

Magi: An Undocumented Language of Papua New Guinea

Don Daniels

AUSTRALIAN NATIONAL UNIVERSITY

In this paper I introduce Magi, a previously undocumented speech variety of central Madang Province, Papua New Guinea. Magi is closely related to the Aisi language; however, I argue that it should not be considered an Aisi dialect but rather a separate language. I present arguments from various domains in support of this position, including lexicon, phonology, morphology, syntax, historical change, mutual intelligibility, and language attitudes. The facts provided as evidence for these arguments also double as an outline of Magi structure, and I conclude that Magi is a separate language. The first appendix contains Magi and Aisi wordlists, and the second contains a short Magi text.

1. INTRODUCTION.¹ This paper presents the results of brief fieldwork on Magi, a Papuan language spoken in central Madang Province, Papua New Guinea. The paper has two goals. The first is simply to introduce readers to Magi and some aspects of its structure, since it has not been previously described. To this end, I include a wordlist and a brief text in the appendices. The second is to demonstrate that Magi should be considered a separate language and not a dialect of its closest relative, a language that has been called Musak (Z'graggen 1971, 1975a, 1975b, 1980a) and Aisi (Daniels 2010, 2014, 2015), and whose ISO 639-3 code is [mmq]. I spend the bulk of the paper comparing the two speech varieties.

Before proceeding, it is important to clarify the issue of language names. Z'graggen often referred to languages by the name of a village where that language was spoken. This is what he did when he called Aisi Musak, but speakers of that language do not call it Musak themselves; they call it Aisi. This is the name I have used in previous work (Daniels 2010, 2014, 2015), and I continue to use it here.

That name does become more complicated when Magi enters the picture. In central Madang, it is common for a language to be referred to by one of its more salient words, the most common being 'no'. Thus, *magi* means 'no' in Magi, and *ai si* [what BEN] means 'why' in Aisi. The complication is that *ai si* also means 'why' in Magi. Thus,

1. This research was supported by a Jacob K. Javits fellowship, a UC Pacific Rim Research Program graduate fellowship, HRELP grant IGS0221, and NSF grant BCS-1264157. I would like to thank Andy Pawley and an anonymous reviewer for helpful comments on an earlier draft of this paper, Kelsey Daniels for accompanying me on that first trip to Umisa and helping with the elicitation, and Martha Wade and Lindy Pate for their hospitality on that same trip. All remaining errors are my own.

Magi speakers also consider themselves speakers of “an” Aisi, although, as we will see below, they consider the two languages different. I could resolve this by referring to Aisi by its own word for “no,” *mabinj*, which is what I do in Daniels (2015) and what speakers of Magi sometimes do to highlight the difference between the two speech varieties. But the fact is that speakers of Aisi call their language Aisi, not Mabinj, and I feel it is best to honor their usage. So I call the languages Aisi and Magi, and I use the name Aisian for the genetic grouping that includes them both, reflecting the fact that *ai si* is an expression in both languages.

In the rest of this introduction, I provide some of the context for this study. I then devote a section each to the various kinds of evidence that bear on the issue of Magi being a separate language: section 2 for lexical evidence, section 3 for structural evidence, section 4 for historical-comparative evidence, section 5 on mutual intelligibility, and section 6 on language attitudes. I conclude in section 7.

1.1 THE SETTING. In January 2012, I traveled with Kelsey Daniels to the village of Umisa, the easternmost village in the Apali language area, to observe a Bible translation checking session in the eastern dialect of that language. While asking the villagers about the surrounding area, we learned of a language that they called Magi, which they said was spoken in a few settlements upriver from Umisa. We also learned that some women who had married Umisa men came from Magi-speaking backgrounds, and we asked if we might be able to speak with them. So on January 9 we sat down with a speaker to record a wordlist and conduct some basic grammatical elicitation.

Our speaker, who wished to remain anonymous, appeared to be around 40 years old. She had grown up with an Apali-speaking father and a Magi-speaking mother. Consequently, her command of Magi was imperfect, as she presumably did not speak it regularly during her childhood and had no reason to use it in her married life in Umisa. Nevertheless, she was reasonably fluent and was able to provide good data. This was enough to identify Magi as a Sogeram language (Daniels 2010, 2015) that was closely related to Aisi, but we were unsure whether it was best considered a dialect or a separate language.

After our stay in Umisa, I traveled to the village of Musak and conducted three weeks of fieldwork on Aisi. I spent the next several months visiting various other language groups for a project on the Sogeram family, but I was able to free up a few days to visit the village of Wanang, where Magi is spoken. I was there from May 4–9, 2012, during which time I collected a wordlist, conducted grammatical elicitation, and recorded and transcribed eight and a half minutes of connected speech. This small corpus, combined with the interviews I conducted with speakers of both languages, comprises the data on which this report is based.

1.2 PREVIOUS RESEARCH. Previous research on Magi is, as I have said, non-existent. However, the village of Wanang is host to a biological field station belonging to the New Guinea Binatang Research Center, which has produced a great deal of research on the ecology and biology of New Guinea (a small sample of their work includes Novotny et al. 2007, Klimes et al. 2012, and Sam et al. 2014).²

2. More information and citations are available at their website: <http://www.entu.cas.cz/png/parataxoweb.htm>.

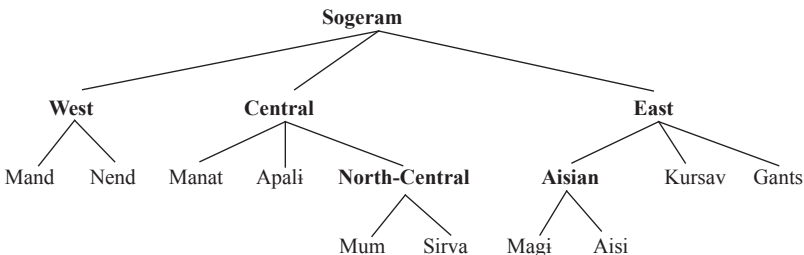
Work on Aisi has been quite limited, although there has been some. Z'graggen (1971:62) cites an unpublished wordlist, presumably from the early 1940s, collected by Aloys Kaspruś in the villages of Musak and Sepu. Although I have not been able to locate this wordlist, Z'graggen notes that “comparison of Kaspruś’s wordlists with my own gives no evidence that two separate languages were involved” (1971:62), suggesting that neither he nor Kaspruś worked with a Magi speaker. Z'graggen himself surveyed four villages—Musak, Sepu, Banam, and Kikerai—although it is unclear whether he visited them personally or only spoke with residents of these villages. He made a handful of observations about the phonology and morphology of Aisi: that it lacks palatal consonants, has a single liquid, lacks prenasalization, has verbal TAM suffixes, lacks verbal object prefixes, and lacks nominal number marking. He also mistakenly recorded the presence of a glottal stop and fricative in the language (1971:63). He then used the Aisi possessive system to exemplify an areal pattern (1971:127), although he mistakenly labeled the Aisi paradigm as Apali and vice versa.

In his 1975 record of villages and populations, Z'graggen added the village of Garaligut to the list of Aisi-speaking villages, and recorded a total of 355 speakers of the language (Z'graggen 1975a:31). He also mentioned the language in his contribution to Stephen Wurm’s large edited volume on Papuan languages (Z'graggen 1975b:585), but did not discuss any new information about it. Later he published his Aisi wordlist and added some grammatical observations to those he made in 1971, including the existence of an accusative enclitic =*ŋ* (Z'graggen 1980a). Interestingly, he records two alternatives for the 1PL subject pronoun: *ari* and *ani* (1980a:83). I only encountered *ani*, although *ari*, which is the conservative form, still exists in Magi (see section 4 on historical-comparative evidence).

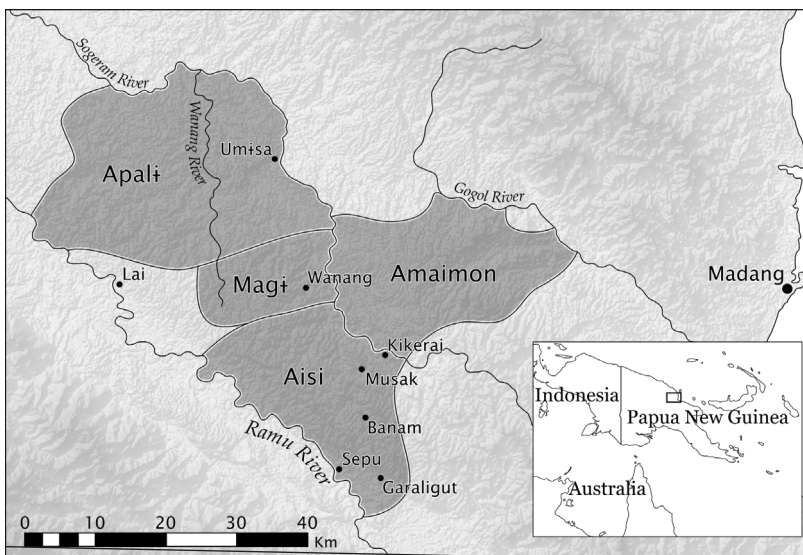
I conducted fieldwork on Magi and Aisi as described above. Before discovering Magi, I wrote a phonological history of the Sogeram languages (Daniels 2010). In another paper on Sogeram clause chaining, I did not count Magi as a separate language (Daniels 2014), but in my dissertation I did (Daniels 2015). The Sogeram family tree from my previous work is shown in figure 1.

