Classical Armenian Declension

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Abstract

This paper looks in detail at the Classical Armenian declension. I argue that the system provides insights into two central issues in this empirical domain: the morphosyntactic structure of the forms which make up a case paradigm, and the fine working of spell-out. On the empirical side, I highlight a connection between case syncretism and its synthetic vs. analytic expression. More specifically, case syncretism in the language is restricted by contiguity in a linear order of cases. In the same ordering, analytic expression of categories gradually replaces synthetic expression. The technology which is proposed to account for this is a core part of nanosyntax (Starke 2005, this volume): fine grained syntax, and phrasal spell-out. Particular attention is devoted to the interaction of the Superset Principle and the "Biggest wins" theorem, two core components of the nanosyntactic spell-out machinery.

1. Case syncretism

I start with a general description of the case system and syncretism in Classical Armenian. In establishing the generalizations, I rely here mainly on the description offered in Schmitt (1981), and I also partly draw on aspects of the analysis of Classical Armenian presented in Halle and Vaux (1998).

Classical Armenian has seven cases: nominative, accusative, locative, genitive, dative, ablative and instrumental. Putting aside for now one apparent exception (to be discussed later), syncretism in case is restricted to occupy contiguous regions in a linear sequence which I give in (1b).[1]

(1)   *Case Contiguity (Armenian)*:

    a.   Non-accidental case syncretism is restricted to target contiguous regions in the following sequence:

    b.   NOM − ACC − LOC − GEN − DAT − ABL − INS

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[1] The phrase "non-accidental" in (1) is intended to exclude two sources of homophony: (i) phonological conflation, whereby two distinct underlying forms end up homophonous due to a regular phonological process, and (ii) accidental homophony. Accidental homophony plays no role in this paper; however, one instance of homophony will be later on analyzed as an example of phonological conflation in the sense described above.

The generalization in (1) has two aspects: a restrictive one and a predictive one. I address them in turn.

1.1. Restrictiveness of linear contiguity

(1) predicts that, for instance, NOM and LOC cannot be syncretic to the exclusion of ACC, because they are not contiguous in (1b). This restrictive prediction of (1) is borne out and the syncretism is unattested:

(2)   *The restrictions on syncretism in Classical Armenian*

	N.A.	spirit (SG.)	N.A.	word (SG.)	N.A.	nation (PL.)
NOM	A	hogi-ø	...	bay-ø	...	azg-kʻ
ACC	B	hogi-ø	...	bay-ø	...	azg-s
LOC	A	hogi-ø	A	bay-i	...	azg-s
GEN	...	hogw-oy	B	bay-i	A	azg-acʻ
DAT	...	hogw-oy	A	bay-i	B	azg-acʻ
ABL	...	hogw-oy	...	bay-ê	A	azg-acʻ
INS	...	hogw-ov	...	bay-iw	...	azg-awkʻ

It is, however, not the case that NOM and LOC are never the same, see the second column of the table (2). Crucially, when this happens, then ACC is syncretic with the NOM–LOC pair, leading to a syncretism which targets a contiguous region of (1b).

A similar prediction is that, for instance, LOC–DAT or GEN–ABL syncretisms are unattested, but LOC–GEN–DAT or GEN–DAT–ABL can be found. This is shown in the remainder of the table (2).[2]

To evaluate the restrictive power of such a linear constraint abstractly, consider some numbers. In a system with seven cases (Classical Armenian), there are 120 logically possible syncretisms. (1) predicts that 99 of these as unattested, and allows only 21.

It has been argued in the literature that Classical Armenian is not unique in possessing a linear contiguity constraint, and that such a situation is quite general; see McCreight and Chvany (1991), Johnston (1996), Caha (2009) and references there.[3] If this is so, such a large scale descriptive reduction of possibilities in language after language raises a challenge for the theory of syncretism. Clearly, the theory should be able to derive this, and, more interestingly, see if such a proposal can be generalized to account for other aspects of case than syncretism.

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[2] DAT–LOC syncretism across a distinct genitive is attested in the pronominal declension (e.g., *mez/jez* 'we, you, ACC/LOC/DAT'). The reason for this apparent exception is that the "genitive" pronoun is in fact a possessive pronoun, which formally does not belong to the paradigm, and hence, disturbs the picture. I discuss such and similar examples from other languages in Caha (2009:§8.4-§8.6).

[3] Similar observations have been made in other domains than case, see Starke (2005) (briefly summarized in Starke this volume), Bobaljik (2007), and Pantcheva (to appear) for approaches directly related to the one pursued here. See also Vangsnes (2008).

In this paper, I offer a way to understand the linear constraint (1) as a consequence of the proposal that case features are syntactic heads, ordered in a functional sequence. I also show that the same linear sequence is relevant for other phenomena in the grammar, and work out a proposal how this follows from the initial proposal developed for syncretism.

1.2. Establishing the order

For the start, however, let me come back to the second aspect of the linear constraint (1), which is "positively" predictive. In particular, if a language does not show any syncretism, then any linear ordering of cases yields (trivially) a correct generalization. Evidence for any particular ordering is thus more convincing if supported by as many attested examples as possible.

This aspect of the linear constraint is illustrated on a representative sample of paradigms shown in the table (3). The table is organized in such a way that the cases are ordered top-down according to the sequence given in (1b), i.e., NOM–ACC–LOC and so on. The shaded cells show pair-wise syncretisms of adjacent cases, and move gradually one notch down as we go in the table from left to right.

(3)   *Attested syncretisms in Classical Armenian*

	word (SG.)	nation (PL.)	nation (SG.)	year (SG.)	river (PL.)
NOM	bay-ø	azg-kʻ	azg-ø	tari-ø	get-kʻ
ACC	bay-ø	azg-s	azg-ø	tari-ø	get-s
LOC	bay-i	azg-s	azg-i	tarw-oĵ	get-s
GEN	bay-i	azg-acʻ	azg-i	tarw-oy	get-ocʻ
DAT	bay-i	azg-acʻ	azg-i	tarw-oy	getocʻ
ABL	bay-ê	azg-acʻ	azg-ê	tarw-oĵê	get-ocʻ
INS	bay-iw	azg-awkʻ	azg-aw	tare-aw	get-owkʻ

The linear order is then established as follows. In the singular of the noun 'word,' nominative and accusative show syncretism to the exclusion of all other cases. From the perspective of linear ordering, this means that they must be neighbors in the linear order relevant for syncretism: NOM–ACC. Accusative and locative are the same in the plural, see the shading in the plural of 'nation.' This leads to NOM–ACC–LOC. Locative in turn must be adjacent to genitive and dative (on the basis of the syncretism in the singular of 'nation'): NOM–ACC–LOC–GEN/DAT.

In all the paradigms above, and in the nominal system in general, genitive and dative are always the same. This means that their order cannot be determined internally to the nominal declension of Classical Armenian. To see that intuitively: if we switch the order of gen and dat in the table above, we still obtain a linear ordering of the paradigms with syncretism restricted to contiguous regions. I show that in (4).[4]

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[4]The genitive and dative are traditionally distinguished, because they have different

(4)   *Re-ordering the genitive and dative*

	word (SG.)	nation (PL.)	nation (SG.)	year (SG.)	river (PL.)
NOM	bay-ø	azg-k'	azg-ø	tari-ø	get-k'
ACC	bay-ø	azg-s	azg-ø	tari-ø	get-s
LOC	bay-i	azg-s	azg-i	tarw-oĵ	get-s
DAT	bay-i	azg-ac'	azg-i	tarw-oy	getoc'
GEN	bay-i	azg-ac'	azg-i	tarw-oy	get-oc'
ABL	bay-ê	azg-ac'	azg-ê	tarw-oĵê	get-oc'
INS	bay-iw	azg-awk'	azg-aw	tare-aw	get-owk'

Thus, the reason I state the order as GEN–DAT rather than DAT–GEN is not motivated by Classical Armenian alone. It is, however, justified by cross-linguistic data, which I discuss in the next section.

While the mutual order of genitive and dative cannot be decided internally to Classical Armenian, it can be established that the ablative comes after these two cases, due to the syncretism in plural (see 'river'). This leads to the ordering NOM–ACC–LOC–GEN/DAT–ABL. Instrumental does not show non-accidental syncretism in Classical Armenian; it then comes either last or first. (It cannot come in the middle, because then it would disturb the needed adjacency between other cases.)[5]

For now, we are thus left with four possible orderings, and hence, four possible ways to state a linear constraint on syncretism in Classical Armenian. I give them in (5):

(5)   *Four possible sequences with syncretisms contiguous*

   a. NOM − ACC − LOC − GEN − DAT − ABL − INS
   b. NOM − ACC − LOC − DAT − GEN − ABL − INS
   c. INS − NOM − ACC − LOC − GEN − DAT − ABL
   d. INS − NOM − ACC − LOC − DAT − GEN − ABL

1.3. Summing up

As we have seen, the syncretisms of Classical Armenian cases are consistent with the linear statement (6), repeated from above, see (1).

(6)   *Case Contiguity (Armenian)*:

   a. Non-accidental case syncretism is restricted to target contiguous regions in the following sequence:
   b. NOM − ACC − LOC − GEN − DAT − ABL − INS

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shapes in the pronominal declension. I do not discuss pronominal declension here, but see Caha (2009:§8.4-§8.6) for a discussion of pronouns and the specific properties they possess from the perspective of linear ordering.

 [5]There is one syncretism of instrumental with dative across ablative, but this is due to a phonological conflation (see Halle and Vaux 1998:n.7). I come back to this later on.

