RESEARCH

Excluding exclusively the exclusive: Suppletion patterns in clusivity

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In this paper, I investigate the suppletion patterns that are found in languages that make a clusivity distinction. I will show that in the triple 1SG-1EXCL-1INCL, ABA patterns do not arise, consonant with other work on suppletion patterns (Bobaljik 2012; Smith et al. 2018). That is, it is not possible for the exclusive pronoun to supplete on its own whilst the singular and inclusive share a common base. All other patterns are attested. I will argue that the lack of ABA patterns supports the view that the inclusive is the most marked category in this set (Noyer 1992; Cysouw 2003; Siewierska 2004, a.o.), and propose that there is a containment relation such that the feature set that makes up the inclusive properly contains the features that form the exclusive, following the reasoning laid out in Bobaljik (2012). I further consider the makeup of person features, and argue that the lack of ABA patterns in clusivity suggest that clusivity features are privative, rather than binary (*cf.* Harbour 2016).

1 Introduction

Suppletion refers to the phenomenon where a single morphological item is associated with two phonologically unrelated forms, the choice of form depending on the morpho-syntactic context. Canonical items from English include *good-better-best, bad-worse-worst* and *go-went*. Suppletion has been shown in recent work to be quite regular in the sense that although we may not be able to predict which exact lexical item in a given language will be suppletive, we can predict in which ways suppletion is constrained. For instance, which elements can serve as a context for suppletion have been shown to be delimited in terms of locality restrictions (see Adger et al. 2003; Embick 2010; Bobaljik 2012; Moskal 2015a; b; Merchant 2015; Moskal & Smith 2016, i.a.).

In addition, we have a good idea of what kind of suppletive patterns we can expect. For instance, in adjectival suppletion, Bobaljik (2012) shows that in positive-comparative-superlative triples, the only patterns found are the following: AAA (no suppletion), such as *long-longer-longest*; ABB (where the comparative and superlative supplete together), such as *bad-worse-worst*; and ABC (where the comparative and superlative are both suppletive relative to the positive, but also with respect to each other), such as in Latin *bonus-melior-optimus* 'good-better-best'. AAB patterns (hypothetical 'good-gooder-best'), where only the superlative is suppletive, are not found, nor are ABA patterns (hypothetical 'good-better-goodest'), where the comparative suppletes on its own. Looking beyond adjectival suppletion triples, AAB patterns are not universally unattested, however. Taking triples to represent markedness relations of increasing complexity (to be made more precise below), AAB patterns have been found in other suppletive contexts, such as case and number (see Smith et al. 2018) as well as clusivity (see Moskal 2014). In contrast, a remarkably

strong result is that ABA patterns are almost universally unattested: in addition to the lack of ABA patterns in adjectival suppletion in Bobaljik (2012), they also do not seem to be attested in case or number (Smith et al. 2018) or in syncretism in pronouns (Vanden Wyngaerd 2018). In this paper, I add another set of data that supports the observation that ABA patterns do not arise, namely in clusivity-driven suppletion. This observation then leads to a morpho-syntactic analysis of clusivity, which crucially relies on privative features.

The structure of the paper is as follows. In section 2, I first provide a brief overview of clusivity and introduce the main observation of the paper: the lack of ABA suppletion patterns in clusivity. Next, I briefly summarise how suppletion serves as a tool for identifying structural representations (Bobaljik 2012; Smith et al. 2018). In section 4, I analyse the main clusivity suppletion patterns, showing how ABA is underivable in the proposed system and, as such, predicted to be unattested; section 5 discusses apparent counter-examples to this claim. Section 6 deals with the issue of markedness and its role in suppletion. The term markedness (Trubetzkoy 1939; Jakobson 1941) has acquired several notions and a loaded meaning.[1] It may be helpful to note that in this paper I address the following three senses explicitly: (i) structural markedness: one element is more marked than another if its morpho-syntactic structure is more complex; (ii) featural markedness: in a feature that has two values, one of the values is more marked than the other; and (iii) overt coding ("morphological markedness"): when only one exponent of a particular feature (value) is overtly (phonologically) expressed, this feature (value) is more marked.[2] In section 7, I discuss the consequences of the proposal here, and compare it in particular to assumptions about the representation of person in Harbour (2016). Section 8 concludes the paper.

2 Clusivity

As visualised in (1), the inclusive/exclusive distinction captures the difference whether the addressee (or addressees, represented by 2) are included or excluded from the set of referents which also contains the author, 1.[3] Note that 3 represents those who are neither author nor addressee (i.e. third person referents).

(1)   Inclusive: $1 + 2(+ 3)$
         Exclusive: $1 + (3)$

When the inclusive is used, the addressee is crucially included, while the exclusive indicates that the addressee is excluded. This is a distinction that is frequently seen across languages (Cysouw 2003; Filimonova 2005; Siewierska & Bakker 2005). While the inclusive/exclusive distinction can be found in verb agreement affixes and possessive affixes as well, I here limit myself to inclusive/exclusive plural independent pronouns and focus on a binary number distinction between singular vs. non-singular.[4] The pronominal database

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[1] Various researchers have sought to define it in clearer terms; see e.g. Haspelmath (2006); Rice (2007); Hume (2011), among many others.

[2] For a variety of other senses in which markedness has been used, I refer the reader to Haspelmath (2006).

[3] In the following I use this traditional use of inclusive/exclusive; for more distinctions involving inclusion or exclusion of persons, see Siewierska & Bakker (2005).

[4] At this point, I leave the distinction between singular–plural and minimal–augmented systems aside (though see the discussion on Mangarayi in section 5), partially due to the fact that the database I use, Smith (2011), does not distinguish between the two types of systems. In addition, clusivity distinctions are also attested in other numbers, such as dual and trial (Siewierska 2004) as well as unit-augmented, but I leave these to future research.

consulted for this project is the Free Personal Pronoun System database[5] (Smith 2011), which encompasses 455 languages in total. In the Appendix, I list the subset of languages from the database that make a clusivity distinction, along with the judgements that I assign to them.

As mentioned above, morphological marking of the distinction between inclusive and exclusive (first) person (plural) is relatively frequent cross-linguistically (Cysouw 2013) and either the inclusive form or the exclusive form can be overtly coded (Harbour 2016). Indeed, in (2), we see that in Itzaj Maya (Hofling 2000) the inclusive contains the sequence *-e'ex* in addition to the exclusive form. In contrast, in Limbu (van Driem 1987) it is the exclusive that is expressed by an additional sequence *-ge* on top of the inclusive form (see (3)).[6]

(2)   *Itzaj Maya (plain) independent personal pronouns*

	SG	PL
1	(in)ten	
1EXCL		(in)to'on
1INCL		(in)to'one'ex
2	(in)tech	(in)te'ex
3	la'ayti'	la'ayti'oo'

(3)   *Limbu personal pronouns*

	SG	PL
1	(a)ŋga	
1EXCL		anige
1INCL		ani
2	khɛnɛʔ	khɛni
3ANIMATE	khunɛʔ	khɛŋhaʔ
3UNMARKED	khɛŋ	

However, as noted by others, the first person inclusive has been proposed to be a marked category (Noyer 1992; Cysouw 2003; Siewierska 2004; LaPolla 2005, a.o.). For instance, in accordance with the diagnostics in Greenberg (1966) for marked categories involving at least as many morphemes as the corresponding unmarked categories, while exclusive marking is attested, inclusive marking seems to be more common (*cf.* Harley & Ritter 2002). It is important to stress, though, that whilst there may be a trend towards overt coding of the inclusive as opposed to the inclusive, both types of clusivity can be overtly coded (see Harbour 2016, i.a.) (see also section 7 on the role of overt coding).[7]

Another asymmetry between the inclusive and exclusive is noted by Cysouw (2005; 2013). There are a few languages that have a special pronoun for the inclusive, but the pronoun used to express the exclusive is identical to the first person singular pronoun (see also Sokolovskaya 1980); for instance, in Canela-Krahvô (Popjes & Popjes 1986), (4), we see that the inclusive is expressed by *cu* but for the singular as well as the (plural) exclusive the same pronoun is used: *wa*.

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[5] http://languagelink.let.uu.nl/fpps.

[6] Limbu also has a dual; for the full paradigm, see Tables (49) and (50) below.

[7] Another markedness diagnostic on which clusivity shows variation is the neutralisation of an opposition in favour of the unmarked: sometimes it is only the inclusive form that survives, sometimes it is only the exclusive form that survives (see LaPolla 2005).

(4)   *Canela-Krahô personal pronouns*

	SG	PL
1	wa	
1EXCL		wa
1INCL		cu
2	ca	ca
3	que	que

This situation, where the exclusive is syncretic with the first person singular, is relatively common; it has been attested among native American languages, the Papuan languages of New Guinea and there are various incidental examples (Cysouw 2005). Conversely, we do not observe the use of an identical pronoun for the first person singular and the (plural) inclusive, whilst there being a separate special pronoun for the exclusive. It is important to note that in this case, the asymmetry does not seem to be a trend but genuinely unattested.[8]

Finally, another asymmetry, noted in Moskal (2014), is that whilst pronoun suppletion in the context of solely the inclusive is attested in a variety of languages, we do not seem to observe pronoun suppletion only in the context of the exclusive. Moskal (2014) was a preliminary study, based on a limited number of languages. In this paper, I used a database containing 455 languages (Smith 2011) to verify the attested and unattested suppletion patterns. Cast here as 1SG-1EXCL-1INCL triples, I corroborate the findings of Moskal (2014) that although there are five logical patterns, only four out of these are attested: AAA, ABB, ABC and AAB are all observed, but ABA is crucially unattested. As mentioned above, in the Appendix the full list of languages from the database of Smith (2011) that make a clusivity distinction is given, organised according to the category that I assigned them: AAA, ABB, ABC, AAB and ¬ABA. Only one dubious case for ABA is identified, Mangarayi, which is discussed in section 5. The classification ¬ABA encompasses patterns that do not straightforwardly fall into any of the above, but clearly do not constitute an ABA pattern. Chadong (Smith 2011) will serve as an example; the pronominal paradigm is given in (5). The triple *je-lje-la:u* has two plausible analyses: as either an ABC pattern, where all three forms are phonologically unrelated, or an AAB pattern, in which the base *je* is shared in the singular and the exclusive, but not the inclusive. Somewhat less plausibly, one could even choose to focus on the shared lateral of the exclusive and inclusive and consider this an ABB pattern. Crucially, however, the Chadong pronouns do not constitute an ABA pattern, and as such they are classified as ¬ABA, without necessarily committing as to whether they should be analysed as ABC or AAB (or ABB).

