretism could be a good diagnostic indicator for when it's worth undertaking investigation of more 'deep' syntactic explanations for particular morphological effects. In other words, the surface phenomenon of metasyncretism may tell linguists when to look for featurally conditioned effects in the syntactic derivation.

2 Background: Meta-syncretism and Impoverishment

As noted above, Williams 1994 identified metasyncretism as a phenomenon to be accounted for. Williams illustrated the concept with a subset of the Latin nominal

[1] He also showed that UG does not impose an Instantiated Basic Paradigm requirement, as predicted/entailed by more restrictive DM-style theories but not by paradigm-based theories.

declension endings. His example is provided in (3) below: the various case/number paradigms of Latin's five nominal classes:[2]

(3)

I	sg	pl
Nom	-a	-ae
Acc	-am	-as
Dat	-ae	-is
Abl	-a	

II	sg	pl
Nom	-us	-i
Acc	-um	-os
Dat	-o	-is
Abl		

III	sg	pl
Nom	(var)	-es
Acc	-em	-es/is
Dat	-i	-ibus
Abl	-a	

IV	sg	pl
Nom	-us	-us
Acc	-um	
Dat	-ui	-ibus
Abl	-u	

V	sg	pl
Nom	-es	-es
Acc	-em	
Dat	-ei	-ebus
Abl	-e	

Williams's point is that that Dative & Ablative case *always* syncretize in the plural, regardless of what the actual suffix is.[3] This is a meta-paradigm—a generalization over the shape of a given type of paradigm within a language, which holds regardless of the

[2] Although I freely use the term 'paradigm' in this paper to refer to nicely laid-out collections of functional affixes, I do not intend to endorse an independent status in the grammar for them. With Bobaljik, Frampton and other DM theorists, I subscribe to the notion that the paradigm is an epiphenomenon—a notationally convenient way to present the affixes that are eligible to realize any given type of syntactic terminal node, defined by the features that are active in that terminal node.

[3] Ironically, when you include the genitive & vocative forms, Latin actually makes a case *against* Williams' Instantiated Basic Paradigm proposal from the same paper, a case that is essentially identical to Bobaljik's argument against IBPs from Russian

particular forms in any particular instantiation of that paradigm type. A syncretism that holds in a metaparadigm is a *metasyncretism*—again, it's a syncretism that holds for a particular set of features in a language, regardless of the particular affixes used in any particular instance of the syncretism. The plural Ablative/Dative syncretism in Latin case endings is thus apparently a metasyncretism.

Bobaljik 2001 provides a Russian example of the same phenomenon, also a subset of the case/number paradigms of pronominal & nominal suffixes:

(4)

3rd Nom prons.	sg	pl
Masc	*on-Ø*	*on-i*
Fem	*on-a*	
Neut	*on-o*	

3rd Dat prons.	sg	pl
masc	*emu*	*im*
fem	*ej*	
neut	*emu*	

Nom adj. suffixes	sg	pl
masc	*-yi*	*-ye*
fem	*-aja*	
neut	*-oe*	

Here, the metasyncretism is also in the plural: The different genders are always syncretized away in the plural, again no matter what the particular suffix realizing the syncretism is. In the nominative pronouns, the plural, gender-syncretizing suffix is *-i*, in the dative pronouns it's *-im*, and in nominative adjectives it's *-ye*—but the pattern of having only a single suffix for each gender in Russian plural holds throughout.

To show how a standard underspecification analysis fails to capture this generalization, Bobaljik presents the DM analysis of Halle 1997 for the nominative and dative pronouns. The Vocabulary Items which instantiate this analysis are given in (5) below. The phonological form of the suffix is given on the right; the features which condition the insertion of that suffix to realize a terminal node are on the right.

(5) i. *-i* ←→ pl
ii. *-a* ←→ fem
iii. *-o* ←→ neut
iv. *-Ø* ←→ elsewhere

On Halle's analysis, these vocabulary items will compete *in this order*, to realize pronominal terminal nodes specified with [+Nom], [+3] features. That is, anytime the syntax sends out a terminal node for a pronoun with [+Nom], [+3] features, these Vocabulary Items will line up in this order to get in and realize that terminal node. The first VI which is found to be compatible with the features of the terminal node will win the competition to realize that terminal node, and the other VIs are blocked from appearing in that form. (Note that there is an ordering problem here. Since none of the VIs are specified for more than a single feature, the ordering cannot be accomplished via the 'most-specific-item-first' principle. Halle resolves this by just imposing a brute-force order; other solutions involving various notions of markedness-dependent ordering are also possible, see Noyer 1997 and Harley 1994. See below for further discussion).

Given these VI items, Syncretism in the plural for nominative pronouns falls out because the [+pl] vocabulary item *-i* is (a) is underspecified for gender and (b) is crucially ordered before the other three affixes. Hence, anytime the terminal node contains a [+pl] feature, the *-i* suffix will jump in and realize the terminal node, thus blocking any of the the gender-distinguishing suffixes from being inserted.

To see how this works, imagine the syntax has constructed a tree with a third person feminine subject argument, hence containing a fully specified syntactic terminal node with features [+3, +Nom, +pl, +fem]. Both the *-i* and *-a* Vocabulary Items in the list in (5) are eligible to realize this node, but because *-i* is ordered before *-a*, it will block *-a* from appearing. It is the underspecification of the plural VI *-i* that creates the gender syncretism in the plural.

On this analysis, the syncretism in the nominative adjectival endings will fall out because the nominative-adjective agreement VIs have exactly the same feature specifications, and are ordered in exactly the same way, as the pronominal VIs. That is, the VIs competing to realize a terminal node for agreement on a nominative adjective are as in (6) below:

(6)
i.	*-ye*	⟷	pl
ii.	*-aja*	⟷	fem
iii.	*-oe*	⟷	neut
iv.	*-yi*	⟷	elsewhere

Here the syncretism will fall out for the same reason given above. This raises the question of *why* all the VIs for [pl] are underspecified for gender. That is, on this analysis there is *no principled reason* why the completely different set of vocabulary items for the nominative adjectival suffixes should not happen to contain a suffix specific to feminine plural forms, and perhaps also a different one for neuter forms. That is, there is no reason why, in such a theory, Russian plural paradigms should *always* syncretize gender. Underspecification can predict syncretism created by a single Vocabulary Item's features—but when the syncretism cuts across different VIs, underspecification becomes a description, not an explanation, of the pattern. On an underspecification analysis, the widespread syncretism in the plural is an accident of the particular VI inventory of Russian, not a deep property of Russian grammar. This is the metasyncretism problem.[4]

One main point of Bobaljik's argument is that Impoverishment is an already-existing tool within DM that allows the theory to capture of metasyncretisms like this

[4] On closer examination, the Latin case might be a more trivial example of metasyncretism than the Russian case. The endings given could be decomposable into a declension-conditioned vowel followed by a case/number suffix; if this is the right analysis of the Latin suffixes, metasyncretism in the dative/ablative only arises between two subsets of the five declensions: I&II (*-s*) vs III, IV & V (*-bus*). The syncretic coincidence, here, then, is somewhat less compelling than the Russian three-way case. As we will repeat again below, it's crucially the fact that the *same* syncretism arises with *different* VIs that makes for a missed generalization; the more such VIs in the language, the more surprising the coincidence.

one. Impoverishment rules are language-specific rules that manipulate terminal nodes as they come out of the syntax by deleting certain features ('impoverishing' the terminal bundle) in the environment of other features. One could think of Impoverishment as a mechanism whose function is to reduce the complexity of forms reaching the PF interface.

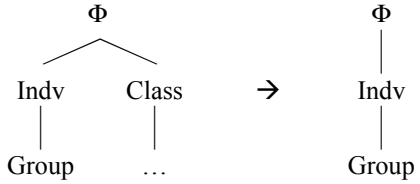
To capture the Russian metasyncretism, for example, one only has to posit a single feature-deleting Impoverishment rule. This rule will apply to all syntactic feature bundles before Vocabulary Item insertion even occurs. The particular Impoverishment rule active in Russian could be represented like this:

(7) [+pl, +{m, f, n}] → [+pl]

In (7), a feature bundle in the syntax containing both a plural number feature and any gender feature is reduced to a bundle with no gender feature by Impoverishment—the gender feature is deleted from the structure. If this rule applies to all Russian feature bundles that match its structural description before Spell-Out, there just never *are* any gender features present in the plural at all by the time Vocabulary Items are inserted, and hence no plural VI could ever be conditioned by them. Further, no *singular* gender-specific VI could ever be in competition for a plural node—it would not be in the competition because it would not match a subset of the features of such a node.[5] That is,

[5] Because of the issue represented by the curly brackets in the Impoverishment rule in (7), Harley 1994 argues that morphosyntactic features must be organized geometrically, allowing reference to *types* of features, rather than just to individual features, as in feature-bundle notation. In a feature-geometric representation, Impoverishment can be treated as delinking of a subtree of the geometry. For example, the rule in (7) could be represented as in (i) below, in Harley and Ritter 2002's feature geometry; any bundle containing both a Group (pl) node and a Class node(organizing node for gender) will have its Class node (and anything dominated by Class) delinked from the geometry. For further discussion of Impoverishment as a delinking operation, see Harley 1994 and Nevins 2003.

(i)



Impoverishing the Russian feature bundle in this way means that in fact, in this subset of the forms, there's just one form for every distinct feature bundle — there is no underspecification of VIs at all. Of course, this also removes the competition ordering problem noted above—since no VI is compatible with the bundles realized by any other VI, there will be no competition for appearing in the slot, and no problem of ordering the VIs with the winning candidate first arises.

Morphological Impoverishment, then, is one solution to this problem. Another hypothesis is possible however: One could suppose that there just are no feature bundles that contain plural and gender *in the numeration*—that is, it's a deep fact about the syntax of Russian that gender features are not present in plural bundles. The metasyncretism facts would turn out the same in the end.

Metasyncretism patterns, then, are a clue that something is going on before Vocabulary Item insertion take place, whether it is purely morphological (Impoverishment) or deeply syntactic (Numeration bundling restrictions).

