Historical morphology and the spirit world: the *qali/kali- *prefixes in Austronesian languages*

ROBERT BLUST

Many Austronesian (An) languages contain evidence of a largely fossilised set of affixes which overlap in form and show no distinguishable difference in meaning/function. Standard procedures of morphological analysis leave us at a complete loss in dealing with this material since (i) the form of the affix is highly variable, although it adheres to a basic pattern which can be generalised as *qali/kali-, and (ii) the meaning of the affix cannot be inferred by reference to the 'real world' but only through reference to ethnological categories which relate to the fundamental concepts of animism. These data force us to conclude that the well-known phenomenon of doubleting, previously attested only with independent morphemes, also occurs under certain conditions with affixes. An analysis of the *qali/kali- prefixes further highlights the incompleteness of linguistic theories which appeal to universal cognitive principles that are independent of culture.

1 Introduction: Chasing butterflies[1]

One of the most striking features of the lexicon of Proto Austronesian and many of its descendants is the preponderance of disyllabic base forms. Chrétien (1965) found that of 2,216 base forms listed in Dempwolff's (1938) standard comparative dictionary 2,081 (nearly 94%) are disyllabic. Some modifications in reconstructions which have been made since that time lower this figure slightly, but not significantly. Only 98 of the forms counted by Chrétien (about 4.4%) are trisyllabic, and the number of quadrisyllables reaches a grand total of four.

The tendency to disyllabism in Austronesian languages can be illustrated with the numerals and pronouns, since these constitute complete collections of forms which are not arbitrarily

[1] An earlier version of this paper with the title 'A linguistic key to the early Austronesian spirit world' was presented as the keynote address at the Third Eastern Conference on Austronesian Linguistics, held at Ohio University in Athens, Ohio, on 6–7 May 1983. For reasons that would be inappropriate to discuss here that manuscript was never published, and it is now my pleasure to offer it in refurbished form to honor Byron W. Bender, who I have known and admired in one capacity or another for over 30 years.

Joel Bradshaw and Kenneth L. Rehg, eds, *Issues in Austronesian morphology: a focusschrift for Byron W. Bender*, 15–73. Canberra: Pacific Linguistics 2001

selected from some larger set. If, for the sake of convenience in citing widely distributed forms, we consider the Proto Malayo–Polynesian (PMP) forms rather than the older Proto Austronesian forms that take account of Formosan evidence, we find that the numeral stems 1–10 and 100 are all disyllabic:[2] 1. *esa/isa, 2. *duha, 3. *telu, 4. *epat, 5. *lima, 6. *enem, 7. *pitu, 8. *walu, 9. *siwa, 10. *sa-ŋa-puluq, 100. *sa-ŋa-Ratus. A similar pattern appears in the pronouns: *aku '1SG', *kahu '2SG', *ia '3SG', *kita '1PL INCL', *kami '1PL EXCL', *kamu '2PL', *ida '3PL'. Apart from the occasional trisyllable (*taliŋa 'ear', *qabaRa 'shoulder', *tuqelan/tuqelaŋ 'bone', *beties 'calf of the leg', *qapeju 'gall; gall bladder'), body-part terms show the same strong tendency to disyllabism: *qulu 'head', *buhek 'head hair', *bulu 'body hair; feathers', *daqih 'forehead', *mata 'eye', *ijuŋ 'nose', *ŋipen 'tooth', *dilaq 'tongue', *qazay 'jaw', *kulit 'skin', *liqeR 'neck', *susu 'breast', *dahdah 'chest', *tian 'abdomen', *pusej 'navel', *likud 'back', *qutin 'penis', *puki 'vulva', *qaqay 'leg/foot', *paqa 'thigh', *qaleb 'knee cap', *kuhkuh 'fingernail, toenail', *uRat 'blood vein; tendon', *daRaq 'blood', *pusuq 'heart', *baRaq 'lungs', *qatay 'liver' etc. Again, except for a few exceptional trisyllables (*bituqen 'star', *habaRat 'west monsoon'), the familiar pattern appears in terms for the natural environment: *laŋit 'sky', *mata ni waRi 'sun' (= 'eye of the day'), *bulan 'moon', *quzan 'rain', *kilat 'lightning', *haŋin 'wind', *timuR 'east monsoon', *taneq/tanaq 'earth', *batu 'stone', *daReq 'clay', *qenay 'sand', *wahiR 'fresh water', *tasik 'salt water; sea', *kahiw 'wood', *dahun 'leaf', *buaq 'fruit', *buŋa 'flower'.

Given this well-established canonical pattern it must come as a surprise when certain semantic categories are often represented by forms which are exceptionally long. The word for 'butterfly' in many Austronesian languages is a case in point. Among Formosan languages both Jeng (1971) and Zeitoun (n.d.) give *talikuan* for the Takbanuad and Takituduh dialects of Bunun, while Ferrell (1969) gives *bulikuan* for an unspecified dialect in the same meaning ('butterfly, moth'). In itself this would be unremarkable, but Paiwan has five terms for 'butterfly', at least three of which appear to be quadrisyllabic or longer: Western Paiwan *kalazuazung* 'large butterfly sp.', *kaliḍungu-ḍunguL*[3] 'generic term for butterfly', *quLipepe* 'butterfly sp.'. The deviation from standard disyllabism continues in Rukai (Tanan dialect) *'aLibaubang*, Rukai (Labuan dialect) *talivavahə*, Amis (Kiwit dialect) *qaLipapang*, Amis (Central dialect) *'adipangpang* and Puyuma (Tamalakaw subdialect of Katipul dialect) *Halivangvang*, Puyuma (Nanwang dialect) *aribanglalawan* 'butterfly, moth'.

Are these unusually long words meaning 'butterfly; moth' peculiar to the Austronesian languages of Taiwan? Even a glance at comparative data for the Philippines shows that they are not. Setting aside transparently reduplicated disyllabic bases such as Kayapa Kallahan *buqbuqlu*, Mamanwa *kabaqkabaq* or Botolan Sambal *pálopálo*, Reid (1971) gives, among others, the following words meaning 'butterfly': Palawan Batak *qalibangbang*, Sarangani

---

[2] Abbreviations used in this paper include:
Glossing conventions: 1 – first person, 2 – second person, 3 – third person, PL – plural, SG – singular. Subgroup abbreviations: CEMP – Central Eastern Malayo–Polynesian, CMP – Central Malayo–Polynesian, F – Formosan, Oc – Oceanic, SHWNG – South Halmahera–West New Guinea, WMP – Western Malayo–Polynesian; P in front of any of these subgroups indicated Proto, i.e., the protolanguage ancestral to the subgroup. Other notations include: assim. – assimilation, met. – metathesis, sp. – species (singular), spp. – species (plural), unident. – unidentified.

[3] The symbol /L/ is used for a lateral with varying phonetic properties in Formosan languages, in contrast with the voiced lateral liquid /l/. In Dutch sources /dj/, /tj/ and /oe/ have been changed to /j/, /c/ and /u/ respectively, but otherwise the orthography of sources is followed for most languages, except that the glottal stop in Philippine languages generally is written /ʔ/.

Bilaan *kalbangi* (probably from earlier *kalibangi), Binukid *kalibángbáng*, Casiguran Dumagat *kalebongbóng*, Gaddang *qalifambang*, Isneg *kulibangbāng*, Itbayaten *kulivaavang*, Cebuano *alibangbáng*, Western Bukidnon Manobo *kelivangbang*, Mansaka *karibangbang*, Sangil *kalibámbang*, and Siocon Subanun *kolombangoy*. An inspection of McFarland (1977) and of standard dictionary sources further yields Itawis *alibengbang*, Polillo Dumagat *salibangbang* (Fox 1953:239, fn. 73), Ilokano *kulibangbáng* 'general name for butterfly and moth', Tagalog *alibambáng*, *alibangbáng* 'small roadside yellow-winged butterfly', *aliparó* 'small roadside butterfly, usually with bright yellow wings'.

Continuing our lepidopterous pursuit southward, the following names turn up in Borneo: Timugon Murut *sakuliambang*, Kadazan *tongkulibambang* 'butterfly', *tongkulibambog* 'moth' (with secondary prefixation after fossilisation of *kuli-), Kayan *kelebavah* 'moth', Iban *kelebembang* 'moth or butterfly', *kelebumbu* 'butterfly', *kelelawai* 'butterfly sp.', *kelemambang* 'butterfly', Dusun Malang *kalabamang*, Dohoi *koLobambang*, Murung *tolubambang*. Sulawesi yields another swarm: Sangir *kaḷiwembang*, Kaidipang *dalibumongo*, Gorontalo *alinua*, Bolaang Mongondow *kalibombang*, *kolibombang*, Banggai *kalitatak*, Bare'e (Pamona) *kalabamba*, Ampana *aliwombo*, Tae' (Southern Toraja) *kalibambang*, *kalubambang*, Uma (West Toraja) *kalibamang*. In Sumatra we find Simalur *alifambang*, and in the Moluccan islands of eastern Indonesia are Soboyo *kalabebang*, Gani *kalibobo* and Buli *aibobang*. Finally, a few stray butterfly names of inferably quadrisyllabic proportions have found their way into Oceania: Gedaged *kilibob* 'butterfly' (also the name of an important culture hero or creator god), Biliau *kalbangbang*, Numbami *kaimbombo*, Bonkovia *kulə-mbembe*, Yevali *kulu-mbembe* (Tryon 1976:268), Puluwat *lipwékipwék*, Ponape *lipahrourou*, Trukese *nipwisipwis* 'butterfly'.

What are we to make of this wild chase, and how can we ensure that in the end our observations will amount to more than a mere exercise in butterfly collecting? The first step toward understanding the historical morphology of the foregoing forms and others that will follow, is to organise them into classificatory categories. Clearly, these words share important properties. First, they deviate sharply from the disyllabic canonical shape typical of the vast majority of lexical stems in Austronesian languages. Second, many of them begin with the historical reflex of a sequence *Cali-, where *C stands here for a consonant of variable shape. This in itself suggests that most or all of these words contain a fossilised affix. But can we say more about them?

Table 1 reorganises the data so as to highlight the reconstructed shapes of the affixal variants generically represented above as *Cali- (F = Formosan, WMP = Western Malayo–Polynesian, CMP = Central Malayo–Polynesian, SHWNG = South Halmahera–West New Guinea, Oc = Oceanic). Cognate sets in which both the base and the prefix variant are fully comparable are marked by a preceding numeral, and reconstructions of affixed words are given after the table where these refer to higher-order protolanguages. This serves two purposes: (i) to distinguish independent witnesses from contingent witnesses for the association of *qali/kali- with a given semantic category, and (ii) to provide some insight into the antiquity of phonemic variation in the form of the *qali/kali- affix. Where a base can be reconstructed in conjunction with an indeterminate form of the *qali/kali- affix, this is written *X-base.

Table 1: Words for 'butterfly' in selected Austronesian languages, isolating historical prefixes

F:	*buli-		Bunun *bulikuan* (Ferrell 1969:166)
	*kala-		W. Paiwan *kalazuazung*
	*kali-		Paiwan *kaliḍunguḍunguL*
	*qali-		Rukai (Tanan; Li 1977:3) *ʔaLibaubang*
	*qaNi-		Amis (Kiwit) *qaLipapang*
			Amis (Central) *'adipangpang*
			Puyuma (Tamalakaw) *Halivangvang*
			Rukai (Ferrell 1969:166) *ʔalivavará*
	*qari-		Puyuma (Nanwang) *aribanglalawan*
	*quNi-		Paiwan *quLipepe*
	*taNi-		Rukai (Labuan) *talivavahə*
	*tari-		Bunun (Takbanuad, Takituduh) *taLikuan* (Zeitoun n.d.)
WMP:	*dali-		Kaidipang *dalibumongo*
	*kala-	1	Bare'e *kalabamba*
		1	Dohoi *koLobambang*
		1	Dusun Malang *kalabamang*
			Subanun (Siocon) *kolombangoy*
	*kali-		Banggai *kalitatak*
			Bilaan (Sarangani) *kalbangi*
		2	Binukid *kalibangbang*
		3	Bolaang Mongondow *kalibombang*, *kolibombang*
			Dumagat (Casiguran) *kalibóngbong*
		3	Iban *kelebembang*
			Iban *kelebumbu*
			Iban *kelelawai*
			Iban *kelemambang*
			Kayan *kelebavah*
		2	Mansaka *karibangbang*
		2	Sangil *kaḷibámbang*
		3	Sangir *kaḷiwembang*
		2	Tae' *kalibambang*
			Toulour *kalipo'po'*
		2	Uma *kalibamang*
		2	Western Bukidnon Manobo *kelivangbang*
	*kalu-		Tae' *kalubambang*
			Tae' *kalussambang*
	*kula-		Bikol *kulagbáw*
	*kuli-	4	Ilokano *kulibangbáng*
		4	Isneg *kulibangbāng*
		4	Itbayaten *kulivaavang*
		4	Kadazan *tong-kulibambang*
			Kadazan *tong-kulibambog*
		4	Timugon Murut *sa-kuliambang*
	*kuliN-		Malay (Brunei) *kulimpapat* 'large moth'
	*pali-		Kankanaey *palikwáwa* (Reid 1971)

	*qali-		Ampana *aliwombo*
		5	Batak (Palawan) *alibangbang*
		5	Cebuano *alibangbáng*
		5	Gaddang *alifambang*
			Gorontalo *alinua*
			Itawis *alibengbang*
			Minangkabau *limpapas* 'large moth'
		5	Simalur *alifambang*
		5	Tagalog *alibangbáng/alibambáng*
			Tagalog *aliparó*
	*sali-		Dumagat (Polillo) *salibangbang*
	*talu-		Murung *tolubambang*
CMP:	*kala-		Misool *kalabubun* (Wallace 1962:473)
			Soboyo *kalabebang*
SHWNG:	*kali-	6	Gani *kalibobo* (Wallace 1962:473)
		6	Buli *aibobang*
			Mor *karimamo'a* (Anceaux 1961:37)
Oc:	*kali-	2	Biliau *kalbangbang*
		6	Gedaged *kilibob*
		6	Numbami *kaimbombo*
	*kulu-		Bonkovia *kulə-mbembe*
			Yevali *kulu-mbembe*
	*qali-		Gilbertese *nikanebu* 'large moth'
			Ponape *lipahrourou*[4]
			Puluwat *lipwékipwék*
			Trukese *nipwisipwis*

The organisation in Table 1 highlights several facts, including the following:

(i) The words for 'butterfly' cited here contain a fossilised disyllabic prefix which ranges over at least eighteen partially similar but distinct protoshapes. The number of etymologically independent attestations of each variant appears in parentheses following the form: 1. *buli- (1), 2. *dali- (1), 3. *kala- (5), 4. *kali- (12), 5. *kalu- (1), 6. *kula- (1), 7. *kuli- (2), 8. *kuliN- (1), 9. *kulu- (1), 10. *pali- (1), 11. *qali- (9), 12. *qaNi- (3), 13. *qari- (1), 14. *quNi- (1), 15. *sali- (1), 16. *tali- (1), 17. *talu- (1), and 18. *taNi- (1). Evidence of phonological conditioning which might have given rise to this luxuriantly proliferating allomorphy is completely absent.

[4] The hypothesis that *qali/kali- words in Nuclear Micronesian languages reflect quadrisyllables that began with *qali- is speculative. As Ken Rehg has reminded me, apart from *paka- > *ka- 'causative' there are few precedents for a claim that initial syllables were ever lost in languages such as Ponapean or Trukese. Given the weak support for monosyllabic prefixes such as *li-, however, we have little choice but to assume irregular apocope in these forms. Since the most frequent *qali/kali- variants are *qali- and *kali- (Table 5), probability dictates that a choice be made from these allomorphs, and since the frequency of *qali- and *kali- as etymologically independent tokens is virtually identical it is arbitrary whether we choose one or the other.

(ii) A number of the forms cited here belong to widely distributed cognate sets. These are marked with numerals 1–6 preceding the forms cited, and are keyed to the following reconstructions (geographically restricted cognate sets are excluded):

1. PWMP *kala-baŋbaŋ
2. PMP *kali-baŋbaŋ
3. PWMP *kali-beŋbaŋ
4. PWMP *kuli-baŋbaŋ
5. PWMP *qali-baŋbaŋ
6. PCEMP *kali-beŋbeŋ

(iii) The variants *qali- and *kali- are the most frequent and consequently the most representative members of the set. Iban, Kayan *kele-* (where /e/ is a mid-central vowel) show vocalic neutralisations in prepenultimate syllables which prevent an etymological distinction between variants 3–9 above. Category assignment in these cases and in others which will be discussed below follows probabilities which derive from the frequency of unambiguous reflexes.

(iv) Acehnese *bangbang* 'butterfly', reflects the simple base in PWMP *kala-baŋbaŋ, PMP *kali-baŋbaŋ, PWMP *kuli-baŋbaŋ, and PWMP *qali-baŋbaŋ. Although Acehnese *bangbang* could be secondarily reduced from a longer form, it can be taken at face value as providing contrastive evidence that the longer forms cited here contain a fossilised affix. This conclusion must be reached in any case when we consider the contrasts among the affixes themselves (cf. *kala-baŋbaŋ, *kuli-baŋbaŋ, *qali-baŋbaŋ, where the only common element in the affixes is *-l-, despite a clear recurrent similarity of form.

Finally, words for 'butterfly' that do not contain the *qali/kali- prefix are often reduplicated, as with Agta *lomlom*, Atta *apo:ppo:q* Inibaloi *boqboqdo*, Tagalog *paruparó*, Mamanwa *kabaqkabaq*, Malay *kupukupu* 'butterfly', *ramarama* 'moth', Makasarese *kupukupu* 'kind of large butterfly', *pallapalla*, *pipipipi* 'butterfly', *ratarata* 'kind of large butterfly which one may not kill', POc *bebe, Hoava *pepele*, Sengga *pepepele*, Kia *tatala*, 'Are'are *hepehepe*, Sowa *pulpul*, Lenakel *pwapwauk* 'butterfly'. There is an undoubted iconicity in such words, which attempt through reduplicative means to capture the restless, haphazard, fluttering motion that so tantalises the eye and captivates the imagination in the flight of a butterfly or moth. Such iconicity probably motivates the fixed reduplication in the base *baŋbaŋ or its variants *beŋbeŋ or *beŋbaŋ. But what motivates the further affixation of *baŋbaŋ, or many other nonreduplicated bases, with the *qali/kali- prefix?

2 Creepy-crawly creatures, marked and unmarked

As with linguistic phenomena in general, an isolated fact or sets of facts which may seem puzzling when taken alone can sometimes be illuminated through widening the scope of inquiry. Since butterflies and moths are insects, or in folk parlance 'creepy-crawly creatures', we might ask whether other creepy-crawly creatures (worms, arachnids, crustaceans and the like) also tend to have exceptionally long names that appear to contain a fossilised prefix of the *qali/kali- type. A search quickly confirms this hypothesis. Many languages in insular Southeast Asia have distinct terms for two types of leech: (i) the small black leech which clings to the leaves of forest plants and readily transfers to the skin when touched, and (ii) the

much larger dark brown leech with a yellow medial stripe which inhabits rice paddies and attaches to the legs of laborers during the planting, transplanting or weeding of the crop. The forest leech is commonly designated by terms which, like the word for 'butterfly', are exceptionally long, and which begin with a disyllabic onset of *qali/kali- type. The history of terms for the paddy leech is more complex, but also points to fossilised affixation with *qali/kali-, as will be seen below.

The canonical deviation of names for the jungle leech is seen in such Formosan terms as Paiwan *Limatjek* 'mountain leech', Rukai (Mantauran) *Limatəkə* 'small ground leech' and Kanakanabu *ʔanimɐtɐk-a* 'creek leech',[5] in such Western Malayo–Polynesian forms as Isneg *(a)limanáwan* 'rather large leech, speckled black and yellow', Ilokano *alimátek* 'leech', Tagalog *limátik* 'leech, blood-sucker', Hanunóo *limátuk* 'common leech, bloodsucker, found in damp forests; a bloodsucking annelid worm of the class *Hirudinea*', Cebuano *(a)limátuk* 'leech', Maranao *limatek* 'leech', Maranao *salimatek* 'leech', Kadazan *himatok* 'jungle leech', Mukah *selematek* 'leech', Punan Kelai (Antonio Guerreiro n.d.) *lemtak* 'land leech', Singhi *rimotuk* 'land leech', Iban *lemetak* (met.) 'land leech: *Haemadipsa* spp.', Ngaju Dayak *halamantek* 'small forest leech', Banjarese *halimatak* 'kind of insect', Malagasy *dimatika* 'forest leech' (Abinal and Malzac 1963), *dimaty* 'small forest leech' (Richardson 1885), Karo Batak *kalimantek* 'small forest leech', Toba Batak *limatok* 'kind of small leech', Sangir *lamati?* 'leech', Bolaang Mongondow *olimantok* 'leech with blue back and yellow ventral surface', Makasarese *kalimata'* 'leech that enters ears or nose', and in such Central Malayo–Polynesian forms as Laora *lamandeka* 'leech', Kambera *lamatak* 'kind of leech: *Haemadipsa* spp.', Roti *kelumatuk* 'leech (generic, but often applied specifically to a very small type)'.

The name of the paddy leech generally is not exceptionally long, since most languages reflect *qali-metaq, and regular schwa syncope and nasal assimilation in many languages reduced this form to a disyllable apparently reflecting *lintaq (the reconstruction proposed by Dempwolff). However, a few key witnesses reveal the morphological history of what was clearly a longer word. Names for the paddy leech in Formosan languages include Amis *La-Lintaq* 'mountain leech', and Kanakanabu *nimɐcaʔə* 'paddy leech', while Western Malayo–Polynesian forms are often reduced to trisyllables or even disyllables: Ilokano *alintá* 'leech', Isneg *alimtá* 'large leech, striped yellow and black', Tagalog *lintáʔ* 'river leech', Hanunóo *lintáʔ* 'a carnivorous annelid worm, leech or bloodsucker, found usually in small pools or in bodies of still, fresh water', Cebuano *lintáʔ* leech', Kadazan *himbata* 'water leech' (/h/ from *l), Punan Kelai *lemtaʔ* 'river leech', Singhi *rimotah* 'water leech', Ngaju Dayak *halaminjau* 'leech used in blood-letting', Malagasy *dinta* 'leech', Iban *lintah* 'buffalo or water leech, *Hirudinaria* spp.', Malay *(ha)lintah* 'generic for slow leeches in contrast to springing-leeches (*pachat*)', Jarai *retah* 'water leech', Karo Batak *lintah* 'large water leech', Toba Batak *linta* 'large water leech', Bolaang Mongondow *linta'* 'leech', Bare'e *alinta* 'leech', Makasarese *alinta* 'leech'.

Table 2 reorganises the data so as to highlight the reconstructed shapes of the affixal variants as was done in Table 1 for 'butterfly'.

[5] Tsuchida (1976:142) also lists Kanakanabu *ʔaLimɐtɐk-a* 'paddy leech', but this must be an error, as elsewhere (27ff.) his phoneme inventory for Kanakanabu does not include a voiceless lateral.