(5)   *Chadong personal pronouns*

	SG	PL
1	je	
1EXCL		lje
1INCL		la:u
2	ni	ɕe
3	mən	tje

Chadong also illustrates the difficulties in judging whether suppletion takes place and what kind of pattern a paradigm belongs to. The main issue is that there is no clear consensus as to

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[8] Cysouw (2005: 77), based on Cappell (1969), notes a single purported counter-example from Binandere, in which "the [agreement] suffixes for both first-person singular and inclusive are *-ana* [but] the exclusive suffix is *-ara.*" However, according to Wilson (1996; 2002) both the plural inclusive and exclusive are expressed by suffixing *-VrV* and it is only the dual inclusive that is expressed by *-VnV*, which is syncretic with first person singular *-VnV* (though no data of one is given, it is unclear whether there definitely is no dual exclusive in Binandere). On Wilson's description, there is no syncretism between first person singular and plural inclusive, and I leave the status of the dual inclusive unresolved.

what should be considered suppletion and what should be considered (morpho-phonological) irregularity (Mel'čuk 1994; Bye 2007; Corbett 2007; Haugen & Siddiqi 2013). The main criterion for suppletion that I used was whether there is an identifiable invariant formative within a given pronominal paradigm, but ultimately the classifications reflect my judgments as to such a formative (see also Smith et al. 2018: §3.2 and §5 for some more discussion of the complications involved in classifying pronominal suppletion patterns). In the Appendix, I have included the full data set of first person pronouns that I have considered (from Smith 2011), and the interested reader is welcome to consult my classifications.

Turning to illustrative analyses of the patterns, first consider a pattern where the base of a free pronominal remains constant, as exemplified by Ayiwo (Smith 2011) in (6). Here, we see that the pronominal base is always realised as *ju* to which various suffixes are attached in order to derive the relevant pronominal form.[9] Crucially, when a morpheme remains constant throughout a morphological paradigm this constitutes an AAA pattern.

(6)   *Ayiwo personal pronouns*

	SG	PL	DU
1	ju		
1EXCL		juŋo	juŋole
1INCL		jude	judele
2	juma	jumi	jumile
3	ina	judy	judyle

An ABB pattern is exemplified by the pronominal system of Ura (Smith 2011), given in (7). Here we see that the first person singular form is *yau* but that there is a clearly identifiable base *gi-* shared by the exclusive and inclusive plural forms, though each has their own suffix: *-m* in the exclusive and *-s* in the inclusive.

(7)   *Ura personal pronouns*

	SG	PL
1	yau	
1EXCL		gim
1INCL		gis
2	ga	ŋimi
3	iyi	leil

Suppletion in the context of both the inclusive and exclusive is also attested. This situation is exemplified in (8) by Dan (Smith 2011), where the bases for 1SG, 1EXCL and 1INCL are phonologically entirely unrelated; as such, the Dan data illustrate an ABC pattern.[10]

(8)   *Dan personal pronouns*

	SG	PL
1	yi	
1EXCL		ma
1INCL		ko
2	bi	ka
3	wo	yø

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[9] The irregularity of 3.SG *ina* is not pertinent to the discussion, and I leave open whether this is a case of suppletion or morpho-phonological readjustment; see also footnote 20.

[10] Smith (2011) cites two forms of the Dan pronouns, the other (unlisted) forms of the pronouns, which includes tones, indicate a perfect form of the pronouns according to the source (Houis 1971).

Turning to the final attested pattern, AAB, consider data from Evenki (Nedjalkov 1997) in (9). Here we observe pronoun suppletion in the context of the inclusive but not in the context of the exclusive. The form for first person singular decomposes into a base *b-* for first person followed by a suffix *-i* for the singular. The latter morpheme also surfaces in the second person singular, where *s-* is the second person base, which is followed by *-i* in the singular. In the exclusive and second person plural forms, we see that the bases of first and second person are retained, but that the number information is expressed by the suffix *-u*. In contrast, the plural inclusive form *mit* is distinct from the first person base used in the singular and exclusive.

(9)   *Evenki personal pronouns*

	SG	PL
1	bi	
1EXCL		bu
1INCL		mit
2	si	su
3	nungan	nungartyn

It should be noted here that the first person pronouns in Canela-Krahô, in (4) above, do not constitute an AAB pattern (see also Smith et al. 2018). Recall that in Canela-Krahô the singular and the exclusive form are syncretic (*wa*), and the inclusive is realised by a different pronoun (*cu*). Whilst one could construe this as an AAB pattern, given that the singular and the exclusive are not suppletive relative to one another, but the inclusive is, this case differs from that seen in Evenki, because there is complete identity of the entire pronominal form between the first two members, whilst in Evenki, there is identity between the base of the first two members, but not the entire pronominal forms. Under an analysis of syncretisms, where the syncretism is not accidental but reflective of literal featural identity, Canela-Krahô should not be seen as AAB, but rather an AB pattern, where the triple has been collapsed into a double as the first two members are non-distinct.[11]

The final logical configuration, ABA, in which suppletion occurs only in the context of the exclusive is unattested in my survey; three (types of) apparent counterexamples to this claim are discussed in section 5.[12]

In sum, we have seen three instances of an asymmetry between the inclusive and exclusive in languages that make a clusivity distinction. (i) The inclusive seems more often overtly coded by an additional sequence than the exclusive. (ii) The exclusive can be syncretic with first person singular, but the inclusive never is syncretic with first person singular across the exclusive. (iii) Suppletion in the context of the exclusive without also having a suppletive variant in the inclusive is unattested.

3 Suppletion

Recent work on suppletion (Bobaljik 2012; Moskal 2015a; b; Smith et al. 2018, i.a.) has shown that suppletion, rather than being a merely descriptive term, can serve as a detector of morphological structure. Here, I briefly recapitulate the arguments from Bobaljik (2012).

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[11] Featural identity can be achieved in various ways, such as at the level of morpho-syntactic structure, due to impoverishment (e.g. Bobaljik 2002), or at the level of the lexicon, due to the lack of a more specific entry in the lexicon combined with the Subset Principle.

[12] It should be noted here that no ABA patterns were found, where the first and third triple were syncretic (cf. Caha (2009), who shows that case syncretisms must be contiguous on a morpho-syntactic case hierarchy).

In a study of 73 distinct adjectival cognate triples, Bobaljik shows that not all suppletion patterns in comparative morphology are attested. Specifically, the patterns in Table 1 are attested in languages, whereas the apparently legitimate and *a priori* conceivable patterns in Table 2 are unattested. Whilst both ABA and AAB are unattested in adjectival suppletion, AAB (greyed out) is attested elsewhere as discussed above, and as such the current paper does not discuss the absence of this pattern in adjectival suppletion any further (but see Bobaljik 2012 how to exclude AAB from adjectival suppletion patterns). The crucial contrast discussed in this paper is the absence of ABA as opposed to the other logically possible patterns.

Bobaljik shows that the absence of ABA patterns is accounted for if we assume (i) the containment hypothesis, and (ii) late insertion. Specifically, the containment hypothesis is formulated in (10):

(10)   The containment hypothesis (adjectives): The superlative always properly contains the comparative.

In effect, (10) proposes that it is a universal property of languages that if there is a superlative in the structure, then there necessarily must be a comparative in the structure. That is, the structure for any given superlative is as in (11), adjusted from Bobaljik (2012).[13]

(11)
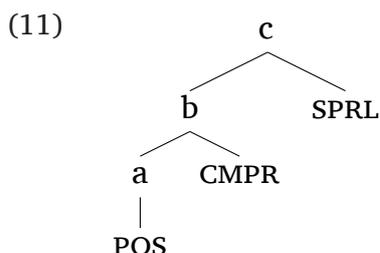
Table 1: Attested adjectival patterns.

POSITIVE	COMPARATIVE	SUPERLATIVE	
long	longer	longest	AAA
good	better	best	ABB
bonus	melior	optimus	ABC

Table 2: Unattested adjectival patterns.

POSITIVE	COMPARATIVE	SUPERLATIVE	
good	better	goodest	ABA
good	gooder	best	AAB

The second ingredient for ruling out the unattested ABA pattern is the assumption that syntactic structure is the input to morphology, which then has the task of supplementing syntactic structure with phonological material (Vocabulary Insertion, VI) (Distributed Morphology, DM; Halle & Marantz 1993). Crucially, phonological substance is provided

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[13] All trees throughout the paper represent complex heads, and since the labeling of the projections plays no role in the analysis, I will arbitrarily label them *a*, *b*, *c*, etc. Note that I use adjunction structures, making no commitment to how these are derived (see Bobaljik 2012).

post-syntactically ("late insertion") and occurs cyclically starting from the most deeply embedded element (Bobaljik 2000). In such a framework suppletion is modeled as contextual allomorphy: a feature (set) has a context-free default exponent, but in a more specific context a different exponent takes precedence (Bobaljik 2012). Consider the VI-rules in (12) and (13); these are the rules that are relevant to the abstract item √GOOD.[14] Whilst (13) has no restrictions with regard to its application, (12) applies in the context of the comparative (and *per* the containment hypothesis the superlative as well).

(12)   √GOOD ⇔ be(tt) / _] CMPR]

(13)   √GOOD ⇔ good

Furthermore, *per* the Elsewhere principle (Kiparsky 1973) the more specific VI-rule in (12) will be preferred over the less specific VI-rule in (13). That is, given that (12) makes reference to the more specific environment of the comparative, it must be employed in that context; the VI-rule in (13) will apply as a default but given the existence of the rule in (12) crucially not in the context of the comparative. The containment hypothesis combined with late insertion thus gives us the tools to derive *ABA: given that the most specific VI-rule must be used, and each superlative must contain a comparative, if the comparative suppletes the superlative necessarily must do so too and it cannot "revert back" to the default. In sum, suppletion data provides crucial evidence for morphological structure; in Bobaljik's study for the structure of adjectives as shown in (11).

4 Clusivity analysis

Turning back to clusivity-driven suppletion in free pronouns, recall that the following asymmetry was introduced: whilst AAA, ABB, ABC and AAB are attested (Table 3), ABA is unattested (Table 4) (see section 5 for three (types of) apparent counter-examples).

Consider first the notational representations for person in Table 5 (McGinnis 2005; Bobaljik 2008; see also Harley & Ritter 2002; Cysouw 2003; Nevins 2007; Harbour 2011).[15]

Table 3: Attested clusivity patterns in free personal pronouns.