3 A Case Study: English pronouns, Impoverishment, and ordering problems

English pronouns show contrasts in first, second and third person, in singular and plural, in masculine, feminine and neuter, and in three cases: nominative, genitive and accusative (or Other). I will assume a two-feature system for distinguishing person, gender and case and a one-feature system for number. I assume the features are organized into geometries, but this doesn't impact the analysis here so I will treat them as entirely independent of each other, and illustrate them in bundles.

(8) Active features of English pronouns, present in the phi-feature bundles in syntax:

Person	±Speaker	*I* vs *you*
	±Participant	*you* vs *he*
Number	±Group	*he* vs. *them*
Gender	±Feminine	*he* vs *she*
	±Neuter	*he* vs. *it*
Case	±Superior	*I* vs. *me*
	±Oblique	*me* vs *my*

The ±Superior, ±Oblique features for Case are taken from Halle 1997; they combine to produce the familiar cases in the following way:

(9) +Sup, -Obl = Nominative
-Sup, +Obl = Genitive
-Sup, -Obl = 'Accusative' = default case)

(Case features are used to capture the syncretism of the pronoun between genitive and accusative.) Assuming free bundling in the Numeration, constrained by entailment relations (no [+Spkr, -Part] nodes, for example)[6], these seven binary features will combine freely to create a set of 36 possible fully-specified English pronominal nodes illustrated in Table 1. The syncretisms in the actual realization of these nodes are represented by the dotted lines between syncretic cells, and the form which realizes each set of nodes is superimposed on it in a light grey font. Obviously there is a great deal of syncretism in the system, including the typical Indo-European loss of gender distinctions in the plural, as we have seen for Russian above.

[6] This is one of the motivations for feature geometric representation: dependency in the tree can encode entailment relations.

Table 1: Possible pronominal D° terminal nodes of English:

		sg			pl		
		m	f	n	m	f	n
1	Nom	**+Spkr**, **+Part** -Group -fem, -neut **+Sup**, -Obl	**+Spkr**, **+Part** -Group **+fem**, -neut **+Sup**, -Obl	**+Spkr**, **+Part** -Group -fem, **+neut** **+Sup**, -Obl	+ Spkr, **+Part** **+Group** -fem, -neut **+Sup**, -Obl	+ Spkr, **+Part** **+Group** **+fem**, -neut **+Sup**, -Obl	+ Spkr, **+Part** **+Group** -fem, **+neut** **+Sup**, -Obl
	Acc	**+Spkr**, **+Part** -Group -fem, -neut -Sup, -Obl	**+Spkr**, **+Part** -Group **+fem**, -neut -Sup, -Obl	**+Spkr**, **+Part** -Group -fem, **+neut** -Sup, -Obl	+ Spkr, **+Part** **+Group** -fem, -neut -Sup, -Obl	+ Spkr, **+Part** **+Group** **+fem**, -neut -Sup, -Obl	+ Spkr, **+Part** **+Group** -fem, **+neut** -Sup, -Obl
	Gen	**+Spkr**, **+Part** -Group -fem, -neut -Sup, **+Obl**	**+Spkr**, **+Part** -Group **+fem**, -neut -Sup, **+Obl**	**+Spkr**, **+Part** -Group -fem, **+neut** -Sup, **+Obl**	+ Spkr, **+Part** **+Group** -fem, -neut -Sup, **+Obl**	+ Spkr, **+Part** **+Group** **+fem**, -neut -Sup, **+Obl**	+ Spkr, **+Part** **+Group** -fem, **+neut** -Sup, **+Obl**
2	Nom	-Spkr, **+Part** -Group -fem, -neut **+Sup**, -Obl	-Spkr, **+Part** -Group **+fem**, -neut **+Sup**, -Obl	-Spkr, **+Part** -Group -fem, **+neut** **+Sup**, -Obl	-Spkr, **+Part** **+Group** -fem, -neut **+Sup**, -Obl	-Spkr, **+Part** **+Group** **+fem**, -neut **+Sup**, -Obl	-Spkr, **+Part** **+Group** -fem, **+neut** **+Sup**, -Obl
	Acc	-Spkr, **+Part** -Group -fem, -neut -Sup, -Obl	-Spkr, **+Part** -Group **+fem**, -neut -Sup, -Obl	-Spkr, **+Part** -Group -fem, **+neut** -Sup, -Obl	-Spkr, **+Part** **+Group** -fem, -neut -Sup, -Obl	-Spkr, **+Part** **+Group** **+fem**, -neut -Sup, -Obl	-Spkr, **+Part** **+Group** -fem, **+neut** -Sup, -Obl
	Gen	-Spkr, **+Part** -Group -fem, -neut -Sup, **+Obl**	-Spkr, **+Part** -Group **+fem**, -neut -Sup, **+Obl**	-Spkr, **+Part** -Group -fem, **+neut** -Sup, **+Obl**	-Spkr, **+Part** **+Group** -fem, -neut -Sup, **+Obl**	-Spkr, **+Part** **+Group** **+fem**, -neut -Sup, **+Obl**	-Spkr, **+Part** **+Group** -fem, **+neut** -Sup, **+Obl**
3	Nom	-Spkr, -Part -Group -fem, -neut **+Sup**, -Obl	-Spkr, -Part -Group **+fem**, -neut **+Sup**, -Obl	-Spkr, -Part -Group -fem, **+neut** **+Sup**, -Obl	-Spkr, -Part **+Group** -fem, -neut **+Sup**, -Obl	-Spkr, -Part **+Group** **+fem**, -neut **+Sup**, -Obl	-Spkr, -Part **+Group** -fem, **+neut** **+Sup**, -Obl
	Acc	-Spkr, -Part -Group -fem, -neut -Sup, -Obl	-Spkr, -Part -Group **+fem**, -neut -Sup, -Obl	-Spkr, -Part -Group -fem, **+neut** -Sup, -Obl	-Spkr, -Part **+Group** -fem, -neut -Sup, -Obl	-Spkr, -Part **+Group** **+fem**, -neut -Sup, -Obl	-Spkr, -Part **+Group** -fem, **+neut** -Sup, -Obl
	Gen	-Spkr, -Part -Group -fem, -neut -Sup, **+Obl**	-Spkr, -Part -Group **+fem**, -neut -Sup, **+Obl**	-Spkr, -Part -Group -fem, **+neut** -Sup, **+Obl**	-Spkr, -Part **+Group** -fem, -neut -Sup, **+Obl**	-Spkr, -Part **+Group** **+fem**, -neut -Sup, **+Obl**	-Spkr, -Part **+Group** -fem, **+neut** -Sup, **+Obl**

Let us first attempt a straightforward analysis, without any Impoverishment, and only referring to marked (positive) feature values in our VI entries, using VI underspecification and competition to capture the syncretisms in the system.[7] One set of VIs that could captured the desired English pronoun syncretisms using underspecification is below.

(10) a. wij ⟷ D_{RE}
+Spkr, +Grp, +Sup

b. awɪ ⟷ D_{RE}
+Spkr, +Grp, +Obl

c. ʌs ⟷ D_{RE}
+Spkr, +Grp

[7] Terminal nodes in syntax are fully specified by the end of Morphology.

d. aj ⟷ D_{RE}
+Spkr, +Sup
e. maj ⟷ D_{RE}
+Spkr, +Obl
f. mij ⟷ D_{RE}
+Spkr
g. jɔɹ ⟷ D_{RE}
+Part, +Obl
h. juw ⟷ D_{RE}
+Part
i. ðej ⟷ D_{RE}
+Grp, +Sup
j. ðɛɹ ⟷ D_{RE}
+Grp, +Obl
k. ðɛm ⟷ D_{RE}
+Grp
l. ɪt ⟷ D_{RE}
+Neut
m. ʃij ⟷ D_{RE}
+Fem, +Sup
n. hɚ⟷ D_{RE}
+Fem
o. hij ⟷ D_{RE}
+Nom
p. hɪz ⟷ D_{RE}
+Obl
q. hɪm ⟷ D_{RE}
Elsewhere

What's crucial in any such analysis is to a) specify the vocabulary items for all and only the features they are sensitive to, and b) get the order of competition of the vocabulary items right, so that the correct patterns of syncretism fall out via blocking. If one doesn't want to resort to 'brute-force' ordering, as in Halle's analysis of Russian above, extrinsic principles must be appealed to which will cause the correct order to fall out. Normally, the relevant independent principle is the 'Elsewhere' principle: The order of competition is determined by the degree of feature specification of individual VIs. This principle is given in (11) below.

(11) The Elsewhere ('Paninian') Principle: Vocabulary Items which realize *more* of the features in a given terminal node are automatically ordered before Vocabulary Items which realize *fewer* of the node's features.

Of course, the VIs that are being ordered by the Elsewhere principle are themselves a limited subset of the available ones—only VIs whose features are *compatible* with the terminal node being realized are in the competition in the first place. This is determined by the Subset Principle, stated in (12) below:[8]

(12) The Subset Principle; Only Vocabulary Items whose specified features are a subset of the features in a given terminal node are able to compete to discharge the p.o.e. of that terminal node.

So, e.g., faced with a **1.pl.f.nom** node, containing the features listed in (13) below, the particular vocabulary items from (10) that satisfy the Subset Principle and are hence competing to be inserted into that node are those listed in (14). In particular, none of the vocab items in (10) that are specified for [+Obl] or [+Neut] will be competing.