The villages and languages mentioned in this paper are shown in map 1. It should be noted that land in this part of Papua New Guinea is passed down patrilineally through clan lines, and the traditional settlement pattern was for clan members and their wives to live together in small hamlets on their clan’s land. These hamlets were temporary, and communities would relocate after several years to be closer to new garden plots. During the Australian administration, however, these disparate communities were made to live in

FIGURE 1. SOGERAM FAMILY TREE



MAP 1. MAGI AND THE SURROUNDING LANGUAGES



larger, more centralized settlements, which facilitated patrols and record-keeping. Since Papua New Guinea's independence in 1975, people have been gradually returning to pre-Australian settlement patterns. For example, the main settlement of Musak is in the location shown on the map; this is where Musak village was during the Australian administration. But several other hamlets that "belong" to this village have arisen, and when I visited Musak I actually stayed in one such hamlet for most of my visit, a stone's throw from the Sogeram River. Thus, while villages are, in one sense, points on a map, the land controlled by their residents extends far beyond them. As there are no data on clan territories, the extent of many of these language areas remains unsure. Notably, it is unclear how far to the west the land controlled by residents of Wanang really extends. It does seem to reach the headwaters of the Wanang River, because the New Guinea Binatang Research Center has a field station there in an area where one of my consultants, Philip Kumba, grew up.

1.3 LANGUAGES AND DIALECTS. Before beginning the comparison between Magi and Aisi, it is worthwhile discussing the question of when two speech varieties constitute two languages and when they constitute two dialects of the same language. Obviously, the distinction is one of degree, not of kind, so the line cannot be drawn in a very clear-cut way. This may mean that two speech varieties never "constitute" separate languages, but rather "are viewed as" separate languages. But this seems to take matters a bit too far, as there does seem to be some objective reality to the observation that sometimes two speech varieties are different languages and sometimes they are not. In between the clear cases of different languages and different dialects, though, there is a large gray area where settling the language-or-dialect question is difficult. How, then, are we to

resolve any given situation inside that gray area? And is it even worth our time to try? Some might say that the entire question is premised on a false dichotomy and that picking a single label is not necessary, that it is enough simply to recognize that two speech varieties are in some ways like different languages and in some ways like the same language.

To that objection I would reply that the labels we use to talk about speech varieties have consequences, especially in less developed countries. Boerger and Zimmerman (2012:96), for example, note that in the Solomon Islands “only those varieties with supportable claims to being languages will be targeted” for the development of vernacular education materials. So even though the language-or-dialect question may, from a purely theoretical perspective, not be the most important question, from a practical perspective it matters very much.

But if we want to decide whether Magi and Aisi are different languages, we still must decide on some criteria for settling the question. It is generally agreed that one core distinction is mutual intelligibility: all else being equal, if two speech varieties are mutually intelligible, they are the same language; if not, they are not. The problem is that all else is rarely equal. (Not to mention that gauging mutual intelligibility is often not straightforward, as in the present case.)

So scholars agree that the linguistic criterion of mutual intelligibility is not enough, but there is no established methodology for integrating it with other considerations. Consequently, different treatments of the language-or-dialect question have emphasized various data points to differing degrees. Some stress language attitudes (Groves 2010), others the existence of a relevant polity and literary tradition (Owens 2010), others the role of the speech variety in the broader language ecology (Winsa 2000), and yet others its linguistic features (Yang 2012).

In linguistic research in Papua New Guinea, the language-or-dialect question has primarily been answered using lexicostatistics. One of the first treatments of the issue advocated using Swadesh’s 81 percent cognate vocabulary figure as the cutoff between languages and dialects, although even these authors acknowledged that lexicostatistics “may best be regarded as a starting point only in the procedure aiming at determining status of given forms of speech as dialects or distinct languages” (Wurm and Laycock 1961:137). It was pointed out soon afterward that cognate counts often disagreed with speaker reports of mutual intelligibility, raising the question of whether emic or etic criteria should be preferred in settling the issue (Cook 1966). Nevertheless, in the first survey of Madang, Z’graggen (1971, 1975a) used lexicostatistics to divide speech varieties into languages and dialects, and the list of languages proposed in his work still corresponds almost entirely to that found in the current *Ethnologue* (Lewis, Simons, and Fennig 2015). In this paper, I avoid relying on any one criterion, opting instead to compare as many criteria as I have access to and to draw conclusions from the comparison.

2. LEXICAL COMPARISON. While the shortcomings of a simple lexicostatistical comparison are well known by now, tallying cognacy rates can nevertheless serve as a helpful data point in combination with the other kinds of evidence adduced in sections 3–6 below. And when the tally is combined with a good understanding of the phonological history of the two speech varieties in question, such that cognates can be spotted with confidence, it becomes even more useful.

I counted cognacy between Magi and Aisi for a 100-item Swadesh wordlist (Swadesh 1971), although several modifications had to be made to the list. One meaning, ‘horn’, was not found in either language. Two meanings could not be collected during my Magi fieldwork: ‘all’ and ‘round’. Two more were confirmed by a consultant to lack Magi lexemes: ‘yellow’ and ‘green’. Eight words were removed from the list because the Aisian languages do not distinguish them from another member of the list. For example, the verb root *n-* means both ‘eat’ and ‘drink’, so ‘drink’ was removed from the list to avoid double-counting. The other seven such pairs are ‘hair’ and ‘feather’, ‘skin’ and ‘bark’, ‘see’ and ‘know’, ‘sleep’ and ‘lie’, ‘blood’ and ‘red’, ‘fire’ and ‘hot’, and finally ‘man, woman’ and ‘person’. For each of these pairs the latter member has been removed from the list. A final two meanings are similar to these. ‘Fingernail’ and ‘heart’ have periphrastic expressions that complicate the comparison and for which determining cognacy is difficult. For example, ‘fingernail’ is a compound involving ‘hand’ in both languages. In Aisi the other root is ‘skin’, and in Magi it is ‘egg’. Since all of these meanings are found elsewhere on the list, I have not included this item. The situation with ‘heart’ is similar. Both wordlists are given in appendix 1.

This leaves 85 meanings with which to count cognacy. The phonological reconstruction and history from my previous work (Daniels 2010, 2015) was used to judge whether two forms were cognate or not. However, even with this understanding of the phonological relationship between Magi and Aisi there is uncertainty about certain forms, so I included judgments of “probably cognate” and “probably not cognate” in my coding. The results of the comparison are given in table 1.

These figures yield a cognacy rate of around 70 percent. If the 12 uncertain items are excluded, we have 51 cognate forms out of 73 total forms; a cognacy rate of 69.9 percent. If the uncertain items are included, we have 60 cognate forms out of 85 total forms, for a rate of 70.6 percent. If all of the uncertain forms are considered cognate, the cognacy rate rises to 74.1 percent; if none of them is, it drops to 60.0 percent.

All of these figures are consistent with the view that Magi and Aisi are closely related languages, not dialects of the same language. In his pioneering lexicostatistical survey of Madang Province, Z’graggen (1975a:3), following Swadesh (1954), used a cognacy rate of 81 percent as the threshold above which two lects should be considered varieties of the same language.³ Even the strictest possible scoring of the lexical data in table 1 does not surpass this threshold, and a more reasonable scoring places the cognacy rate at 70 percent, well below it.

TABLE 1. COGNATE BASIC VOCABULARY

| | |
|----------------------|-----------|
| Cognate | 51 |
| Not cognate | 22 |
| Probably cognate | 9 |
| Probably not cognate | 3 |
| Total | 85 |

3. Andy Pawley points out that the threshold for the 100-item wordlist, which I have used, was actually 86 percent; the 81 percent threshold was intended for the 200-item wordlist. This means that the cognate percentage between Magi and Aisi is even more suggestive of their being separate languages.

It should be noted that this cognacy rate is lower than the rate for many other pairs of languages in Madang. Z'graggen (1971) gives higher cognacy rates between language pairs from several unrelated families: from the Madang family, Isebe and Bau (80 percent) and Yoidik and Rempi (75 percent); from the Ramu family, Marangis and Kayan (77 percent) and Kayan and Mbore (77 percent); and from the Oceanic family, Gedaged and Bilbil (73 percent).

It may be also helpful to compare these figures with languages from a more familiar family. A comparison with Indo-European (taken from Dyen, Kruskal, and Black 1992) suggests that Magi and Aisi are as closely related as many pairs of languages within the same branch of Indo-European. Similar cognacy rates can be found between French and Portuguese (70.9 percent), German and Danish (70.7 percent), or Russian and Czech (70.6 percent). But note that Dyen, Kruskal, and Black use a 200-item wordlist, not a 100-item one, which probably lowers their cognacy rates.

3. STRUCTURAL COMPARISON. In this section, I compare the structure of Magi with that of Aisi, focusing on phonology (3.1), morphology (3.2), and syntax (3.3). In every domain, we see broad similarities between the two languages, but also significant differences.

3.1 PHONOLOGY. The phonological inventories of both Aisian languages are given below, Magi in table 2 and Aisi in table 3. As these tables illustrate, the inventories of these two languages are broadly similar but differ in several respects. The most obvious are the segmental differences—Aisi has lost /r/, Magi has introduced /ñ/, and Aisi has developed /o/—but there are underlying differences in allophony as well.