While correct in the sense that the constraint shows minimal violations (with one exception to be presented and explained away later), the sequence (6b) is underdetermined by the actual data. (i) there is no evidence for mutual ordering of GEN and DAT; (ii) since INS shows no syncretisms, it can either come last or first.

2. What is the Case sequence of Armenian?

In this section, I present some considerations which favor the statement (6b) over possible alternatives.

2.1. Universal Contiguity

The first argument for the ordering (6b) comes from cross-linguistic comparison. In my previous work (Caha 2009), I propose a hypothesis, Universal Contiguity, which says that across languages, there is a fixed sequence of cases in which only contiguous regions show syncretism:

(7)   *Universal (Case) Contiguity*:
   a.   Non-accidental case syncretism targets contiguous regions in a sequence invariant across languages.
   b.   The Case sequence: NOM – ACC – GEN – DAT – INS – COM

In the sequence (7b), GEN precedes DAT, and INS comes after these two. In Classical Armenian, only the order (6b) is consistent with this cross-linguistic pattern. Hence, it is reasonable to assume that it is the correct one. Consider a couple of examples from three different branches of Indo-European that illustrate (7).

In Russian (McCreight and Chvany 1991), the ordering is unambiguously NOM–ACC–GEN–PREP–DAT–INS, see (8):

(8)   *Syncretism in Russian (McCreight and Chvany 1991)*

	window, sg.	teacher, pl.	both, m.i.	book, sg.	100
NOM	OKN-O	učitel-ja	dv-a	knig-a	st-o
ACC	OKN-O	UČITEL-EJ	dv-a	knig-u	st-o
GEN	okn-a	UČITEL-EJ	DV-UX	knig-y	ST-A
PREP	okn-e	učitel-jax	DV-UX	KNIG-E	ST-A
DAT	okn-u	učitel-am	dv-um	KNIG-E	ST-A
INS	okn-om	učitel-ami	dv-umja	knig-oj	ST-A

Relevantly, GEN precedes DAT, and DAT precedes INS.

The same order of GEN–DAT–INS re-appears in Old English (Plank 1991, Caha 2009):

(9)   *Syncretism in Old English (Plank 1991)*

	thing,f.	eye,n.	daughter,f.	gift,pl.
NOM	þing	dohtor	ēage	ġiefa
ACC	þing	dohtor	ēage	ġiefa
GEN	þinges	dohtor	ēagan	ġiefa
DAT	þinge	dehter	ēagan	ġiefum
INS	þinge	dehter	ēagan	ġiefum

Finally, syncretism in Sanskrit (Plank 1991, Johnston 1996) is only consistent with an order which includes GEN–DAT–INS, where the position of DAT between GEN and INS is relevant for our present concerns.

(10)   *Sanskrit (paradigms from Baerman 2008)*

	god, DU.	god, DU.	fire, SG.	god, PL.	god, DU.
NOM	devāu	devāu	agnis	devās	devāu
ACC	devāu	devāu	agnim	devān	devāu
LOC	devayos	devayos	agnu	deveṣu	devayos
GEN	devayos	devayos	agnes	devānām	devayos
ABL	devābhyām	devābhyām	agnes	devebhyas	devābhyām
DAT	devābhyām	devābhyām	agnaye	devebhyas	devābhyām
INS	devābhyām	devābhyām	agninā	devāis	devābhyām

These observations allow us to understand the pattern found in Classical Armenian as a special instance of the general scenario (7). If that is so, we have to order GEN before DAT, and INS must be last rather than first:

(11)   *Case Contiguity (Armenian)*:

   a.   Non-accidental case syncretism is restricted to target contiguous regions in the following sequence:

   b.   NOM − ACC − LOC − GEN − DAT − ABL − INS

2.2. Case attraction

There is independent evidence that instrumental should come last (rather than first) in the sequence of Classical Armenian cases. The evidence comes from case attraction in nominals (Plank 1995:p.43, Blake 1994), the facts are as follows. In Classical Armenian, the complement of a noun is "normally" expressed by the genitive, as schematically depicted in (12a). However, if the head noun is in the ablative, or the instrumental, the genitive case of the complement can be "attracted." Attraction consists in replacing the expected genitive by the case which is carried by the head noun, see (12b,c) for a schematic representation. However, if the head noun is in another case, such as NOM, ACC, or LOC, attraction is unattested, see (the

star in front of) (12d):[6]

(12)   Case attraction in Classical Armenian
    a.   [N [N-GEN]]
    b.   [N-ABL [N-GEN ⇒ N-ABL]]
    c.   [N-INS [N-GEN ⇒ N-INS]]
    d. *[N-NOM/ACC/LOC [N-GEN ⇒ N-NOM/ACC/LOC]]

A real language example of attraction is in (13).

(13)   [**bazmut'-eamb** [zawr-**awk'**-n   Hay-oc'   ]]
         crowd-INS.SG   *force*-INS.PL-DEF *Armenian*-GEN.PL
         'with a crowd of the Armenian forces'   (Plank 1995:p.43)

In (13), the boldfaced head noun 'a crowd' is in the instrumental case, translated as *with* in English. The head noun has a complement, 'of the Armenian forces.' The head of the complement, 'forces,' would "normally" occur as a genitive. However, as a result of attraction, it appears in the instrumental (see the boldfaced affix), inherited from the head noun. Thus, if we choose a sequence with the instrumental adjacent to the ablative, as suggested already by cross-linguistic considerations, we can capture not only the restrictions on case syncretism, but also the restrictions on case attraction, as seen in (13b-d). Specifically, in the sequence (14b), cases to the right of the genitive have the power to attract it, case to the left of the genitive cannot do so.

(14)   *Case Contiguity (Armenian)*:
    a.   Non-accidental case syncretism is restricted to target contiguous regions in the following sequence:
    b.   NOM − ACC − LOC − GEN − DAT − ABL − INS

2.3. Summing up

To sum up the two preceding sections. Syncretism in Classical Armenian nominal declension is restricted to contiguous regions in a linear sequence of cases. Out of four possible orderings, we have chosen the one which (i) captures additional restrictions in the language (case attraction), and (ii) is consistent with a larger cross-linguistic pattern. In the next section, I provide a way to understand the case sequence theoretically.

3. Deriving Case Contiguity

Syncretism has been traditionally understood as a surface conflation of two distinct morpho-syntactic structures, and I understand syncretism in

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[6]It cannot be decided whether attraction does or does not occur in the dative. Since the dative is always the same as the genitive, case attraction, if active, applies vacuously.

this sense as well. Led by considerations similar to ours, Jakobson (1962) proposes that syncretism is restricted to target natural classes of cases, which are identified by a shared trait, a sub-morphemic feature. Thus, syncretism and the restrictions it obeys are taken to be indicative of a hidden level of linguistic organization inside a morpheme.
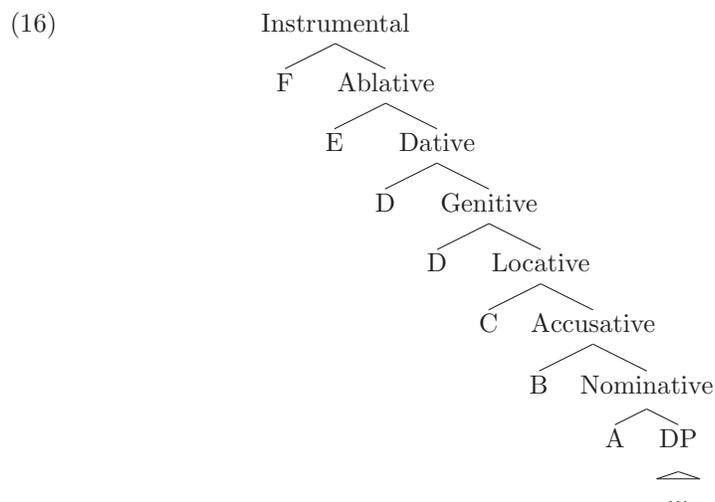
In Caha (2009:§1.2), I investigate the theoretical consequences of the descriptive Universal Contiguity hypothesis, see (7), focusing primarily on the type of feature representation we need in order to capture the constraint. Following a reasoning I cannot reproduce here in full detail, I show that the constraint follows as a theorem if we adopt two independent proposals. I introduce each of them briefly in the two following sub-sections.