Table 2: Words for 'leech' in selected Austronesian languages, isolating historical prefixes

I jungle leech (*Haemadipsa* spp.)			
F:	*qaNi-	1	Kanakanabu *ʔanimətək-a*
		1	Paiwan *Limatjek*
		1	Proto Rukai *limatəkə
WMP:	*kali-	2	Karo Batak *kalimantek*
		2	Makasarese *kalimata'*
	*qala-	3	Ngaju Dayak *halamantek*
		3	Sangir *lamati/*
	*qali-	4	Banjarese *halimatak*
		4	Bolaang Mongondow *olimantok*
		4	Cebuano *(a)limátuk*
		4	Hanunóo *limátuk*
		4	Iban *lemetak*
		4	Ilokano *alimátek*
			Isneg *(a)limanáwan*
		4	Kadazan *himatok*
		4	Karo Batak *(a)limantek*
		4	Maranao *limatek*
		4	Malagasy *dimatika/dimaty*
		4	Singhi *rimotuk*
		4	Tagalog *limátik*
		4	Toba Batak *limatok*
	*sali-	5	Maranao *salimatek*
		5	Mukah *selematek*
	*tali-		Simalur *talimata'* (Kähler 1961 sub *tali* 'rope')
CMP:	*kelu-		Roti *kelumatuk*
	*qala-	3	Kambera *lamatak*
		3	Laora *lamandeka*
II paddy leech			
F:	*qaNi-	1	Amis *La-Lintaq*
		1	Kanakanabu *nimənaʔə*
WMP:	*qala-		Ngaju Dayak *halaminjau*
	*qali-	2	Bare'e *alinta*
		2	Bolaang Mongondow *linta'*
		2	Cebuano *lintáʔ*
		2	Hanunóo *lintáʔ*
		2	Ilokano *alintá*
		2	Isneg *alimtá*
		2	Jarai *retah*
		2	Karo Batak *lintah*
		2	Makasarese *alinta*
		2	Malagasy *dinta*

	2	Malay *(ha)lintah*
	2	Singhi *rimotah*
	2	Tagalog *lintá?*
	2	Toba Batak *linta*
*qaliN-		Kadazan *himbata*

The organisation in Table 2 highlights several facts, including the following:

First, the words for 'leech' cited here contain a fossilised disyllabic prefix which ranges over at least seven partially similar but distinct protoshapes. The number of etymologically independent attestations of each variant appears in parentheses following the form: 1. *kali- (1), 2. *kelu- (1), 3. *qala- (2), 4. *qali- (3), 5. *qaliN- (1), 6. *qaNi- (2), 7. *sali- (1). Since some dictionary citations show variation between a quadrisyllabic base with an initial vowel and a trisyllabic base without this vowel (e.g. Cebuano *(a)limátuk*, Karo Batak *(a)limantek*; Malay *(ha)lintah)*, rather than posit additional variants *Ni-, *li-, *la- and the like we will assume that reflexes such as Paiwan *Limatjek* Karo Batak *lintah* or Sangir *lamati?* contain a canonically reduced form of otherwise well-attested disyllabic prefixes *qaNi-, *qali-, or *qala- (cf. the Micronesian words for 'butterfly' in Table 1, where the same applies).

Second, as with Table 1, a number of the forms cited here belong to widely distributed cognate sets. These are marked with numerals 1–5 for the jungle leech, and 1–2 for the paddy leech preceding the forms cited, and are keyed to the following reconstructions. Again, geographically restricted cognate sets are excluded:

1. PAn *qaNi-matek
2. PWMP *kali-matek
3. PMP *qala-matek
4. PWMP *qali-matek
5. PWMP *sali-matek

1. PAn *qaNi-meCaq
2. PWMP *qali-meCaq

Third, a major difference between the words for 'butterfly' and the words for 'leech' is that the former very often contain noncognate bases, whereas most of the latter fall into a small number of cognate sets. One of the results of this contrast is that there is very little difference in the frequencey of etymologically independent prefix variants in the words for 'leech'. Thus *qali- with twenty-eight tokens, and *qala- with five, are very similar in the number of etymologically independent attestations (three to two). Despite this complication, it is clear from the combination of Tables 1 and 2 that *qali- and *kali- continue to be the most frequent variants.

Fourth, the most serious problem in dealing with the material in Table 2 is how to demonstrate that these forms in fact contain a fossilised affix. Dempwolff (1938) reconstructed *lima(n)tek and *lintaq, with no hint of morphological complexity in either form. The problem is particularly acute in *lintaq, since it conforms to the dominant disyllabic canonical shape of most reconstructed morphemes, and many reflexes are irregular if traced instead to *qali-metaq (e.g. Tagalog *lintá?*). But Dempwolff's reconstruction fails to account for the initial vowel in such widely separated forms as Ilokano *alintá* and Makasarese *alinta*, or the initial syllable in the Malay variant *halintah.* Moreover, it further fails to account for the heterorganic consonant cluster in Isneg *alimtá* or Punan Kelai *lemta?*, or to shed any light on the relationship of this cluster to the medial CVC sequence in Singhi *rimotah.* In sum, we are left with no reasonable choice but to posit a base PAn

*-meCaq, PMP *-metaq which is most commonly attested in combination with reflexes of an *qali/kali- affix.

Finally, as with Acehnese *bangbang* 'butterfly', some languages reflect what appears to be an unaffixed form of *matek 'jungle leech', thus lending further support to the reconstruction of a morphologically complex word *qali-matek: Bontok *mátek* 'leech', Kankanaey *mátek* 'leech', Ifugaw *mátok* 'leech, bloodsucker', Manggarai *mantek* 'kind of leech: *Haemadipsa* spp.', Ngadha *maté* 'leech'.

Even if we accept the proposal that Dempwolff's *lima(n)tek, *lintaq are correctly *qali-matek, *qali-meCaq, how can we be sure there is any connection between the fossilised morphology in the words for 'butterfly' and that in the words for 'leech'? The most direct answer to this question is that there is considerable overlap in the shape of the first two syllables of words in Tables 1 and 2. Four of the seven prefix variants isolated in Table 2 (*qaNi-, *kali-, *qali- and *sali-) also occur in Table 1, and a fifth (*qaliN-) differs only in the inclusion of a final nasal. In both tables the inferred affix often contains *N as the second consonant in Formosan languages, and almost invariably contains *l in this position outside Taiwan. In short, words for both 'butterfly' and 'leech' (two types) in many Austronesian languages not only deviate from canonical norms in pointing to earlier quadrisyllabic shapes, but also contain largely overlapping phonemic material in the first two syllables.

Without further evidence these apparent parallels in the historical morphology of words for 'butterfly' and 'leech' might be dismissed as products of chance. However, a further enlargement of the comparative context leaves no alternative but to conclude that the names of many creepy-crawly creatures contain a fossilised *qali/kali- affix. In order to make this case convincing it will be necessary to present a substantial quantity of evidence, since otherwise the argument would be vulnerable to charges of selectivity. To save space the remaining examples will be presented in paragraph format. These include terms for ant, bat, beetle, bumblebee, caterpillar, centipede, cockroach, crab, dragonfly, earthworm, firefly, flea, gecko, grasshopper, honeybee, millipede, scorpion, snake, spider, termite, and wasp. Unless otherwise indicated glosses in sources are identical to the headword. Reconstructed shapes of prefixes follow citations in parentheses, and preceding numbers indicate cognate connections, as in Tables 1 and 2. When a cognate base occurs in different highest-order subgroups only with nonidentical *qali/kali- variants it is reconstructed as *X + (base), as with PWMP *X-buyuŋ 'bumblebee'.

ANT

F: Siraya *karamoukam* (*kala-), Saisiat *ʔaLoraʔl* (*qalu-), Paiwan *quLitsapudus* (*quNi-) 'large stinging ant', Saisiat *taLopolaeh* (*talu-)

WMP: Karo Batak *kacirengga* (*kaci-) 'venomous red biting ant', Maranao *kalalapa* (*kala-) 'harmless tree ant', Makasarese *kaliwara, kaluara* (*kali-, with *kaluara* presumably reduced from *kaliwara*), Malay *kelekati, kelekatu* (*kali-) 'lamp-fly, flying-ant', Pinatubo Negritos (Fox 1953) *kalibóyboy* (*kali-) 'ant sp.: *Diacama rugosum*', Sangir *kaḷisusu* (*kali-) 'ant-lion, myrmeleon', Sasak *kaliotong* (*kali-) 'male flying ant', Toba Batak *halilinga* (*kali-) 'ant with edible eggs which appears in swarms', Timugon Murut *kalipodos* (*kali-; cf. *pejes 'sting, smart') 'fire-ant', Timugon Murut *kaliwata?* (*kali-) 'small red stinging ants', Karo Batak *kalimpada* 'edible flying white ant' (*kaliN-), Karo Batak *kalimpagem* (*kaliN-) 'inedible ant, smaller than *kalimpada'*, Malay *kelengkiak* (*kaliN-) 'bulldog-ant', Angkola-Mandailing Batak *hatinongnong* (*kati-), Dairi-Pakpak Batak *katikuru* (*kati-) 'stinging tree ant', Karo Batak *katipiung* (*kati-) 'reddish-brown ant: *Crematogaster* sp.', Bare'e (1) *lamoti* (*qala-) 'red tree ant with venomous bite', Bolaang Mongondow

ḷoḷomansik, (1) *ḷoḷomonsik* (*qala-) 'black ant with very venomous bite', Kankanaey *alalasáng* (*qala-) 'small red ant', Maranao (1) *lametik* (*qala-) 'large red ant', Maranao *lamintas* (*qala-) 'black ant with poisonous sting', Western Bukidnon Manobo (1) *lemetik* (*qala-) 'generic term for ants', Cebuano *alibusbus* (*qali-) 'winged large red house ants that come in swarms, esp. during rainy days', Isneg *aliw(a)líwāt* (*qali-) 'middle-sized, very black, stinging ant', Mori *limonti* (*qali-) 'ant sp.', Pinatubo Negritos *alilípak* (*qali-) 'ant sp.: *Solebopsis geminata*', Pinatubo Negritos *alidákdak* (*qali-) 'ant sp.: *Odontomachus haematoda* Linn.', Proto South Sulawesi *lintik (*qali-?; syncope and assimilation) 'ant', Tarakan *linsadam* (*qaliN-; cf. *sejem 'ant') 'red fire ant', Kaidipang *lumontiko* (*qalu-), Kankanaey *atingayáwan* (*qati-) 'large dark brown ant', Mansaka *atingláʔ* (*qati-; syncope) 'small kind of ant that flies and bites', Maranao *tigasao* (*qati-) 'tiny red nonbiting ant', Malay *selembada*, *selempada* (*saliN-) 'large biting ant', Maranao *salimbagat* (*saliN-) 'flying ant: *Iridomyrmex cordata*', Toba Batak *sarimborbor* (*sariN-) 'flying white ant that emerges from the ground at night and dies by morning'

CMP: Manggarai *kalawara* (*kala-) 'small red ant', Soboyo *kalauhong*, *kuhong* (*kala-), Soboyo *karamoding* (*kara-) 'large black ant'

Oc: Raluana *kaliloloi*, *kololoi* (*kali-) 'ant sp.', Trukese *nikúkkútong* (*qali-) 'ant'

Reconstruction: PWMP *qala-me(n)tik 'ant sp.' (a base *metik also is found with other *qali/kali- variants).

BAT

WMP: Bikol *kalabidóng* (*kala-) 'medium sized bat', Gaddang *kalafíteg* (*kala-), Malay *kelelawar* (*kala-; disambiguated by Minangkabau *kalalawa* 'cave bat'), Western Bukidnon Manobo *kelepenit* (*kala-) 'the smallest local variety of bat', Casiguran Dumagat *kaleputo* (*kali-) 'winged fruit bat, *Chiroptera* sp.', Gaddang *kalifúteg* (*kali-), Gaddang *kalifutu* (*kali-), Tiruray *kelimbungan* (*kaliN-) 'small fruit bat', Bikol *kulapnít* (*kula-) 'small bat', Isneg *kulambág* 'the bat, one of the *Chiroptera*', Balinese *lalawah* (*qala-; cp. Malay *kelelawar*, Minangkabau *kalalawa*) 'bat sp.; small owl', Karo Batak *alinturu* (*qaliN-) 'flying fox', Karo Batak *(a)lingkaber* (*qaliN-) 'kind of rather large bat', Toba Batak *ringkabor* (*qariN-) 'kind of bat', Mukah *selemawaʔ* (*sali-) 'flying fox', Kapampangan *talibatab* (*tali-) 'small bat'

Oc: Ponapean *limwehdi* (*qali-) 'small sp. of bat'

BEETLE

F: Paiwan *quLimamaraw* (*quNi-) 'irridescent beetle sp.'

WMP: Makasarese *bantimarang* (*banti-) 'coconut beetle', Karo Batak *kacinangnang* (*kaci-) 'beetle often found in rotten wood', Tiruray *kelefutey* (*kala-) 'sweet potato beetle; firefly', Ngaju Dayak *kalambohong* (*kalaN-) 'black beetle', Angkola-Mandailing Batak *halicungcung* (*kali-) 'dung beetle', Malay *kumbang kelemata* (*kali-) 'coconut-beetle' (*kumbang* 'carpenter-bee'), Karo Batak *kalimpenek* (*kaliN-) 'various scarabaeid beetles or cockchafers', Tiruray *keretarew* (*kara-) 'taro beetle', Kadazan *hinggaung* (*qaliN-) 'sago beetle', Hanunóo *alutátip* (*qalu-) 'a wingless, beetle-like brown insect usually found on the ground', Toba Batak *antingaro* (*qanti-) 'beetle that destroys the buds of the rice plant', Itawis *asimawá* (*qati-) 'beetle', Tiruray *tinganga* (*qati-) 'black coconut beetle: *Oryctes rhinocerus* Linn.', Iban *serentuku* (*sariN-) 'horned black beetle'

BUMBLEBEE

WMP: Samihim *kansibuyung* (*kanti-), Buginese *katimarang* (*kati-), Itbayaten *alavungan* (*qala-), Hanunóo *alibúyug* (*qali-; cp. Tagalog *bu-búyog* 'bumblebee', with partial reduplication but no other affix), Timugon Murut *limumuod* (*qali-) 'kind of black carpenter bee: *Xylocopa latipes*', Gaddang *alimbafúyug* (*qaliN-), Gaddang *alimbuyúngen* (*qaliN-), Ilokano *alimbubúyog* (*qaliN-), Itawis *arabiyóngen* (*qara-), Kankanaey *(a)timbayúngen* (*qatiN-), Dusun Deyah *solobuyung* (*sulu-) 'bumblebee'

Reconstruction: PWMP *X-buyuŋ 'bumblebee'.

CATERPILLAR/GRUB

F: Paiwan *quLimamadas* (*quNi-) 'caterpillar sp.'

WMP: Makasarese *kaluatere'* (*kalu-) 'edible white grub found in coconut, areca and lontar palms', Karo Batak *katimukmuk* (*kati-) 'long-haired caterpillar that causes itching', Bikol *alaláso?* (*qala-) 'hairy caterpillar causing an itch where it comes in contact with the skin', Tae' *limara* (*qali-) 'greenish-yellow caterpillar that causes painful itching', Ilokano *alimbobódo* (*qaliN-) 'large hairy stinging caterpillar', Ilokano *alimpupúsa* (*qaliN-) 'thick, soft, white grub, generally living in timber, especially in coco palms, larva of the rhinoceros beetle', Malay *lembata* (*qaliN-) 'grub of beetle (usually the coconut-beetle) found in decaying palm trunk', Kankanaey *atatádo* (*qata-) 'bluish-white caterpillar', Itbayaten *antitiris* (*qanti-) 'caterpillar of a moth'

Oc: Ponapean *limwehdi* (*qali-) 'caterpillar'

CENTIPEDE

F: Saisiat (Taai) (1) *ʔaLongœhipan* (*qalu-), Kavalan *Rusipan* (*qaru-)

WMP: Makasarese *kalumeme* (*kalu-) 'reddish creature, half a finger long, with many legs that coils up when touched', Ngaju Dayak *halalipan* (*qala-?), Banjarese (2) *halilipan* (*qali-?), Cebuano (1) *aluhípan, ulahípan* (*qalu-; met.), Itbayaten (1) *alipuan* (*qalu-; met.), (1) Mentawai (1) *alupat* (*qalu-), Tagalog (1) *aluhípan* (*qalu-), Tiruray (1) *liyufon* (*qalu-), Maanyan *anilipan* (*qani-), Iban *selemada?* (*sali-) 'forest centipede, black with legs partly white', Hiligaynon *talimbabága* (*taliN-)

Oc: Mussau (2) *aliena* (*qali-?), Motu (2) *aiha* (*qali-?), Manam (2) *alia* (*qali-?), Numbami *aluwanga-na* (*qalu-; Bradshaw 1978:45), Lau (2) *safila* (*qali-?), Rennellese *'agipaipai* (*qali-) 'centipede, *Diplopoda* ... considered the embodiment of nonworshipped deities ('apai), and a loathsome creature', Sa'a (1) *äluhe* (*qalu-)

Reconstructions: 1. PAn *qalu-Sipan 'centipede'. Note the insertion of a separate phoneme sequence *-ngœ-* between the prefix and the stem in Saisiat, showing that the morpheme division was still recognised at some point in the separate history of this language, 2. possibly PMP *qali-hipan, but this depends on the interpretation of what appears to be a complex history of metathesis in this form.

COCKROACH

F: Proto Rukai *atabaŋə (*qata-) 'cockroach' (Li 1977:46)

WMP: Bare'e *balabako* (*bala-), Ifugaw *balaʔ:ngan* (*bala-; McFarland 1977) 'cockroach', Sangir *baḷakama* (*bala-), Sangir *baḷukama* (*balu-), Bare'e *kalapipi* (*kala-), Bare'e *kalipipi* (*kali-) 'kind of small cockroach', Makasarese *kulipasa'* (*kuli-) 'kind of large cockroach', Bare'e *alipipi* (*qali-) 'kind of small cockroach'

CRAB

F: Paiwan *kaLaviri* (*kaNa-) 'crab with one large claw and one small' (under *viri* 'left'), Paiwan *qaLaḍangan* (*qaNa-) 'large riverine crab', Paiwan *tjibangu* (*qati-) 'black riverine crab'

WMP: Buginese *kalaumang* (*kala-) 'hermit crab', Ngaju Dayak *kalapiting* (*kala-) 'large sea crab' (cf. Malay *kepiting* 'crab'), Sasak *kaliomang* (*kali-) 'Bernard's crab: *Cenobita bernhardus*', Bolaang Mongondow (1) *olimangow* (*qali-) 'kind of large crab', Cebuano *alikúmu?* (*qali-) 'sea crab with roundish bulging body' (cf. *kúmu?* 'clenched fist'), Cebuano (2) *alimángu* (*qali-) 'edible crab of tidal swamps', Cebuano *alimásag* (*qali-) 'edible crab', Chamorro (1) *akmangao, atmangao* (*qali-) 'spotted sea crab', Gaddang (2) *alima:ngu a:ma* (*qali-) (McFarland 1977:436), Nias (1) *(ali)mango* (*qali-) 'sea crab', Palauan (1/2) *chemáng* (*qali-) 'large sea crab', Tagalog (2) *alimángo* (*qali-) 'large black crab', Ilokano *arimbukéng* (*qariN-) 'edible crab that burrows in brackish pools along the seashore'

CMP: Manggarai *kalamango* (*kala-) 'edible sea crab with black body and red claw', Hatusua *lamanu* (*qala-) 'large crab'

Oc: Arosi (1) *arimango* (*qali-) 'a very large crab with paddles found in mangrove swamps', Gitua (1?) *alimanga* (*qali-) 'mud crab', Kove (1) *alimango* (*qali-) 'mangrove crab', Penchal (2) *kemmṁg* 'mangrove crab', Ponapean *likarahs* (*qali-) 'rock crab', Samoan (1) *alimango* (*qali-) 'a crab, sp. of *Lupea*' (Pratt 1984), Wuvulu (1) *alimao* (*qali-) 'crab with large pincer', Ponapean *lisouduhdu* (*qali-) 'sp. of crab'

Reconstructions: 1. PMP *qali-maŋaw 'mangrove crab', 2. PMP *qali-maŋu 'mangrove crab' (doublet of *qali-maŋaw). Note reflexes of PAn *qumaŋ 'hermit crab' in both Buginese *kalaumang* and Sasak *kaliomang*.

DRAGONFLY

F: Saisiat *ʔalʔalyofayan* (*qaNi-), Paiwan *quLitsatsengelaw* (*quNi-)

WMP: Casiguran Dumagat *kalitonton* (*kali-), Long Terawan Berawan *kariakang* (*kari-; *akang* = 'ghost'), Kankanaey *alallaóngan* (*qala-) 'kind of red-brown dragonfly', Bikol *alibangbáng* (*qali-), Cebuano *alindánaw* (*qaliN-; *danaw* = 'lake'), Ilokano *alimbubungáw* (*qaliN-), Cebuano /salindánaw/ (*saliN-)

Oc: Gilbertese *nikanebu* 'dragonfly'

EARTHWORM

F: Thao *qatidauluk* (*qati-), Proto Rukai *atoLiki (*qatu-), Puyuma (Tamalakaw) *HuRtati* (*quri-)

WMP: Maranao *kalalanoʔan* (*kala-) 'earthworm (short, with shiny membranous skin—looks like a small snake)', Binukid *kalimanggid* (*kali-), Mukah *keleluat* (*kali-), Mandar *kalindoro* (*kaliN-), Sangil *lawati* (*qala-), Sarangani Manobo *eliwati* (*qali-), Banjarese *halimbatar* (*qaliN-), Timugon Murut *lingguang* (*qaliN-), Bikol *alululntí* (*qalu-), Bolaang Mongondow (1) *oḷuasi* (*qalu-), Hanunóo *alukáti?* (*qalu-), Itbayaten (1) *alwati* (*qalu-; or *qali-?), Casiguran Dumagat *alöntayag* (*qaluN-), Palauan *chulád* (*quni-) 'earthworm', Pangasinan *alombáyar* (*qaluN-) 'worm (general term)'

CMP: Roti *kailati* (*kali-), Ende *taiati* (*tali-)

Reconstruction: PWMP *qalu-wati 'earthworm'. For reflexes of the simple base, note Cebuano *wáti* 'earthworm', Uma *wati* 'sago worm'. Roti *kailati*, Ende *tailati* evidently show sporadic loss of prefixal *l, of the type seen in Buli *aibobang*, Numbami *kaimbombo* 'butterfly'.

FIREFLY

F: Puyuma (Tamalakaw) *dalipuypuyan* (*daNi-; probably with a reflex of *Sapuy 'fire'), Amis (Kiwit) *qalipunay* (*qali-), Amis *qalupainai* (*qalu-), Paiwan *qutsivawvaw* (*quCi-), Proto Rukai *taniapoy (*taNi-; plus *apoy 'fire')

WMP: Tiruray *kelefutey* (*kala-) 'sweet potato beetle; firefly', Uma (1) *kalipopo'* (*kali-), Dairi-Pakpak Batak (1) *kalimpetpet* (*kaliN-), Karo Batak *kalimpétpét* (*kaliN-), Wolio (1) *kali-kalimpopo* (*kaliN-; *kalimpopo* = 'star'), Dairi-Pakpak Batak *kalompetpet* (*kaluN-), Itbayaten *karuaruay* (*karu-), Makasarese *katiolo'* (*kati-) 'glow-worm', Ilokano *kulalantí* (*kula-) 'firefly, glow-worm', Ilokano *kulintabá* (*kuliN-) 'firefly, glow-worm', Malay (Brunei) *kulimpapat* (*kuliN-) 'moth or firefly', Aklanon *alitáptap* (*qali-) 'glow-worm—found on rocks exposed at high tide', Bare'e (2) *alipopo* (*qali-) 'small flying insect, possibly firefly by daylight', Casiguran Dumagat (2) *alipetpet* (*qali-) 'lightning bug', Isneg (2) *alipatpát* (*qali-) 'firefly, glow-worm', Tae' *lumpepe'* (*qaluN-), Timugon Murut *andidipot* (*qandi-), Cebuano *aniníput* (*qani-), Berawan (Long Terawan) *tebipe?* (*qati-), Iban (3) *sele(m)pepat* (*saliN-), Toba Batak (3) *salimpotpot* (*saliN-)

Reconstructions: 1. PWMP *kali(m)-petpet 'firefly', 2. PWMP *qali-petpet 'firefly', 3. PWMP *salim-petpet 'firefly'.

FLEA

F: Puyuma (1) *Hatimra* (*qati-), Saaroa (1) *ʔatimula* (*qati-), Thao *qatitira* (*qati-) 'flea (on dog, but not on buffalo)'

WMP: Ibanag *aliffúngo* (*qali-), Bintulu (1) *temela* (*qati-), Hanunóo (1) *tímla* (*qati-) 'common dog flea', Itawis *assímal* (*qati-), Kankanaey *atilalagá* (*qati-) 'chicken tick', Western Bukidnon Manobo (1) *tilema* (*qati-; met.)

