

Against a minimal–augmented analysis of number

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Recently, it has been proposed that number on pronouns has minimal–augmented values instead of singular–plural values. This proposal leads to a split between nominal and pronominal number. I argue against this proposal as the pronominal paradigms of the world’s languages provide more evidence for a singular–plural analysis than for a minimal–augmented analysis.

Keywords: person, number, inclusive, pronoun, singular, plural, dual, minimal, augmented

1. Introduction: The inclusive as a problem for number

Bobaljik (2008) has recently argued for a reanalysis of the category of pronominal number in terms of a minimal–augmented system (Section 1). In this paper I want to argue against such a reanalysis, using arguments from suppletion (Section 2), morphology (Section 3) and language change (Section 4).

Traditionally, number on personal pronouns and number on other nominals is analyzed in the same way. If a group of nurses has one individual, the singular (*nurse*) is used, and if a group of nurses has more than one individual, the plural (*nurses*) is used. Similarly, if a group with a speaker in it consists of one individual, the singular pronoun *I* should be used, and if a group with a speaker in it consists of more than one individual, the plural pronoun *we* should be used. Thus, in a singular–plural language (note that for ease of explanation I will abstract from other number values like dual as much as possible) ‘singular’ can be defined as ‘a group with one individual’, and ‘plural’ as ‘a group with more than one individual’.

Yet, Bobaljik (2008) and Cysouw (2011) propose a split between nominal and pronominal number, and a reanalysis of pronominal number. They base these changes on the existence of languages like Ilocano. In this language there is an inclusive pronoun *ta* restricted to two entities (i.e. the speaker and an addressee)

and an inclusive pronoun *tayo* for groups with at least the speaker and an addressee but more than two entities in total. The other pronouns do not make this number distinction, and a traditional analysis of pronominal number would need to pose a dual number value specifically for these inclusive pronouns, as is shown in Table 1. Note that I will represent inclusive person (the fourth person value) with a $\frac{1}{2}$ symbol.

Table 1. Ilocano pronouns under a singular–dual–plural analysis

	Singular	Dual	Plural
$\frac{1}{2}$		<i>ta</i>	<i>tayo</i>
1	<i>co</i>		<i>mi</i>
2	<i>mo</i>		<i>yo</i>
3	<i>na</i>		<i>da</i>

There are a lot of empty cells in this analysis, so scholars have come up with an alternative analysis without empty cells. This alternative analysis makes use of the terms ‘minimal’ and ‘augmented’. The term ‘minimal’ means ‘the minimum amount of individuals needed for this person value’. For the inclusive this is two (a speaker and an addressee) and for the other three persons this is one (a speaker for first person, etc.). The term ‘augmented’ means ‘more than the minimum amount of individuals needed for this person value’. For the inclusive person this is three or more individuals and for the other three persons this is two or more individuals. An overview of the Ilocano pronouns under a minimal–augmented analysis can be found in Table 2.

Table 2. Ilocano pronouns under a minimal–augmented analysis

	Minimal	Augmented
$\frac{1}{2}$	<i>ta</i>	<i>tayo</i>
1	<i>co</i>	<i>mi</i>
2	<i>mo</i>	<i>yo</i>
3	<i>na</i>	<i>da</i>

From a visual point of view this analysis is clearly attractive.

However, Bobaljik (2008: 14) extends the minimal–augmented analysis to all other languages. With respect to the pronoun system all languages should have minimal–augmented values instead of singular–plural values in their grammatical category of number. In other words, they split number into nominal number — which has singular–plural number values — and pronominal number — which has minimal–augmented number values.

Language has a lot of grammatical categories so it is not a priori wrong to split up a grammatical category in two. It makes, for example, perfect sense to keep the categories of number and aspect apart. In a sense both deal with quantities, but number is found on nouns and (traditionally) has values like singular and plural. Aspect, on the other hand, is found on verbs and has values like semelfactive and iterative (besides more well-known values like perfective and progressive). It is, therefore, rather uncontroversial to say that aspect and number are two separate grammatical categories. But are there enough reasons to say that pronominal number and nominal number are separate grammatical categories?