3.1. The case sequence is the functional sequence

The first proposal is that cases decompose into features in a particular way, such that the number of features characteristic for each case grows monotonically as we move along the contiguity sequence (14b). Thus, what we need is that, for instance, NOM = [A], ACC = [A, B], LOC = [A, B, C] and so on:

(15)　　Case decomposition

    a.　NOM = [A]

    b.　ACC = [A, B]

    c.　LOC = [A, B, C]

    d.　GEN = [A, B, C, D]

    e.　DAT = [A, B, C, D, E]

    f.　ABL = [A, B, C, D, E, F]

    g.　INS = [A, B, C, D, E, F, G]

Such a decomposition is equivalent to a binary syntactic structure, as shown in (16):

(16)

```
              Instrumental
               /\
              F   Ablative
                   /\
                  E   Dative
                       /\
                      D   Genitive
                           /\
                          D   Locative
                               /\
                              C   Accusative
                                   /\
                                  B   Nominative
                                       /\
                                      A   DP
                                           ⌒
                                           ...
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The tree encodes the proposal that a nominative DP is a type of syntactic

constituent, in which the DP is the complement of the feature [A]. The accusative is a similar constituent, one which is built on top of the nominative ([A]) by the addition of [B], so that ACC = [A, B]. And similarly for the other cases: LOC = [A, B, C], GEN = [A, B, C, D], and so on.

Note that the feature [B] is not "accusative." Accusative is the name of a constituent which arises as the result of merging [A] and [B] on the top of the DP in this order. To make this clear, I avoid calling the terminals "accusative" but reserve that label only for the non-terminal projections. The labels of the non-terminal nodes, such as *accusative* or *genitive* are chosen for clarity of presentation, and they do not imply that the label is qualitatively different from the head. I assume that the "true" label of the accusative constituent is BP, but I avoid referring to it in that way because such a label is quite opaque.

The proposal in essence says that the features A, B, C etc., needed for syncretism, are the primitives of the syntactic structure, and they are ordered in a universal functional sequence (Cinque 1999, Starke 2004). The ordering is stated in such a way that the sequence of cases relevant for contiguity reappears as the sequence of non-terminal projections. Thus, the linear NOM–ACC–LOC–… turns into a hierarchichal [... [loc [acc [nom]]]. The contiguity constraint on syncretism will now follow from the proposed decomposition if we make sure that spell-out works in such a way that only contiguous layers of structure show syncretism, and I describe the mechanism in the next section.

The general interest of the proposal that the features needed for syncretism are syntactic heads is twofold. First, it leads to a number of empirical predictions outside of the narrow domain of case syncretism. Since the case features are syntactic heads, they interact with syntactic processes (such as movement) and the same hierarchy thus reappears in different areas than syncretism. Caha (2009) discusses two such expected interactions in detail, showing the accuracy of the proposal. In the following sections, I explore the interaction between the structure underlying syncretism, (16), and analytic vs. synthetic spell-out of case.

Second, in order to capture Contiguity, the organization of features inside morphemes must be governed by the same principles as the organization of phrases inside sentences (i.e., a binary branching tree or an equivalent mechanism). The descriptive Universal Contiguity is then just a reflex of this deeper hypothesis concerning the architecture of grammar. And it is this latter hypothesis which, to my mind, forms one of the defining characteristics of the nanosyntactic approach.

3.2. Spell-out

The second proposal concerns the way the proposed case representation relates to phonological material, and draws mainly on Starke (2005). I start introducing the machinery by showing how a simple syncretism arises

in the decomposition of case introduced above. To work with a concrete example, recall a fragment of a paradigm from Classical Armenian repeated below:

(17)   *A fragment of a paradigm*

	nation, PL.
NOM	azg-k'
ACC	azg-s
LOC	azg-s

Starting with preliminaries, recall from the last section that case features are generated above the noun. I assume here (following Kayne 1994) that c-command maps onto linear precedence. Thus, in order for the case features to end up suffixed, a constituent containing the noun must move to a position which c-commands these features. This leads to the three following syntactic structures for nominative, accusative and locative respectively:

(18)   a.   Nominative:

b.   Accusative:

c.   Locative:
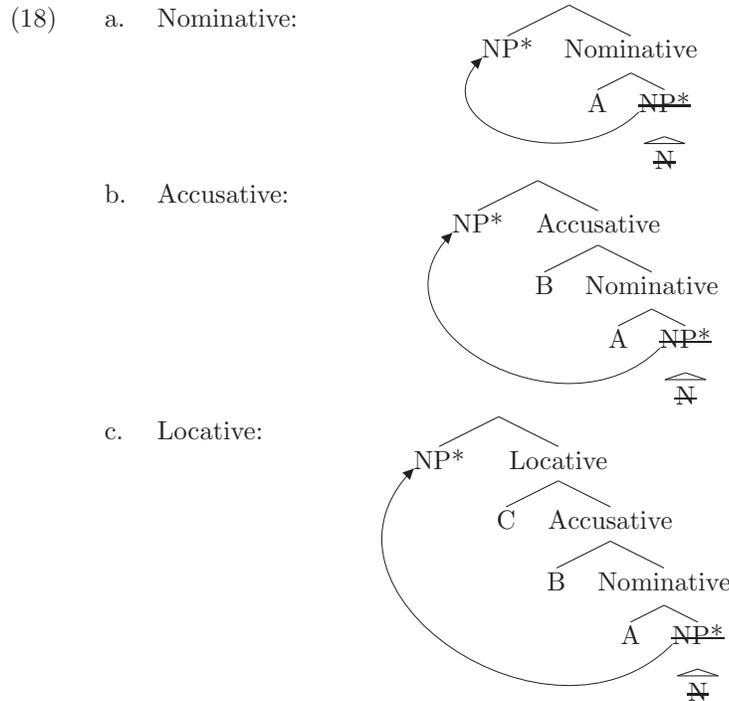
The structures are simplified; for instance, I omit the number projection (encoding plurality), which will play an important role later on. These structures are subject to (post-syntactic) spell-out. I follow Starke's (2005) proposal and understand spell-out to be a translation of syntactic structure

onto phonological (and conceptual) structure mediated by the lexicon.[7]
The lexicon thus contains (at least) pairs of the sort <syntax, phonology>,
ignoring conceptual information for now.

    If the present proposal is on the right track, the locative -s is the pro-
nunciation of the features A, B and C. This can be encoded by a lexical
entry which pairs the constituent containing the features A, B and C with
-s. I will use the symbol ⇔ to indicate such pairing. The entry is simplified,
and I propose later on that -s spells out the plural feature as well, but I
leave that aside for now.

(19)   /-s/ ⇔   Locative

                                C   Accusative

                                      B   Nominative

                                              A

The entry (19) takes the structure (18c) as an input, and produces -s as
the output; that is because the "locative" constituent in (18b) (created by
evacuation of the noun) matches the right part of the entry (19). "Match-
ing" can (for now) be understood as an identity of the syntactic node and
the lexically stored tree, with a proviso made for traces. In (18c), the fea-
ture A has a trace for its sister, but the lexical entry does not mention the
trace. Henceforth, traces are ignored in judging identity.

    Following this logic, the nominative -k' has a lexical entry which I give
in (20).

(20)   /-k'/ ⇔   Nominative

                                         A

What about the accusative -s? Does it need a separate entry? So far it
does, because things work in such a way that a syntactic constituent can be
targeted only by an entry which (as a whole) is identical to it. That makes
(19) a bad candidate for (18b). However, we can allow (19) to appear in the
accusative, if we relax our definition of matching beyond identity. I thus
follow Starke (2005) and propose that the lexical entry matches a syntactic
tree if it contains that tree (ignoring traces). In such case, the accusative
constituent in (18b) can be lexicalized by (19), because (19) contains the
tree for the accusative. (The relevant subpart of (19) excludes C and its
projection.) The principle I have just described is what Starke (2005) calls
the Superset Principle:[8]

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[7]This is similar to the theory of Distributed Morphology, Halle and Marantz (1993).

[8]The name is inspired by the Subset Principle of Distributed Morphology (see, e.g.,
Halle (1997) for a classical formulation), which allows matching in the opposite case, i.e.,
just in case the syntactic node contains the lexical entry.

(21)   *The Superset Principle (Starke 2005)*: A phonological exponent is
        inserted into a node if its lexical entry has a (sub-)constituent that
        is identical to the node (ignoring traces).

Now that we have relaxed the identity requirement, we see that *-s* can (correctly) appear not only in the locative and accusative of *azg-* 'nation,' but also (incorrectly) in the nominative of this noun; this is because the entry contains a constituent identical to the nominative. Thus, in the nominative, we have two candidates for spell-out: *-kʻ* and *-s*, and we need a principle which regulates such cases. The principle I adopt here is the Elsewhere Condition (Kiparsky 1973), which informally says that in case two rules compete, the more specific one wins. I adopt the Elsewhere Condition in the formulation below, modeled on Neeleman and Szendrői (2007):

(22)   *The Elsewhere Condition*: In case two rules, R1 and R2 , can apply
        in an environment E, R1 takes precedence over R2 if it applies in
        a proper subset of environments compared to R2.