Reconstruction: PAn *qati-mela 'flea'.

GECKO

F: Bunun *taliNqadaz* (*taliN-) 'lizard' (possibly not a gecko), Paiwan *qaLalipi* (*qaNa-) 'gecko lizard', Paiwan *qatjatjipi* (*qata-) 'gecko lizard (must not be killed, because it is metamorphosed umbilical cord)', Paiwan (Southern dialect) *quNitsatsipi* (*quNi-) 'gecko lizard'

WMP: Bare'e *kaladidi* (*kala-), Minangkabau *kalalaso* (*kala-) 'tree gecko', Isneg *alipāp* (*qali-) 'the common house lizard. Its cry announces the death of a member of the family', Ilokano *alutíit* (*qalu-) 'any of the *Lacertilia*; more especially the common house lizard', Kapampangan *lupísak* (*qalu-)

Oc: Ponapean *limwoahr* (*qali-) 'gecko'

GRASSHOPPER

F: Paiwan (Tjavuali dialect) *kaLibungu, kaLivungu* (*kaNi-; Ho 1978:625), Paiwan *tjibungu* (*qati-) 'grasshopper, cricket' (Ferrell 1982)

WMP: Sundanese *kalicangkas* (*kali-) 'kind of grasshopper', Sangir *kaḷimbotong* (*kaliN-), Maranao *karakeban* (*kara-), Cebuano *alisiwsiw* (*qali-) 'kind of grasshopper ... not migratory or destructive to crops', Palauan *chebúd* (*qali-), Maranao *taresik* (*qata-), Sangir *saḷamangkaʔ* (*sala-) 'small green grasshopper which makes a chirping noise at night' (= cricket?), Sangir *tuḷakandi* (*tula-) 'kind of locust'

HONEYBEE (specifically: *Apis indica*)

WMP: Kelabit *berenuan* (*bari-) 'kind of small bee', Toba Batak *harinuan* (*kari-) 'kind of large wild bee', Aklanon *lígwan* (*qali-) 'large horsefly', Bikol *ligwán* (*qali-) 'bee sp.', Cebuano *ligwán* (*qali-) 'small wild honeybee having black and orange stripes, nesting inside trees or walls', Hanunóo *alibúbug* (*qali-) 'black bee with white stripes (family *Anthrophoridae*?)', Tagalog *ligwán* (*qali-) 'kind of honeybee' (cited sub *anilan*), Kapampangan (Bergaño) (1) *anig-guan* (*qani-) 'bee sp.', Malay (1) *neruan* (*qani-) 'a bee or hornet, sp. unident.', Malay (Jakarta) (1) *nyeruan* (*qani-; assim.) 'bee sp.', Sasak (1) *nyiruan* (*qani-; assim.) 'kind of bee', Sundanese (1) *nyiruan* (*qani-; assim.) 'small to middle-sized honey bee that nests in tree hollows and rock clefts', Iban (2) *(re)nyuan* (*qari-) 'kind of small bee, often kept under eaves in hives of hollowed logs; honey is good, but inferior to that of the large wild *manyi*'', Ilokano (2) *arinuán* (*qari-) 'kind of bee', Isneg *(a)ripanggát* (*qari-) 'small honeyless bee that builds its nest in the stem of light bamboos', Karo Batak *aringgeneng* (*qariN-) 'a bee: *Apis indica* F.'

Reconstructions: 1. PMP *qani-Ruan 'a bee, Apis indica', 2. PWMP *qari-ñuan 'a bee, *Apis indica*'. Although a form such as Ilokano *arinuán* might be considered a reflex of *qani-Ruan with metathesis of the first two consonants, the distinctness of these reconstructions appears to be supported by the occurrence of both bases in unaffixed form: Manggarai *ruang* 'yellowish-red bee, smaller than the ordinary honeybee: *Apis indica*', Ngaju Dayak (2) *bitik nyuan* 'kind of small grey ant', Singhi *nyowan* (*u > /o/ irreg.) 'house bee'.

MILLIPEDE

WMP: Tae' *anda' (kalamoyan)* (*kala-) 'phosphorescent millipede' (cited in van der Veen 1940 only in the Dutch Register, sub 'duizendpoot'), Balinese *kalimayah* (*kali-) 'glow-worm', Iban *kelemebai* (*kali-), Malay (Jakarta) *kalimayah* (*kali-) 'luminous millipede', Malay *kelemair*, *kelemanyar*, *kelemayar* (*kali-) 'luminous millipede', Toba Batak *halimontang* (*kali-) 'phosphorescent light of luminous millipede or toadstool' (van der Tuuk), Malay *kelentugi* (*kaliN-) 'dark millipede with yellow legs', Karo Batak *katikeran* (*kati-) 'phosphorescent millipede', Toba Batak *hatitioran* (*kati-) 'phosphorescent millipede', Banjarese (1) *halimanyar* (*qali-) 'luminous millipede', Iban (1) *lemayar* (*qali-) 'small millipede; glow-worm. If crushed at night it gives a light like that of the firefly', Dampelas (1) *alimayar*, *alimemayar* (*qali-) 'luminous millipede'

Oc: Ponapean *limwakatantar* (*qali-) 'millipede', Mokilese *limwoskaras* (*qali-) 'millipede'

Reconstruction: PWMP *qali-mayaR 'luminous millipede'.

SCORPION

WMP: Kapampangan *alakdán* (*qala-), Makasarese *patikala* (*pati-; cf. Malay kala 'scorpion'), Timugon Murut *limpapasa?* (*qaliN-) 'young scorpion', Mukah *selengatip* (*sali-) 'scorpion'

SNAKE

F: Thao *qalimatun* (*qali-; loan?) 'the umbrella snake or Taiwan banded krait: *Bungarus multicinctus* Blyth'

WMP: Tagalog *alimuranin* (*qali-) 'large snake sp.', Bikol *alimbusógon* (*qaliN-) 'green nonpoisonous snake', Ilokano *alindáyag* (*qaliN-) 'large venomous snake', Isneg *arimarán* (*qari-) 'black and white venomous snake'

SPIDER

WMP: Sangir *kaḷabangkang* (*kala-), Sangir *kaḷibangkang*, *kaḷimangkang* (*kali-), Sarangani Bilaan *kalmamoʔ* (*kali-), Sangir *kaḷubangkang* (*kalu-), Toulour *karimombot* (*kari-), Isinay *alingakáwa* (*qali-), Kankanaey *atingkáwa* (*qatiN-), Hanunóo *talitágu* (*tali-) 'poisonous black ground arachnid', Aklanon *talimbabága* (*taliN-) 'poisonous spider'

TERMITE

F: Saisiat *ʔaLoraʔl* (*qalu-)

WMP: Malay *kelekati* (*kali-) 'lamp-fly, flying ant', Malay *kelekatu* (*kali-) 'lamp-fly, flying ant', Sasak *kaliotong* (*kali-) 'male flying ant', Karo Batak Makasarese *alitana* (*qali-) 'white ant'

WASP

F: Rukai (Tona) *katiLoLan* (*kati-; Tsuchida 1976:9)

WMP: Balinese *kalisaswan* (*kali-) 'kind of wasp.', Dairi-Pakpak Batak *kalipihpih* (*kali-) 'name given to a certain wasp when it is in its nest; when it leaves its nest to sting someone it is called *endaldal*', Iban *seremukau*, *semukau* (*sari-)

What are we to make of this bewildering forest of facts? How can we step back and take measure of the whole without becoming lost in the seemingly endless thicket of particulars?

The one thing that appears to be beyond dispute is that many terms for creepy-crawly creatures in Austronesian languages are either quadrisyllabic or reflexes of inferrably quadrisyllabic predecessors. More exactly, such terms frequently contain three, four or more than four syllables. They therefore deviate sharply from the typically disyllabic lexical bases of Austronesian languages. This fact can be illustrated by a syllable count of the semantic categories described above.

Table 3: Average number of syllables in words cited for 'creepy-crawly creatures'

WORD	NO. FORMS	NO. SYLLABLES	AVERAGE
1. butterfly	69	280	4.06
2. leech 1	26	95	3.65
3. leech 2	18	48	2.66
4. ant	44	169	3.84
5. bat	16	60	3.75
6. beetle	15	59	3.93
7. bumblebee	11	49	4.46
8. caterpillar	10	42	4.20
9. centipede	19	71	3.74
10. cockroach	8	32	4.00
11. crab	25	92	3.68
12. dragonfly	9	41	4.56
13. earthworm	20	77	3.85
14. firefly	26	106	4.08
15. flea	9	31	3.44
16. gecko	10	38	3.80
17. grasshopper	10	36	3.60
18. honeybee	16	55	3.44
19. millipede	14	57	4.07
20. scorpion	4	15	3.75
21. snake	5	22	4.40
22. spider	9	37	4.11
23. termite	5	20	4.00
24. wasp	4	17	4.25

There are several objections that might be raised against these figures. First, the material cited is **selected** (compare with the ordinary disyllabic generic terms PMP *sejem 'ant', *qulej 'maggot; caterpillar', *kaRaŋ 'freshwater crab', *wani 'honeybee', *sisiq/susuq 'edible snail', *nipay, *hulaR 'snake', *lawaq 'spider', or *anay 'termite', or the trisyllables *paniki 'fruit bat, flying fox', or *abuqaŋ 'palm beetle', which appear to have no connection with the *qali/kali- prefix). Second, the counts do not distinguish cognate from noncognate material, and so inflate the figures for average word length where reflexes of a quadrisyllable are widely distributed. Finally, the counts do not make allowance for reduplication, affixation unrelated to the *qali/kali- prefixes (for example, the first syllable of Kadazan *tong-kulibambang* 'butterfly', *tong-kulibambog* 'moth', Timugon Murut *sa-kuliambang* 'butterfly'), or the addition of supporting vowels in the historical phonology of some languages, thereby lengthening forms beyond the combination of base + inferred *qali/kali- affix. Each of these objections can be countered.

With regard to the first objection, many Austronesian languages distinguish a large number of ant species, caterpillar species, crab species, bee species and the like by morphologically unrelated terms. For the Negritos of Mt. Pinatubo, Fox (1953) recorded 20 independent words for ants alone. He was able to obtain Linnaean binominals for fourteen of these, three of which are represented by *qali/kali- words. The *qali/kali- terms in such cases apply on the species level, not the genus level. In other words, for reasons we have yet to address,

some species of ants, caterpillars, crabs etc. appear to be morphologically marked, while others are not.

With regard to the second objection the inflation of average syllable length through multiple counting of cognate forms would result in significant differences only if a single quadrisyllabic cognate set was represented in a large number of cases in contrast to many etymologically independent forms which are shorter than four syllables. But none of the distributions fits this pattern. Almost all of the words for 'butterfly', for example, are quadrisyllabic whether or not they are cognate. If we were to collapse all reflexes of *kala-baŋbaŋ, *kali-baŋbaŋ etc. into single forms the total number of forms and syllables would be reduced, but the average number of syllables per form would remain virtually unaffected. Essentially the same relationships hold for all of the semantic categories in question, particularly since widespread cognate sets have yet to be established for many of these.

With regard to the last objection it is true that the counts to not make allowance for extrinsic factors which could independently lengthen the forms in question. But this begs the question why such extrinsic factors (at least those which form part of the morphology) would affect these particular semantic categories more than others. With regard to the skewing effects of phonological change the data is drawn mostly from languages which have not undergone canonically altering sound changes. Where such changes have occurred, as in the addition of supporting vowels in Rukai or Malagasy, they are cancelled by languages which have undergone syncope or apocope, as with Palauan, Gedaged or the Nuclear Micronesian languages (for the last see footnote 4). This is particularly clear in reflexes of PAn *qali-meCaq 'paddy leech', since here both syncope (leading to *qalimtaq) and apocope (dropping the first syllable) have colluded with nasal assimilation to produce disyllabic forms in many languages that appear innocent of any morphological complication. In conclusion, then, there can be no doubt that the data is representative of real canonical differences in the lexical representation of these semantic categories in comparison with most others.

This is an encouraging beginning, but where do we go next? Any inference beyond this primary conclusion quickly becomes entangled in serious issues of method. Given the dominant disyllabic canonical shape of Austronesian languages the most reasonable conclusion to draw from the quadrisyllabic target of 'creepy-crawly' words is that members of this class contain an affix. There are several pieces of direct evidence that this is the case. First, as noted already, some languages appear to reflect the bare base of a word that is generally attested in *qali/kali- form: Acehnese *bangbang* 'butterfly', Bontok *mátek*, Manggarai *mantek* 'leech', Cebuano *wáti* 'earthworm', Uma *wati* 'sago worm', Manggarai *ruang* 'yellowish-red bee', Singhi *nyowan* 'house bee'. Similar cases are seen where one language has a disyllabic base and another language a quadrisyllable which incorporates the disyllabic base as its last two syllables, as with Malay *kala*, Makasarese *patikala* 'scorpion'. In some cases, as with Acehnese *bangbang*, the shorter word may be a reduction of the longer form, but in the great majority of cases this is very unlikely given the general phonological development of the languages. Second, in a few cases an *qali/kali- word contains a well-established disyllabic base which generally occurs without affixation: Timugon Murut *kalipodos* 'fire-ant' (*pejes 'to sting, smart'), Tarakan *linsadam* 'red fire ant' (*sejem 'generic for ants'), Buginese *kalaumang* 'hermit crab', Sasak *kaliomang* 'Bernard's crab: *Cenobita bernhardus*' (*quman 'hermit crab'). Finally, the very fact that some morphologically complex reconstructions with *qali-, *kali- and other variants are supported by comparative evidence and contrast with one another (e.g. *kali-baŋbaŋ, *kuli-baŋbaŋ, and *qali-baŋbaŋ

'butterfly') is evidence that these initial sequences were disyllabic affixes which served to convert disyllabic lexical bases into quadrisyllabic words.

The problem of hyperallomorphy

Although there is clear support for an *qali/kali- prefix, recognition of this affix creates two serious problems: (i) we must acknowledge an extraordinary amount of allomorphy (words for 'butterfly' appear to contain at least eighteen inferrably different forms of the prefix which are partially but not completely shared with the words for 'leech'); and (ii) the observed variation does not appear to correlate with phonological or grammatical conditioning. It will be convenient to call this phenomenon 'hyperallomorphy', although the term, which suggests exceptional variability in the shape of a morpheme, is not completely satisfactory. Statistics from a large and globally representative sample of languages are not to hand, but in most well-known languages few morphemes have more than three allomorphs, and scarely any have more than four. Cases of exceptionally rich allomorphy nonetheless exist, as in Thao of central Taiwan where the actor focus infix -/um/- has at least eleven surface realisations, although three of these are subphonemic. The crucial difference is that phonological conditions can be stated for the Thao allomorphs of -/um/-, whereas *qali/kali- variation shows no obvious conditioning, either phonological or grammatical. On the other hand, a term which stresses the absence of conditioning for *qali/kali- variants without reference to the richness of variation would fail to distinguish between a morpheme with just two unconditioned allomorphs and the very different case we are observing here.

What hyperallomorphy suggests is a pattern of partially shared history in which the regularity of sound change has been distorted by some factor not normally present in historical development. It is, in short, a kind of affixal equivalent to the problem of doubleting in free morphemes. Gonda (1952) spoke of phonologically and semantically similar free morphemes in many Austronesian languages as constituting 'word families'. With the *qali/kali- variants we might say we are dealing with an 'affixal word family'. Table 4 provides a frequency count of *qali/kali- variants in the data summarised in Table 3. In this tabulation cognate sets are counted as single tokens of an affixal variant.[6] Given our usual assumptions (and experience) it is hard to take Table 4 seriously. Has a morpheme ever been reported in any natural language with anything remotely approaching fifty-eight allomorphs? Of course, not all of the variants in Table 4 can be attributed to a single protolanguage. In particular, only a small subset of these variants can be reconstructed for Proto Austronesian. But many others can be attributed to Proto Malayo–Polynesian.

[6] In most of the languages cited here reflexes of *r and *R are identical. The choice of *r in affixal variants is determined by a small set of unambiguous reflexes, as with Itawis *arabiyóngen* 'bumblebee', Long Terawan Berawan *kariakang* 'dragonfly', Maranao *karakeban* 'grasshopper', Isneg *arimarán* 'black and white venomous snake' or Toulour *karimombot* 'spider'. It should also be noted that the figures for *qali- and *kali- may be somewhat inflated by the assumption that ambiguous reflexes with prepenultimate schwa in Iban, Malay and a few other languages reflect these forms rather than some other less frequent variant.

Table 4: Number of etymologically independent tokens of *qali/kali- prefix variants in the data of Table 3

VARIANT	NUMBER	VARIANT	NUMBER
1. *bala-	4	30. *qali-	46
2. *bari-	1	31. *qaliN-	18
3. *banti-	1	32. *qalu-	11
4. *buli-	1	33. *qaluN-	3
5. *dali-	1	34. *qaNa-	2
6. *daNi-	1	35. *qaNi-	9
7. *kaci-	2	36. *qara-	1
8. *kala-	24	37. *qari-	4
9. *kalaN-	1	38. *qariN-	3
10. *kali-	46	39. *qaru-	1
11. *kaliN-	10	40. *qata-	3
12. *kalu-	4	41. *qanti-	2
13. *kaluN-	1	42. *qati-	15
14. *kaNa-	1	43. *qatiN-	2
15. *kaNi-	1	44. *qatu-	1
16. *kara-	3	45. *quCi-	1
17. *kari-	3	46. *quNi-	6
18. *karu-	1	47. *quri-	1
19. *kanti-	1	48. *sala-	1
20. *kati-	9	49. *sali-	5
21. *kelu-	1	50. *saliN-	4
22. *kula-	3	51. *sari-	1
23. *kuli-	3	52. *sariN-	2
24. *kuliN-	3	53. *sulu-	1
25. *kulu-	1	54. *tali-	5
26. *pali-	1	55. *taliN-	3
27. *pati-	1	56. *talu-	2
28. *qandi-	1	57. *taNi-	2
29. *qala-	14	58. *tula-	2

As a first step toward reducing the complexity of Table 4 we can ignore all variants attested only once. This removes twenty-four items from the list, leaving thirty-four. Second, we can eliminate all variants attested in a single language, regardless of how many times they appear. Finally, in accordance with the well-known problem of unpredictable prenasalisation of medial stops in Austronesian languages we can combine variants such as *kali- and *kaliN- or *qanti- and *qati- as single forms. In this way we are able to prune the list of fifty-eight variants to perhaps seventeen (1. *bala-, 2. *kala-, 3. *kali-, 4. *kara-, 5. *kari-, 6. *kati-, 7. *kuli-, 8. *qala-, 9. *qali-, 10. *qalu-, 11. *qaNi-, 12. *qari-, 13. *qata-, 14. *qati-, 15. *sali-, 16. *sari-, 17. *tali-). At this point further reduction becomes difficult. Ten variants appear in morphologically complex words that have been reconstructed for Proto Austronesian, Proto Malayo–Polynesian or Proto Western Malayo–Polynesian (reconstructions for 'butterfly', 'leech', etc. cited earlier), and all ten of these must be attributed to Proto Western Malayo–Polynesian. Several other variants are widespread, and hence presumably have a long history as affixes, but are not yet reconstructed as components

of morphologically complex words. By far the best attested variants are *qali- (together with *qaliN-), with sixty-four etymologically independent examples, and *kali-, with fifty-six. Other well-attested variants are *kala- (twenty-five), *qati- (seventeen), *qala- (fourteen), *qalu- (fourteen), *kati- (ten), *qaNi- (> PMP *qani-) (nine), and *sali- (nine).

Given the partial similarity of most variants it might be argued that the assumed 'prefix' consists of two morphemes which belong to different order classes. The seventeen prefix variants recognised above can be reduced to two order classes with six and eight elements respectively, as follows.

Table 5: Hypothetical prefix order classes for the *qali/kali- affix

ORDER CLASS	
1	2
ba-	la-
ka-	li-
ku-	ra-
qa-	ri-
sa-	ti-
ta-	lu-
	Ni-
	ta-

In certain respects this proposal is the most attractive solution to the problem of hyperallomorphy. Based on the reduced set of seventeen variants recognised above, the order class analysis implies forty-eight combinatorial possibilities, and slightly more than one third of these are realised in the best-attested variants.

Some support for this interpretation may be found in the apparently apocopated reflexes of *qali/kali- words in some languages, as Hanunóo *limátuk* < *qali-matek 'jungle leech', Bare'e *lamoti* < *qala-metik 'ant sp.', or the Nuclear Micronesian languages. Under this interpretation apocope never occurred; rather, the forms in question were affixed with just *li-, *la- etc. The problem with this interpretation is that there is very little evidence for the independent prefixation of the **initial** element of an *qali/kali- prefix (**qa-matek, *ka-baŋbaŋ etc.). Moreover, even with the considerable reduction of complexity which this analysis permits, apparently free variation remains a formidable problem (reconstructed words for 'butterfly', for example, would contain *ka-, *ku- and *qa-, and reconstructed words for 'jungle leech' would contain *ka-, *qa- and *sa- in the first order class). On balance, then, the case for decomposition of the *qali/kali- prefix into smaller morphemes does not seem to gain us as much as we need to find a satisfactory solution to the problem of hyperallomorphy.

Alternatively, we might interpret some of the cross-linguistic agreements in *qali/kali- words as products of convergence, but this also proves difficult to maintain. Straightforward application of the comparative method supports the reconstruction of PWMP *kuli-baŋbaŋ 'butterfly'. If the apparent cognate set supporting this etymon is actually a product of convergence how much did convergence produce—the entire word, the association of prefix and stem, or just the prefixal variant? It hardly appears plausible that the entire word could arise independently in geographically removed languages. We might then retreat to a hypothesis of convergent association: the evidence for *kuli-baŋbaŋ arose through independent **association** of *kuli- and *baŋbaŋ in several widely separated languages. But if the association of prefix variant and stem was essentially a random process in the separate

histories of individual languages which produced occasional convergence we have no explanation why this particular prefixal variant prevailed and not more common ones such as *kala- or *qati-, which never co-occur with *baŋbaŋ.

Third, we might assume instead that *kuli- arose from a pre-existing model such as *kali- through independent modifications of the first vowel. While this is certainly possible it raises other questions (for example, why don't we also find reconstructed variants *keli-, *kili-?).

Finally, it must be acknowledged that analytic error may sometimes create the appearance of an *qali/kali- prefix where none exists. Thus Cebuano *kalibúgan* 'confused' might be seen as reflecting *kali-bugan. The synchronic morphology, however, points instead to *ka-libug-an*, and in any case a form such as this would not increase the recognised allomorphy of *qali/kali-. Similarly, reduplication is discounted where it creates the appearance of an *qali/kali- quadrisyllable, as in Wolio *kalidalida* 'restless', from *kalida* + REDUP, or *ka-* + *lida* + REDUP.

As will become clear in considering a semantically wider class of data, no proposal to reduce the number of *qali/kali- variants appears to be viable. In fact, as more semantic categories are examined the number of reconstructed variants continues to increase. At the same time we must ask whether the proposed *qali/kali- prefix is a formally well-defined class. In many words the inferred morpheme consists of STOP + a + l + VOWEL (usually i). But in others the same semantic category is represented by a quadrisyllable which attains its length through reduplication or through the addition of two initial syllables that seem to have no connection to the *qali/kali- set. Do we consider Bolaang Mongondow *tambilogong*, *tombilogong* 'beetle that bores into sago and coconut palms', Aklanon *kamamangí?* 'tiny crab with one large and one small pincer', Puyuma *kasimaray* 'type of small grasshopper' and Bolaang Mongondow *tontolawa'* 'spider' (cf. PMP *lawaq) as *qali/kali- words despite their greater divergence from typical variants, or are they simply unrelated to the phenomenon under investigation?

