

Syncretism in Morphology

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Summary

The term syncretism refers to a situation where two distinct morphosyntactic categories are expressed the same. For instance, in English, first and third person pronouns distinguish singular from plural, but the second person pronoun fails to do so, as highlighted by shading in Table (1).

(1) Personal pronouns in English

	SINGULAR	PLURAL
1 st	I	we
2 nd	you	you
3 rd	he / she / it	they

Such paradigms are traditionally understood in a way that the English grammar makes a systematic distinction between the singular and plural in all persons. However, in the case of the second person, the two distinct meanings are expressed the same, namely by the pronoun *you*. The form *you* is thus understood as a syncretic form that occupies two slots in the paradigm, each corresponding to a different grammatical meaning.

It is important to note that while the two meanings are different, they are also related: both instances of *you* have something in common, namely the fact that they both refer to the addressee. They differ in whether they refer just to the addressee, or to a group including the addressee and someone else, as depicted in (2).

- (2) a. *you* (SG) = ADDRESSEE
b. *you* (PL) = ADDRESSEE + OTHERS

The idea that syncretism reflects meaning similarity is what makes its study interesting, and a lot of research has been dedicated to figuring out the reasons for why two distinct categories are marked the same. A large part of the literature discusses syncretism in terms of meaning decomposition like the one shown in (2). The guiding idea of such research is that the identity of marking indeed reveals an underlying identity of meaning: in the decomposition in (2-a,b), both categories contain an identical component which is shared by them and by them only. This shared meaning is what groups them together as a ‘natural class’ that can be targeted by a single marker.

There are a number of approaches to the issue of how relatedness in meaning is to be modelled. An old idea, going back to Sanskrit grammarians, is to arrange the syncretic cells of a paradigm in such a way so that the syncretic cells would always be adjacent. Modern approaches call such arrangements ‘geometric spaces’ (McCreight and Chvany 1991) or ‘semantic maps’

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(Haspelmath 2003), with the goal to depict meaning relatedness as a spatial proximity in a conceptual space. A different idea is pursued in approaches based on decomposition into discrete meaning components called ‘features’ (Jakobson 1962).

Both of these approaches acknowledge the existence of **two different meanings in the grammar, which are related** in a way that makes it possible for a single marker to alternate between these two meanings. However, there are two additional logical options to the issue of syncretism. First, one may adopt the position that the two paradigm cells correspond to **a single abstract meaning**, and that what appear to be different meanings/functions arises from the interaction between the abstract meaning and the specific context of use (see, for instance, Kayne 2008 or Manzini and Savoia 2011 for approaches along these lines). Second, it could be that there are simply **two different meanings expressed by two different markers, which accidentally happen to have the same phonology** (like the English *two* and *too*, see e.g., Harbour 2008). The three approaches are mutually contradictory only for a single phenomenon, but each of them may be correct for a different set of cases.

1 Systematic and accidental syncretism

The following sections look at some of the details that relate to the notion of syncretism as defined above. The first (current) section focuses on how to distinguish between accidental homophony (two different markers, which happen to sound the same) and ‘true’ syncretism (a single marker with multiple meanings). Section 2 investigates the borders of the term and shows how the notion interacts with the notion of morphological categories. Section 3 discusses theoretical approaches to syncretism.

Coming now back to the distinction between accidental and systematic syncretism, we may easily say that this is an issue that everyone working on syncretism has to deal with. Moreover, teasing these two cases correctly apart is a crucial pre-requisite for any theoretical discussion of syncretism (Sauerland and Bobaljik 2013), and it is therefore worth devoting some attention to this. In order to see the issue as it arises in the analysis of a single language, consider, for instance, the following fragment of the Classical Armenian declension (Schmitt 1981). Classical Armenian has seven cases enumerated in the leftmost column of the table in (3). In the nominal declension, the genitive and the dative are never distinguished, so they are conflated in a single cell (they are distinct in pronouns). Looking now at the actual forms, it can be observed that nominative and accusative are also always identical in the paradigms in (3). However, they differ in the plural, to which we turn shortly; therefore, NOM and ACC have each a separate row.

(3) A fragment of Classical Armenian declension, singular

	old man, SG.	Tigran (name), SG.	word, SG.	time, SG.
NOM	cer-∅	Tigran-∅	ban-∅	žam-∅
ACC	cer-∅	Tigran-∅	ban-∅	žam-∅
LOC	cer-∅	Tigran-ay	ban-i	žam-u
GEN/DAT	cer-oy	Tigran-ay	ban-i	žam-u
ABL	cer-oy	Tigran-ay	ban-ê	žam-ê
INS	cer-ow	Tigran-aw	ban-iw	žam-u

Beyond these syncretisms (which are common to all nouns in the table), there are several syncretisms restricted to particular paradigms; these are highlighted by shading. For each of these

syncretisms, one can ask if they are ‘true’ syncretisms, reflecting a similarity in meaning, or whether they are just accidents of phonological development.

Consider, for instance, the noun ‘old man,’ in the first column, which shows NOM—ACC—LOC syncretism, as well as GEN/DAT—ABL syncretism. There are reasons to think that these syncretisms are systematic. Specifically, both ACC—LOC and GEN/DAT—ABL syncretisms occur also in the plural, which is given in (4). What we see here is that LOC is in fact always syncretic with ACC, and so is GEN/DAT with ABL.

(4) A fragment of Classical Armenian declension, plural

	old man, PL.	Tigran (name), PL.	word, PL.	time, PL.
NOM	cer-k‘	Tigran-k‘	ban-k‘	žam-k‘
ACC	cer-s	Tigran-s	ban-s	žam-s
LOC	cer-s	Tigran-s	ban-s	žam-s
GEN/DAT	cer-oc‘	Tigran-ac‘	ban-ic‘	žam-uc‘
ABL	cer-oc‘	Tigran-ac‘	ban-ic‘	žam-uc‘
INS	cer-owk‘	Tigran-awk‘	ban-iwk‘	žam-uk‘

Thus, what we see is that the noun ‘old man’ shows very much the same syncretism pattern in the singular (3) and in the plural (4), with no distinction between ACC and LOC on the one hand, and between GEN/DAT and ABL on the other. (The only difference between SG and PL is whether NOM is the same as ACC or not: it is in the singular, but not in the plural.)

What is crucial is that Classical Armenian is a fusional language, where case and number are expressed together by a single marker. As a consequence, the singular and the plural use completely different case markers. The fact that some homophonies show up in both numbers and with a different set of markers thus tells us that such confluations are very likely not accidental, but systematic. The logic is simple, and based on the idea that ‘accidental results do not repeat.’

