Parameters of Poor Pronoun Systems

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The world's smallest pronoun systems can eschew any of the following contrasts: (a) author-nonauthor, (b) participant-nonparticipant, (c) singular-nonsingular. This supports the view that features are mutually independent parameters (Harbour 2011a, 2014a, 2016), but is problematic for Koeneman and Zeijlstra's (2014) reworking of the Rich Agreement Hypothesis, which is predicated on the claim that (a)–(c) are universally obligatory. The facts necessitate revision of Koeneman and Zeijlstra's proposal.

Keywords: pronouns, features, typology, Rich Agreement Hypothesis

1 Introduction

Attempting to rehabilitate the connection between verb movement and rich subject agreement, in their 2014 article (henceforth REHAB) Koeneman and Zeijlstra promulgate a ''new observation'': that ''even the most minimal pronominal systems in the world have at least forms distinguishing between (a) speaker and nonspeaker, (b) participant and nonparticipant, and (c) plural and nonplural'' (p. 573). REHAB takes this to entail that ''all languages in the world show featural distinctions with respect to at least [speaker], [participant], and [plural] in their pronominal systems (see Greenberg 1963, Harley and Ritter 2002a, Cysouw 2003)'' (p. 572).

If there is a minimum size to the feature sets that generate pronoun systems, and hence to pronoun systems themselves, then pronominal features are subject to a combinatorial restriction: there are some feature sets that languages cannot choose (because they are too small). This contradicts the position argued for in Harbour 2011a, 2014a, 2016, according to which any choice of person (or number) features constitutes a legitimate person (or number) system.

The current article seeks to set the typological record straight and to defend the latter, combinatorially unrestricted view of features. After section 2 briefly lays out the role of small pronoun systems in REHAB, clarifying, in particular, the narrow notion of pronoun pertinent to the study, section 3 maps out the reality of the world's poorest pronoun systems, showing that none of the empirical claims (a)–(c) holds. Section 4 then addresses REHAB's claims about feature systems

and demonstrates that the systematicity of exceptions to (a)–(c) is precisely what a theory free from combinatorial restrictions leads one to expect. Finally, section 5 considers how REHAB itself might be rehabilitated, given the arbitrary restrictions that its view of features imposes on its crosslinguistic applicability.

2 Pronoun Systems in REHAB

REHAB proposes an analysis linking verb movement to rich agreement by stipulating that rich agreement is argumental and that argumental agreement occupies its own head. Straightforward pronunciation of this agreement is taken to be a potential violation of the Stray Affix Filter (Lasnik 1981). Verb movement is analyzed as a reflex of the morphosyntactic system, which is driven to avoid stray affixes. Leaving aside whether the two stipulations concerning argumentality are justified, and why stray affixes trigger verb movement (as opposed to light verb insertion along the lines of English *do*-support, or cliticization of the agreement onto any nearby phrase), this article focuses on two facets of the characterization of richness.

First, REHAB defines richness universally in terms of the world's smallest pronominal system.

(1) *Rich agreement*
    ''A language exhibits rich subject agreement if and only if agreement involves at least the same featural distinctions as those manifested in the smallest (subject) pronoun inventories universally possible.'' (Koeneman and Zeijlstra 2014:574)

The world's smallest pronoun system occurs in Kuman, according to REHAB. Consisting of just four members (table 1), it distinguishes singular-nonsingular in first person (*na* 'I', *no* 'we') but is number-neutral for other persons (*ene* 'you', *ye* 'he, she, they'). REHAB posits the exponents in (2).[1]

Table 1
Independent pronouns in Kuman

	Singular	Plural
1	na	no
2	ene	
3	ye	

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[1] REHAB states that formulation of its Rich Agreement Hypothesis ''does not hinge on a particular choice or type (binary or privative) of features. What is crucial is . . . the feature distinctions minimally underlying pronominal systems'' (p. 574). Olaf Koeneman (pers. comm.) explains this to mean that neither the feature names nor feature valence is crucial for the proposal in REHAB, just having features that definitionally distinguish author-nonauthor, participant-nonparticipant, and plural-nonplural is. Accordingly, I maintain strict bivalence in keeping with Harbour 2011a,b, 2014a, 2016 and rewrite REHAB's ±speaker as ±author and ∓plural as ±atomic.