1SG	1EXCL	1INCL		
ju	juŋo	jude	AAA	Ayiwo (Smith 2011)
yau	gim	git	ABB	Ura (Smith 2011)
yi	ma	ko	ABC	Dan (Smith 2011)
bi	bu	mit	AAB	Evenki (Nedjalkov 1997)

Table 4: Unattested clusivity patterns in free personal pronouns.

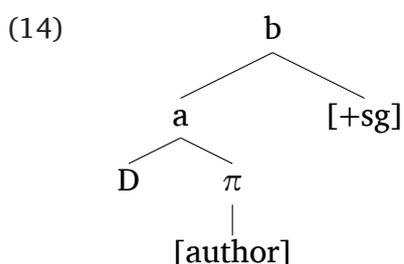| 1SG	1EXCL	1INCL		
bi	mit	bu	ABA	Hypothetical

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[14] In DM, there are two uses of the abbreviation VI, either Vocabulary Item or Vocabulary Insertion. For clarity, I will be using VI to exclusively refer to the latter, and, as such, "VI-rule" should be read as Vocabulary Insertion Rule, which is the same as a Vocabulary Item. Crucially, VI-rules encode a correspondence between morpho-syntactic structure and phonological structure; as such, they are stored items that are used in exponence.

[15] I use the features [author] and [addressee] for first and second person, respectively. Since it is orthogonal to the paper at hand, I do not take a stance here on whether [author] or [speaker] for first person, or whether [addressee] or [hearer] for second person, are the relevant features. What is crucial here is their privative nature; see also section 7.

Following McGinnis (2005) and Bobaljik (2008) in particular, I assume that the privative features in Table 5 are relevant for the representation of person. It should be noted here that the current proposal assumes for expository purposes that third person is featurally represented as the absence of any person features. However, Nevins (2007) argues convincingly that in order to analyse Person-Case Constraint (PCC) effects reference needs to be made to third person, which in Table 5 is impossible since it is the absence of any feature. The current proposal is not necessarily at odds with Nevins' analysis, and I am not excluding a feature [±participant], which would be additional to the features proposed in Table 5.[16]

Taking number into account, this then leads to the representations for first and second person pronouns in languages which make a clusivity distinction as in Table 6; here I assume binary [±singular] for singular–plural systems, following Harbour (2011).

On the assumption that, at least morphologically, [+singular] is unmarked (Bale et al. 2011; Smith et al. 2018), we see that 1SG is the least marked first person value.[17] The representation for a first person singular personal pronoun is given in (14).

(14)

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                    b
                  /   \
                 a    [+sg]
               /   \
              D     π
                    |
                [author]
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With regard to the relative markedness of the inclusive and exclusive, we have seen earlier proposals that the inclusive is more marked than the exclusive (Noyer 1992; Cysouw

Table 5: Featural representation of person.

notational	privative
1+2	[author, addressee]
1+2+3	
1	[author]
1+3	
2	[addressee]
2+3	
3	[ ] (unspecified)

Table 6: Featural representation of first and second person, including a singular–plural contrast.

1SG	[author, +singular]
1EXCL	[author, –singular]
1INCL	[author, addressee, –singular]
2SG	[addressee, +singular]
2PL	[addressee, –singular]

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[16] See also footnotes 20 and 22 for considerations to include a feature [±participant].

[17] Bale et al. (2011) conclude that the singular is morphologically unmarked with respect to the plural on the basis of three diagnostics: overt coding, inflectional differentiation and contextual neutralisation (terminology from Haspelmath 2006).
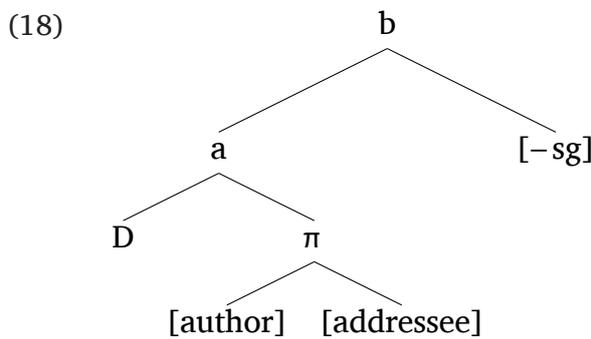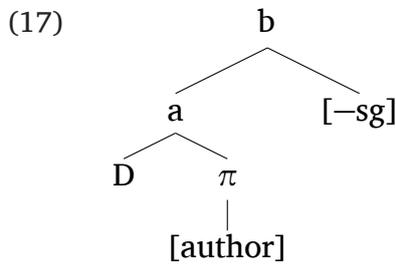
2003; Siewierska 2004, i.a.). This then leads to the markedness hierarchy in (15), from 1SG being the least marked to 1INCL being the most marked.

(15)   1SG < 1EXCL < 1INCL

In this paper, I propose that we can derive the clusivity suppletion patterns through containment, i.e. structural markedness. Specifically, on the basis of Table 6, we can then formulate another containment hypothesis, given in (16), which applies to clusivity.[18]

(16)   Containment hypothesis (clusivity): The inclusive always properly contains the exclusive.

Crucially, as can be seen in the representation for exclusive pronouns in (17) and that for inclusive pronouns in (18), the structure of the exclusive ([author, –sg]) is contained within the structure of the inclusive ([author, addressee, –sg]).[19]

(17)   b
                    ╱   ╲
                  a   [−sg]
                ╱   ╲
              D   π
                      │
                  [author]

(18)   b
                        ╱   ╲
                      a   [−sg]
                   ╱   ╲
                 D   π
                        ╱   ╲
                  [author]   [addressee]

I assume the structures in (17) and (18) to be the basic morpho-syntactic structures, prior to any morphological operations. I remain agnostic whether portmanteau morphemes are created by pre-VI fusion of morphosyntactic nodes or VI at non-terminal nodes (see Radkevich 2010). That is, the VI-rules below (e.g. in (20a)–(20e)) are ambiguous between a single node carrying multiple features (pre-VI fusion) or VI at a non-terminal node governing multiple features (spelling out a, π or b).

   Turning to the attested patterns, we can analyse them as follows. Starting off with the AAA pattern in Ayiwo, repeated from (6) above as (19), the VI-rules for the pronouns would be the ones in (20), with the ones relevant for first person pronouns being a, b, c,

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[18] Note that we can make a parallel prediction for second person and clusivity, where we have the triple 2SG-2PL-1INCL; however, in this paper I only discuss first person containment, and leave second person pronouns for future research.

[19] I include a pronominal base (D) in the representations, but it should be noted that in many languages there is no clearly identifiable separate exponent of D. Since it is orthogonal to the paper, I leave open the reason for this, but there are a variety of options that could be responsible: the non-universality of (pronominal) D, portmanteau formation including D, or a null realisation of D. In this paper, I generally assume D is always present, often as part of a portmanteau, but see footnote 25 for a pronominal structure lacking D.

and f.[20] No suppletion takes place and we observe *ju-juŋo-jude* with a stable pronominal base as the 1SG-1EXCL-1INCL triple.[21]

(19) *Ayiwo personal pronouns*

	SG	PL	DU
1	ju		
1EXCL		juŋo	juŋole
1INCL		jude	judele
2	juma	jumi	jumile
3	ina	judy	judyle

(20) a. [author, addressee, –sg] ⇔ -de
      b. [author, +sg] ⇔ Ø
      c. [author, –sg] ⇔ -ŋo
      d. [addressee, +sg] ⇔ -ma
      e. [addressee, –sg] ⇔ -mi
      f. [D] ⇔ ju-
      g. [+sg] ⇔ -na
      h. [–sg] ⇔ -dy

Next, we discuss the ABB pattern exemplified here by Ura (Smith 2011), repeated from (7) above as (21). The VI-rules for Ura pronouns are give in (22), with a, d, g and h used in the formation of the first person forms. Crucially, the rule that refers to the non-singular first person context (22d) targets both the exclusive and the inclusive, leading to a single base, with only their number suffixes differing. The rules converge on the Ura triple *yau-gim-gis*.

(21) *Ura personal pronouns*

	SG	PL
1	yau	
1EXCL		gim
1INCL		gis
2	ga	ŋimi
3	iyi	leil

(22) a. [D, author, +sg] ⇔ yau
      b. [D, addressee, +sg] ⇔ ga
      c. [D, addressee, –sg] ⇔ ŋimi
      d. [D, author] ⇔ gi-
      e. [D, +sg] ⇔ iyi
      f. [D, –sg] ⇔ leil
      g. [–sg] ⇔ -s / addressee] _]
      h. [–sg] ⇔ -m

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[20] On an analysis that third person is truly the absence of any person features, the alternation between *ju* and *i* in the third person singular form would be a case of a morpho-phonological rule. On an analysis, where person includes a binary [±participant] feature, third person would be characterised by [–participant], allowing for a suppletive rule changing *ju* to *i* in the context of (singular) [–participant]. At this stage, I leave the representation of third person (and the inclusion of [±participant]) open, but note that either an analysis of the irregularity as a morpho-phonological rule or suppletion are tenable.

[21] The dual is clearly expressed by the morpheme *-le*, which is left out of the VI-rules in (20) for simplicity.

Turning to ABC, exemplified by Dan, repeated from (8) above as (23), the VI-rules are as in (24), with a, b and c relevant for first person. We see that in Dan the various pronominal forms have no consistent formatives in common, and each form has its own VI-rule. Relevant still is that the rule in (24c) can apply in the context of both the exclusive and the inclusive, but is only applied in the exclusive, since there is an even more specific rule (24a) for (only) the inclusive context. This results in the Dan triple *yi-ma-ko*.

(23)   *Dan personal pronouns*

	SG	PL
1	yi	
1EXCL		ma
1INCL		ko
2	bi	ka
3	wo	yø

(24)   a.   [D, author, addressee, –sg] ⇔ ko
        b.   [D, author, +sg] ⇔ yi
        c.   [D, author, –sg] ⇔ ma
        d.   [D, addressee, +sg] ⇔ bi
        e.   [D, addressee, –sg] ⇔ ka
        f.   [D, +sg] ⇔ wo
        g.   [D, –sg] ⇔ yø

The final pattern, AAB was exemplified by Evenki, repeated from (9) above as (25). The VI-rules for the Evenki personal pronouns are listed in (26).[22] Focusing on the VI-rules relevant for first person, we see that there is a specific rule for the inclusive, (26a), but that 1EXCL and 1SG both are subject to (26b) and are realised with a pronominal base *b-*. This leads to the triple *bi-bu-mit* in Evenki.

