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Affixes and stem alternants in Latvian nouns: implications for inflectional theory

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Baerman (2012) suggests that noun inflection in Latvian presents a problem for Carstairs-McCarthy's (1994) No Blur Principle, a successor to the Paradigm Economy Hypothesis (Carstairs 1983; 1987; Carstairs-McCarthy 2010). On closer examination, however, this turns out not to be so. Some other languages (such as Nuer) do appear to violate the No Blur Principle. However, when one takes into account the relationship between affixal inflection and stem alternation patterns, Latvian emerges as perfectly compliant. The discussion involves the distinction between patterns of stem alternation that have traditional morphosyntactic functions (such a signalling 'plural') and ones that are 'morphomic' (Aronoff 1994). The role of thematic vowels and the location of stem-affix boundaries are also relevant. [*]

Keywords: Latvian, inflectional classes, stem alternants, No Blur Principle.

1. Introduction: the No Blur Principle and apparent violations of it

Latvian nouns have two genders (masculine and feminine), two numbers (singular and plural) and five cases (nominative, accusative, genitive, dative and locative). Table 1 represents a first attempt at summarizing inflectional affix distribution. (I say 'a first attempt' because stem-affix boundaries will require further discussion.) [1]

[*] For comments on an earlier draft I am grateful to Peter Arkadiev, Mark Aronoff, Matthew Baerman, Hans-Olav Enger, Nicole Nau and two anonymous referees. But none of these should be assumed to agree with anything I say.

[1] Vocative forms are ignored, as is the so-called 'instrumental case', whose forms for any noun are identical with those of the accusative in the singular and the dative in the plural. For the benefit of readers not familiar with the language, I should explain that, in Latvian orthography, macrons indicate long vowels, cedillas indicate palatal consonants, *š* and *ž* are a palatoalveolar fricatives, and *c* and *č* are affricates (dental and palatoalveolar respectively).

Table 1. Affixal inflection of Latvian nouns (based on Mathiassen 1997 and Baerman 2012).

	Suffixes:	I	IIa	IIb	III	IV	V	VI
SG NOM	s, š, is, us, a, e	s, š	is	s	us	a	e	s
SG GEN	a, s, us, as, es	a	a	s	us	as	es	s
SG DAT	am, im, um, ai, ei, ij	am	im	im	um	ai	ei	ij
SG ACC	u, i	u	i	i	u	u	i	i
SG LOC	ā, ī, ū, ē	ā	ī	ī	ū	ā	ē	ī
PL NOM	i, as, es, is	i	i	i	i	as	es	is
PL GEN	u	u	u	u	u	u	u	u
PL DAT	iem, ām, ēm, īm	iem	iem	iem	iem	ām	ēm	īm
PL ACC	us, as, es, is	us	us	us	us	as	es	is
PL LOC	os, ās, ēs, īs	os	os	os	os	ās	ēs	īs

The No Blur Principle (Carstairs-McCarthy 1994; 2010) asserts that, when the affixes associated with some paradigmatic cell (such as 'locative singular' or 'dative plural') are distinguished purely on the basis of inflectional class (that is, when no factor such as difference in gender or in phonological context affects the choice among them), each such affix must be either:

(a) a 'class-identifier' (unique to one inflection class)

or:

(b) the 'class-default' (the **sole** non-class-identifer for the paradigmatic cell in question).

This Principle can be seen as an instantiation of the Principle of Contrast (Clark 1993), which is ultimately rooted in a more broadly cognitive (not purely linguistic) bias (Carstairs-McCarthy 2010; Kaminski *et al.* 2004). If correct, it helps to account for the ease with which children learn elaborate inflection class patterns. As soon as the child's brain has discovered that, for some paradigmatic cell (let's call it 'cell C'), there is one affix ('affix A') that occurs in more than one inflection class, the brain can

safely conclude that affix A is the only such affix. That is, for any new word that the child encounters, the choices for cell C are strictly limited: if its inflectional realization involves an affix, this affix must be either a class-identifier or the class-default, namely affix A.

I said just now: 'If correct, it helps …'. The view that the Principle is on the right lines is certainly controversial. A variety of counterevidence to it has been put forward, for example from Nuer (Baerman 2012), from Fur (Stump & Finkel 2013), and from Chiquihuitlán Mazatec (Ackerman & Malouf 2013). There are two possibilities: either (a) the Principle is simply wrong, and apparent compliance with it in some languages is purely accidental; or (b) the Principle deserves a place in an overall theory of how inflectional morphology operates, but its effects are obscured or overridden in some circumstances that are not yet well understood. I regard the issue as very much an open one. For the purpose of this article, I will assume that assumption (b) is correct, while acknowledging that, in the long run, further analysis of inflection class systems may prove otherwise.