A conceptual reason for a universal split between nominal and pronominal number is the difference in group forming between nouns and pronouns. For a noun like *nurses* all individuals in the group have to be nurses, while in the plural pronoun *you* not all individuals in the group have to be addressees. In other words, the plural of a pronoun may lead to an associative meaning in a context: a group of people associated to an individual (i.e. the speaker or the addressee). Some languages also have a plural morpheme with an associative meaning for nouns, however. Turkish is an example of such a language (see Görgülü 2011). The morpheme *-ler* 'PL' can have either the associative or the normal (sometimes called 'additive') plural interpretation, see (1).

- (1) *Ahmet-ler*
 Ahmet-PL
 'Ahmets' (two or more people by the same name)
 'Ahmet's family or company or group'

According to Daniel & Moravcsik (2005), these associative plural markers for nouns are very common in the languages of the world (but not in Europe). In their sample of 273 languages, 105 languages have an associative plural marker for nouns that is similar to the normal additive plural marker, 48 languages have an affixal associative plural marker for nouns that is different to the normal additive plural marker, 47 language have a dedicated non-affixal construction to mark an associative plural on nouns, and only 37 languages (English for example) not even have such a non-affixal construction.¹ The difference between nouns and pronouns, however, is that plural pronouns are always able to have the associative meaning in the languages in the world (so even in English), while this is not always the case for plural nouns.

Yet, this categorical difference between nouns and pronouns cannot be a reason to split up a grammatical category. It is not the case that pronominal number is a separate grammatical category and that nominal number is a separate grammatical category; they are clearly related as the difference between associative and additive meaning may be present in both nouns and pronouns. I therefore predict

that languages analyze number values for both nominal and pronominal number in the same way (i.e. by means of a singular–plural analysis). In the remainder of this paper I will present data that support my prediction.

2. Suppletion in person paradigms

In the next two sections I will look at person paradigms, as the singular–plural analysis and the minimal–augmented analysis of pronominal number make different predictions with respect to these paradigms. But before we can look at these data I have to make one important remark: most languages do not use a group-marking morpheme in their pronominal system. Most languages use suppletion instead, i.e. different stems are used for singular and plural pronouns. In this section I will show that the issue of suppletion should be separated from the issue of the analysis of number.

German is an example of a language with suppletive number marking on pronouns: the first-person pronouns are *ich* ‘I’ and *wir* ‘we’, the second-person pronouns are *du* ‘you (singular)’ and *ihr* ‘you (plural)’, and the third-person pronouns are *er* ‘he’ and *sie* ‘they’, so in every case the singular pronoun has a different stem than the plural pronoun. In his sample of 261 languages Daniel (2005) found 114 languages with suppletive pronominal number marking, and only 42 languages where pronominal number is expressed by an affix. Interestingly, there are also 69 languages in which pronominal number is expressed both by suppletion and by an affix — an example is the language Amele (Roberts 1987) with *ija* ‘1SG’ versus *e-ge* ‘1PL-PL’, and *hina* ‘2SG’ versus *a-ge* ‘2PL-PL’ — so even this double strategy is more common than using a straightforward plurality affix. Thus, overt marking of the grammatical category of number in pronouns is not the number one strategy of marking number.

But what does the high frequency of suppletion in pronominal number paradigms mean? Does it mean that pronominal number is categorically different from nominal number, as suppletion is an infrequent means of marking plurality in nouns? I do not think that suppletion shows a categorical difference between pronominal and nominal number. I will assume that suppletion reflects the frequency of use of the items under discussion. As Haspelmath (2006) notes, irregular paradigms — of which a suppletion paradigm is an example — most often occur with highly-frequent items. An example of an irregular, suppletive paradigm is the English verb *to be*, which is indeed highly-frequent. An overview of the *to be* paradigm can be seen in Table 3.

Table 3. Suppletion in the English verb *to be*

be.3SG.PRS	<i>is</i>
be.1SG.PRS	<i>am</i>
other be.PRS	<i>are</i>
be.1/3SG.PST	<i>was</i>
other be.PST	<i>were</i>
be.INF	<i>be</i>
be.PRS.PTCP	<i>being</i>
be.PST.PTCP	<i>been</i>

Suppletion results in short forms, because a suppletive form does not need a separate morpheme to mark number; person and number marking are encoded by one form. In (2) number marking is presented on a continuum; the frequencies are based on the *Corpus of Contemporary American English* (Davies 2008). The most frequent items are pronouns. They show complete suppletion and are thus very short.² The forms of middle high frequency show partly suppletured plural marking. The right side presents low-frequency items with a regular plural form (using the *-s* morpheme). From (2) we can conclude that the more frequent the form is, the shorter the form. Shortness of the form is related to the level of suppletion. The observation that frequent forms are short forms is in line with Zipf (1965 [1949]) and Lestrade (2010:Chapter 1).