(25)   *Evenki personal pronouns*

	SG	PL
1	bi	
1EXCL		bu
1INCL		mit
2	si	su
3	nungan	nungartyn

(26)   a.   [D, author, addressee, –sg] ⇔ mit
        b.   [D, author] ⇔ b-
        c.   [D, addressee] ⇔ s-
        d.   [D, +sg] ⇔ nungan
        e.   [D, –sg] ⇔ nungartyn
        f.   [–sg] ⇔ -u
        g.   [+sg] ⇔ -i

Crucially, ABA is ruled out as a possibility due to containment: any suppletive rule making reference to an exclusive environment, [author, –sg], also necessarily covers an inclusive

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[22] Since it is not the focus of this article, the VI-rules for third person are given here as in (26d) and (26e). On a segmentation of third person as *nungan* and the plural in the third person pronoun as an infix *-rty-*, we could again draw on [–participant] as a context (see also footnote 20), or *-u* (in (26f)) could be an allomorphic variant with [(+)participant] as the relevant context of application.

environment, [author, addressee, –sg] (see also Table 6). As such, we can have only a rule referencing [author, –sg], leading to an ABB pattern (see Ura), or an additional even more specific rule referencing [author, addressee, –sg], leading to an ABC pattern (see Dan), but there is no set of VI-rules that would converge on an ABA pattern.[23]

To see this, consider the hypothetical ABA triple in (27): *ki* '1SG', *an* '1EXCL', *kio* '1INCL'. We would have the VI-rules given in (28): a context-neutral VI-rule expressing author, [D, author] ⇔ ki (28a), and another VI-rule that targets the exclusive context, [D, author, –sg] ⇔ an (28b); for the inclusive environment, we would need an additional VI-rule that realises [addressee] as *-o* (28c).

(27)   *Hypothetical pronouns*

	SG	PL
1	ki	
1EXCL		an
1INCL		kio

(28)   a.   [D, author] ⇔ ki
       b.   [D, author, –sg] ⇔ an
       c.   [addressee] ⇔ -o

In the singular environment, only the context-neutral VI-rule (28a) applies, correctly resulting in *ki*. In the exclusive environment, both (28a) and (28b) potentially apply, but, per the Elsewhere principle, the more specific rule (28b) wins, correctly predicting that *an* is the exclusive form. Finally, in the inclusive environment, again both (28a) and (28b) potentially apply, but again the Elsewhere principle leads to the application of the more specific rule (28b) and this, combined with the VI-rule that realises [addressee] (28c), then incorrectly predicts the inclusive form to be *ano*. This then results in an ABB triple *ki-an-ano* instead of the ABA triple *ki-an-kio*. To reiterate, when there is a context-neutral rule for 1SG and a suppletive VI-rule that targets the exclusive context, this rule must also apply in the inclusive context, and, as such, ABA cannot be derived.

In sum, we have seen that the suppletion patterns support the structural representation for first person exclusive and inclusive as in (17) and (18). This account crucially relies on the absence of ABA patterns in the study, and in the next section I discuss purported counter-examples to the claim that ABA is unattested in my sample.

5 Counter-examples

The counter-examples to the absence of ABA patterns in 1SG-1EXCL-1INCL triples can be divided into three types: (i) languages in which the inclusive is transparently composed of a combination of first and second person pronouns (referred to as "dvandva" pronouns here), (ii) a single recurring form occurring in various (cognate) Carib languages, and (iii) the case of Mangarayi.

Turning first to languages that show an inclusive pronoun that transparently contains a first and second person morpheme, consider the pronominal paradigm of Dolakha Newar (Genetti 2007) in Table (29).[24] The Dolakha Newar data show a suppletive form in the exclusive, *isi*, but the inclusive *chiji* transparently contains the singular form *ji* to which

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[23] Barring accidental homophony of A and C; however, (Bobaljik 2012: 35) argues against accidental homophony, drawing on an acquisition perspective.

[24] It is unclear whether there is a separate category of third person pronouns in Dolakha Newar or whether demonstratives function as third person pronouns (Genetti 2007); since this is orthogonal to the discussion here, I do not list the third person pronouns in Table (29).

a morpheme *chi* is added. Taken in isolation, this would constitute a clear ABA pattern. However, the *chi* morpheme actually corresponds to the second person singular, as can be seen in (29). As such, the inclusive form in Dolakha Newar can be coined a "dvandva" pronoun, since it is transparently composed of a morpheme for addressee, *chi*, and a morpheme for author, *ji*. Indeed, although usually the two person features that the inclusive contains are not expressed separately, from the representation in (18) we see that this simply is a logical possibility that the system provides. As such, I propose that in Dolakha Newar the VI-rules in (30) are active for first and second person pronouns (analysis to be refined below).[25]

(29)   *Dolakha Newar personal pronouns*

	SG	PL
1	ji	
1EXCL		isi
1INCL		chiji
2	chi	chipen

(30)   a.   [author, –sg] ⇔ isi
        b.   [author] ⇔ ji
        c.   [addressee] ⇔ chi
        d.   [–sg] ⇔ -pen
        e.   [+sg] ⇔ ∅

Though intuitively on the right track, these VI-rules make a wrong prediction for the realisation of the inclusive form. Since the exclusive is a subset of the inclusive, the suppletive rule in (30a) for the exclusive environment applies in the exclusive as well as the inclusive. Leaving aside the exact linearisation, the VI-rules in (30) lead us to expect a form *isichi*, with the suppletive form rather than the first person singular form *ji*. The suppletive variant is crucially reliant on the [–sg] feature, but the inclusive does not bear any number marking: the form literally only contains the morphemes for singular author and singular addressee. We can thus remedy the situation by positing an impoverishment rule (Noyer 1992) in Dolakha Newar, which deletes the plural in the inclusive (see (31)).[26]

(31)   [–sg] → ∅ _] author, addressee]

The impoverishment rule in (31) nullifies the containment relation: the exclusive in Dolakha Newar, composed of [author, –sg] at the point of VI, is no longer a subset of the inclusive in Dolakha Newar, composed of [author, addressee] at the point of VI. Given that containment no longer holds, the 1SG-1EXCL-1INCL paradigm in Dolakha Newar does not constitute a triple for which ABA is predicted to be impossible.

However, we expect that not all languages with dvandva pronouns have an impoverishment rule such as (31). Indeed, Tok Pisin (Verhaar 1995; Smith 2002) also displays a dvandva pronoun of first and second person, as can be seen in (32). Note also that Tok Pisin, in addition to a clusivity distinction, shows a four-way distinction for number,

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[25] For concreteness, I assume that (Dolakha Newar) dvandva pronouns lack D, either due to a rule deleting D or due to the non-universality of D in the structure (see also footnote 19). A more thorough study into dvandva pronouns will have to show whether the lack of D is a general property of dvandva pronouns or that there is cross-linguistic variation.

[26] It should be noted here that impoverishment rules exclusively apply in the morphology and do no affect semantic interpretation; as such, the inclusive is of course still interpreted as a plural.

displaying singular, plural, dual and trial. Interestingly, here we see that the non-singular number morpheme *-pela*, albeit optionally, is realised in the inclusive plural.[27]

The current account makes a clear prediction for languages which retain the plural in the inclusive, i.e. which lack the impoverishment rule in (31). In such languages, the 1SG-1EXCL-1INCL paradigm constitutes a triple that is subject to *ABA: if the exclusive is suppletive, then the inclusive must be as well. The Tok Pisin data, however, do not show any suppletion, thus being in line with the hypothesis here, but I leave a systematic study into dvandva pronouns for future research.

(32)　　*Tok Pisin personal pronouns*

	SG	PL	DU	TR
1	mi			
1EXCL		mipela	mitupela	mitripela
1INCL		yumi, yumipela	yumitupela	yumitripela
2	yu	yupela	yutupela	yutripela
3	em	ol	tupela	tripela

Turning to the second type of counter-examples to the *ABA generalisation, consider data from Macushí (Abbott 1991) in (33). We see that the first person singular and the inclusive clearly show a base *uurî*, whilst the exclusive is realised as a phonologically unrelated form *anna*. Furthermore, the inclusive seems to contain a plural morpheme *-(')nîkon*, which can be identified in the second person plural form as well. Thus, Macushí *prima facie* constitutes a textbook ABA pattern.

(33)　　*Macushí personal pronouns*

	SG	PL	DU
1	uurî		
1EXCL		anna	
1INCL		uurînîkon	uurî'kon
2	amîrî	amîrî'nîkon	
3NEAR	mîserî		insemoro
3REMOTE	mîîkîrî		inkamoro

This exclusive *anna* form has clear cognates in various Cariban languages (see Meira 2002), and as such these represent a single data point (see Bobaljik 2012: section 1.3 for discussion). Nonetheless, this is a robustly attested pattern in this family, where the exclusive is realised suppletively, whilst the inclusive shares its base with 1SG. However, there is some reason to be suspicious whether *anna* is a true pronoun. Firstly, unlike all other first and second pronouns, at least in Macushí, it appears only as a free form and does not have an affixal variant, which as such sets it apart from all other forms. Secondly, it does not seem to control plural agreement on the verb, which seems to hold for all Cariban languages (Meira 2002). Focusing on the latter argument, consider the sentences in (34)–(36) from related Waiwai (Hawkins 1998), where the cognate *amna* in (36) does not control plural (collective) agreement on verbs, appearing only with singular marking (Hawkins 1998). In (34) and (35), we see that the verb contains a collective suffix *-cow* when there is a collective argument present, a second plural object (in (34)) or a third

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[27] According to Verhaar (1995), the form *yumipela* is non-existent, but according to Smith (2002: 83) *yumipela* "occurs from time to time". Noteworthy here is that the optionality of *-pela* only holds for the plural, whilst it is obligatory in the other non-singular numbers; I leave open why there seems to be a tendency for plural inclusive dvandva pronouns to not express their number morpheme.

person subject (in (35)). However, in (36) the "exclusive" does not result in the collective suffix *-cow* on the verb.[28]

(34)   K-en-cow   so   yuruma.
       1 + 2O-see-TP + COLL COLL duck
       'The duck saw us[.incl].'

(35)   Tooto   komo nî-wîn-tîka-cow.
       people COLL 3S-sleep-COMPL-TP + COLL
       'All the people went to sleep.'

(36)   Pahxaxa   amna   ø-c-e-sî.
       tomorrow 1 + 3PRO 3S-go-SF-INP
       'Tomorrow we (excluding addressee) will go.'