In Latvian, compliance with the No Blur Principle seems incomplete. As Baerman puts it (2012, 471): 'Some parts of the Latvian paradigm conform to [the Principle] (e.g. the accusative plural, where the suffixes *-as*, *-es*, and *-is* are unique to a single inflection class, and *-us* is found elsewhere), but others do not (e.g. the accusative singular suffixes *-i* and *-u* each range over multiple inflection classes).' Other seemingly non-compliant forms are found in the genitive singular (where neither *-a* nor *-s* is a class-identifier) and the locative singular (where the same applies to *-ā* and *-ī*).[2]

Sections 2, 3 and 4 of this article are devoted to showing that the accusative, genitive and locative singular forms do after all comply with the No Blur Principle, provided that gender and stem alternation patterns are taken into account. In section 5 I will argue that the nominative singular needs reconsideration. In section 6 I offer some conclusions. In the course of the article I mention analogous situations in Spanish, Portuguese, Russian, Polish and Surmiran (Rumantsch). In sum: Latvian does not violate the No Blur Principle after all, provided that proper account is taken of the relationship between affixation and stem alternation, and of paradigmatic versus syntagmatic and extramorphological factors in affix selection.

[2] I will discuss later the status of *-s* and *-š* as apparently rival nominative singular suffixes in class I.

2. Inflection class and gender

Mathiassen (1997, 42), on whom Baerman relies, states: 'The Latvian noun is usually grouped into 6 declensional classes, three masculine (1–3) and three feminine (4–6).' This would seem to imply that: (a) there are no feminine nouns in classes I, IIa, IIb or III of Table 1; and (b) there are no masculine nouns in classes IV, V or VI. However, while (a) is true, (b) is false. Although classes IV and V are predominantly feminine, these classes do contain some masculines, notably nouns denoting males such as *puika* 'boy' in class IV and *bende* 'executioner' in class V, as well as surnames (when applied to males), such as *Kabelka* in class IV. Class VI also contains one masculine, namely the plural-only noun *ļaudis* 'people'.

Inflectionally, this is particularly relevant to dative singular suffixes. In masculine nouns of classes IV and V, these suffixes are not *-ai* and *-ei* respectively, as Table 1 implies, but rather *-am* and *-em*. Thus we find dative singular forms *puikam* and *bendem*, not **puikai* or **bendei* (unless in reference to a female executioner). It emerges that the choice between *-m* and *-i* (or *-j*) as the final segment of the dative singular suffix has nothing to do with inflection class but correlates exactly with gender: masculine versus feminine.

As Table 1 shows, the resemblances between classes IV, V and VI extend beyond the fact that only they contain feminine nouns. In the plural, all and only these three classes exhibit class-identifying suffixes in most of the cases, while classes I, II and III (the masculine-only classes) rely entirely on class-defaults. It is therefore something of a surprise to find that, in one respect, the resemblance does not extend further still. According to the traditional analysis of Latvian as presented by Mathiassen (1997) and Prauliņš (2012), class VI differs from classes IV and V in containing no nouns that are masculine in the singular. (A circumscribed exception, namely when class VI nouns serve as male surnames, will be discussed presently.)

Is that really the best way of looking at things, however? In the traditional analysis, there is a group of seven masculine nouns (class IIb in Table 1) that are inflected in the singular exactly like the feminines of class VI, except that (not surprisingly) they end in *-m* in the dative: thus, *-im* rather than *-ij*. These are *akmens* 'stone', *asmens* 'blade', *mēness* 'moon', *rudens* 'autumn', *sāls* 'salt', *ūdens* 'water' and *zibens* 'lightning' (Mathiassen 1997, 45; Prauliņš 2012, 28). The *akmens* group is traditionally regarded

as a subclass of class II on the basis of their class-II-like behavior in the plural; but with equal justice, it seems, one could regard it as a subclass of class VI, as is suggested by Nau (2011). This fits, too, with the fact that a class VI noun such as *klints* 'cliff', when used as a surname for a man, behaves like the *akmens* group: dative *Klintim*, just like *akmenim*, contrasting with the dative form *Klintij* when the surname belongs to a woman (Nau, p.c.).

It may seem that there is little to choose between these analyses. Either way, these seven nouns appear to be heteroclite: that is, so far as their affixal inflection is concerned, they 'go like' one class in the singular and another in the plural.[3] But once one takes into account non-affixal aspects of their inflectional behaviour, the picture changes, as we will see in section 3.

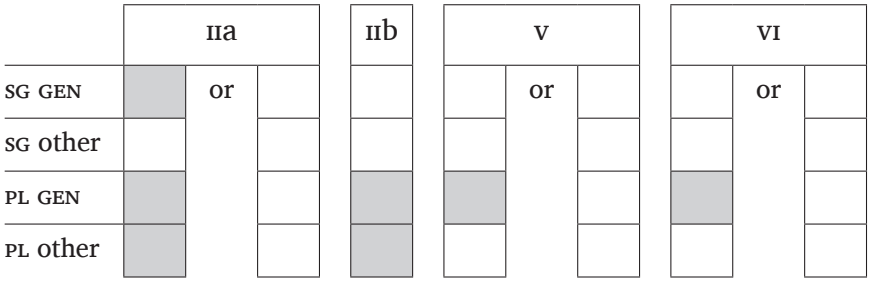
3. Stem alternations

Many Latvian consonants come in pairs: normal versus 'palatalized'. For example, *l* and *s* have 'palatalized' counterparts *ļ* (a palatal lateral) and *š* (a palatoalveolar fricative, as explained in footnote 2). The scare-quotes around the word 'palatalized' are intended to indicate that, in contemporary Latvian, this is not a straightforward matter of phonetic palatalization triggered by a high front vowel. Minimal or near-minimal pairs can be found where a normal consonant and its 'palatalized' counterpart occur in the same phonological context. For example, for the class II noun *brālis* 'brother', the nominative plural *brāļi* differs from the accusative singular form *brāli* only in the 'palatalization' of its final stem consonant; and the class I nouns *gars* 'mind' and *karš* 'war' illustrate the nominative singular suffixes *s* and *š* in the same phonological context (Mathiassen 1997, 44). (This is an issue to which we will return in section 5.)