Now given the Elsewhere Condition, and the fact that the Superset Principle allows the *-s* to apply in nominative (A), accusative (A,B) and genitive (A,B,C), *-s* loses to the rule introducing *-kʻ* in case both can apply. The reason is that (by the Superset Principle) *-kʻ* applies only in NOM, i.e., in a proper subset of environments compared with *-s*.

3.3. Combining the two proposals

Consider now how the proposed system derives the Contiguity constraint. To see that it does, suppose that we want to encode a syncretism which would violate it: the nominative and locative are the same to the exclusion of the accusative, as in the hypothetical paradigm (23). If it turns out that such a syncretism cannot be encoded by the spell-out system operating on the proposed decomposition, we will prove that the system derives Universal Contiguity, as manifested in Classical Armenian.

(23)   *An offending paradigm*

case	form
NOM	α
ACC	β
LOC	α

To generate the offending paradigm, we have to come up with an entry which can appear both in the locative and the nominative. Such an entry is (24).

(24)   /α/ ⇔   Locative

By the Superset Principle, the entry can spell out the locative (C, B, A), the accusative (B, A) and the nominative (A). The range of applicable environments is shown in (25):

(25)   *The applicability of α*

case	form
NOM	α
ACC	α
LOC	α

Now we need an entry which can spell out the accusative (B, A) but not the locative (C, B, A). Such an entry will provide a perfect match for the accusative, and due to competition, remove it from the set of cases where the "locative" entry (24) applies. Such an entry is given in (26).

(26)   (27) /β/ ⇔   Accusative

However, the the entry (27) can apply in the nominative (the feature [A]) as well. Hence, the entries (24) and (27) clash not only for the accusative, but also for the nominative:

(28)   *The applicability of α and β*

case	form
NOM	α, β
ACC	α, β
LOC	α

In such a situation, the rule introducing β takes precedence over α in the nominative as well, because it is a better match:

(29)   *The paradigm generated*

case	form
NOM	α, β
ACC	α, β
LOC	α

Thus, whenever we get α in the locative and β in the accusative, we necessarily fail to get α also in the nominative. This means that the system derives Contiguity, because it is unable to generate paradigms which violate

it.

4. Synthetic vs. analytic expression of categories

With the proposal for case syncretism in place, I now proceed to show that the same hierarchy which constrains syncretism also governs analytic (multiple markers) vs. synthetic (a single marker) expression of morphosyntactic categories. I focus on the plural declension and argue that the instrumental plural decomposes into three separate markers: a class marker, a plural marker and a case marker. Some or all of these categories are, however, subject to synthetic expression in other cases. Specifically, NOM, ACC and LOC show only a single marker, while GEN, DAT and ABL are characterized by two markers: a class marker, and a number/case portmanteau. I summarize these claims in the table (30), where shading indicates synthetic expression of given categories:

(30)   *The template for Armenian declension*

NOM, ACC, LOC	stem	-class&case&number		
GEN, DAT, ABL	stem	-class	-case&number	
INS	stem	-class	-case	-number

The interest of the table (30) lies in the observation that the same sequence which restricts syncretism, i.e., (31b), governs also the analytic vs. synthetic expression of categories. I state the connection between syncretism and synthetic vs. analytic morphology in (32):

(31)   *Case Contiguity (Armenian)*:

    a.   Non-accidental case syncretism is restricted to target contiguous regions in the following sequence:

    b.   NOM − ACC − LOC − GEN − DAT − ABL − INS

(32)   *Analytic vs. synthetic spell-out (Armenian)*:

    a.   In the (syncretism) sequence below, if a given case is morphologically expressed together with some other morphological category, then all cases to its left are as well.

    b.   NOM − ACC − LOC − GEN − DAT − ABL − INS

This section establishes the empirical generalization (32), and later sections set out to derive it. The crucial ingredients of deriving (32) are identical to the ingredients that derive Case Contiguity: a fine-grained representation, and phrasal spell-out based on the Superset Principle. This result is an important step in the desired direction: to make the theory of syncretism bear on other aspects of the grammar of case than syncretism itself. At the same time, the machinery introduced up to now gains an independent empirical support.

4.1. Case and Number

I start by taking a closer look at the singular – plural distinction. For the most part, the singular and plural endings are different. This can be understood under the proposal that as a rule of thumb, the case exponents also spell out number in Armenian. The exception to this is the instrumental plural, which is built on top of the instrumental singular by the affixation of -*k'*, a morpheme which also shows up in the nominative plural.

(33)   *The analytic nature of the instrumental plural*

	nation, SG.	nation, PL.
NOM	azg-ø	azg-**k'**
ACC	azg-ø	azg-s
LOC	azg-i	azg-s
GEN	azg-i	azg-ac'
DAT	azg-i	azg-ac'
ABL	azg-ê	azg-ac'
INS	azg-AW	azg-AW-**k'**

A reasonable hypothesis is that -*k'* marks plural. This finds an independent confirmation in the verbal paradigm, where -*k'* marks the difference between the 1ST.SG and 1ST.PL agreement, as shown in (34a), and in the composition of the 2nd person plural pronoun, as shown in (34b):

(34)   *-k' as plural*

a.   sirem   – sirem-k'
       love.1ST.SG – *love*.1ST.PL

b.   du   – du-k'
       you.SG – *you*-PL

What about the nominative plural, is it expressed synthetically or analytically? Under one possible hypothesis, -*k'* is just plural, and nominative is -ø. An alternative hypothesis, made available by the Superset Principle, is that -*k'* is both nominative and plural, as shown below:

(35)   /-*k'*/ ⇔   Nominative
                                           ⌒
                                        A   PlP
                                              |
                                             Pl^0

The reason why the latter analysis is made available by the Superset Principle is that the Superset Principle allows for -*k'* to lexicalize only plural (i.e., a sub-constituent), as needed for the examples where -*k'* marks only plural, see (34).

The analysis of -*k'* as a nominative plural (rather than just plural) receives support from the fact that the merger of case and some other

inflectional category occurs frequently in the nominative, and its likelihood decreases as we move down on the hierarchy of cases. As an example, consider the Mordvin definite declension, discussed in McFadden (2004).

(36)   *Mordvin Definite Declension (Erźa dialect)*

Case	'the house,' SG.	'the house,' PL.
NOM	kudo-ś	kudo-tńe
ACC/GEN	kudo-ŃT	kudo-tńe-ń
DAT	kudo-ŃT-eń	kudo-tńe-ń-eń
ABL	kudo-do-ŃT	kudo-tńe-de
INE	kudo-so-ŃT	kudo-tńe-se

What we see here is the stem *kudo-* 'house,' which is inflected for number, case and definiteness. Definiteness and number are always expressed as one marker, no matter the case. Thus, we have the singular definite *ńt*, and the plural definite *tńe.* Importantly, the nominative singular also spells out case together with these other two categories, namely as a portmanteau -*ś*.

Hence, the bi-morphemic analysis of the nominative in Classical Armenian would be rather odd from cross-linguistic perspective. On the other hand, mono-morphemic expression of the nominative and number is attested even in languages which otherwise split number from case.

Summing up: the analytic vs. synthetic expression of number and case in Classical Armenian runs along the lines of the same hierarchy which underlies the system of syncretism; analytical expression in the most marked case (INS), synthetic expression in less marked cases:

(37)   *Case and Number*

OTHER	stem	-case&number	
INS	stem	-case	-number

4.2. Class markers

Now compare the plural paradigm we have looked at with other plural paradigms:

(38)   *The plural declension in Classical Armenian*

	nation, PL.	river, PL.	word, PL.	time, PL.
NOM	azg-kʿ	get-kʿ	bay-kʿ	žam-kʿ
ACC	azg-s	get-s	bay-s	žam-s
LOC	azg-s	get-s	bay-s	žam-s
DAT	azg-a-cʿ	get-o-cʿ	bay-i-cʿ	žam-u-cʿ
GEN	azg-a-cʿ	get-o-cʿ	bay-i-cʿ	žam-u-cʿ
ABL	azg-a-cʿ	get-o-cʿ	bay-i-cʿ	žam-u-cʿ
INS	azg-a-w-kʿ	get-o-v-kʿ	bay-i-w-kʿ	žam-u-ø-kʿ[9]

The comparison clearly reveals the existence of a separate vocalic element between the stem and the morphemes -*c'* and -*w*, the quality of which is controlled by the stem. This suggests that we are looking at a separate morpheme, but what is this morpheme?

Starting from the observation that its quality is determined by the stem, whereas the quality of the plural -*k'* is not, it is attractive to analyze this morpheme as originating locally to the stem, in fact, as intervening — both in the base structure and the derived structure — between the plural -*k'* and the stem. As for its identity, Halle and Vaux (1998) take it to be a theme marker, a classifier of the noun of sorts. I adopt this approach here as well.