The fact that *amna* does not participate in verbal agreement, I speculate, is indicative of it having a different structure than the other pronouns in the language, and should not be seen as a genuine counter-example to the proposal here. The different structure has the dual effect that it prevents the pronoun from reducing into an affixal form (*cf.* Cardinaletti & Starke 1999) and makes its phi-information inaccessible to agreement. As such, the Cariban languages do not have a pronoun with the structure in (17), and thus they no longer have 1SG-1EXCL-1INCL triples.

Returning to the Macushí data in Table (33), I posit, without committing to an internal decomposition, that the first and second person pronominal forms contain the features in Table 7; [±augmented] is needed to distinguish between dual and plural.

Note that *anna* is not listed in Table 7, since it does not represent a true pronoun. In fact, this view that *amna* has an different structure seems to be supported by Meira (2002), who notes that the pronoun is treated syntactically as if it were third person, and "one wonders if it could have been an old non-possessible noun (*cf.* e.g. Brazilian Portuguese *a gente* 'we', literally 'the people')" (Meria 2002: 257). Though Meira does not chart a particular diachronic path, the quote is certainly suggestive of the opinion that this form is not a true pronoun. I do not have anything further to add to what the structure of *amna* actually is, which I leave to further research. What is important for now is that there seems to be enough reason to be suspicious of *amna* being a true pronoun, and we may put it aside, since it should not form part of a legitimate triple pattern.[29]

Table 7: Featural representation of Macushí first and second person pronouns.

notational	form	features
1	uurî	[author, +sg, –augm]
1+2DU	uurî'kon	[author, addressee, –sg, –augm]
1+2PL	uurîníkon	[author, addressee, –sg, +augm]
2	amîrî	[addressee, +sg, –augm]
2PL	amîrî'níkon	[addressee, –sg, +augm]

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[28] Hawkins (1998: 98) states explicitly that the only way that *amna* can appear with a verb that has a collective suffix is when *amna* is the object of the sentence, and the subject is collective. This shows that *amna* itself cannot give rise to the collective suffix. For the sentences in (34) and (35), *-cow* appears to be obligatory.

[29] Two anonymous reviewers of the paper suggest two options which may help in the analysis of what *amna* could be. The first is that it could be an Imposter, in the sense of Collins & Postal (2012), and the second is that it could involve a [Multispeaker] feature which McGinnis (2013) makes use of in her analysis of Georgian datives. Both analyses seem reasonable to me, but I unfortunately do not have the required data available to comment any further on them, and so I leave the matter open. I would like to thank the reviewers for these suggestions.

Finally, this leaves us with one more problematic case that I encountered in my sample: the case of Mangarayi (Merlan 1989). Although for the most part I have ignored the distinction between singular–plural and minimal–augmented systems (see footnote 4), Mangarayi shows a minimal–augmented number system, which needs to be discussed in some more detail. Whilst the singular–plural distinction is an absolute classification based on "one" vs. "more than one", the minimal–augmented distinction is relative and based on "logical minimum" vs. "more than the logical minimum" (Corbett 2000). The difference can be captured notationally as follows: Table 8 shows a singular–plural system, and Table 9 shows a minimal–augmented system. The main difference lies in the inclusive: in a singular–plural system it cannot be singular, but in a minimal–augmented system the inclusive can still belong to the minimal category. Translating the notational 1SG-1EXCL-1INCL triple from a singular–plural system to a minimal–augmented system results in 1EXCL.MIN-1EXCL.AUGM-1INCL.AUGM as the correspondent triple.[30]

With this brief background, consider the data from Mangarayi (Merlan 1989) in (37). Note that Mangarayi makes an additional distinction of unit-augmented, which can be paraphrased as "logical minimum plus one" (*cf.* dual in singular–plural systems). Mangarayi employs demonstratives to serve as the third person pronouns, and so we will not consider them here.

(37) *Mangarayi personal pronouns*

	MIN	AUGM	U-AUGM
1EXCL	ŋaya	ŋiḷa	ŋir
1INCL	ŋi	ŋaḷa	ŋar
2	ñaŋgi	ṇuḷa	ṇur

Following Harbour's (2016) representation for minimal–augmented–unit-augmented number, I assume the features in Table 10 for minimal–augmented–unit-augmented systems.[31]

Table 8: Notational representation of singular–plural number.

	SG	PL
1	1	
1EXCL		1+(3)
1INCL		1+2(+3)
2	2	2+(3)
3	3	3+(3)

Table 9: Notational representation of minimal–augmented number.

	MIN	AUGM
1EXCL	1	1+(3)
1INCL	1+2	1+2+(3)
2	2	2+(3)
3	3	3+(3)

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[30] Note that Macushí is likely a minimal–augmented system as well, characterised by, descriptively, only having a "dual" in first person; however, whether it is considered a singular–plural or minimal–augmented languages has no consequences for the proposed analysis.

[31] The representations for person are different from Harbour's, which is discussed in section 7; see also footnote 33.

As noted above, the corresponding notational triple is 1EXCL.MIN-1EXCL.AUGM-1INCL. AUGM. On the basis of Table 10, we can see that, parallel to the markedness hierarchy for singular–plural systems in (15), we can construct a markedness hierarchy for minimal–augmented systems. On the assumption that [+ minimal] is unmarked (*cf.* [+ singular] in section 4), and given that 1EXCL.AUGM is a subset of 1INCL.AUGM, this leads to the markedness hierarchy in (38).[32]

(38)   1EXCL.MIN < 1EXCL.AUGM < 1INCL.AUGM

Returning to the Mangarayi data in (37), the relevant triple is *ŋaya-ŋiḷa-ŋaḷa*, where we see that the base is *ŋa* in the first and third form but *ŋi* in the second form: a clear instance of an ABA pattern.

However, the problem of the Mangarayi pronoun paradigm runs deeper than the person containment structure proposed here; the real issue is that neither the forms that take *ŋa* nor the forms that take *ŋi* as their base form a natural class.[33] Informally, we can already see this in (37): the puzzle is that the *ŋa/ŋi* distinction tracks neither the vertical axis (person: clusivity) nor the horizontal axes (number: minimal, augmented, unit–augmented). Consider Tables 11 and 12, which list first person pronouns that take *ŋa* and *ŋi* as their base, respectively.

Crucially, neither the pronouns that take *ŋa* as their base, nor the pronouns that take *ŋi* as their base have a feature in common, other than [author], which however is part of both groups. Consequently, it is not possible at this stage to determine the relevant feature(s) responsible for the irregularity in this pronominal paradigm. That is, irrespective of the containment hypothesis, there is no decomposition available for the Mangarayi pronominal forms that corresponds to the morphological features in Table 10. Solutions

Table 10: Representation of minimal–augmented–unit-augmented number systems.

1EXCL.MIN	[author, +minimal]
1EXCL.AUGM	[author, −minimal]
1EXCL.U-AUGM	[author, +minimal, −minimal]
1INCL.MIN	[author, addressee, +minimal]
1INCL.AUGM	[author, addressee, −minimal]
1INCL.U-AUGM	[author, addressee, +minimal, −minimal]
2MIN	[addressee, +minimal]
2AUGM	[addressee, −minimal]
2U-AUGM	[addressee, +minimal, −minimal]

Table 11: Mangarayi first person pronouns that take *ŋa* as their base.

notational	form	features
1EXCL.MIN	ŋaya	[author, +minimal]
1INCL.AUGM	ŋaḷa	[author, addressee, −minimal]
1INCL.U-AUGM	ŋar	[author, addressee, +minimal, −minimal]

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[32] Here, I put aside the role of the 1INCL.MIN, which is a superset of the 1EXCL.MIN, but neither a subset nor a superset of 1EXCL.AUGM.

[33] Note that Harbour's person features (see Table 17) run into the same problems as identified here: his crucial addition of [±participant] does not offer a solution, since the *ŋa/ŋi* distinction does not track this feature either.

Table 12: Mangarayi first person pronouns that take *ŋi* as their base.

notational	form	features
1EXCL.AUGM	ŋiḻa	[author, −minimal]
1EXCL.U-AUGM	ŋir	[author, +minimal, −minimal]
1INCL.MIN	ŋi	[author, addressee, +minimal]

include introducing a novel set (and distribution) of features, or considering the pronouns as non-decompositional (effectively, an ABC pattern). Neither of these seem particularly satisfactory, however. Therefore, I note Mangarayi as a potential problem, but pending further investigation, I tentatively suggest that this data point does not provide sufficient evidence of the existence of ABA patterns in clusivity.

6 Markedness

As noted above, the ABA triples considered here are based on the markedness hierarchy in (15) (and the one in (38)). Whilst the parallels to adjectival suppletion (Bobaljik 2012) are clear, it is important to emphasise that only part of the hierarchy in (15) is based on containment. That is, whilst adjectival triples are motivated exclusively by structural markedness (specifically, containment), defined as one element being more marked than another if its structure is more complex, the clusivity triples discussed in this paper are partially motivated by structural markedness (1EXCL < 1INCL) and partially by featural markedness (1SG < 1PL), defined as one feature value of a binary feature being asymmetrically related to its other feature value. In this section, I discuss (some of) the differences between these two types of markedness. Most notably, structural markedness is shown to be more restrictive than featural markedness, since the latter allows for markedness reversals. I will then turn to a discussion of the consequences of this for the representation of clusivity features in the next section.

Both structural and featural markedness as governors of suppletion have been invoked recently in Smith et al. (2018), where we investigate case-driven and number-driven suppletion patterns in nominals.[34] Structural markedness, implemented as containment, has been discussed in some detail in section 3, based on adjectival suppletion. Another example is found in case-driven suppletion; Smith et al. (2018) argue in favour of a case hierarchy as in (39), inspired by Blake (1994); Caha (2009) (see also Marantz 1991), where UNMARKED case is nominative or absolutive, DEPENDENT case is accusative or ergative, and OBLIQUE case is usually represented by dative (or another oblique case).

(39)   UNMARKED < DEPENDENT < OBLIQUE

This hierarchy is implemented through structural containment, leading to the representation for case in (40).

(40)

```
              c
           ┌──┴──┐
           b     OBL
        ┌──┴──┐
        a    DEP
        │
       UNM
```

---
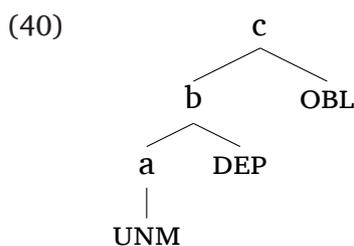
[34] Smith et al. (2018) focus primarily on pronouns, since they are well-described cross-linguistically, and given the asymmetry that lexical nouns (by and large) show no case-driven suppletion (Moskal 2015a; b).

