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NUMBER IN BIAK: COUNTEREVIDENCE TO TWO ALLEGED LANGUAGE UNIVERSALS*

The aim of this paper is to present a survey of the ways in which number is indicated in the morphology and syntax of a specific Biak dialect. This survey is preceded by some introductory remarks on the sociolinguistic and geographic setting, a discussion of the phonology of the dialect in question and an introduction to the role of number and gender in its grammar. The paper concludes with an exposition of the consequences of the Biak data for the theory of language universals.

The data for this paper were collected during regular "fieldwork" sessions at Leiden University, where my informant, Drs. Johsz Mansoben from the village of Sorendiu'eri**, was doing a post-graduate programme in cultural anthropology, in the course of 1984. I am very grateful to him for his cooperation, enthusiasm and valuable suggestions, without which this paper could not have been written. Needless to say, any errors in the presentation and interpretation of the data are completely my own responsibility.

1. The setting

Biak, which belongs to the South Halmahera – West New Guinea subgroup of the Austronesian language family (cf. Blust 1978), is spoken in various dialects on the former Schouten Islands (i.e. Biak and Supiori), on Nu(m)for and the surrounding islands, on West and Central

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** For typographical reasons an apostrophe has been used to indicate that the following vowel is stressed.

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Miosnum, in several settlements on the coast of Yapen, in and around the town of Manokwari, along the North coast of the Bird's Head Peninsula of Irian Jaya, namely between Manokwari and Sorong, on the small islands north of the Bird's Head Peninsula, on East Waigeo, West and Central Batanta and on the smaller islands west of the latter (see Wurm and Hattori 1982, maps 2 and 45¹).

Furthermore, there are many Biak-speakers in Jayapura and smaller groups in several, if not many, of the other major cities of Indonesia.

The sociolinguistic situation on Biak and Supiori, where the Sau'i'as [sawi'as] dialect, which is the subject of the present description, is spoken, is characterized by the presence of:

- (1) local dialects (see map 1 at the end of this paper);
- (2) a standardized form of Biak, which seems to be most similar to the dialect of Korido, for a long time the only place on the Schouten Islands to have a medical centre and a secondary school with a three-year curriculum as a follow-up to the three-year preparatory education of the common village schools; this standard variety was allegedly used in school readers like *Surat Wasja* (by B. D. Starrenburg and D. C. A. Bout), in the later newspaper *Fanin* ("Mirror")², and recently in local broadcasting;
- (3) the language of the Christian religious booklets produced by F. J. F. van Hasselt which used to be read at schools and religious gatherings, and which were based on "the" or "a" Nu(m)for dialect;
- (4) Malay in variants common to East Indonesia (having been introduced through long-standing (slave) trade relations with Ternate and Tidore, and later through the medium of Ambonese and Sangirese but also Dutch teachers and preachers (cf. Kamma 1977, p. 721ff., and F. J. F. van Hasselt 1922, p. 51));
- (5) Official Indonesian as it has been taught in schools and used in official communication since the early sixties, when Irian Jaya became part of the Indonesian Republic. As elsewhere in Indonesia, Malay/Indonesian seems to be gaining ground at the expense of the local vernaculars. Because Biak had become a focal point of colonial activities in the course of this century, it consequently has a certain tradition of Malaicization, especially in and around the town of Biak. Those Biak-speakers who have left the Biak-speaking communities and are living in relatively small concentrations elsewhere tend to gradually lose their active command of their mother tongue.

The number of Biak-speakers today is difficult to estimate. Wurm and Hattori 1982 (map 2, reverse) mention a total of 40,000, a figure which is derived from Kamma (1954, p. 10) and which was already an estimate at the time the latter collected his data.

I do not have much data on dialect variation in the area. Wurm and Hattori only distinguish Biak proper and Nufor, but their maps 2 and 45

give contradictory information (Waigeo Biak according to map 2 belongs to the Nufor dialect and according to map 45 to the Biak dialect).

J. L. and F. J. F. van Hasselt, in their Numfor dictionary of 1947, compare their entries with forms from several other dialects and languages in the area; in general, however, they do not differentiate between the dialects of Biak and Supiori but deal with them collectively. As they do not list any sentences in their entries, it is impossible to check whether the dialectal differences extend beyond the phonological and lexical fields.

Soeparno, in his research report of 1983 (p. 4), mentions the dialects of Numfor, Tepin, Bosnik, Korem, Manwor, Samber, Sopen, Urembori, "and the like", but does not give more specific information beyond the general observation that the differences between these dialects are confined to a small number of lexemes and to different pronunciations of certain phonemes. However, as his own description shows, the demonstratives of Nu(m)for are morphologically considerably different from those of his unspecified "other Biak dialects" (Soeparno 1983:58-64).

Kamma (1972:8) distinguishes "nine dialect groups in the Schouten Islands and Numfor, and three in the immigration areas Roon, Dore, and West Waigeo". What dialects these are is not, however, specified.

The Sau'i'as dialect described below is spoken on both sides of the Straits of Sorendidori (see map 1). It is the mother tongue of my informant, who has a thorough knowledge of Biak society and who has travelled extensively all over the Biak-speaking area as well as in the surrounding regions. He distinguishes ten dialects on the Schouten Islands alone; the dialect boundaries indicated in map 1 are based on his observations. Confirmation of these boundaries, however, has to await further investigation.

2. Phonology

The phonemic system of the Sau'i'as dialect (henceforth referred to simply as Biak) is as set out below. In the description of the phonemes I shall give illustrations of their distribution, and – if necessary – add comments; at the end of the list of phonemes some minimal pairs will be given.

- /p/ voiceless bilabial stop;
 - /p'ipi/ "money"
 - /bes'op/ "you (sg.) kick forwards"
 - /i-arf'epn u'e-m-si/ "I stepped on your (sg.) foot".³
- /b/ voiced bilabial stop;
 - /ben/ "pig"
 - /n-beb'ei/ "they (inanim. pl.) are empty"
 - /si-br'as/ "they (anim. pl.) shout"
 - /d-emb'u?/ "he/she/it crawls".