(13) Terminal node: D°

+Spkr, +Part, +Grp +Fem, -Neut +Sup, -Obl

(14) a. wij ⟷ D_{RE}
+Spkr, +Grp, +Sup

c. ʌs ⟷ D_{RE}
+Spkr, +Grp

d. aj ⟷ D_{RE}
+Spkr, +Sup

[8] The Elsewhere Principle is often presented as a subcase of the Subset Principle, as in Halle 1997. I have separated the two here, however, to emphasize that this version of the Elsewhere Principle is distinct from that presented in Kiparsky 1973's original formulation. Kiparsky's Elsewhere Principle ordered rules based on their subset properties *with respect to each other*. For instance, in the list of VIs in (14), for instance, the ordering of VI a. [wij] with respect to VI c. [ʌs] could be established by Kiparsky's Subset version of the Elsewhere Principle, since [ʌs] refers to a subset of the features referred to by [wij]. However, Kiparsky's Elsewhere principle would have nothing to say about the ordering of VI c. [ʌs] and VI h. [juw], however, since [juw] does not mention a subset of the features mentioned by [ʌs]. If we understand the Elsewhere Principle as determining order based on the sheer numbers of features involved in a pair of competing VIs, however, independently of the subset/superset properties of those feature sets with respect to each other, the ordering of [ʌs] before [juw] can be established. Similarly the respective ordering of c. [ʌs] and d. [aj] cannot be established by the Subset Principle, since their respective feature sets intersect, rather than forming a superset-subset relation. (The feature-counting version of the Elsewhere Principle will not help here either, of course, since they refer to the same number of features; see below for discussion of such cases.)

f. mij ⟷ D_{RE}
+Spkr
h. juw ⟷ D_{RE}
+Part
i. ðej ⟷ D_{RE}
+Grp, +Sup
k. ðɛm ⟷ D_{RE}
+Grp
m. ʃij ⟷ D_{RE}
+Fem, +Sup
n. hɔ˞⟷ D_{RE}
+Fem
o. hij ⟷ D_{RE}
+Nom
q. hɪm ⟷ D_{RE}

This particular competition illustrates the Elsewhere principle in action: the winning VI, [wij], is specified for three features, more than any other eligible VI, and so it is the 'best' realization of that terminal node — this VI is therefore ordered first in the list, and wins the competition.

We can see underspecification syncretism will arise in 1pl nodes generally, given these VIs. In the example here, the VI [wij] will also win the competition for a **1.pl.m.Nom** terminal node, as illustrated in (15) below. In this case, [wij] is competing against a smaller subset of the pronominal VIs, represented in (16), since the VIs specified for [+fem] will not be in the competition. Since [wij] also is specified for the most features in this competition, it will also win this competition. That is, there will be syncretism between 1.pl.f.Nom terminal nodes and 1.pl.m.terminal nodes. The syncretism will arise because of [wij] is underspecified for gender features.

(15) Terminal node: D°

+Spkr, +Part, +Grp -Fem, -Neut +Sup, -Obl

(16) a. wij ⟷ D_{RE}
+Spkr, +Grp, +Sup
c. ʌs ⟷ D_{RE}
+Spkr, +Grp
d. aj ⟷ D_{RE}
+Spkr, +Sup
f. mij ⟷ D_{RE}
+Spkr
h. juw ⟷ D_{RE}
+Part
i. ðej ⟷ D_{RE}
+Grp, +Sup
k. ðɛm ⟷ D_{RE}
+Grp
o. hij ⟷ D_{RE}
+Nom
q. hɪm ⟷ D_{RE}

In the case of [wij], then, the combination of the Subset Principle, the Elsewhere Principle, and the underspecification of the VI will work together perfectly to generate the syncretism of [wij] across all 1st pl. nom nodes, no matter the gender. Sometimes, however, one faces a case where the Elsewhere principle doesn't obviously provide an unambiguous ordering, as in the next case under consideration. Only the Vocabulary Items in (18) are in competition to realize the **1.sg.f.Nom** terminal node in (17), in accordance with the Subset Principle:

(17) Terminal node: D°

+Spkr, +Part, -Grp +Fem, -Neut +Sup, -Obl

(18) d. aj ⟷ D_{RE}
+Spkr, +Sup
f. mij ⟷ D_{RE}
+Spkr
h. juw ⟷ D_{RE}
+Part
m. ʃij ⟷ D_{RE}
+Fem, +Sup
n. hɔ˞ ⟷ D_{RE}
+Fem

o. hij ⟷ D_{RE}
+Nom

q. hɪm ⟷ D_{RE}

In this competition, the Elsewhere principle will correctly eliminate all the VIs that only realize a single feature, or no feature, i.e. (18)f, h, n, o and q, will be eliminated, but there are two VIs for whom a simple feature-counting metric cannot obviously decide: (18)d and m. The terminal node and the two candidates which the Elsewhere principle cannot order are repeated in (19) and (20) below:

(19) Terminal node: D°

+Spkr, +Part, -Grp +Fem, -Neut +Sup, -Obl

(20) d. aj ⟷ D_{RE}
+Spkr, +Sup

m. ʃij ⟷ D_{RE}
+Fem, +Sup

Of course, the VI (20)d is the correct result — we want it to win the competition with m, but they both realize two features, so the Elsewhere principle won't help us to order them.[9]

One solution often invoked in cases like these is some version of a feature hierarchy like that proposed in Noyer 1992, 1997, according to which certain features are intrinsically more marked than other features. The VIs [aj] and [ʃij] are specified for the same case feature, but for [aj] the other feature is a person feature, [+Spkr], while for [ʃij] the second feature is a gender feature, [+Fem]. According to Noyer's feature hierarchy, Person>Number>Gender, so two VIs which are equivalent in terms of the Elsewhere principle will compete in the order determined by the feature hierarchy. We could then use the feature hierarchy to correctly order [aj] before [ʃij], since person is

[9] Explicitly using the H&R feature geometry to evaluate markedness as in Harley 1994 won't help us here either — the geometry that minimally represents d uses 4 nodes, while the one that minimally represents m uses 5 -- if the more marked compatible geometry wins, then m will beat d here.

higher on the hierarchy than gender, and then [aj] will win the competition, and block [ʃij] from realizing this terminal node.

The correct ordering could thus be adequately determined in the case of **1.sg.Nom** nodes, above, but in other cases, things are not so easy. Sometimes the Elsewhere principle gives us the wrong result entirely, eliminating the correct candidate from competition before the feature hierarchy can even begin to operate.. So, for instance, consider the competition to realize a **2.pl.f.Nom** terminal node represented in (21). The vocabulary items in (22) will be in competition to realize this node, according to the Subset Principle:

(21) Terminal node: D°

-Spkr, +Part, +Grp +Fem, -Neut +Sup, -Obl

(22) h. juw ⟷ D_{RE}
+Part

i. ðej ⟷ D_{RE}
+Grp, +Sup

k. ðɛm ⟷ D_{RE}
+Grp

m. ʃij ⟷ D_{RE}
+Fem, +Sup

n. hɚ ⟷ D_{RE}
+Fem

o. hij ⟷ D_{RE}
+Nom

q. hɪm ⟷ D_{RE}

This competition has a major problem. We want (h) to win (because 2.pl.f.Nom in English is [juw]), but the Elsewhere Principle will rank *both* (i) and (m) above (h), because they both realize two of the matching features, rather than just one. The VI [ðej] in (i) will rank above [ʃij] in (m), according to the feature hierarchy, because number outranks gender. Consequently, using just the Elsewhere Principle and the feature

hierarchy to determine order, the analysis predicts that a 2.pl.f.Nom pronoun in English ought to be realized as 'they'.

One of the possible solutions would be to invoke brute force ranking of VIs, as Halle did for Russian, according to which [juw] is simply stipulated to outrank the other competitors in the hunt. Alternatively, one could tinker with the features invoked by the theory—we could give up the idea that 3rd person is unmarked in English VIs. We could include negative values [-Spkr, -Part] in the 3rd person VIs, as Frampton (2002) argues, or invent a feature [+3] that refers to 3rd person specifically, and include that feature in the 3rd person VIs. Extant DM analyses have done either or both of these in such situations. It's certainly rewarding tinker with the features until the correct ordering of VIs emerges 'naturally', from just the Elsewhere Principle and/or the feature hierarchy. However, there's no agreement among theorists on what's the best kind of solution: negative values, new features, brute force—and all such solutions are somethat aesthetically unappealing.

Although not widely deployed in this situation, Impoverishment, or restrictions on Numeration bundles, could be another kind of solution to ordering problems like this. Such solutions would remove problematic VIs from the competition entirely, via the Subset Principle. With Impoverishment, feature-deletion in the terminal node will mean that fewer VIs will have a subset of the terminal node's features, and hence fewer VIs will be eligible to compete; with Numeration bundling restrictions, the problematic features would simply never be present in the syntactic derivation at all.

So really, there's an embarrassment of possible solutions to this kind of problem in DM: feature hierarchies, different or negative features, brute force on the one hand—all applying to Vocabulary Items— and Impoverishment or Numeration feature bundling on the other, applying to the pre-insertion terminal nodes.

Here, I want to suggest that the latter solution is often to be preferred, especially when metasyncretisms can be observed in the paradigms.[10] The remarkable thing about the metasyncretism cases is that an Impoverishment solution turns out to be needed to capture the metasyncretism patterns in many cases where a simple underspecification analysis is in principle possible (as for Russian), and where it had not occurred to anyone before to tinker with the feature bundles via Impoverishment or Numeration restrictions. Metasyncretism is a relatively new application of Impoverishment, however. Before we go on to show how metasyncretism-motivated Impoverishment can help with the problematic English case above, let us consider the phenomena which originally motivated the postulation of the Impoverishment operation in the first place.

4 Motivating Impoverishment independently of metasyncretism

The Impoverishment operation was originally proposed to account for cases where an otherwise regular VI mysteriously failed to appear in an environment where the analysis predicted it would show up. Impoverishing the crucial feature from the relevant feature bundles removed the problematic VI from competition, and hence predicted its absence (Bonet 1991). One clear case is afforded by the case inflection of Baoan[11] nouns and pronouns, shown in Table 2 (data from the Surrey report):

[10] Nevins (2003) argues, along these lines, that judicious use of Impoverishment will allow the elimination of references to negative feature values from DM analyses, showing how this works for the thorny Germanic 1-3sg syncretism. To make this work, however, Nevins has to assume that Minimal (singular) is a marked, rather than underspecified feature in English. Depending on the approach to underspecification that turns out to be right, this may or may not work. Here I've treated singular as unmarked.
[11] A Mongolian language of Gansu province, China.