Many Latvian nouns have two stems: a normal one and a second 'palatalized' one, in which the final consonant or consonant cluster is replaced by its 'palatalized' counterpart. This second stem, if it exists, is used in the plural or the genitive or both. In classes I, III and IV there is no stem alternation. Interest thus centres on classes IIa, IIb, V and VI. The situation is summarized in Table 2.

[3] For a theoretically oriented discussion of of heteroclisis, see Stump (2006).

Table 2. Stem alternation in Latvian nouns. Hatching indicates a second ('palatalized') stem alternant.



I will start with classes V and VI before discussing the relevance of stem alternation for the question posed in section 2: Where do 'class IIb' nouns really belong?

3.1. Classes V and VI: second stem in the genitive plural

In classes V and VI, the second stem is limited to the genitive plural, and is found in many nouns but not all. Examples are:

(1)	Class V:	SG NOM	PL GEN
a.	with a second stem:		
	'mother'	*māte*	*māšu*
	'second'	*sekunde*	*sekunžu*
	'address'	*adrese*	*adrešu*
	'river'	*upe*	*upju*
	'star'	*zvaigzne*	*zvaigžņu*
	'kitchen'	*virtuve*	*virtuvju*
b.	with no second stem:		
	'fleet'	*flote*	*flotu* (*not *flošu*)
	'(female) guide'	*gide*	*gidu* (*not *gižu*)
	'basis'	*bāze*	*bāzu* (*not *bāžu*)
	'passport'	*pase*	*pasu* (*not *pašu*)
	'sock'	*zeķe*[4]	*zeķu*
	'giraffe'	*žirafe*	*žirafu*

[4] Orthographic *ķ* represents a palatal plosive. Morphophonologically, it has no non-palatal counterpart.

(2) Class VI:	SG NOM	PL GEN
a. with a second stem:		
‘castle’	*pils*	*piļu*
‘heart’	*sirds*	*siržu*
‘oven, stove’	*krāsns*	*krāšņu*
‘nostril’	*nāss*	*nāšu*
‘pod (*e.g.* pea pod)’	*pāksts*	*pākšu*
‘fish’	*zivs*	*zivju*
b. with no second stem:		
‘eye’	*acs*	*acu* (*not* **aču*)
‘ear’	*auss*	*ausu* (*not* **aušu*)
‘sauna’	*pirts*	*pirtu* (*not* **piršu*)
‘goose’	*zoss*	*zosu* (*not* **zošu*)
‘louse’	*uts*	*utu* (*not* **ušu*)

At first sight, in the light of (1) and (2), no clear basis emerges for distinguishing nouns with two stems from those with only one. However, two stems are the norm. Exceptions are almost entirely limited to stems ending in dental consonants (as well as, inevitably, those few consonants with no palatalized counterpart, such as *ķ* and *ž*). A few nouns vacillate, e.g. class V *torte* ‘gateau’, whose genitive plural may be either *toršu* or *tortu* (Prauliņš 2012, 33). Nevertheless, there is an element of unpredictability in the incidence of second stems in classes V and VI, which contrasts (it would seem) with their clear-cut morphosyntactic function, viz. to help to signal ‘genitive plural’. At first sight, then, it is not necessary to regard these stems as ‘morphomic’ (Aronoff 1994): the pattern that they conform to is not morphsyntactically random. In this respect, classes V and VI contrast with class IIa, as we shall see directly.

3.2. Class IIa: second stem in the plural and the genitive singular

In class IIa, a morphosyntactically random pattern does appear. Most class IIa nouns possess a second stem, but this shows up in a set of cells that do not hang together morphosyntactically: the entire plural plus the genitive singular. This is illustrated in Table 3, where forms that contain the second stem are in small capitals:[5]

[5] An anonymous reviewer points out that Table 2 is oversimplified in that it does not accommodate the pattern illustrated by two-syllable personal names ending in *-tis* and *-dis* such as

Table 3. Class IIa nouns with and without a second stem, highlighted in small capitals (based on Mathiassen 1997 and Prauliņš 2012)