In Aisi, the voiced stops /b d g/ are pronounced [b d g] word-initially and after nasals. In other positions, they exhibit the lenited allophones [β r ɣ]. The flap [r], then, is not phonemic in Aisi but is an allophone of /d/. In Magi, however, this pattern of allophony applies only to /b/ and /g/: /d/ exhibits no allophony, thus, preserving its contrast with /t/ in noninitial position.⁴

TABLE 2. MAGI PHONEME INVENTORY

| | bilabial alveolar palatal velar | | | | front central back | | | |
|---------------------|---------------------------------|---|---|---|--------------------|---|---|---|
| voiceless plosive | p | t | | k | high | i | i | u |
| voiced plosive | b | d | | g | mid | e | | |
| voiceless fricative | | s | | | low | | a | |
| nasal | m | n | ñ | ŋ | | | | |
| flap | | r | | | | | | |

TABLE 3. AISI PHONEME INVENTORY

| | bilabial alveolar velar | | | front central back | | | |
|---------------------|-------------------------|---|---|--------------------|---|---|---|
| voiceless plosive | p | t | k | high | i | i | u |
| voiced plosive | b | d | g | mid | e | | o |
| voiceless fricative | | s | | low | | a | |
| nasal | m | n | ŋ | | | | |

4. Note that my Aisi orthography does include a contrast between <d> and <r>, primarily because the influence of Tok Pisin loanwords is reintroducing the distinction to the language and its speakers.

The palatal nasal /ɲ/ is very rare in Magi, and is found in only two forms in the approximately 550 lexemes I collected: *kañaj* ‘bone’ and *misañ-* ‘(of lightning) to strike’. This phoneme may have been borrowed into the language, although it is unclear what the source language would have been. The word *kañaj* ‘bone’, however, suggests /ɲ/ may be archaic, as this form is reconstructed to Proto-Sogeram as *kañaj based on reflexes in Apali and Kursav (Daniels 2015:487).

The mid vowel /o/ was innovated in Aisi along with many additional tokens of /e/, which is a rare phoneme in Magi. The high vowels *i and *u lowered to /e/ and /o/ in several environments: preceding *i, preceding *a, following *a, and word-finally.

The phonological differences are, thus, sometimes phonemic, sometimes only phonetic. The inventories of the two varieties differ by three phonemes, which is probably more than one would typically expect between dialects of a single language. However, Roberts (1991:76–77) counts three phonemic differences between the Huar, Haija, and Jagahala dialects of the Madang language Amele, which share upwards of 90 percent cognate vocabulary, so it is difficult to interpret the phonological differences between Magi and Aisi in a principled way.

3.2 MORPHOLOGY. An exhaustive morphological comparison between the two languages is beyond the scope of this paper, so I focus here on four topics: pronouns, demonstratives, inalienably possessed nouns, and verbal inflection.

I begin with pronouns. The Magi forms are given in table 4 and the Aisi ones in table 5. The subject pronouns are broadly similar, differing only in that Magi has centralized vowels in the 1SG and 3SG, and Aisi has a nasal consonant in the 1PL. The object pronouns are quite different, and seem to be built with different formatives that were combined with the subject pronoun root. The Magi singular forms show both *d* and *ŋ* formatives, which are descended from two separate Proto-Sogeram enclitics (Daniels 2015:322), while Aisi shows only *ŋ* (although this could be the result of irregular lenition of the *d* formative, the expected reflex of which is /r/). In the plural both languages have *d*

TABLE 4. MAGI PRONOUNS

| | Subject | Object | Possessive | Benefactive | Emphatic |
|-----|---------|---------|------------|-------------|----------|
| 1SG | yi | yadiŋ | yaka | yasi | yabi |
| 2SG | na | nadiŋ | naka | nasi | |
| 3SG | ni | nidiŋ | nuku | nisi | nibi |
| 1PL | ari | adaniŋ | arikuŋ | adansi | arib |
| 2PL | nari | nadaniŋ | narikuŋ | nadansi | |
| 3PL | niri | nidaniŋ | nurukuŋ | nidansi | |

TABLE 5. AISI PRONOUNS

| | Subject | Object | Possessive | Emphatic |
|-----|---------|-----------|------------|----------|
| 1SG | ya | yaŋ | yaka | yabi |
| 2SG | na | naŋ | naka | nabi |
| 3SG | nu | nuŋ | niku | nibi |
| 1PL | ani | anigunuŋ | andu | ambi |
| 2PL | nari | narigunuŋ | narikuŋ | narib |
| 3PL | niri | nirigunuŋ | nirukuŋ | nirib |

formatives, but they combine them with different elements: Magi *niŋ* appears to be an accusative postposition that grammaticalized from the Proto-Sogeram 3SG object pronoun **niŋ* (Daniels 2015:325), while Aisi *gunuŋ* appears to be related to the genitive postposition *giniŋ*.

The possessive pronouns are, once again, quite similar, with the exception of the 1PL form. In Magi it resembles the other plural pronouns, but in Aisi it is idiosyncratic.

Magi has an innovative set of benefactive pronouns that is quite plainly formed with the benefactive postposition *si*. This form is still found as a postposition in both Aisi (1) and Magi (2), although it is unclear under what circumstances it is phonologically bound in the latter.⁵

- (1) AISI
 Kwi siβ yaka **si** mindam-eŋ.
 back village 1SG.POSS BEN think-1SG.IPST
 ‘I think back to my village.’

- (2) MAGI
 Na ai=**si** ka-ŋga y-aŋ?
 2SG what=BEN MD-ADJZ do-2SG.IPST
 ‘What are you doing that for?’ (Elicited)

Finally, an emphatic set of pronouns is found in both languages, although I did not elicit a complete paradigm in Magi. We can still see, though, that in the 1PL Magi /r/ corresponds to a nasal in Aisi.

Demonstratives are shown in table 6. In both languages they are composed of a root indicating deictic distance, plus a suffix indicating the (usually case-marking) function of the demonstrative. Table 6 presents only the Aisi suffixes that have functional equivalents in Magi, meaning that a few Aisi suffixes have been left out of the list. It is also likely that Magi has additional suffixes that were not encountered during my fieldwork.

Once again, individual forms vary but the broad outline of the system remains consistent. The consonant in the Aisi middle deictic root has undergone lenition to /g/, but, otherwise, all three roots are the same. Three of the five suffixes also correspond, but the accusative and adjectival forms do not.

TABLE 6. DEMONSTRATIVE MORPHOLOGY

| | | Magi | Aisi |
|------------------|-------------|------|------|
| Roots: | near | na- | na- |
| | mid | ka- | ga- |
| | far | ara- | ara- |
| Suffixes: | nominative | -ku | -ku |
| | accusative | -niŋ | -kuŋ |
| | locative | -niŋ | -niŋ |
| | existential | -nd | -ndi |
| | adjectival | -ŋga | -rib |

5. Glosses generally follow the Leipzig conventions. The following less common abbreviations are used: ADJZ, adjectivizer; COM, comitative; DS, different subject; EMPH, emphatic; EXST, existential; FPST, far past; HAB, habitual; IPST, immediate past; MD, middle deictic distance; ND, near deictic distance; PTCP, participle; QUOT, quotative; SPEC, specific; SS, same subject.

Both languages also possess a subclass of inalienably possessed nouns. Unlike other subclasses of nouns, this subclass is morphologically complex, having an obligatory prefix that indexes the person of the possessor. This prefix is *ya-*, *a-*, or *i-* for first person possessors; *na-* for second person possessors; and *ni-*, *ni-*, or *nu-* for third person possessors. (In Aisi, the *ni-* and *nu-* prefixes are realized as *ne-* and *no-*.) The choice of allomorph in the first and third person is lexically determined for each noun. An example from each language is given in (3) and (4).

- (3) MAGI
 Bi **nu-gi** niri, gwande miŋ-is-uŋ.
 ground 3.POSS-father 3PL money take-FPST-3PL
 ‘The landowners (lit. ‘fathers of the land’) got paid.’
- (4) AISI
 Ni-sim kip-e, apir yaŋgr-e, ga w-e.
 3.POSS-brother get.up-3SG.IPST dog gather-3SG.IPST TOP go-3SG.IPST
 ‘His brother got up, got the dogs, and left.’

While the general system is the same in both languages, there is considerable variation among forms. For example, the 1.POSS form for ‘father’ is suppletive in both languages, but in Magi it is *waba* and in Aisi it is *ika*. Perhaps more importantly, the class of inalienably possessed nouns appears to be eroding in Magi as first person forms replace second and third person forms. I recorded eight Magi inalienably possessed nouns that are still morphologically productive, but many of the forms I was given were considered antiquated by my consultants.

Finally, a comparison of verb morphology reveals the same story. Magi and Aisi share many paradigms with almost identical suffixes, including the immediate past, the far past, and the future. The Magi same-subject suffix is also cognate with the Aisi form. The imperative and counterfactual paradigms also resemble each other, but investigation into the Magi paradigms was not complete enough to enable a full comparison. In each case, there is some variation, but they are minor enough that the paradigms can be considered basically “the same.” To illustrate, the immediate past paradigm is given in table 7. Here we see that Aisi exhibits a pattern of variation between mid and high vowels in the 1SG, 3SG, and 3PL forms, while Magi possesses only the high variants. This is part of the broader pattern, described in 3.1 above, whereby Aisi mid vowels often correspond to Magi high vowels. There is also variation in the 1PL form, which is syncretic with the 2PL in Magi but with the 2SG in Aisi. These respective patterns of syncretism are found in many paradigms in each language. In spite of these variations, however, the immediate past paradigms in these two languages are clearly cognate with one another.