(2) Number marking in nouns and pronouns as a continuum

high-frequent		low-frequent
irregular		regular
<i>she</i>	<i>woman</i>	<i>aunt</i>
<i>they</i>	<i>women</i>	<i>aunts</i>

Thus, pronominal number is not categorically different from nominal number with respect to suppletion. So suppletion in itself is not a reason to make a categorical split between nominal and pronominal number. This makes the predominance of suppletion orthogonal to the choice between a singular–plural analysis and a minimal–augmented analysis of pronominal number. In the next section I will look at person paradigms without suppletion to see which analysis they support best. In the section after that I will look at person paradigms with suppletion.

3. Number in non-suppletive paradigms

Pronoun paradigms that are regular (non-suppletive) have a group-marking morpheme by definition. Under a minimal–augmented analysis of pronominal

number it is expected that these morphemes have an augmented meaning and not a plural meaning. The blueprint of a language with an augmented morpheme is presented in Table 4.

Table 4. Language with a augmented morpheme for pronouns

	Minimal	Augmented
$\frac{1}{2}$	α	α -AUGM
1	β	β -AUGM
2	γ	γ -AUGM
3	δ	δ -AUGM

The blueprint of a language with a plural morpheme is presented in Table 5.

Table 5. Language with a plural morpheme for pronouns

	Singular	Plural
$\frac{1}{2}$		α -PL
1	β	β -PL
2	γ	γ -PL
3	δ	δ -PL

The difference between the two languages is clear: a language in Table 4 has an inclusive pronoun without a group-marking morpheme and the language in Table 5 has no such pronoun. The next step is to see which type of language occurs most often.

Cysouw (2003:89,263) looked at such languages and found hardly any with an augmented morpheme. In contrast, languages with a plural morpheme occur more often. The Mandarin morpheme *-men* is an example, see Table 6.³ Note that the inclusive form *zán-* does not stem from the singular, as the inclusive has no singular form, but historically derives from the compound *zì-jīā* ‘self-family’.

Table 6. Mandarin pronouns

	Singular	Plural
$\frac{1}{2}$		<i>zán-men</i>
1	<i>wǒ</i>	<i>wǒ-men</i>
2	<i>nǐ</i>	<i>nǐ-men</i>
3	<i>tā</i>	<i>tā-men</i>

The near absence of a language with an augmented morpheme for pronouns argues against the minimal–augmented analysis of pronominal number.

Many languages in the world lack a dedicated inclusive pronoun, however, so many languages with a group-marking morpheme (whether plural or augmented) will also lack a dedicated inclusive pronoun. The minimal–inclusive analysis

predicts that in such languages a group consisting of the speaker and an addressee should be expressed by the minimal inclusive, but such languages do not exist (Cysouw 2003:Chapter 8). The singular–plural analysis predicts languages in which such a group is expressed by the inclusive plural. An example is the group of southern (i.e. non-Mandarin) Chinese languages, which did not develop the inclusive *zán-men* pronoun, see Table 7.

Table 7. Southern Chinese pronouns

	Singular	Plural
1	<i>wǒ</i>	<i>wǒ-men</i>
2	<i>nǐ</i>	<i>nǐ-men</i>
3	<i>tā</i>	<i>tā-men</i>

Thus, also in this case it is the singular–plural analysis which makes the better predictions.

Nevertheless, it should be noted that there is some morphological evidence in favor of the minimal–augmented analysis. A language with such evidence is Rembarrnga (McKay 1978; Cysouw 2003:265). In this language the element *-bbarrah* is attached to plural pronouns to produce their dual counterparts, except for the inclusive. For inclusive pronouns *-bbarrah* is used to derive the trial, while the dual has a separate form, *ykk*. An analysis of this pronoun system in terms of singular, plural, dual and trial can be seen in Table 8.

Table 8. Singular-plural analysis of the Rembarrnga pronoun system

	Singular	Dual	Trial	Plural
½		<i>yukku</i>	<i>ngakorr-bbarrah</i>	<i>ngakorr-u</i>
1	<i>ngun-u</i>	<i>yarr-bbarrah</i>		<i>yarr-u</i>
2	<i>ku</i>	<i>nakorr-bbarrah</i>		<i>nakorr-u</i>
3	<i>nawu/ngadu</i>	<i>barr-bbarrah</i>		<i>barr-u</i>

In this case, a minimal–augmented analysis produces a more insightful overview, provided that an additional number value called ‘unit-augmented’ (‘the minimum amount of individuals needed for this person value plus one’) is added. The corresponding matrix can be found in Table 9.