A solution to the problem of hyperallomorphy must await a solution to the other major problem connected with the *qali/kali- affix—the problem of meaning.

Semantic markedness

Once we accept *qali/kali- as a probable prefix we are faced with a second problem. Since morphemes are commonly defined as the minimal units of meaning or grammatical function, and bound morphemes must be associated with some definable semantic or grammatical category, we are obliged to give some idea of what *qali/kali- might have meant or what function it might have fulfilled.

In the case at hand it is tempting to say that *qali/kali- was an 'animal prefix'. But a moment's reflection shows that this definition is inadequate. First, apart from 'bat', and two other exceptions to be noted later, none of the categories in question is that of a mammal. Rather, the great majority are arthropods (insects, arachnids, crustaceans), worms (earthworms, leeches) or the larvae of metamorphosing insects (maggots, caterpillars, grubs), with a few reptiles (gecko, various snakes) thrown in. Collectively these can be called 'creepy-crawly' creatures. Was *qali/kali- then a prefix for this more restricted animal category?

Table 6 lists various creepy-crawly creatures, divided into two categories: those that are linguistically marked with the *qali/kali- prefix and those that are not.

Table 6: Creepy-crawly creatures, marked and unmarked with the *qali/kali- prefix

UNMARKED	MARKED
1. ant (*sejem)	ant spp.
2. bat, fruit (PMP *paniki)	bat, cave
3. beetle (PMP *abuqaŋ)	beetle spp.
4. caterpillar/maggot (PMP *qulej)	caterpillar spp.
5. cockroach (*lipes)	centipede
6. crab, freshwater (*kaRaŋ)	cockroach
7. crab, hermit (*qumaŋ)	crab sp.
8. crab, coconut (PMP *qayuyu)	bumblebee
9. crab, ghost (PMP *kaRuki)	leech, jungle
10. grub, sago (PMP *qabated)	leech, paddy
11. honeybee (PMP *wani)	honeybee sp.
12. horsefly (*laŋaw)	butterfly
13. housefly (*lalej)	dragonfly
14. lizard, monitor (PWMP *bayawak)	gecko
15. lobster/shrimp (*qudaŋ)	grasshopper
16. louse, head (*kuCu)	wasp
17. louse, body (*CumeS)	earthworm
18. mosquito (PMP *ñamuk)	firefly
19. nit (*liseqeS)	flea
20. paddy bug (*baŋaw)	millipede (luminous)
21. snail (PMP *sisiq, *susuq)	scorpion
22. snake (*SulaR, PMP *nipay)	snake spp.
23. spider (PMP *lawaq)	spider spp.
24. termite (*aNay)	termite spp.
25. weevil, rice (PMP *bukbuk)	

As can be seen from Table 6, the hypothesis that *qali/kali- signalled a general category of 'creepy-crawly creatures' also encounters problems, since there is no evidence that the prefix occurred with members of the unmarked category. As much as was practical I have tried to align similar categories in the two columns so as to highlight the differences. Where the categories are similar the unmarked category tends to be generic (ant, beetle, caterpillar, snake, spider, termite), while the marked category singles out individual species. Where the categories are similar but are not separated by a generic/specific distinction, the basis for assignment to the marked or the unmarked class is less obvious. We might speculate that creatures in the unmarked category tend to be more mundane (housefly, horsefly, head louse, body louse), while those in the marked category tend to be more exotic (butterfly, dragonfly, firefly, luminous millipede). But what do terms like 'mundane' or 'exotic' mean when they refer to creatures that are, in any event, objects of everyday experience for people whose traditional lifestyles kept them out of doors in hunting, gathering and gardening activities?

The classification implicit in Table 6 would appear to be based on a different principle than one of familiarity. Although all of the animal categories cited here can be said to refer to 'creepy-crawly creatures', the unmarked members are animals that: (i) tend to invade human space (maggot, cockroach, horsefly, housefly, both types of lice, mosquito, nit), or (ii) are economically important either because they are edible (fruit bat, sago grub, monitor lizard, lobster/shrimp), or because they cause damage to human crops or constructions (paddy bug,

termite, rice weevil). By contrast, the marked creatures in Table 6 for the most part have little or no economic importance. In addition, some of them have properties which might be regarded as eerie: the bioluminescence of fireflies and luminous millipedes, the jerky, vertiginous flight of cave bats and butterflies, the nocturnal chirping of a gecko (one of the few linguistically marked creatures that can be said to invade human space, as it hangs in gravity-defying suspension upside-down from the house rafters). Clearly, there is more to the meaning of the *qali/kali- prefix than is apparent in the gloss 'creepy-crawly creatures'.

3 Rainbow, whirlwind and echo: natural processes and prodigies of nature

In order to simplify the problem, the presentation of data so far has been artificially restricted to one semantic class. But *qali/kali- words are not limited to the names of creepy-crawly creatures. Somewhat surprisingly, the same type of deviation from typical Austronesian canonical shape appears in words for various natural phenomena. Table 7 contains a selected set of names for 'rainbow', 'whirlwind/whirlpool' and 'echo' in various Austronesian languages.

Table 7: Words for 'rainbow', 'whirlwind/whirlpool' and 'echo' in selected Austronesian languages, isolating historical prefixes

I Rainbow			
F:	*bali-		Proto Rukai *baLilawlaw
	*qali-		Thao *qariwazwaz*
	*qari-		Kavalan *RiwaRwaR*
			Puyuma (Tamalakaw) *HaRiwanes*
	*qaNi-		Bunun *qanivalval* (Jeng 1971)
	*quNi-		Paiwan *quLivangeraw*
WMP:	*bala-		Casiguran Dumagat *balaghari*
	*baliN-		Kankanaey *balingkáog*
	*bula-		Ilokano *bullaláyaw*
	*kali-		Balinese *kaliacah* (Panitia 1978)
			Toba Batak *halibutongan*
	*kati-		Ifugaw *katibongálon*
	*qali-		Bolaang Mongondow *alibobag, olibobag*
	*qati-		Bontok *atibongálen*
II Whirlwind/whirlpool			
F:	*buli-		Paiwan *vuliLawLaw* 'whirlwind'
	*qali-		Puyuma *Haripusapus* 'tornado'
			Puyuma *H-em-arisuwasu* 'whirl, swirl'
WMP:	*bali-		Bikol *balisúʔsúʔ* 'whirlpool'
	*dali-		Bontok *dalipospos* 'whirlwind'
	*kale-		Maranao *kalelenokaʔ* 'whirlwind'
	*kali-	1	Karo Batak *kalisungsung* 'whirlwind'
			Sangir *kaḷisusu* 'whirlpool, whirlwind'
			Toba Batak *haliodong* 'to eddy (whirlpools, whirlwinds)'

		1	Toba Batak *halisungsung* 'whirlwind'
	*kaliN-	1	Angkola-Mandailing Batak halincungcung 'whirlwind'
			Malay kelembubu 'eddying wind; whirlwind'
	*qali-	2	Bikol *alipúros* 'whirlwind, cyclone, tornado'
			Bikol *aliwúswús* 'squall, whirlwind'
			Bolaang Mongondow *(a)limpurow* 'whirlwind'
			Bontok *alipospos* 'hair spiral; whirlpool'
			Cebuano *alilúyuk* 'whirlpool'
			Casiguran Dumagat *alibúno* 'whirlpool'
			Casiguran Dumagat *alibuteg* 'whirlpool'
			Ifugaw *alipuwápu* 'whirlwind, cyclone'
			Ilokano *ali(b)nóno* 'eddy of water, whirlpool'
		3	Ilokano *alipugpúg* 'whirlwind, eddy'
			Ilokano *aliponó* 'eddy, gyrate, spin, whirl'
			Isneg *alibútag* 'small eddy of water'
			Isneg *alikóno* 'eddy of water'
		3	Isneg *alipugpúg* 'whirlwind, eddy of air'
		3	Itbayaten *alipugpug* 'tornado, whirlwind'
			Old Javanese *(h)alisyu* 'whirlwind'
			Old Javanese *(h)aliwawar* 'storm; whirlwind'
			Tagalog *alinugnóg* 'gyration'
	*qaliN-	2	Cebuano *alimpúlus* 'small whirlwind'
			Kapampangan *alimpuyut* 'whirlpool' (Bergaño)
			Minangkabau *alimbubu* 'whirlwind'
			Tagalog *alimpuyó* 'whirl or eddy (water, wind)'
	*saliN-		Malay *selembubu* 'whirlwind'
	*tali-		Kankanaey *talibawʔék* 'to eddy'
	*taliN-		Tae' *talimpuru'* 'whirlwind'
Oc:	*kali-		Lakalai *kalivuru* 'tornado, waterspout'
			Raluana *kalivuvur* 'whirlwind, waterspout'
	*qali-		Sa'a *älilo'a* 'to eddy, of the wind'
			Sa'a *äliupu'e* 'to swirl, of pools'
			Gilbertese *nimamano* 'whirlpool, eddy'
			Marshallese *likapijwewe* 'whirlpool'

III Echo

F:	*qalu-	Thao *qalushinaz* 'echo' (loan from Bunun?)
WMP:	*kala-	Tagalog *kalatuwát* 'warbly echo'
	*kaliN-	Kankanaey *kalindakéd* 'to echo'
	*qala-	Tagalog *alatuwát* 'warbly echo'
	*qaleN-	Casiguran Dumagat *alempanag* 'echo; to echo'
	*qali-	Tagalog *alimaymáy* 'unintelligible echoing sound'
		Tagalog *alingawngáw* 'echoing sound'
	*qaliN-	Karo Batak *alinggungi* 'echo'
	*qalu-	Tagalog *alunigníg* 'receding end of an echo'
	*qani-	Bikol *aniningál* 'echo, reverberation'
Oc:	*qali-	Puluwat *likáhenwan* 'echo; to echo'

As with previous tables, the organisation in Table 7 highlights several facts:

(i) The words for 'rainbow', 'whirlwind/whirlpool' and 'echo' cited in Table 7 deviate sharply from the typical disyllabic canonical shape of most morphemes in Austronesian languages. The first two syllables of these words appear to reflect a prefix which ranges over a number of partially similar but distinct protoshapes. In 'rainbow' there are eleven variants (ten with conflation of *bali/baliN-), in 'whirlwind/whirlpool' there are eleven (eight with conflation), and in 'echo' there are seven (six with conflation). The shape of this element corresponds closely to the range of variation for the first two syllables of the quadrisyllabic forms meaning 'butterfly', 'leech', 'ant' and the like.

(ii) Some of the forms cited here belong to cognate sets, but none of these are widely distributed.

(iii) Although higher-level reconstructions are not available for the semantic categories of Table 7 some widely distributed forms share the same *base,* allowing the reconstruction of 1) PAn *X-waRwaR 'rainbow' (Formosan evidence only), 2) PWMP *X-cuŋcuŋ 'whirlwind/whirlpool' (Philippine and Sumatran Batak evidence), 3) PMP *X-pudus (Bikol and Lakalai), 4) PMP *X-pupuR 'whirlwind/whirlpool' (Philippines and Raluana), and 5) PMP *X-niŋal 'echo' (Bikol *aniningál*, together with Asilulu *ningal* 'echo', and Hiligaynon *aningál* 'have the delusion of hearing a familiar sound (as one's mother's voice)'. In other cases the affix is revealed by contrast with an unaffixed base in the same language, as with Karo Batak *alinggungi* 'echo', which Neumann (1951) cross-references to *gung* 'large copper gong'.

Little would be gained by citing further statistics on the distribution and frequency of *qali/kali- allomorphs. Suffice it to say that the variants *qali- and *kali- again emerge as the most frequent types, and that there is great overlap with the range of variation established for the inferred prefixes in names of creepy-crawly creatures: seven of the ten conflated variants in 'rainbow', four of the eight in 'whirlwind/whirlpool', and four of the six in 'echo' correspond to the seventeen best-established variants at the end of Table 4, the previously isolated variants *buli- and *dali- are strengthened from single to double instantiations, and a new PAn/PMP variant *bali/baliN- is supported by the sets for 'rainbow' and 'whirlwind/whirlpool'. These observations merely reinforce a point already made, namely that the *qali/kali- prefix exhibits a surprising and so far unexplained range of seemingly unconditioned variation on a common theme.

The more significant challenge that these new data present is how to bridge the semantic gap between 'creepy-crawly creatures', on the one hand, and various natural phenomena on the other. Although it was shown in Table 6 that *qali/kali- does not mark creepy-crawly creatures as a class, that material was at least compatible with the interpretation that *qali/kali- marked some subclass of animals. But now even this interpretation appears untenable, since minimally some natural phenomena must be included with some creepy-crawly creatures in a category defined by common linguistic marking. The full range of relevant natural phenomena noted to date includes the following:

AUREOLE (lunar/solar halo)

WMP: Bontok *baliwengweng* (*bali-) 'the circle of light around the moon or sun; halo', Bolaang Mongondow *alitutu* (*qali-) 'lunar or solar halo', Isneg *alibongbóng* (*qali-) 'lunar halo', Isneg *ar-aribongbóngan* (*qari-) 'lunar halo'

Oc: Arosi *arikorokoro* (*qali-) 'the round halo of the moon'

DUST

WMP: Ilokano *alipága* (*qali-) 'flake (of fire); soot, dirt. Any foul or filthy substance adhering to something high', Kapampangan *alipugpug* (*qali-) 'dust' (Bergaño), Tagalog *alikabók* (*qali-) 'dust (rising and falling upon surfaces)', Western Bukidnon Manobo *eliyavuk* (*qali-) 'dust; of dust, to fly or be stirred up', Ilokano *alinápog* (*qaliN-) 'dust from putrefied wood, flesh etc.; rising from the mortar when pounding rice etc.', Kankanaey *alimpokápok* (*qaliN-) 'be thrown up, be dusty, as when the wind throws up sand etc.', Makasarese *alimbu'bu'* (*qaliN-) 'dust', Ilokano *atipurápur* (*qati-) 'cloud of dust', Ilokano *atipokpók* (*qati-) 'to blow, to rise (dust); to fly (papers etc.) before the wind'

SHADOW/REFLECTION

WMP: Ngaju Dayak *kalanjungen, kanjungen* (*kalaN-) 'shadow, shade', Iban *kelemayang* (*kali-) 'shadow (esp. moving), dim outline, appearance of spirit or ghost(?), reflection', Kankanaey *alalangáw* (*qala-) 'shadow; shade', Tae' *lalundun* (*qala-), Bare'e *limbayo* (*qaliN-), Ilokano *aniníwan* (*qani-) 'shade, shadow, image', Isneg *aniníwing* (*qani-) 'shadow, reflection'

CMP: Soboyo *kalanining* (*kala-) 'mirror'

SPARKS

WMP: Karo Batak *turtur, kalinturtur* (*kaliN-) 'sparks of a fire', Aklanon *alipáeok* (*qali-) 'live ashes, small cinders that fly in the air from a fire (as from a strong fire on a windy day)', Cebuano *aligatu* (*qali-) 'fiery particles carried off from a fire by the updraft; give off flaming particles', Ilokano *alipága* (*qali-) 'flakes of fire', Tagalog *alipáto* (*qali-) 'flying ember; firebrand', Ilokano *arisangásang* (*qari-) 'flake (of fire), spark', Isneg *um-arisangásang* 'emit sparks' (probably an Ilokano loanword), Iban *selempepai* (*saliN-) 'burst, fly off in all directions, as sparks or burning bamboo'

STORM

WMP: Karo Batak *kalimantung* (*kali-) 'name of a storm wind', Old Javanese *haliwawar* (*qali-) 'squall (of wind)',[7] Kankanaey *alimbudádbud* (*qaliN-) 'to storm, of typhoons'

SUNSHOWER

WMP: Tae' *balinono* (*bali-) 'the sun encircled by a rainbow', Isneg *mangar aridádat* (*qari-) 'alternating rain and sunshine'

[7] Gericke and Roorda (1901) also give this as 'whirlwind'.

Semantic markedness revisited

It has been shown that the *qali/kali- prefix marks the names of some creepy-crawly creatures, but not others, in effect providing a linguistic indicator of marked and unmarked semantic categories. Table 8 shows much the same pattern with terms for natural phenomena.

Table 8: Natural phenomena, marked and unmarked with the *qali/kali- prefix

UNMARKED	MARKED
1. sun (PMP *mata ni qalejaw)	aureole
2. dust (PMP *qabuk)	dust
3. noise, sound (PMP *buni)	echo
4. rain (*quzaN)	rainbow
5. shadow/reflection (*qaniNu)	shadow/reflection
6. fire (*Sapuy)	sparks
7. west monsoon (*SabaRat)	storm
8. sunshine (*siNaR)	sunshower
9. wind (PMP *hanjin)	whirlwind/whirlpool

Just as Table 6 shows the contrast between linguistically marked and unmarked categories of creepy-crawly life forms, so Table 8 shows a contrast between what might be called 'ordinary natural phenomena' and 'prodigies of Nature': flies are unmarked, but butterflies are marked, rain is unmarked, but rainbows are marked. Again, there is apparent counter-evidence, but closer examination of the data suggests that this may not be counter-evidence at all. The category 'dust' hardly qualifies as a prodigy of Nature, and in fact appears in both columns. But dust may appear in various forms, most notably lying still or moving, as in a wind. In static contexts it is unmarked, but the glosses for at least some marked forms, as Ilokano *atipokpók*, Ilokano *atipurápur*, Kankanaey *alimpokápok*, Tagalog *alikabók* and Western Bukidnon Manobo *eliyavuk* suggest that the *qali/kali- prefix marks (or historically marked) the semantic category 'dust in motion'.

Some of the marked semantic categories in Table 8 are rather weakly represented, and may be invalid. But it is unlikely that all are invalid, and so we are confronted with a recalcitrant question: what do butterflies, leeches, luminous millipedes and the like have in common with rainbows, whirlwinds or echos which distinguishes them from most other meanings that are lexically encoded in Austronesian languages? The answer to this question reminds us that problems in linguistic analysis may sometimes be insoluble unless we take account of correlated features of nonlinguistic culture.

4 Semantic contagion

The data surveyed above strongly suggests that it will be futile to attempt to understand the meaning of the *qali/kali- affix in terms of reference to the 'real world', since nothing in the real world appears to connect butterflies, leeches and luminous millipedes (but not, for example, mosquitoes) with rainbows, whirlwinds and echos (but not rain, wind or fire). In fact, the data examined so far only begin to suggest the magnitude of the problem we must confront in attempting to establish a semantic category delimited by the *qali/kali- prefix.

One complicating factor not yet noted is that *qali/kali- sometimes marks categories which are connected by metaphor or by a common abstract property. For example, words for

'butterfly, moth' are extended to names of fish in some languages, and to names of plants in others: (i) Amis *'adipangpang* 'tropical fish (generic term); butterfly', Yami *alibangbang* 'flying fish', Casiguran Dumagat *kalibóngbong* 'butterfly; spadefish: *Scatophagus argus*', Cebuano *alibangbang* 'butterfly; butterfly fish: *Chaetodon* sp.', Sangir *kaḷiwembang* 'butterfly', *kina? kaḷiwembang* 'pennant fish', Gedaged *kilibob* 'butterfly; a yellow marine fish about 8 inches long', Numbami *kaimbombo* 'butterfly' > *kembombo* 'butterfly fish', Ponapean *lierpwater* 'butterfly fish'; (ii) Pinatubo Negrito *kalibangbáng* 'a tree: *Bauhinia* spp.' (Fox 1953:239 says this name derives from the similarity of the folded *Bauhinia* leaves to the wings of butterflies), Tagalog *alibambáng*, *kalibambáng*, *kulibambáng* 'small stocky tree, the leaves of which are used for flavoring meat and fish' (only the first of these variants also means 'butterfly' in Tagalog; the others appear in Table 1 in association with different languages), Ilokano *alibangbáng* 'a tree whose sour leaves are used for culinary purposes' (does not mean 'butterfly' in Ilokano, but does in Tagalog and other languages), Karo Batak *kalimbangbang* 'a tall, upright tree: *Alangium begonifolium* Baill.' (does not mean 'butterfly' in Karo Batak, but corresponds closely to the form meaning 'butterfly' in many other languages), Simalur *alifambang* 'butterfly; tree sp.'.

These extensions of the primary sense 'butterfly' to various plants and fish (including the butterfly fish) appear to be based on accidental physical similarity rather than on some more fundamental shared property. In much the same way, the extension of *qali/kali- marking to 'sparks' may reflect a perceived similarity with 'firefly' (metaphor). Such extensions of a morphological category based on perceived similarity can be attributed to a phenomenon that we will call 'semantic contagion'. The likelihood that semantic contagion is real in the case of firefly:sparks is strengthened by cases of **semantic shift**, as the word for 'firefly' has come to mean 'star' in several languages of southern Sulawesi (Wolio *kalipopo*, Muna *kolipopo* etc.). Although semantic contagion and semantic shift are different phenomena (the former involving a transfer of morphological marking to a new semantic category, the latter a transfer of meaning to a preexisting morpheme), both depend upon perceived similarity in meaning.

Other examples appear to be based less on metaphor than on the sharing of a common abstract property. Many languages in the Philippines mark words meaning 'restless' with the *qali/kali- prefix, perhaps abstracting out the distinctive chaotic quality of the flight of butterflies or bats (this sometimes applies to the swarming of insects or people in a crowd, or the death struggle of fish out of water, of frantically flapping fowls, etc.):

RESTLESS

WMP: Sangir *kaḷabaso?* (*kala-) 'restless, unable to lie still or sit in one place', Bare'e *kaliowa* (*kali-) 'struggle, as with pain', Bolaang Mongondow *kalikokab* (*kali-) 'flap the wings', Kankanaey *kalimúgag* (*kali-) 'nervous, not able to be still', Sangir *kaḷidadang* (*kali-) 'restless, unable to sit still in one's seat', Toba Batak *halioto* (*kali-) 'to swarm, as ants', Uma *kalipuru* (*kali-) 'struggle, flap the wings', Sangir *kaḷindasa* (*kaliN-) 'restless, unable to control oneself', Sangir *kaḷintoha* (*kaliN-) 'restless, unable to lie still or sit in one place', Ilokano *kolipagpág* (*kuli-) 'to flutter, of birds when they are killed', Timugon Murut *kuliapunapun* (*kuli-) 'to swarm, of bees and wasps', Ilokano *kuripaspás* (*kuri-) 'writhe in agony', Casiguran Dumagat *alimuséd* (*qali-) 'restless, anxious to get up and go', Cebuano *alikási* (*qali-) 'nervously restless', Cebuano *alipasa* (*qali-) 'for a child lying in bed to be restless due to discomfort, worry etc.', Cebuano *aliwarús* (*qali-) 'be restless in expectation of something', Cebuano *aliwása* (*qali-) 'restless because of discomfort or worry', Ifugaw *alibadbád* (*qali-) 'make all sorts of twisting, wresting, wringing movements (as wrestlers)', Ifugaw *alikudúkud* (*qali-) 'jump up and down, as mudfishes which have been caught and put

in a bottle', Ilokano *alikúteg* (*qali-) 'restless, turbulent, mischievous', Ilokano *alipúdas* (*qali-) 'restless, unquiet, uneasy', Ilokano *aliptók* (*qali-; syncope) 'restless, of a roving disposition', Ilokano *aliwegwég* (*qali-) 'restless, turbulent, mischievous', Kankanaey *alipattó* (*qali-) 'struggle, flounder, writhe', Kankanaey *alipugá* (*qali-) 'restless, wakeful; lie awake, have a sleepless night', Tagalog *alisuwág* (*qali-) 'disquietude', Cebuano *alindángay* (*qaliN-) 'uneasy in the body because of a slight fever; have a slight fever, be restless', Cebuano *alindasáy* (*qaliN-) 'uneasy, restless in place one is lying', Ilokano *alimbádaw* (*qaliN-) 'to turn in sleeping', Ilokano *alimbásag* (*qaliN-) 'have insomnia, sleeplessness, abnormal wakefulness', Ilokano *alimbayágan* (*qaliN-) 'death struggle, said of drowning persons, fish out of the water', Tagalog *alimbayáw* (*qaliN-) 'uneasy', Tagalog *alumpihít* (*qaluN-) 'wriggling and twisting (due to discomfort or pain)', Ilokano *aribungbúng* (*qari-) 'surround in throngs, as when viewing something strange', Ilokano *aripaspás* (*qari-) 'writhe in agony', Ilokano *arisaksák* (*qari-) 'to flounder, said of fish', Kankanaey *atipanguá* (*qati-) 'strive, flounder, writhe', Sangir *saḷembiga?* (*saleN-) 'nervous, skittish, shy', Sangir *saḷembuhau* (*saleN-) 'restless, constantly moving, like the *buhau* fish', Ilokano *saliwagkíng* (*sali-) 'unquiet, never still', Sangir *saḷihiang* (*sali-) 'restless, not able to keep still', Sangir *taḷigagase?* (*tali-) 'restless'

CMP: Kamarian *kalapesa* (*kala-) 'to flounder, of fish'

Oc: Ponapean *lierikik* (*qali-) 'restless, with reference to a child'

Perhaps conceptually connected are *qali/kali- words in several widely separated languages meaning 'rustle, move in the wind':[8]

RUSTLE

WMP: Dairi-Pakpak Batak *kalimosmos* (*kali-) 'be carried off quickly by the wind', Kankanaey *kalisíkis* (*kali-) 'to rustle, as when crumpling up paper', Ilokano *alingyánay* (*qali-) 'move slightly, of grasses, leaves etc. at the passage of a rat, snake etc.', Kankanaey *alikadóng* (*qali-) 'to rustle', Ilokano *aringgunáy* (*qariN-) 'move lightly, of grasses etc. in a breeze', Kankanaey *atikúme* (*qati-) 'to rustle. A sound, as of the feet of children on the floor when romping'

A similar abstraction may lie behind the use of *qali/kali- to mark the word for 'arch' (from the shape of the rainbow?) in at least two widely separated Philippine languages: Bontok *aligáweg* (*qali-), Maranao *kalantimon* (*kalaN-) 'arch'.