TABLE 7. IMMEDIATE PAST SUFFIXES

| | Magi | Aisi |
|-----|------|-----------|
| 1SG | -iŋ | -eŋ / -iŋ |
| 2SG | -aŋ | -aŋ |
| 3SG | -i | -e / -i |
| 1PL | -ar | -aŋ |
| 2PL | -ar | -ar |
| 3PL | -uŋ | -oŋ / -uŋ |

The habitual and different-subject paradigms, however, exhibit more significant differences. The habitual forms are given in table 8. These paradigms may be cognate, but if they are, they are not relatable to one another via regular sound correspondences. Rather, the Aisi forms seem to have undergone irregular lenition of the /t/ found in Magi as well as several irregular changes to the vowels.

Table 9 shows the different-subject medial suffixes for each language, and here the forms are almost completely different. The 1SG forms are the same, and the /k/ in the Aisi 1PL may correspond historically to the /k/ in the Magi 2SG, 1PL, and 2PL. For that matter, so may the /g/ in the Aisi 3SG, 2PL, and 3PL. But whether or not a historical relationship can be uncovered between individual suffixes in these two paradigms, synchronically they are quite different.

TABLE 8. HABITUAL SUFFIXES

| | Magi | Aisi |
|-----|----------|--------|
| 1SG | -ite-ŋ | -er-iŋ |
| 2SG | -ity-aŋ | -er-aŋ |
| 3SG | -ite-i | -er-i |
| 1PL | -ite-r | -er-aŋ |
| 2PL | -ite-r | -er-ar |
| 3PL | -itya-uŋ | -er-uŋ |

TABLE 9. DIFFERENT-SUBJECT SUFFIXES

| | Magi | Aisi |
|-----|---------------|----------------|
| 1SG | -ikiŋ | -ikiŋ |
| 2SG | -ikaŋ | -inda |
| 3SG | -iniŋ | -egi / -eginiŋ |
| 1PL | -ikar | -ikuŋ |
| 2PL | -ikar / -isir | -ogi |
| 3PL | -inuŋ | -ogi / -oginiŋ |

3.3 SYNTAX. The grammar of Magi is still quite poorly understood, but even during my brief fieldwork I was able to discover significant ways in which it differed from Aisi. In this section, I describe only one such way: serial verb constructions (SVCs), which are quite common in Magi but lacking in Aisi.

While verbs are always affixed in Aisi, in Magi they can occur as unaffixed roots in SVCs. This is nicely illustrated in (5), where the verb *yakite* ‘come up’ is first affixed with the 1SG.DS suffix *ikiŋ* and later occurs without affixation in a clause where the affixation is carried by *kapirk-itiŋ* ‘throw and’.

- (5) MAGI
Yakite-kiŋ, aŋ akwab mig-iniŋ, tewad taku sibi-kiŋ
 come.up-1SG.DS water middle come.down-3SG.DS leaf cut cover-SS
yakite, tewad kapir-kiŋ ...
 come.up leaf throw-SS

‘I came up and it rained in the middle (of the road) and I cut a leaf and covered (myself) and came up and (it stopped raining and) I threw the leaf away and ...’

Unaffixed verbs are sometimes identical to their affixed counterparts, as with *yakite*, but sometimes add a final /i/. It is unclear whether this variation is predictable. The examples below show the verb *abi* ‘speak’ in its unaffixed form (6) and its affixed form *ab-* (7).

(6) MAGI
 U-kitiŋ **abi** ir-ibyaŋ s-iŋ.
 go-SS **speak** perceive-1SG.FUT say-1SG.IPST
 ‘‘I’ll go speak (to him) and listen,’’ I said.’

(7) MAGI
 Okei ari agenda, amur ki **ab-ar** s-iŋ.
 okay 1PL two one.day.away speech **speak-1PL.IPST** say-1SG.IPST
 ‘‘Okay, tomorrow the two of us will talk,’’ I said.’

4. THE HISTORICAL PERSPECTIVE. I have already mentioned various historical developments in the previous sections, but here I attempt to draw them all together, add a few more, and provide a more complete picture of the way the Aisian languages developed together from their common ancestor, Proto-Sogeram, and how they have been developing independently since splitting up. This discussion draws heavily on the historical analysis in Daniels (2015).

From the Proto-Sogeram stage, both Aisian languages share nine phonological innovations, three of which were also shared with neighboring languages. The innovations shared with their neighbors were:

- (i) the creation of prenasalized stops from nasal + voiceless stop clusters (although prenasalization was later lost; see below);
- (ii) the loss of word-final nasals (Proto-Sogeram **uram* ‘house’ > Magi *ur*, Aisi *uru*); and
- (iii) the assimilation of **i* to a nearby high vowel (**kimu* ‘die’ > Magi, Aisi *kum-*).

The six changes that are exclusive to the Aisian languages are:

- (i) the loss of word-final **i* (**impi* ‘name’ > Magi, Aisi *ib*);
- (ii) the denasalization of prenasalized stops (**mĩŋka* ‘come down’ > Magi, Aisi *mig-*, pronounced [mĩŋ-]);
- (iii) loss of **r* when adjacent to a velar consonant (**mirkwa* ‘cordyline’ > Magi *miku*, Aisi *meko*);
- (iv) centering of word-final **a* to **i* (**sika* ‘piece’ > Magi, Aisi *sikĩ*);
- (v) simplification of **ai* to **e* (**umai* ‘bean’ > Magi, Aisi *ume*); and
- (vi) the merger of **ñ* and **n* to **n* (**ña* ‘eat’ > Magi, Aisi *n-*).

The case for this last change is less than perfect, as Magi has reintroduced /*ñ*/ into its phoneme inventory and appears to have retained (or borrowed) at least one instance of Proto-Sogeram **ñ*: **kañaŋ* ‘bone’ > Magi *kañaŋ*. Nevertheless, most Magi reflexes of Proto-Sogeram **ñ* are /*n*/, as are all Aisi reflexes.

After the breakup of Proto-Aisian, I record one Magi phonological innovation and four Aisi ones. In Magi word-final **ir*, which would have been realized as syllabic *[r], became /i/ (**vir* ‘ground’ > *bi*). In Aisi:

- (i) **i* and **u* were lowered to /e/ and /o/ in three environments: before **i* (**mukir* ‘white hair’ > *mokir* ‘white (of hair)’); before or after **a* (**kariv* ‘flying fox’ > *kareb*, **kuŋkra* ‘cook’ > *kogr-*); and word-finally (**kari* ‘betelnut’ > *kare*);

- (ii) *d lenited *d, merging with *r (*kintir ‘root’ > *kidir > *kirir*);
- (iii) initial *v became a glide /w/ or vowel /u/ (*vanjan ‘bag’ > *waji*, *vika- ‘slice, cut’ > *uk-*); and
- (iv) vowels preceding *kw were raised and rounded (*tanjwa ‘step on’ > *tog-*).

There are many other differences between the phonological look of the two languages, but none of them are systematic enough to propose a regular sound change to account for them. This is an area that would benefit from further research.

When examining the other historical developments that have separated Magi from Aisi, it seems that Aisi is in many respects the more innovative language. This perception may, however, be an illusion that is due to the fact that Aisi is better understood, so innovations can simply be spotted more easily. For example, serial verb constructions were a feature of Proto-Sogeram grammar (Daniels 2015:126–53) and Aisi is innovative in that it no longer makes use of them. It would be difficult to make similar observations about Magi, since its grammar is not understood well enough to say with confidence that it lacks any particular feature.

The Aisi 1PL subject pronoun *ani* is also innovative in changing the *r in Proto-Sogeram *ara to a nasal; Magi *ari* preserves the flap (Daniels 2015:239). However, Z’graggen (1980a:83) records both *ani* and *ari* in Aisi. It may be that *ari* is used in other villages; I only went to Musak, while Z’graggen apparently also visited, or spoke with people from, Banam and Sepu. It may also be the case that *ari* has fallen out of use in Aisi since Z’graggen conducted his fieldwork in the late 1960s.

Aisi has also innovated a syncretic pattern whereby the 2SG and 1PL verbal agreement suffixes are often homophonous (usually involving the sequence *-aj*); it is unclear how this took place. The Magi syncretism between 1PL and 2PL, on the other hand, is the result of sound changes: Proto-Sogeram *-riŋ ‘1PL’ and *-ra ‘2PL’ became *-r ‘1PL’ and *-ri ‘2PL’ via the sound changes described above, and *-ri then underwent irregular phonological attrition to merge with the 1PL suffix as *-r*.

One respect in which Magi is innovative is in the loss of productivity in the system of inalienable possession. Inalienably possessed kin terms are securely reconstructed to Proto-Sogeram on the basis of widespread reflexes across the family (Daniels 2015:235), but in Magi they seem to be falling out of use as the first person possessive forms are generalized. Magi has also, as mentioned above, innovated a new set of benefactive pronouns ending in *-si*.