For the same reason, also the syncretism of LOC and GEN/DAT in the singular (recall (3)) is quite likely systematic. Even though the syncretism does not occur in the plural (4), it is replicated in three distinct paradigms (*žam* ‘time,’ *ban* ‘word’ and the proper name *Tigran*), once again using distinct markers. Generalising this discussion, we may posit the following rule of thumb:

(5) Frequency as a criterion:

- a. If two (or more) categories show identical marking across various paradigms and with different markers, then the identity should be treated as systematic (and accounted for by meaning similarity).
- b. If a particular identity is restricted to a single paradigm, it should be treated with suspicion (and may be accounted for as an accidental homophony).

Frequency as a distinguishing criterion between two types of syncretism (systematic and accidental) has gained prominence especially in typological studies, where the large number of data points available allows one to see much more clearly what kinds of syncretism are frequent (and therefore likely to be caused by meaning similarity) and what kinds of syncretism are rare (and therefore likely to be accidental). This methodology is explicitly adopted, for instance, in Cysouw (2007), who has extensively studied syncretism in person marking. He notes that “the difference between common and rare [syncretisms] seems to be a much more important fact to be modelled than the difference between rare and non-existing [syncretisms],” a point

that is elaborated on in Sauerland and Bobaljik (2013). I will come back to the significance of these findings when I discuss restrictions on syncretism in Section 3.4, where the fact that some apriori possible syncretisms are virtually unattested will become relevant.

By the frequency criterion, the syncretism between INS and GEN/DAT—LOC of *žam*, ‘time’ in (3) is suspicious, because it is only present in a single paradigm. Therefore, on the basis of this one example alone, we cannot be sure whether to seek some common meaning between the instrumental and the other cases or not. The suspicion regarding the accidental nature of the INS syncretism is strengthened by independent facts concerning phonological processes in Classical Armenian. Consider first the form of the instrumental singular. The shapes of the relevant nouns are repeated in (6).

(6) The segmentation of the instrumental

	old man, SG.	Tigran (name), SG.	word, SG.	time, SG.
INS	cer-o-w	Tigran-a-w	ban-i-w	žam-u

What we see in the table is that in the three cells on the left (i.e., in all the cells except for the syncretic instrumental of ‘time’), it is possible to decompose the form into three components: the root, a stem vowel and an invariable instrumental marker *-w*. The stem marker can be seen also in other places in the declension, for instance in the GEN/DAT plural, the form of which is given in (7).

(7) Stem markers in the plural

	old man, PL.	Tigran (name), PL.	word, PL.	time, PL.
GEN/DAT	cer-o-c‘	Tigran-a-c‘	ban-i-c‘	žam-u-c‘

This particular case also shows that the stem marker of the noun ‘time’ is an *u*. If that is so, and if the instrumental marker is an invariant *-w*, we would have expected that the instrumental singular of the noun ‘time’ is *-u-w*. This expectation is, however, not borne out, and instead, a simple *-u* is found. Why is that so?

The answer is that there is a phonological rule in Classical Armenian, which simplifies the sequence *u-w* to *-u*. The data which independently motivate such a rule is shown in (8). In (8-a), we can see the suffix *-wor* (meaning ‘bearer’), which attaches to an a-stem noun *aleln-a* ‘arch’ (Olsen 1999, 362). When this suffix attaches to a u-final base, represented in (8-b) by the u-stem noun *zim-u* ‘armour,’ concatenation provides the relevant sequence *uw*. This sequence is simplified to *u*, as the form *zimu-or* confirms.

- (8) a. alelna -wor → alelnawor
 arch bearer
 ‘archer’
 b. zimu -wor → zimuor
 armour bearer
 ‘soldier’

This state of affairs thus strengthens our suspicion that the syncretism between INS.SG on the one hand and LOC/GEN/DAT.SG on the other in the paradigm of *žam* ‘time’ is nothing but an instance of a phonological conflation of two distinct morphosyntactic patterns. No meaning commonality should be attributed to two categories on the basis of examples such as these.

The general lesson we learn is that accidental syncretism may easily arise due to phonological interactions between particular vowels and/or consonants. Therefore, it is always worth

looking at how an environment for syncretism is defined. Is it defined by reference to a particular vowel or consonant? Or is it defined by a morpho-semantic category? The answers to such questions may then provide us with an indication as to whether a given syncretism should be treated as systematic or accidental in the following way:

- (9) Conditioning factors for syncretism:
- a. Accidental syncretism tends to be restricted in phonological terms (e.g., all stems that end in *u*)
 - b. Non-accidental syncretism tends to be defined in morpho-syntactic terms (e.g., the whole of plural)

This is not to say that a purely phonological conflation may not become an integral part of a language system and the driving force of diachronic development. Nevertheless, the criterion in (9) may serve as a useful guideline that can be used to distinguish accidental homophony from systematic one, where only the latter is relevant for models of grammatical meaning.

However, even with criteria such as these in place, researchers are bound to disagree about which cases of syncretism are to be treated as accidental, and which are to be treated as systematic, with clear consequences for grammatical models. For instance, in several Indo-European as well as a couple of Saami languages, the nominative plural is surprisingly often identical to the genitive singular. In Pite Saami, we find the nominative plural/genitive singular identity in all nominal (though not pronominal) paradigms, as the following table illustrates:

(10) Pite Saami declension (Wilbur 2014, 96)

	meat, SG	meat, PL
NOM	bärrgo	biergo
GEN	biergo	biergoj
ACC	biergov	biergojd
ILL	bärrgoj	biergojda
INE	biergon	biergojn
ELA	biergost	biergojst
COM	biergojn	biergo
ABE	biergodak	biergodahta
ESS	bärrgon	—

Patterns like these are noted in Baerman (2008), but their typological rarity leads him to treat them as a case where “[f]ew would dispute that these patterns have come about by chance as a result of independent phonological developments, and it is generally conceded that no [common meaning] should be sought.” However, based on the recurrent nature of the pattern within the relevant languages, there are also approaches which treat the very same phenomenon as a case of systematic syncretism that reveals something non-trivial about the meaning of the two categories. For instance, in Manzini and Savoia (2011), the two categories are attributed the exact same abstract meaning of “inclusion.” (For further discussion, see Caha 2016 and the literature cited there.)