I have simplified the exponents in (2) by removing −author from *ene* and *ye*, as −participant suffices to restrict *ye* to third person, and +participant *ene* is outcompeted for first person by more specific *na* and *no* and, hence, confined to second person.

(2) +author +atomic ⇔ no
     +author −atomic ⇔ na
     +participant ⇔ ene
     −participant ⇔ ye

The three features here are ±author, distinguishing groups that include the speaker from those that do not; ±participant, distinguishing groups that include speaker, hearer, or both from those that do not; and ±atomic, distinguishing groups that have cardinality 1 from those that do not. Given its view that Kuman is the smallest pronoun system of the world's languages, REHAB then deduces that all pronoun systems use at least these three features.

    Second, by *pronominal systems*, REHAB means free or independent pronouns, rather than bound forms like agreement and clitics. This is evident in how the argument sketched above uses richness. Agreement is characterized as rich—and an argumental, autocephalic trigger for verb movement—if it uses the same feature set as the smallest pronoun system. Crucially, then, the particularity of ±speaker, ±participant, and ±atomic is established with respect to free pronouns and then, in a distinct step, is applied to verb agreement. It follows that verbal affixes themselves are excluded from the notion of ''pronominal system.''

    It is not unusual for verb agreement to show greater fine-grainedness than independent pronouns do. However, the structure of REHAB's arguments requires one to ignore such bound forms in assessing its typological claim. Indeed, Kuman itself serves as an example of a poor pronoun system only if verbs are ignored. Otherwise (Piau 1985; see table 2), Kuman is much less poor than, say, English, distinguishing three persons in some numbers (first, second, third in the singular) and three numbers in some persons (singular, dual, plural in the first person). (See also Kiowa and Winnebago below.)

    In sum, then, justification of REHAB's typological claim and its featural corollary requires simple inspection of free pronoun systems around the world. This is offered immediately below.

3 What Kuman Isn't

REHAB's three universal distinctions do not survive typological scrutiny. To begin with, Harley and Ritter 2002a and Cysouw 2003, to which REHAB's universals are partly attributed, both contain counterexamples, as does another of its cited works, Noyer 1992. Though some of these examples turn out to be doubtful on closer inspection (Harbour 2014b), others do not. Indeed, counterexam-

Table 2
Verb agreement in Kuman

	Singular	Dual	Plural
1	-i	-bugl	-mun
2	-n	-bit	-iw
3	-uw		

ples are not hard to find. In preparing this article, I have made use of sixteen typological studies (Dixon 1976, Suarez 1983, Foley 1986, Mühlhäusler and Harré 1990, Shibatani 1990, Noyer 1992, Maitanskaya, Eliseev, and Romanova 1993, Mithun 1999, Corbett 2000, Harley and Ritter 2002a, Cysouw 2003, Adelaar with Muysken 2014, Bhat 2004, Siewierska 2004, Daniel 2005, Smith 2011). Only two, studies of the Uralic languages and the languages of Japan, fail to contradict one or more of (a)–(c).

This section presents the range of counterexamples. Section 3.1 shows that Kuman's is not the only four-cell system and section 3.2, that four-cell systems are not the smallest attested: both three- and two-cell systems exist, and some languages have been argued not to have pronominal systems at all. So, some systems of independent pronouns do not distinguish speaker from nonspeaker, contra (a); others do not distinguish participants from nonparticipants, contra (b); and yet others make no plural-nonplural distinction, contra (c). (Ramifications for feature inventories are examined in section 4.)

3.1 Not the Only Four-Cell System

There are several types of four-cell pronoun systems besides Kuman. The two that differ most relevantly from Kuman have more persons but no number (e.g., Waris) or more thoroughgoing number but fewer persons (e.g., Sanapaná). These falsify the universality of distinctions for plurality and participanthood.

A rich seam of numberless four-person pronoun systems is found in the Waris language group, exemplified by the eponymous Waris (Brown 1990) in table 3. The pronouns show first exclusive, first inclusive, second person, and third, without any number distinctions. In an appendix to his grammar of Imonda, Seiler (1985:210) writes that he has ''collected data on all Waris languages on the Papua New Guinea side of the border with the exception of Amanab''—hence, on Daonda, Imonda, Punda, Simog, Sowanda, and Waris. His discussion and word list strongly imply that all six languages have the same unnumbered four-person system. Anceaux (1965) reports the same system for Nimboran.