Given the many innovations that Magi and Aisi share, it is clear that they should be classified as close relatives. Thus, I place Magi in the Eastern branch of the Sogeram family and posit that, together with Aisi, it forms a lower-order subgroup that I call Aisian, as shown in figure 1.

5. MUTUAL INTELLIGIBILITY. While I was in Wanang conducting fieldwork on Magi, I played my consultants some Aisi recordings that I had made previously and quizzed them to gauge their level of comprehension. Later, after I had returned to Madang town, some of my Aisi contacts came to town on personal business and met with me there. During our meeting, I conducted the same research again, but in reverse. I

played the Aisi speakers some of the Magi recordings I had made in Wanang and quizzed them to gauge their level of comprehension.

One could obviously improve upon this methodology. It would be particularly useful to have control studies, in which Magi speakers listen to Magi recordings and their level of understanding is then ascertained, but unfortunately this was not possible in the limited time available to me. In spite of this methodological shortcoming, a clear pattern emerges from the data: speakers were able to understand the other variety fairly well when the topic of the recording was familiar to them, but did substantially worse when it was not. In addition to this, it seems that Aisi, being a language with many more speakers, is more familiar to speakers of Magi than vice versa. The sections below present a qualitative discussion of the results of each playback session.

5.1 MAGI SPEAKERS HEARING AISI RECORDINGS. I played Aisi recordings to two Magi speakers, Marson Mareba and Jori Umbaŋ. Both are male and are fluent speakers, although Jori, being older and less educated, seemed to have a better command of the language. Both are also fluent in Tok Pisin. Jori also considered himself fluent in Aisi, which he considered a foreign language. Marson did not consider himself fluent in any of the neighboring languages.

The first recording I played for Marson was a traditional legend called “She ate her daughters-in-law” (duration 1:33), told by Antonia Sirakura. He understood it more or less perfectly and recalled several details of the recording accurately. However, the story was very familiar to him and he claimed that it was really a story of Wanang village more than a Musak village story.

Following that I played him a second recording, this one titled “Of two minds” (duration 1:53). In it, Damien Sirakura, a resident of Musak, describes the village’s first contact with white Europeans. The story goes that the villagers were terrified at the sight of them and fled into the forest, but the Europeans enticed them back with salt, which the villagers found delicious. Once they had all come back the Europeans proved deceptive and stole all the villagers’ strength. The speaker then turns to discuss his own conflicted feelings about my arrival in the village and my interest in their language, wondering whether my research is a similar ruse and whether their cooperation will lead to a similar fate.

Marson had a much more difficult time with this recording. He initially focused on an instance of Tok Pisin code-switching, in which Damien said *stori yaka* [story 1SG.POSS] ‘my story’ instead of *ki yaka*. When I asked him about the content, Marson situated the story correctly, in the distant past, and said that it involved some people going around in the forest. But when I asked him what they were doing in the forest, instead of saying they were hiding from the Europeans, he named stereotypical forest activities, saying they were “hunting, gathering food, gathering different things.”⁶ He demurred on a few more questions about the content of the recording before saying that while he can understand shorter stretches of speech, “on long ones, I’ll lose the thread. Because I ... grew up away from here. At school. As a little kid. That’s why I’m messing up a bit.”⁷ He assured me that an older speaker, like Jori, would do better.

6. In Tok Pisin: “Painim abus, painim kaikai, painim wanem wanem samting.” All interviews for this paper were conducted in Tok Pisin. I quote English translations in the text, and provide the original Tok Pisin transcripts in the footnotes.

The first recording I played for Jori was “Akwangi’s story” (1:45), a funny story told by Antonia Sirakura about an accident that happened to a man from Musak who had died some years back. Early one morning, he ate a quick breakfast of pumpkin seeds and went to hunt crayfish. Seeing a particularly big one, he was so enticed that he followed it into a hole in a dead ironwood trunk, where he got his head stuck. Fearing for his life, he thrashed and thrashed in the water, and defecated his meager breakfast in fright. Eventually freeing himself, he went home to his wife, smashed the goggles and exclaimed, “I’ll never fish again!” Jori recalled almost every detail correctly: that Akwangi went fishing, that he saw a big crayfish, that it drew him into an ironwood hole, that he had only had pumpkin seeds for breakfast, that he had defecated them, that he had gotten out, broken his goggles and vowed never to fish again. He mistakenly said that Akwangi broke his goggles on the riverbank instead of in his house, but that could just as easily be due to misremembering as misunderstanding. It is unclear whether Jori was familiar with this story, although he had fairly strong personal ties to Musak, so it is possible that he was.

Next I played him “Chris’s story” (3:22), told by Martin Mikim about his visit to the faraway mountaintop village of Igoi to see the American missionary Chris who lived there. Once again, Jori was able to recall the story almost in its entirety: how Martin heard about the missionary in Igoi and decided to go, how a resident asked him what he had come for, how he answered that he came to see Chris, how Chris had built a large house, how he was in America at the time and Martin didn’t get to see him, and how he returned to his village after spending one night in Igoi.

There were three inaccuracies in Jori’s retelling. First, he added a coda to the story in which Martin declares that someday he will return to Igoi, although such a coda is not in the recording. Second, in the recording Martin describes how he turned around as he was scaling the mountain towards Igoi and saw his home far off in the distance. Jori did not recall this scene, and when I asked him “What did Martin turn and see when he climbed Igoi?” he answered, “He saw the house. He said, ‘They were building a house,’ and he said, ‘this house, they took ten sheets of metal and they were building his house.’”⁷ Third, Martin describes how the house was partially roofed with sheet metal, but several sheets were still lying on the ground. When I asked Jori whether he had put the sheet metal on the house yet when Martin was there, he answered, “They must have finished putting it up.”⁸ In general, then, Jori understood this story and was able to recall it accurately. His minor errors may be due to a combination of its unfamiliarity and its relative length (it was 3 minutes and 22 seconds long, while the other recordings were all less than 2 minutes).

Finally, I played Jori “Of two minds,” which Marson had heard earlier. He understood and recalled the first half of the recording well: how the villagers used to be afraid of white people; how they were enticed with salt; how they came back, tasted it, and liked it; and how the white people stole their strength and now the villagers live like they do. However, it seems that Jori missed Damien’s transition to a discussion regarding his feelings about me. He interpreted all of Damien’s musings in the second half of the recording

7. “Long pulim i go, em bai mi go popaya nambaut. Bikos mi ... stap long hap na i go bikpela. Long skul. Mangi yet i go na. Olsem na mi paul liklik na na.”

8. “Man ia em go antap long Igoi na em tanim na em lukim wanem samting?” “Em i lukim haus. Em tok, ‘Ol wokim haus,’ na, ‘haus ia,’ em tok, ‘ol kisim tempela hap kapa na, ol wokim haus bilong en.”

9. “Em mas, ol putim pinis.”

as being about the original white tricksters, instead of about the unexpected white linguist who was suddenly in his village. But he did adequately describe Damien's ambivalence, although he did not ascribe it to Damien: "They thought like that, they said 'Oh, are they honest men, or deceivers,' or something like that."¹⁰

In general, then, Magi understanding of Aisi was fairly high. The lexical and structural differences between the two were not enough to impede understanding about familiar topics. When dealing with unfamiliar topics, Jori was able to understand most of what was said, while Marson appeared to lose the thread more quickly. The issue of second language fluency also comes into play here. Magi and Aisi are geographically adjacent and speakers of both are in frequent contact. This is especially true of Magi, which is a smaller language whose speakers, for all intents and purposes, must have contact with Aisi speakers in the normal course of their lives. Jori, being older and having spent less time away at school, seems to have acquired a decent level of fluency in Aisi. But while Magi speakers almost always have contact with Aisi speakers, the reverse is not the case, as will be seen below.

5.2 AISI SPEAKERS HEARING MAGI RECORDINGS. Maria Kanuma had been my "host mother" when I conducted fieldwork in Musak, and she came to Madang town with some of her children and relations about two months after I conducted my fieldwork in Wanang. I visited her where she was staying, and played her two recordings that Jori had made.

The first was "The white man came" (3:57), which deals with my arrival in the village. Jori starts by describing himself and his family working on a fence. When they got hungry, they realized there was no food in the house or in the garden, so they went to the forest to get some sago. He stayed there for the Seventh Day Adventist Sabbath and decided to return to Wanang alone on Sunday. On the way, he heard of my arrival in the village and decided to pay me a visit. Soon after that it started to rain, and he cut a banana leaf to cover up. When he got to the village he came to find me and saw me eating sweet potatoes with the skin on them. He greeted me, and we decided to work together the next day.

Maria was able to correctly recall three details of the story: that Jori was processing sago, that he got rained on, and that he came home. One of her children also caught the fact that people were covering up with banana leaves. All of the other details were missed—building the fence, the lack of food, the news of the white man, his first impression of me, and our conversation. Maria remarked that "he mixed some of his language with what they say down there, and I couldn't follow it."¹¹ A series of questions about Jori's seeing me in the village were also revealing. When I asked whom he saw upon his return to the village, she replied, "No way, he, he said he came and saw someone, huh? Who . . . he saw a man, on the path, it must have been some friends, I think. And he came, and he got to his house and he said, 'That's it.'" Then I asked, "And he saw this man, and what was the man doing?" and she answered, "No, he didn't, I don't know. I think it must be the speech from down there so, so I can't understand well."¹²

The second story Maria heard was "They made a road" (2:35), about the construction of a road through Wanang that was eventually supposed to reach the Ramu River. The

10. "Ol i tingting olsem, ol tok 'O, em ol man truru o, o, gyaman man, o,' kain olsem."