Such discrepancies in opinion are quite likely bound to persist. The reason for this is the clash between various types of considerations and perspectives: within the confines of a single language, the GEN.SG—NOM.PL syncretism certainly is systematic and has to be accounted for. On the other hand, if one is interested in patterns that are common in a large and diverse sample of languages (e.g., in the one used by Baerman et al. 2005), the GEN.SG—NOM.PL syncretism appears insignificant against that sample (since the syncretism is not attested outside of the

small niche of Indo-European and Saami languages). However, it seems fair to say that both types of systematic patterns need to be accounted for, regardless of whether their systematic nature can be observed only in a single language or more broadly.

As a special and interesting case, it is worth pointing out that the term systematic syncretism (entailing a grammatical explanation of a particular pattern) may also apply to examples that are insignificant within any single language, but gain significance in a cross-linguistic perspective. To give an example, let me mention the study by Bobaljik (2012), who investigates patterns of suppletion in adjectival degrees. A pattern that he finds repeated across languages is that if the comparative uses a different root than the positive (*bad—worse*), then the root of the superlative can only be syncretic with the comparative root (*wors-t*), and never with the positive root (*bad-est*). Such suppletive cases of gradation are rare within any single language, and gain significance only in a cross-linguistic perspective, where the absolute dominance of patterns like *bad—worse—worst* over *bad—worse—bad-est* becomes apparent.

The frequency of a particular syncretism within a language is further relevant for the distinction between absolute and contextual syncretism, which is the topic of the following section.

2 On absolute and contextual syncretism

Absolute syncretism is a term used in Calabrese (2008) to describe a situation where all relevant expressions in a given language show a particular syncretism. For instance, we have already seen in (1) that in English, the second person singular (*you*) is syncretic with the second person plural (*you*). This, however, is not an isolated fact pertinent to subject pronouns only, since the same syncretism is also found for the object pronoun (*you*), the possessive form (*your*) and the copula *be*, where again *are* covers both 2nd person SG and PL. In effect, there is no morphological distinction in English between 2.SG and 2.PL: their syncretism is absolute.

On the other hand, contextual syncretism targets only a subset of relevant items in a language. As an example, recall the Classical Armenian paradigms in (3) and (4) again. In these paradigms, the marking for possessors and the recipients is always the same. However, we are not dealing with an absolute syncretism, because the pronouns consistently distinguish the genitive from the dative, see (11) for an example. Such a syncretism is called contextual by Calabrese (2008), because it appears in the context of nouns, but not pronouns.

(11) A fragment of Classical Armenian declension, singular

	old man, SG.	I SG.
NOM	cer-Ø	es
ACC	cer-Ø	is
LOC	cer-Ø	is
GEN	cer-oy	im
DAT	cer-oy	inj
ABL	cer-oy	inē
INS	cer-ow	inew

The notion of absolute syncretism represents a logically possible (even if extreme) instance of syncretism. However, it is usually not treated as such in descriptive grammars. To see why, let us now consider the question of what would happen to our analysis of the nominal declension in Classical Armenian if also the pronouns stopped distinguishing between the genitive and dative. Should one then switch to an analysis with just a single case and no syncretism? Or would it be advantageous to continue having two different cases, which are always syncretic? The answer to such questions is still to a large extent a matter of debate.

In order to get a better sense of the issues involved, consider (present-day) Greek. In the Classical language, the genitive and dative used to be morphologically distinguished. In the present day language, the possessive and the recipient functions are expressed by a single form, which the descriptions label as the genitive. However, the genitive form is polyfunctional, and it can express both the possessor and the recipient meaning. (12-a,b) illustrates this for pronouns, and (12-c,d) for nouns.

(12) Greek GEN-DAT

- a. to vivlio t-u
the book he-GEN
'his book'
- b. T-u eftiaksa ena keik.
he-GEN made.1.SG a cake
'I have made him a cake.' (Pancheva, 2004, 4a,b)
- c. I mitera t-u Petr-u
the mother the-GEN Petros-GEN
'Peter's mother'
- d. I Maria efere t-u Petr-u to grama
the Maria brought the-GEN Petros-GEN the letter
'Mary brought Peter the letter.' (Anagnostopoulou, 2003, 24, 210)

Given a system like this, standard grammatical descriptions only recognise a single case, and present the Greek paradigm as in (13). According to this standard description, there is no dative in Greek to speak of, and hence also no syncretism between the genitive and dative. The decision to merge the recipient and the possessor into a single case form allows one to reduce the 'description length' compared to a scenario where the genitive cell would have to be doubled for each paradigm, without the need to introduce any new form.

- (13) A fragment of the Greek declension (Holton et al. 1997, 95-6)

	fighter SG.	fighter, PL.	I, STRONG	I, WEAK
NOM	maxit-is	maxit-es	ego	—
ACC	maxit-i	maxit-es	emena	me
GEN	maxit-i	maxit-on	emena	mu

While practical for the language learner, this perspective may not be the best one for the researcher. From a theoretical perspective, it seems that the Greek system and the Classical Armenian system are quite similar in the sense that possessors and recipients are often marked the same, and both languages in their own way suggest that GEN and DAT form a natural class. But the compact description in (13) leads to the conclusion that one language does, while the other does not have the GEN—DAT syncretism, which masks the obvious similarity.

Moreover, such a ‘non-redundant’ declension table must be accompanied by a statement that the Greek genitive can also be used as an indirect object in recipient sentences such as (12-b,d). This statement is needed in order to distinguish case systems such as the Greek one from superficially similar case systems like the one in Standard Arabic. Superficially, this language has the exact same three cases as Greek, i.e., NOM, ACC and GEN, as shown in (14).

- (14) A fragment of the Standard Arabic declension (Ryding 2005, 186-8)

	house, INDEF. SG.	house, PL.	house, DU
NOM	bayat-u-n	buyuut-u-n	bayt-aani
ACC	bayat-a-n	buyuut-a-n	bayt-ayni
GEN	bayat-i-n	buyuut-i-n	bayt-ayni

However, Standard Arabic differs from Greek in that the genitive can only be used as a nominal dependent, as in (15-a), but not as an indirect object, as in (15-b). The impossibility to use the bare genitive here is indicated by the asterisk located outside of the bracket enclosing the dative preposition *li* ‘to’:

- (15) Standard Arabic (Islam Yousef, p.c.)
- a. umm-u muhammad-in
mother-NOM Muhammad-GEN
‘Muhammad’s mother’
 - b. ahDarat maryamu al-xiTaaba *(li-)muhammad-in.
brought Maryam the-letter to-Muhammad-GEN
‘Maryam brought the letter to Muhammad.’