- I have not found any example of a word-final /b/.
- /f/ voiceless bilabial fricative;
 /i-en'ef/ "I sleep"
 /sʔ-'enef/ "the three of them sleep"
 /afs'or/ "stones on which food is cooked"
 /fas/ "rice"
 /d-eid'ofn u'e-m-si/ "he/she/it stepped over your (sg.) leg".
- /v/ voiced bilabial fricative;
 this phoneme has not been recognized in any of the previous studies on Nu(m)for or Biak (see the bibliography). Its existence explains, however, the alternative spelling of Biak as Wiak in older sources (such as the *Encyclopaedie van Nederlandsch-Indië*). It may also be the explanation of J. L. van Hasselt's observation that "the pronunciation of *b* sometimes alternates with . . . *w* . . . This alternation is completely random".⁴ Cf. also F. J. F. van Hasselt: "*b* approaches in its pronunciation the *w*, with which it is sometimes interchanged . . . Many words which have *b* in Nufor, have *w* in . . . Biak".⁵ Examples:
 /v-i-av'ov/ "he/she is a trader"
 /s-vov/ "they (anim. pl.) sell"
 /v'iaʔ/ "Biak".
- /d/ voiced alveolar stop;
 /d-os/ "he/she/it lashes (with a cane, e.g.)"
 /su-d'oʔ/ "the two of them are wet".
 There seem to be no examples of word-final /d/.
- /s/ voiceless alveolar fricative;
 /s-ros/ "they (anim. pl.) kick backwards"
 /s-vesʔop/ "they (anim. pl.) kick forwards"
 /sʔo-s'api/ "the three of them fell".
- /m/ (voiced) bilabial nasal;
 /mʔ-'amom/ "you (pl.) are farmers"
 /mʔ-om/ "you (pl.) clear the jungle to make a garden"
 /mu-u'e-m-sna/ "the legs of the two of you"
 /u'ar ei-'inm na/ "the sources (pl.) of drinking water"
 /snep'um-si/ "my/his/her/its navel"
 /snep'um-m-si/ "your (sg.) navel", [m:].
- /n/ (voiced) alveolar nasal;
 /nu-mn'af/ "the two of us (excl.) hear"
 /n-ʔon/ "they (inanim. pl.) sit"
 /ia-mar'isn i-en'ef/ "I love to sleep" (literally "I love I sleep").
- /ʔ/ glottal stop;⁶
 /ʔu-r'ʔoʔ/ "the two of us (incl.) make a noise"
 /i-ʔi/ "he/she/it is floating"
 /i-du'arʔ ʔo-ʔon di/ "he/she forbids us (incl.) to sit"
 /ʔraf/ "meat, pork".

/r/ (voiced) alveolar trill;

/n-rir'es/ "they (inanim. pl.) dry (intr.) in the sun"

/r-i-'irs/ "he/she/it dries (trans.) in the sun".

/r, m, n/ can be syllabic: /e-pi'opr na/ "(those) which (inanim. pl.) are white", /n-bab'o/ "they (inanim. pl.) are new", /i-'enm pi'um/ "he/she/it lives well".

Morpheme sequences can result in geminate consonants (phonetically long), viz. /mm, nn, ss/.

Sounds such as [t, k, g, h, l] may occur in loan-words, but their status is uncertain enough not to include these sounds here as separate phonemes. The vowel phonemes are:

/a/ low-central unrounded vowel;

/ia-ram'a/ "I come"

/an-'an/ "food".

/e/ mid-front unrounded vowel;

/i-'en'em/ "he/she/it is alive"

/ʔan-'en'em/ "life"

/ei-'ove/ "(he/she) who allows, (those) who allow".

/o/ mid-back rounded vowel;

/ʔoso/ "car"

/mʔo-'ʔon/ "you (pl.) sit".

/i/ high-front unrounded vowel, or palatal glide (dependent on its position). In the literature this phoneme is written as *y* (or *j* in older sources) or as *i*, sometimes randomly.

/u/ high-back rounded vowel, or bilabial velar glide (dependent on its position). This phoneme is traditionally written as either *u* (or *oe* in older sources) or *w* – again randomly in some positions.

The following rules determine the realization of /i/ and /u/:

1. Between consonants and/or word boundaries and in all positions where they are stressed they are vocalic.
2. In intervocalic position they are consonantal, but if a sequence of /u/ and /i/ is intervocalic, it is /u/ that becomes consonantal, while /i/ tends to be (more) vocalic.
3. Word-initially they are vocalic if followed by an intervocalic /i/ or /u/, otherwise they are consonantal.
4. In relatively slow speech, the pronunciation is vocalic in the positions V—C and V—#; in faster speech, the pronunciation may again become more consonantal; before a pause the speech tempo tends to slow down.
5. In the position C—V the pronunciation seems to be dependent on the quality of the consonant: /i/ tends to be vocalic after /ʔ, p, f, v, r/, and more consonantal after /m, s/; /i/ after /d, n/ either is consonantal or may even merge with the preceding consonant, resulting in a palatal stop or nasal. /u/, on the other hand, tends to be vocalic after /ʔ, r/ and more consonantal after /s, d, n, m/; I have found no instances of /u/ after /p, b, v, f/.

A final analysis of the phonology will only be possible after a complete survey of the morphology, so that the position of phonemes may be formulated in terms of morpheme boundaries as well.⁷

Some minimal pairs are:

/u/ [w] ~ /b/ ~ /f/ ~ /i/ [y] ~ /d/ ~ /r/ ~ /ʔ/ ~ /s/ ~ /n/:

/u'os/ "language, word", /bos/ "bundle", /fos/ "section in a prow between outrigger arms", /i'os/ "I lash (with a cane, e.g.)", /d-os/ "he/she/it lashes", /ros/ "coral", /ʔ-os/ "we (incl. pl.) lash", /s-os/ "they (anim. pl.) lash", /n-os/ "they (inanim. pl.) lash (e.g. of trees, with their twigs)";

/m/ ~ /n/:

/mor/ "seed, grain, stone (of a fruit)", /nor/ "hard core of the stem of iron wood";

/p/ ~ /v/:

/ia-p'os/ "I pull up", /ia-v'os/ "I squeeze between my nails";

/u/ [w] ~ /b/ ~ /v/:

/si-u'or/ "they (anim. pl.) sing (a traditional song)", /si-b'or/ "they (anim. pl.) are many", /si-v'or/ "they (anim. pl.) spread out (/i'ar/ "mat")";

/p/ ~ /f/:

/ia-p'ar/ "I wind (a rope)", /ia-f'ar/ "I tell";

/v/ ~ /f/:

/rov/ "night", /rof/ "fathom";

/ʔ/ ~ Ø:

/ʔu'ar/ "already", /u'ar/ 1. "water", 2. "eight";

/a/ ~ /e/ ~ /u/:

/ma/ "and", /me/ "mother's brother", /mu/ "the two of you";

/a/ ~ /i/ ~ /o/ ~ /u/:

/ram/ "leaf", /rim/ "five", /rom/ "kind of sea grass" /rum/ "house";

/e/ ~ /i/ ~ /o/:

/ben/ "pig", /bin/ "woman", /bon/ "fruit".

Stress in Biak is free and phonemic: /ir'ian/ "Irian", /i-ri'an/ 1. "he/she/it sifts", 2. "it is steaming hot"; /i-'apar/ "I wear a loincloth", /ia-p'ar/ "I wind (a rope)".