11. "Olsem, sampela tokples em, mixim wantaim bilong ol tamblo, na, em mi no inap save."

transcript of this story is reproduced in appendix 2. This is presumably a well-known development in the area, and Maria and her children seemed quite familiar with it. Jori also told it more slowly than “The white man came,” which probably helped comprehension. Maria correctly recalled that two men came to do survey work, that the road was going to go to the Ramu, and that a community leader named Marcus was involved. After her retelling, though, a conversation about the recording began and several facts about the road-building project were discussed that were not mentioned in the recording. In effect, they began retelling the story as they knew it, including the employment process and a large community meeting about the project, which Jori never discussed. It is difficult to know how well they understood the recording, then, since we can only be sure that they understood the general topic. Any details they supplied beyond that may have come from their general knowledge about the project.

The level of understanding that Aisi speakers exhibited about Magi recordings, then, was considerably lower than the reverse. When they listened to recordings about unfamiliar topics, they understood only snippets, and even when they listened to recordings about familiar topics they seemed to draw more on their knowledge about those topics than on the recordings themselves when asked about them. The level of mutual intelligibility between Magi and Aisi, thus, seems to be somewhat asymmetrical. Speakers of Magi are able, to some extent, to understand Aisi. This is probably because Aisi’s greater influence in the area increases their exposure to it, so they are more likely to acquire fluency in it. But when listening to unfamiliar topics, they still struggle, as exemplified by Marson’s retelling of “Of two minds” or Jori’s skipping over details of that recording and “Chris’s story.” Speakers of Aisi, on the other hand, have had very little reason to familiarize themselves with Magi, and consequently are able to understand it to only a fairly limited extent.

6. LANGUAGE ATTITUDES. The issue of language attitudes is perhaps the most unclear that we consider. The speakers of Aisi that I spoke with all considered Magi to be “the same” as their language, but the speakers of Magi considered their own language to be different from Aisi.

During the limited time I had in the field, it was not possible to conduct structured, in-depth interviews on the topics of language variation, mutual intelligibility, and the question of what constitutes a language and whether Magi meets those criteria. However, I did discuss these issues with speakers when I had the opportunity, and I took notes about or recorded these conversations as the moment allowed. Two conversations were particularly revealing in this respect, although it goes without saying that they constitute a fairly limited sample.

The first was with Maria Kanuma and her children. I had just played the Magi recording “The white man came” for them and was asking them questions about its content. One segment is worth reproducing at length, involving Maria (M), her daughter Imelda (I), her son Romsis (R), and myself (D).

12. “Nogat, em, em tokaut em kam lukim man, a? Husai ... em lukim wanpela man, long rot ia, em mas ol wantok man, ating. Na i kam na, i kam kamap long haus na, em tok ‘Em tasol’.”

“Na em lukim dispela man, na man ia mekim wanem?”

“Nogat, em ino, em mi no save. Ating mas tokples bilong tamblo olsem na ... olsem na mi no inap harem tru.”

- D. *Na em lukim dispela man, na man ia mekim wanem?*
 ‘When he saw this man, what was the man doing?’
- M. *Nogat, em ino, em mi no save. Ating mas tokples bilong tamblo olsem na, olsem na mi no inap harem tru.*
 ‘No, he didn’t, I don’t know. I think it must be the language from down there so, so I can’t understand right.’
- D. *Okey, na yupela no inap harem.*
 ‘Okay, you guys can’t understand it.’
- M. *Mm. Sampela, em mipela ino inap harem.*
 ‘Yeah, some of it we can’t understand.’
- D. *Okey.*
 ‘Okay.’
- M. *Sampela toktok em, toktok em, wankain.*
 ‘Some of the things he, said are, the same.’
- D. *Ah, okey.*
 ‘Oh, okay.’
- I. *Hap hap bai mipela harem, hap hap nogat.*
 ‘Some bits we’ll understand, other bits we won’t.’
- D. *Hap hap nogat. Okey. Na, wanem ia, olsem em, em go, painim saksak, tasol, pastaim em mekim narapela samting. Em mekim wanem?*
 ‘Other bits you won’t. Okay. And, um, so he, he went, looking for sago, but, first he did something else. What did he do?’
- M. *Mi no harem gut.*
 ‘I didn’t understand it well.’
- D. *Em tu nogat, ah?*
 ‘That either, huh?’
- R. *Narapela, samting, ino bilong mipela, em hap hap bilong mipela tu.*
 ‘Certain things aren’t [like] ours, but some parts are [like] ours.’
- D. *Okey.*
 ‘Okay.’
- R. *Na i go long bilong ol yet em, mipela ino save.*
 ‘And when it comes to theirs, we don’t know.’
- D. *Em nau. Okey. So yupela ting wanem, olsem, em, sem tokples, o em, em narapela gen?*
 ‘Right. So what do you guys think, I mean, is it the same language or is it a different one?’
- R. *Em wankain tasol.*
 ‘It’s just the same.’
- I. *Em sem.*
 ‘It’s the same.’
- M. *Em bai wankain.*
 ‘It’ll be the same.’

In this transcript, I ask Maria two questions about the recording she just heard, and both times she replies that she couldn't understand the recording properly. But both times she and her children pivot to the fact that, while there may be parts of the Magi recording that they couldn't understand, there are other parts that they could. After this exchange, I ask them whether Magi should be seen as the same language or a separate one, and they all unequivocally answer that it is the same. For them, then, the similarities between Aisi and Magi are much more important than the differences, although they acknowledge that differences do exist. Their emphasis on the sameness of the two speech varieties suggests they would consider the difference between them just a dialect difference, and that is what they say later in the same recording. Here, Maria follows up on someone else's statement about the differences encountered in the Magi recording by saying that all things considered, it's still Aisi. Then I suggest that the differences can be considered just a "different accent" (a "different neck" in Tok Pisin), and they agree with this formulation.

- M. *Tasol dispela em luk olsem, em tokples Aisi yet ia. Em bai wankain olsem.*
'But this seems like, it's the Aisi language. It'll be the same.'
- D. *Em nau. Tasol em putim narapela nek na, na yupela faul liklik.*
'Right. But he has a different accent and you guys have a little trouble with it.'
- M. *Ye.*
'Yeah.'
- R. *Em tanim nek.*
'He has a different accent.'

From the Magi perspective, however, things look rather different. I recorded a brief interview with Jori Umbaŋ about the linguistic situation in and around the village of Wanang. The conversation centered on relationships between speakers of Magi and speakers of three nearby languages: Kima, Okim, and Aisi. Kima is the Aci dialect of Apali (see Wade 1993), while Okim was called Amaimon by Z'graggen (1971, 1975a, 1980b). From the beginning of the interview, Jori put the difference between Magi and Aisi on the same footing as the differences between Magi and Apali and Amaimon. However, Apali belongs to a different branch of the Sogeram family and is, thus, quite different from Magi, and Amaimon is not a Sogeram language, but belongs to a different first-order branch of Madang, the Croisilles subgroup (Ross 2000).

At the beginning of the interview, for example, Jori remarks that "Apali is one [language]. Okay, Amaimon is another. Okay, Mabiŋ [= Aisi] is another. Okay, the Magi language, that's from here."¹³ Later, when discussing the fact that Magi speakers often learn the neighboring languages while outsiders rarely learn Magi, he says "Sepu, Banam, Musak—we speak the language with them. Yeah. Okay, the, uh, Apali language too, we speak the language with them. Also with Amaimon."¹⁴ (Sepu, Banam, and Musak are the three largest Aisi-speaking villages.)

This way of talking certainly suggests that Jori considers Magi to be as different from Aisi as from Apali or Amaimon. Later in the interview, I ask him, "Do you think, like,

13. In Tok Pisin: "Kima em narapela, okey, Okim em narapela, okey, Mabiŋ em narapela, okey tokples Magi, em bilong ia."

14. In Tok Pisin: "Sepu, Banam, Musak em mipela save tokples wantaim. Em. Okey, tokples, ah, Kima tu, em mipela save tokples wantaim. Okim tu olsem."

Mabiŋ [= Aisi], and Magi, are they basically the same, or are they different from each other?" He responded, "They're different from each other."¹⁵

Interestingly, this conclusion seems to be based on roughly the same perception of differences between Magi and Aisi as Maria had. The salient distinction is simply that Maria emphasized the similarities between the two varieties, and Jori emphasized the differences. He said, much like Maria did, that between Magi and Aisi "some things are the same, some things are a bit different."¹⁶ Jori also seemed to be more aware of the one-way nature of intelligibility between Magi and Aisi—that is, he claimed that while Magi speakers could usually understand Aisi, he said that the reverse was not usually the case. Discussing mutual intelligibility with a distant Aisi-speaking village, he said that "We can understand their language. But when we respond, they can't understand."¹⁷ When I asked him about a speaker from a closer village, he said that "They'd understand a bit, but some things they wouldn't understand."¹⁸

All in all, then, speakers of both varieties acknowledge that Magi and Aisi share many features but are also different in many respects. Where they differ is in their assessment of the relative importance of these two facts. For the Aisi speakers I interviewed, the differences were considered minimal—even when they hindered comprehension of a Magi recording—and the similarities were much more important. The two varieties were considered essentially "the same." For the Magi speaker I interviewed, though, the differences were much more significant. He acknowledged that there were similarities, and that Magi speakers usually learned Aisi (and other languages) due to the small size of their own language community, but he believed that Aisi speakers rarely attained fluency in Magi and would often be unable to understand it. For him then, in spite of the similarities, the two varieties were fundamentally different.