A natural way to capture the contrast between the Arabic (15-b) (where the genitive cannot work as a recipient) and the Greek (12-d) (where it can) would be to say that Greek actually still has a dative case (which is absent in Arabic), it is just that the newly postulated Greek dative is always syncretic with the genitive. The following table highlights this analysis in the form of a table, where shading indicates the complete syncretism of the genitive and dative in Greek. Calabrese (2008) calls such syncretism ‘absolute’ and distinguishes it from ‘contextual’ syncretism, which does not target all the paradigms in the language (like, e.g., the syncretism between ACC and GEN in the Arabic dual paradigm).

(16) Greek and Arabic compared

	fighter SG.	fighter, PL.	houses, PL	houses, DU
NOM	maxit-is	maxit-es	buyuut-u-n	bayta-a-ni
ACC	maxit-i	maxit-es	buyuut-a-n	bayta-y-ni
GEN	maxit-i	maxit-on	buyuut-i-n	bayta-y-ni
DAT	maxit-i	maxit-on	(li+GEN)	(li+GEN)

‘Redundant’ paradigms such as the Greek one above are of course not present in descriptive grammars, nor are they expected to be there. The purpose of a descriptive grammar is to list the minimal number of distinct forms and display the paradigms as compressed as possible. However, the downside of this strategy is that such descriptions lead to language specific categories; obviously, the Greek genitive (as the term is used in (13)) is different from the sense of the term as used for Arabic in (14). Seen from this perspective, the superficially redundant Table (16) allows us to dispense with the language particular meaning of the labels genitive and dative. Instead, syncretism—whatever its ultimate modelling will turn out to be—is used here as a device which can neatly capture the fact that the Greek form used for expressing the possessor (GEN in (16)) has multiple functions, while the corresponding Arabic form does not. This way, syncretism can—to use the wording from Harley (2008)—become more than a mere syncretism: it becomes a vital tool for modelling the extension of various forms across an invariant set of grammatical functions.

Even though this line of reasoning parts with the traditional definition of syncretism (which usually only considers contextual syncretism), it aligns the research focus with a lively area of inquiry based on the so-called semantic maps (Haspelmath 2003). The basic principle of this approach is to uncover a set of grammatical functions that tend to receive special coding in languages (e.g. possessor, recipient), and link these functions by connecting lines if there are languages where the two functions are syncretic. That way, a semantic map is created. The functions of each morpheme (like the Greek *-on* in (16)) are then captured by assigning it to a (connected) region of such a semantic map.

A question to consider in this connection is whether the grammar of individual languages keeps track of the underlying functions and their distinctions even in the absence of any morphological difference. In some cases, there is suggestive evidence that it does, and that the grammatical rules of a language may distinguish between two categories/functions despite their complete syncretism. For instance, in Estonian, the genitive and accusative are never distinguished in the singular. Traditional grammars thus present the paradigms as short as possible, leaving out the accusative cell, and adding to the description the statement that singular objects in Estonian are marked by the genitive case (Erelt et al. 1997). However, the elimination of the accusative case from the paradigm comes with a cost, as argued in Norris (to appear). Specifically, the elimination of the ACC/GEN distinction requires the introduction of a different distinction, namely one between the ‘genitive of the object’ (i.e., the accusative) and ‘the genitive of the possessor’ (i.e., the genitive proper). The reason for this is that the two cases show different grammatical behaviour in the pseudo-partitive construction; the details follow.

When a noun like *tükk* ‘a piece’ takes a complement in Estonian, the case of the complement varies depending on the case of the head, with two broad patterns of marking. If the noun ‘piece’ is in the nominative case, its complement appears in the partitive case, see (17-a). Norris calls this the partitive pattern. On the other hand, when the head ‘piece’ is in the allative case, its complement is also in the allative case, as in (17-b). This pattern is fittingly called the ‘matching’ pattern by Norris.

- (17) a. tükk leiba
 piece.NOM bread.PART
 ‘a piece of bread’
 b. tükile leivale
 piece.ALL bread.ALL
 ‘a piece of bread’

Estonian cases split in two groups depending on whether they show the matching pattern or the partitive pattern. But there is one exception. When the head noun has the shape *tüki*—which corresponds to the “genitive” of the traditional descriptions—both the partitive pattern and the matching pattern can be used, as shown in (18).

- (18) a. tüki leiba
 piece.ACC bread.PART
 b. tüki leiva
 piece.GEN bread.GEN
 ‘a piece of bread’

However, as Norris points out, the distribution of the patterns is not random: when *tüki* corresponds to the direct object genitive (i.e., to the accusative case), the partitive pattern is used, as in (18-a). When *tüki* corresponds to the possessor (i.e., the genitive case), the matching pattern is used, as in (18-b). This example thus shows that despite morphological non-distinctness between the direct object and the possessor, the grammar treats them differently, maintaining the accusative/genitive distinction even in the absence of a formal distinction.

Concluding, it should be noted that while the focus here has been on case, similar questions arise for unrelated domains. For instance, one could ask whether languages that only have a singular/plural distinction actually do have a dual number in their inventory of grammatical categories, despite the fact that it is always syncretic with the plural. We could also ask, for instance, whether languages without the inclusive/exclusive distinction in person marking contain the relevant distinction or not. It is not clear that such questions have a uniform answer across various domains, and they need to be addressed for each domain independently. What does seem to be the case, however, is that in at least some cases, an absolute syncretism does not fully obliterate a grammatical distinction between the two fully syncretic categories.

3 Modelling syncretism

This section considers various theoretical tools that have been proposed to model syncretism. The section is built around the decomposition of morphological categories into smaller units of meaning, called features. The reason is that this particular idea is shared among many different approaches. Alternative conceptions (based, e.g., on geometric paradigm spaces, as in McCreight and Chvany 1991) are briefly mentioned where relevant.

3.1 Decomposition

The pioneering work in this domain has been done by Jakobson (1962), which is developed in more detail in Jakobson (1984). In his analysis of Russian declension, Jakobson proposed the following decomposition of the six major Russian cases (leaving out the vocative and two minor cases):

(19) Jakobson's (1962) decomposition

- directional	+ directional	- directional	
NOM	ACC	GEN	-peripheral
INS	DAT	LOC	+peripheral
-quantificational	-quantificational	+quantificational	

In the table, the six cases are characterised by three binary (+/-) features ([directional], [peripheral] and [quantificational]). For instance, the nominative case is specified as “-” for all the three features, which for Jakobson correlated with its unmarked status. The accusative is the same as the nominative with respect to the features [peripheral] and [quantificational], and it is only differentiated through the feature [+directional].² On analogy to phonological feature matrices, Jakobson suggested that syncretism should be treated as the neutralisation (suppression) of certain oppositions. For instance, suppressing the opposition of directionality yields the syncretism between the nominative and the accusative case, which is common in Russian. Similarly, the suppression of the [peripheral] opposition (in the context of the [+quantificational] cases) yields GEN—LOC syncretism. Both of these ‘neutralisations’ are illustrated in the table in (20).