But why is the class marker absent in the nominative, accusative and locative? The answer which suggests itself is that in these cases, the class marker merges with the exponents of number and case. In other words, -*s* and -*k'* not spell out only number and case, but also class. This analysis is depicted in (39) in abstract terms, and a breakdown of concrete paradigms is given below in (40):

(39) *The template for Armenian declension*

NOM, ACC, LOC	stem	-class&case&number		
GEN, DAT, ABL	stem	-class	-case&number	
INS	stem	-class	-case	-number

(40) *Case, Number and Class*

NOM	stem	-k'		
ACC, LOC	stem	-s		
GEN, DAT, ABL	stem	-a-/-o-/-i-	-c'	
INS	stem	-a-/-o-/-i-	-w-	-k

To conclude: if the morphological analysis depicted in the table above is correct, then generalization (41) is established:

(41) *Analytic vs. synthetic spell-out (Armenian)*:
   a. In the (syncretism) sequence below, if a given case is morphologically expressed together with some other morphological category, then all cases to its left are as well.
   b. NOM − ACC − LOC − GEN − DAT − ABL − INS

The next section tries to derive the generalization from the principles that were introduced to explain syncretism. If the reasoning I am about to present is valid, we obtain an independent confirmation of the initial proposal, as well as an insight into the fine working of spell-out.

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[9]This form apparently lacks the instrumental -*w/v*. That is due to phonology: the class marker *u* and the instrumental -*w* fuse into one segment. I argue for this later in this article.

5. The interaction of the Superset Principle and the "Biggest wins" theorem

As highlighted in section §3.2 of this paper, lexicalization in nanosyntax can be understood as a mapping of phrasal syntactic constituents onto their pronunciation. Thus, for instance, when number and case are spelled out together as one morpheme, this is encoded by having lexicalization target a constituent which contains these two categories. When case and number are expressed analytically, spell-out targets these constituents separately. Knowing the constituent structure is thus essential for carrying out the analysis; consequently, it is the constituent structure of the inflected nominal in Classical Armenian to which I turn now.

5.1. Deriving the order of morphemes

According to the nanosyntactic view, morphemes are phrases. This leads to the expectation that their ordering is governed by the same rules as the ordering of phrases (i.e., phrasal movement). This view contrasts with traditional syntactically oriented analyses, which rely on head movement to deliver word internal morpheme ordering. One way in which phrasal movement differs from the traditional head movement (Travis 1984, Baker 1988) is that the head of the extended projection, the noun in our case, can move across two heads without inverting their order, as in (42a), in violation of the head movement constraint. A derivation which obeys the head movement constraint is shown in (42b), and the movement of N across X inevitably leads to the inversion of X and Y (excorporation aside).

(42) a. Phrasal movement:
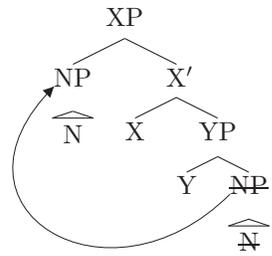
  b. Head movement:
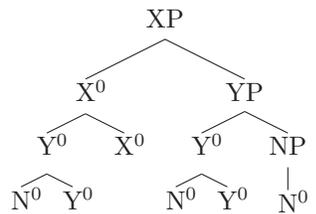
In Classical Armenian, the head movement theory leads to a wrong prediction. To see that, consider the base-generated order of the markers in question. I follow the literature and adopt the base generated hierarchy in

(43), where the NP is dominated by the projections of the Classifier (Cl) and Number (Num, see Borer 2005), and finally case (K, see Bittner and Hale 1996).

(43)   [K [Num [Cl [N]]]]

We know that the Noun has to move higher than K, since K is a suffix; head movement then automatically produces the sequence (44), which is empirically wrong: Num follows K in Classical Armenian.

(44)   *N-Cl-Num-K

What we need is a derivation involving phrasal movements, see also Koopman and Szabolcsi (2000), Julien (2007), Muriungi (2008). The simplest derivation (granted the general approach originating in Kayne 1994) is shown in (45). First NP and Cl invert, forming a constituent that will keep moving as a unit. Then we add Number, which is crossed by this constituent, leading to an intermediate stage N-Cl-Num. Num must end up last in the sequence, and hence stays in situ. I put it in bold. Upon the addition of K, only the constituent N-Cl moves across K (without pied-piping Num), leading to N-Cl-K-Num. This is the correct order.[10]

(45)
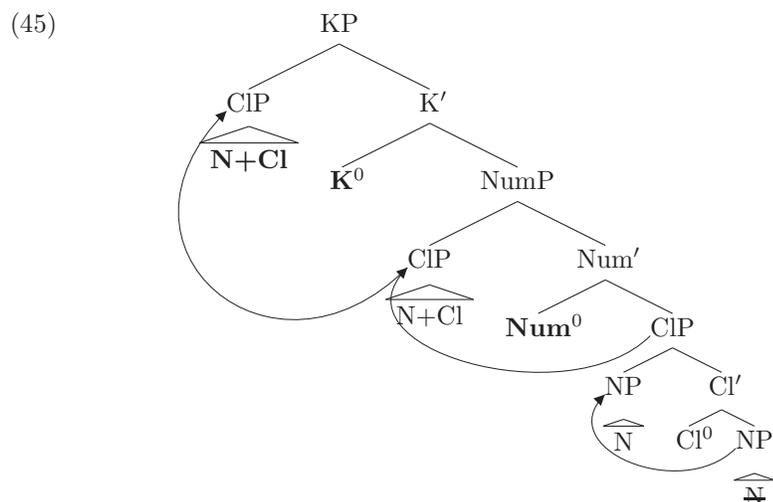
A simplified constituent structure is below:

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[10]Note that the derivation is compatible with the restrictive approach of Cinque (2005): we keep moving a constituent with the noun in it, and movement goes leftwards only.

(46)

KP

ClP   K′

NP   Cl⁰   K⁰   NumP

$\widehat{N}$ Num⁰ ...
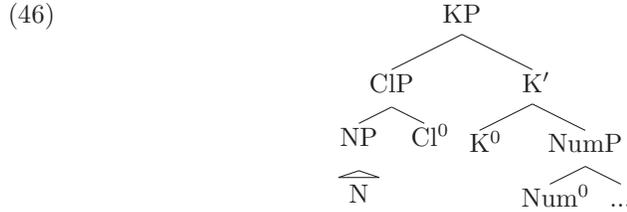
In what follows, I will be assuming that this particular structure is subject to spell-out, and adjust the insertion procedure accordingly. I note though that there are various analytical options (concerning movement and the way it interacts with insertion) which would lead to different solutions. To keep the size of the paper down, I do not discuss these options here.

5.2. Packaging of categories by means of phrasal spell-out

With the constituent structure in place, consider the way in which the generalization governing the analytic vs. synthetic realization of categories follows from the proposal developed thus far. The reasoning is best illustrated on examples, and I start with the ablative plural *azg-a-c'*. Here, *-a-* spells out the Class node, and the case/number marker *-c'* targets a constituent containing these two categories:

(47)   *The spell-out of azg-a-c' 'nation,* ABL.PL *'*

ClP   (Ablative ⇒ *-c'*)

NP   Cl⁰   F⁰   Dative

*azg-*   *-a-*   E⁰

...   Nominative

A⁰   NumP

Num⁰ ...
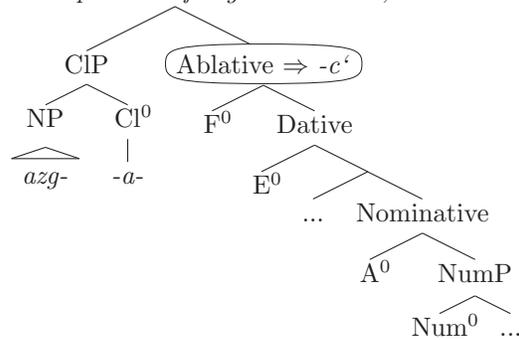
There are various possibilities to encode the fact that spell-out of the ablative plural is synthetic (*-c'*) rather than analytic (*-ê-k'* 'ABL.-PL'). For instance, Neeleman and Szendrői (2007) and Taraldsen (2009) attempt to derive this from the Elsewhere Condition; see also Muriungi (this volume) for a different approach. In the proposal developed by Starke (2005), this follows from the way the insertion procedure is set. In particular, spell-out proceeds from the bottom up, and every time the lexicon contains an entry which is big enough to spell out a given non-terminal, this entry "overrides" any previously inserted material at terminals or lower non-terminals contained inside the relevant node. Starke (this volume) states the consequence of such an "overriding" as (48):

(48)   Theorem: biggest wins

The Biggest wins theorem thus takes care that the ABL.PL must be spelled out as a portmanteau, if the lexicon contains one.

   When the Biggest wins theorem is combined with the Superset principle, we derive the generalization that if ablative and plural are spelled out by a single marker, then any case contained in the ablative will also be spelled out together with the plural number. Consider the reasoning. Due to the Superset Principle, -c' can lexicalize any sub-constituent of the ablative plural. Thus, for instance, -c' can also spell out the DAT.PL, immediately contained in the ablative:

(49)   *The spell-out of azg-a-c' 'nation, DAT.PL'*
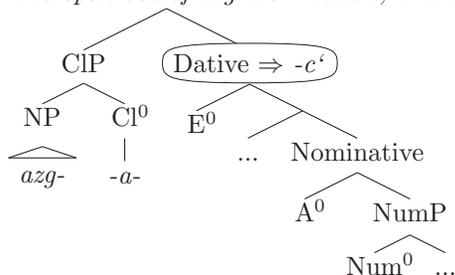
Now since every case contained in the ablative can be spelled out by the same portmanteau, the Biggest wins theorem says that it must be. Thus, the interaction of the Superset Principle and the Biggest wins theorem derives the generalization that if ablative is spelled out together with number, then every case to its left in the linear ordering relevant for syncretism must be as well. This is the gist of the descriptive generalization that we have established above:[11]
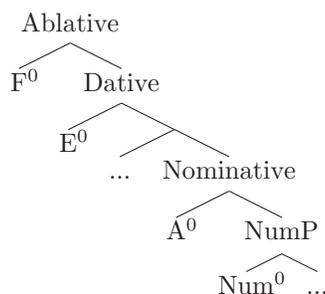
(50)   *Analytic vs. synthetic spell-out (Armenian)*:
   a.   In the (syncretism) sequence below, if a given case is morphologically expressed together with some other morphological category, then all cases to its left are as well.
   b.   NOM − ACC − LOC − GEN − DAT − ABL − INS

However, no prediction is made on the basis of the ablative concerning the instrumental plural. In particular, the ABL.PL -c', the entry of which I give in (51a), cannot be used to spell out the instrumental plural as a whole, the structure of which is in (51b). That is because the entry for -c' does not contain the relevant syntactic constituent, circled in (51b).

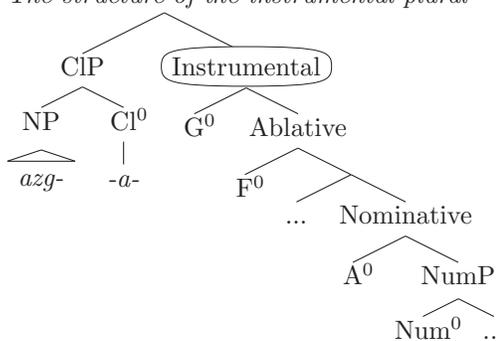[11]I am simplifying the discussion by keeping (variable) movement out of the picture. For instance, if the Plural node were pied-piped by NP away from the base-generated position in the dative, it would have to be spelled out in the displaced position by a separate marker. Thus, the results hold under the premise that we keep the structure constant, an additional assumption that I have now made explicit.

(51) a. *The entry for -c'*
      /-c'/ ⇔