In syntactic constructions as yet unpredictable stress shifts are frequent; they seem to be conditioned by the presence of particles and phonotactics; further research is necessary.

3. Number and gender

One of the most pervasive phenomena of Biak grammar is the elaborate indication of number: a singular, dual, trial⁸ and plural are distinguished. Number is marked in the predicate, where it refers to the number of the subject; in addition most noun phrases must be so marked.

Nouns in Biak are divided into six subclasses, which are relevant on the morpho-syntactic level:

- A. inalienable nouns, subdivided into animate and inanimate nouns;
- B. alienable nouns, subdivided into mass nouns and other nouns, both of which subclasses again are subdivided into animate and inanimate nouns.

There may be some vestiges or first rudiments of a feminine-masculine-neuter gender distinction – at least that is what J. L. and F. J. F. van Hasselt seem to imply in their dictionary where they remark that compounds beginning with *in* and *man* often refer to women and men respectively, but also to entities with female or male qualities. To this the authors add that “this suggests that a feminine/female element was seen in *in* ‘fish’ and a masculine/male element in *man* ‘bird’, while in a ‘tree, wood’ an element which is reminiscent of our ‘neuter’ was discerned”.⁹ However, in the first place this is speculative; in the second place these observations have explanatory relevance for only a very small number of compounds; and above all, they are only relevant on the level of word formation: the opposition does not have any consequences for the morpho-syntactic phenomena that will be discussed in this paper.

The arguments for the division of Biak nouns into the six subclasses that *are* morpho-syntactically relevant are as follows. The inalienables are distinguished from the other subclasses by the obligatory presence of a possessive marker; these markers may either be purely analytic, in the form of possessive pronouns, or they may be manifested in complicated morphological oppositions, an illustration of which will be given below (see section 4).

The two subclasses into which the alienable nouns are divided are distinguished by the fact that the mass nouns have limited possibilities of being combined with number markers, whereas the nouns of the other subclasses combine freely with all of them.

Finally, the animate-inanimate subdivision of each of these classes is based on the form of the plural markers: these are the affixes /na/ or /n/ for the inanimate subclasses and /si/ or /s/ for the animate subclasses; as independent words or enclitics these markers are /na/ and /si/, /sa/ or /sia/ respectively.

The existence of this latter subdivision was recognized by F. J. F. van Hasselt for Nu(m)for. This dialect and/or his description of it differed, however, from the Sauí’as facts in two respects. Firstly, Van Hasselt formulated the distribution of the /na/ and /si/ plural markers in absolute terms: “All that is animate, human and animal, requires this *si*, whereas inanimate objects require *na*”.¹⁰ For Sauí’as the second part of this statement is not true: nouns referring to human beings or animals do indeed require /si/ or its variants, but so do nouns referring to most low-growing plants, citrus fruits (in contrast to other fruits), grass, sea-anemones, breasts, money, intestines and stars. For the sake of convenience I retain the labels “animate” and “inanimate”, but it should be realized that they define purely grammatical classes, and only in-

directly – i.e. through these grammatical classes – also classes of real-life phenomena. Secondly, Van Hasselt (1905:37) maintained that for Nu(m)for this grammatical gender distinction was also apparent in the singular, in particular in the possessive pronouns, where those for plural possession, ending in *-si* and *-na* (for animate and inanimate possession respectively), were paralleled by two paradigms for singular possession (dual and trial possession are not mentioned), i.e. one with the ending *-di*, the other with *-da*. Van Hasselt's explanation of the difference was that the plural and singular paradigms ending in *-si* and *-di* pertained to people and animals and those ending in *-na* and *-da* to "lifeless objects". Curiously enough, in the illustrations of this distribution Van Hasselt failed to give any example of a singular *-da* construction. A cursory glance through his translation of *The Acts of the Apostles* (1932) reveals, however, that this use of the different singular forms is, with a single exception, in accordance with his description in this respect.

However that may be, in Sau'as it is only the plural markers in which the above-mentioned gender distinction is made. And the same seems to be true in the variety of Biak described by Soeparno (1983).

A similar phenomenon can be observed, moreover, in a language related to Biak, Wandamen. According to the grammatical notes in Ramar *et al.* (1983:29-31, 34-35), Wandamen distinguishes a "human" and a "non-human" category in the personal and possessive pronouns and in the subject indicators in the verb, though only for the third person plural and perhaps trial, not the singular and dual.¹¹

4. Morphology

In this section I shall only discuss inflection. Biak has a comparatively rich derivational morphology; especially the variety of reduplication techniques is striking (for a survey cf. Soeparno 1983:17-26). However, for the phenomena connected with number and gender, derivation is not immediately relevant.

All inflectional paradigms are defined in terms of number and gender; those of the demonstrative and possessive pronouns also in terms of syntactic position and givenness; and those of predicates and possessive pronouns also in terms of person.

In order to illustrate the bound morphemic status of the inflectional formatives, I shall first list the independent personal pronouns and numerals.

The system of the former is given in table 1.

person gender \ number		singular	dual	trial	plural
1	exclusive	/ai'a/	/nu/	/n'o/	
	inclusive	—	/ʔu/	/ʔo/	
2		/ʔau/	/mu/	/m'o/	
3	animate	/i/	/su/	/s'o/	/si/
	inanimate				/na/

Table 1. The independent personal pronouns.

The independent personal pronouns are used:

1. as one-word sentences;
2. as topics in constructions such as /si, e-pi'opr si/ "they are the ones who are white" (they (anim. pl.) NOMINALIZER + white the (anim. pl.));
3. as objects after predicates;
4. as arguments after prepositions such as /be/ "like, as", /far'o/ "for", /ro/ "in", /ve/ "to", /ʔuʔ'er/ "with".

As the table shows, the opposition between trial and plural is relevant only for the third person.

The system of the (independent) numerals is as follows:

/es'er/ "one" /fiʔ/ "seven"
 /sur'u/ "two" /u'ar/ "eight"
 /ʔi'or/ "three" /s'iu/ "nine"
 /fi'aʔ/ "four" /samf'ur/ "ten"
 /rim/ "five" /samf'ur s'eser es'er/ "eleven"
 /uon'em/ "six" /samf'ur s'eser ri sur'u/ "twelve"
 /samf'ur ri sur'u/ "twenty"
 /samf'ur ri sur'u s'eser es'er/ "twenty-one"
 /samf'ur ri sur'u s'eser ri sur'u/ "twenty-two"
 /ʔusin es'er/ "one hundred"
 /ʔusin ri uon'em samf'ur ri fi'aʔ s'eser es'er/ "six hundred and forty-one"
 /ʔusin ri uon'em samf'ur ri fi'aʔ s'eser ri ʔi'or/ "six hundred and forty-three", etc.