Parallel to the triples in adjectives (POS-CMPR-SPRL) and clusivity (1SG-1EXCL-1INCL), we then have the triple UNM-DEP-OBL for case, which is to be read NOM-ACC-OBL in nominative-accusative systems, and ABS-ERG-OBL in ergative-absolutive systems. The suppletive patterns we found in pronouns are given in Table 13: pronouns can lack case-driven suppletion (AAA), as in Lezgian (Haspelmath 1993); pronouns can show one base in the unmarked case and a second base that is shared in the dependent and oblique case (ABB), as in Armenian (Kozintseva 1995); there are cases where all three pronominal forms are fully distinct (ABC), as in Khinalugh (Kibrik & Kodzasov 1990); and examples where a base is shared by the unmarked and dependent cases whilst the form has a distinct base in the oblique (AAB), as in Wardaman (Merlan 1994). No cases of ABA were found.

Crucially, although structural markedness relations can be disrupted and nullify a containment relation, as for instance in the case of Dolakha Newar discussed in section 5, where a feature ([–singular]) was deleted due to an impoverishment rule, structural markedness relations cannot be altered.[35]

In contrast, number-driven suppletion is not subject to structural but featural markedness according to Smith et al. (2018). Given that three categories are needed, we tested the containment hypothesis in systems that make a three-way number distinction.[36] Based on markedness statements such as Greenberg's (1963) Universal 34 (see (41)), we formulated the markedness hierarchy in (42).

(41)   Universal 34 (Greenberg 1963; Corbett 2000): No language has a dual unless it has a plural.

(42)   SG < PL < DU

Parallel to the triples in adjectives, case and clusivity, we then have the triple SG-PL-DU for number. The attested patterns in pronouns are reported in Table 14, where we see that pronouns can lack suppletion (AAA), as in Mapuche (Smeets 2008), or that there is one base in the singular and a second base that is shared in the plural and the dual (ABB), as in

Table 13: Attested case suppletion patterns in free pronouns.

UNMARKED	DEPENDENT	OBLIQUE			
zun	za	zaz	1SG	AAA	Lezgian
du	k'ez	k'ez(a)nic	2SG	ABB	Armenian
zɨ	jä	as(ɨr)	1SG	ABC	Khinalugh
narnaj	narnaj(j)i	gunga	3SG	AAB	Wardaman

Table 14: Attested number suppletion patterns in free pronouns.

SG	PL	DU			
iñché	iñchiñ	iñchiu	1st person	AAA	Mapuche
iau	gim	giur	1st person	ABB	Sursurunga
nrü	wiri	kou	2nd person	ABC	Tiri
jiy	jiryéy	sááda	2nd person	AAB	Yagua

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[35] Barring exceptional circumstances, such as extreme impoverishment of a highly marked configuration (e.g. deleting both [hearer] and [–sg] from an inclusive will make it a subset of the exclusive); however, this is unlikely to occur.

[36] Though the majority of data was from singular–plural–dual systems, minimal–augmented–unit-augmented systems were also included in the study.

Sursurunga (Harbour 2014), or there are cases where all three bases are distinct (ABC), as in Tiri (Smith 2011), or instances where a base is shared by the singular and plural whilst the dual has a distinct base (AAB), as in Yagua (Payne & Payne 1990).

However, we found apparent ABA patterns in the lexical nouns in Table 15: in a handful of items, the singular and dual share a form, but the plural shows a suppletive variant. Curiously, number seems to be the only category in which apparent ABA suppletion patterns are observed: adjectives, (pronominal) clusivity and (pronominal) case all support the hypothesis that ABA patterns are unattested.

The reason for the possibility of these apparent ABA patterns will be shown to be due to number triples being based on featural rather than structural markedness in the following way. To start, the hierarchy in (42) is purely descriptive; consider the structural representation of number in Table 16, based on Harbour (2011).[37]

As Smith et al. (2018) note, although they both contain the feature [±singular], there is no containment relation between the dual (represented in (43)) and the plural (in (44)).

(43)

D   [−sg]   [−augm]

(44)

D   [−sg]   [+augm]
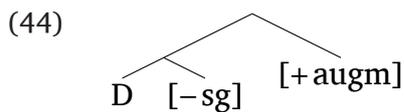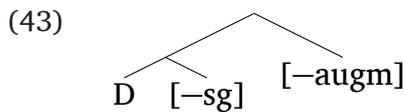
Consequently, the hierarchy in (42) is not based on structural markedness, and ABA patterns are not excluded based on containment relations. Consider the VI-rules in (45) for the suppletive form in Lavukaleve (Terrill 2003); the context of the suppletive rule is [+augmented], which does not target the singular or dual, as can be seen in Table 16, leading to a suppletive pattern, where only the plural has a suppletive base.[38]

Table 15: Attested number patterns in nouns.

SG	PL	DU		
wùuti	momoyam	wùutit	'woman'	Hopi (Smeets 2008)
vo'vou	tulav	vo'voul	'boy'	Lavukaleve (Terrill 2003)
panmal	payum	panmalcrm	'man'	Yimas (Foley 1991)

Table 16: Representation of singular–plural–dual number systems.

SG	[+singular]
PL	[−singular, +augmented]
DU	[−singular, −augmented]

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[37] Harbour (2014) assumes [±atomic] and [±minimal], but for present purposes, it will suffice to use [±singular] and [±augmented], respectively. Note that, effectively, in the context of [+singular], the value of [±augmented] is irrelevant, since [+singular, −augmented] is impossible and [+singular, +augmented] is the equivalent of [+singular] (Harbour 2014: 206); as such, in Table 16, the singular simply lacks a value for [±augmented].

[38] Note that we found no instances of plural-only suppletion (ABA) in pronouns. In Smith et al. (2018), we do not offer an explanation as to why, given that both the triples SINGULAR–PLURAL–DUAL and SINGULAR–DUAL–PLURAL are allowed by the system, AAB patterns for the former are only found in pronouns, and AAB patterns for the latter are only found in lexical nouns.

(45)   a. $\sqrt{\text{BOY}}$ ⇔ tula / _] + augm]
       b. $\sqrt{\text{BOY}}$ ⇔ vo'vou

However, rather than abandoning all restrictions on number-driven suppletion, we draw on featural markedness in Smith et al. (2018); specifically, we argue that in the context of [–singular], there is cross-linguistic variation as to which value of [±augmented] is marked: either [+augmented] or [–augmented] can be marked. Then, following the idea of Moskal (2014) (which is based on Calabrese 1995; 2005) that marked features but not unmarked features can govern suppletion (see also section 7 below), this leads to the predictions in (46).

(46)   a.   If [–augmented] is the marked value, then it alone can cause suppletion;
            the markedness hierarchy is then: SG < PL < DU;
       b.   If [+augmented] is the marked value, then it alone can cause suppletion;
            the markedness hierarchy is then: SG < DU < PL.

The Yagua triple from Table 14 thus reflects a markedness hierarchy as in (46a): SG-PL-DU, and should be read as *jiy-jiryéy-sááda*. In contrast, the apparent ABA patterns in Table 15 reflect a markedness hierarchy as in (46b): SG-DU-PL, and e.g. the Lavukaleve triple should be read as *vo'vou-vo'voul-tulav*. Crucially, both Yagua and Lavukaleve (as well as Hopi and Yimas) constitute AAB patterns on this account.

   At this stage, it seems an arbitrary choice which value of [±augmented] is (un)marked, other than its suppletive behaviour. As Smith et al. (2018) point out, it is essential for the reasoning not be circular to have an independent determiner of which value is marked. In effect, we argue that featural (and per definition also structural) markedness correlates with overt coding (see also Croft 2003). That is, when a particular feature value is marked, it is overtly (phonologically) expressed by an exponent. To illustrate this, consider the variation in overt coding of plural and dual marking that we found in our study: languages vary in whether the dual is built on top of the plural, or whether the plural is built on top of the dual. For instance, in Manam (Lichtenberk 1983), (47), the dual *ŋaradíaru* clearly contains the plural *ŋaradí*, whilst in Panytyima (Smith 2011), (48), the plural *nhupalukuru* clearly contains the dual *nhupalu*.

(47)   *Manam number marking*
       a.   áine   ŋára
            woman   that-SG
            'that woman'

       b.   áine   ŋára-di
            woman   that-PL
            'those women'

       c.   áine   ŋara-dí-a-ru
            woman   that-PL-LINKER-DL
            'those two women'

(48)   *Panytyima first and second person pronouns*

	SG	PL	DL
1	ŋatha		
1EXCL		ŋaliyakuru	ŋaliya
1INCL		ŋalikuru	ŋali
2	njinta	nhupalukuru	nhupalu

Though neither Manam nor Panytyima display suppletion, they do show cross-linguistic variation as to which value of [±augmented] is marked. Simplifying somewhat for brevity (see Smith et al. 2018 for details), in Manam, the dual is overtly coded on top of the plural, and [–augmented] is marked; in Panytyima, the plural is overtly coded on top of the dual, and [+ augmented] is marked.

In sum, Smith et al. (2018) propose that (featural) markedness has a dual role: if [αaugm] is the marked value, then (i) [αaugm] is overtly coded and (ii) [αaugm] can serve as a context for suppletion; in addition, [–αaugm] is unmarked, which means that (i) [–αaugm] is phonologically null and (ii) [–αaugm] cannot serve as a context for suppletion.[39] Crucially, in contrast to structural markedness, featural markedness allows for markedness reversals, given that there is cross-linguistic variation as to which value is marked.

Finally, it should be noted here that Smith et al. (2018) argue that structural markedness can be derived from featural markedness through relativisation to only marked features. In effect, the idea is that languages show variation as to whether all or only marked features are visible to VI: the features that are visible to VI (rather than the features present in the morpho-syntactic structure) can then show proper containment. Nonetheless, given that relativisation applies to marked rather than specific values, featural markedness still plays a crucial role. Relevant for present purposes, however, is that there is a distinction between the two types of markedness, with the crucial aspect that reversals are expected in what is referred to here as featural markedness, irrespective of whether this is analysed as featural markedness or as derived structural markedness.

7 Discussion

Here, I turn in some more detail to two aspects discussed in the preceding section, specifically focusing on their consequences for the representation of clusivity features. I will address (i) markedness reversals being a hallmark of featural markedness relations; and (ii) the correlation between featural markedness and overt coding.