```
                    Ablative
                   /        \
                 F⁰        Dative
                          /      \
                        E⁰        
                              /        \
                            ...      Nominative
                                    /         \
                                  A⁰          NumP
                                            /      \
                                         Num⁰     ...
```

  b. *The structure of the instrumental plural*

```
              /              \
            ClP          (Instrumental)
           /    \         /          \
         NP     Cl⁰     G⁰        Ablative
         |       |                /      \
       azg-    -a-              F⁰         
                                      /        \
                                    ...     Nominative
                                           /         \
                                         A⁰          NumP
                                                   /      \
                                                Num⁰     ...
```
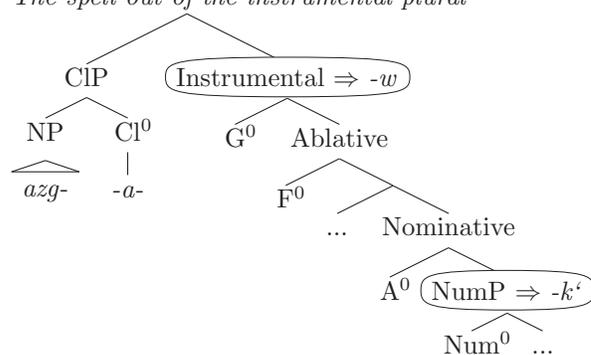
Since the Classical Armenian lexicon contains no entry "big enough"
to spell out the INS.PL as one chunk, the circled constituent is spelled out
by two pieces: the instrumental *-w*, and the NOM.PL *-k'* (which "under-
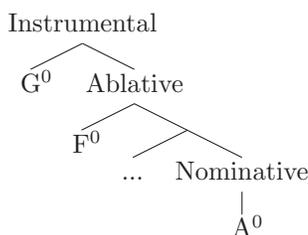attaches" in accordance with the Superset Principle to spell out only the
number head):

(52) *The spell-out of the instrumental plural*