The forms listed here are used in counting and arithmetical operations. All but the numerals from "two" to "ten" can be combined freely with nouns. The numerals "two" to "ten" require the particle /ri/ to connect them with the (preceding) nouns (for "ten", /ri/ is not obligatory):

/rum ri ʔi'or/ "three houses",

/man ri samf'ur/ "ten birds",
 /in'ai ri sur'u/ "two girls",
 /rum (ri) samf'ur/ "ten houses", but
 /rum samf'ur s'eser es'er/ "eleven houses",
 /ben 'usin ri fi'a?/ "four hundred pigs".

These constructions show that no singular, dual, trial, or plural markers are used when absolute number is indicated.

The inflection of verbal, adjectival and prepositional predicates shows morphological variation for subject agreement in all forms. This variation is partly conditioned by the phonological shape of the stem, but is partly unpredictable (especially for the second and third person singular and the third person plural (animate and inanimate)).

Some words show a distinction between a sentence-final and a sentence-medial form. This is the case with those words which in sentence-final position have a closed final syllable containing the vowel /e/; the sentence-medial form loses that vowel. Examples:

/ia-maris'en/ "I love it", /ia-mar'isn rand'ip ʔraf/ "I love pork" (/rand'ip/ "pig", /ʔraf/ "meat");
 /bon iu'a i-piop'er/ "that fruit is white", /bon e-pi'opr na/ "the white fruit (pl.)";
 /rof'an iu'a p-i-ais'em/ "that dog is black", /rof'an e-p'aism s'i/ "the (pl.) black dogs";
 /poʔ'em/ "kind of yeast", /p'oʔm ʔn'am/ "clump of yeast";
 /d-in'em/ "he/she/it drinks", /d-'inm u'ar/ "he/she/it drinks water";
 /ia-rir'es/ "I dry in the sun", /ia-r'irs sans'un/ "I dry clothes in the sun";
 /d-ar'eʔ/ "he/she/it bites", /d-arʔ rof'an i/ "he/she/it bites the dog".

		I (syllabic)	II (non-syllabic)	III (mixed)
singular	1 2 3	ia- [ya] ua- [wa] i-	i- [y] u- [w] d-	ia- [ya] -u-, Ø -i-
dual	1 + 2 1 + 3 2 3	ʔu- nu- mu- su-	ʔui- [ʔuy] nui- [nuy] mui- [muy] sui- [suy]	ʔu- nu- mu- su-
trial	3	sʔo-	sʔ-	sʔo-
plural	1 + 2 1 + 3 2 3 animate inanimate	ʔo- nʔo- mʔo- si- na-	ʔ- nʔ- mʔ- s- n-	ʔo- nʔo- mʔo- s- n-

Table 2.¹² Pre- and infixes in predicate inflection.

There seem to be certain constraints, but whether these are of a lexical or a morphophonemic nature is a matter for further investigation. The data suggest that stems which are monosyllabic in sentence-final position will not change, and that clusters of stops will be avoided.

In table 2 I present three paradigms of prefixes (in some cases infixes) which illustrate the morphological variation that may occur in subject agreement.

The first, syllabic set of prefixes is applied to stems beginning with a consonant cluster, such as

/-br'as/ ¹³ "shout"	/-ms'or/ "angry"	
/-fr'ur/ "make"	/-ms'ov/ "long to eat"	/-pr'oi/ "be able"
/-mn'af/ "hear"	/-pnun'eʔ/ "cold"	/-snar'em/ "stink",

and to stems beginning with /d/:
 /-dad'or/ "be hampered" /-d'oʔ/ "wet" /-dis'en/ "sing (non-traditional songs)"
 /-dos'er/ "beautiful" /-d'uf-e/¹⁴ "ill"

Furthermore, it is used with stems which begin with a consonant followed by a non-syllabic /i, u/:

/-duar'eʔ/ "forbid, hamper"	/-piop'er/ "white"	/-ru'as/ "divide"
/-fi'ou/ "shout, shout at"	/-pi'um/ "good"	/-si'or/ "dry"
/-si'um/ "kiss"	/-ri'an/ "sift, filter"	

(the latter verb has alternative, deviant forms for the second person singular and the third person plural, namely /ru'an, sran, nran/).

Finally, the syllabic set of prefixes is required with some stems that begin with CV, in which C symbolizes [w, y] or one of the consonants /b, m, n, r, s, ʔ/ and V a full vowel. So far I have noted the following stems as belonging to this group:

/-u'or/ "sing (traditional songs)"	/-mas'i/ "bathe"
/-i'as/ "swim"	/-meu'er/ "dislike"
/-i'om/ "chase (a woman)"	/-s'api/ "fall"
/-b'a/ "big"	/-sus'uu/ "withdraw"
/-bis'er/ "hungry"	/-ʔaʔ'i/ "high"
/-m'ar/ "die"	/-ʔen'em/ "live"
/-maris'en/ "like"	/-ʔ'i/ "float";

furthermore: /-uos/ "speak" (NB. with the stress always on the prefix and a variant form /d'auos/ alongside /ʔiuos/ for the third person singular), /-n'adi/ "pray" (NB. with a deviant form /sen'adi/ instead of *sin'adi for the third person plural animate), and finally – with variant forms for the second and third person singular (given in parentheses) alongside the regular ones –

/-nap'es/ "be perfect" (/n-u-ap'es, n-i-ap'es/)
/-r'ov/ "fly" (/r-u-'ov, r-i-'ov/)
/-ʔ'un/ "cook" (/ʔ-u-'un, ʔ-i-'un/)
/-ʔanʔ'un/ "do the cooking" (/ʔ-u-anʔ'un, ʔ-i-anʔ'un/).

The second, non-syllabic set is prefixed to stems which begin with a full vowel, such as

/-ʔaruf/ “close one’s eyes” /-enʔef/ “sleep” /-eidofʔen/ “step over (trans.)”

/-ʔan/ “eat” /-ʔeʔ/ “climb” /-orʔen/ “swallow”

/-embʔuʔ/ “urge, invite” /-inʔem/ “drink” /-ʔuf/ “seize”.

Polysyllabic stems with the stress on the final vowel in the singular, dual and third person plural forms shift this stress to the first syllable in the other forms (i.e. the forms containing /ʔ/ in the vowelless prefixes); cf. the paradigms of /-embʔuʔ/ “urge, invite” and /-eidofʔen/ “step over (trans.)”:

singular	1	/i-embʔuʔ/	/i-eidofʔen/
	2	/u-embʔuʔ/	/u-eidofʔen/
	3	/d-embʔuʔ/	/d-eidofʔen/
dual	1 + 2	/ʔui-embʔuʔ/	/ʔui-eidofʔen/
	1 + 3	/nui-embʔuʔ/	/nui-eidofʔen/
	2	/mui-embʔuʔ/	/mui-eidofʔen/
	3	/sui-embʔuʔ/	/sui-eidofʔen/
trial	3	/sʔ-ʔembuʔ/	/sʔ-ʔeidofʔen/
plural	1 + 2	/ʔ-ʔembuʔ/	/ʔ-ʔeidofʔen/
	1 + 3	/nʔ-ʔembuʔ/	/nʔ-ʔeidofʔen/
	2	/mʔ-ʔembuʔ/	/mʔ-ʔeidofʔen/
	3 animate	/s-embʔuʔ/	/s-eidofʔen/
	inanimate	(/n-embʔuʔ/ ?). (/n-eidofʔen/ ?).	