	With second stem		Without second stem	
	brālis 'brother'	*ķirsis* 'cherry'	*viesis* 'guest'	*kaķis* 'cat'
SG NOM	brālis	ķirsis	viesis	kaķis
SG GEN	BRĀĻA	ĶIRŠA	viesa	kaķa
SG DAT	brālim	ķirsim	viesim	kaķim
SG ACC	brāli	ķirsi	viesi	kaķi
SG LOC	brālī	ķirsī	viesī	kaķī
PL NOM	BRĀĻI	ĶIRŠI	viesi	kaķi
PL GEN	BRĀĻU	ĶIRŠU	viesu	kaķu
PL DAT	BRĀĻIEM	ĶIRŠIEM	viesiem	kaķiem
PL ACC	BRĀĻUS	ĶIRŠUS	viesus	kaķus
PL LOC	BRĀĻOS	ĶIRŠOS	viesos	kaķos

This pattern recalls a pattern of verbal stem alternants found in a number of Romance languages and called by Maiden (2005; 2010) the 'L-pattern'. For example, in Portuguese and Spanish a number of verbs have a special stem in the entire present subjunctive and the 1st singular present indicative. Maiden argues that the L-pattern is 'morphomic' in the sense of Aronoff (1994): it is an instance of 'morphology by itself'. The second-stem distribution in Latvian class IIa nouns is morphomic in the same way: it makes no morphosyntactic sense, but it is consistent. However, Latvian's class IIb nouns will show that the stem distribution, while still morphomic, is not precisely parallel to that of Portuguese and Spanish.

Valdis. These typically have a genitive singular in *-a*, like class IIa (*Valda*) but a plural with a palatalized stem, like class IIb (*Valži*). However, the behaviour of this circumscribed class does not affect the validity of the implications (3), (4) and (8).

3.3. Class IIb: second stem in the plural only

As we have seen, not all class IIa nouns have a second stem. However, all seven nouns in the *akmens* group (traditionally 'class IIb') have a second stem throughout the plural—but, unlike class IIa, not in the genitive singular. Table 4 illustrates this.

Table 4. 'Class IIb' nouns compared with class VI (based on Mathiassen 1997 and Prauliņš 2012).

	'Class IIb'		Class VI
	akmens 'stone'	*mēness* 'moon'	*zivs* 'fish'
SG NOM	akmens	mēness	zivs
SG GEN	akmens	mēness	zivs
SG DAT	akmenim	mēnesim	zivij
SG ACC	akmeni	mēnesi	zivi
SG LOC	akmenī	mēnesī	zivī
PL NOM	AKMEŅI	MĒNEŠI	zivis
PL GEN	AKMEŅU	MĒNEŠU	ZIVJU
PL DAT	AKMEŅIEM	MĒNEŠIEM	zivīm
PL ACC	AKMEŅUS	MĒNEŠUS	zivis
PL LOC	AKMEŅOS	MĒNEŠOS	zivīs

The point of putting class VI alongside class IIb is to illustrate a point made in section 2: that, in the singular, their inflection is identical except in the dative. But in the dative, as we have already noted, the contrast between *-im* and *-ij* reflects gender (masculine versus feminine), not inflection class. Therefore, from the point of view of the singular, 'class IIb' nouns can be regarded as simply masculine nouns of class VI. Class VI will thus resemble classes IV and V in containing a few masculines (apart from plural-only *ļaudis* 'people') alongside a majority of feminines.

In the plural, what happens can now be summarized conveniently in

two exceptionless implications of a purely morphology-internal or morphomic character:

(3) class VI masculine singular (i.e. the *akmens* group) ⊃ second (palatalized) stem throughout plural
(4) second stem throughout plural ⊃ class IIa in plural

At this point, it becomes clear that 'class IIa' can be simplified to 'class II'. Class IIb has been absorbed into class VI, its peculiar behaviour in the plural being a consequence of (3) and (4). (In the implicans of 3, the specification 'singular' is necessary in order to exclude from its scope *ļaudis* 'people', which is inflected just like the plural of the feminine noun *zivs* in Table 4.[6])

Notice that a stem distribution characteristic ('second stem throughout plural') can appear on both the right and the left of a morphomic implication. Sometimes it is stem alternation that can be predicted on the basis of affixal behaviour, and sometimes it is the other way round. That is in line with a suggestion by Carstairs-McCarthy (2010): the brain requires that a morphological contrast (such as affix choice or stem alternation) should be anchored within the system somehow, but it does not matter whether the anchor is extramorphological (syntactic or semantic) or intramorphological. Examples of intramorphological anchoring are conformity to a morphomic stem distribution pattern, or identification of an affixal inflection class, or syntagmatic predictability between stem and affix (Carstairs-McCarthy 2001).

It may seem that, in the *akmens* group, the second stem can be analysed in a more conventional, non-morphomic, fashion:

(5) second stem ⊃ plural

This recalls a well-known generalization within German noun inflection, as exemplified in e.g. *Mutter* 'mother', *Nacht* 'night', *Gott* 'god' and *Fluss* 'river' with their plurals *Mütter*, *Nächte*, *Götter* and *Flüsse*:

(6) second (umlauted) stem[7] ⊃ plural

However, Latvian differs from German in an important respect. The sec-

[6] I owe this suggestion to Nicole Nau.