The numberless four-person system is not confined to the Waris family. It is also found in Matses (Fleck 2003, if one ignores archaic second person plural forms, as indeed much of Fleck's discussion does). Depending on the analysis one gives to number words (Dryer 1989), one might also include Canela-Krahô (Popjes and Popjes 1986) in this class.

A different four-cell system is found in Sanapaná (Gomes 2013) and other members of the Maskoy family (e.g., Lengua; Sušnik 1977, cited in Adelaar with Muysken 2014). The pronouns

Table 3
Independent pronouns in Waris

1EX	ka
1IN	pi
2	ye
3	he

Table 4

Independent pronouns (left) and possessives (right) in Sanapaná

	Singular	Plural		Singular	Plural
1	ko'o	enenko'o	1	hankok	jankaok
2/3M	hlejap	hlengap	2/3	pankok	pankaok
F	hleja	hlenga			

distinguish first and nonfirst, and singular and nonsingular (and gender), but make no further distinctions as to person (table 4).[2]

Gomes is explicit about the second/third ambiguity to which this leads, stating on separate occasions, for instance, that ''in Sanapaná, only two grammatical persons . . . are identified: 'I' [+1] and 'not I' [−1],'' which ''pattern pervades the whole grammar of the language'' (p. 382). Regarding his translations of examples, Gomes comments that those ''that refer to 'he'/'she' could equally well refer to 'you' . . . [T]he person distinction is defined . . . by context'' (p. 218n6).

Use of the (nonfeminine) pronouns is illustrated below. In the following singular examples, second and third person share the pronoun *hlejap*, as against first person *ko'o*:

(3) Hawe ko'o as- melaja.
    NEG   1SG   1SG-slow
    'I am not slow.'

(4) Ta'asek akjehlna ap- ta- o   hlejap?
    which   fruit   2/3-eat-INT 2SG/3SG
    'Which fruit did you eat?'

(5) Hlejap   metko patakon ap- angok.
    2SG/3SG NEG   money 2/3-POSS
    'He doesn't have money.'

Similarly, in the plural, second and third person share the pronoun *hlengap*, as against first person *enenko'o*.

(6) E-   hl-mame-kama enenko'o.
    DEIC-PL-work- CAUS 1PL
    'We are working.'

(7) Taehlnatemo ap- ke-len-mote-mo na'ak hlengap?
    why   2/3-M- PL- sit-   INT LOC   2PL/3PL
    'Why are you seated?'

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[2] Gomes decomposes the first plural into *e-nen-ko'o* 'DEIC-PL-1'. I abstract away from this here and gloss *ko'o* as '1SG' and *enenko'o* as '1PL'. Nonetheless, it is instructive to compare the pronominal gloss 'DEIC-PL-1' with the first plural verb of (6), as the deictic seemingly displaces person as the controller of agreement: 'DEIC-PL-work-CAUS'.

(8) Taehlnatemo hlengap ap- ke-len-tep- ma?
    why   2PL/3PL 2/3-M- PL- leave-NOM
    'Why did they leave?'[3]

Thus, Waris, Sanapaná, and the other languages mentioned above all challenge the special status that REHAB affords Kuman, showing that there are pronoun systems just as small as Kuman's that yet make different distinctions. In particular, these may eschew the putatively universal contrasts of plural-nonplural and participant-nonparticipant.

3.2 Not the Smallest System

A further challenge to the claimed universality of speaker, participant, and number distinctions comes from systems with fewer than four cells. Like Waris, these systems lack number; however, they are populated by fewer persons. Of these (section 3.2.1), some distinguish three persons, among which there are two subtypes: those that lexicalize all cells, like Jarawa, and those defective for third person, like Kiowa. Even more radically (section 3.2.2), some (extremely rare) systems, like Damin and Winnebago, distinguish just two persons. And, most radically of all (section 3.2.3), some languages, like Wichita, have been argued to eschew pronoun systems altogether. Among them, these falsify all three of REHAB's universal properties. (As a counterexample, Wichita is more theory-dependent than the others; it is included primarily for empirical completeness and to facilitate comparison between my account and REHAB as concerns parametric variation.)