```
              /              \
            ClP         (Instrumental ⇒ -w)
           /    \         /          \
         NP     Cl⁰     G⁰        Ablative
         |       |                /      \
       azg-    -a-              F⁰         
                                      /        \
                                    ...     Nominative
                                           /         \
                                         A⁰     (NumP ⇒ -k')
                                                   /      \
                                                Num⁰     ...
```

This solution leads to a technical problem which we now have to deal with.
In (52), the instrumental marker is inserted at the circled node *Instrumental*
to replace all the case features, but not the plural head, which is spelled out
by *-k'*. However, this move is illegal: the entry for the instrumental *-w* does

not contain the Plural head, see (53), and hence, its insertion should fail in (52). That is because the entry (53) does not contain the instrumental plural constituent circled above, and consequently, does not qualify as a spell-out candidate by the Superset Principle. (If *-w* contained the plural head, the emergence of the plural *-k'* would remain mysterious.)

(53)   *The entry for -w*
        $/\text{-}w/ \Leftrightarrow$ Instrumental

                                         G^0 Ablative

                                              F^0

                                         ...   Nominative

                                                   A^0

This is empirically incorrect, but there is an easy fix. The idea is that the insertion procedure ignores not only traces, but also constituents which had undergone spell-out. Thus, after *-k'* spells out the plural constituent, the constituent is ignored (as if it had moved away), and the circled *Instrumental* node in (52) is now eligible for spell-out by the instrumental *-w*, as given in (53).
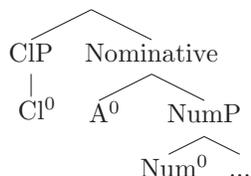
Thus, I have now introduced a separate condition in addition to the Superset Principle, which relaxes conditions on matching between the lexical entry and the syntactic structure. The condition on matching is stated in such a way that the insertion procedure ignores both those constituents which have undergone spell-out and those which have been moved away.

(54)   *The Superset Principle (Starke 2005)*: A phonological exponent is inserted into a node if its lexical entry has a (sub-)constituent that is identical to the node (ignoring traces).

(55)   *Match*: A lexical constituent matches a node in the syntax if it is identical to that node, ignoring traces and spelled out constituents.

This new statement of matching also plays a role in the spell-out of the unmarked plural cases of Classical Armenian. Thus, recall from the discussion surrounding (38) that in the nominative, the *-k'* spells out not only case and number, but also class:

(56)   *The entry for -k'*
        $/\text{-}k'/ \Leftrightarrow$

                              ClP   Nominative

                              Cl^0 A^0 NumP

                                          Num^0 ...

The insertion of -*k'* at the root node in (57) is possible only if the NP is ignored by the insertion procedure after it has been spelled out (by *azg* 'nation'):

(57)   *The spell-out of the nominative plural:*
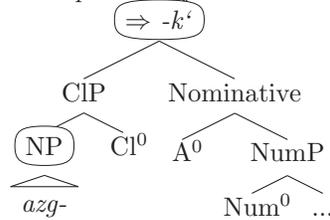
To sum up, in this section, I have introduced the Biggest wins theorem which says that if a given constituent can be spelled out by one marker, then it must be. Together with the Superset Principle and the proposed decomposition, this delivers the result that if a given case is spelled out together with some other category, like number, than every smaller case will be as well. This in turn delivers the generalization that the syncretism sequence is relevant for the synthetic vs. analytic spell-out of categories.

To make things work smoothly together with the proposed constituent structure, I had to introduce a proviso that apart from traces, the insertion procedure also ignores spelled out material.[12] In the next section, I show that the machinery introduced up to now predicts certain interesting effects (morpheme splitting) which appear in the Classical Armenian consonantal declension.

6. Morpheme splitting

This section argues that a puzzling phenomenon found in Classical Armenian is nicely captured by the proposed version of phrasal spell-out. This provides yet another kind of indication that we are on the right track. The argument focuses on the following prediction. Suppose that two categories, α and β in (58a), can be spelled out by a single portmanteau morpheme P. The entry of P is then as in (58b), construed in accordance with the Superset Principle. Now if another category, γ in (58c), structurally intervenes between α and β, α and β cannot be spelled out by P. That is because the entry for P does not contain (58c).

(58)   a. α and β are spelled out by a portmanteau:

         $\Rightarrow$ P

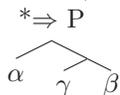 α β

         b. $/P/ \Leftrightarrow$ α β

---

[12]The alternative would be to tamper with the structure. I leave this for future research.

c. α and β cannot be spelled out by the same portmanteau:

$*\Rightarrow$ P

$\alpha \quad \gamma \quad \beta$

What happens instead is that in (58c), each of α and β is spelled out on its own (leaving aside the option that there is an even more specific portmanteau morpheme which contains γ). I call this effect morpheme splitting: features that usually correspond to a single morpheme in a given language must be spelled out by two independent pieces when they are separated by an intervener in the syntactic structure.

## 6.1. Morpheme splitting in a-stems

Let me first illustrate the logic on the familiar declension of the a-stems.

(59)   *Classical Armenian, a-stem declension*

	nation, SG.	nation, PL.
NOM	azg-ø	azg-k'
ACC	azg-ø	azg-s
LOC	azg-i	azg-s
GEN	azg-i	azg-a-c'
DAT	azg-i	azg-a-c'
ABL	azg-ê	azg-a-c'
INS	azg-a-w	azg-a-w-k'

In the instrumental plural, we have identified a sequence of three morphemes: *-a-w-k'*. I have suggested that *-a-* is a class marker, which is fused together with other inflectional categories in the unmarked cases, i.e., in NOM, ACC and LOC. I show that on the example of the nominative, repeated from (58):

(60)   The spell-out of the nominative plural:

$\Rightarrow$ *-k'*

ClP   Nominative

NP   Cl^0 A^0 NumP

azg-   Num^0 ...
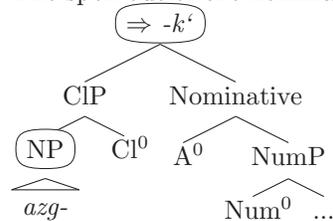
Under this hypothesis, *-k'* in the nominative plural actually spells out the features which are realized as *-a-* in the instrumental. Combining these statements, we realize that the reason why *-a-* and *-k'* cannot fuse in the instrumental plural is constituency: the features expressed as *-w-* intervene between the class marker and plural:

(61)   *The spell-out of the instrumental plural*
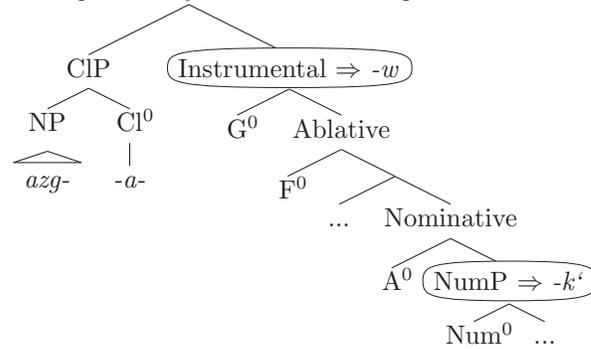
The structural intervention of *-w-* thus forces a single morpheme (*-k'*) to split in two (*-a-* and *-k'*), and reveals a hidden structure inside an apparently indivisible morpheme: the nominative plural *-k'*.

6.2. n-stems

N-stems in Classical Armenian offer another opportunity to observe the nominative plural *-k'* break into components. I give two examples of this declension type below, each in singular and plural. The two types differ by vowel quality in the plurals of NOM, ACC AND LOC.

(62)   *Classical Armenian n-stems*

	race, SG.	race, PL.	part, SG.	part, PL.
NOM	az-n	az-in-k'	mas-n	mas-un-k'
ACC	az-n	az-in-s	mas-n	mas-un-s
LOC	az-in	az-in-s	mas-in	mas-un-s
DAT	az-in	az-an-c'	mas-in	mas-an-c'
GEN	az-in	az-an-c'	mas-in	mas-an-c'
ABL	az-n-ê	az-an-c'	mas-n-ê	mas-an-c'
INS	az-am-b	az-am-b-k'	mas-am-b	mas-am-b-k'

The traditional approach to n-stems (to be rejected) analyzes *-n-* and the preceding vowel (if any) as a single morpheme, which combines together with the root to form a stem. The stem is subject to further affixation by case and number morphemes. The variation in the vocalic element of the theme marker is then seen as a variation of the stem, distinct from affixation.

However, if we follow the variation of the vowel in the singular a bit more closely and compare it to the rest of the Armenian system, we notice that the vowel (if any) which precedes *-n-* is similar to the vowel we observe (as a case ending) in a-stems. The purpose of the following table is to bring the similarity out, boldfacing parts which find direct match between the paradigms. In the boldfaced forms, I follow (Schmitt 1981:p.46) and

also Halle and Vaux (1998) in equating the instrumental *-w* and *-b* as phonological guises of the same underlying morpheme, realized as *-b* after consonants, and *-w* after vowels.

(63) *A-stems and n-stems decline the same (modulo n)*

	SG., A-STEM	SG., N-STEM
NOM	azg-**ø**	mas-**ø**-n
ACC	azg-**ø**	mas-**ø**-n
LOC	azg-**i**	mas-**i**-n
GEN	azg-**i**	mas-**i**-n
DAT	azg-**i**	mas-**i**-n
ABL	azg-**ê**	mas-n-**ê**
INS	azg-**a-w**	mas-**a**-m-**b**

The observation that the markers of the a-stem declension are replicated in the n-stem declension leads to the hypothesis that the two declensions above differ only in that the second column has *-n-* where the first column has nothing. Following that analysis, we uncover two facts. The first one is a positional asymmetry between the case marker *-i-* on the one hand (precedes *-n*), and the case markers *-ê* and *-w* on the other (which follow the *-n-*). The existence of such an asymmetry is interesting, and the way it cuts across the paradigm (INS + ABL vs. the rest) helps us establish the place of the instrumental next to the ablative. (Recall that the instrumental shows no syncretisms.)

Further, the asymmetry makes sense from the perspective of our hypothesis that the system of syncretism in a given language (expressed by an ordering on the paradigm) is directly connected to other phenomena related to syntax and morphology of case. Previously, we have seen that analytic vs. synthetic alternations run along the same hierarchy. Presently, we observe that the structure which underlies syncretism manifests itself in an asymmetric ordering of the elements which express the structure. Comparison with plural where *-n-* invariably precedes K makes it clear that it is the order *-i-n* which is the odd man out. That is independently confirmed by the rarity of a situation where a case marker infixes between the root and the stem formative.[13]

The second observation is directly relevant for the present concerns: unlike in the singular, where we find a perfect match between the a-stem and the n-stem (modulo *n*), a vowel emerges between the root and *-n-* in the plural. The vowel finds no parallel in the declension without the *-n-*, and I put it in small caps:

---

[13]In the present account, this ordering is due to phrasal movement. The root moves above case, without pied-piping the stem marker along.

(64)   *A mysterious vowel in the plural of n-stems*

|	PL., A-STEM	PL., N-STEM	PL., N-STEM
NOM	azg-**k'**	mas-U-n-**k'**	az-I-n-**k'**
ACC	azg-**s**	mas-U-n-**s**	az-I-n-**s**
LOC	azg-**s**	mas-U-n-**s**	az-I-n-**s**
GEN	azg-**a-c'**	mas-**a**-n-**c'**	az-**a**-n-**c'**
DAT	azg-**a-c'**	mas-**a**-n-**c'**	az-**a**-n-**c'**
ABL	azg-**a-c'**	mas-**a**-n-**c'**	az-**a**-n-**c'**
INS	azg-**a-w-k'**	mas-**a**-m-**b-k'**	az-**a**-m-**b-k'**

I suggest that the emergence of this vowel is an instance of morpheme splitting. In particular, the stem marker *-n-* structurally intervenes between the class node, and the constituent containing case/number. Therefore, *-k'* cannot spell out all these features in one go and "underattaches" to spell out case and number alone. As a consequence, the class features must be spelled out by a separate morpheme: the extra vowel. The account is fleshed out in more detail below.
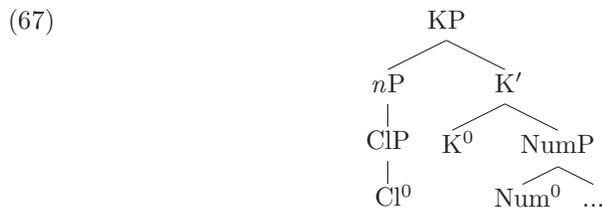
First, I assume that the stem marker *-n-* is adjacent to the vocalic class marker in the base-generated sequence, which is motivated by their similar function. I do not have much support for putting *-n-* either higher or lower than the vocalic class marker *-a-*. It makes more sense from the perspective of the ordering of the elements to put *-n-* higher, which I show in (65). Nevertheless, what I have to say about this issue is compatible with the inverse base order of these two markers as well.