We saw that markedness reversals were observed only in number-driven suppletion, and Smith et al. (2018) relate this to cross-linguistic variation as to whether [–augm] or [+ augm] is the marked value.[40] In contrast, in adjectival suppletion, case-driven suppletion and clusivity-driven suppletion no convincing examples of markedness reversals have been found. I propose here that the reason why markedness reversals are not seen in adjectives, case and clusivity, as opposed to number, is that we are dealing with slightly different types of features.[41] Specifically, [±augmented], the feature responsible for the possibility of markedness reversals, is a binary feature, and, as such, either value can be selected as "marked" in a language.[42] This binary value made it possible to have triples with only two (rather than three) features, and resulted in these triples not (directly) being in a containment (structural markedness) relation. In contrast, the features involved in adjectival suppletion (see (11)) as well as case-driven suppletion (see (40)) have been presented as privative in Bobaljik (2012) and Smith et al. (2018), respectively (though see Müller 2004; Calabrese 2011 among others for binary case features). In this case,

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[39] For an illustration of one value of [±augmented] being marked, I refer to reader to the discussion in Smith et al. (2018) on Hopi, which shows support for [+ augmented] to be marked based on both overt coding and suppletion.

[40] It should be noted that we did not find many instances of a markedness reversal; this could reflect a smaller sample size, since relevant languages need to have a three-way number distinction as well as show suppletion.

[41] A markedness reversal in for instance clusivity would look like an ABA pattern in a 1SG-1EXCL-1INCL triple.

[42] Nevins (2011) argues [–augmented] is the marked value in general, but as discussed above, Smith et al. (2018) show that this is subject to variation.

the features involved were in a containment relation.[43] Thus, the possibility of being in a containment relation is delimited by the type of feature: only privative features can be in a (direct) containment relation. If we then take markedness reversals as the hallmark of featural markedness, we can take the strong hypothesis and posit that, given a large enough sample, we expect that binary features show a markedness reversal. Conversely, the absence of markedness reversals in a large sample, such as the clusivity study here, support an analysis of, at least some, person features to be privative.[44]

This reasoning goes as follows. If the clusivity feature is assumed to be binary, e.g. [–addressee] for the exclusive and [+ addressee] for the inclusive, then we expect VI-rules to target either context, thus allowing for a suppletive rule to only target [+ addressee, –sg] (an AAB pattern in a 1SG-1EXCL-1INCL triple), as well as allowing for a suppletive rule to only target [–addressee, –sg] (an ABA pattern in a 1SG-1EXCL-1INCL triple). However, the fact that I have found no convincing counter-examples to the absence of ABA patterns in the clusivity data strongly suggests that the clusivity feature, here [addressee], is not [–addressee] or [+ addressee], but rather the relation is one of presence vs. absence of the monovalent feature [addressee]. Markedness cannot vary along the same lines as number then, since it would require the literal absence of a feature to be a marked unit, and this is why markedness reversals are not found.

This proposal, however, raises issues for overt coding. The proposal in Smith et al. (2018) to equate markedness with overt coding needs to be addressed. We have seen that both the inclusive (see table (2)) and the exclusive (see table (3)) can be overtly coded, despite the absence of a markedness reversal in the suppletive behaviour. This then, leads me to conclude that overt coding does not always reflect markedness. However, to retain the insights from Smith et al. (2018), I tentatively suggest that overt coding tracks markedness only if complexity or containment are uninformative; that is, overt coding tracks markedness *within a single feature*. On this proposal overt coding reflects featural but not structural markedness relations. In a binary feature [±singular] it can track either feature value as (un)marked, [+ singular] or [–singular]. By way of contrast, in a privative feature [addressee], there is no markedness contrast since there is only one "value", and, as such, overt coding does not represent markedness. In effect, this means that [+ F] or [–F] can be (un)marked, but this does not apply to just [F].

Although this divorces overt coding from structural markedness, this leaves the issue of exponence itself. If structurally unmarked constructions are reflective of the absence of some (privative) feature, then how can they be overtly (phonologically) expressed? Put concretely in the context of this paper, how are we to analyse languages which build the exclusive on top of the inclusive (see also Harbour 2016)? Note that languages that have a unique inclusive morpheme are unproblematic. This morpheme would be the realisation of [addressee] in the context of [author]: e.g. for Itzaj Maya in Table (2), we would have a VI-rule such as [addressee] ⇔ -'ex /_] author]. However, languages that have a unique exclusive morpheme are not that straightforward. Consider the Limbu pronominal paradigm of first and second person in (49) and third person in (50).[45] Crucially, in the exclusive we see an overt morpheme *-ge* which does not feature in the rest of the paradigm.

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[43] Also on the assumption that the least marked category is the absence of any feature, the same point can be made: binary features reduce the number of features necessary to form a triple, [[[Ø] F1] F2] vs. [[[Ø] –F1] +F1].

[44] It should be noted that whilst I have used privative person features for exposition, in this paper I argue that at a minimum the feature involved in clusivity must be privative, without committing to other person features being privative (as e.g. Harley & Ritter 2002; McGinnis 2005), or being binary (as e.g. Nevins 2007).

[45] Note the unusual ordering of the morphemes in Limbu, with the exclusive person marker *-ge* outside of the plural/dual number marker *-(ch)i*; since it is orthogonal to the point discussed here, I ignore this peculiarity of linearisation in the rest of the paper.

The problem here is that since the features of the exclusive ([author, –sg]) are a subset of those of the inclusive ([author, addressee, –sg]), we expect that whilst it is possible that the inclusive has an additional morpheme the exclusive can contain no morphemes that are not also present in the inclusive (see also Harbour 2016).[46]

(49) *Limbu first and second person pronouns*

	SG	PL	DU
1	(a)ŋga		
1EXCL		anige	anchige
1INCL		ani	anchi
2	khɛnɛʔ	khɛni	khɛnchi

(50) *Limbu third person pronouns*

	SG		PL	DU
	ANIMATE	UNMARKED		
3	khunɛʔ	khɛŋ	khɛŋhaʔ	khunchi

Before turning to an analysis in line with the assumptions here, let us first see how this is not a problem in a system which assumes a binary feature for the clusivity contrast. In his discussion on overt coding of the exclusive, Harbour (2016) shows that assuming that a binary feature distinguishes between the exclusive and inclusive circumvents this problem. Specifically, in a singular-dual-plural system with a clusivity distinction, he assumes the features in Table 17 to be active; for present purposes, [+ author] can be equated with [author] and [±atomic] with [±singular]. [±participant] is the crucial feature for the discussion here, since it refers to the presence or absence of discourse participants, thus disambiguating between the inclusive and the exclusive.[47]

Following the analysis of Limbu in Harbour (2016: 107), *an* is the realisation of [+ author] (with place assimilation from *an* to *aŋ* before /g/ in the singular), *-chi* is the expression of dual and *-i* of plural.[48] This leaves us with the morpheme *-ge* in the exclusive forms, which in a system in which the exclusive and inclusive are distinguished by binary [±participant], is simply the realisation of [–participant]. This then, leads naturally to the attested exclusive and inclusive forms in the first person dual and plural forms. For clarity, the decompositional structure of the exclusive plural and inclusive plural is given in (51a) and (51b), respectively.[49]

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[46] It should be noted at the outset that just because Limbu appears to build the exclusive from the inclusive, this is not evidence in favour of the markedness reversals that I have claimed do not exist in clusivity suppletion. The clusivity triple is clearly AAA, and there is no suppletion of the relevant sort. Recall that a markedness reversal of the relevant type that we are looking for is where there are two independent indicators of markedness: overt coding and suppletion. Overt coding on its own is thus not sufficient to consider this a counter-example to the claim that I am making here, and below I present VI-rules consistent with person features being privative, rather than binary. I thank an anonymous reviewer for urging me to be clearer on this point.

[47] As opposed to Noyer (1992); Halle (1997); Nevins (2007), i.a., the feature combination [+ author, –participant] is a possible configuration for Harbour (2016), since the application of the two features is ordered. First, [–participant] applies, which removes all participants from the lattice (the set of all potential referents), but leaves potential others (third person); then, in a second step [+ author] adds in the speaker; this, as such, generates a set of speaker (and potential others).

[48] This is slightly adjusted from Harbour's analysis, since Harbour lists the first person plural forms of Limbu as *aŋige* (exclusive) and *aŋi* (inclusive) with velar rather than coronal nasals. However, van Driem (1987), which also seems to be Harbour's source, lists them as coronal nasals, which is done here. Nothing in either Harbour's analysis or the one adopted here hinges on the difference whether the nasals are coronal or velar, other than whether place assimilation occurs from *an* to *aŋ* in the singular, as assumed here, or whether it occurs from *aŋ* to *an* in the dual, as is assumed in Harbour.

[49] An analysis of an exclusive morpheme is further supported by verbal agreement in Limbu: exclusive verb forms are marked by *-ge*, whilst inclusive verb forms are not.

(51)   a.   an   -i   -ge
            [+ author] PL [–participant]

       b.   an   -i
            [+ author] PL

As Harbour (2016) notes, however, the analysis raises two questions. Firstly, *-ge* does not seem to be present in the first person singular, although Harbour (2016), following van Driem (1987), notes that the suffix *-ga* is similar in shape and could be an exponent of [–participant] after (idiosyncratic) phonological changes. Secondly, *-ge* also does not surface in any of the third person forms; Harbour (2016) notes two explanations: (i) third person is contextually unspecified for [±participant], or (ii) *-ge* is the realisation of [–participant], but only in the context of [+ author].

Data in (52) from Gumbáiŋgar (Smythe 1948–49) shows an analysis similar to that of Limbu: *-gei* is the realisation of [–participant], but again it needs to be contextually specified to occur only in the exclusive and not in 1SG or third person (see Harbour 2016: 108 for details).

(52)   *Gumbáiŋgar personal pronouns*

	SG	PL	DU
1	ŋaia		
1EXCL		ŋīagei	ŋaligei
1INCL		ŋallī	ŋīā
2	ŋīnda	ŋudjawinj	bulā
3	gulanna	bīn	bulári

Although Harbour (2016) can naturally account for the overt coding of the exclusive, the containment relations argued for in this paper no longer hold. That is, in Table 17, there is no longer a subset-superset relation between the exclusive and inclusive. As such, the absence of ABA suppletion identified in section 2 becomes a coincidence: since Harbour (2016) formulates specific VI-rules referring to the exclusive ([–participant]), suppletion for only the first person exclusive becomes a possibility.