3.2.1 Three-Cell Systems
A straightforward case of a numberless three-person system is that of Jarawa (Kumar 2012). Its pronouns are shown in table 5 (allomorphs omitted). Kumar states explicitly that these pronouns are numberless and cover both singular and plural persons. An example of the resultant range of meanings is given below, for first and second person possessives (which use allomorphs with *a* for *i*). Observe that *ŋa* in (9) has the same meanings, numberwise, as English 'your', and that *ma* in (10) covers both 'my' and 'our'.

(9) Ka ŋa-kaja   pečame?
    INT 2- mother die
    'Has your mother died?'

(10) Je: ma-kaja   pečame.
     yes 1- mother die
     'Yes, my/our mother has died.'

Table 5
Independent pronouns in Jarawa

1	mi
2	ŋi
3	əhi

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[3] Correcting *le-ntep* to *len-tep* 'PL-leave', based on other examples in Gomes 2013, including (28).

A similarly number-neutral example for third person is (11).

(11) Əhi-təhə.
    3-   sit.HUM
    'He/She sits./They sit.'

Kumar notes in particular that the following sentence occurred in his corpus of natural speech with both singular and plural readings:

(12) Mi bəɽtʰe-jə.
    1   go-   EVID
    'I/We are going.'

An identical system is found in the prestige dialect of Javanese (Yogyakarta, Surakarta; Robson 2002). Mühlhäusler and Harré (1990) further exemplify it with the early stages of two pidgins that only later went on to develop number marking: Panare Indians' pidgin Spanish (Riley 1952) and Samoan Plantation pidgin English (Mühlhäusler 1987).[4]

Kiowa (Watkins 1984), among other languages, presents a truncated system of three persons without number. That is, overtly, it presents just two pronouns, first person *náw* and second person *ám*, lacking third (table 6). Typologically, absence of third person pronouns is not unusual; many richer systems are similarly truncated. For instance, Sabanê (de Araujo 2004) has the Kuman system without third person; more generally, see Bhat 2004. As is typical, Kiowa deploys demonstratives to catch the slack: proximal *éyde/éygau* 'this, these' and distal *óyde/óygau* 'that, those' (piggybacking the number distinction for common nouns).

A particularly elegant example is (13), in which *náw* occurs twice, first as first singular, then later as plural.[5] The agreement prefixes on the subsequent verbs identify the intended number in each case (singular *a*, inclusive nonsingular *ba*).

Table 6
Independent pronouns in Kiowa

1	náw
2	ám
3	——

[4] Readers familiar with this typological domain might expect mention here of Classical Chinese, Kawi (Old Javanese), Pirahã, and Qawasqar/Kawésqar, based, respectively, on Norman 1988, Becker and Oka 1974, Everett 1986, and Clairis 1985. All are discussed and further referenced in Harbour 2014b. Despite some currency in the typological literature, Classical Chinese and Qawasqar/Kawésqar are probably more complex than three-cell systems, though I hesitate to quantify by how much. Kawi constitutes a further four-cell system, distinct from those mentioned above, but one only mildly at odds with (a)–(c): it has three persons, as per (a)–(b), with, in first person only, a singular-neutral distinction (i.e., singular vs. singular-plus-plural, not, as per (c), singular vs. plural). Finally, from the available data, Pirahã seems to me to present the same system as Jarawa; but further naturalistic examples are needed to settle the matter objectively.
[5] Kiowa examples come from Dr. Parker McKenzie's correspondence, which Laurel Watkins glossed and translated as part of her National Science Foundation grant SBR 9109866. I have made slight changes to glossing and orthography.

(13) Náw an a- áwdep éygau émhaw Káuigú ba- kíi- yáu- gau máun náw
    1   HAB 1SG-think.IMPF now here Kiowas 1IN.PL-live-DISTR-NOM probably 1
    A̲wzá-t'a̲w- hop   ba- dáw . . .
    udder-angry-travelers 1IN.PL-are
    'I think that we Kiowas who live around here, we are probably the ones who traveled
    off, angry over the udders . . . '

Similarly, *ám* ranges over second persons of any number, as the agreement prefixes, singular *em*
in (14) and plural *bá*-with-low-tone-verb in (15), make apparent.

(14) Yál háu náw ám em- dáw, ha̲w?
    wish INT 1   2 2SG-be   eh
    'Don't you wish you were me?'