Table 2: Baoan case forms for nouns and personal pronouns

	Noun: 'bird'		**1st person prons**		**2nd person prons**	
	sg	pl	sg	pl	sg	pl
nom	bendžer	bendžerle	be	mange/ bede	če	ta
gen	bendžer**ne**	bendžerle**ne**	me**ne**	ma**ne**/ beda**ne**	če**ne**	ta**ne**
acc			na:**de**	man**de**/ bedan**de**	čo:**de**	ta**de**
dat/loc	bendžer**de**	bendžerle**de**				
abl	bendžerse	bendžerlese	na:se/ bese	manse/ bedanse	čo:se	tase
instr/comit	bendžerGale	bendžerleGale	beGale	mangeGale/ bedaGale	čeGale	taGale

Here we have a beautifully agglutinative paradigm, with some case- and number-conditioned suppletion in the personal pronoun stems, but utterly transparent case suffixes in both the nominal and personal pronominal paradigms.[12] Factoring out the stems, the case suffix paradigms are given in Table 3:

Table 3: Baoan case suffixes

	Noun	Pronoun
nom	Ø	Ø
gen	ne	ne
acc		de
dat/loc	de	
abl	se	se
instr/comit	Gale	Gale

The problem arises in that it seems clear that the genitive suffix is *-ne*, and the dative suffix is *-de*, in both the nominal and pronominal paradigms, but the accusative case syncretizes with the genitive in the nominal paradigm and the dative in the pronominal paradigm. Metasyncretism is not an issue with these case morphemes, because the same VIs are at stake in all the relevant cells of both paradigms.

Underspecification will never do the job here. If one underspecifies the genitive VI *–ne* to get it to spread into the accusative in the nominal paradigm, then we can't

[12] Baoan is another language where there's no Instantiated Basic Paradigm in the sense of Williams 1994; the crossing syncretisms of accusative/genitive and accusative/dative mean no column of forms makes every distinction present in the language.

understand why dative *–de* (which also occurs in the nominal paradigm) spreads into the accusative in the pronouns, and vice versa. There is no underspecification solution for this problem.

One could assume it's a Numeration bundling phenomenon in the language: 1 and 2 person object pronouns bundle, exceptionally, only with Dative case features (like Spanish animates, for example)[13], and cannot co-occur with Accusative case features. In that case, it would be a deep syntactic fact about Baoan, which one would expect to see have effects in the narrow syntax — perhaps 1 and 2 person objects would not passivize, for example.

Alternatively, an Impoverishment rule could apply to certain case bundles to create the syncretism. An analysis exploiting this option is presented next.

Assume that accusative shares a marked case feature with either the dative or the genitive. This feature will trigger case syncretism in one paradigm, because a marked VI will refer to it, and win insertion in both the accusative node and the other case with the same marked feature. In the other paradigm, that feature is deleted in the accusative via a conditioned Impoverishment rule, and consequently the marked VI will drop out of competition. The accusative will then syncretize with another, less specified form. Assuming the un-Impoverished paradigm is the nominal one, the hypothetical Impoverishment rule would be conditioned by a [+Part] node.[14] The marked feature would be shared by accusative and genitive cases, and would be deleted in the personal pronouns, causing accusative to syncretize with less-marked dative.

In Halle's 1997 system[15], Accusative and Genitive are both [+Structural].[16] We'll assume that Dative is [-Structural]. Let's also assume that Accusative and Dative are

[13] Thanks to David Pesetsky for pointing out this possibility
[14] 3rd person forms are demonstratives, and pattern with the nominals, not the personal pronouns.
[15] See Müller 2003 for extensive justification of such feature systems for case morphology.

both [+Dependent], while Genitive is [-Dependent]. [±Oblique] is also present to distinguish the other cases in the paradigm. Here's the full set of case features that I assume are operative in Baoan, positive values highlighted:

(23) Case feature combos in Baoan:

+Structural, -Dependent, -Oblique:	Nominative
+Structural, -Dependent, **+Oblique**:	Genitive
+Structural, **+Dependent**, -Oblique:	Accusative
+Structural, **+Dependent**, **+Oblique**:	??
-Structural, **+Dependent**, -Oblique:	Dative
-Structural, **+Dependent**, **+Oblique**:	Ablative
-Structural, -Dependent, -Oblique:	??
-Structural, -Dependent, **+Oblique**:	Instrumental

The following VIs will then be relevant for Baoan case markers:

(24) a. -se ←→KASE
[+Obl]
[+Dep]
(Ablative)

b. -ne ←→KASE
[+Struct]
(Genitive)

c. -Gale ←→ KASE
[+Obl]
(Instrumental)

d. -de ←→KASE
[+Dependent]
(Dative)

e. Ø ←→KASE elsewhere
(Nominative)

These VIs, competing in this order, will generate the nominal paradigm. This order is not guaranteed by the Elsewhere principle alone as things stand, but it is plausible if we assume a feature hierarchy within Case features such that Structural > Oblique > Dependent. In particular, a KASE terminal node with the accusative feature bundle in (25) will be realized as *-ne* because b. comes before d. in the competition.

(25) KASE (=Accusative)

+Structural +Dependent +Oblique

[16] So is Dative, but we'll assume it's not in Baoan for the moment. It doesn't really matter what the features are called, anyway.

Then an Impoverishment rule would apply only to KASE nodes next to personal pronouns, so that *-ne* does not realize Accusative, but *-de* does. If we delete the [+Structural] feature from feature bundles also containing [+Dependent] in the environment of [+Part], as below, the only relevant feature remaining in the Accusative feature bundle will be [+Dependent]. Consequently, Accusative will syncretize with Dative rather than with Genitive in the personal pronouns.

(26) Baoan Case Impoverishment rule

KASE	→	KASE	/	D°	_____
[+Structural]		[+Dep]		[+Part]	
[+Dependent]		[-Obl]			
[-Oblique]					

"Delete +Structural in +Dependent 1 and 2p bundles"[17]

Impoverishment, then, could be employed to block *-ne* from showing up in the personal pronouns in the accusative in Baoan. [18] Here, metasyncretism is not at issue; it's just that underspecification cannot in principle do the job. The personal pronoun dative/accusative syncretism is not just a surface morphological phenomenon; it must be a deeper fact about the syntax or morphosyntax of Baoan.[19]

One final note about the Baoan case before we turn back to English: Although there is no metasyncretism in the case endings, the suppletive pronominal *stems* in

[17] Noyer's co-occurrence type of Impoverishment rules, where the impoverished feature depends on his feature hierarchy, will give the wrong result here. We need to specify that it's [+Str] that's deleted, rather than [+Dep], even though to get the rule-ordering above we assumed that Structural > Dep on the feature hierarchy.

[18] Uli Sauerland (p.c.) has suggested that Impoverishment is really spell-out of a -Ø VI, discharging the Impoverished features from the representation while leaving the others behind to be realized by another suffix. That could work for, e.g., gender being spelled out as a separate morpheme from number in Russian, but I don't think it will easily work here, because each feature in a case feature bundle does not usually correlate with its own position-of-exponence—case is not agglutinative, in other words. That is, there would have to be a Ø VI that spelled out *just* the [+Struc] case feature in [+Struc, +Dep] bundles, and then the remainder of the bundle would get spelled out by the visible *-de* marker. To make this work, Fission would have to apply to this case feature bundle, separating off the [+Struc] feature just in this context, but not otherwise. We might then expect to see cases where Ablative case ([+Dep, +Obl]) was marked by combining an Instrumental ([+Obl]) marker with a Dative ([+Dep]) marker; as far as I know, this does not occur (though perhaps the feature-based approach to case ending suggests it should.)

[19] We could distinguish between the Numeration-bundling restriciton possibility and the post-syntactic Impoverishment possibility by investigating whether the particular features at issue are syntactically active or not, for instance by testing passivization of personal pronouns in object position.

Baoan do show a metasyncretism, between Dative and Ablative, as shown in Table 4 below, stripped of their case suffixes:

Table 4: Baoan Pronominal Stems

	1st person prons		**2nd person prons**	
	sg	pl	sg	pl
nom	be	mange/ bede	če	ta
gen	me-	ma- beda-	če-	ta-
acc/dat/loc	na:-	man- bedan-	čo:-	ta-
abl	na:- / be-	man-/ bedan-	čo:-	ta-
instr/comit	be-	mange- / beda-	če-	ta-

As can be seen from the table, different VIs, *na:, man, čo,* and *ta* all syncretize across Dative and Ablative. This suggests that an additional Impoverishment rule is in action, deleting [+Oblique] from the Ablative and causing it to conflate with the Dative, in the terminal nodes that will be realized by the stems.

However, this Impoverishment rule crucially *cannot* be applying to the KASE terminal node, because if it did, the ablative suffix *-se* would never appear; the *-de* Dative syncretism would spread to the Ablative as well as the Accusative. This means that this stem-syncretism does not arise by secondary exponence (morphologically conditioned allomorphy). It must be the case that the pronominal stem terminal node (D°) receives its own set of Case features via Agree, which are realized along with the phi-features by the insertion of particular pronominal stemst. This metasyncretizing Impoverishment rule for the Ablative applies to *that* set of Case features, not to the KASE node's Case features. A similar problem arises in the analysis of Nubian, below: features that are crucially Impoverished in one terminal node appear to be fully active in another terminal node.

In any case, the point of the Baoan case suffixes is to show that pre-insertion Impoverishment or feature bundling restrictions can be motivated without metasyncretism, to prevent the wrong VI from competing for a position of exponence in a place where we would otherwise expect it to appear.