[7] In a noun that has only one stem, e.g. *Fürst* 'prince', umlaut does not indicate plurality. That is why it is necessary to specify 'second stem' here.

ond stem appears not only in the plural but also in the genitive singular of most nouns of class II (that is, the class that was labelled 'IIa' in Table 3). It is a reliable indicator of plurality only for nouns of class IIb (so-called).

Should we then amend (5) as in (7)?

(7) second stem, class IIb ⊃ plural

The answer is no, because, at the stage of analysis that we have now reached, 'class IIb' is no more than an ad hoc way of referring to a group of nouns that are lexically specifed as belonging to class VI but, in virtue of their gender, display stem alternation and affixal inflection in accordance with implications (3) and (4).

It may seem, therefore, that the existence of the *akmens* group is an embarrassment for the analysis being developed here: it undermines the morphomic character of class II's stem distribution. This is because, in the *akmens* group, no genitive singular 'outlier' supplies an analog of the 1st singular present indicative in the morphomic L-pattern of Portuguese and Spanish.[8] But the embarrassment is only apparent. True, the *akmens* group shows that not all nouns that have a second stem throughout the plural conform to the 'IIa' pattern. Even so, the inflection of Latvian nouns motivates a third implication that can be set alongside (3) and (4):

(8) second stem in genitive singular ⊃ second stem in plural

That is, as Table 2 illustrates, Latvian has no inverse of the *akmens* stem pattern. There are no nouns that have a second stem in the genitive singular but not in the plural.

This has implications for what one might call morphomic consistency. A 'classic' morphome of the kind originally explored by Aronoff (1994) involves a single consistent set of syntactically disparate cells that use the same stem. The stem distribution pattern in Portuguese and Spanish verbs discussed by Maiden is of this kind. But Carstairs-McCarthy (2010) draws attention to stem distribution patterns in Russian, Polish and German that involve more than one set of cells, such that one set is nested within another. For example, in Russian nouns, some have stress 'early' (that is, on the stem rather than the suffix) in the nominative plural only

[8] In fact, no noun has a second stem in the genitive singular if its genitive singular suffix is *-s*. In this respect, the behaviour of the *akmens* group is part of a wider pattern. This might be expressed provisionally in a further stem-affix entailment: 'genitive suffix *-s* ⊃ first stem'.

while others have stress early in both the accusative singular and the nominative plural, but none has stress early in the accusative singular only. So the former distribution is, so to speak, nested within the latter. That morphomic relationship can be expressed thus (Carstairs-McCarthy 2010, 161):[9]

(9) early stress in accusative singular ⊃ early stress in nominative plural

Stem distribution in Latvian's class II nouns thus emerges as entirely morphomic in character. This is in contrast to classes V and VI, where the second stem serves the syntactic purpose, alongside the suffix *-u*, of signalling 'genitive plural'.

To sum up: our discussion of stems establishes that, from the point of view of the No Blur Principle, 'class IIb' can be ignored. The affixal behaviour of the *akmens* group is subsumed under class VI in the singular and class II (the former 'class IIa') in the plural. So there is no longer any affixal blurring in the genitive singular: the suffix *-s* becomes a class-identifier for class VI, and *-a* is unequivocally the class-default.

4. Remaining instances of apparent affixal blurring

4.1. The locative singular

In the locative singular, two classes (I and IV) share *-ā* and two (II and VI) share *-ī*. This yields a prima facie instance of blurring: neither *-ā* nor *-ī* is a class-identifier, yet, simply because there are two of them, neither can be regarded as the class-default. But we have already noted the strong family resemblance between IV, V and VI, especially in the plural. In fact, as Table 3 makes evident, the vowels *a*, *e* and *i* mirror each other's distribution exactly in the plural of classes IV, V and VI respectively. Thus they look very much like thematic vowels, that is vowels that can or should be regarded as part of the stem rather than the suffix.[10]

[9] Carstairs-McCarthy (2010), although he cites Aronoff (1994) on 'morphology by itself', does not use the terms 'morphome' or 'morphomic'. However, he could have improved his presentation by doing so.

[10] At first sight, one is tempted to try to combine classes IV, V and VI into one big macroclass, sharing the same set of inflectional suffixes. The nominative and genitive singular suffixes of class VI show that this class, at least, must be excluded. However, the question raises an important issue to which we will return in section 4.3.

Thematic vowels have a convenient chameleon character, I suggest (convenient for children's brains, that is). They can be counted as part of the stem or part of the suffix, whichever is necessary to ensure compliance with innate principles underlying lexical and morphological organization, such as are manifested in the No Blur Principle. At first sight, this may look like a 'get-out-of-jail-free card' for that Principle. Could we not 'save' the Principle at the cost of making it empirically vacuous, by counting any inconvenient affix as part of the stem? My answer is to recognize that as a danger, but at the same time assert that it is entirely plausible that stem-affixes boundaries should not always be easily locatable by the language-learning child's brain. Alternative analyses may plausibly coexist, temporarily and perhaps even permanently, in one speaker's morphological competence.