(20) Inanimate plural, the adjective ‘red’ (Timberlake 2004)

- directional	+ directional	- directional	
NOM krasn-yje	ACC krasn-yje	GEN krasn-yx	-peripheral
INS krasn-yimi	DAT krasn-ym	LOC krasn-yx	+peripheral
-quantificational	-quantificational	+quantificational	

It is quite likely that the idea of ‘neutralisation’ was inspired by Jakobson’s treatment of phonological alternations, where, for instance, the coalescence of *d* and *t* at the end of Russian words (resulting uniformly in *t*) was treated as the ‘neutralisation’ of the voicing opposition in that position. For Jakobson, this did not mean any change of some underlying feature [+voice] to a [-voice] in the output, since structuralism was interested in static relations between the units of analysis, rather than grammatical processes that manipulate these units. Therefore, neutralisation of opposition simply meant that at the end of the word, we always find the unmarked member of that opposition; there is no process, just the static fact. Jakobson does not give the precise details of how ‘neutralisation’ is to be understood in the context of syncretism, but the use of the term ‘neutralisation’ would suggest that also in the case of syncretism he would quite likely subscribe to the view that accusatives syncretic with nominatives appear with the same feature specification as the nominative, i.e., with the same specification as the unmarked member of the pair.

Present day interpretations and incarnations of Jakobson’s system (Franks 1995, Halle and Vaux 1998, Embick and Noyer 2007) adopt a slightly different approach, namely underspeci-

²For Jakobson, the argument which is marked accusative is the one to which the action is directed, hence [+directional]. The meaning characterisation of the remaining features is to some extent self explanatory (quantification or the expression of participants that are peripheral in the event), but it is not clear to what extent such general characteristics capture the more nuanced meaning and use of these cases. For reasons of space, I do not enter into the discussion of case meanings.

fication. The approach builds on the observation that the nominative and accusative share the features [-quantificational] and [-peripheral], and that moreover, it is only these two categories which share the relevant features. This makes them a natural class (definable by these two features) to the exclusion of other cases. The new idea for syncretism (i.e., new compared to Jakobson’s approach) is that syncretic markers may be underspecified (i.e., not be fully specified for all the features), and that it is such underspecification what yields syncretism. Coming back to the adjectival declension shown in (20), the syncretic forms would be specified as shown in (21).

- (21) a. $-ye \leftrightarrow [-\text{peripheral}, -\text{quantificational}, (+\text{pl})]$
 b. $-yx \leftrightarrow [+ \text{quantificational}, -\text{directional}, (+\text{pl})]$

This understanding of Jakobson’s system became particularly prominent with the advent of realisational theories of morphology (such as McCawley 1968, Anderson 1992, Halle and Marantz 1993 or Stump 2001). In such theories, the morpho-syntactic (and morpho-semantic) representations are abstract, composed only of the relevant features. The actual markers get inserted only later, in accordance with realisation rules such as those in (21), and they serve the purpose of externalising the features through phonological content. Since realisational theories of morphology have become widely used, underspecification has become the standard approach to syncretism.

3.2 Competition among markers

However, underspecification (on its own) raises the following theoretical issue. Suppose we have a marker which is specified for the feature [-peripheral], as in (22-a). The cases which contain this feature are NOM, ACC and GEN, as indicated in the brackets. Suppose further that there is also a marker fully specified for the nominative case, as in (22-b).

- (22) a. $\alpha \leftrightarrow [-\text{peripheral}] (\text{NOM}, \text{ACC}, \text{GEN})$
 b. $\beta \leftrightarrow [-\text{peripheral}, -\text{directional}, -\text{quantificational}] (\text{NOM})$

Both of these markers thus apply in the nominative, and the question is what happens in such cases. There are two logical options. The first option is that both markers appear in the nominative and that one stacks on top of the other. The second option is that the two markers compete for a single position. It is the latter option that is typical for case markers in paradigms (although morphologically complex case markers are also attested). A prominent approach to resolving marker competition is based on the so-called ‘Elsewhere Condition’ (Kiparsky 1973). Informally, the Elsewhere Condition says that “the most specific” marker wins where several markers are in principle applicable, where specificity is determined by distribution. Specifically, when one marker appears in a proper subset of environments (NOM) compared to the other marker (NOM, ACC, GEN), then when both markers may apply, the one with the narrower distribution wins. In our case, (22-b) wins over (22-a) in the NOM, and the rule (22-a) applies only in ACC, GEN.

Competition of markers is widely used in order to model cases where syncretism appears to target ‘unnatural’ classes. In order to see how this works, consider the fact that on its own, underspecification allows us to group together only certain cases, but not others. For instance, we can easily capture the syncretism between NOM—ACC [-peripheral, -quantificational] and GEN—LOC [-directional, +quantificational], but it is harder to figure out a natural class that groups together ACC—GEN or DAT—LOC. Within each of these pairs, we find a contrast in two

features ([+/-directional] and [+/-quantificational]), and hence, they only share a single feature ([-peripheral] and [+peripheral] respectively). However, this single feature does not uniquely identify the pair as a natural class: [-peripheral] picks out also NOM, and [+peripheral] is also characteristic for INS. Yet both ACC—GEN syncretism and DAT—LOC syncretism are found in Russian, as shown in the paradigms in (23) and (24).

(23) The declension of ‘woman’ (Timberlake 2004)

- directional	+ directional	- directional	
NOM žen-a	ACC žen-u	GEN žen-y	-peripheral
INS žen-oj	DAT žen-e	LOC žen-e	+peripheral
-quantificational	-quantificational	+quantificational	

(24) The declension of ‘horse’ (Timberlake 2004)

- directional	+ directional	- directional	
NOM kon-ь	ACC kon-ja	GEN kon-ja	-peripheral
INS kon-ëm	DAT kon-ju	LOC kon-e	+peripheral
-quantificational	-quantificational	+quantificational	

Without marker competition, the paradigms above would lead to intractable problems, since under Jakobson’s analysis, there is no natural class for ACC—GEN or DAT—LOC. However, once the competition of markers is taken into consideration, the intractable problem is turned into an easy intellectual exercise. To allow for the syncretism of ACC—GEN, it is enough to specify the markers as in (22). For the DAT—LOC syncretism, the following two entries will suffice:

- (25) a. $-e \leftrightarrow [+peripheral]$ (INS, DAT, LOC)
 b. $-oj \leftrightarrow [+peripheral, -quantificational, -directional]$ (INS)

On its own, the entry (25-a) would realise all of INS, DAT, LOC as *-e*. The rule (25-b), however, applies in the INS as well, which leads to competition in this particular case. In the competition, *-oj* wins, and the rule inserting *-e* applies only in DAT—LOC.