The third, mixed set of prefixes (and infixes), with the Ø for the second person singular, is used with stems beginning with /p, f, v/ followed by a full vowel, e.g.:

/-paisʔem/ “black” /-farʔʔor/ “learn”

/-pʔum/ “hit (a drum)” /-vʔai/ “dig” /-veborʔeʔ/ “thorny”

/-farovʔeʔ/ “trade” /-varʔeʔ/ “lie down” /-vesnʔar/ “commit adultery”

/-farvʔuʔ/ “marry” /-vʔaʔ/ “pay” /-vʔov/ “sell”;

furthermore, with those stems beginning with /b/ followed by a full vowel which do not have the syllabic type of inflection, such as:

/-babʔara/ “suffer from scabies” and /-babʔo/ “new”.

The second person singular of these verbs consists of the pure stem, if this begins with /p, f, b/: /paisʔem/ “you (sg.) are black”, /farʔʔor/ “you (sg.) learn”, /babʔara/ “you (sg.) have scabies”, etc. However, if the stem begins with /v/, this phoneme is replaced by /b/ in the second person singular:

/barʔeʔ/ “you (sg.) lie down” etc. For the third person plural inanimate this same substitution is found in the variant form /n-barʔeʔ/ alongside the regular form /n-varʔeʔ/ “they (inanim. pl.) lie down”, etc.

The infix of the third person singular is inserted immediately after the first consonant of the stem:

/p-i-aisʔem/ “he/she/it is black” /f-i-arʔʔor/ “he/she/it learns”

/v-i-arʔeʔ/ “he/she/it lies down” /b-i-abʔara/ “he/she/it has scabies”.

This is likewise the case with the other stems that follow the mixed pattern, i.e. those that begin with /m, n, r, s, ʔ/ followed by a full vowel and which are not inflected according to the syllabic pattern. They take the infix also for the second person singular, which is likewise inserted immediately after the first consonant of the stem, e.g. /-s'am/ "hunt", /s-u-'am, s-i-'am/ "you (sg.) hunt, he/she/it hunts".

To this type also belong:

/-m'as/ "ripe; dry" /-ram'a/ "come"
 /-m'un/ "kill" /-r'ap/ "roast" /-sev'en/ "open"
 /-n'as/ "smell (trans.)" /-r'o/ "be in/at" /-s'o/ "throw"
 /-r'a/ "go" /-r'os/ "kick backwards" /-ʔ'on/ "sit";
 furthermore: /-ʔ'auef/ "cover" (with deviant forms for the third person plural, namely /s-'auef/ (anim.) and /n-'auef/ (inanim.)), and – with a variant form for the second person singular with the prefix /ua-/ alongside one with the infix /-u-/:
 /-nan'ar-e-/ ¹⁴ "yellow"
 /-rer'es/ "expand (intrans.)" /-rou'er/ "hear"
 /-r'ir/ "calm down (of wind)" /-r'oʔ/ "make a noise";
 /-rir'es/ "dry in the sun (intrans.)", finally, has variant forms for both the second and the third person singular:
 /ua-rir'es, r-u-ir'es/ "you (sg.) dry in the sun"
 /i-rir'es, r-i-ir'es/ "he/she/it dries in the sun".

It will be clear that further research will be necessary to achieve a more complete and satisfactory picture of the verbal/adjectival/prepositional predicate.

The second paradigm which must be considered is that of the demonstratives, which are inflected with regard to number, gender, syntactic position and the fact of whether the entity being pointed out is already known to the hearer or not explicitly so.

Like many other languages in East Indonesia, Biak has an elaborate system of demonstrative pronouns, which is so complicated that a more comprehensive discussion of it must await another occasion. Semantically it is organized in the form of multi-dimensional sets of oppositions. A rough and preliminary outline of these is as follows.

A. The entity designated may be defined exclusively with regard to the position of the speaker (in marked usage the interpretation "invisible to the hearer" may be appropriate): "this"; this meaning is opposed to the pair "relatively close to the speaker and hearer" vs. "relatively remote"; this triple opposition is semantically neutralized in forms that may be qualified as definite articles (see table 3).

B. The entity pointed out may be:

1. inside or outside the space of orientation;
2. in front of or behind the object of orientation;
3. eastward or westward, with respect to the point of orientation;

4. above or below, higher or lower than the point of orientation;
5. between the point of orientation and one of the following landmarks: the sea, the river, the interior (as seen from the river and/or the sea), the mouth of the river, or the river source.

In these oppositions, the point/space/object of orientation is usually, but not necessarily, directly related to the speech situation.

Formally, the semantic categories mentioned under A can be expressed by themselves. Those of B only occur in combination with those of A. Both sets of forms are semantically unmarked with regard to the fact of whether the entity designated may be moving or at rest. They are opposed to parallel sets of forms which are semantically marked in this respect (i.e. include the semantic feature "moving"). For these forms the following oppositions are relevant.

C. If the entity pointed out is moving, it may be moving 1) towards, away from or past the speaker ($\pm$ hearer), and/or 2) in the direction of one of the spatial areas indicated in the definitions of B.

Further research will be necessary to determine whether there are incidental gaps or perhaps systematic constraints with regard to the combinability of particular semantic categories. In addition the morphological relation to verbs denoting "coming", "passing" and "going", the stems of which seem to consist of /r-/ followed by a demonstrative stem, is in need of further investigation.

What is important here is that each of the demonstratives is inflected with regard to number and gender. To illustrate this I shall discuss only the forms of the A set (see table 3).

	singular	dual	trial	plural	
				anim.	inanim.
close to the speaker ("this")	/in'e/	/suin'e/	/s'o'in'e/	/sin'e/	/nan'e/
relatively close to speaker and hearer ("that")	/ii'i/ [iy'i]	/s'uii/ [s'uyi]	/s'o'oi/ [s'o'oyi]	/sii'i/ [siy'i]	/na'i/
relatively remote from speaker and hearer ("yonder")	/iu'a/ [iw'a]	/s'uiua/ [s'uiwa]	/s'o'oiua/ [s'o'oiwa]	/siu'a/	/nau'a/
neutral ("the")	/i/	/s'ui/	/s'o'oi/	/si/	/na/

Table 3. Basic set of demonstratives.