Table 9. Minimal–augmented analysis of the Rembarrnga pronoun system

	Minimal	Unit-augmented	Augmented
½	<i>yukku</i>	<i>ngakorr-bbarrah</i>	<i>ngakorr-u</i>
1	<i>ngun-u</i>	<i>yarr-bbarrah</i>	<i>yarr-u</i>
2	<i>ku</i>	<i>nakorr-bbarrah</i>	<i>nakorr-u</i>
3	<i>nawu/ngadu</i>	<i>barr-bbarrah</i>	<i>barr-u</i>

Two comments should be made here. First, these languages overtly mark the distinction between augmented and unit-augmented (roughly the dual–plural distinction); the question why there is no language which overtly mark the much more common distinction between minimal and augmented (roughly the singular–plural distinction) is still unanswered under a minimal–augmented analysis. Second, Cysouw (2003: 268) has only eight of these languages in his sample and he states that paradigms with overt unit-augmented markers are almost completely restricted to one geographical area (Australia).

The singular–plural analysis also predicts a paradigm where the dual is overtly marked, because it makes use of the dual as a number value and number values may be overtly marked. The Maori language has such a paradigm (see Harlow 1996; Cysouw 2003: 258). The paradigm is shown in Table 10. Cysouw has twenty-seven of these paradigms in his sample and notes that they also occur outside of Australia, most notably in North-America.

Table 10. Singular–plural analysis of the Maori pronoun system

	Singular	Dual	Plural
$\frac{1}{2}$		<i>tā-tou</i>	<i>tā-ua</i>
1	<i>au</i>	<i>mā-tou</i>	<i>ā-ua</i>
2	<i>koe</i>	<i>kou-tou</i>	<i>kōr-ua</i>
3	<i>ia</i>	<i>rā-tou</i>	<i>rā-ua</i>

In other words, the occurrence of overt markers of unit-augmented number is unexpected under a singular–plural analysis, but the higher occurrence of markers of dual number is even more unexpected under a minimal–augmented analysis.

To sum up this section, overt marking of minimal–augmented number values is a rather marginal phenomenon, more marginal than the overt marking of singular–plural number values. This is in line with my view that language users predominantly think of number in terms of singular and plural, both for nouns and for pronouns.

4. Number in suppletive paradigms

In Section 2 I showed that suppletion is very common in person paradigms. Because number is not overtly marked in these paradigms it is somewhat difficult to see whether the suppletive paradigms that occur support the minimal–augmented analysis of number or the singular–plural analysis. It is not impossible, however, which I will show in this section.

We have already seen the ‘eight-form’ paradigm (four minimal forms, four augmented forms) that features prominently in the minimal–augmented analysis. What diachronic connections does such a paradigm have according to the minimal–augmented analysis? Cysouw (2003:262) argues that the prediction would be that such a paradigm is connected to what I will call a ‘four-form’ paradigm. A four-form paradigm from Sierra Popoluca (see Elson 1960) is shown in Table 11. Cysouw (2003) uses the term ‘only inclusive’ for these paradigms, but for mnemonic reasons I will use a label that contains the number of forms.

Table 11. Sierra Popoluca person markers

$\frac{1}{2}$	<i>ta-</i>
1	<i>a-</i>
2	<i>mi-</i>
3	<i>øa-</i>

This paradigm is ‘number-neutral’: it does not distinguish between minimal and augmented (or between singular and plural for that matter). A minimal–augmented analysis would expect that such a paradigm may be historically connected to a paradigm with eight forms; a blueprint of such a language is in Table 12. At a point in time the four-form paradigm in Table 11 may develop into the eight-form paradigm in Table 12, or it may have happened the other way around in the past.

Table 12. Hypothetical eight-form paradigm connected to Sierra Popoluca

	Minimal	Augmented
$\frac{1}{2}$	<i>ta-</i>	α -
1	<i>a-</i>	β -
2	<i>mi-</i>	γ -
3	<i>øa-</i>	δ -

Such eight-form paradigms have been attested in the languages of the world. An example is Tagalog (see Cysouw 2003:211). The Tagalog paradigm is shown in Table 13.