Decomposition into features and the competition among markers are two common tools that are used in order to model syncretism. However, arguments have been put forth against this standard account from two different directions. One of the concerns that have been raised in the literature is that these two tools are too weak, and that we need additional tools in order to handle syncretism. Another worry that has been raised is the opposite: in at least some cases, these two tools are too powerful, and while they do allow us to capture everything that is attested, they do this at the cost of predicting nothing about the range of possible and impossible syncretisms. In the next two sections, these issues will be addressed in turn.

3.3 Rules of Referral and Impoverishment

One line of criticism directed at underspecification is that it is an insufficient tool to capture recurrent syncretism patterns. In particular, the common approach can easily derive syncretism only within a single paradigm. Suppose, however, that we find a particular syncretism across a whole range of paradigms. For instance, in Russian, all inanimate plurals have the same form for the nominative and the accusative case, as illustrated below:

(26) Russian, plural inanimates of the declensions I-III

	place (I)	lip (II)	notebook (III)
NOM	mest-a	gub-y	tetrad-i
ACC	mest-a	gub-y	tetrad-i
GEN	mest	gub	tetrad-ej
LOC	mest-ax	gub-ax	tetrad-jax
DAT	mest-am	gub-am	tetrad-jam
INS	mest-ami	gub-ami	tetrad-jami

As shown in the previous section, one may account for this syncretism by underspecification, since the nominative and the accusative form a natural class to the exclusion of other cases. However, many researchers of various theoretical persuasions are dissatisfied with such a solution. For instance, Stump (1993, 454) points out that such an analysis “would portray the recurrence of the NOM—ACC syncretism in all three [declensions...] as a coincidence.” Similarly, Williams (1994, 26) points out that in many cases, “the pattern of syncretism is a quite abstract structure, standing above particular words, particular rules, particular suppletive relationships”. Therefore, a theory where syncretism arises exclusively through the interaction of individual rules is deemed insufficient, and various mechanisms are being proposed in order to handle such “meta-paradigmatic” syncretisms.

For instance, Stump proposes that such syncretism should be captured by Zwicky’s (1985:372) rules of referral, which Zwicky defines as rules “stipulating that certain combinations of features have the same realisation as certain others.” In the particular case of Russian, the rule would (informally) look as follows:

(27) The accusative of the inanimates in the plural has the same form as their nominative.

While such rules certainly get the job done, their use has been questioned on the grounds that they are too powerful. As Bobaljik (2002) points out, “referral rules may convert [...] any arbitrary feature matrix to any other, in any context.” For example, we could with the same ease say that the accusative of inanimates is always the same as LOC.PL, a case which shares no features with ACC. The formal power of such rules thus makes it impossible to formally encode the observation that syncretism reflects relatedness in meaning.

What Bobaljik suggests as an alternative (building on work by Bonet 1991) is a type of formalism referred to as Impoverishment. This mechanism is both powerful enough to derive the type of ‘meta-paradigmatic’ syncretism that we observe in Russian, but at the same time restrictive in a way that does not allow any two categories to be syncretic. Specifically, Impoverishment Rules do not have the power to change features, but only to delete them. If that is so, the specification of the accusative can never be changed to the specification of the locative, since they share no features.

In contrast, NOM and ACC share two features, and Impoverishment can therefore easily enforce their identity across several paradigms by eliminating the feature [+/-directional], which

differentiates them. The rule is given in (28), and it applies only in the context of the features [+plural, -animate].³

(28) [+/-directional] → Ø / __ [+plural, -animate]

This rule thus in effect leads to something rather similar to the original idea of the ‘neutralisation of the opposition,’ although recall that for Jakobson this neutralisation is a static notion and that he definitely has no deletion operation in mind. For further discussion of Impoverishment, see Halle and Marantz (1993), Bonet (1991) Noyer (1997), Halle (1997), Halle and Vaux (1998), Trommer (1999), Embick and Noyer (2007), Nevins and Parrott (2010).

While devices such as Rules of Referral or Impoverishment are relatively widely used, not everyone recognises the need to introduce special tools beyond underspecification. The reasons can be easily shown on the particular example we are working with: nominative and accusative syncretism can be easily modelled using underspecification, and general methodological considerations would dictate that we should not complicate the theory by additional types of rules if this is not absolutely necessary. As Wunderlich (2004) puts it, “the notion of rules of referral is [...] unnecessary. [...] every kind of syncretism is best captured in the lexical entries for affixes.” This line of argument is pursued also in Caha (2009, 114), who adds to this that Rules of Referral or Impoverishment are not in fact a part of the grammar, but rather “generalization[s] over the output of that grammar. Generalizations are important for linguists, [...] but they are not something a learner should acquire in addition to the lexical entries of the individual morphemes.”

3.4 Restrictions on syncretism

In the preceding paragraphs, the debate has focussed on how various models capture syncretism when it occurs. However, it is worth asking also the opposite question, namely how to deal with cases where syncretism fails to occur. As Johnston (1996, 17) puts it, “any formal model that seeks to characterise possible homonymies should be judged on its ability not only to characterise those homonymies that do occur, but also to exclude those that do not. That is, it should be judged on its weak generative capacity, and penalised to the extent that this is either insufficiently or excessively powerful.” For Jakobson (1962) and much work in his spirit, this has never been an issue. In his paper, Jakobson does mention the fact that some of the ‘oppositions’ in his system are never ‘neutralised,’ in particular those between ACC—DAT, and NOM—INS. But such observations were immaterial for him, since he actually had no expectation that all oppositions must be neutralisable. In the phonological system, it is also not the case that a neutralisation of every feature must be attested in order for that feature to count as a valid distinctive feature.

However, at least since McCreight and Chvany (1991), some researchers started to be concerned about the ‘unused’ potential for neutralisation. As a starting point of the debate, consider the fact, discovered by McCreight and Chvany (1991), that in Russian, syncretism targets only adjacent cells in a linear ordering of cases. Specifically, when cases are ordered in the sequence NOM—ACC—GEN—LOC—DAT—INS, then all syncretisms occupy contiguous regions in each of the paradigms. The table in (29) illustrates this.