The words for 'whirlwind/whirlpool' (already more abstract than the English equivalents, which are lexically distinct) provide by far the richest illustration of how semantic contagion has enlarged the number of semantic categories originally marked by the *qali/kali- affix. By way of metaphor we find a connection with 'hair whorl/crown of the head', and by abstraction of distinctive quality we find connections with 'summit', 'dizzy', 'sling (for hurling stones)', 'go in circles, 'confused', 'thick smoke', 'turbid', 'far (hence visually obscure)', 'lost', 'loud noise', 'drunk', 'conical' and perhaps other less well-attested semantic categories:

[8] Dempwolff's (1938) *harubiru 'commotion' (cf. English 'hullabaloo', from Tagalog *halubilo* 'noisy crowd or multitude'), appears superficially to be an *qali/kali- word, but points to PMP *h- rather than *q-. In view of Malay *haru* 'plaguing, annoying, esp. of an evil spirit plaguing an individual; confusing, throwing into disorder', *orang haru biru* 'a rowdy', this word is best treated as a compound which has been widely borrowed from Malay into other languages of insular Southeast Asia.

HAIR WHORL

F: Puyuma (1) *Haripuduan* (*qali-) 'whorl of hair on the head', Thao *qaripazu* (*qali-) 'hair whorl', Atayal (Mayrinax) *qalipugu* (*qaNi-) 'hair whorl', Paiwan (Western dialect) *qaLimumudan* (*qaNi-) 'crown of the head', Proto Atayal (Li 1981:285) *qalipagu (*qaNi-) 'hair whorl', Saisiat *ka?-alipoza?an* (*qaNi-) 'hair whorl', Paiwan *qulipapunu* (*quli-) 'crown of head; top of mountain, peak', Paiwan *quLipapuduan* (*quNi-) 'crown of head (where hair whorls)'

WMP: Sangir *kaḷisusu* (*kali-) 'crown of the head, where the hair whorls', Toba Batak *halisung* (*kali-) 'hair whorl' (apparently an irregular reduction to distinguish it from *halisungsung* 'whirlwind'), Dairi-Pakpak Batak *kalimbubu* (*kaliN-) 'crown of the head', Toba Batak *halimbubu* (*kaliN-) 'crown of the head, place of the fontanel', Aklanon (1) *alipudwan* (*qali-) 'crown of head (place where hair is found in a whirl)', Aklanon *alipúeos* (*qali-) 'whirl of hair; whirlpool (as in river)', Bontok *alipospos* (*qali-) 'crown of one's head; hair spiral; whirlpool', Ilokano *aligusgús* (*qali-), Ilokano *alipuspús* (*qali-) 'whorl in the hair', Isneg *alipuspús* (*qali-) 'whorl (in the hair), anywhere except at the crown of the head', Itbayaten *alisoxed* (*qali-) 'whirlpool; hair whorl; to whirl; dizzy', Aklanon *alimpupúdwan* (*qaliN-) 'very centre of top of head (where hair is found in a whirl)', Bikol *alimpupúro* (*qaliN-) 'the part of the top of the head from which the hair appears to spiral out in different directions', Cebuano *alimpúlu* (*qaliN-) 'crown, part of the skull in the back where the hair forms a whorl; topmost part of a mountain', Isneg *alintutúbo* (*qaliN-) 'top, tip, highest point; crown (of the head)', Isneg *lintotóxo* (*qaliN-; apocope) 'top, peak, summit; crown of the head; whirl at the crown of the head', Hanunóo *aripúdwan* (*qari-) 'hair whorl', Toulour *ririmpuruan* (*qari-) 'hair whorl', Toba Batak *salimbubu* (*saliN-) 'crown of the head, place of the fontanel'

Oc: Marshallese *likapijwewe* 'cowlick, hairwhorl' (cf. 'whirlpool')

Reconstruction: PAn *qali-pudu-an 'hair whorl'.

The transition from 'whirlwind' or 'whirlpool' to 'hair whorl' to 'crown of the head' to 'summit' is anticipated in some of the glosses already given. However, other *qali/kali- forms are found meaning 'summit', but with no trace of the connections which apparently led to a reflex of *qali/kali- being associated with this semantic category:

SUMMIT

WMP: Aklanon *alipungto(h)* (*qali-) 'topmost part, peak, pinnacle (of tree, mountain', Bikol *alituktók* (*qali-) 'acme, apex, crest, peak, summit, top, vertex, ridge', Ilokano *alimpatók* (*qaliN-) 'top, peak, summit', Ilokano *alintótok* (*qaliN-) 'top, peak, summit', Kankanaey *alintayók* 'top, summit (of a tree)', Western Bukidnon Manobo *limbuvungan* (*qaliN-) 'peak of a house' (cf. PMP *bubuŋ-an), Bikol *arituktók* (*qari-) 'acme, apex, crest, peak, summit, top, vertex, ridge' (cf. PMP *tuktuk 'top, crown, summit'), Ilokano *aringgawís* (*qariN-) 'top, peak, summit'

DIZZY

F: Thao *qarimuzmuz* (*qali-) 'whirling sensation', Bunun *qanipasav* (*qaNi-) 'faint, dizzy', Paiwan *quLimezaw* (*quNi-) 'dizziness, "seeing stars"', *quLimezav-en* 'be dizzy'

WMP: Iban *belebigau* (*bali-) 'giddy, spinning (of the head)', Kankanaey *baliwenwen* (*bali-) 'turn round'; *ma-baliwenwén* 'dizzy', Sangir *baḷintango* (*baliN-) 'groggy, and therefore unsteady on one's feet, as someone who has just disembarked from a boat and is getting his "land legs"; totter; dizziness', Toulour *karimembeng* (*kari-) 'dizzy, dazed, "seeing stars"', Buginese *alippuang-eng* (*qali-) 'dizzy', Cebuano *alipúlung* (*qali-) 'dizzy',

Maranao *lipadeng* (*qali-) 'swoon, faint; dizziness', Ilokano *alindáw* (*qali-; from *qali-medaw?) 'dizzy, giddy, affected with vertigo', Kankanaey *alitengténg* (*qali-) 'stunned; dumbfounded; astounded; deafened; dizzy; giddy', Pangasinan *alimoréng* (*qali-) 'dizziness; to faint', Bolaang Mongondow *(a)limpurow* (*qaliN-) 'something, such as a withered leaf, that is swept in a swift upward spiral by the hot air rising from a fire, or by a whirlwind; fit of giddiness; whirlwind', Hiligaynon *atipuyúng* (*qati-) 'dizzy, feel faint', Ilokano *talimúdaw* (*tali-) 'feel dizzy, giddy'

CMP: Kambera *kalihingu* (*kali-) 'dizzy'

Oc: Ponapean *lipwongmas* (*qali-) 'to faint'

Reconstruction: PAn *X-medaw 'dizzy'.

From 'dizzy' we are led to 'sling (for propelling stones)', 'go in circles', 'confused', 'thick smoke', 'turbid', 'far', 'lost', 'loud noise, noise that sets the head awhirl' and 'drunk':

SLING

WMP: Karo Batak *kalibawang* (*kali-), *kalimbawang* (*kaliN-) 'a sling, instrument for propelling projectiles', Kapampangan *alibasbas* (*qali-) 'sound of a sling whirling' (Bergaño), Ilokano *alimbáyung* (*qaliN-) 'sling. It generally consists of a strip of the limb of a leaf of the buri palm *(sílag)*; both ends of the strip are held in the hand, and it is whirled around until, by loosing one end, the missile, which is mostly a stone, is let fly.'

GO AROUND IN CIRCLES

WMP: Ilokano *balikawkáw* (*bali-) 'walk, talk circuitously, as when trying to intercept somebody, or when using circumlocutions', Tae' *kalumpisa* (*kaluN-) 'go round in circles', Ilokano *alikubnéng* (*qali-) 'fly round about', Kankanaey *alibaybáy* (*qali-) 'run around, turn about, fly round', Ilokano *arinoknók* (*qari-) 'to pirouette', Ilokano *salikawkáw* (*sali-) 'walk, talk circuitously, as when trying to intercept somebody, or when using circumlocutions'

CONFUSED (of vision, sound, the mind)

WMP: Sangir *buḷawuhe?* (*bula-) 'hazy', *me-buḷawuhe?* 'seen as through a haze, unclear, hazy, vague (of vision)', Kankanaey *buligawgáw* (*buli-) 'dull, dim; myope, nearsighted', Kankanaey *bulikawkáw* (*buli-) 'dark, obscure', Kankanaey *bulingetngét* (*buli-) 'dark, obscure', Kankanaey *bulisengséng* (*buli-) 'dark, obscure', Balinese *kalimatmatan* (*kali-) 'hazy vision, seeing wrongly' (Panitia 1978), Javanese *kalimengan* (*kali-) 'forget', Kankanaey *kalimattáw* (*kali-) 'forget; remember only confusedly, not to recognise; see only indistinctly', Kapampangan *kalingwan* (*kali-) 'forget', Makasarese *kalingongo* (*kali-) 'unintelligible sound (as of someone who mumbles, or a dying man who speaks only with great difficulty)', Angkola-Mandailing Batak *halimbolos* (*kaliN-) 'forgetful', Bikol *aliwálas* (*qali-) 'neglectful', Bontok *allílaw* (*qali-; syncope?) 'to confuse, as to interject a comment which will make a speaker lose his train of thought', Casiguran Dumagat *alimengmeng* (*qali-) 'be able to see something for just a split second, and then to have it go out of sight or disappear', Cebuano *alipatpát* (*qali-) 'for the vision to be blurred', Ilokano *alimadámad* (*qali-) 'hear confusedly, indistinctly; remember vaguely, indistinctly', Ilokano *aliwangáwang* (*qali-) 'uncertain, vague, as news', Maranao *lipaʔo* (*qali-) 'forget, forgetful', Tagalog *aligutgót* 'entanglement of thread or the like', Casiguran Dumagat *alintána* (*qaliN-) 'not to pay attention to', Isneg *ariyangkoʔ* (*qari-) 'to sound confusedly', Aklanon *salimuáng* (*sali-) 'confused, groggy', Cebuano (*sali-) *salimágaw* 'for the vision to be blurred', Tagalog *saligutgót* (*sali-) 'intricate, complicated' (cf. *aligutgót*, with visual

confusion), Ifugaw *halinduwá* (*saliN-) 'doubt' (from *duwá* 'two'), Kankanaey *sulimatmát* (*suli-) 'forget; remember only confusedly, not to recognise; see only indistinctly', Timugon Murut *taliajow* (*tali-) 'confused'

Oc: Ponapean *liourehre* (*qali-) 'mutter indistinctly during sleep, be delirious', *limanokonok* (*qali-) 'absent-minded, forgetful'

Reconstruction: PWMP *X-matmat 'see or hear indistinctly or confusedly'.

THICK SMOKE/STEAM

WMP: Bikol *alisúhos* (*qali-) 'smoky', Cebuano *alingásu* (*qali-) 'smoky, get filled with smoke', Hanunóo *alingháw* (*qali-) 'vapor rising from the ground', Ilokano *alibongóbong* (*qali-) 'vapor, steam', Ilokano *alibóob* (*qali-) 'steam', Ilokano *alibúyong* (*qali-) 'overcast, clouded over', Ilokano *alingásaw* (*qali-) 'exhalation in the form of vapor, steam etc.', Ilokano *alisugásug* (*qali-) 'exhalation, steam rising from the ground after rain', Kankanaey *alinebnéb* (*qali-) 'full of smoke', Kankanaey *alingángew* (*qali-) 'to fill (with smoke)', Tagalog *alimuʔóm* (*qali-) 'earth vapor', Hanunóo *alinyábuʔ* 'fog, mist; drizzle, light rain', Kankanaey *talimbóok* (*taliN-) 'to smoke much, reek much'

Oc: 'Are'are *aripuʔo* (*qali-) 'be full of smoke', Sa'a *älipono* (*qali-) 'thick, of smoke', Arosi *aribono* (*qali-) 'thick darkness; thick smoke, a cloud of smoke'

TURBID

WMP: Kankanaey *kalibawbáw* (*kali-) 'to trouble, make thick, make muddy', Ilokano *aributéd* (*qari-) 'filth, impurities in unfiltered water'

CMP: Roti *kelupua* (*kelu-) 'stir up water, muddy up water'

FAR/DISAPPEAR

WMP: Angkola-Mandailing Batak *kalimongmong* (*kali-) 'run far away with something', Casiguran Dumagat *kalikámed* (*kali-) 'the far side of the mountains (far away, where the mountains end)', Karo Batak *kalimanman* (*kali-) 'very far', Karo Batak *kalimatmat* (*kali-) 'very far', Ilokano *alibtók* (*qali-; syncope) 'disappear, pass from view'

LOST

WMP: Kankanaey *kulipangngáw* (*kuli-) 'not to know which way to turn, where to go; take the wrong road, go astray', Kankanaey *atingawngáw* (*qati-) 'not to know which way to turn, where to go; take the wrong road, go astray'

LOUD NOISE

WMP: Cebuano *alibángu* (*qali-) 'bothering others by being noisy', Cebuano *alingása* (*qali-) 'annoyingly noisy', Cebuano *alingísi* (*qali-) 'making a piercing, screeching noise', Cebuano *alingisngis* (*qali-) 'making very high-pitched and drawn out piercing noise', Cebuano *alingugngug* (*qali-) 'noisy in a constant drumming way', Cebuano *alintabu* (*qaliN-) 'turn over, producing a loud turmoil', Cebuano *salibagyaw* (*sali-) 'annoyingly noisy; having the head awhirl, not knowing what to do; noise that is disturbing', Ifugaw *alibaddóng* (*qali-) 'trampling and stamping impatiently', Ifugaw *alidogdóg* (*qali-) 'droning noise made by those who pound rice', Ifugaw *alikadóng* (*qali-) 'make a trampling noise, as children playing'

DRUNK

WMP: Ifugaw *alingangá* (*qali-) 'stunned, as an intoxicated man', Kankanaey *ali-bagbág* (*qali-) 'be beside oneself for drunkenness'

Finally, several languages have *qali/kali- words for the category 'conical':

CONICAL

WMP: Bikol *balisúngsúng* (*bali-) 'whirlpool, vortex; eddy; cone or funnel-shaped', Ilokano *balisongsóng* (*bali-) 'render cone-shaped', Tagalog *alimulón* (*qali-) 'conical, tapering', Hanunóo *salikungkúng* (*sali-) 'funnel-shaped form, funnel-fashioned leaf, paper etc.'

Reconstruction: Proto Philippines *balisuŋsúŋ 'cone-shaped, funnel-shaped'.

All of the above notions appear to be connected, directly or indirectly, to the primary referents 'whirlwind/whirlpool', reflecting the shape (hair whorl, conical), the motion (sling, go round in circles), or the psychophysical effects of a human being whirling around (dizzy, confused, lost, drunk, with the abstract notion of confusion then extended back to other physical causes of sensory obfuscation such as thick smoke or the visually blurring effects of distance).

5 Residual categories

If we acknowledge that semantic contagion may have extended the range of application of the *qali/kali- prefix by 'infecting' other categories through associations based on perceptual similitude, we can maintain that all *qali/kali- words examined so far refer either to creepy-crawly creatures or to prodigies of Nature, together with extensions based on metaphor or shared abstract properties. What makes an understanding of the *qali/kali- affix particularly challenging is that, despite the patterning seen so far, there are many other categories which appear to carry the same morphological marking.

One of the best-attested and semantically most transparent transitions from 'whirlwind/whirlpool' is that to 'hair whorl/crown of the head'. This is the first example seen of an *qali/kali- word which refers to a part of the body. It is, however, not the only example. Others include: 'clavicle/collar bone', 'palate', 'pupil of the eye', and apparently 'scapula':

CLAVICLE/COLLARBONE

F: Puyuma *Haliwazangan* (*qaNi-) 'clavicle, collarbone'

WMP: Cebuano *balikhaw* (*bali-; syncope?) 'collarbone; have prominent collarbones', Hanunóo *balískug* (*bali-; syncope?) 'clavicle, collarbone', Toba Batak *haliadang* (*kali-) 'clavicle, collarbone', Ilokano *aliwadáng* (*qali-) 'collarbone, clavicle', Isneg *aliwadāng* (*qali-) 'collarbone, clavicle', Kankanaey *alimadáng* (*qali-) 'clavicle, collarbone', Kankanaey *aliwadáng* (*qali-) 'rib (used only in tales)'

Reconstruction: PAn *X-wadaŋ 'clavicle, collarbone'.

PALATE

WMP: Kapampangan *alangálang* (*qala-) 'palate, roof of the mouth', Iban *kelekanit* (*kali-) 'roof of the mouth'

PUPIL OF THE EYE

F: Saisiat *ʔalimasawaʔan* (*qaNi-) 'pupil of the eye'

WMP: Tagalog *balintatáʔo, balintatáw* (*baliN-) 'pupil of the eye' (cf. *táʔo* 'human being, person'), Aklanon *kalimutáw* (*kali-) 'iris (of eye), eyeball', Hiligaynon *kalimutáw* (*kali-) 'eyeball', Bikol *kalintatáw* (*kaliN-; cf. Tagalog *balintatáw* and Puyuma *muRTaTaw* 'eyeball') 'centre of the eye containing the iris and the pupil', Bikol *alinawnáw* (*qali-) 'centre of the eye containing the iris and the pupil', Isneg *lintotólay* (*qaliN-; cf. *tólay* 'man, person') 'pupil of the eye', Tagalog *alikmatá* (*qali-) 'pupil of the eye', Bikol *alintatáw* (*qaliN-) 'centre of the eye containing the iris and the pupil', Palauan *chelsúl a mad* (*qani-?) 'pupil of the eye'

Oc: Ponapean *limarepeileng* (*qali-) 'pupil of the eye (honorific)'

Reconstruction: PWMP *X-Ca-Cau 'pupil of the eye' (lit. 'person of the eye').

SCAPULA

WMP: Angkola-Mandailing Batak *halipkip* (*kali-) 'scapula, shoulder bone', Hanunóo *alipʔp* (*qali-) 'scapula, shoulder bone', Kelabit *liʔp* (*qali-; with syncope and cluster reduction?) 'scapula'

As with terms for creepy-crawly creatures and natural phenomena, body-part terms can be arranged in marked and unmarked series.[9]

Table 9: Body-part terms, marked and unmarked with the *qali/kali- prefix

UNMARKED	MARKED
1. hair (*bukeS)	hair whorl
2. rib (PMP *Rusuk, *tageRaŋ)	clavicle
3. gums (*gusi)	palate
4. tongue (PMP *dilaq)	
5. eye (*maCa)	pupil of eye
6. shoulder (*qabaRa)	scapula
7. bone (*CuqelaN)	

Table 9 aligns similar body parts in marked and unmarked categories: 'hair' is unmarked, while 'hair whorl' is marked', 'rib' is unmarked, while 'clavicle' is marked, and so on. The number of unmarked body-part terms could be multiplied many times over, but this is unnecessary to make the point that the terms in the marked column are exceptional in their length, and in the phoneme sequences that form their onset syllables.

Other semantic categories for which *qali/kali- words are fairly well-attested include names of birds, fish, and plants:

[9] Perhaps to be included here also is the bizarre set of apparent *qali/kali- forms represented by Kankanaey *kalimputóy* (*kaliN-) 'calf, thigh – that is, the fleshiest part of them', Tae' *kalumpani'* (*kaluN-) 'thin fold of flesh between the ribs and hind legs of a pig', Ilokano *arimongmóng* (*qari-) 'the particles of fat distributed in the adipose tissue under the skin of the abdomen of swine', Isneg *arimúyut* (*qariN-) 'hind part of an animal's thigh', Isneg *talinabáw* (*sali/tali-) 'the thigh of a hog that is given by the owner of a house where a solemn sacrifice took place, to his sister, as a present to take back home to her husband', Kankanaey *alipadpád* (*qali-) 'side of the thigh – that is, the upper part', Tae' *tingkoran* (*qatiN-) 'thighbone of men and animals; thigh of the foreleg of a pig, commonly given in offering to the gods'.

BIRDS (various)

WMP: Bolaang Mongondow *boyokuak* (*bala-) 'kind of swamp bird', Hanunóo *balikáku* (*bali-) 'medium-sized bird with long legs and reddish plumage, but otherwise presenting a parrot-like appearance', Hanunóo *balináyaw* (*bali-) 'very small bird with black and white striped plumage', Hanunóo *balisúsu* (*bali-) 'medium-sized red-billed kingfisher', Sangir *baḷindangeng* (*baliN-) 'kind of sea bird', Maranao *kalasiansiang* (*kala-) 'blue bird with white breast and long bill', Ngaju Dayak *kalialing* (*kali-) 'small jet black bird with gray back', Sasak *kalidapang* (*kali-) 'bird with red neck, black breast and wings, and red beak and legs', Tiruray *kelifodo?* (*kali-) 'bird sp.', Tiruray *kelimetan* (*kali-) 'hornbill sp.', Maranao *kalinsasaoi* (*kaliN-) 'monkey bird', Hanunóo *kalusísi* (*kalu-) 'very small hanging parakeet' Isneg *kulipagpāg* (*kuli-) 'kind of bird', Aklanon *amaeádyang* (*qama-) 'small black bird with red eyes'

FIGHTING COCK (variety)

WMP: Cebuano *balakiki* (*bala-) 'chicken coloured black with white speckles, and sometimes with other colours', Ilokano *boliála* (*buli-) 'cock with yellowish plumage', Tae' *kaliabo* (*kali-) 'chicken with black and brown feathers and black legs', Angkola-Mandailing Batak *hatinangke* (*kati-) 'white fighting cock with black legs', Toba Batak *hatinangke* (*kati-) 'white fighting cock with yellow legs', Aklanon *alimbúyog* (*qaliN-) 'having many colours (such as certain chickens)', Bikol *alimbuyógon* (*qaliN-) 'cock the colour of the black bee (*alimbubúyog*)', Ilokano *alimbuyógen* (*qaliN-) 'cock with very dark red plumage', Tagalog *alimbuyugin* (*qaliN-) 'cock with blackish feet and black spots on wings', Tagalog *talisayin* (*tali-) 'green-spotted gray (said of roosters)'

Reconstruction: Proto Philippines *qalimbuyugen 'cock with intense coloration (resembling that of a bumblebee)'.