(15) Poi dôi-binde ám bá-   haab- ii-   taw.
    PROH too-greatly 2 2PL:3SG-smoke-IMPF.IRR-FUT
    'Don't you be smoking too much.'

With only two overt forms, one might be tempted to regard these as two-celled systems.
But then one would incorrectly expect one pronoun to cover both, say, second and third person.
Rather, the correct view of Kiowa is that it distinguishes three persons, but lexicalizes only two.

Further examples of truncated three-person systems without number are found in Salt-Yui
(Irwin 1974) and some nonprestige (Central, Cirebon) dialects of Javanese (Thomas Conners,
pers. comm., Ewing 2005).

Jointly, the Jarawa and Kiowa systems show, like Waris, that number distinctions are not
universal in pronouns.

3.2.2 Two-Cell Systems   Just as there are three-person systems both with and without number,
so, corresponding to two-person systems with number (Sanapaná), there are two-person systems
without. These come in two kinds, one falsifying the universality of a participant-based distinction,
the other, that of an author-based one.

First, some systems distinguish only speaker from nonspeaker. One is Damin, in which *n!aa*
covers all first persons, and *n!uu* all other persons (Dixon 1976, Hale and Nash 1997; table 7).
Admittedly, this is a somewhat special case, as Damin is a ritual language with a very pared-
down lexical vocabulary. However, elsewhere in its grammar, Damin mirrors Lardil, the standard
language of the community. Therefore, there is little reason to doubt its acquirability as a first
language and, hence, its relevance to theories of possible languages.

Table 7
Independent pronouns in Damin

1	n!aa
2/3	n!uu

Table 8
Independent pronouns in Winnebago

1/2	ne
3	e

A different two-cell system is found in Winnebago (a.k.a. Hocąk; Lipkind 1945; see also Noyer 1992, citing personal communication from Ken Hale, and, most comprehensively, Hartmann and Marschke 2010, Helmbrecht and Lehmann 2010). It differentiates the participants, that is, first and second person, *ne*, from third, *e* (table 8). Examples from Lipkind (my glossing, with slight changes to his very phonetic orthography) show that *ne* covers (16)–(17) exclusive, (18) inclusive, and (19) second person, and ranges in number between (16) minimal and (17) augmented, these categories all being indicated by affixes on the verb.[6]

(16) Ne wĭ- ře.
 1/2 1ExO-be
 'It is me.'

(17) Ne- śən ha- ji- wi.
 1/2-only 1ExS-come-AUG
 'We only came.'

(18) Ne waŋg-êre.
 1/2 1INO- be
 'It is you.SG and I.'

(19) Ne nĭ- ře.
 1/2 2O-be
 'It is you.SG.'

Similarly, though *e* covers only third person, it too ranges in number over (20) minimal and (21) augmented.

(20) E re.
 3 be
 'It is him.'

(21) E-źə̃ ra-irê- kjəne.
 3-INDEF go-3AUG-FUT
 'One of them will go.'

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[6] The meaning of the number categories *minimal* and *augmented* is not crucial here. See section 4.2 for definition and examples.

Jointly, Damin and Winnebago show, again, that number distinctions are not necessary to pronoun systems. Moreover, Damin, like Sanapaná, shows that the participant-nonparticipant distinction is not universal, and Winnebago demonstrates, uniquely, that the author-nonauthor distinction, too, is dispensable.

3.2.3 Null Systems The smallest a pronoun system can be is empty. It is debatable whether null systems nullify the statement that ''even the most minimal pronominal systems in the world have at least forms distinguishing between (a) speaker and nonspeaker, (b) participant and nonpartici-pant, and (c) plural and nonplural.'' However, in the interest of typological completeness, and to facilitate comparison between my theory of feature parameters and those of REHAB, I briefly illustrate that such languages have been argued to exist, in two distinct fashions.

First, pronominal meanings may be borne by nonnominals (or nonsimplex nominals), like clauses. Rood (1976) analyzes Wichita in precisely this way:

> Wichita has no monomorphemic citation forms for pronouns. Translations for English personal pro-nouns are personally inflected participles for the verb 'be': *nacʔih* 'I', *nasʔih* 'you sg.', *hirasʔarih* 'you dual', *nasá:kʔih* 'you pl.', etc. The demonstrative *há:riʔ* 'that' or 'those' is used for third person forms.