³Technically speaking, the feature [-peripheral] should also appear among the features that are necessary for the rule to apply. This is needed in order for the rule not to apply in the [+peripheral] cases, merging the dative and the instrumental together.

(29) Russian, plural inanimates of the declensions I-III

	place	horse	red, PL	lip	one, FEM.
NOM	mest-a	kon-ь	krasn-yje	gub-a	odn-a
ACC	mest-a	kon-ja	krasn-yje	gub-u	odn-u
GEN	mest	kon-ja	krasn-yx	gub-y	odn-oj
LOC	mest-ax	kon-e	krasn-yx	gub-e	odn-oj
DAT	mest-am	kon-ju	krasn-ym	gub-e	odn-oj
INS	mest-ami	kon-ëm	krasn-ymi	gub-oj	odn-oj

McCreight and Chvany (1991) compared this observation with the generative power of Jakobson's system when interpreted through the lens of underspecification. In order to understand their argument, let us start from the question of how to capture the syncretism of *odn-oj*, which targets GEN—LOC—DAT—INS. In order to capture it, we need to assume that *-oj* is a completely underspecified case marker, since there is not a single feature that groups all the four cases into a natural class. The lexical specification of *-oj* is shown in (30-a), and it makes it in principle applicable in all cases. The reason why it does not appear in the nominative and in the accusative is because these have dedicated case markers that win in competition. Their entries are shown in (30-b,c).

- (30) a. $-oj \leftrightarrow [\emptyset]$ (NOM, ACC, GEN, LOC, DAT, INS)
 b. $-a \leftrightarrow [-\text{directional}, -\text{quantificational}, -\text{peripheral}]$ (NOM)
 c. $-u \leftrightarrow [+directional, -\text{quantificational}, -\text{peripheral}]$ (ACC)

The interaction of these rules yields the paradigm we want. At the same time, the formal power of such rules is far too great, since we can derive any syncretism using exactly the same tools. Suppose, for instance, that we slightly change the rules, such that instead of (30-b) we introduce the rule in (31-b):

- (31) a. $-oj \leftrightarrow [\emptyset]$ (NOM, ACC, GEN, LOC, DAT, INS)
 b. $-a \leftrightarrow [-\text{directional}, +\text{quantificational}, +\text{peripheral}]$ (LOC)
 c. $-u \leftrightarrow [+directional, -\text{quantificational}, -\text{peripheral}]$ (ACC)

The result of such a minor modification would be that the entry (31-a) would apply in NOM—GEN—DAT—INS, i.e., in all cases except LOC and ACC, where competition blocks its application due to (31-b,c). However, such syncretism doubly violates the geometrical constraint observed by McCreight and Chvany (1991), firstly for NOM—GEN, and then also for GEN—DAT; such pair-wise syncretisms are not attested in Russian, yet the system can easily accommodate them.

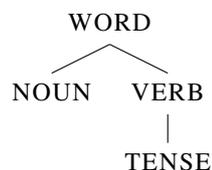
But the situation is even worse. To see that, suppose that in addition to an entry like (31-a), we had four competing entries (each dedicated to a specific case). We could specify these entries for any of the four cases, and the general entry would always spell out the remaining two cases. Since these can in principle be any two cases, the result is that the system can derive any syncretism whatsoever. The conclusion is that a theory based on Jakobsonian features and underspecification with competition has virtually no empirical content, since any syncretism is derivable. The fact that any syncretism can be derived then undermines the very motivation for Jakobson-style decomposition, whose intention is to model syncretism as a phenomenon restricted to natural classes definable by shared elements of meaning (features).

3.5 Beyond cross-classification

This state of affairs is of course unsatisfactory. To the extent that there exist restrictions on the range of possible syncretisms, whether in a single language or more generally, there should be tools to model such restrictions. McCreight and Chvany (1991, 91) propose that the existence of a linear adjacency constraint on syncretism demonstrates that “syntactic features are inappropriate to the modelling of paradigms; and that geometric representations [...] can provide more insight, particularly in the description of syncretism.”⁴

Other researchers try to derive such restrictions through feature hierarchies of various sorts (Williams 1994, Blevins 1995, Wiese 2008). The basic idea of a feature hierarchy is that the presence of one feature is dependent on the presence of another feature. To illustrate the idea, consider the fact that only items that have the feature VERB can have the feature TENSE, or, in other words, the feature TENSE is dependent on the presence of the feature VERB. Nouns, on the other hand, are not classified for TENSE at all, and this is encoded by the fact that TENSE only becomes a relevant feature if the item has been classified as a VERB. Such an asymmetric relation between features can be depicted via a hierarchy, where the placement of TENSE below VERB indicates its dependent status:

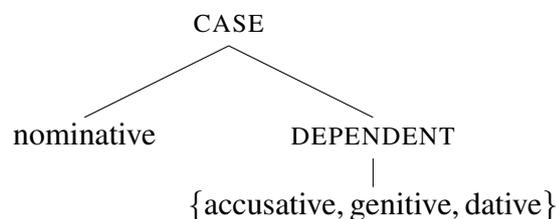
(32)



In order to see how such feature hierarchies help with restricting syncretism, let us return to case again. Suppose for simplicity that we have a four case system with nominative, accusative, genitive and dative. Recall that Jakobson’s idea was that there is a set of features, and each case is specified for each feature either as ‘+’ or ‘-.’ In such a system, there is no dependency between features and thus no hierarchical structure.

Some authors have, however, argued for a different view where at least some case features are dependent on the presence of other such features. For instance, in Neeleman and Weerman (1999, 86), Caha (2009) or McFadden (2018), cases are divided into two large groups. The first group contains just the nominative—which is special and different from all other cases in a number of ways, which are succinctly summarised in Neeleman and Weerman (1999). The second group comprises all the other cases, and it can be characterised as a group of ‘dependent’ cases, since they depend on the presence of a suitable ‘governor’ or ‘case competitor.’

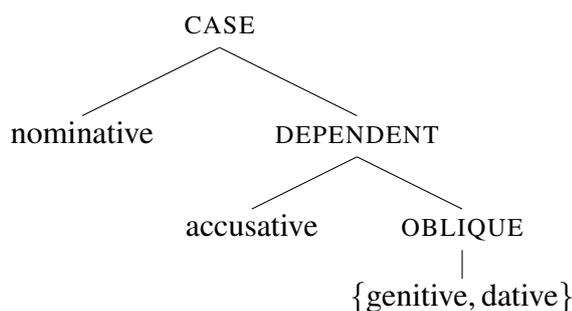
(33)



Among the ‘dependent cases,’ we can further distinguish the accusative case from the traditional ‘oblique cases’ (like genitive and dative), as graphically shown in (34).