The Latvian locative singular is an instance where convenience comes down on the side of treating the apparent 'suffixes' as part of the stem. If the child's brain analyses these forms in this way, then they have no suffix at all, so that in connection with them the issue of suffixal blurring does not arise. Instead, each noun of classes IV, V and VI has an extra stem alternant with a long final vowel, whose distribution can be stated as in 10:

(10) in locative singular, / XV_i /$_{stem}$ ⊃ / X [V_i , +long] /$_{stem}$

That is: every noun that has a stem ending in a vowel (which means all and only the nouns in classes IV, V and VI) uses in the locative singular a stem alternant with a lengthened version of that vowel. In more up-to-date terms, one could say that, in the locative, the prosodic template for the stem differs from that of the basic alternant by having an extra timing-slot in the nucleus of the stem-final vowel.

With this analysis, the apparent blurring disappears. Classes I and IV do not share a suffix *-ā*, because in class IV the word-final *-ā* is not a suffix at all. The same applies to *-ī* in classes II and VI. Thus, *-ā* as a suffix emerges a class-identifier for class I, and *-ī* likewise for class II. They are merely accidentally homophonous with the final vowels of the locative singular stem in classes IV and VI.[11]

[11] Peter Arkadiev (p. c.) points out that, in this analysis, the fact that all locative singular forms end in a long vowel is a pure accident. However, that drawback applies equally to an analysis in which all the locative singular forms carry a suffix. It would seem that in Latvian noun inflection, alongside stem alternation and suffixation, we may need to recognize a role

4.2. The accusative singular

For the accusative, a similar stem-vowel analysis suggests itself. In the accusative singular of classes IV, V and VI, what look like suffixes (*-i* and *-u*) can be analysed as [+high] counterparts of the basic thematic vowels:

(11) in accusative singular, / XV_i /$_{stem}$ ⊃ [X [V_i, +high] /$_{stem}$

In class VI, where the thematic vowel is [+high] [i], the stem alternant found in the accusative singular is inevitably the same as the basic stem. In class V, where the thematic vowel is [e], the alternant for the accusative singular also ends in [i], because, within the Latvian vowel system, [i] differs from [e] just in its value for the feature [±high]. So the accusative form *māti* 'mother' (class V), corresponding to nominative *māte*, carries no suffix; rather, it exhibits merely a special form of the stem, in accordance with (11).

In class IV, things are not quite so obvious. Nevertheless, a straightforward analysis suggests itself that relies on the well-established idea of structure preservation (Kiparsky 1985). This is the idea that, at a relatively abstract level (in 'lexical phonology' or in 'morphophonology'), no manipulations may introduce a sound from outside the basic phonological inventory of the language. This is the clue to determining the shape of the stem alternant that will be found in the accusative singular for class IV nouns such as *māsa* 'sister' and *puika* 'boy'. The phonological inventory of Latvian includes one low back vowel, [a], which is [–round], and one high back vowel, [u], which is [+round]. It contains no high back unrounded vowel. Let us assume that one of the stem alternants of *māsa* and *puika* is vowel-final, i.e. *māsa* and *puika*, just like the nominative singular form. Stem alternants that differ from the basic one in respect of the feature [±high], while respecting structure preservation, are *māsu* and *puiku*.

In classes IV, V and VI we thus observe special stem alternants, limited to the accusative singular, with no suffix. And, because they have no suffix, no possibility of suffixal blurring arises in connection with these forms. In particular, the *i* at the end of the stem alternant used in classes V and VI is not the same as the suffix *-i* found in class II, and the *u* at the end of the stem alternant used in class IV is not the same as the suffix *-u* found in classes I and III. We thus encounter only two genuine suffixes in

for prosodic templates of the kind familiar in Semitic languages, albeit on a far smaller scale. But I will leave that question on one side for now.

the accusative singular: *-i*, which is a class-identifier for class II, and *-u*, the class-default, shared by classes I and III. With this analysis, the apparent suffixal blurring in the accusative singular disappears.

4.3. Distribution of the basic stem alternant, and the status of classes IV–VI

At first sight, this solves one problem only at the expense of creating another. For certain paradigmatic cells, we have postulated lengthened-vowel and raised-vowel alternants for nouns whose basic stem ends in a vowel. But in which paradigmatic cells, if any, does the basic stem itself occur? Our first attempt at presenting Latvian noun inflection, at Table 1, seems to imply the answer 'none'. This is because in Table 1 all the thematic vowels are assigned to affixes. If we are to change this analysis now, what are the implications?

The first thing to say about this issue is that it may be less momentous than it appears. I already pointed out in section 4.1 that thematic vowels have a chameleon character: the speaker's brain has the choice of assigning them to the stem or to the affix, and will choose whichever analysis best facilitates compliance with general morphological constraints such as No Blur. But it seems likely that, for many languages, the evidence is compatible with more than one choice, so that speakers of the same linguistic variety may implicitly analyze the same forms differently. Latvian is possibly such a language, as Table 5 (below) shows.

Table 1 assumes what one may call a minimal-stem analysis for the thematic vowels *a*, *e* and *i* in declensions IV, V and VI respectively: these vowels are all assigned to suffixes. In sections 4.1 and 4.2 we have found reasons to depart from that analysis in the locative and accusative singular. In Table 5 we go further, and explore the effect of assigning thematic vowels always to the stem.[12]

[12] I take it that orthographic *-ij* at the end of class VI feminines in the dative singular is merely a conventional substitute for *-ii*, to avoid dittography.