Given Rood's discussion, I think the following glosses are reasonably accurate (though the mor-phosemantics of number is more intricate than implied here):

(22) na- c-ʔi- h
     PART-1-be-SUB
     'I'

(23) na- s-ʔi- h
     PART-2-be-SUB
     'you.SG'

(24) hi- ra- s-ʔar-ʔi- h
     NSG-PART-2-DL- be-SUB
     'you.DL'

(25) na- s-á:k-ʔi-h
     PART-2-PL-be- SUB
     'you.PL'

Second, in place of pronouns, languages may use epithets, like 'sibling', 'servant', or 'body'. The phenomenon is particularly common in Southeast Asia (see, e.g., Cooke 1968 and, in a related vein, Gil 2001). Indeed (David Gil, pers. comm.), many registers of Malay/Indonesian eschew normatively sanctioned pronouns entirely, employing only epithets instead. If a register is consid-ered to be a complete I-language, then these constitute cases of languages without pronouns.

3.3 Summary

The world's languages therefore present the following range of counterexamples to REHAB's three empirical claims:

(26) a. Some do not have pronoun systems distinguishing first person from others (Wichita, Winnebago).

   b. Some do not have pronoun systems distinguishing participants from others (Damin, Sanapaná, Wichita).

   c. Some do not have pronoun systems distinguishing plural from singular (Damin, Jarawa, Kiowa, Waris, Wichita, Winnebago).

Of these, Kiowa and Winnebago are discussed in Noyer 1992; Winnebago, in Corbett 2000; and the aforementioned plus Wichita, in Harley and Ritter 2002a. All three studies are cited in REHAB, yet none of the counterexamples they adumbrate is mentioned.[7] On the contrary, the erroneous statement that Kuman represents the smallest attested pronoun system cites Corbett 2000 and Harley and Ritter 2002a, even though Harley and Ritter do not discuss any language of the Kuman type.[8]

All in all, REHAB's generalization about small pronominal systems is questionable at several levels. However, as we will see in the next section, the range of variation in small systems is almost exactly what is predicted if any choice of person features is a legitimate person system, and similarly for all choices of number features.

4 What {±author, ±participant, ±atomic} Isn't

Let us turn to the feature theory underlying the typological facts. As explained in section 2, REHAB deduces, from Kuman, that all pronoun systems use at least three features: ±author, ±participant, and ±atomic. This is wrong in two ways. First, given section 3, none of these three features is obligatory (section 4.1). Second, some richer pronoun systems also use three features, but not those just mentioned. So, there is a methodological fallacy in REHAB's use of Kuman (section 4.2).

4.1 Not the Smallest Feature System

The first of these errors is the clearer, as one can simply rephrase (26) and its statements about distinctions (e.g., first vs. nonfirst) as (27), in terms of features (e.g., ±author).

(27) a. Some pronoun systems eschew ±author (Wichita, Winnebago).
   b. Some eschew ±participant (Damin, Sanapaná, Wichita).
   c. Some eschew ±atomic (Damin, Jarawa, Kiowa, Waris, Wichita, Winnebago).

In other words, most proper subsets of the putatively minimal set {±author, ±participant, ±atomic} are attested as pronoun systems, as laid out in table 9. (The table assumes the theory of person

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[7] Other potential counterexamples from these works include Classical Chinese, Kawi, Pirahã, and Qawasqar/Kawésqar. See footnote 4.

[8] The closest they come is to footnote (p. 504) that they do not discuss Berik (Westrum and Wiesemann 1986; contra Harley and Ritter 2002b), which, it turns out, is of the Kuman type, if one follows the references.

Table 9

Typology of poor pronoun systems

Feature set	Pronominal contrasts	Language
{ }		Wichita
{±author}	1|23	Damin
{±participant}	12|3	Winnebago
{±author, ±participant}	1|2|3	Jarawa, Kiowa
{±author, ±participant}	1EX|1IN|2|3	Waris
{±author, ±atomic}	1|23 × SG|PL	Sanapaná

features in Harbour 2016, which derives (absence of) clusivity from the order of composition of ±author and ±participant, without recourse to a third person feature.)