5 Metasyncretism and Impoverishment in English pronouns

In conventional cell-uniting notation, the syncretisms of the English pronominal paradigms for each case we've been considering look like this:

(27) Nominative

	sg			pl		
	m	f	n	m	f	n
1	I			we		
2	you					
3	he	she	it	they		

(28) Accusative

	sg			pl		
	m	f	n	m	f	n
1	me			us		
2	you					
3	him	her	it	them		

(29) Genitive

	sg			pl		
	m	f	n	m	f	n
1	my			our		
2	your					
3	his	her	it	their		

As in Russian and Latin, we have metasyncretism in English pronouns: In each case, the shape of the paradigm is the same, even though the particular vocabulary items that realize each set of syncretic cells are not obviously based on a single set of stem forms.[20] Several identical patterns of syncretism appear in all Case paradigms:

(30) English metasyncretisms:

[20] It might not be impossible to propose a decomposition analysis, however; one could, for instance, analyze the *-r* in *our, your* and *their* as marking genitive, and the *-m* in *him* and *them* as accusative, and propose readjustment to the stems *you, he, we* and *they* to get the right final shape.

a. Gender is not marked in the personal pronouns (first & second person)
b. Gender is not marked in the plural pronouns
c. Number is not marked in the second person

Here are the vocabulary items from the big list in (14) that realize the nominative and genitive pronominal terminal nodes as in the paradigms shown above:

(31)

Genitive		Nominative	
b.	awɹ ⟷ D_{RE} +Spkr, +Grp, +Obl	a.	wij ⟷ D_{RE} +Spkr, +Grp, +Sup
e.	maj ⟷ D_{RE} +Spkr, +Obl	d.	aj ⟷ D_{RE} +Spkr, +Sup
g.	jɔɹ ⟷ D_{RE} +Part, +Obl	h.	juw ⟷ D_{RE} +Part
j.	ðɛɹ ⟷ D_{RE} +Grp, +Obl	i.	ðej ⟷ D_{RE} +Grp, +Sup
n.	hɚ ⟷ D_{RE} +Fem	m.	ʃij ⟷ D_{RE} +Fem, +Sup
p.	hɪz ⟷ D_{RE} +Obl	o.	hij ⟷ D_{RE} +Sup
		l.	ɪt ⟷ D_{RE} +Neut

In the genitive, the ordering of all the the VIs can simply fall out from the Elsewhere Principle in concert with the feature hierarchy. In the nominative, on the other hand, getting the right ordering is somewhat trickier, as we saw above in section 3, ex (20). It is crucial, for instance, that h be ordered before m, or else nominative 2nd person feminine feature bundles will be pronounced ‘she’, rather than ‘you’, but the Elsewhere Principle predicts the opposite ordering; ditto for h and i (‘they’ rather than ‘you’). So ensuring this order is crucial, if we want to avoid using negative features in our Vocabulary Items.

As noted above, we could just impose the needed ordering shown here by brute force. Then the syncretisms in each case paradigm would be entirely dependent on the particular (under)specifications of the vocabulary items relevant for each case. Nothing in principle would rule out the possibility of a VI that particularly refers to plural in the 2nd person genitive (something like, say, *youser house*), for instance, even though there

doesn't happen to be a 2nd person VI that refers to plural in the accusative. On a VI-based treatment, number marking in the 2nd person genitive is completely independent of whether there's number marked in the 2nd person in any other case. As we have seen, Vocabulary Item-based syncretism doesn't predict such uniformities across paradigms, which appear to be generalizations about the whole grammar of a language.

If we adopt an Impoverishment account, however, we will capture these patterns across paradigms in a natural way. On an Impoverishment story, English-specific feature-deletion rules will apply to terminal nodes with certain combinations of features, removing some of them prior to Vocabulary Insertion. It would then become *in principle* impossible for any Vocabulary Item to refer to one of the deleted features in the relevant terminal node. The absence of gender in the plural, for instance, becomes a grammar-wide fact, rather than an accident of vocabulary specification.

For English, the following Impoverishment rules could accomplish the necessary:

(32) Class → Ø / +Part _____
"Gender is deleted in first and second person")

(33) Class → Ø / +Group _____
"Gender is deleted in the plural"

(34) Indv → Ø / +Part, -Spkr _____
"Number is deleted in the second person"[21]

(35) Sup → Ø / +Part, -Spkr ____
"Nominative is deleted in the 2nd person"

[21] We do need to refer to negative features in this Impoverishment rule ([-Spkr]). Since 1st person terminal nodes also contain a [+Part] node, but do represent number, we have to find a way for this Impoverishment rule to be blocked from applying to representations containing a Speaker node. Above, we have bene assuming that in the syntax, terminal node feature bundles are fully specified for both positive and negative features—it is only VIs which do not employ negative features. Alternatively, we could claim that 2nd person is marked — i.e. rather than a [+Spkr] feature, we need a [+Addressee] feature, and first person is [+Part, -Addressee] (contra McGinnis 2004). In that case, Addressee could be referred to in this Impoverishment rule. The problem here is interestingly similar to the problem of 3rd person *-s* in English, and to the problem of needing two Gender-deleting Impoverishment rules here in (32) and (33). More on this below.

These Impoverishment rules will generate the meta-syncretisms of English. The also do something else, though: They *remove the ordering problems* for the Elsewhere condition that we encountered above, precisely because they delete the very features that were inviting inappropriate VIs into the competition.

Given the Impoverishments above, the 3.sg.f.Nom pronoun *she* will no longer be in competition with the 1.sg.Nom pronoun *I* to realize a [+Spkr, +Part, +Sup, +Fem] terminal node, as in (19) and (20) above because no such terminal node will reach Vocabulary Item insertion—the Impoverishment rule (32) will have deleted [+Fem] from the representation, eliminating the [ʃij] VI from the competition via the Subset Principle.

The same result will obtain for our ordering problem between *they, she* and *you* in (21) and (22): the deletion of [+Sup] case by the Impoverishment rule in (35) from terminal nodes containing [+Part, -Spkr] representations removes *they* and *she* from the competition, again by the Subset Principle.

So, the Impoverishment rules that are motivated for English by the metasyncretic facts also happen to remove the need for brute-force ordering of VIs. Here, an independently motivated and well-used mechanism of the theory allows us to avoid an unmotivated, over-powerful stipulation.

6 Metasyncretism and Impoverishment cross-linguistically

Williams claims that metasyncretic patterns are common in languages of the world, but both he and Bobaljik only consider Indo-European languages (English, Latin, Russian). Indo-European generally shows a lot of metasyncretic behavior, particularly in syncretizing gender in the presence of plural number. Both Frampton (2002) and Nevins (2003) point out that an Impoverishment analysis predicts that metasyncretisms should

be fairly stable over time, since they are not tied to any individual VIs. How common is metaparadigmatic behavior in the languages of the world?

In the Surrey Syncretisms Database (http://www.smg.surrey.ac.uk/), syncretisms of person, number, gender and case are presented for 30 genetically diverse languages. Interestingly many of the meta-paradigmatic syncretisms in their database look to be attributable to agglutinative synthetic morphology, where a single vocabulary item appears in multiple paradigms (see, e.g. fn. (3) on Latin above).

In order for metasyncretism to be an issue, there has to be syncretism driven by *distinct* vocabulary items with respect to the same sets of features; synthetic agglutinative morphology does not demonstrate it. Of the thirty languages in the Surrey syncretism database, at least ten involve something that really looks like indubitable metasyncretism: Aranoan, Baoan, Georgian, Limbu, Nubian, Rangpo, Tsakhur, Yimas and Yupik; many of the others' syncretism patterns were too complicated to quickly determine whether they were metasyncretic or not . Below, I present five more instances of metasyncretism, from Tsakhur, Aranoan, Limbu, Georgian and Nubian, and sketch Impoverishment analyses for Tsakhur, Aranoan, and Nubian.

6.1 Recognizing metasyncretism: Georgian and Limbu

In the complex Georgian agreement paradigm, we will look at only the transitive, non-inverted suffixes. In this pattern, the first verbal suffix syncretizes in the same ways in all classes, despite the fact that this position of exponence is realized by distinct VIs in different classes (note that the prefixes are the same across all the classes except in the 3sgS-2plO case):

Table 7: Georgian non-inverted trans. agr paradigms types A, B, C

Sub-Obj	A: 18 forms 3sg = -s class 1 present 'build' *šeneb*	B: 19 forms 3sg = vowel class 1 aorist 'build' *šen*	Type C: 20 forms class 2 present 'help' *exmareb*
1sg-2sg	g- -**Ø**	g- -**e**	g- -**i**
1sg-3	v- -**Ø**	v- -**e**	v- -**i**
1sg-2pl 1pl-2pl 1pl-2sg	g- -**Ø** -t	g- -**e** -t	g- -**i** -t
3sg-2pl		g- -**a** -t	
3pl-2pl 3pl-2sg	g- -**en**	g- -**es**	g- -**an**
3sg-2sg	g- -**s**	g- -**a**	
1pl-3	v- -**Ø** -t	v- -**e** -t	v- -**i** -t
2sg-1sg	m- -**Ø**	m- -**e**	m- -**i**
2sg-3	-**Ø**	-**e**	-**i**
2sg-1pl	gv- -**Ø**	gv- -**e**	gv- -**i**
2pl-1sg	m- -**Ø** -t	m- -**e** -t	m- -**i** -t
2pl-3	-**Ø** -t	-**e** -t	-**i** -t
3sg -1sg	m- -**s**	m- -**a**	
3pl-1sg	m- -**en**	m- -**es**	m- -**an**
3sg-3	-**s**	-**a**	
3sg-1pl	gv- -**s**	gv- -**a**	
3pl-1pl	gv- -**en**	gv- -**es**	gv- -**an**
3pl-3	-**en**	-**es**	-**an**

If we remove the nonvarying object prefixes and the nonvarying *-t* suffix from the table and rearrange the order of presentation of the rows so we can adopt the conventional cell-uniting notation for the suffixes, the metasyncretic pattern in this position-of-exponence in the Georgian verb becomes much clearer:

<table>
<tr><td>Sub-Obj</td><td>A: 18 forms
3sg = -s
class 1 present
‘build’ šeneb</td><td>B: 19 forms
3sg = vowel
class 1 aorist
‘build’ šen</td><td>Type C: 20 forms

class 2 present
‘help’ exmareb</td></tr>
<tr><td>1sg-2sg</td><td rowspan="10">-Ø</td><td rowspan="10">-e</td><td rowspan="10">-i</td></tr>
<tr><td>1sg-3</td></tr>
<tr><td>1sg-2pl
1pl-2pl
1pl-2sg</td></tr>
<tr><td>1pl-3</td></tr>
<tr><td>2sg-1sg</td></tr>
<tr><td>2sg-3</td></tr>
<tr><td>2sg-1pl</td></tr>
<tr><td>2pl-1sg</td></tr>
<tr><td>2pl-3</td></tr>
<tr><td>3sg-2pl</td><td rowspan="9">-a</td></tr>
<tr><td>3sg-3</td><td rowspan="5">-s</td></tr>
<tr><td>3sg-1sg</td></tr>
<tr><td>3sg-1pl</td></tr>
<tr><td>3sg -2sg</td></tr>
<tr><td>3pl-1pl</td><td rowspan="5">-en</td><td rowspan="5">-es</td><td rowspan="5">-an</td></tr>
<tr><td>3pl-3</td></tr>
<tr><td>3pl-2pl
3pl-2sg</td></tr>
<tr><td>3pl-1sg</td></tr>
</table>

Across all three verb classes, patterns of syncretism are close to identical. Where A has *–en*, B has *–es*, and C has *–an*; in all but one place where A has *–Ø*, B has *–e*, and C has *–i*, and where A has *–s*, B and C have *–a*. Because their phonological forms are distinct in each class, they are separate Vocabulary Items, and the metasyncretic pattern needs to be captured pre-Vocabulary Item insertion. Again, this could be done morphologically, by manipulating the terminal node attached to this position-of-exponence with Impoverishment, or it could be a fact about the syntactic inventory, reflecting feature combinations available in the bundles of phi-features present in the Numeration, in which case we would expect them to have syntactic consequences. See Bejar (2000) and Rezac (2003) for discussion and treatment; I will not attempt an analysis here.

To take another case, Limbu[22] shows agreement with subjects that distinguishes three numbers and four persons, with variation conditioned by tense and polarity. The forms for intransitive verbs are given in Table 8; we will look at the syncretisms in the suffixes, bolded in the table below:

Table 8: Reg. stem intransitive verbs in Limbu:

	non-past	past	neg non-past	neg past
1ex sg	V-ʔɛ	V-aŋ	mɛ-V-ɛ-n	mɛ-V-aŋ-nɛ-n
1ex du	V-**si**-ge	V-**ɛtchi**-ge	mɛ-V-**si**-gɛ-n	mɛ-V-**ɛtchi**-gɛ-n
1ex pl	V-i-ge	V-mʔna	mɛ-V-i-gɛ-n	mɛn-V-mʔna
1in du	a- V-**si**	a-V-**ɛtchi**	an-V-**si**-n	an-V-**ɛtchi**-n
1in pl	a- V-**Ø**	a-V-**ɛ**	an-V-**nɛ**-n	an-V-**ɛ**-n
2	kɛ- V-**Ø**	kɛ-V-**ɛ**	kɛn-V-**nɛ**-n	kɛn-V-**ɛ**-n
2 du	kɛ-V-**si**	kɛ-V-**ɛtchi**	kɛn-V-**si**-n	kɛn-V-**ɛtchi**-n
2 pl	kɛ-V-i		kɛn-V-i-n	
3	V-**Ø**	V-**ɛ**	mɛ-V-**nɛ**-n	mɛ-V-**ɛ**-n
3 du	V-**si**	V-**ɛtchi**	mɛ-V-**si**-n	mɛ-V-**ɛtchi**-n
3 pl	mɛ-V-**Ø**	mɛ-V-**ɛ**	mɛn-V-**nɛ**-n	mɛn-V-**ɛ**-n

Here, again, we see metasyncretism: the syncretism patterns in the suffixes are exactly the same for all the tenses, although the vocabulary items are different. Despite the different other suffixes (e.g. the *-si* dual suffix in non-past and the *–ɛtchi* dual suffix in past), the interesting 'elsewhere' class of 1inpl, 2sg, 3sg, and 3pl is the same across all columns, though realized with different VIs in each column: *-Ø* (positive nonpast), *-nɛ* (positive past), and *-ɛ* (negative)

If this natural class is created through Impoverishing the relevant person features, its uniformity across classes is expected; if it's an accident of Vocabulary Item specification, its uniformity is a surprising coincidence. Note that any single one of these column patterns could be easily taken care of by appropriate Vocab Items and the Elsewhere condition. Here, again, we have a case where despite the fact that Elsewhere

[22] A Tibeto-Burman Kiranti language, spoken in Nepal

could handle the ranking in each individual case, Impoverishment must be applying anyway.

6.2 Case 1: Tsakhur pronouns

A relatively straightforward metasyncretism is seen in Tsakhur (Caxur)[23] pronouns, illustrated in Table 5 below (data from the report in the Surrey Syncretism Database):

Table 5: Tsakhur pronominal/demonstrative forms (animate):

	1		2		3 (neuter demonstrative series)			
	sg	pl	sg	pl	sg		pl	
					m	f	m	f
abs	zɨ	ši	ʀu	šu	mana		mammɨ	
erg					manG$_o$e:	manGe:	mammiše	
attrI	jizda	jišda	jiʀna	wušda	manGuna	manGɨna	mammišda	
attrII	jizɨn	jišɨn	jiʀɨn	wušun	manGun	manGɨn	mammišin	
dat	zas	šas	was	šos	manGus	manGɨs	mammišis	

Here, we have a completely general syncretism between absolutive and ergative case in the personal pronouns (1-2 person), rather similar to the Baoan case treated above. This poses no ordering problems, and could very easily be taken care of by the Elsewhere Principle and underspecification in each set of vocabulary items: while the AttrI, AttrII and Dative pronoun vocabulary items would be specified for person, number and case (or case context, for those that look synthetic, as in attrI and attrII), the Abs/Erg vocabulary items would just be specified for number and person: case would not not mentioned, and they would be ordered as the Elsewhere items in each competition, as follows:[24]

[23] A Lezgian, Nakh-Daghestanian language of Azerbaijan

[24] Rather than do a breakdown of case features here, I've used regular case abbreviations as shorthand for the combination of features each represents. Nothing hinges on this in this present analysis; a feature-based analysis could capture exactly the same effects.

(36) Tsakhur personal pronominal vocabulary items in an Impoverishment-less analysis:

a. jiš ⟷ D_{RE} / ____ KASE
+Spkr +Attr
+Group

b. wuš ⟷ D_{RE} / ____ KASE
+Part +Attr
+Group

c. jiz- ⟷ D_{RE} / ____ KASE
+Spkr +Attr

d. jiʀ ⟷ D_{RE} ____ KASE
+Part +Attr

e. šas ⟷ D_{RE}+KASE[25]
+Spkr
+Group
+Dat

f. šos ⟷ D_{RE} + KASE
+Part
+Group
+Dat

g. zas ⟷ D_{RE} + KASE
+Spkr
+Dat

h. was ⟷ D_{RE} + KASE
+Part
+Dat

i. ši ⟷ D_{RE} +KASE
+Spkr
+Group

j. šu ⟷ D_{RE} +KASE
+Part
+Group

k. zɨ ⟷ D_{RE}+KASE
+Spkr

l. ʀu ⟷ D_{RE}+KASE
+Part

In Tsakhur, (unlike English) the Elsewhere condition would operate perfectly satisfactorily to generate the correct order of competition for all these VIs — in particular, it will order the VIs in (36) i, j, k and l last, as the most underspecified. The lack of specification of VIs i, j, k, and l for Case features will work perfectly well to create the syncretism between absolutive and ergative in the personal pronouns.

As should be clear by now, what this analysis misses is the metasyncretic pattern in the personal pronouns. Without Impoverishment of the terminal nodes, the lack of case specification in (36) i, j, k and l is a happenstance property of each of four items; it could easily have turned out differently (e.g. the 2pl form in (36)j could refer to a particular case feature, independently of whatever i, k and l are doing). This misses the

[25] I assume a fusion rule has unified D and Kase here and in the erg/absolutive nodes, since the forms are not analyzable the way they are in the Attr cases

generalization about the grammar of Tsakhur that there just is no abs/erg distinction in the personal pronouns. It shouldn't be an 'accidental' property of the Vocabulary Items involved.

Again, this could be a 'deep' property of Tsakhur syntax—a property of the feature bundles in the Numeration—and again, if that were the case, we would hope to be able to discover syntactic ramifications of this absence of features. (E.g. Tsakhur it might be a person-motivated split-ergative language, with an underlying nominative/accusative system for the personal pronouns; this could have consequences for syntactic processes that depend on the ergative/absolutive split). On the other hand, it could just be a post-syntactic, pre-insertion generalization about the morphosyntax, implemented via Impoverishment, in which case one would expect the personal pronouns to behave exactly the same, syntactically, as other ergative and absolutive DPs in the language. On the Impverishment approach, Tsakhur needs an Impoverishment rule like the following:

(37) $+\text{Erg} \rightarrow \emptyset \;/\; \begin{matrix} D_{RE} \\ +\text{Part} \end{matrix} + \underline{\quad}\,\text{KASE}$ ("Ergative case is deleted in 1 & 2 terminal bundles)

If Absolutive is the unmarked Case, the 1 and 2 person ergative terminal node combinations will become indistinguishable from the 1 and 2 person absolutive terminal node combinations. Now the syncretism across different VIs is predicted across the grammar.

Given the pre-insertion feature reduction in the terminal nodes, it now so happens that the available VIs in Tsakhur participant pronouns match up one-to-one with the available terminal nodes — there just is no VI-driven, underspecification syncretism in the Tsakhur paradigm. We still need the Elsewhere principle here, to prevent the VIs in

i, j, k, l from realizing other Case nodes, and to prevent singular forms from realizing plural nodes, but the *syncretism* in Tsakhur has nothing to do with the Elsewhere principle.

6.3 Case 2: Aranoan pronouns:

The Aranoan[26] personal pronouns distinguish three cases, three numbers and four persons. They are presented in Table 6 below.