Table 5. Affixal inflection of Latvian nouns with thematic vowels assigned to stems and with class-identifying suffixes asterisked.

	Suffixes:	IV	V	VI
SG NOM	s/š ; is* ; us*	Xa	Xe	X + s
SG GEN	a/C_ ~ s/V_ ; us*	Xa + s	Xe + s	X + s*
SG DAT	i/fem ~ m/masc	Xa + i~m	Xe + i~m	Xi + i~m
SG ACC	u, i*	Xu	Xi	Xi
SG LOC	ā*, ī*, ū*	Xā	Xē	Xī
PL NOM	i/C_ ~ s/V_	Xa + s	Xe + s	Xi + s
PL GEN	u	X + u	X + u	X + u
PL DAT	iem/C_ ~ m/V_	Xā + m	Xē + m	Xī + m
PL ACC	us/C_ ~ s/V_	Xa + s	Xe + s	Xi + s
PL LOC	os/C_ ~ s/V_	Xā + s	Xē + s	Xī + s

The instinctive reaction of some readers may be that the multiplicity of stem alternants posited here is enough by itself to render this analysis implausible. But I have already cited work by Aronoff, Maiden and Carstairs-McCarthy supporting the need to recognize stem alternation as a phenomenon that regularly affects many, if not most, lexemes in a variety of languages.[13] Besides, the alternation patterns posited in Table 5 for classes IV and V are exactly parallel, and class VI differs only in the nominative and genitive singular. What's more, this analysis yields a remarkable simplification in affixal behaviour. Throughout the plural, it turns out, suffix distribution does not depend on inflection class at all, but solely on whether the accompanying stem ends in a vowel or a consonant. In the locative and accusative singular, only the three classes with consistently consonant-final stems (I, II, III) carry suffixes, so there

[13] Yet other readers may prefer Table 5 to Table 1 because they adhere to a 'stem maximization principle' (Spencer 2012; Loporcaro 2012). But that principle is derived from a view which, to me, seems poorly motivated: that not merely some but all stem alternants can with advantage be treated as 'morphomic' in the sense of lacking any straightforward association with morphosyntactic properties.

is guaranteed compliance with the No Blur Principle.[14] And in the dative singular, as we have already noted, it is gender, not inflection class, that determines suffix choice.

In the nominative and genitive singular, the pattern appears more complicated, but it is still compatible with the No Blur Principle. I will discuss the nominative of all classes in section 5 below. As for the genitive, with the affixes as set out earlier in Table 1, blurring disappears as soon as class IIb is merged in the singular with class VI; all affixes are class-identifiers except *-a*, the class-default. In terms of Table 5, by contrast, it is *-a* and *-s* that constitute a class-default pair, the choice between them being determined by the phonological context (*-a* after consonants, *-s* after vowels). When *-s* appears after a consonant, it is clearly not a member of this pair; instead, it is a class-identifier for class VI, as is *-us* for class III.

Which analysis is right: that of Table 1, or of Table 5, or something in between? Answering that question will depend, I think, on a better understanding than we possess at present of how inflection class systems in general and the Latvian inflection class systems in particular are learned—a better understanding of developmental psychomorphology, one might say. But I suspect that a variety of analyses may count as 'right' for a given speech community, depending on the individual. For the time being, we can answer the question posed at the beginning of this section as follows: In class VI, the basic stem appears in the dative singular and in the nominative and accusative plural; in classes IV and V it appears in those cells and also in the nominative and genitive singular. We therefore seem to encounter morphosyntactically random (i.e. morphomic) yet nested distribution patterns of the kind illustrated from Russian in section 3.3.

5. The nominative singular

In terms of the maximal-stem analysis in Table 5, the nominative singular looks at first sight no more problematic for the No Blur Principle than the genitive singular does. The suffixes *-is* and *-us* are class-identifiers for

[14] As Carstairs-McCarthy (1994) points out, blurring is possible only with four or more inflection classes, because with three or fewer it is impossible to have more than one affix that is not a class-identifier. He also (like Stump 1998, 41) argues against treating suffixless forms as carrying zero suffixes. Thus, in classes IV, V and VI, the accusative and locative singular carry no suffix at all, not even a phonologically empty one.

classes II and III respectively, it seems, with *-s/š* as the class-default (being shared by classes I and VI), while classes IV and V do not come into consideration because they carry no suffix. However, there is an alternative possibility that, though superficially less neat, may turn out to be psychomorphologically more accurate, at least for some speakers. For the time being, I do not think we have enough evidence to decide between the two analyses.

The representation '*-s/š*' hints at a phonologically conditioned distribution of two allomorphs of the suffix: *š* after 'palatal' consonants, *s* elsewhere. And this is generally what we observe—except after *j* and *r*. As Mathiassen (1997, 44) puts it: 'it seems difficulty to give clear-cut rules for the distribution between *-js* and *-jš*', citing, for example, *klājs* 'deck' versus *vējš* 'wind'. Similarly we find *gars* 'mind', yet *karš* 'war'. Historically, the latter reflects the earlier existence of palatalized *ŗ* contrasting with plain *r*. Although these two sounds have merged, the *š* allomorph of the nominative singular suffix remains (perhaps surprisingly) after instances of *r* that reflect earlier *ŗ*.