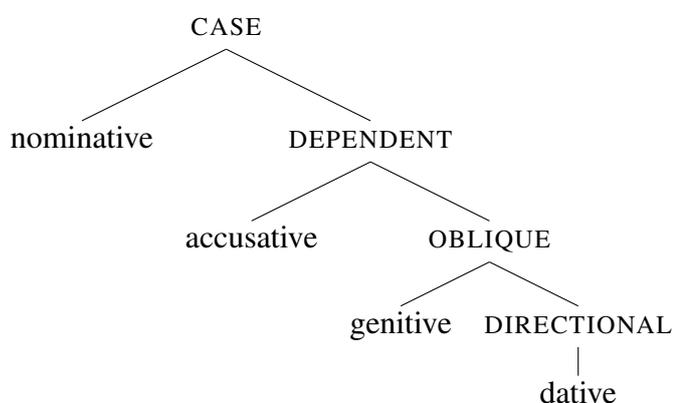
⁴See Plank (1991) and Hansson (2007) for the discussion of some problematic issues related to geometric constraints.

(34)



The final distinction between the genitive and the dative can be provided by the feature DIRECTIONAL in (35). The lack of this feature distinguishes the genitive (denoting a static possession) from the dative, which is a ‘directional’ change-of-state case, marking prototypically recipients and goals.

(35)



On this kind of approach, not all features are relevant for all cases. For instance, the presence or absence of the feature OBLIQUE only becomes relevant for items that have the feature DEPENDENT. In the non-dependent cases (nominative), this feature is simply irrelevant in the same sense in which TENSE is irrelevant for nouns. The consequence is that the nominative case has no [-oblique] feature (or [-peripheral], as in Jakobson’s work); it simply lacks that feature altogether.

Classification trees such as the one in (35) can also be used to define natural classes; for instance, genitive and dative are OBLIQUE cases. Such natural classes correspond to the non-terminal nodes in the feature hierarchy (35) (comprising the set of cases contained in that node), and the feature make-up of individual cases can then be read off the non-terminal nodes which dominate them. The feature decomposition is given in (36).

- (36)
- a. nominative = [case]
 - b. accusative = [case, dependent]
 - c. genitive = [case, dependent, oblique]
 - d. dative = [case, dependent, oblique, directional]

Such a decomposition can be called ‘cumulative’, because the number of features monotonically grows as we go down in the table. It differs sharply from Jakobson’s own in terms of its expressive power. Recall that McCreight and Chvany (1991) criticised Jakobson’s theory on the basis that the natural classes it defines are useless when confronted with the geometric constraint they found. From this perspective, consider the natural classes definable by the individual features in (36), which form overlapping sets that always include the dative, and add one case at a time, see (37).

- (37)
- a. [directional] characterises DAT
 - b. [oblique] characterises DAT, GEN
 - c. [dependent] characterises DAT, GEN, ACC
 - d. [case] characterises DAT, GEN, ACC, NOM

If syncretic markers are specified for such features, then the table in (37) lists all the possible syncretisms definable with the help of such features. All these syncretisms clearly target contiguous regions in the linear sequence in (38), involving either the last segment of the scale (DAT, see (37-a)) or the last two cases (as in (37-b)) and so on.

- (38) NOM—ACC—GEN—DAT

When competition of markers is taken into consideration, additional syncretisms can be defined. Suppose, for instance, that a marker α is specified for the feature CASE, and the marker β is specified for OBLIQUE. The markers are given in (39), alongside the set of cases in which they are expected to appear.

- (39)
- a. $\alpha \leftrightarrow$ [CASE] (NOM, ACC, GEN, DAT)
 - b. $\beta \leftrightarrow$ [OBLIQUE] (GEN, DAT)

In NOM, ACC, only α can appear. In GEN, DAT both markers can appear, but β wins, because it is more specific (applies in a proper subset of cases compared to α). As a result, α appears only in NOM, ACC, and β in GEN, DAT. The distribution of markers and their competition is depicted in (40).

- (40)
- | | |
|-----|------------------|
| NOM | α |
| ACC | α |
| GEN | $\beta \ \alpha$ |
| DAT | $\beta \ \alpha$ |

As a result, both markers occupy contiguous regions in the linear sequence (38). This result is interesting, and what is important, it is quite general, as Caha (2013) argues, building on previous work by Bobaljik (2012) and Starke (2009). Specifically, as long as individual cases are analysed in terms of a cumulative decomposition introduced in (36), only adjacent cells in a linear order can exhibit systematic syncretism (that is, keeping accidental homophony out of the picture). Such (and similar) geometric patterns of syncretism have attracted significant attention in various empirical domains (Vangsnes 2008, Starke 2009, Caha 2009, Pantcheva 2010, Bobaljik 2012, De Clercq 2013, Lander and Haegeman 2016 among many others).

4 Conclusions and prospects

As highlighted at the outset, syncretism has always attracted attention because of the idea that it targets categories which are related in meaning. Generations of linguists have tried to make sense of the phenomenon both empirically and theoretically. Following these developments, we can identify two core areas of research that will certainly be investigated and developed further.

The first issue is the question as to what is the actual empirical scope of the phenomenon of syncretism. In particular, do we restrict the phenomenon to ‘contextual syncretism,’ as is traditional in morphological research, and treat ‘absolute syncretism’ as a different phenomenon? Or should we study them in a unified way, bridging a gap between morphology in a narrow

sense and a typologically oriented research into how language specific categories arise from a fixed set of meanings/functions? This empirical question then feeds into our theoretical approach: do we need different mechanisms for absolute syncretism and contextual syncretism, or is it possible to unify them? It seems clear that any attempt to answer such questions must no doubt bring closer the morphological study of syncretism with the adjacent domain of semantic maps, inviting morphologists to look at syncretism in a comparative perspective, with syncretism understood more generally as an instance of a wider pattern of functional/semantic affinity.

The second issue is how to capture both the patterns we find, and at the same time make our theory restrictive enough so that unattested (or ‘rarely-attested’) patterns can be ruled out as instances of non-accidental syncretism by our theory. The answer to both questions must no doubt lead through a detailed investigation of the empirical facts and their theoretical reflection.

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