OMEN DOVE

WMP: Toba Batak *darapati* (*dara-) 'domestic dove', Nias (1) *kalafasi*, *kalafati* (*kala-) 'domestic dove', Tagalog (1) *kalapati* (*kala-) 'domestic dove', Karo Batak *kalibetah* (*kali-) 'green dove with red throat and head', Kayan *kalibuken* (*kali-) 'green imperial pigeon: *Ducula aenea*', Cebuano (2) *alimúkun* (*qali-) 'kind of wild dove with white ears and light brown feathers speckled with black: *Phapitreron leucotis*', Ilokano (2) *alimúkeng* (*qali-; -/ng/ irreg.) 'wild dove with gray plumage', Maranao (2) *limoken* (*qali-) 'wild gray dove', Bolaang Mongondow (3) *limbuken* (*qaliN-; /e/ irreg.) 'wild dove with sombre, mournful cry', Kadazan (3) *himbukon* (*qaliN-) 'hill pigeon', Karo Batak (3) *limbuken* (*qaliN-) 'dove sp.', Malay *lengguak*, *lengkuak* (*qaliN-) 'thick-billed green pigeon: *Butreron capelli*', Malay (3) *limbok*, *limbukan* (*qaliN-) 'pigeon generally ... but only in the language of sorcerors; bronzewing dove', Minangkabau *limpatu* (*qaliN-) 'pigeon or dove, sp. unident.', Sangir *tarakuku* (*tara-) 'turtle dove'

CMP: Buru *ermuken* (*qari-) 'dove'

Reconstructions: 1. PWMP *kala-pati 'domestic dove',[10] 2. Proto Philippines *qali-muken, PMP *X-muken 'omen dove', 3. PWMP *qalim-buken 'omen dove'.

[10] Gonda (1973:165ff.) regards all quadrisyllabic variants of the word for 'domestic dove' with an apparent stem *-pati* as cases of "a Tamil element reaching the Archipelago in its Sanskritized form *(parapati)*". If this interpretation is correct the present comparison is a striking example of convergence both with regard to the phonetic modification of loanwords and with regard to the creation of apparent, but spurious, *qali/kali- forms.

OWL

WMP: Karo Batak *kalingkupa* (*kaliN-) 'large owl sp.', Ilokano *kolalábang* (*kula-) 'large own with gray plumage; feeds on chickens', Karo Batak *alingkupa* (*qaliN-) 'large owl sp.'

Oc: Marshallese *lijeŋao* 'short-eared owl: *Asio flammeus*'

SWALLOW

F: Saisiat *kaLkaLiliS* (*kali-; syncope?) 'swallow'

WMP: Bare'e (1) *kalapini* (*kala-) 'swallow sp. which nests on sheltered walls', Ilokano (1) *kalapini* (*kala-) 'small bird with gray plumage; it lives near the water', Minangkabau *kalalatau* (*kala-) 'kind of swallow', Taosug *kalasiyaw* (*kala-) 'swallow', Ngaju Dayak *kalialang* (*kali-) 'a small, very black bird with gray back', Karo Batak *kalimpinis* (*kaliN-) 'kind of swallow', Rungus Dusun *kalumpisau* (*kaluN-) 'swallow sp.', Tae' *kalumpini'*, *kaluppini'* (*kaluN-) 'swallow', Itbayaten *alpasayaw* (*qali; syncope?) 'bird: *Apus pacificus; Hirundo tahitica jananica* (NM); swallow', Bolaang Mongondow *talimburung* (*saliN/taliN-) 'swallow that makes edible nests', Sangir *salumpito* (*saluN-) 'kind of swallow that makes edible nests'

CMP: Kambera *kalewaru* (*kale-) 'kind of swallow: *Collocalia esculenta* D., Kambera *kaliwaru* (*kali-) 'swallow, *Hirundo* D.'

Reconstructions: 1. PWMP *kala-pini 'swallow sp.', 2. PWMP *X-pinis 'swallow sp.'.

WOODPECKER

F: Saisiat (1) *baLasok* (*bala-; haplology)

WMP: Cebuano (1) *balalatuk* (*bala-), Malay (1) *belatuk* (*bala-; haplology), Maranao (1) *balalatok*, Western Bukidnon Manobo (1) *tem-belelatuk* (*bala-), Bare'e *walitutu* (*bali-), Bolaang Mongondow *bolingongo'*, *olingongo'* (*bali-), Uma *balintutu?* (*baliN-), Makasarese *bantinotto'* (*banti-), Isneg *kalittaxá* (*kali-), Isneg *kaluttaxá* (*kalu-) 'woodpecker', Maranao *kolompia?* (*kuluN-) 'woodpecker (white breast, red head, black back)', Iban *selematong*, *sematong* (*sali-) 'spiderhunter, woodpecker'

Reconstruction: PAn *bala-laCuk 'woodpecker'.

FISH (various)

As noted already, some names of fish have been acquired by transfer from names of insects etc. through a perceived resemblance between the two, as with Cebuano *alibangbang* 'butterfly; butterfly fish: *Chaetodon* sp.; by extension, angel fish: *Holocanthus* sp.; kind of seashell'. Most, however, appear to be independent terms which acquired the *qali/kali- affix for reasons inherent in the cultural valuation of these semantic categories themselves.

WMP: Makasarese *kalausu'* (*kala-) 'kind of smelt: *Sillago sihama*', Makasarese *kalampeto'* (*kalaN-) 'kind of edible sea fish', Makasarese *kalampute* (*kalaN-) 'kind of edible speckled sea fish, about 20 cm. in length', Bolaang Mongondow *kolinama*, *kolindama* 'kind of marine fish', Casiguran Dumagat *kalibongbóng* (*kali-) 'spadefish: *Scatophagus argus*', Maranao *kalinapad* (*kali-) 'cyprinid in Lake Lanao', Tae' *kalussambang* (*kalu-) 'kind of river fish', Ilokano *kurimaóng* (*kuri-) 'kind of fish', Ilokano *kuritangtáng* (*kuri-) 'edible marine fish', Cebuano *alasúus* (*qala-) 'kind of fish: *Sillago* sp.', Cebuano *alimúsan* (*qali-) 'kind of fish raised in fish ponds: *Paraplotosus albilabris*', Chamorro *alimasat* (*qali-) 'kind of fish', Ilokano *alidengdéng* (*qali-) 'small marine fish (bluish back, white belly)'

MOLLUSK, SHELLFISH

WMP: Bare'e *balatani* (*bala-) 'marine mollusk', Cebuano *balimbúgay* (*baliN-) 'kind of bivalve', Bare'e *kalakapu* (*kala-), Bare'e *kalancapu* (*kalaN-) 'marine mollusk', Malay *kelembuai* (*kaliN-) 'land snail of the genus *Ampulla*', Ilokano *kulintípay* (*kuliN-) 'mollusk (shell used for window glass)', Cebuano *alakáak* (*qala-) 'edible mollusk resembling the chiton, about an inch in length', Cebuano *alipadnu* (*qali-) 'edible freshwater limpet', Malay *lengkitang* (*qaliN-) 'snail, *Melania* spp.', Ilokano *arasíes* (*qara-) 'edible gastropod mollusk', Ilokano *ariesyés* (*qari-) 'edible gastropod mollusk'

Oc: Marshallese *likaebeb* 'cone shell', *likajjid* 'money cowrie: Cypraeidae'

PLANTS

A great many different plants are marked by reflexes of the *qali/kali- prefix. The following is a brief selection:

F: Paiwan *qaLingelud* (*qaNi-) 'a plant: *Liquidambar formosana*', Western Paiwan *quLimatsilaw* (*quNi-) 'plant with small, grape-like fruit', Paiwan *quLimatsilu* (*quNi-) 'a plant: *Ampelopsis heterophylla*', Paiwan *quLitsapudus* (*quNi-) 'the paper mulberry: *Brousonnetia papyrifera*'

WMP: Bare'e *balabati* (*bala-) 'kind of pandanus', Hanunóo *balíknun* (*bali-; syncope) 'tree sp.: *Melochia umbellata*', Hanunóo *balinána?* (*bali-) 'flowering jungle vine having many thorns', Hanunóo *balináwnaw* (*bali-) 'a tree, *Erioglossum ribiginosum,* Pinatubo Negritos *balinaknák* (*bali-) 'woody vine: *Embelia* sp.' (Fox 1953:239), Bare'e *balincusu* (*baliN-) 'tree with edible fruits', Hanunóo *balintawák* (*baliN-) 'yellowish sweet potato having a light-coloured skin and black vine', Kankanaey *bulinaknák* (*buli-) 'a tree (used only in tales)', Bare'e *kalamaya* (*kala-) 'kind of creeping plant', Bare'e *kalamente* (*kala-) 'plant sp.', Bare'e *kalantawu* (*kalaN-) 'plant sp.', Bare'e *kalijawa* (*kali-) 'plant sp.', Karo Batak *kaliméka* (*kali-) 'edible mushroom', Karo Batak *kalisio* (*kali-) 'tree with edible leaves', Malay *kelemayoh* (*kali-) 'a brinjal, sp. unident.', Malay *kelepayang, kepayang* 'a tree: *Pangium edule*', Pinatubo Negrito (1) *kalibangbáng* 'a tree: *Bauhinia* spp.', Tagalog *kalimáyo* (*kali-) 'local name for *kaláyo*: *Erioglossum ribiginosum,* a shrub with compact bushy crown', Karo Batak (1) *kalimbangbang* (*kaliN-) 'tall, upright tree: *Alangium begoniifolium* Baill.', Karo Batak *kalincayo* (*kaliN-) 'kind of small tree with leaves resembling rose leaves', Karo Batak *kalinjuhang* (*kaliN-) 'the multipurpose plant *Cordyline fruticosa* Bakker (family Liliaceae)', Malay *kelempadang* (*kaliN-) 'a shrub: *Vaccinium malaccense*', Malay *kelempanang* (*kaliN-) 'a climber: *Pericampylus incanus*', Malay *kelempayan* (*kaliN-) 'a plant name (variously identified)', Malay *kelempening* (*kaliN-) 'a tree: *Pasania kunstleri*', Malay *kelempeti* (*kaliN-) 'a tree: *Aporosa benthamiana*', *kelemunting* (*kaliN-) 'rose myrtle', Toba Batak *halimbukbuk* (*kaliN-) 'a shrub', Tagalog *kalumbibít* (*kaluN-) '*Caesalpinia crista,* a prickly woody vine', Isneg *aladángan* (*qala-) 'a low herb with small leaves that grows on tree trunks. Shamans take it along with them when they go to *maxaníto* (communicate with the spirits)', Aklanon *alibútbut* (*qali-) 'medicinal shrub: *Tabernaemontana pandacaqui*', Aklanon *alipáta?* (*qali-) 'poisonous tree: *Excoecaria agallocha*', Ilokano (2) *alibangbáng* (*qali-) 'a tree whose sour leaves are used for culinary purposes', Isneg *alipánay* (*qali-) 'low herb that grows in forests', Malay *lemesu* (*qali-) 'a shrub: *Matthaea sancta*', Simalur (2) *alifambang* (*qali-) 'kind of tree', Tagalog (2) *alibambáng* (*qali-) 'small stocky tree with leaves used for flavouring meat or fish: *Bauhinia malabarica*', Isneg *alimbanógan* (*qaliN-) 'a forest tree with white flowers', Isneg *alimbató* (*qaliN-) 'large forest tree with nut-like fruits', Isneg *alimboboxó* (*qaliN-) '*Paspalum* sp. A kind of grass: crush its leaves, boil them and rub the body with them in order to cure the

kudiláw itch', Isneg *alimbódo* (*qaliN-) 'herb that is placed near the spot where one begins to clear the ground for a new rice field: it protects the farmer from any kind of harm', Isneg *alimbuxáy* (*qaliN-) 'a tree whose small, round red fruits are threaded on a piece of string to be worn around the head, in order to cure fever and diseases of the eye', Malay *lembayong* (*qaliN-) 'the water hyacinth: *Eichornea crassipes*', Malay *lembéga* (*qaliN-) 'a plant: *Calotropis gigantea*', Malay *lembesu* (*qaliN-) 'a tree: *Fagraea* spp.', Malay *lembiding* (*qaliN-) 'a fern: *Tenochlaena palustris*', *lembugai* (*qaliN-) 'horse-radish: *Moringa pterygosperma*', Malay *lempaung* (*qaliN-) 'tree yielding an edible sour fruit', Malay *lempenai* (*qaliN-) 'tree sp.', Malay *lempoyan* (*qaliN-) 'a plant: *Stereospermum fimbriatum*', Malay *lempoyang* (*qaliN-) 'a ginger (*Zingiber aromaticum* or *Z. zerumbet*) used medicinally', Malay *lempunai* (*qaliN-) 'a tree: *Xylopia caudata*', Malay *lemputeh* (*qaliN-) 'small tree: *Urophyllum griffithianum*', Malay *lenggada* (*qaliN-) 'a tree (used medicinally): *Diospyros lucida*', Malay *lenggadai* (*qaliN-) 'a mangrove: *Bruguiera parviflora*', Malay *lenggapus* (*qaliN-) 'a tree: *Mesua ferrea*', Tagalog *alinsánay* (*qaliN-) 'wild banana', Tagalog *alintátaw* (*qaliN-) 'medium-sized tree the bark of which is used in decoctions for coughs: *Diospyros pilosanthera*', Aklanon *aeógbáti* (*qalu-) 'a vegetable: *Basella rubra* L.', Aklanon *aeopísan* (*qalu-) 'a vine: *Tetrastigma harmandii*', Aklanon *aeosíman* (*qalu-) 'herb that grows along bank of river, purslane: *Portulaca oleracea*', Cebuano *salibutbut* (*sali-) 'a shrub the leaves and sap of which have medicinal uses: *Tabernaemontana pandacaqui*'

Reconstructions: 1. PWMP *kali-baŋbaŋ 'a tree, probably *Bauhinia* spp.', 2. PWMP *qali-baŋbaŋ 'a tree, probably *Bauhinia* spp.'.

Given the wide range of plants represented in the above (very restricted) list, one might ask whether it is meaningful to cite plants as a group as evidence for the *qali/kali- prefix. Words for 'nettle', however, suggest that the atypical canonical shape of many other plant words is no accident:

NETTLE

F: Puyuma *ringaten* (*qali-) 'tree nettle: *Laportea pterostigma*', Paiwan *qaLaLipetj* (*qaNa-) 'nuisance plant: *Cyanotis kawakamii*', Puyuma *lingadaRan* (*qaNi-) 'nettle (*Urtica thunbergiana*)'

WMP: Isneg *alalátāng* (*qala-) 'a dioeceous, urticaceous shrub with very irritating, stinging hairs and large leaves', Hanunóo *alingatngát* (*qali-) 'a nettle-like plant', *alingátung* (*qali-) 'lipa (*Laportea meyniana* Warb.?), a nettle-like plant with stinging hairs on the underside of the leaves', Malay *linggata* (*qaliN-) 'a nettle-like plant, unident.'

Finally, various *qali/kali- semantic categories are encountered which have no obvious connection to others. In the interest of brevity these will not be documented here, but include the following: dandruff; rash/sores (hence combined as 'skin disease'); expand upward; feline quadruped (PWMP *qari-mauŋ); gargle, rinse the mouth (PMP *qali-muRmuR, with some languages reflecting just *muRmuR, or other affixed forms); mote in the eye; numb; red clouds of sunset; shy/timid; squirrel (= flying squirrel?); talk/walk in one's sleep; topsy-turvy (PWMP *balin-tuaj).

We have now surveyed nearly the full range of meanings marked by the *qali/kali- prefix in Austronesian languages. In accordance with more general historical tendencies toward conservative or innovative morphology, this affix is best preserved in the Formosan languages, the Philippine languages and some of the languages of western Indonesia, as the Batak languages of northern Sumatra. Other languages of western Indonesia, as Iban or

Malay, preserve many examples, but because of regular vowel neutralisations in prepenultimate syllables have often lost information about the vocalic part of the affix variants retained. In general, the languages of eastern Indonesia and those in the Oceanic group preserve only vestiges of the original system.

The suggestion that *qali/kali- affixation once constituted a system which is largely fossilised in the modern languages confronts us again with the issue of meaning or function. What, if any, is the common thread that runs through the semantic categories we have now examined? The honest answer to this question probably is 'none'. Categories such as 'sling' or 'conical' almost certainly are historically secondary, the result of 'semantic contagion', arising from more basic categories such as 'whirlwind/whirlpool'. Semantic contagion presumably was a recurrent historical process, and shared innovations should exhibit a dendritic pattern. However, some likely extensions, as 'hair whorl', evidently were present in Proto Austronesian itself, suggesting that the process of expanding the categorial representation of *qali/kali- forms had already begun before the break-up of Proto Austronesian. Do these complications vitiate further attempts to understand this bizarre yet widespread feature of Austronesian word structure, or is there some coherent pattern that underlies the surface complexity?

6 The spirit world

Traditional religious beliefs in all their variety are commonly grouped under the unifying term 'animism', a term first proposed by Tylor in 1871 (Tylor 1958), and richly illustrated within the context of a theory of the spirit world which maintains much of its validity today. Just as the major world religions are defined by a shared body of belief motivated by similar ideology, so is animism. What is different about the two is that the major world religions have acquired their attested distributions through diffusion, often in the form of conquest or forced adoption. By contrast, animism is widely shared as a result of convergent psychological adaptations to the common problems of coping with the stresses and mysteries of the material world. In other words, each of the major world religions began in a single centre or with a single individual and spread through indoctrination, while the ideas of animism arose independently again and again in the minds of many unconnected human beings. For this reason it makes some sense to speak of animism as the 'natural' religion of humanity. More than any body of inculcated doctrine the common properties of animistic beliefs must reflect universal properties of human psychology. If they did not their very universality would constitute one of the great mysteries of science.

Like others of his generation, Tylor was a comparativist rather than a descriptivist. As such, he sought useful generalisations about all human cultures, and in nearly all cases he was forced to rely upon data provided by travellers or missionaries rather than by trained professional observers. When descriptive anthropology or ethnography began to develop in the twentieth century the work of Tylor and others of his time came under attack in part on the grounds that it sought to compare decontextualised culture traits. How could beliefs which are embedded in different overall cultural contexts possibly have the same meaning for participants in those differing cultures? And if they do not have the same meaning in different cultures how can they possibly be treated as equivalent for comparative purposes? At one time such criticisms were taken as damning, but even a little reflection shows that the criticisms themselves are open to serious objections.

Nineteenth-century anthropology followed much the same course as nineteenth-century linguistics in that comparative theory (historical linguistics; ethnology) raced ahead of descriptive theory (descriptive linguistics; ethnography). If it is methodologically inadmissible to compare decontextualised culture traits then it should be equally inadmissible to compare decontextualised linguistic traits, since linguistic facts are debatably just a particular type of culture trait. But it would be ludicrous to argue that English *eye* cannot be compared with its German cognate *Auge* on the grounds that each term is embedded in a different linguistic system which gives it a unique and therefore noncomparable meaning. As historical linguists have known since early in the nineteenth century, it is impossible to compare whole systems: the **only** practical basis for comparison is the morpheme. Much the same is true of typological comparison as it has developed in the twentieth century. No one would consider trying to compare whole systems; rather, one compares word-order typology, types of possessive marking, relativisation, or the like, which of necessity are extracted from the larger context in which they function within the system of a language.

The preceding remarks are critical in laying out the theoretical basis for the interpretations which follow. Since animistic beliefs tend strongly toward shared basic universal properties regardless of differences in detail, evidence for the association of particular facets of nature with the spirit world need not be drawn from the same societies for which linguistic data are cited. All that matters is to show, for example, that butterflies—which are marked with *qali/kali- morphology in many Austronesian languages—are **universally** regarded as visible signs of departed spirits. Whether or not this culture universal is overtly manifested in a society which uses an *qali/kali- word for 'butterfly' is irrelevant. Both cultural and linguistic change are constant and inevitable, and cultural change often precedes linguistic change, leaving linguistic relics as evidence of a once more-highly integrated past. What we appeal to is not the synchronic correlation of linguistic form and religious belief in an attested culture, but the marking of semantic categories by the *qali/kali- prefix in Austronesian languages and evidence of a universal association between that category and the world of spirits. In the absence of overt evidence that a particular animistic belief is present in a given culture, then, we accept **covert** evidence of its psychological presence. Covert evidence is manifested by the distribution type: distributions which cannot plausibly be attributed to inheritance from a historically inferrable common ancestor or to borrowing must be due to the independent operation of psychological tendencies that are pan-human.

If we make allowance for semantic contagion, a fairly strong case can be made that many of the lexical categories marked by *qali/kali- share an important common property, although it is neither a linguistic property, nor a semantic property which can be perceived in the natural world. Rather, what defines many *qali/kali- words, and distinguishes them from unmarked lexical categories of similar semantic content, is a dangerous connection with the world of spirits. Raw material for documenting this connection is given in the Appendix, and will be discussed only briefly here. To begin with 'creepy-crawly creatures', butterflies are linguistically marked as the visible forms of ghosts in Kayan of central Borneo, where *hiap to?* 'butterfly' literally means 'ghost chicken', and in Malagasy, where *lolo* 'butterfly; ghost' is polysemous in an unusually revealing way. In Isneg of northern Luzon *kulibangbáng* means 'butterfly, moth', but "In prayers, it often stands for 'spirit'" (Vanoverbergh 1972:323). While this trait distribution probably would be sufficient in itself to establish that similar unreported associations of 'butterfly' and 'spirit' are found in many other Austronesian-speaking societies (and may well have been found in their common ancestor), statements from dictionaries or ethnographies confirm the universal character of this

association, which is reported also among Sino-Tibetan and Austroasiatic-speaking peoples (see Appendix). Similarly, leeches are included among those creatures supernaturally protected in the widely distributed 'thunder complex' of insular Southeast Asia and the western Pacific (Blust 1981, 1991).

The next category, 'ant', reveals another characteristic of *qali/kali- morphology. Many Austronesian languages make multiple lexical distinctions for different species of ants, in contradistinction to 'butterfly, moth', which is typically marked by a single term. The generic term 'ant' (PMP *sejem) carries no *qali/kali- marking, but particular ant species do. Much the same appears to be true of other creepy-crawly creatures for which Austronesian languages typically recognise several lexical distinctions, as caterpillars, crabs, snakes and spiders (Table 6).

In the next general category, prodigies of Nature, the rainbow has powerful connections with the spirit world, contrasting sharply with such 'ordinary' natural phenomena as rain. In traditional animistic societies the rainbow is most commonly represented as an enormous snake which drinks the rain. As the manifestation of a frightening spiritual presence it must be accorded due respect, hence the globally distributed taboo against pointing at the rainbow with the index finger (Blust n.d.). Similarly, whirlwinds and whirlpools, echos, parhelia, sunshowers and the like all have significant dangerous connections with the world of spirits in many traditional societies globally.

Two objections can be raised against this interpretation of the data. First, it cannot be shown that all categories which carry *qali/kali- marking have such a cultural association. What dangerous connection with the spirit world can the scapula, for example, or gargling possibly have? Second, in animism spirit beings are ubiquitous: if virtually *anything* can harbor a minatory spirit presence, isn't the motive force behind use of the *qali/kali- prefix lost?

As an answer to the first objection it seems reasonably clear that some lexical categories which carry *qali/kali- marking have acquired this morphological status through 'semantic contagion'. We would thus not necessarily expect categories such as 'sling', 'conical', or 'sparks' to have dangerous associations with the spirit world (although they might for other reasons). Moreover, animistic beliefs are not among the best-documented aspects of most traditional cultures, often being mentioned only in passing. In some cases it is likely that gaps in the documentary record conceal cultural connections between *qali/kali- words and dangerous spirit associations which would become apparent with fuller ethnographic documentation.