7. CONCLUSION. Deciding when two speech varieties constitute separate languages is difficult, and the question may not be answerable in an *a priori* sense. But it is still worth deciding the question for individual cases, and I have attempted to do that by taking into account as wide a range of factors as possible: lexicon, phonology, morphology, syntax, history, mutual intelligibility, and language attitudes. There is considerable agreement between the different criteria, most of which indicate that Magi and Aisi are closely related, but not closely enough to suggest that they should be considered the same language. The level of concord between the various criteria is actually somewhat remarkable. The only criterion that clearly suggests that the two speech varieties are dialects was the attitude of the Aisi speakers I interviewed. However, since the Magi speaker I interviewed considered the varieties different languages, and since this view accords better with the other pieces of evidence, I side with him in my analysis. All in all, it seems fairly clear that Magi is a different language from Aisi.

15. In Tok Pisin: "Yu ting wanem, olem, tokples Mabiŋ, na tokples Magi, em tupela wankain liklik, o tupela narapela narapela?"

"I narapela narapela."

16. In Tok Pisin: "Sampela samting i, em wankain, sampela samting em, i narapela narapela liklik."

17. In Tok Pisin: "Em tokples bilong ol mipela kilia. Tasol bekim bilong mipela ol ino inap kilia."

18. In Tok Pisin: "Bai ol i kilia liklik, tasol sampela samting, bai ol ino inap kilia."

This conclusion naturally raises the question of what to do when the criteria we examine do not agree with each other. Since that is not the situation at hand, any attempt at an answer here would be mere speculation. I suspect the process of weighing conflicting criteria against each other will have to make reference to situation-specific factors, but this question will have to await future research into a more ambiguous language situation.

These findings reemphasize the importance of fieldwork in Papua New Guinea (Koch et al. 2014) and highlight our considerable lack of knowledge regarding the more remote parts of the country. The language maps that circulate of Madang Province have changed little since Z'graggen's pioneering work, although it is clear that they still need much revision. For example, the village of Lai, shown in map 1, is found on a number of maps of the province, but language maps consistently mark the stretch of the Ramu south of Apali territory as uninhabited. This raises an obvious question: what language do the residents of Lai speak? The village is not mentioned by Z'graggen, nor has it been visited by any other surveyor that I am aware of. The best information I have found comes from a recent survey conducted by New Tribes Missions (Hamb and Sutton 2012) in which the surveyors spoke with residents of Sepu about the situation downriver. Their consultants believed that the residents of Lai spoke a language similar to their own, but we clearly stand to benefit a great deal from more detailed linguistic surveying of the area.

APPENDIX 1. WORDLISTS

The two wordlists are given below, ordered by Swadesh number. Where a meaning has been excluded from my count, the corresponding number is simply skipped. In the Cognate column, *y* means 'cognate', *n* means 'not cognate', *y?* means 'probably cognate', and *n?* means 'probably not cognate'.

| # | Meaning | Magi | Aisi | Cognate |
|----|---------|---------|---------|---------|
| 1 | I | yi | ya | y |
| 2 | thou | na | na | y |
| 3 | we | ari | ani | y? |
| 4 | this | naku | naku | y |
| 5 | that | araku | araku | y |
| 6 | who | niŋe | nini | y? |
| 7 | what | ai | ai | y |
| 8 | no | magi | mabiŋ | n |
| 10 | many | mugum | mangima | n |
| 11 | one | pabra | pabra | y |
| 12 | two | agrenda | agrenda | y |
| 13 | big | kuŋar | kuŋar | y |
| 14 | long | garaŋ | garaŋ | y |
| 15 | small | animini | animini | y |
| 16 | woman | abi | abi | y |
| 17 | man | kur | kuru | y |
| 19 | fish | kyanŋi | kyanŋi | y |
| 20 | bird | kapi | kapi | y |
| 21 | dog | api | apir | y |
| 22 | louse | imaŋ | imu | y? |
| 23 | tree | te | tar | y |
| 24 | seed | kisir | kisir | y |
| 25 | leaf | tewad | taŋar | n |

| # | Meaning | Magi | Aisi | Cognate |
|----|----------|---------------|-----------|---------|
| 26 | root | kinam | kirir | n |
| 28 | skin | sigid (dib?)* | dibi | y? |
| 29 | flesh | kisiki | kisiki | y |
| 30 | blood | igam | igam | y |
| 31 | bone | kañan | dagar | n |
| 32 | grease | sirañ | siri | y? |
| 33 | egg | kimbi | anoñ | n |
| 35 | tail | kwari | kwari | y |
| 37 | hair | sisi | ari | n |
| 38 | head | katam | katam | y |
| 39 | ear | duwag | dugag | y? |
| 40 | eye | tami | tami | y |
| 41 | nose | mumukatam | mumu | y |
| 42 | mouth | simbikatam | sumboi | y? |
| 43 | tooth | maki | maki | y |
| 44 | tongue | migin | sagwi | n |
| 46 | foot | añgi | añgi | y |
| 47 | knee | kugad | koge | y? |
| 48 | hand | kimib | kumob | y |
| 49 | belly | kitim | kumu | n |
| 50 | neck | sakum | nagum | n |
| 51 | breasts | ami | ami | y |
| 53 | liver | mapim | umbañ | n |
| 55 | eat | n- | n- | y |
| 56 | bite | is- | is- | y |
| 57 | see | timbr- | timbr- | y |
| 58 | hear | ir- | ir- | y? |
| 60 | sleep | ambit kin- | añgin- | n |
| 61 | die | kum- | kum- | y |
| 62 | kill | iw- | iw- | y |
| 63 | swim | añ sud- | añ sor- | y |
| 64 | fly | pug- | brir am-† | n? |
| 65 | walk | kr- | kr- | y |
| 66 | come | ye- | wi- | n |
| 68 | sit | mĩnga kin- | kinĩgam- | n |
| 69 | stand | dugwa pam- | togapam- | y? |
| 70 | give | igw- | igw- | y |
| 71 | say | s- | u- | n |
| 72 | sun | wayañ | wayañ | y |
| 73 | moon | irina | irina | y |
| 74 | star | tindi | tendi | y |
| 75 | water | añ | añ | y |
| 76 | rain | añ | am | n? |
| 77 | stone | gwande | gwande | y |
| 78 | sand | misab | upo | n |
| 79 | earth | bi | ur | y |
| 80 | cloud | kami | kamo | y |
| 81 | smoke | apis | piſi | y |
| 82 | fire | ab | ab | y |
| 83 | ash | ibur | ibir | y |
| 84 | burn | tu- | tu- | y |
| 85 | path | kib | kib | y |
| 86 | mountain | param | ware | n |
| 90 | white | kiki | mor, niñ | n |
| 91 | black | griñ | greñ | y |
| 92 | night | uminda | urakir | y |
| 94 | cold | karu | kibur | n |
| 95 | full | mitate | yakarate | n |

| # | Meaning | Magi | Aisi | Cognate |
|-----|---------|--------|--------|---------|
| 96 | new | arim? | kiki | n? |
| 97 | good | upinaŋ | urunda | n |
| 99 | dry | ginaŋ | genaŋ | y |
| 100 | name | ib | ib | y |

* One Magi consultant provided *dib*, but another considered it an Aisi loan and gave *sigid*.

† Z'raggen (1980a:64) recorded Aisi *puge-*, but my consultant rejected it.

APPENDIX 2. MAGI TEXT

The following is a brief text in Magi, as told by Jori Umbaŋ. It is called “They made a road” (“Kib tuguramsuŋ” in Magi, “Ol wokim rot” in Tok Pisin), and it deals with the construction of a road near the village of Wanang. It is transcribed in rough intonation units, although I have often combined separate intonation units onto the same line for space reasons and indicated the boundary with punctuation. The translation from Magi into Tok Pisin is his; the translation from Tok Pisin into English is mine.

Oke. Yi asad mu uku-byaŋ. Asad ka-ku ka-ŋga.
 okay 1SG story SPEC tell-1SG.FUT story MD-NOM MD-ADJZ
 ‘Okei. Mi bai mekim wanpela stori. Stori em olsem.’
 ‘Okay. I’m going to tell a story. The story goes like this.’

Ari mandi, minde kwari ki-te-r.
 1PL before grass.sp tail stay-HAB-1PL
 ‘Bifo mipela save stap long tel bilong kunai.’
 ‘We used to live at the tail end of a kunai field.’

Minde kwari kiti kiti, tam-ikar ga, ab-is-uj.
 grass.sp tail stay.SS stay.SS put-1PL.DS TOP speak-FPST-3PL
 ‘Mipela stap long tel bilong kunai i go go na, ol i tok.’
 ‘We lived by the field for a long time, and then they spoke.’