Table 13. Tagalog pronouns under a minimal–augmented analysis

	Minimal	Augmented
$\frac{1}{2}$	<i>kata</i>	<i>tayo</i>
1	<i>ako</i>	<i>kami</i>
2	<i>ikaw</i>	<i>kayo</i>
3	<i>siya</i>	<i>sila</i>

Yet, eight-person languages like Tagalog have not been historically connected to four-person languages like Sierra Popoluca; they are never found in the same geographical areas. Thus, a minimal-augmented analysis makes the wrong prediction on language change here: the eight-form paradigm is not connected to the four-person paradigms.

What does the singular–plural analysis predict with respect to suppletive paradigms? Instead of a eight-person paradigm it predicts a seven-form paradigm. An example paradigm from the Bororo language (see Cysouw 2003:256) can be found in Table 14. The seven forms are expected because there is no such thing as a singular inclusive.

Table 14. Bororo person affixes

	Singular	Plural
$\frac{1}{2}$		<i>pa-</i>
1	<i>i-</i>	<i>xe-</i>
2	<i>a-</i>	<i>ta-</i>
3	<i>u-/ø-</i>	<i>e-</i>

These seven-form paradigms (67 paradigms in Cysouw’s sample) occur more often than the eight-form paradigm (24 paradigms in Cysouw’s sample). Moreover, there are diachronic links between the seven-form paradigm and the four-form inclusive. In Table 14 we saw an example of a seven-form paradigm from the Bororo language; in Table 15 there is the four-person paradigm of another Macro-Gé language, Canela-Kraho. These paradigms are most probably related (Cysouw 2003:256).

Table 15. Canela-Kraho person affixes

$\frac{1}{2}$	<i>pa-</i>
1	<i>i-</i>
2	<i>a-</i>
3	<i>ih-</i>

Thus, the suppletive person paradigms in the languages of the world also favor the singular–plural analysis.

The only downside to a singular–plural analysis seems that an eight-form paradigm like the one from Tagalog needs a dual number value that is restricted to the inclusive, see Table 16.

Table 16. Tagalog pronouns under a singular–plural analysis

	Singular	Dual	Plural
½		<i>kata</i>	<i>tayo</i>
1	<i>ako</i>		<i>kami</i>
2	<i>ikaw</i>		<i>kayo</i>
3	<i>siya</i>		<i>silá</i>

It is not unexpected that there are languages where only the inclusive has a dual form, however. As Plank (1996) notes, in many languages the dual is restricted to so-called natural pairs (*eyes* is an example), and the speaker–addressee duo may be such a natural pair. Perhaps pairing the speaker and the addressee together is not that natural, but these eight-form paradigms are not that common either, so this is actually as expected. In other words, I only predict that the speaker–addressee duo is more natural than, for example, a speaker–other duo, and this is borne out because a special dual form for the inclusive occurs more often than a special dual form for a speaker–other duo.

In sum, the suppletive paradigms in the languages of the world also support a singular–plural analysis of pronominal number, especially when predictions on diachronic relations are taken into account.

5. Summary

In this paper I have looked at the question whether number on pronouns should be seen in terms of singular and plural or in terms of minimal and augmented. Under a minimal–augmented analysis the grammatical category of number is split up in a pronominal number category (with minimal–augmented values) and a nominal number category (with singular–plural values). I have shown, however, that more paradigms in the languages of the world can be explained by a singular–plural analysis of number than a minimal–augmented analysis. Thus, speakers predominantly look at both nouns and pronouns with a singular–plural perspective. The tendency to mark the number of nouns and pronouns according to an associative (i.e. minimal–augmented) analysis is much weaker. At any rate, a single category of number covering both nouns and pronoun still suffices.

Notes

1. An anonymous reviewer notices that English has the construction *and others* to convey the associative; this is not a dedicated associative in the sense of Daniel & Moravcsik (2005) however.

2. Michael Cysouw notes that pronouns are less frequent in pro-drop languages like Chinese and Japanese. Interestingly enough, those languages also have a non-suppletive pronominal plural.
3. Michael Cysouw notes that elements like Chinese *-men* tend to be derived from meanings like ‘friend’ or ‘fellow’, indicating their close affiliation to associative. This makes it all the more remarkable, however, that these languages use these elements as plural morphemes and not as augmented morphemes.

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