As for the second objection, it is true that animistic belief systems often acknowledge a natural order that is permeated with spirit presences, but it would be a mistake to view animism as a kind of pretheistic pantheism. Some cultures may very well have significant animistic associations in connection with categories such as 'housefly' or 'rain', but it is abundantly clear on a global basis that such associations are far more salient and important in categories such as 'butterfly' and 'rainbow'. In short, spiritual forces tend to reside in exceptional natural objects or events (hence the opposition of marked and unmarked lexical categories in Tables 6, 8 and 9).

Finally, if further evidence is needed, names of spirits appear with extremely high frequency as *qali/kali- words. This is particularly true in those more marginal societies in which the system of animistic beliefs was not transformed through exposure to Islam or Christianity. In a dictionary remarkable for its cultural sensitivity the Belgian priest Morice Vanoverbergh recorded no fewer than thirty-three Isneg names of spirits which are

quadrisyllabic forms beginning with reflexes of the now familiar *qali/kali- onset (*ala-*, *ale-*, *ali-*, *aliN-*, *bala-*, *balaN-*, *bali-*, *baliN-*, *bara-*, *bula-*, *buli-*, *buri-*, *kala-*, *kali-*, *kula-*, *tala-*, *tali-*, *taliN-*, *talo-*). The following is a brief selection which could be extended considerably:

SPIRIT

WMP: Isneg *balasingnúd* (*bala-) 'a spirit who lives in the *síxay* hut', Isneg *balikádan* (*bali-) 'a spirit whose name is pronounced by shamans when in their trances', Isneg *balikúdan* (*bali-) 'another name for the *agbalikádan* spirit', Isneg *balinawāng* (*bali-) 'a helpful spirit', Isneg *balingatáy* (*bali-) 'a man-killing spirit who strikes his victims at the neck', Isneg *balingató* (*bali-) 'a spirit with the same habit as the preceding', Isneg *balintawāg* (*baliN-) 'a female spirit who ... lives in a pool of the Apayaw river, just below Sabangan. She never emerges, but nobody should go there', Cebuano (1) *bulalákaw* (*bula-) 'harmful supernatural being that takes the form of a ball of fire, with trailing sparks. If it brushes or gets close enough to smell the skin, it makes a permanent white spot', Kankanaey (1) *bulalákaw* (*bula-) 'kind of animal (?), supposed to be an old eel, to fly and to be luminous', Western Bukidnon Manobo (1) *Bulelakaw* (*bula-) 'spirit deity of stream and lakes', Isneg *burinána?* (*buri-) 'a spirit who causes a general swelling of the body, more especially of the abdomen', Isneg *kalapátaw* (*kala-) 'a spirit who rules the entire ornithic kingdom', Kapampangan *kaladuwá* 'soul' (cf. *duwa* 'two', and Tagalog *kaluluwá* 'soul, spirit, vital principal', the latter probably with /ka/- plus reduplication), Ngaju Dayak *kalabawai* (*kala-) 'forest spirit', Isneg *kalibuttág* (*kali-) 'female spirit who lives in the water and uses one of her hairs to ensnare the person she wants to drown', Casiguran Dumagat *kaliduwa* (*kali-) 'soul, spirit of a living person', Iban *kelemayang* (*kali-) 'dim figure, shadow, ghost', Maranao *kalilangan* (*kali-) 'altar where evil spirits are appeased with sacrifices', Bolaang Mongondow *kalintuang* (*kaliN-) 'spirit that walks on head and hands', Malay *kelemboyan, lemboyan* (*kaliN-) 'invisible elves of the forest and shore', Kankanaey *aladunáxan* (*qala-) 'spirit who is wont to make little children cry so as to disturb the parents in their sleep', Kankanaey *alaláyo* (*qala-) 'name of a spirit used in prayers', Isneg *alibowá* (*qali-) 'a spirit', Isneg *alimangáw* (*qali-) 'a spirit who is sometimes visible, but whether seen or not, frightens people so that their hair stands on end', Kankanaey *aliliá* (*qali-) 'phantom, spectre, ghost, spirit', Kankanaey *alingáwan* (*qali-) 'spirit's child', Kankanaey *alipungdān* (*qali-) 'malicious spirit', Kankanaey *aliwáwa?* (*qali-) 'spirit who roams in and around the village, and is never able to stop walking', Maranao *alimekat* (*qali-) 'spirit, god of the water', Maranao *linibeng* (*qali-) 'god of the unseen beings', Isneg *alimbabakóng* (*qaliN-) 'spirit who lives in roomy houses', Ilokano *aningáas* (*qani-) 'kind of ghost', Ilokano *aniwáas* (*qani-) 'ghost', Timugon Murut *timbunus* (*qatiN-) 'spirit of a comet (can terrorise pregnant women)' (Prentice 1971:64), Isneg *talimúngāt* (*sali/tali-) 'a spirit who ... inflicts sickness on any person who passes in the vicinity of his abode', Isneg *talipagdóxān* (*sali/tali-) 'a spirit who ... has bees for pets. If a man hunting for bees sees those that belong to that spirit, he becomes sick', Isneg *talipáso* (*sali/tali-) 'a spirit who ... never sleeps', Iban *Selempandai* (*saliN-) 'deity, creator of matter (incl. iron) and maker of man', Iban *Selempatah* (*saliN-) 'creator of men', Isneg *talimbukawtabúkaw* (*saliN/taliN-) 'a spirit, the husband of *talimbukitabúkit*', Isneg *talimbukitabúkit* (*saliN/taliN-) 'a female spirit, the wife of *talimbukawtabúkaw*', Maranao *salindagao* (*saliN-) 'evil spirit'

Oc: Ponapean *likamisik* (*qali-) 'horrible in appearance; anything peculiarly sacred'

Reconstruction: Proto Philippines *bulalakaw 'kind of nature spirit, probably identified with the appearance of a comet'.

However, we have yet to make a case for the link between cultural belief and linguistic marking: why would a dangerous connection with the spirit world require that a special affix be added to the relevant lexical categories? As should be evident by now, many of the referents of nominal *qali/kali- forms are of a type likely to be associated with taboo. In fact, the names of several taboos or physical symptoms commonly associated with violation of a taboo are marked with *qali/kali-:

TABOOS

WMP: Bare'e *kalanoa* (*kala-) 'swelling of genitals' (from breaking a taboo?), Tae' *kaliuanan* (*kali-) 'violate a taboo', Toba Batak *halipispison* (*kali-) 'get a swollen foreskin as a result of urinating into the hearth fire',[11] Isneg *karibosót* (*kari-) 'abnormal inflation of the abdomen' (from breaking a taboo?)

Taboos, like any part of culture, must be learned, and given their importance to the adult members of a society it probably is critical that children not be allowed to ignore or to flout them beyond the minimum which can be expected during the process of enculturation. In an incisive critique of Edmund Leach's well-known essay 'Anthropological aspects of language: animal categories and verbal abuse', Halverson (1976:508) has observed that "if an object is taboo, it must, for reasons of avoidance, etc., be recognized with greater clarity than other objects, not less". An effective means of facilitating such recognition—particularly in societies which frown upon corporal punishment of children, as do Austronesian-speaking societies generally—would be through the use of distinctive linguistic marking. It is precisely children rather than adults who are likely for lack of other preoccupations to step on ants, stretch earthworms till they break, crush centipedes or millipedes under sticks or stones, pull the wings from termites, beetles or butterflies, or point impulsively at the sudden, seemingly miraculous appearance of a rainbow. How could a child's attention be drawn to those categories of experience which require culturally circumscribed behaviour even in the absence of adult supervision? If Proto Austronesian and its early descendants lacked quadrisyllabic stems, as present evidence indicates, *qali/kali- words would have had high perceptual salience, thereby drawing immediate attention to the cultural sensitivity of the lexical category so marked, and hence facilitating children's acquisition of critical portions of their culture. Given the rich morphological system that must be attributed to Proto Austronesian and many of its descendants, it is true that many other **words** (but not stems) would have been quadrisyllabic. But the great majority of these were verbs or deverbal nouns which would have been quite distinct from *qali/kali- words.

As the Appendix should demonstrate, this interpretation goes some way toward explaining why many *qali/kali- words mark the semantic categories they do, and not others. Moreover, the hypothesis that *qali/kali- marked semantic categories which have a dangerous connection with the spirit world has two ancillary benefits. First, it provides a natural explanation for the generally fossilised character of the affix in *qali/kali- words, since the function of such an affix would have required that it be more-or-less **obligatory**. Second, although many questions remain unanswered, this hypothesis suggests a reason for hyperallomorphy. The force of most bound morphemes is carried by their phonemic content, not by their canonical consequences for the affixed word. By contrast, *qali/kali- lengthened disyllabic bases into

[11] The taboo against urinating into a hearth fire is widespread, with similar supernatural consequences in a number of An-speaking societies, including the Thao of central Taiwan, and in Fiji (Paul Geraghty, pers. comm.).

canonically distinctive quadrisyllabic words. As a result, the phonemic content of the affix was less important than the number of syllables it contained, and consequently was free to vary. Statistical frequency shows that *qali- and *kali- are the most frequently encountered forms of the affix, but not necessarily the earliest shapes. Subgrouping considerations support *qaNi- and, to a lesser extent, *qali- as prototypical *qali/kali- variants, but lend little support to the antiquity of *kali-, which is rare in the Formosan languages.

In short, then, the function of the *qali/kali- prefix evidently was to mark facets of experience that were regarded as spiritually dangerous, hence requiring special precautions of a sort likely to be violated by incompletely acculturated children. It did this purely by lengthening the affixed word to an atypical quadrisyllabic shape, hence marking the associated semantic categories as those requiring particular behavioural sensitivity.[12]

7 Postscript

While this paper was being edited a serendipitous discovery was made. Ken Rehg recalled that during the weekly Micronesian seminars held in the Department of Linguistics at the University of Hawai'i from 1976 to 1981 Byron dropped in one day to announce that he had noticed something interesting in Marshallese which had previously escaped his attention. Marshallese, he said, has what appear to be fossilised prefixes, *li-* and *ļa-* in many names of plants, insects and other types of animals, and also as feminine and masculine markers respectively. This observation probably grew out of his work on the Marshallese dictionary which he co-authored (Abo et al. 1976). Byron's announcement evidently produced a flurry of activity among the members of the seminar,[13] as Ken discovered (to his surprise) a long-forgotten folder labelled 'li/la prefixes', which contained: (i) a three-page list of Carolinian *li-* forms having to do with (a) people, (b) birds, (c) insects, (d) plants, (e) shells, (f) fish, crabs and sea creatures, and (g) miscellaneous; (ii) a three-page list of Marshallese words with initial *li-* and *ļa-* formatives having to do with (a) shells, (b) other small creatures, (c) weapons, (d) games and pastimes, (e) topography and elements, (f) stars, constellations and legendary figures, (g) body parts, (h) dishes, (i) actions and qualities, (j) plant names, (k)

[12] Based on a much narrower body of data, two writers have suggested a more restricted function for the *qali/kali- prefix. In his grammar of Timugon Murut (Sabah) Prentice (1971:118) identified a morpheme *liN-* with allomorphs *li-* and *liN-* which reportedly occurs 'in names of plants and animals'. He specifically mentions names for 'scorpion', 'water leech', 'intestinal worm', and a plant *(Costus speciosus)*. The most ambitious attempt to deal with *qali/kali- words is that of Kähler (1949–50), who suggested that many names of trees, plants, and animals (especially fish and birds) in the languages of Indonesia and the Philippines contain fossilised 'classifiers'. Thus, *tulang* 'bone' is reported as a formative for tree names in various languages (Bikol *tulang nanok*, Malay *tulang daing*), and is assumed to underlie more oblique derivations, as Minangkabau *lagundi* 'kind of shrub' (said to be from *tulang gundi). Trisyllabic tree names that begin with *ka-* or *ke-* are said to derive from reduced compounds with *kayu 'tree', while others with *ta-* or *taN-* reflect *batang 'trunk', as with Samoan *tamanu* 'a tree: *Calophyllym inophyllum*' (said to be from *batang 'trunk' plus a purely hypothetical base). A second set of disyllabic formatives listed as (1) *mara-*, *mala-*, *maja-*, *moro-*, *molo-*, and (2) *kali-*, *hali-*, *ali-*, *bali-*, *koli-*, *oli-* is said to occur in plant and animal names, in terms for illnesses, and only rarely in concrete nouns of other kinds. The animals so marked are characterised collectively as (1) unpleasant, (2) appearing in swarms, and/or (3) quick.

[13] These are identified elsewhere (Bender & Wang 1985:83) as "Byron W. Bender, Robert W. Hsu, Frederick H. Jackson, Jeffrey C. Marck, Kenneth L. Rehg, Ho-min Sohn, Stephen Trussel and Judith Wang" who formed the core group, as well as Paul Geraghty, Ward H. Goodenough, Sheldon P. Harrison and a number of graduate students who were less regularly associated with it.

fish, (l) canoe parts, and (m) miscellaneous; (iii) a one-page list of Woleaian *la-* and *li-* formants having to do with (a) fish, (b) shells, (c) birds, (d) other creatures, (e) games and (f) miscellaneous; (iv) eight Pulo Annian and two Sonsorolese words containing an apparent *ni-* formative and referring to a fruit dove, crab, spider, jelly fish, bachelor/spinster, a fish (the perch), twins and doll; (v) several dozen Mokilese words which appear to contain *la-* and *li-* formatives referring to (a) fish, (b) birds, (c) female persons, (d) various other creatures and (e) an assortment of other semantic categories; (vi) a scattering of Kosraean words containing *lV-* and referring to (a) men's names, (b) women's names, (c) actions and qualities, (d) creatures, (e) games and weapons, (f) a food and (g) topography and elements; and (vii) a three-page list of Gilbertese (Kiribati) words containing an apparent formative *ni-* which refer to names of (a) fish, (b) shellfish and other marine life, (c) plants, (d) insects, (e) birds, (f) games, (g) body parts, (h) ailments, (i) star names, constellations and (j) water.

No dates appear on any of this material, which never reached the publication stage, and individual responsibility for the lists is not indicated. Despite this vagueness in the historical record we can be fairly certain that it was Byron who compiled the Marshallese list and who stimulated other members of the seminar to search their own language for similar phenomena. As can be seen, the semantic categories identified in the Micronesian material only partially overlap those found in the more broadly representative Austronesian material of the present study. In particular, the correlation of *li- with feminine categories and *ļa- with masculine categories is not known to have parallels anywhere outside Micronesia, and may represent a historically independent phenomenon which in Micronesian languages has become confounded with reflexes of *qali/kali-. Nonetheless, it is of particular interest to see that some twenty years ago Byron discerned in the Marshallese material a fossilised affix or affixes which may reflect, at least in part, the *qali/kali- prefixes documented here.

Appendix

This appendix presents a brief ethnological survey of the semantic categories connected with the *qali/kali- prefix. Its major purpose is to show, by way of primary references, that the semantic categories marked by the *qali/kali- prefix in Austronesian languages are commonly associated with the world of spirits. A word of explanation is in order.

The claim made here is that the types of belief reported in this survey reflect universals of animism. Culture universals, like linguistic universals, are elements which need not be present in all sample units, but which occur with a distribution that implies independent development, and hence some general pragmatic, psychological or behavioural motivation. Universals of animism are either overtly represented in the belief system of a culture, or are latent in that system. Latency can be viewed as a nonchance tendency for some feature to appear over time, and so is Janus-faced: it is likely that universals which are not present in a documented belief system were present in an ancestral form of that system, or will appear in some future form of the system. For this reason it is not necessary to establish exact correlations between the presence of an *qali/kali- affix in a language and a supporting belief about the spirit world in the same language community. Rather, it is sufficient to establish that a universal of animism exists, and could have motivated the innovation of the *qali/kali- prefix. To illustrate, the word for 'rainbow' is marked with this affix in thirteen languages. Ethnological data supporting the claim that the rainbow is commonly viewed as a powerful spiritual presence is available for a number of cultures, but for the most part these do not correspond in the available data to the thirteen languages which carry the distinctive linguistic marking. This lack of correspondence is regarded as irrelevant to the argument, since:

(i) there are many gaps in the ethnological data regarding traditional belief systems, and (ii) the firm establishment of a culture universal leaves no choice but to conclude that the cognitive or behavioural details which manifest that universal are likely to have been actualised in the past. A great deal of relevant material on animism in Indonesia is to be found in Kruijt (1906), but given this type of argument it follows that ethnological data offered to establish universals of animism need not be restricted to Austronesian-speaking societies, and some supporting evidence is accordingly drawn from other ethnolinguistic groups where appropriate. Non-Austronesian-speaking groups are marked with a double asterisk.

ANT. Iban (Sarawak): *sampok* "termites, Isoptera, ants ... Mounds signify fertility and are left unharmed; even under houses, where the floor may be cut away to allow growth." (Richards 1981:321)

Isneg (northern Luzon): *aliw(a)líwāt* "Middle-sized, very black, stinging ant. It is supposed to resent the presence of coconut oil: should a person staying in the forest boil coconut milk in order to extract the oil, that ant will change the guilty person into a *kángaw,* a fabulous wild animal." (Vanoverbergh 1972:354). *Latón* "the nest of termites. Climbing it causes the abdomen to swell." (Vanoverbergh 1972:48)

Malay: "Nests, either of a large species of black ant or of the termite, are sometimes thought to be the dwelling places of spirits." (Evans 1923:269)

Manobo (Mindanao): "Big biting ants are believed to be the spirit of a dead relative who feels lonely." (Demetrio y Radaza 1970:1:183)

Negritos of Rizal (Luzon): "In Rizal ... ant hills were supposed to be inhabited by spirits known as *matánda sa punsu,* that is, 'old man of the ant hill'. Wherever I went hills were inhabited by such old men. The believers in them always asked permission to take wood or whatever they needed if it was in the vicinity of the ant hill." (Garvan 1964:226–27)

Sa'a (Southeast Solomons): "At Sa'a, and in the neighboring parts of Malanta, the same word is used for the soul of a living man and the ghost of an ordinary person, *'akalo.*" After death "the mere *'akalo* soon turn into white ants' nests, which again become the food of the still vigorous ghosts; hence a living man says to his idle son 'When I die I shall have ants' nests to eat, but what will you have?'". (Codrington 1891:260)

AUREOLE. **Lakher (Sino-Tibetan, Assam): "Parhelia are known as sawmachupa; they are very unlucky, and are believed to portend an unnatural death." (Parry 1932:500)

**Scots: "In the far north of Scotland, parhelia are regarded as ill-omened and as forerunners of bad weather." (Parry 1932:500, fn. 1)

BEE. Among the Malays of the Malay peninsula a punitive thunderstorm can be provoked by blowing on the nest of a kind of small bee. (Evans 1937:178ff.)

BUTTERFLY. Isneg (northern Luzon): "*kulibangbāng.* Butterfly, moth. In prayers it often stands for 'spirit'." (Vanoverbergh 1972:323)

Kayan (central Borneo): *heñap tu?* 'butterfly' (lit. 'spirit/ghost chicken') (Blust 1977:99)

Malagasy: *lolo* 'butterfly, moth; ghost' (Richardson 1885:398)

Nias (Barrier Islands, west of Sumatra): "We also know of the people of Nias that they regard the souls of their dead (when these have left no son behind) as turned into butterflies." (Kruijt 1906:175)

Sundanese (west Java): Children are told not to catch butterflies in the cupped hands. If they do so their hands will be *hileud-eun,* that is, supernaturally scorched—just as the index finger is, if one points at a rainbow. (Dudu Prawiraatmaja, pers. comm.)

Yami (Imorod dialect; Botel Tobago island, southeast Taiwan): *pahapahad no anitu* 'butterfly' (= unknown element + genitive marker + 'ghost') (Tsuchida et al. 1987:175)

**Nagas (Sino-Tibetan, Assam): "Some believe that the soul takes the form of various insects, especially butterflies." (Nag 1964:49)

**Pulau Tawar (Austroasiatic, Malay peninsula): "The spirits of the dead become white butterflies and it is therefore tabu to kill these insects." (Evans 1923:210)

DRAGONFLY. Negritos of Malaya (Austroasiatic): "Violations of the commandments of the Thunder God are reported to him by divine messengers which are conceived as dragonflies or wasps." (Blust 1981:299)

EARTHWORM. Toraja (central Sulawesi): "The Torajas regard it (the earthworm) as the fugitive soul-stuff of a person." (Kruijt 1906:180)

ECHO. **English: "The Anglo-Saxon dictionary preserves the curious word *woodmare* for an echo (*wudu-mær* = wood nymph), a record of the time when Englishmen believed, as barbarians do still, that the echo is the voice of an answering spirit." (Tylor 1960:213)

**Hausa (Afroasiatic, northern Nigeria): "The echo is attributed to a supernatural agency, in fact it is called *Tblis,* devil, or *Kurua,* meaning soul, spirit, shadow." (Tremearne 1913:112)

Malays: "*hantu.* Evil spirit; ghost ... They may be grouped as follows: (i) demons of localities ... (ii) demons tied to special spots or tulelary spirits of freaks of nature ... (iii) demons behind natural phenomena, such as: echoes *(hantu-hantu-an).*" (Wilkinson 1959:395)

Puluwat (central Carolines, Micronesia): *Yi ya kkapah, yeray hoomá ya likáhenwan ááy kkpah* 'I spoke, a ghost echoed my speech' (Elbert 1972:66)

FIREFLY. With its eerie bioluminescence it is not hard to see why the firefly is associated with the world of spirits in many cultures worldwide. Data from Isneg, Karo Batak, Kwaio, Sa'a and Toraja suggest that there was an early An belief in the danger of fireflies entering a house. The specific basis of this belief is further clarified by the form of the belief as it is reported for Isneg and Toraja: if a firefly should enter a house and perish in the hearthfire it was a portent of human deaths to follow. In some incompletely understood way it appears likely that the sparks from a fire were seen as one manifestation of this sacred insect. For further details on the connection of fireflies with the spirit world in Indonesia see Kruijt (1906:171ff.).

Buru (central Moluccas): "In Buru if one sees a firefly near a grave it is believed that the *nitu* (soul) of the deceased has come to visit his resting place." (Kruijt 1906:172)

Gitua (Rai coast, New Guinea): *mate* 'die', *yap* 'fire', *mate yap* 'firefly' (Lincoln 1977:17)

Hanunóo (Mindoro, central Philippines): *buyinaw* 'firefly, believed to be a bringer of bad luck' (Conklin 1953:97)

Isneg (northern Luzon): *alipatpat* "firefly or glow-worm. If it enters the house and comes into collision with fire, a person dies for every spark that it produces." (Vanoverbergh 1972:47)

Karo Batak (northern Sumatra): "*kalimpetpet.* Firefly; a bad omen if it enters a house: thieves will come." (Neumann 1951:134)

Kwaio (Malaita, southeast Solomons): "*bulubulu.* Star; firefly, believed (especially when it enters house) to be messenger from *adalo* (ancestral spirit, ghost)." (Keesing 1975:29)

Numfor (Cenderawasih Bay, Irian Jaya): "*naser.* Phosphorescent creatures, both fireflies and marine organisms. The fireflies that are known as *naser* are of a somewhat larger sort

than the *manimanjar* ... The *naser* and not the *manimanjar* are said to be manifestations of the spirits of the dead." (van Hasselt and van Hasselt 1947:164)

Rennellese (southeast Solomons): "*'agito* ... Firefly, *Luciola* sp., Wolff ... seen inland, a rare phenomenon; they were believed to be the embodiment of the goddess Sikingimoemoe and might not be killed." (Elbert 1975:7)

Sa'a (Malaita, southeast Solomons): "Fireflies are popularly regarded as ghosts and are killed by the children if they enter the house." (Ivens 1927:353)

Sundanese (west Java): "According to the Sundanese fireflies are ghosts that trek over mountain and field bearing burning torches." (Kruijt 1906:173)

Tehit (West Papuan; Irian Jaya): Fireflies are *sétan* or *lampu sétan* (evil spirits/lights of evil spirits) and are dangerous to people. (Don A.L. Flassy, pers. comm.)