Table 6: Aranoan Personal Pronouns (long forms only):

1st person	sg	du	pl
absolutive	ema	tsema	cuama
ergative	yama	tseama	cuamaja
genitive	quima		

1st incl	sg	du	pl
absolutive	*	tseda	cuada
ergative	*	tseada	cuadaja
genitive	*		

2nd pers.	sg	du	pl
absolutive	midya	metseda	micana
ergative	midyaja	metseada	micanaja
genitive	miqueda		

3rd person	sg	du	pl
absolutive	joda	huatseda	naeda
ergative	huada	huatseada	naedaja
genitive			

In all forms, there is a syncretism between the ergative and genitive form of the non-singular pronouns. The ergative/genitive pronouns in the dual and plural can be derived from the absolutive one with the insertion of a single *–a–* infix (in the dual) and a *–ja—* suffix (in the plural).

[26] A Tacanan language spoken in Bolivia.

(38)	Absolutive duals	+ *-a-* infix →	Erg/gen duals
1ex	tsema		tse**a**ma
1in	tseda		tse**a**da
2	metseda		metse**a**da
3	huatseda		huatse**a**da

(39)	Absolutive plurals	+ *-ja* suffix →	Erg/gen plurals
1ex	cuama		cuama**ja**
1in	cuada		cuada**ja**
2	micana		micana**ja**
3	naeda		naeda**ja**

We could propose the following vocab items to capture this syncretism with underspecification, assuming Erg and Gen share some distinctive feature like [+Obl]:

(40) *-a-* → KASE / [+Min, +Group] ____
[+Obl]
-ja- → KASE
[+Obl]
Ø → KASE (absolutive)

But of course the metasyncretic point applies here: if *a* and *ja* are truly separate Vocabulary items, then we're facing a metasyncretism again: two separate items creating the same syncretisms in two different number paradigms. There would be no reason, for instance, why some vocab item in the plural might not refer to an Erg feature, independently of what was happening in the dual. Consequently, we could capture this more elegantly, again, with an Impoverishment rule, deleting Erg case in the presence of [+Group] (which is present in both the dual and plural), to capture these metasyncretisms.[27]

[27] (If 'j' is a default consonant in the lg, then it's possible that these are the same affix, with a phonologically driven syllable-fix in the plural. If *that* analysis were supported, the Elsewhere Condition would be useful (to order *-a-* w/r to *-Ø-*), and no metasyncretism would be present, despite appearances. Whatever other analysis of these pronouns is possible (*tse- (?+da)* looks like a dual-marking morpheme, e.g.), it would be irrelevant to the way case is realized in the system: the erg/gen syncretism would be totally driven by the relevant vocabulary item *-a-* and would not be 'meta-paradigmatic' at all.)

6.4 Case 5: Nubian verbal inflection

Finally, I discuss a more complicated case, with dual exponence of certain features. Consider the Nubian interrogative verb forms[28] of *éd-*, 'take', below in Table 9, as they are presented in the Surrey database:

Table 9: Nubian interrogative verb inflection

	interrogative I (Yes/No)				interrogative II (Wh)			
	present		past		present		past	
	sg	pl	sg	pl	sg	pl	sg	pl
1	éd-r-è	éd-r-ò	éd-s-è	éd-s-ò	éd-r-é-è	éd-r-ó-ò	éd-s-é-è	éd-s-ó-ò
2	éd-ì		éd-ò		éd-náà		éd-ò-náà	
3		éd-ìnnà		éd-sà		éd-innà-náà		éd-sà-náà

This looks like a good example of a metasyncretism—2sg and 3sg are syncretized across moods and tenses, as are 1pl and 2pl. Furthermore, we have a case of crossing syncretisms, like that observed in Baoan earlier—there is no form which uniquely identifies the 2sg or the 2pl slots in these moods. Impoverishment is definitely motivated here. Let us consider the forms in detail.

In the analysis I propose here, these verbs have the following structure: V-T/Agr-Mood-Agr_{Part}; obedient to the Mirror Principle except for the final Agr. A form that maximally illustrates these three inflectional positions of exponence is the 1st person plural form in the Interrogative II paradigm: *éd-r-ó-ò*, 'take-Pres.Participant-IntII-Participant.pl'. Notice that the difference between the 1st person sg and 1pl-2pl forms, across both moods, is that the 1sg form ends in *-è* while the 1pl and 2pl forms end in *-ò*. I claim that the final Agr represents Agree of 1st and 2nd person subjects with the C° head, where I assume interrogative mood features are located; I will assume an Agr node is attached to the C° head either in the syntax or as a dissociated morpheme at Spell-Out (Embick 1997).

[28] Judging from the description in the database report, Interrogative I is the inflection associated with yes-no questions, while Interrogative II is associated with wh-questions.

The difference between the two types of interrogative mood is in the interrogative class II forms ,which contain an extra prefinal vowel in the personal forms, and a *nàà* suffix 2sg and 3rd forms. The difference between the present tense and past tense in the 1st person sg and 1-2 pl is that the present has an *-r-* following the verb stem and the past has an *-s-*. These are Tense markers, but they are conditioned by Agr too, since they don't show up in the third person forms or 2sg. Here we have a metasyncretic effect at work, since the *-r-* and the *-s-* are independent vocabulary items, but show identical syncretisms. How can we get them to show up in the 1sg, 1pl and 2pl but not the 2sg?

To answer this question, we have to look at the 2-3sg syncretism. Here, we have another fairly clear case: *éd-ì* in the present shows this syncretism, as does *éd-ò* in the past. The *-ì* doesn't show up in the expected spot before the *-nàà* suffix in the class II present tenses, although the *-ò* does in the past. Consequently, the present tense morpheme is analyzed as *-Ø* here, and the *-ì* is assumed to be inserted epenthetically (in the Surrey database notes, *ì* is mentioned as an epenthetic vowel in a different context; we will see it again below). So we have again two different tense morphemes (*-Ø* and *-ò*) in two paradigms showing the same syncretic patterns, hence, a metasyncretism. These Nubian inflection patterns, then, display two metasyncretisms, the *-r-*/*-s-* one in 1sg, 1pl and 2pl and the *-Ø*/*-ò* one in 2sg, 3sg and 3pl.

The metasyncretic character of this syncretism is confirmed in the 'affirmative', a form used in rhetorical questions, which looks like a subclass of the class II interrogatives (same Mood suffixes) with a special Tense/Agr marker, *-min-,* showing up in the 1sg, 1pl and 2pl (see Table 9). This syncretism pattern for *-min-* is the same as for the *-r-* and *-s-* suffixes above. The *Ø*/*-ò* syncretism across 2sg, 3sg and 3pl in the

previous case is repeated in the distribution of the other Tense/Agr marker in this mood, *-mi*.

Table 9: Nubian Affirmative mood

affirmative		
	sg	pl
1	éd-min-é-è	éd-min-ó-ò
2	éd-mi	
3		éd-mì-náà

(The only missing piece is the expected 3rd person class II Mood marker *-náà* in 2sg/3sg, which shows up as expected in the 3pl. We expect to see *-náà* here because it appeared in the *éd–náà* form in the equivalent cell in the regular class II forms. There's nothing incompatible between *–mi* or *–min* and *–náà*, as shown by the 3pl form here. So the absence of *-náà* in the 2sg-3sg cell needs accounting for.)

If we Impoverish a second person [+Part] feature in the singular, causing 2sg representations to become identical to 3sg representations, both sets of syncretisms that we have identified will fall out.

(41) Nubian T/Agr Impoverishment Rule

T+AGR → T+AGR
[+Part] [-Group]
[-Group]

After Impoverishment, the 2sg terminal node's [+Part] feature is eliminated. Consequently, the failure of the person-conditioned Tense suffixes *-r-* and *-s-* to appear in the 2sg is expected — no [+Part] features are present in 2sg, and they hence cannot compete to realize this node. This Impoverishment rule thus bleeds the [+Part] *-r-, -s-* and *-min* Tense/Agr markers, and feeds the [-Part] *-Ø-*, *-o-* and *-mi* Tense/Agr markers.

(42) The VIs of Nubian (interrogative) Tense/Agr:

a. -s- ←→ T+AGR
+Past
+Part

b. -r- ⟷ T+AGR
+Part

c. -ìnnà- ⟷ T+AGR
+Group

d. -sà- ⟷ T+AGR
+Past
+Group

e. -ò- ⟷ T+AGR
+Past

f. -min- ⟷ T+AGR / ____ MOOD
+Part +Affirm

g. -mi- ⟷ T+AGR / ____ MOOD
+Affirm

h. -Ø- ⟷ T+AGR

Considering now the mood suffixes which follow the Tense/Agr suffixes in the Interrogative II forms and the Affirmative forms, we see that they also exhibit crossing syncretisms. In the 1sg, 1pl and 2pl slots, past and present, the Interrogative II and Affirmative mood is realized by an additional vowel segment, whose features are specified by spreading from the Agr_{PART} suffix to its right. In the 2sg, 3sg and 3pl slots, the Interrogative II mood is realized by the suffix *-náà*, again regardless of tense. These mood suffixes, then, are conditioned by the Tense/Agr features in the neigboring node—and that conditioning is affected by the Impoverishment rule affecting that node: the mood marker in the 2sg is reduced to the *-náà* Elsewhere case because the neighboring Tense/Agr node's [+Part] feature has been Impoverished in the 2sg. (In the Affirmative, things are somewhat more complicated: the *-náà* suffix only appears in the 3pl, but not the 2sg and 3sg. I will assume that an additional Impoverishment rule has applied here in the 2sg and 3sg, deleting the [+Wh] feature which would otherwise condition insertion of *-náà* and reducing it to the -Ø Elsewhere suffix that appears in the

Interrogative I inflection. This Impoverishment rule is given in (43), and the Vocabulary Items for realizing the Mood node are given in (44):

(43) MOOD [+Wh] [+Affirm] → MOOD / T+Agr _____ -Spkr -Group

(44) a. -V- ←→ MOOD / T+AGR _____ +Wh +Part

b. -náà ←→ MOOD +Wh

c. -Ø ←→ MOOD

Before we can definitively provide VIs for the final Agr_{PART} suffixes, however, we have to look at the indicative inflections in present, past and future:

Table 11: Nubian indicative mood: present, past, future

	present		past		future	
	sg	pl	sg	pl	sg	pl
1	éd-ì-r		éd-ì-s		éd-âll	
2	éd-nâm	éd-l-ókòm	éd-o-nâm	éd-s-ókòm	éd-áa-nâm	éd-áa-l-ókòm
3	éd-ì	éd-innà	éd-ò	éd-sà	éd-áà	éd-áa-nà

As for the Tense/Agr morphemes, in the 3rd person plural, we see our familiar items *-innà* and *-sà*, for present and past, as well as two new items for the future, *-âll-* in the first person and *-áà-* elsewhere. We see *-r-* in the 1sg and 1pl present[29] and *-s-* in the 1sg, 1pl, and 2pl past, just as before. The agreement vowels on the end are absent, so those VIs must be conditioned for insertion in the interrogative moods only. I assume that the *-i-* vowels in the first person forms are again epenthetic.