When preceded by the prefix /an-/, which attracts the stress, the forms listed in table 3 explicitly indicate that the entity being pointed out is already known to the hearer; without /an-/ they are semantically unmarked in that respect.

The forms beginning with /i-/ alternate with forms beginning with

/di-/ , for instance when they are preceded by a preposition ending in a vowel or by a corresponding “de-prepositional verb”: /r’o dine/ “here, in this place”, /r-i-’o dine/ “he/she/it is here”.

After attributivized (or nominalized) forms based on these prepositional constructions or on verbs of “going”, “coming” or “passing”, all demonstratives seem to require an initial /n/:

/rum e-ro din’e nna/ “the (pl.) houses that are here” (house ATTRIBUTIVIZER + in this the (pl. inanim.)),

/rof’an e-ro din’e nsui/ “the two dogs that are here”,

/ia-m’am e-r’ama ni/ “I saw the one who came” (I + see NOMINALIZER + come the (sg.)).

/i/ and the other demonstratives ending in /i/ only occur sentence-finally (and possibly topic-finally), for example:

/ia-m’am rof’an i/ “I see the dog”

/ia-m’am rof’an si/ “I see the (pl.) dogs”

/ia-m’am rof’an ’an-i/ “I see the dog (the one you know about)”

/ia-m’am rof’an i-i’i/ “I see that dog”.

In sentence-medial position parallel forms are used which end in /a/ instead of /i/ if they are followed directly by a predicate and preceded by a consonant (either in the demonstrative itself or in the word preceding it), e.g.:

/rof’an a p-i-ais’em/ “the dog is black”

/rof’an e-p’aism ’a i-b’a/ “the black dog is big” (dog ATTRIBUTIVIZER + black the (sg.) is-big)

/rof’an sa s-pais’em/ “the (pl.) dogs are black”

/rof’an ’an-a p-i-ais’em/ “the dog (you know about) is black”.

In other sentence-medial positions (i.e. where preceded by a vowel or not directly followed by a predicate) /i/ is replaced by /ia/, for example:

/ʔedu’a ia p-i-ais’em/ “the door is black”

/rof’an i’a ma p-i-ais’em/ “the dog (NEW TOPIC) is black”

/rof’an e-ba i’a (ma) p-i-ais’em/ “the big dog (± NEW TOPIC) is black”

/rof’an si’a ma s-pais’em/ “the (pl.) dogs (NEW TOPIC) are black”

/rof’an ’an-ia ma p-i-ais’em/ “the dog (you know about) (NEW TOPIC) is black”

/rof’an i-ii’a (ma) p-i-ais’em/ “that dog (± NEW TOPIC) is black”.

Further research on the exact conditions influencing all the above alternants is necessary.

The third set of paradigms that must be dealt with are those of the possessive pronouns. They are inflected with regard to person, number and gender of the possessor (in a way which is clearly similar to the mixed type of inflection of predicates) and with respect to the number and gender of the possession. Moreover, there are two parallel sets of forms, one having the stem /-ve-/, the other /-v-an-/. The latter set explicitly indicates that the entity possessed is known to the hearer, while the

former set is semantically unmarked with regard to this feature. One should note the similarity in meaning and form with the demonstratives discussed above. In fact, the possessive pronouns always constitute a combination of an element denoting the relation of possession with a demonstrative indicating the position of the entity possessed.

In table 4 are listed the sentence-final forms for singular possession, with definiteness as demonstrative value.

		singular possession	
possessor		stem: /-ve-/	stem: /-v-an-/
singular	1	/ai-'e-di/	/ai-'an-i/
	2	/b'e-di/	/b'an-i/
	3	/v-i-'e-di/	/v-i-'an-i/
dual	1 + 2	/ʔu-v'e-di/	/ʔu-v'an-i/
	1 + 3	/nu-v'e-di/	/nu-v'an-i/
	2	/mu-v'e-di/	/mu-v'an-i/
trial	3	/su-v'e-di/	/su-v'an-i/
	3	/sʔo-v'e-di/	/sʔo-v'an-i/
plural	1 + 2	/ʔo-v'e-di/	/ʔo-v'an-i/
	1 + 3	/nʔo-v'e-di/	/nʔo-v'an-i/
	2	/mʔo-v'e-di/	/mʔo-v'an-i/
	3 animate	/s-'e-di, s-v'e-di/	/s-v'an-i/
	3 inanimate	/n-'e-di, n-v'e-di, n-b'e-di/	/n-v'an-i, n-b'an-i/

Table 4. Core paradigm of possessive pronouns.

In the sentence-final forms for the dual, trial and plural animate and inanimate, /-sui, -sʔoi, -si, -na/ replace the formative /-di/ of the first column forms and /-i/ of the second column forms of table 4.

The variant third person plural possessor forms do not seem to be functionally different.

The forms for expressing other demonstrative values can be easily derived from the forms given in table 4: /ai-'e-di-ne/ 'my . . . (sg.) here', /ai-'e-sui-ne/ 'my two . . . here', /ai-'e-si-ne/ 'my . . . (pl. anim.) here', /ai-'e-na-ne/ 'my . . . (pl. inanim.) here', etc.

The forms that do not end in /i/ are also used sentence-medially. All forms ending in /i/, however, are only used sentence-finally (and possibly topic-finally). They have sentence-medial parallel forms ending in /a/ or /ia/ instead, according to the same rules that govern the demonstrative alternants (see the preceding section).

The possessive pronouns discussed above are used with alienable nouns. Inalienable nouns are inflected as regards the person and number of the "possessor" and the number of the "possession". Their forms, however,

are rather anomalous. Moreover, it seems to be a systematic feature of the inalienable nouns in Biak that they have corresponding forms which behave as regular alienable nouns. These forms comprise either the stem of the inalienable paradigm or a compound in which that stem can be recognized; alongside the inalienable stems /su'a-/ "mouth", /u'e-/ "foot, leg", /sn'o-/ "name", for instance, the words /suad'on/, /uem'in/ and /snonsn'on/ occur with the same meanings. These alternative words can be combined with the possessive pronouns discussed above.

These analytic constructions *have to* be used if the part of the body that is "owned" belongs to a body other than that of the "possessor", e.g. /ben uem'in ai'ena/ "my pig legs", or where a specification follows, e.g. /uem'in e-d'uf b'edi/ "your (sg.) sick leg".

The anomaly of the inflected forms and the fact that the forms for the first and third person singular possessor are often the same (see table 5) may constitute the explanation for the fact that the inflected nominal forms tend to be replaced by the corresponding analytic constructions; this is especially noticeable in the forms for the dual, trial and plural possessor, which are less often used than the corresponding singular forms.