Joswan=da, Jon Opan=da. Sebya kinaŋ tikaye-uj ab-is-uj.
 Joswan=COM John Opan=COM survey group? bring-3PL.IPST speak-FPST-3PL
 ‘Joswan wantaim John Opan. “Ol kisim ol sevey lain i kam,” ol tok olsem.’
 ‘Joswan and John Opan did. “They’re bringing some surveyors,” they said.’

Kib narikuŋ tugram-bi si. Ki ka-niŋ aŋandam-s-ar.
 path 2PL.POSS make-NMLZ BEN speech MD-ACC hear-FPST-1PL
 ‘“Ol laik wokim rot bilong yupela.” Mipela harim dispela toktok.’
 ‘“To build you guys a road.” We heard this news.’

Aŋandami kiti kiti, kin-ikar ga bikman arikuŋ mu,
 hear stay.SS stay.SS stay-1PL.DS TOP big.man 1PL.POSS SPEC
 ‘Mipela harim i stap na, mipela i stap na, wanpela bikman bilong mipela.’
 ‘We were hearing this, and we stayed, and one of our big men,’

ib nuku, Markus. Nu niri=ra sab tam-is-i. Sebya sab.
 name 3SG.POSS Markus 3SG 3PL=COM work put-FPST-3SG survey work
 ‘Nem bilong en Markus. Em wok wantaim ol. Em wok sevey.’
 ‘His name was Markus. He worked with them, on the survey work.’

Tam-is-uj ka-ku, kib tugram-ba u-ba kiti kiti kiti kiti kiti kiti kiti,
 put-FPST-3PL MD-NOM path make-PTCP go-PTCP stay.SS stay.SS stay.SS stay.SS stay.SS stay.SS
 ‘Ol wokim rot i go go go go,’
 ‘They built and built and built and built the road.’

Ramu an=in, supe-s-uj. Supe kapir-kitij ga, ya-s-uj. Sapa.
 Ramu water=LOC finish-FPST-3PL finish throw-SS TOP come-FPST-3PL back
 ‘Ol i go pinisim long Ramu wara. Pinisim olgeta na, ol i kam. Ol i kam bek.’
 ‘They finished by the Ramu River. They finished it and came. Back.’

Ye kin-inuj kin-inuj ga, masin ya-s-i.
 come stay-3PL.DS stay-3PL.DS TOP machine come-FPST-3SG
 ‘Ol i kam i stap i stap na, masin i kam.’
 ‘They came and stayed a while, and then the machine came.’

Masin Opan gin=da, Joswan gin=da.
 machine Opan POSS=COM Joswan POSS=COM
 ‘Masin bilong Opan, masin bilong Joswan wantaim.’
 ‘Opan’s machine, and Joswan’s machine.’

Kib na-nij tugram-ba ya-s-uj.
 path ND-ACC make-PTCP come-FPST-3PL
 ‘Ol wokim dispela rot i kam.’
 ‘They built the road this way.’

Ya-nuj ga, ari minde kwari tawat kitij, Wanaj yakite-s-ar.
 come-3PL.DS TOP 1PL grass.sp tail leave and Wanang come.up-FPST-1PL
 ‘Ol i kam na mipela lusim tel bilong kunai na, mipela kam long Wanang.’
 ‘When they came we left the tail end of the kunai field and came to Wanang.’

Yakite kitij ga, na-nij ki-s-ar.
 come.up and TOP ND-LOC stay-FPST-1PL
 ‘I kam na mipela stap long ia.’
 ‘We came and lived here.’

Kiti kiti ga, nangari na kin-ar na-nj.
 stay.SS stay.SS TOP now and? stay-1PL.IPST ND-?
 ‘Stap i stap na, nau mipela i stap ia.’
 ‘We lived here for a while, and we still live here.’

Ari ga, arib na-n=si, kib upinarj ada tugram-beruj aba.
 1PL TOP 1PL.EMPH ND-?=BEN path good do make-3PL.FUT QUOT
 ‘Mipela ting bai ol wokim gutpela rot.’
 ‘We thought they would build a good road.’

Ka-nja iti kiti ki-s-ar. Asad yaka ka-nd pa.
 MD-ADIZ thus? and stay-FPST-1PL story 1SG.POSS MD-EXST only
 ‘Mipela mekim olsem olsem na mipela i stap. Stori bilong mi em tasol.’
 ‘We did that and now we live here. That’s my story.’

REFERENCES

- Boerger, Brenda H., and Gabrielle Zimmerman. 2012. Recognizing Nalögo and Natügu as separate languages: Code-splitting in ISO 639-3. *Language and Linguistics in Melanesia* 30(1):95–132.
- Cook, Edwin A. 1966. Narak: Language or dialect? *The Journal of the Polynesian Society* 75(4):437–444.
- Daniels, Don. 2010. A preliminary phonological history of the Sogeram languages of Papua New Guinea. *Oceanic Linguistics* 49:163–93.
- . 2014. Complex coordination in diachrony: Two Sogeram case studies. *Diachronica* 31(3):379–406.
- . 2015. A reconstruction of Proto-Sogeram: Phonology, lexicon, and morphosyntax. PhD diss., University of California, Santa Barbara.
- Dyen, Isidore, Joseph B. Kruskal, and Paul Black. 1992. An Indo-European classification: A lexicostatistical experiment. *Transactions of the American Philosophical Society* 82(5):1–132. doi:10.2307/1006517.
- Groves, Julie May. 2010. Language or dialect, topolect or regiolect? A comparative study of language attitudes towards the status of Cantonese in Hong Kong. *Journal of Multilingual and Multicultural Development* 31(6):531–51. doi:10.1080/01434632.2010.509507.
- Hamb, Matt, and Tony Sutton. 2012. Musak/Aisi rapid assessment report. Unpublished ms, New Tribes Missions.
- Klimes, Petr, Cliffson Idigel, Maling Rimandai, Tom M. Fayle, Milan Janda, George D. Weiblen, and Vojtech Novotny. 2012. Why are there more arboreal ant species in primary than in secondary tropical forests? *Journal of Animal Ecology* 81(5):1103–12. doi:10.1111/j.1365-2656.2012.02002.x.
- Koch, Harold, Robert Mailhammer, Robert Blust, Claire Bowern, Don Daniels, Alexandre François, Simon J. Greenhill, et al. 2014. Research priorities in historical-comparative linguistics: A view from Asia, Australia and the Pacific. *Diachronica* 31(2):267–78. doi:10.1075/dia.31.2.04koc.
- Lewis, M. Paul, Gary F. Simons, and Charles D. Fennig, eds. 2015. *Ethnologue: Languages of the world*, 18th edition. Dallas: SIL International.
- Novotny, Vojtech, Scott E. Miller, Jiri Hulcr, Richard A. I. Drew, Yves Basset, Milan Janda, Gregory P. Setliff, et al. 2007. Low beta diversity of herbivorous insects in tropical forests. *Nature* 448(7154):692–95. doi:10.1038/nature06021.
- Owens, Jonathan. 2010. What is a language? : Review of Bernard Comrie, Ray Fabri, Elizabeth Hume, Manwel Mifsud, Thomas Stolz and Martine Vanhove, eds., “Introducing Maltese Linguistics: Selected papers from the 1st International Conference on Maltese Linguistics, Bremen, 18–20 October 2007.” *Journal of Language Contact* 3(1):103–18. doi:10.1163/000000010792318117.
- Roberts, John R. 1991. A study of the dialects of Amele. *Language and Linguistics in Melanesia* 22:67–125.
- Ross, Malcolm. 2000. A preliminary subgrouping of the Madang languages based on pronouns. Unpublished ms, Australian National University.
- Sam, Katerina, Bonny Koane, Samuel Jeppy, and Vojtech Novotny. 2014. Effect of forest fragmentation on bird species richness in Papua New Guinea: Birds in forest fragments in New Guinea. *Journal of Field Ornithology* 85(2):152–67. doi:10.1111/jof.12057.
- Swadesh, Morris. 1954. Perspectives and problems of Amerindian comparative linguistics. *Word* 10:306–32.
- . 1971. *The origin and diversification of language*. Chicago: Aldine Atherton.

- Wade, Martha. 1993. Language convergence or divergence: The case of the Apali (Emerum) language. *Language and Linguistics in Melanesia* 24(1):73–93.
- Winsa, Birger. 2000. Defining an ecological niche: The use of “dialect” or “language.” *Current Issues in Language Planning* 1(3):431–34. doi:10.1080/14664200008668017.
- Wurm, S. A., and Donald C. Laycock. 1961. The question of language and dialect in New Guinea. *Oceania* 32(2):128–43.
- Yang, Cathryn. 2012. Phonology sketch and classification of Lawu, an undocumented Ngwi language of Yunnan. *Linguistic Discovery* 10(2):119–56.
- Z’graggen, John A. 1971. *Classificatory and typological studies in languages of the Madang District*. Canberra: Pacific Linguistics.
- . 1975a. *The languages of the Madang District, Papua New Guinea*. Canberra: Pacific Linguistics.
- . 1975b. The Madang-Adelbert Range subphylum. In *Papuan languages and the New Guinea linguistic scene*, ed. by S. A. Wurm, 569–612. Canberra: Pacific Linguistics.
- . 1980a. *A Comparative word list of the Southern Adelbert Range languages, Madang Province, Papua New Guinea*. Canberra: Pacific Linguistics.
- . 1980b. *A comparative word list of the Northern Adelbert Range languages, Madang Province, Papua New Guinea*. Canberra: Pacific Linguistics.