If we want to retain the impossibility of ABA patterns on the grounds proposed here, we need to see whether there is a plausible alternative analysis for languages which mark the exclusive with an additional morpheme, such as Limbu, (49)–(50), and Gumbáiŋgar, (52).

Table 17: Representation of person and number (Harbour 2016).

1SG	[+author, –participant, +atomic]
1EXCL.DU	[+author, –participant, –atomic, –augmented]
1EXCL.PL	[+author, –participant, –atomic, +augmented]
1INCL.DU	[+author, +participant, –atomic, –augmented]
1INCL.PL	[+author, +participant, –atomic, +augmented]
2SG	[–author, +participant, +atomic]
2DU	[–author, +participant, –atomic, –augmented]
2PL	[–author, +participant, –atomic, +augmented]
3SG	[–author, –participant, +atomic]
3DU	[–author, –participant, –atomic, –augmented]
3PL	[–author, –participant, –atomic, +augmented]

In the following, I will spell out a possible alternative analysis for the Limbu paradigm, which is in line with privative person features. At the heart of the problem of a specific exclusive morpheme in privative person feature systems lies a lack of morpho-syntactic material that can be converted into phonological exponents. This can be circumvented if we make use of the pronominal base D as an additional locus of VI. Harbour (2016) independently proposes such an analysis, with the main difference being that he treats the category label π as a feature, whilst I use D.

   On an analysis of *an* as the realisation of the pronominal base in the context of first person, rather than first person itself, we see that *-ge* can then be the realisation of first person ([author]). The default realisation of the pronominal base D is the one that surfaces in second and third person, *khɛn*.[50] The VI-rules relevant to the discussion are given in (53), and the decompositional structure of the (plural) exclusive would then be as in (54).

(53)   a.   D ⇔ an / _ [author]
        b.   D ⇔ khɛn
        c.   [author] ⇔ -ge
        d.   [+sg] ⇔ Ø
        e.   [−sg] ⇔ -i

(54)   an -i   -ge
        D   PL [author]

However, this analysis, in which *-ge* is the realisation of [author], leads to similar questions as we saw in an analysis of *-ge* as the exponent of [–participant]. Firstly, why does it not seem to surface in the first person singular, and secondly, why does it not surface in the inclusive? Note the similarity to Harbour's analysis: in both cases, the prediction is that the same exclusive morpheme is present on both the singular as well as the exclusive plural, and in both cases the solutions would be similar in that this marker would only surface in the context of the non-singular. Concretely, here I adopt the analysis in Harbour (2016), following van Driem (1987), where the similarity to *-ga* is noted, and I assume that the *-ge/-ga* alternation is the result of (idiosyncratic) phonological changes.

   The crucial difference between the two analyses lies in the fact that Harbour (2016) predicts that this morpheme also surfaces in third person, whilst the prediction here is that this morpheme also surfaces in the inclusive. Recall that Harbour (2016) proposed two explanations for the lack of the marker in third person: (i) third person is contextually unspecified for [±participant], or (ii) the marker is only realised in the context of first person. An implementation of these two alternatives is offered below: in (55), an impoverishment rule removes the [±participant] feature in third (and second) person, and in (56) there is a context-sensitive rule, which realises [–participant] in first person (56a) and a default rule, which does not express [–participant] in third person (56b).

(55)   [±participant] → Ø / _ [–author]

(56)   a.   [–participant] ⇔ -ge / _ [+author]
        b.   [–participant] ⇔ Ø

In the analysis here, which relies on a privative clusivity feature, the overt realisation of [author] has to be prevented, which can be done by assuming that the features for the

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[50] For simplicity, I am ignoring the contrast between *khɛN* in second person, 3ANIMATE and 3PL, and *khun* in 3ANIMATE and 3DU.

inclusive [author, addressee] are realised as a (portmanteau) null morpheme, the rule for which is given in (57).[51] This leads to a decompositional structure of the (plural) inclusive as in (58).

(57)　　[author,addressee] ⇔ ∅

(58)　　an -i -∅
　　　　 D   PL [author,addressee]

When we compare the two approaches, we seem to be at a bit of an impasse. Both approaches face some problems with overt coding in Limbu: in Harbour's analysis, the exclusive marker is suspiciously absent in 1SG and third person, whilst in the current analysis, the exclusive marker is suspiciously absent in 1SG and 1INCL. In Harbour's analysis, this is remedied by either removing [±participant] from the relevant context (55) or having a context-sensitive realisation in the context of first person (56), whilst in the current analysis, this is remedied by have a context-sensitive null portmanteau realisation of [author,addressee] (57). However, in the account proposed here, we additionally made crucial use of D to increase the number of loci for VI. That is, even though, at least *prima facie*, the morpheme *an* seems to represent [author], here it is analysed as the realisation of D. Thus, if we would only take into account overt coding, this seems to tip the scales in favour of Harbour's account.

Nonetheless, Harbour cannot readily account for the absence of ABA patterns in 1SG-1EXCL-1INCL triples identified in section 2. Thus, Harbour's (2016) conclusion that "the issue [of exclusive marking] is not one of descriptive adequacy, but one of insight" becomes somewhat more complicated. Since both approaches achieve descriptive adequacy in terms of overt coding and suppletive behaviour, they are equal in that respect. With regard to insight, however, they both seem to be only partially successful: binary features make for more straightforward overt coding analyses yet miss the *ABA generalisation identified here; privative features easily explain the absence of ABA patterns, but require a less intuitive overt coding analysis of languages that mark the exclusive with an additional morpheme.

As a final note, I return to the alternative that lies somewhat in-between. As noted above, in previous work (Moskal 2014), I pursued the hypothesis that clusivity-driven suppletion is conditioned by featural rather than structural markedness. According to Calabrese (1995; 2005), phonological processes can be sensitive to all values, marked values or contrastive values of a feature.[52] Focusing primarily on the clusivity distinction in first person, I proposed that the inclusive was marked, whilst the exclusive was unmarked; applying Calabrese's insight then leads to either marked features governing suppletion, or both unmarked and marked features governing suppletion, but unmarked features alone crucially cannot govern suppletion. That is, when only marked features govern suppletion, the (marked) 1INCL is suppletive but the (unmarked) 1SG and 1EXCL are not (AAB). When both unmarked and marked features can govern suppletion, both (marked) 1INCL and (unmarked) 1EXCL are suppletive (ABB, ABC). Crucially, the lack of ABA is derived, since this configuration would require only unmarked features to be able to govern suppletion.

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[51] Note that this analysis of a null inclusive morpheme carries over to verbal agreement in Limbu; see footnote 49.

[52] See also Nevins (2007) for an extension of Calabrese's idea to morphology in order to analyse PCC effects as well as Bobaljik (2015) for an interpretation of this in order to parametrise adjacency.

The purpose of this paper is not to so much to argue against this previous analysis, but rather to sharpen it. Here I presented an approach based on structural markedness, specifically, containment, which is consistent with a wider body of work that suggests *ABA is ruled out by containment (Bobaljik 2012; Smith et al. 2018), and explored its consequences for the nature of feature(s) involved in clusivity. An approach based on structural markedness is more restricted, since the features need to be privative in order to retain a containment relation, whilst this is not necessary in a featural markedness analysis, where markedness can be evaluated at the level of a feature value (as in the case of number-driven suppletion in Smith et al. 2018). However, we have also seen that a structural markedness account of clusivity runs into problems with overt coding, and a featural markedness account should perhaps not be so quickly dismissed.

What is required at this stage is an in-depth study of languages in which the exclusive is marked by an additional morpheme. Assuming a privative clusivity feature, the task would be to see whether in these languages the exclusive marker can be analysed as a realisation of [author]. Were we to assume a binary clusivity feature *à la* Harbour (2016), it would be well worth combining the insights of Smith et al. (2018) discussed in section 6; specifically, if markedness indeed correlates with overt coding, then in languages in which the exclusive (i.e. [–participant]) is marked, then we predict that the exclusive should be able to supplete alone, whereas the inclusive should not be able to do so.

8 Conclusion

In this paper, I have shown that in a survey of 233 languages, based on Smith (2011), that show a clusivity distinction, in 1SG-1EXCL-1INCL triples there are no convincing ABA suppletion patterns, where the exclusive suppletes to the exclusion of the inclusive. This I argued to be a consequence of the containment hypothesis applied to clusivity: the inclusive always properly contains the exclusive. Furthermore, based on the robustness of this pattern, this supports a privative feature representation of the feature involved in clusivity, which, as such, allows for only one value of clusivity to be the most marked: the inclusive. However, it should be stressed here that the current paper exclusively investigated free pronominal forms, and did not take into account affixal markers of clusivity.

This was contrasted with number-driven suppletion in Smith et al. (2018), where we observed that there is variation as to which value of [±augmented], plural ([+ augm]) or dual ([–augm]), is the most marked, thus leading to two possible markedness hierarchies: SG-PL-DU as well as SG-DU-PL. The fact that this kind of reversal was not seen in clusivity I suggested motivates a view of person features as privative, rather than binary.

If this is on the right track, then markedness reversals would be indicative of binary features, whilst their absence would indicate privative features. This would allow an additional evaluation tool to disambiguate between theories that assume binary person features, such as [±author] and those assuming privative [author].

Throughout this paper I have also been using various different conceptions of the term markedness. Proper containment has been taken to be an expression of structural markedness, as in adjectival suppletion, case suppletion and the relation between the exclusive and the inclusive. In addition, I have discussed featural containment, as in number, which has the crucial characteristic of allowing for markedness reversals.

Finally, I have discussed the relation between overt coding and markedness. Smith et al. (2018) propose to correlate the two based on number-driven suppletion and containment relations in number. However, this was shown to be more complicated for the clusivity data investigated here; rather, I suggested that overt coding reflects featural but not structural markedness relations.

To conclude, we have seen that clusivity-driven suppletion supports the strong position of clusivity as best represented by structural markedness, but that future research, in particular of languages that mark the exclusive with an additional marker, will need to show whether we can retain this position.

Abbreviations

AUGM = augmented, COLL = collective, CMPR = comparative, COMPL = completive, DU = dual, EXCL = exclusive, INCL = inclusive, INP = involved mode of non-past tense, MIN = minimal, O = object, POS = positive, PL = plural, PRO = pronoun, S = subject, SG = singular, SF = stem formative, SPRL = superlative, TP = today past tense, U-AUGM = unit-augmented

Additional File

The additional file for this article can be found as follows:

- **Appendix.** Languages Studied. DOI: https://doi.org/10.5334/gjgl.362.s1

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