The two unattested cases are {±atomic} and {±participant, ±atomic}. The first generates a personless but numbered (singular-plural) pronoun system. Its nonattestation is hardly surprising if personal pronouns are fundamentally about persons. The second system would be Winnebago with a number contrast. Again, nonattestation is untroubling, given that there are very heavy conditional probabilities against ±participant as the sole person feature for pronouns (Winnebago is so far the unique exception) and against a number contrast with a sole person feature (Sanapaná and its relatives are as yet the unique family of exceptions).

The missing feature systems are instantiated for object, rather than person, deixis (see Harbour 2016 for detailed discussion of the parallels between these). In Bulgarian, for instance, singular/ plural (feminine) objects in the participants' vicinity are referred to by *tazi*/*onazi* and those beyond their vicinity, by *tezi*/*onezi*. The system thus distinguishes ±participant and ±atomic, but not ±author. And in many varieties of German, object deixis distinguishes number without reference to speaker or participant at all: *der*/*die*, for instance, refer to singular/plural (masculine) objects irrespective of vicinity. Featurally, this distinguishes just ±atomic and eschews person features.

With these provisos in place, REHAB's counterexamples are all but combinatorially perfect. Its three features yield seven proper subsets. One of these (the one with two person features) generates two different systems, depending on order of semantic composition (Harbour 2016). Of the resulting eight possibilities, six are attested as pronoun systems, and all eight are attested as systems of object deixis. This range of variation, though troubling for REHAB, fits perfectly with the view of features as parameters that may be activated or deactivated with mutual independence (Harbour 2011a, 2014a, 2016). Thus, the real facts find a comfortable home within generative theory.

4.2 Not a Valid Deduction

Implicit in REHAB's use of Kuman is the notion that, if the smallest pronoun system uses some feature set, then every larger system will use that set too. This is a fallacy and (section 5) one that undercuts the predictive power of REHAB.

Table 10
Independent pronouns in Wandala (left) and Hdi (right)

	Singular	Plural		Minimal	Augmented
1EX	íyyà	ŋrè	1EX	íí	áŋní
1IN		míyà	1IN	úú	ámú
2	əkká	kùré	2	kághá	kághúní
3	ŋánè	ítàrè	3	tsátsí	xáxən

Consider, first, clusivity. Since at least Silverstein 1976 (see also Noyer 1992), representations of clusive systems have been available that use just two person features, ±author and ±hearer. This allows a clusive singular-plural system like that of Wandala (Frajzyngier 2012; table 10, left) to be described using {±author, ±hearer, ±atomic}. In consequence, Wandala makes the distinctions that REHAB takes to be universal—(a) author-nonauthor, (b) participant-nonparticipant, (c) singular-nonsingular—while eschewing one of the features posited for Kuman (±participant). So, parity with regard to (a)–(c) does not entail parity of features. This undermines the deduction of a feature set common to all pronominal systems.

Naturally, the featural difference between Kuman and Wandala depends on one's theory of features. Some accounts of person do not posit different features for clusive and nonclusive systems, but locate the difference elsewhere (in a parametric ban on one feature-value pair, Halle 1997; in an allosemic definition of one feature, Frampton 2002; in the order of feature composition, Harbour 2016). So, the difference between Kuman and Wandala can be viewed as featurally immaterial and, thus, unproblematic for REHAB.

Differences in number systems are not so readily reanalyzed, however. A fundamental distinction in this domain, first explicitly described by Thomas (1955) for Ilocano, is that between atomicity and minimality (in updated terminology). The distinction is most obvious in how clusive systems treat the speaker-hearer dyad. Wandala, using ±atomic, exhibits a singular-plural distinction. So, the speaker-hearer dyad is classed with all other inclusives, as all are nonatomic. This yields a seven-cell system with the inclusive singular cell empty (table 10, left).

Hdi (Frajzyngier 2001), by contrast, uses ±minimal, resulting in a minimal-augmented system. Like singular-plural, this distinguishes, for instance, speaker from speaker-plus-others (exclusive minimal vs. exclusive augmented) and hearer from hearer-plus-others (second person minimal vs. second person augmented). However, it also distinguishes the smallest inclusive from larger ones—hence, the speaker-hearer dyad from dyad-plus-others (inclusive minimal vs. inclusive augmented). This yields an eight-cell system (table 10, right).