This is not the only anomaly affecting nominative singular forms. The noun *suns* 'dog' is declined exactly according to the class II pattern illustrated by *brālis* in Table 3, except that its nominative singular is *suns* rather than **sunis*. And the whole of class VI, which we have analysed as having a thematic vowel (*i*), just like classes IV and V, seems anomalous in that it does not display this thematic vowel in the nominative singular. Thus, by contrast with class IV *māsa* 'sister' and class V *māte* 'mother', we find in class VI *zivs* 'fish', not (as we might expect) **zivi*.

These anomalies are real, however, only if we assume that the relevant nominative forms are genuinely segmentable into a stem and a suffix: in forms such as *gar*+*s*, *kar*+*š*, *sun*+*s*, *brāl*+*is* and *ziv*+*s* that we have already encountered, as well as class III *tirg*+*us* (or perhaps *tirgu*+*s*) 'market'. But a well-established finding of developmental psycholinguistics is that children's brains learn inflected word-forms as wholes before analysing them and, as a consequence, overgeneralizing; thus, a child is likely to say *went* correctly before later producing **goed* or **wented*. And we also know that, the more often a wordform is used, the less likely it is to be analysed at all.

In respect of Latvian nouns, then, for a relatively frequently occurring form such as the nominative singular, how sure can we be that segmented representations correctly reflect the morphological competence of all or

most adult speakers? In other words, how sure can we be that representations such as *gar*+*s*, *kar*+*š*, *sun*+*s*, *brāl*+*is*, *ziv*+*s* and *tirg*+*us* ever get established in a native speaker's competence? Bear in mind that, with the maximal-stem analysis of classes IV, V and VI presented in Table 5, there are already three classes that are suffixless in the nominative singular. To treat *gars*, *karš* and the rest as suffixless too merely generalizes an already existing pattern.[15]

True, this analysis requires us to increase by one the number of stem alternants that we recognize for every noun in classes I, II and III. But by now, I hope, some readers' reluctance to do this may have diminished. These new *s*-final alternants will be traditionally morphosyntactic rather than morphomic in function, since they will be restricted to the nominative singular. And, if the default expectation is that most if not all nouns should have more than one stem alternant (related phonologically to the other alternants in a systematic fashion), then Latvian is not particularly unusual. Anderson (2008) argues that verbs in the Surmiran variety of Rumantsch regularly have two stem alternants. And Cameron-Faulkner and Carstairs-McCarthy (2000) (cf. Carstairs-McCarthy 2010) argue the same for Polish masculine nouns ending in coronal consonants; only a few, such as *syn* 'son', overrides the default expectation so as to make do with a single alternant, while even foreign names such as *Carter* and *Nixon* follow the normal pattern in having two alternants.

6. Conclusion: order out of chaos

Latvian nouns exhibits nothing like the sort of inflectional 'chaos' of Nuer (Baerman 2012). Nevertheless, declension classes appear to proliferate. Yet this proliferation resolves itself into a neat and economical pattern as soon as stem-affix relationships are taken into account, as illustrated in (3), (4) and (8). Superficially, as Baerman says, Latvian seems to violate the No Blur Principle (or, in the terms of Carstairs-McCarthy (2010) it seems to violate vocabular clarity as it applies to the inflectional-suffixal vocabularies of Latvian nouns). But, on closer analysis, this turns out not

[15] Peter Arkadiev (p. c.) suggests that such an analysis would lead us to expect, in young children's speech, oblique case forms such as dative **garsim*, **karšim* and **brālisim* formed from the allegedly suffixless nominative stem. It would be interesting to know whether such forms occur or not.

to be so. This closer analysis involves the relationship between affixation and stem alternation, and the way in which paradigmatic factors interact with syntagmatic and extramorphological factors (such as gender).

According to the maximal-stem analysis presented in Table 5, we observe also, throughout the plural, the phenomenon that has been called 'phonologically conditioned suppletion' (Carstairs 1988; 1990). On the basis of Table 5, suffix choice in the plural depends solely on phonological characteristics of the preceding stem. Thus all Latvian nouns can be assigned to the same affixal declension class in the plural, differing only as regards their stem distribution patterns. This tendency to declensional merger is carried much further in the closely related language Latgalian (Nau 2011).

Doubt remains about stem-affix boundaries, however. Do thematic vowels belong to stems or suffixes? Are there any nominative singular suffixes at all, or are nominative singular forms (despite appearances) to be analysed as special suffixless stem alternants? And to what extent do adults within one speech community differ in how their brains analyse the same inflected wordforms? For answers to such questions, the morphological theorist must look to developmental psycholinguists, building on the pioneering work of Slobin (1973) on suffixal noun inflection in Hungarian and Serbo-Croatian, and on studies such as that of Krajewski *et al.* (2012) on the acquisition of nominal inflectional morphology in Polish.

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