In table 5 the complete paradigm for /su'a-/ "mouth" and /u'e-/ "foot, leg" is given.

possessor	/su'a-/ "mouth"	/u'e-/ "foot"	
		sing. possession	dual/plur. possession
sing. 1	/su'ari/	/u'esi/	/u'essu/
2	/su'amri/	/u'emsi/	/u'emssu/
3	/su'ari/	/u'esi/	/u'essu/
dual 1 + 2	/ʔusu'asna/	—	/ʔuu'esna/
1 + 3	/nusu'asna/	—	/nuu'esna/
2	/musu'amsna/	—	/muu'emsna/
3	/susu'asna/	—	/suu'esna/
trial 3	/sʔosu'asna/	—	/sʔou'esna/
plur. 1 + 2	/ʔosu'asna/	—	/ʔou'esna/
1 + 3	/nʔosu'asna/	—	/nʔou'esna/
2	/mʔosu'amsna/	—	/mʔou'emsna/
3 anim.	/sisu'asna/	—	/siu'esna/

Table 5. Inalienable possession: parts of the body.

It proved to be difficult to obtain a complete paradigm for nouns referring to family relations. From personal communication I know that Soeparno spent much time and effort in collecting the necessary data for the paradigms he gives (Soeparno 1983:48-58). Even F. J. F. van Hasselt seems to have had comparable difficulty already in this time, judging from the corrections to his – incomplete – paradigms (F. J. F. van

Hasselt 1905:27 and 38), which are communicated in Held (1942:50).

In table 6 are set out the forms for singular possessors with the stems /ʔma-, ʔam'a-/ "classificatory father (i.e. father, father's brother)" and /au'in-, sna-/ "classificatory mother (i.e. mother, mother's sister)".

possessor	number of possession		
	singular	dual	trial/plural
sing. 1	/ʔam'ami/	/ʔam'amsu/	/ʔam'ams'o/
2	/ʔm'ami/	/ʔm'amsu/	/ʔm'ams'o/
3	/ʔm'ari/	/ʔm'arsu/	/ʔm'ars'o/
sing. 1	/au'ini/	/au'insu/	/au'ins'o/
2	/sn'ami/	/sn'amsu/	/sn'ams'o/
3	/sn'ari/	/sn'arsu/	/sn'ars'o/

Table 6. Inalienable possession: kinship.

The non-singular forms as well as the alternative forms for singular possessors are formed analytically with the possessive pronouns:

/ʔma ai'edi/ "my classificatory father", /sna suv'esui/ "the two classificatory mothers of the two of them", etc. The forms /ʔam'am/ and /au'in/ are used as vocatives.

It should be noted that the plural of the "inalienable" forms merges with the trial. When they occur as subjects, the subject marker of the predicate should have the trial form irrespective of the real number (trial or plural) of the referent: e.g. /sn'ams'o sʔ-enef/ "your (sg.) classificatory mothers (three or more) are asleep". However, when the corresponding constructions with the possessive pronouns are used, the trial and plural have to be differentiated: /sna b'es'oi/ "your (sg.) three classificatory mothers", /sna b'esi/ "your (sg.) classificatory mothers (more than three)".

In the case of inalienable nouns denoting parts of the body, another remarkable phenomenon with regard to the number markers can be observed. Although the actual number of the parts of the body in question is two, the forms for plural possession of the possessive pronouns may be used where the number is not stressed; e.g.

/in'ai i-i'a sus v-i'e-sa si-b'a/ "that girl has big breasts" and /in'ai i-i'a sus v-i'e-suia su-b'a/ "that girl has two big breasts".

5. Notes on syntax

Above it was stated that most noun phrases have to be marked with respect to number. For the plural this implies that gender also is obligatorily indicated. As such markers demonstratives are used; they at the same time mark the end of the noun phrase and specify its head. Furthermore, possessive pronouns may be used as the (only) marker of

number and gender, but only if they qualify the head of the noun phrase in question and at the same time close this noun phrase.

The demonstratives that are comparable to definite articles (/i, s'ui, s'oi, si, na/ and their sentence-medial variants) have the highest text frequency.

I shall conclude these remarks by giving a few examples of noun phrases which at the same time indicate some morphological, syntactic and semantic peculiarities of Sau'as Biak.

- (1) /ʔau'asa ei-'inm u'ar i'a nsa
 people ATTR.* + drink water the (sg.) the (pl. anim.)
 si-ms'er/
 they (pl. anim.) + drunk
 "the people who drank the water are drunk"
- (2) /u-'uf ʔ'ursi e-ʔ'on pi'um va s'ui/
 you (sg.) + hold chair ATTR. + sit good not the-two
 "(you (sg.)) hold the two chairs that do not sit well"
- (3) /ia-r'av rof'an sia ʔuʔ'er av'ors
 I + hit. dog the (pl. anim.) with saber
 v-i-'e-dia ei-'uf pi'um i/
 his/her/its (sg. possession) ATTR. + hold good the (sg.)
 "I hit the dogs with his saber that has a good grip"
- (4) /p'aʔar na n-r'irs
 fence the (pl. inanim.) they (pl. inanim.) + dry-in-the-sun
 sans'un/
 clothes
 "the fences are the place where clothes are dried".

* ATTR. = attributivizer.

Comments:

- ad (1) /ʔau'asa/ "people, nation, society" is a *plurale tantum* and can only be combined with third person plural animate markers, here /si-/ and /nsa/; the latter form begins with /n/ because of the preceding /i'a/, which is not a noun and ends in a vowel (see above); note that /i'a/ (which specifies /u'ar/) and /nsa/ (which specifies /ʔau'asa/) close the respective noun phrases they belong to;
 /e-/ (or /ei-/ before a vowel) is prefixed to a predicate stem to turn the latter into an attributive; in such cases, the normal word order (SVO) is preserved.
- ad (2) – (4) Note that the noun phrase which functions as subject is not necessarily the "actor" rolewise; cf. /ia-ʔ'on pi'um/ "I sit fine", /ʔ'ursi ia ʔ-i-'on pi'um/ 1. "the chair stands all-right", 2. "the chair is good to sit on", /ia-r'irs sans'un/ "I dry clothes in the sun".

- ad (4) Although /sans'un/ is a noun phrase, it is not marked as regards number/gender. Such unmarked noun phrases indicate that the referent is non-specific; apparently they cannot be used as subject, but their exact syntactic distribution – like so many aspects of Biak grammar discussed in this paper – again is a matter for further research.

6. Conclusion

The Biak inflectional categories set out above show a consistent distinction between two grammatical genders, termed “animate” and “inanimate”. This distinction is only drawn, however, in the morphological exponents of the plural, not in those of the singular, dual or trial.