(65)   [K [Num [*n* [Cl [N]]]]]

The derivation starts by a series of roll up movements of the Noun: first leading to N-Cl, then N-Cl-n and finally to [N-Cl-n]-Num. Upon the merger of K (K ... [N-Cl-n]-Num), the constituent [N-Cl-n] moves across it without pied-piping the Num, leading to the following (simplified) structure:
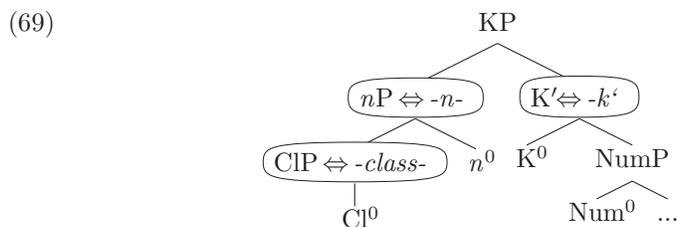
(66)
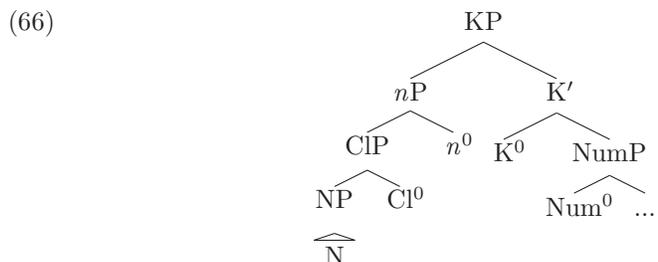
The left-peripheral NP need not concern us; it is spelled out and ignored for further insertion. The same obtains for the *-n-*. The simplified structure with these markers ignored is shown in (67):

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(67)

$$
\begin{array}{c}
\text{KP} \\
\diagup \qquad \diagdown \\
n\text{P} \qquad \text{K}' \\
| \qquad \diagup \quad \diagdown \\
\text{ClP} \quad \text{K}^0 \quad \text{NumP} \\
| \qquad\qquad \diagup\diagdown \\
\text{Cl}^0 \qquad\quad \text{Num}^0 \ ...
\end{array}
$$

Now recall from above that *-kʻ* (and *-s*) spell out a constituent composed of the Class marker, K heads, and Plural, as depicted below:

(68) $/\text{-}kʻ/ \Leftrightarrow$

$$
\begin{array}{c}
\text{KP} \\
\diagup \qquad \diagdown \\
\text{ClP} \qquad \text{K}' \\
| \qquad \diagup \quad \diagdown \\
\text{Cl}^0 \quad \text{K}^0 \quad \text{NumP} \\
\qquad\qquad | \\
\qquad\qquad \text{Num}^0
\end{array}
$$

This constituent, however, is unable to match KP in (67), because of the non-branching nP node, which intervenes between K and ClP. As a result, Class and K+Num have to split. This is shown in (69):

(69)

$$
\begin{array}{c}
\text{KP} \\
\diagup \qquad\qquad\qquad \diagdown \\
\boxed{n\text{P} \Leftrightarrow \text{-}n\text{-}} \qquad\qquad \boxed{\text{K}' \Leftrightarrow \text{-}kʻ} \\
\diagup \qquad\qquad\qquad \diagup \quad | \quad \diagdown \\
\boxed{\text{ClP} \Leftrightarrow \text{-}class\text{-}} \quad n^0 \quad \text{K}^0 \qquad \text{NumP} \\
| \qquad\qquad\qquad\qquad \diagup\diagdown \\
\text{Cl}^0 \qquad\qquad\qquad \text{Num}^0 \ ...
\end{array}
$$

Thus, the way insertion is set up predicts that once the class marker is structurally separated from the case markers by the intervening *-n-*, each must be spelled out separately. This in turn explains the appearance of the additional vocalic element between the root and the stem marker *-n-* in NOM, ACC and LOC plural. This is an interesting result, because the occurrence of the vowel is unexpected on other grounds; in particular, its emergence disturbs the otherwise perfect parallel (modulo n) between the a-stem and the n-stem declensions, shown below:

(70)   *The mismatch between a- and n-stems in* NOM., ACC., LOC. PL.

	A-stem SG.	N-stem SG.	A-stem PL.	N-stem PL.
NOM	-ø	-ø-n	-k'	-U-n-k'
ACC	-ø	-ø-n	-s	-U-n-s
LOC	-i	-i-n	-s	-U-n-s
GEN	-i	-i-n	-a-c'	-a-n-c'
DAT	-i	-i-n	-a-c'	-a-n-c'
ABL	-ê	-n-ê	-a-c'	-a-n-c'
INS	-a-w	-a-m-b	-a-w-k'	-a-m-b-k'

As things stand, however, this picture leads also to the prediction that the vowel which appears between the noun and -*n*- is identical to the class marker which occurs also in the oblique cases. As I show in a moment, this is correct for some nouns, but it is wrong for the paradigm above. We do not get -*a*-, but -*u*- (a class marker of the u-stems).

I do not know what is the source of the difference. What is needed is a proposal of how individual class markers break down into components, for example where exactly -*n*- and -*a*- come in, and so forth. Alternatively, one can see the -*u*- as a result of ablaut, the output of the apophonic derivation applied to -*a*- (see Guerssel and Lowenstamm 1996). I leave this for future research.

In this light, however, consider the plural forms of the noun 'sister in law,' shown below:

(71)   *An alternating noun: 'sister in law'*

	sister in law, PL.
NOM	nu-(a-n)-k'
ACC	nu-(a-n)-s
LOC	nu-(a-n)-s
GEN	nu-a-(n)-c'
DAT	nu-a-(n)-c'
ABL	nu-a-(n)-c'
INS	nu-a-w-k'

In the cells stretching from NOM to ABL plural, this particular noun inflects either as a n-stem, or as an a-stem. The n-stem forms include the bracketed material, the a-stem forms exclude it. This variable behavior provides us with a minimal pair. According to the analysis, the presence of the additional *n* in NOM/ACC/LOC should lead to a structure where an additional classifier has to show up. And this is exactly what happens. Thus, compared to the a-stem forms of the same noun, the inclusion of -*n*- in NOM, ACC or LOC automatically leads to the emergence of an additional vowel, the classifier *a*. (Equivalently, the absence of -*n*- leads to the disappearence of this vowel.) The paradigm shown above thus bears out the predictions in their strongest form.

6.3. On phonological conflation

In this section, I address an apparent syncretism of the instrumental with the dative (and other cases) across the ablative in u-stems, shown in (72).

(72)   *An* INS–DAT *syncretism in Classical Armenian?*

	time, SG.
NOM	žam
ACC	žam
LOC	žam-u
GEN	žam-u
DAT	žam-u
ABL	žam-ê
INS	žam-u

The discussion of this piece of data will ultimately show that the syncretism is irrelevant for the Case sequence (as given in (1)), because it is the product of a phonological conflation: the result of application of a productive phonological rule. Crucially from the current perspective, the discussion is also going to provide additional evidence for the analysis of morpheme splitting, and that is why I discuss this paradigm here.

The highlighted syncretism goes against the order of cases in Classical Armenian, because — as established on independent grounds — the instrumental must be separated from the dative by the ablative.[14] This creates an apparent situation in which non-adjacent layers of case show syncretism, and this cannot be accounted for by the present system. However, I am going to argue that the syncretism is the result of a phonological process which merges u and w into one segment, (73), and thus the underlying system looks as depicted in the table (74).

(73)   Dative – Instrumental homophony is due to phonology

   a.   Dat: u
   b.   Ins: $u\text{-}w \Rightarrow \text{-}u$

(74)   *The underlying structure of u-stems*

	time, SG.
NOM	žam
ACC	žam
LOC	žam-u
GEN	žam-u
DAT	žam-u
ABL	žam-ê
INS	žam-u-w ($\Rightarrow$ -u)

---

[14]This has been established on the grounds of the syncretism in plural, where the marker *-c'* groups ablative with dative to the exclusion of the instrumental.

There are two aspects of the proposal. The first aspect is that the sequence *uw* is simplified to *u* in Classical Armenian. The second aspect is the hypothesis that there is an underlying *-uw* present in the instrumental. I provide evidence for these two claims in turn.

The evidence for the existence of the relevant phonological process (the existence of which has been suggested also in Schmitt 1981:p.46) consists in showing that the process is attested elsewhere in the language. The following example shows this: the stem *zimu-* combines with the affix *-wor*, creating the relevant sequence *uw*. The resulting form *zimu-or* then confirms that *uw* yields *u* quite generally.

(75)   zimu   -wor   → zimuor
        weapon *-suffix*   *soldier*

Now to the second point: what evidence is there for the underlying presence of the sequence *-uw*? The evidence is provided by the (singular) declension of the noun 'day,' shown in (76) in comparison with the *u*-stem 'time.'

(76)   *The r-stem 'day' with a mysterious -b*

	time, SG.		day, SG.
NOM	žam-**ø**		aw-**ø**-r
ACC	žam-**ø**		aw-**ø**-r
LOC	žam-**u**		aw-**u**-r
GEN	žam-**u**		aw-**u**-r
DAT	žam-**u**	⇔	aw-**u**-r
ABL	žam-**ê**		aw-r-**ê**
INS	žam-**u**	⇔	aw-**u**-r-B

We can observe that in the cells from NOM to ABL, the noun 'day' inflects just like the u-stem 'time,' plus an additional consonant. The two declensions thus show a pattern similar to the n-stem paradigm compared to the *a*-stem paradigm, as discussed in the previous sub-section.

What is to be noted in (76) is the presence of two markers (apart from *r*) in the instrumental singular of the paradigm 'day' (*u* and *b*), which contrasts with apparently only one marker in the paradigm 'time' (*u*). This contrast sticks out when we realize that the dative singular *u*, which shows an apparent syncretism with the instrumental *u*, does not split, but it is ordered to the left of *r*. Hence, what is initially mysterious is the emergence of the *-b* in *aw-u-r-b*; that's why I have put it in small caps in (76).

The point is that the unexpected appearance of *-b* becomes predictable and completely regular once we adopt the proposal that the instrumental *-u* is underlyingly *u-w*. This sequence is merged into one segment in cases where they end up adjacent, but it is preserved when they are separated by the consonantal stem marker:

(77)   *The r-stem 'day' explained*

	time, SG.	day, SG.
NOM	žam-**ø**	aw-**ø**-r
ACC	žam-**ø**	aw-**ø**-r
LOC	žam-**u**	aw-**u**-r
GEN	žam-**u**	aw-**u**-r
DAT	žam-**u**	aw-**u**-r
ABL	žam-**ê**	aw-r-**ê**
INS	žam-**u-w** ($\Rightarrow$ -u)	aw-**u**-r-B

The intervention of the consonantal stem marker between the vocalic class marker *u* and the case marker *w/b* is completely parallel to the instrumental singular of n-stems, repeated in (78).

(78)   *A-stems and n-stems decline the same (modulo n)*

	SG., A-STEM	SG., N-STEM
NOM	azg-**ø**	mas-**ø**-n
ACC	azg-**ø**	mas-**ø**-n
LOC	azg-**i**	mas-**i**-n
GEN	azg-**i**	mas-**i**-n
DAT	azg-**i**	mas-**i**-n
ABL	azg-**ê**	mas-n-**ê**
INS	azg-**a-w**	mas-**a**-m-**b**

This provides the needed evidence for the underlying presence of the *w* in the instrumental of u-stems.

The paradigm of 'day' is interesting also for the phenomenon of morpheme splitting discussed in the previous section. Because of the parallel between the n-stem 'time' and the r-stem 'day', we now predict that in the nominative, accusative and locative plural, a class marker will emerge between the root *aw* 'day' and the consonantal stem marker *r*. The prediction is borne out. As the table below shows, the class marker -*u*- (in small caps) appears in NOM, ACC and LOC, even though this marker has no counterpart in the (otherwise parallel) declension of the u-stem noun 'time':

(79)   Morpheme splitting in r-stems

	time, PL.	day, PL.
NOM	žam-**k'**	aw-U-r-**k'**
ACC	žam-**s**	aw-U-r-**s**
LOC	žam-**s**	aw-U-r-**s**
GEN	žam-**u-c'**	aw-**u**-r-**c'**
DAT	žam-**u-c'**	aw-**u**-r-**c'**
ABL	žam-**u-c'**	aw-**u**-r-**c'**
INS	žam-**u-w-k'**	aw-**u**-r-**b-k'**

The paradigms above show that the appearance of the vocalic class marker in the relevant cells of the paradigms is not an effect of a particular class (the n-stems or the r-stems). It is a structurally governed process, which appears every time the relevant structural configuration obtains.

7. Conclusions

Taking a close look at the declension in Classical Armenian, this paper has provided three points of support for various aspects of the nanosyntactic model as developed by Starke (2005, this volume).

First, case syncretism in Classical Armenian (and other languages) is restricted, and occupies contiguous regions in a linear sequence of cases. This follows from two proposals: a particular case decomposition (such that the features characteristic for each case monotonically grow) and a phrasal spell-out procedure based on the Superset Principle.

The second argument focused on the interaction of the proposed structure, the Superset Principle, and the independently needed "Biggest wins" theorem. In particular, I have shown that their interaction derives the generalization that synthetic vs. analytic spell-out of categories runs along the same hierarchy which restricts case syncretism. Of interest is also the related observation that morpheme ordering in Classical Armenian requires phrasal movements, an expected option if morphemes are indeed phrasal.

Finally, I have shown that the phenomenon of morpheme splitting provides evidence that phrasal spell-out is sensitive to structural intervention. In focus have been cases where features that are regularly spelled out by a single marker have to split due to the presence of an intervener.

The analysis presented here thus derives the restrictions on syncretism and the regularity of various packaging and morpheme splitting effects from two general mechanisms: fine-grained syntax and phrasal spell-out, the core ingredients of a nanosyntactic approach to language.

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