Hdi, then, is a three-feature system that differs from both Kuman and Wandala with respect to its number feature: ±minimal, not ±atomic. Harley and Ritter's (2002a) account is the only prominent theory I am aware of that does not distinguish singular-plural and minimal-augmented systems at the featural level (both use [minimal] for the smaller number and [group] for the larger). However, their account does not deal with the full typology of number systems, and, as I argue in Harbour 2014a, this attempt at parsimony precipitates problems when faced with a

wider empirical range. Instead, the facts require atomicity and minimality to be distinct features, not allosemes of a single broad concept. Thus, the featural difference between Hdi and Kuman/Wandala is irreducible.

In sum, REHAB must relinquish its core contention that Kuman, or any other putatively poorest inventory, can reveal a feature set universal to all pronoun systems. Depending on the features one adopts, clusive and/or minimal-augmented systems may both use features that Kuman does not. Even if REHAB were to substitute one of the smaller feature systems of table 9 for Kuman, the claimed universality still would not hold, as several are pairwise disjoint (Sanapaná {±author, ±atomic} and Winnebago {±participant}, let alone Wichita { }, for instance). Thus, the methodology of moving from a particular poor pronoun system to a putatively universal feature set is flawed.

5 Consequences and Conclusions

How might one rehabilitate REHAB's statement of the Rich Agreement Hypothesis while avoiding the Kuman fallacy? And what lessons can we draw from the foregoing?

The most obvious remedy for the problematic definition of rich agreement in (1) is to replace implicit reference to Kuman with explicit reference to whatever ''the smallest . . . pronoun inventories universally possible'' is. Given that this is intended simply as an intensional means of specifying three particular features, one could rephrase (1) extensionally, as (28).

(28) *Rich Agreement* (extensional version)
    Subject agreement is rich if and only if it involves at least {±author, ±participant, ±atomic}.

However, two problems are immediately evident. First, a list is just a list. Without grounding in a putative universal (as REHAB sensibly attempts), we have no reason to accept that the special properties of being argumental, autocephalic, and movement-triggering should inhere only in sets that contain at least these features rather than others. Second, given section 4.2, (28) entails that one never finds movement-triggering agreement in languages with clusivity or with minimal-augmented–based number systems rather than singular-plural–based ones (depending on one's theory of features). Both these problems converge on the same issue: it is dubious that, say, ±atomic and ±minimal should affect syntax in such different ways.

A different redefinition is less problematic. What is striking for someone of pronominal and typological bent in REHAB is how statistically mainstream all its languages are: much Germanic, some Romance, bits of Celtic and Slavic. All have the same pronoun system: first, second, and third with singular and plural number. Hence, REHAB's use of Kuman and universal minima is simply intended to pick out the feature set that is important for the languages it is concerned with. A straightforward solution, then, is to relativize richness to the feature inventory of the pronoun system of the languages at stake.

(29) *Relativized Richness*
    Subject agreement is rich in L if and only if it uses at least the features of the (subject) pronoun system in L.

I do not myself endorse or advocate this view, and suspect it may still prove problematic. I observe merely that it leaves the bulk of REHAB (viz., its analysis of sundry Germanic, Romance, Celtic, Slavic languages) intact and permits productive investigation of the revised Rich Agreement Hypothesis in languages beyond Europe, a step that REHAB appears to promise.

Given what a quick fix this is, this article may seem rather nit-picky. But I deny this. First, it is imperative for the field to take systematic heed of the true state of variation in the world's languages. Second, if it is to be crosslinguistically viable, an attempt at rehabilitating the Rich Agreement Hypothesis must take heed of the facts and reformulations considered here. Third, the languages examined above, nearly all of them socially marginal and endangered, do have something fundamental to teach us about the nature of feature systems. In a variety of work (Harbour 2011a, 2014a, 2016), I have argued against the idea of dependencies between features (of the type proposed most notably in Harley and Ritter 2002a). Instead, I have urged a combinatorial freedom according to which any choice of person features and any choice of number features is grammatically legitimate. This entails that the range of counterexamples to REHAB's claimed minimal system, {±author, ±participant, ±atomic}, is exactly what we would hope to find: every subset of these features is attested as a deictic system, and almost all of them as systems of person deixis. This tells us that freedom from geometric constraints and the definitions of person and number features that make this possible are, in all likelihood, fundamentally correct.

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