These and similar phenomena in Wandamen contradict two alleged morphological language universals as stated by Joseph H. Greenberg in his well-known article ‘Some universals of grammar with particular reference to the order of meaningful elements’ (Greenberg 1966).

In this article Greenberg proposes 45 grammar universals. Some of these are only “near” universals, while others represent statistical tendencies (albeit “with well more than chance frequency”); but the majority of the universals proposed here are formulated as absolute laws. Greenberg is cautious enough to begin his article with the remark that “the tentative nature of the conclusions set forth . . . should be evident” (Greenberg 1966:73). To this he adds that “without much more complete sampling of the world’s languages, the absence of exceptions to most of the universals asserted . . . cannot be fully assured” (Greenberg 1966:73). Moreover, some of the generalizations are cautiously introduced by qualifications such as “seems to be sufficiently documented”, “probably holds”, “these data suggest”, “is probably valid” and the like.

Of course, one of the fundamental problems of the study of linguistic universals is the question of whether the languages under consideration are sufficiently representative for the languages of the world, or indeed for their respective families. Greenberg’s findings are based on a sample of 30 languages, among which Malay and Maori are the only Austronesian ones. The inclusion of the Biak dialect described above would obviously have led to different conclusions.

The universals which are contradicted by the facts of this dialect (and of Wandamen) are:

“*Universal 37*. A language never has more gender categories in non-singular numbers than in the singular” (Greenberg 1966:95), and
 “*Universal 45*. If there are any gender distinctions in the plural of the pronoun, there are some gender distinctions in the singular also” (Greenberg 1966:96).

In fact, Biak is also a counter-example to

“*Universal 30*. If the verb has categories of person-number or if it has categories of gender, it always has tense-mode categories” (Greenberg

1966:93), which latter universal is only a statistical one anyway. Universals 37 and 45, however, are presented as absolute laws and lack even a qualifying introduction. The reason for this is probably the intuitive likelihood of the two, which would also explain why they have never – to my knowledge – been called into question: if different kinds of sets of objects should be distinguished linguistically, it stands to reason that subsets or individual members of these sets should be so distinguished too.

A possible explanation for the counter-intuitive structure of Biak is the circumstance that the singular, dual and trial forms of the “neutral” demonstratives of table 3 above (/i, s’ui, s’oi/) imply specificity, and this would preclude the necessity for further specification in terms of gender. The plural forms, however, have genericness as one of their potential interpretations; consequently they do not imply specificity in the same way as the forms for the other numbers, for which reason further specification in terms of gender cannot be considered completely anomalous. How the Biak opposition “animate” – “inanimate” arose at all, however, is quite a different, and as yet unanswerable, question.

In the past two decades, the search for linguistic universals has become fashionable. Part of its popularity can be explained by the opportunities it offers for facile cross-linguistic identifications of categories, instead of having to make troublesome structural analyses of individual languages, in which categories have to be described and defined intra-linguistically in terms of their oppositions to all the other categories within the same grammatical domain.

It is hoped that the Biak data presented here will underline once more the obvious necessity of basing the search for universals on thorough descriptions of as many languages as possible.

○ Mios Befondi

Map I

NOTES

- 1 The maps unfortunately contain a number of printing errors. To mention a few: Pandaidori Is. (map 2) should be Padaidori Is.; Aju Is. (map 2) and Ayu Is. (map 45) should be Ayau Is.; Fam I. (map 45) should be Pam I.; the name Supiori for the twin island of Biak proper should be indicated on the maps, as should likewise the name Mios Befondi for the island west of Supiori, which has a Biak-speaking population and which is important for Biak mythology.
- 2 Unfortunately I have not been able to consult these sources.
- 3 Hyphens in Biak words indicate morpheme boundaries.
- 4 "De uitspraak der *b* wordt somwijlen verwisseld met die der . . . *w* . . . Deze verwisseling is geheel willekeurig" (J. L. van Hasselt 1876:6-7).
- 5 "*b* nadert in haar uitspraak de *w*, waarmede ze soms verwisseld wordt . . . Vele woorden die in het Nufoorsch de *b* bezitten, hebben in het . . . Biaksch de *w* . . ." (F. J. F. van Hasselt 1905:6).
- 6 This /ʔ/ corresponds to /k/ in other dialects; I assume that what is written as *g* in the literature is only a positional variant (occurring only after nasals) of /k/, though loanwords may disturb the picture, of course.
- 7 A case in point are the demonstratives, where, for instance, the following minimal pairs involve different morpheme boundaries:

/i'a ma/ "the (sg.) (NEW TOPIC)"	[y'ama]
/i-i'ama/ "which is coming here"	[iy'ama]
/i-ii'a ma/ "that (sg.) (NEW TOPIC)"	[i:y'ama]
- 8 Though F. J. F. van Hasselt (1905:36) mentions the form *ske* "the three of them", he does not give any indication of its use. Soeparno is the first to note its systematic application.
- 9 "Dit doet vermoeden, dat men in ,in' (visch) een vr. element zou gezien hebben en in ,man' (vogel) een mannelijk, terwijl in ,a' (boom, hout) een element kon gezien zijn, dat doet denken aan ons ,onzijdig' " (J. L. van Hasselt and F. J. F. van Hasselt 1947:92).
- 10 "Alles, wat beziel is, mensch en dier vordert dit *si*, terwijl onbezielde voorwerpen *na* eischen" (F. J. F. van Hasselt 1905:26).
- 11 The authors only indicate the existence of a trial on pp. 29 and 30. Any form of discussion is lacking, however. In the table of the personal pronouns on p. 30 an apparently marked "non-human" third person trial form *sitoru* is opposed to an unmarked "human"/"non-human" form *setoru*. Cf. also Anceaux 1961, p. 155.
- 12 Verbs, adjectives and prepositional constructions moreover have attributive or nominalized forms, which consist of the prefix /e-/ followed by the stem of the particular verb, adjective or preposition. There is no separate imperative form; context and situation determine whether a form of table 2 should be interpreted as a command or a statement; cf. /mʔo-ram'a ʔ-'inem/ 1. "you (pl.) come, we (pl. incl.) drink", 2. "come, let's drink", /r-u-am'a ʔui-in'em/ 1. "you (sg.) come, we (dual incl.) drink", 2. "come, let's drink".
 There are also productive processes for deriving secondary stems, e.g. by adding the prefix /aʔ-/ "also", or by reduplication (/-'ʔon/ "sit", /-'ʔanʔon/ "be in the habit of sitting", /-dis'en/ "sing", /-dasdis'en/ "be in the habit of singing").
- 13 The stress sign in these monosyllabic stems indicates that the prefixes will not be stressed.
- 14 The function of the suffix /-e/ is unclear to me; it seems to be obligatory when the adjective is in sentence-final position and used as a predicate, but it is restricted only to some stems.

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