However, the analysis of the second person needs more attention now. We see an *-l-* in the Mood slot in second person plural present and future. (We see the future tense marker *-áa-* clearly in both the 2nd and 3rd persons, both singular and plural,

[29] In the present indicative, however, the *-r-* morpheme does not appear in the 2pl, between the *éd-* and *-l-*, as is expected. Perhaps it is phonotactically illegal there, or perhaps the Impoverishment rule for Tense/Agr is conditioned only to apply in the past indicative, Interrogative I and II, and Affirmative moods.

which means the *-l-* in 2plFut cannot be a Tense/Agr marker. The *–l–* thus seems to be a special Indicative mood marker conditioned by 2nd person pl.) We see two new Agr_{Part} items following the *-aa-* Tense marker and *-l-* 2pl Mood marker, *-nâm* and *ókòm,* conditioned by 2nd person and number, appearing in all tenses. Given the presence of these items, it would appear that 2nd person is *not* impoverished in the singular in the Indicative.

But if that's the case, then we would expect to see the [+Part] *-s-* Tense/Agr form spread into the 2sg in the indicative past, and *-r-* in the 2sg in the indicative present. However, we do not see this—rather, the syncretism of 2sg with 3sg remains intact in the nonfuture Tense/Agr slot; we get the *-Ø-* present and *-o-* past tense markers in 2sg (*ed-**o**-nâm*), as in the interrogative. In the past, the *-s* morpheme still presents its l-shaped syncretism pattern, conflating 1sg, 1pl and 2pl.

As noted above, I assume a pre-Spell-Out operation creates the extra Agr_{Part} node outside Mood (in C°) from [+Part] subject representations. The creation of this node must occur *before* the Impoverishment operation at morphology that deletes the Participant feature from Tense in the T+AGR node. Then Impoverishment applies, and the Tense/Agr node syncretizes, but the newly created Agr_{Part} does not. (This is the same solution to the same problem that we saw in Tsakhur, above: double exponence, where an Impoverishment rule applies to one node but not the other.) That is, in these cases, the metasyncretism *must* be post-syntactic, not created in the Numeration, because if these Agr_{PART} nodes never contained the [+Part] feature in the 2nd sg, the VIs realizing that node would never be able to refer to it.

The VIs for the Agr_{Part} node, the additional VIs for future Tense/Agr and the additional VI for 2ndpl indicative Mood, are presented in (45), (46) and (47) below:

(45) a. -ókòm ⟷ Agr_{PART} / MOOD _____
[+Part], [-Spkr][30] [+Indic]
[+Group]

b. -nâm ⟷ Agr_{PART} / MOOD _____
[+Part], [-Spkr] [+Indic]

c. -ò ⟷ Agr_{PART}
+Part
+Group

d. -è ⟷ Agr_{PART}
+Spkr

e. Ø ⟷ Agr_{PART}
Elsewhere

(46) a. -âll- ⟷ T/AGR
+Fut
+Spkr

b. -áa- ⟷ T/AGR
+Fut

(47) -l- ⟷ MOOD / T/AGR _____
[+Indic] +Part, -Spkr
+Group
-Past

To summarize the analysis, I present below three tables which correspond to the three terminal nodes which I have proposed are being realized by the various suffixes in the Nubian inflectional system. These tables represent the (epiphenomenal) paradigms created by competition for these particular nodes. I present them in their hierarchical order, lowest to highest: T/Agr, then Mood, then $Agr_{Part.}$

[30] I have included reference to the negative feature [-Spkr] here to prevent this VI from being realized in the first person indicative, which will also be marked [+Part]. In order to capture this pattern without negative features, I could either refer to a [+Addr] feature, assuming 2nd person is more marked than 1st in this language, or appeal to another Impoverishment rule deleting features from [+Spkr] Agr_{PART} nodes in the Indicative

Table 12: Nubian Tense/Agr suffixes

	Present +Q		*Past*		*Future*		*Affirm*	
	Sg	Pl	Sg	Pl	Sg	Pl	Sg	Pl
1	**-r-**		**-s-**		**-âll-**		**-min-**	
2	**-Ø-**		**-o-**		**-áa-**			
3		**-inna**		**-sa**			**-mi-**	
	Present Indic							
1	**-r-**							
2	**-Ø-**	*****						
3		**-inna**						

*As noted in fn. 26, the absence of *-r-* here is unaccounted for in this analysis.

Table 13: Nubian Mood suffixes

	Indic Past/ Interrogative I		*Interrogative II*	
	sg	pl	sg	pl
1	**-Ø-**		**-V-**	
2				
3			**-ná à**	
	Indic present		*Affirmative*	
1	**-Ø-**	**-l-**	**-V-**	
2			**Ø**	
3				**-ná à**
	Indic fut			
1	**-Ø-**	**-l-**		
2				
3		**-nà ***		

Table 14: Nubian Agr_{Part} suffixes

	Indicative		*+Q (Int I, II, Affirm)*	
	sg	pl	sg	pl
1	**-Ø**		**-è**	**ò**
2	**-nâm**	**-ókòm**	**-Ø-**	

In any case, if the metasyncretic clues are followed, we can see that we are pushed to certain conclusions about the nature of the final Agr node. In particular, it cannot simply be some sort of special C° morpheme whose allomorphs are simply morphologically *conditioned* by the agreement in the T/Agr node — that is, it cannot be a case of *secondary* exponence, because in T/Agr, metasyncretism tells us 2nd person is impoverished, while in this final Agr slot, 2nd person is fully active. The same is true for the Baoan case suffixes and case-conditioned pronominal stems: the metasyncretism tells us that the terminal nodes the case suffixes are competing for are Impoverished, but

the pronominal stems depend on precisely the features that are Impoverished. Consequently, there must be two sets of the features present.

7 Conclusions

In this paper, I have argued that if we take the point about metasyncretism made in Williams 1994 seriously, then Impoverishment or syntactic feature-bundling restrictions can be discovered quite easily by comparing syncretisms across paradigms. When an analysis is adjusted to take the metasyncretically motivated terminal-node reductions into account, it is very often the case that problems of rule-ordering for Vocabulary Item insertion are eliminated, in many cases eliminating the need for reference to a negative feature in a VI, or resolving an otherwise puzzling violation of the Elsewhere ordering condition. In any case, the metasyncretism phenomenon does seem to be fairly common across languages, occurring in several non-Indo-European languages considered here as well as the well-attested Indo-European case. If Frampton 2002 and Nevins 2003 are correct, then diachronic stability of syncretisms could be another clue to the constitution of the terminal node feature bundles available in the syntax or pre-Insertion morphosyntactic component.

This type of phenomenon could then provide a starting point for morphosyntactic and morphosemantic investigation: if features are subject to metasyncretism, it is possible that they are simply not present in the syntax at all, neither at LF nor at PF, and hence should not be able to drive syntactic operations. Further, if they are not present at LF, one might expect metasyncretic forms to show evidence of semantic underspecification, as well as morphological underspecification. Such an investigation would require a better understanding of the semantics of morphosyntactic feature bundles. However, simply being able to identify good candidates for such investigation via the metasyncretic phenomenon could, I feel, be a significant step forward.

References:

Bejar, Susana. 2000. "Structural markedness in formal features: deriving interpretability." *Revue québecoise de linguistique* 28.1: 47-72.

Bobaljik, J. (2001) "Syncretism without paradigms: Remarks on Williams 1981, 1994." *Yearbook of Morphology,* 53-85.

Frampton, J. (2002) "Syncretism, Impoverishment, and the Structure of Person Features", presented at the 2002 Chicago Linguistics Society meeting. Available at http://www.math.neu.edu/ling/pdffiles/syncretism.pdf.

Halle, M. (1997). 'Distributed Morphology: Impoverishment and Fission,' *MITWPL* 30, 425-439.

Harley, H. (1994). 'Hug a tree: Deriving the morphosyntactic feature hierarchy,' *MITWPL* 21, 289-320.

Harley, H. and E. Ritter. (2002). 'Person and number in pronouns: A feature-geometric analysis.' *Language* 78, 482-526.

Kiparsky, Paul. 1973. 'Elsewhere' in phonology. In *A Festshrift for Morris Halle*, ed. Stephen R. Anderson and Paul Kiparsky, 93-106. New York: Holt, Rinehart and Winston

McGinnis, M. (2003) 'Implications of an asymmetry in the representation of person', paper presented at UBC, to appear in *Proceedings* ....

McGinnis, M. (2004) 'On markedness asymmetries in person and number,' Ms., UCalgary.

Müller, Gereon. (2003). 'On Decomposing Inflection Class Features: Syncretism in Russian Noun Inflection.' In Lutz Gunkel, Gereon Müller & Gisela Zifonun (eds.), *Explorations in Nominal Inflection.* Berlin: Mouton de Gruyter.

Nevins, A. (2003) "Do Person/Number syncretisms refer to negative values"? Talk presented at the 2003 LSA Meeting, Boston, MA.

Rezac, Milan. 2003. The fine structure of cyclic Agree. *Syntax* 6:156–182

Williams, E. (1994) "Remarks on lexical knowledge," *Lingua* 92: 7-34.