Toraja (central Sulawesi): "One evening as a Toraja chief was sitting a firefly entered his house, and he strove vigorously to keep the insect away from the resinous torch inside. When asked why he did this he answered 'when a firefly burns one of us will die'." (Kruijt 1906:171)

Toraja: "Whenever a swarm of fireflies settles on a tree near a house the Torajas think that someone in the house will soon die, because the fireflies are the souls of the dead (according to others, their eyes) who have come to take a victim away." (Kruijt 1906:172)

Tuaran Dusun (north Borneo): "The firefly *(nenekput)* is the spirit of a dead man." (Evans 1923:16)

GARGLE/RINSE THE MOUTH. Ethnographic evidence of a connection between gargling and the spirit world remains elusive. However, it is noteworthy that plants which carry *qali/kali- morphology may be important as mouthwashes among some Austronesian-speaking groups:

Pinatubo Negritos (west-central Luzon): "The roots of the following plants are boiled in water and the decoction used as a mouthwash for toothaches: ... *alipungpúng*: *Borreira articularis* Linn." (Fox 1953:341)

GRASSHOPPER. Isneg *asisít* "1. a small grasshopper with red eyes that comes to people who call it by means of a small clicking sound of the tongue. Children should abstain from doing so, as it might kill them by removing their *kaduduwā* (soul), 2. a man-killing spirit who slays his victims through the eyes." (Vanoverbergh 1972:96–97)

Rennellese (Polynesian Outlier, southeast Solomons): *'atua segesege ba'e* '1. harmful supernatural or person. Lit., leg-cutting supernatural, 2. a large grasshopper' (Elbert 1975:21)

LEECH. Leeches are among those creatures guarded by supernatural sanctions in the widespread 'thunder complex' of Australasia (Needham 1964; Blust 1981, 1991). Needham (1964:141ff.) reports a belief among both the Negritos of the Malay Peninsula and the nomadic Penan of Borneo that leeches must not be burned or it will precipitate the wrath of the thunder god, causing the perpetrator to be struck by lightning and turned to stone. While Needham believes that it is the burning of blood rather than the burning of the leech itself that is forbidden, the fact that leeches are just one of many creepy-crawly creatures marked with the *qali/kali- prefix (and so labelled as objects of taboo) suggests that it is blood, rather than the leech that is contingent in this taboo.

MILLIPEDE. Although millipedes in general may very well have connections with the spirit world among some Austronesian-speaking peoples, it appears to be significant that most recorded *qali/kali- words for 'millipede' refer to phosphorescent varieties. Note Malinowski's remark that the Kiriwina sorcerer is "feared as ghosts are feared by us, as an uncanny manifestation. One is afraid of meeting him in the dark, not so much because he

might do any harm, but because his appearance is dreadful and because he has at his bidding all sorts of powers and faculties which are denied to those not versed in black magic. His sweat glows ..." (Malinowski 1961:421) The following details therefore refer to bioluminescence more generally. Needless to say, a connection with 'firefly/glow-worm' through this common property is likely.

**Jehehr (Malayan Negritos): "It is tabu for anyone to kill a millipede, to shoot a certain species of owl with the blowpipe, or to flash a looking glass or other shining object, about in the open." (Evans 1923:153)

Motu (Central District, Papua New Guinea): *mamaro* 'a phosphorescent insect on surface of sea, supposed to be spirit of a dead man' (Lister-Turner & Clark 1930:102)

Tanga (New Ireland): *ka:nu* 'phosphorescent light emanating from lichens and regarded as a manifestation of the evil spirit Tara' (Bell 1977:35)

OMEN DOVE. Bagobo (Mindanao): "A common method used by the spirits to communicate with mortals is through the call of the *limokon* (a dove, *Calcophops indica*). All the people know the meaning of its calls and all respect its warnings." (Cole 1913:108)

Among the Bagobo "It is taboo for a youth who has never killed a man to eat the flesh of the *limokun* pigeon" (which has a sacred association with omens). (Benedict 1916:241)

Malay: Among Malays the flesh of the turtle dove is forbidden. (Skeat 1900:190)

Pinatubo Negritos (west-central Luzon): "It seems that the souls or spirits of demised infants fly around in the form of a certain variety of wild dove common in these parts." (Garvan 1964:118)

Subanun (western Mindanao): *limukun* "A bird of evil omen; when seen or heard it postpones work." (Finley & Churchill 1913:196)

Ulawa (southeast Solomons): "At Ulawa the crested pigeon *toowao,* and a cuckoo, both of which are rare birds, are regarded as omens of sickness when they appear and cry." (Ivens 1927:353)

OWL. No doubt in part because of their noctural habits and large disquieting eyes, often seen on dark nights before any outline of a perching body is visible, owls are commonly associated with the dead in many cultures.

**Ainu (isolate; Japan): "There are five specific birds whose cry should not be imitated by anyone. They are the cuckoo, woodpecker, nighthawk, goatsucker and owl. These birds have power to bewitch people by means of their cry, and sometimes they do." (Batchelor 1901:409)

Balinese *cahak* 'owl, believed to bring bad luck' (Barber 1979:65)

**Esselen (Hokan?; central California coast): "According to Navarrete (1802), the Esselen believed that they were transformed into owls at death." (Hester 1978:498)

Ifugaw (northern Luzon): "*tukukun* = owl = one of the *lubug* (creatures and objects that give omen)." (Barton 1955:234, fn. 6)

**Jehehr (Malayan Negritos): "It is tabu for anyone to kill a millipede, to shoot a certain species of owl with the blowpipe, or to flash a looking glass or other shining object, about in the open." (Evans 1923:153)

Malay: *burung hantu* 'owl' (lit. 'ghost bird')

Puyuma: *HalTu* 'owl' (from PAn *qaNiCu 'ghost, spirit of the dead')

PLANTS. For the connection of many plants with the spirit world see Kruijt (1906:136ff.), who pays particular attention to the cordyline or dracaena, and Fox (1953:305ff.).

PUPIL OF THE EYE. The magico-religious import of the pupil is not entirely clear. Tylor (1958:15) points out that the pupil of the eye is widely associated in European folklore with personal animation. Barnes (1974:107ff.) relates a Kédang myth in which a civet cat was raised by orphans. When it died the pupils of its eyes were buried in front of the door of their house, and these grew into a magical tree of wealth.

RAINBOW. Buli (south Halmahera): "Rai. Rainbow. According to the Buli people the rainbow possesses a supernatural force; one may not point at it or his finger will wither." (Maan 1940:92)

Cebuano Bisayan (central Philippines): "If one points at a rainbow his index finger will be supernaturally cut off." (Martiniana van Dierendonck, pers. comm.)

Dusun (northern Borneo): Among the Tuaran Dusun of Sabah "It is forbidden, or rather it is unwise, to point at the rainbow, as the finger that you use to point with will rot away." (Evans 1923:15)

Isneg (northern Luzon): "*bunglún.* The rainbow. Supposed to be a spirit ... Persons who point at it with their index finger (not: another finger) will be troubled, on the following night, with either whitlow or the destruction of the tip of the index or the loss of its nail ... *mabunglún.* A swelling of the abdomen caused by drinking water that has been touched by a rainbow." (Vanoverbergh 1972:182)

Javanese: In the village of Keji, central Java "There used to be a belief ... that to point at a rainbow would cause a bent finger ... To counter the effect you should poke the finger in buffalo dung." (S.O. Robson, pers. comm.)

Kankanaey (northern Luzon): "*Ngális di áso.* A superstitious formula, pronounced when seeing a rainbow, lest it eat one's soul and so one become thin." (Vanoverbergh 1933:317)

Kédang (Lembata, Lesser Sundas): The people of Kédang fear "pointing at a *nado-tado,* that is a rainbow or any other rising effulgence of a spirit. If one does point one runs the risk that one's finger will be permanently bent." (Barnes 1974:216)

Sundanese (west Java): Children are warned not to point at a rainbow lest the index finger be *hileud-eun* (supernaturally scorched). (Dudu Prawiraatmaja, pers. comm.)

RED CLOUDS OF SUNSET. Universally associated with blood, war and spiritual danger.

Bagobo (Mindanao): "When the western sky has a lurid or reddish aspect on a cloudy afternoon, it is a sign of misfortune for the world, and it especially foretells the appearance of the sickness called *pamalii.*" (Benedict 1916:245)

Malay: "Sunset is the hour when evil spirits of all kinds have most power. In Perak children are often called indoors at this time to save them from unseen dangers." (Skeat 1900:15)

Manobo (Mindanao): "At sunset it is not good for young children to be still playing on the ground, because there are evil spirits who could pass by, and if you bump them you will be sick." (Demetrio y Radaza 1970:3:473)

Tehit (West Papuan, Irian Jaya): "The golden glow of evening is dangerous, and everyone rushes indoors to avoid it." (Don A.L. Flassy, pers. comm.)

Trukese (Eastern Carolines, Micronesia): *Wúúmeeyòn* "Spirit of the late afternoon ... It makes infants sick; therefore women traditionally avoided carrying their infants outside of the house in the late afternoon." (Goodenough and Sugita 1980:389)

RESTLESS. Restless movements as seen in unquiet sleep, the death struggle of fish out of water, or birds being slaughtered may recall the erratic flight of the butterfly.

Philippines (region unspecified): "The concept of the *kalagkalag,* or the restless dead, who sometimes 'bother' the living relatives by sending them sickness of undiagnosed origin is still very much with the lowland peoples." (Demetrio y Radaza 1970, 1:vii)

SHADOW/REFLECTION. In animistic thinking the shadow or reflection is all but universally regarded as a visible manisfestation of the soul, the same word often serving to mark both meanings.

Isneg (northern Luzon): "*aniníwing.* Shadow, reflection. A child who looks at its shadow in the evening becomes very thin." (Vanoverbergh 1972:69)

SKIN DISEASE. Frazer (1960:548) comments that "the eating of a sacred animal is often believed to produce leprosy or other skin disease". In Austronesian-speaking societies, at least, this statement can be generalised to the breaking of a taboo of almost any kind. Skin diseases are commonly ascribed to spirit attacks.

Cebuano (central Philippines): skin ailments frequently are said to be "the result of the influence of spirits, with water as the medium of contagion". (Richard W. Lieban, pers. comm.)

Ilokano (northern Luzon): *kaybaán* 'a fairy supposed to inhabit nests of white ants or coconut groves, and to help farmers, weavers, housekeepers etc., or to inflict skin diseases etc.' (Carro 1956:140)

Isneg (northern Luzon): *rasā.* "The itch or scabies. Causes by mites. A person may get this skin disease by touching fireflies at night or by being covered by the bristles of the *baxināt* (*Saccharum* sp.)." (Vanoverbergh 1972:472)

Pinatubo Negritos (west central Luzon): "The Negritos do not normally explain skin diseases as being caused by the spirits, rather it is the common belief that dermatosis is inherited, but if any sickness is serious, the spirits are always involved." (Fox 1953:321)

SNAKE. Although use of the *qali/kali- prefix suggests that only certain types of snakes have associations with the spirit world, Kruijt (1906:178) makes a more general claim: "In general the peoples of Indonesia usually see a snake as the incarnation of a dead person".

Bahau (central Borneo): "The soul-stuff of men once appeared in the form of a snake." (Kruijt 1906:178)

Nias (Barrier Islands, west of Sumatra): "The people of Nias say that the souls of insolent men turn into snakes after their death." (Kruijt 1906:178)

SUMMIT. Balantak (eastern Sulawesi): "mountain tops are considered sacred". (LeBar 1972:138)

SUNSHOWER. Arosi (San Cristobal, southeast Solomons): *arito* 'a sunshower; to shine in rainy weather; to clear up, of the weather (people keep indoors at such times for fear of ghosts)'

Javanese: A sunshower is a sign that someone important (king, high official) has died. (Soebardi, pers. comm.)

**Kintak Bong (Austroasiatic, Malay peninsula): "Expectant women must not go out during 'hot rain' (i.e. rain when the sun is shining), which is much feared." (Evans 1937)

Kiribati/Gilbertese (Micronesia): *riringa ni moan atu* 'morning sun between two showers; sign of death' (Sabatier 1971:321)

Long Terawan Berawan *akang biloh kijih* 'the giant ghost who appears during periods of sun with rain' (Proctor 1979)

Malay: "Mid-day, when a light rain is falling and the sun is shining at the same time is usually regarded as equally dangerous to the golden glow of sunset." (Skeat 1900:15, fn. 4)

Manggarai (Flores, Lesser Sundas): *usang ta'a hitu, usang mélu, usang ata ba beti* "Sunshower, 'hot rain'. Such a rain brings multifarious illnesses." (Verheijen 1967:727)

TALK/WALK IN ONE'S SLEEP. This category hardly requires documentation, since the appearance of speech and motor actions in a human body which does not appear to be under its own control would readily be attributed to spirit possession in most traditional societies.

TOPSY TURVY. In many cultures the inversion of objects or reversal of sequences in ritual performances (as in the so-called 'Black Mass') has the effect of establishing a curse. One example, of possible European origin, is given here. A second associates inversion with incest, itself an act surrounded by the strongest taboos and punitive sanctions of a supernatural character.

**Chorti (Mayan; Guatemala): "If the mere wishing of harm does not suffice, the Indian may burn a candle on the doorstep of the pueblo church at midnight, either on a Thursday or a Friday. It is stood upside down, with the wick end pointing toward the Devil, who is asked to send the harm to the victim." (Wisdom 1940:333)

Kédang (Lembata, Lesser Sundas): "One of the phrases for incest, *hunéq-koloq* means 'to turn upside down', is also applied to putting a house post in the ground in the reverse position from which it grew." (Barnes 1974:68)

WASP. **Negritos of Malaya (Austroasiatic): "Violations of the commandments of the Thunder God are reported to him by divine messengers which are conceived as dragonflies or wasps." (Blust 1981:299)

WHIRLWIND/WHIRLPOOL. **Ainu (isolate; Japan): "The Ainu imagine whirlwinds to be filled with demons, and they therefore fear them." (Batchelor 1901:385)

**Chorti (Mayan; Guatemala): "Lagarto is a giant lizard spirit, probably of Spanish origin, which lives in the deep spots of streams and is the spirit of whirlpools ... He has a large tail, the end of which is of bone and shaped like an ax. His mouth is extremely large, so that he swallows his victims whole. People who come to the spot to bathe, especially at night, are liable to be killed with the axlike tail and swallowed." (Wisdom 1940:409)

**Gabrielino (Uto-Aztecan, southern California): "Whirlwinds were evil spirits." (Bean & Smith 1978:548)

**Germans: "The Loreley is only a modernised version of the river-demon who drowns the swimmer in the whirlpool." (Tylor 1960:213)

Isneg "*alipugpúg*. Whirlwind, eddy of air. It announces the presence of the spirit of the same name." (Vanoverbergh 1972:47)

**Lakota/Dakota (Siouan; Dakotas): "The Dakota believe that there is a close relation between the whirlwind and the fluttering wings of a moth. The cocoon is regarded as the bundle or mysterious object from which a power similar to that of the whirlwind emanates ... In the whirlwind somehow and somewhere resides the power to produce confusion of mind ... When a man loses his presence of mind he is said to have been overcome by the power of the whirlwind." (Wissler 1905)

Maya (Mayan; northwestern Guatemala): "As in other parts of Mesoamerica, there is the belief in the evil eye, in the whirlwind as a dangerous supernatural, and in sickness caused by susto (fright)." (Wagley 1969:63)

Merina (Madagascar): "*tadío* ... A whirlwind. It is generally supposed to consist of the spirits of the dead." (Richardson 1885:597)

**Tarahumara (Uto-Aztecan; northern Mexico): The Tarahumara regard the wind "as a good being, the whirlwind as an evil one. Whirlpool-beings are evil, fat and piglike, and can cause disease (seize souls)." (Fried 1969:863)

**Tehit (West Papuan; Irian Jaya): Whirlpools are said to be the residence of an evil spirit. (Don A.L. Flassy, pers. comm.)

**Toba (Guaicuruan; Paraguay): "Whirlwinds ... are regarded as the passing of the spirits. The Tobas are in the habit of saying of such whirlwinds: 'There goes a *péyak* (= spirit) dancing in the dust'." (Karsten 1932:120)

**Yuman tribes of the Gila River (southern Arizona): "An individual possessed a plurality of souls", one of which was "the whirlwind soul, the ghost", which stays about (in human guise) as the whirlwind (Spier 1933:296)

WOODPECKER. **Karen (Sino-Tibetan; peninsular Burma): The woodpecker is a bird of ill omen. (Marshall 1922:190, 229)

**Malayan Negritos (Austroasiatic): The woodpecker is regarded as a sacred bird. (Evans 1923:182).

Subanun (Mindanao): *bulatúk* 'a spirit bird that determines the best site for a house' (Finley & Churchill 1913:185; cf. PAn *bala-laCuk 'woodpecker')

References

In the interest of brevity standard sources for language material are not given here, but many of these may be found in Blust (1980). Nonobvious sources are cited directly in the text. I am indebted to the late D.J. Prentice for making available material on Timugon Murut from a manuscript dictionary which remained unpublished at his death.

Abinal, P. and V. Malzac, 1963, *Dictionnaire malgache–français.* Paris: Éditions maritimes et d'Outre-mer. (First published in 1888.)

Abo, Takaji, Byron W. Bender, Alfred Capelle, and Tony DeBrum, 1976, *Marshallese–English dictionary.* PALI Language Texts: Micronesia. Honolulu: The University Press of Hawai'i.

Anceaux, J.C., 1961, *The linguistic situation in the islands of Yapen, Kurudu, Nau and Miosnum, New Guinea.* Koninklijk Instituut voor Taal-, Land- en Volkenkunde. The Hague: Nijhoff.

Barber, C.C., 1979, Dictionary of Balinese–English, 2 vols. Aberdeen, Scotland: Aberdeen University Library Occasional Publications, No. 2.

Barnes, R.H., 1974, *Kédang: a study of the collective thought of an eastern Indonesian people.* Oxford: Clarendon.

Barton, Roy F., 1955, The mythology of the Ifugaos. *American Folklore Society Memoirs* 46:1–244.

Batchelor, John, 1901, *The Ainu and their folklore.* London.

Bean, Lowell John and Charles R. Smith, 1978, "Gabrielino". In Robert F. Heizer, ed. *Handbook of North American Indians,* vol. 8: California, 538–549. Washington: Smithsonian Institution.

Bell, F.L.S., 1977, *Tanga–English, English–Tanga dictionary.* Oceania Linguistic Monographs, No. 21. University of Sydney.

Bender, Byron W. and Judith W. Wang, 1985, The status of Proto-Micronesian. In Andrew Pawley and Lois Carrington, eds *Austronesian Linguistics at the 15th Pacific Science Congress,* 53–92. Canberra: Pacific Linguistics.

Benedict, Laura Watson, 1916, A study of Bagobo ceremonial, magic and myth. *Annals of the New York Academy of Science* 25:1–308.

Blust, Robert, 1977, Sketches of the phonology and morphology of Bornean languages, 1: Uma Juman (Kayan). *Papers in Borneo and Western Austronesian linguistics,* No. 2. Canberra: Pacific Linguistics.

1980, Austronesian etymologies. *Oceanic Linguistics* 19:1–181.

1981, Linguistic evidence for some early Austronesian taboos. *American Anthropologist* 83:285–319.

1991, On the limits of the "thunder complex" in Australasia. *Anthropos* 86.4/6:517–528.

n.d., Pointing, rainbows and the archaeology of mind. MS., 134pp.

Bradshaw, Joel, 1978, The development of an extra series of obstruents in Numbami. *Oceanic Linguistics* 17:39–76.

Carro, Andrés, 1956, *Iloko–English dictionary.* Translated, augmented and revised by Morice Vanoverbergh. Baguio: Catholic School Press. (First published in 1888.)

Chrétien, C. Douglas, 1965, The statistical structure of the Proto-Austronesian morph. *Lingua* 14:243–270.

Codrington, R.H., 1891, *The Melanesians: studies in their anthropology and folklore.* Oxford: Clarendon.

Cole, Fay Cooper, 1913, *The wild tribes of the Davao district, Mindanao.* Field Museum of Natural History publication 170, Anthropological Series, vol. 12, No. 2. Chicago.

Conklin, Harold C., 1953, *Hanunóo–English vocabulary.* Berkeley and Los Angeles: University of California Press.

Demetrio y Radaza, Francisco R., ed. and comp., 1970, *Dictionary of Philippine folk beliefs and customs.* 4 volumes. Cagayan de Oro City: Xavier University.

Dempwolff, Otto, 1938, Vergleichende Lautlehre des austronesischen Wortschatzes, vol. 3. *Zeitschrift für Eingeborenen-Sprachen,* supplement 19. Berlin: Reimer.

Elbert, Samuel H., 1972, *Puluwat dictionary.* Canberra: Pacific Linguistics.

1975, *Dictionary of the language of Rennell and Bellona,* 2 parts. Copenhagen: National Museum of Denmark.

Evans, Ivor H.N., 1923, *Studies in religion, folk-lore and custom in British North Borneo and the Malay Peninsula.* Cambridge: Cambridge University Press.

1937, *The Negritos of Malaya.* Cambridge: Cambridge University Press.

Ferrell, Raleigh, 1969, *Taiwan aboriginal groups: problems in cultural and linguistic classification.* Institute of Ethnology, Academia Sinica, Monograph 17.

1982, *Paiwan dictionary*. Canberra: Pacific Linguistics.

Finley, J.P. and W. Churchill, 1913, *The Subanu*. Carnegie Institution of Washington Publications 184:1–236.

Fox, Robert B., 1953, The Pinatubo Negritos: their useful plants and material culture. *Philippine Journal of Science* 81:173–414.

Frazer, Sir James George, 1960, *The golden bough: a study in magic and religion*, 1 vol., (abridged edn). New York: Macmillan. (First published in 1922.)

Fried, Jacob, 1969, "The Tarahumara". In Evon Z. Vogt, ed. *Handbook of Middle American Indians*, vol. 8: Ethnology, part 2:846–870. Austin: The University of Texas Press.

Garvan, John M., 1964, The Negritos of the Philippines. In Hermann Hochegger, ed. *Wiener Beiträge zur Kulturgeschichte und Linguistik*, vol. 14. Veröffentlichungen des Instituts für Völkerkunde der Universität Wien.

Gericke, J.F.C. and T. Roorda, 1901, *Javaansch–Nederlandsch Handwoordenboek*, 2 vols, (4th edn). Amsterdam and Leiden: Johannes Muller and E.J. Brill. (First published in 1847.)

Gonda, Jan, 1952, The comparative method as applied to Indonesian languages. *Lingua* 1:86–101.

1973, *Sanskrit in Indonesia*, (2nd edn). New Delhi: International Academy of Indian Culture.

Goodenough, Ward H. and Hiroshi Sugita, 1980, *Trukese–English dictionary*. Memoirs of the American Philosophical Society, vol. 141. Philadelphia: The American Philosophical Society.

Guerreiro, Antonio, Vocabulary of Punan Kelai. MS., 5pp.

Halverson, John, 1976, Animal categories and terms of abuse. *Man* 2 (n.s.), 505–516.

Hasselt, J.L. van and F.J.F. van Hasselt, 1947, *Noemfoorsch woordenboek*. Amsterdam: de Bussy.

Hester, Thomas Roy, 1978, "Esselen". In Robert F. Heizer, ed. *Handbook of North American Indians*, vol. 8: California, 496–499. Washington: Smithsonian Institution.

Ho, Dah-an, 1978, A preliminary comparative study of five Paiwan dialects. *Bulletin of the Institute of History and Philology*, Academia Sinica, vol. 49, part 4:565–681.

Ivens, W.G., 1927, *Melanesians of the Southeast Solomon Islands*. London: Kegan Paul, Trench, Trubner.

Jeng, Heng-hsiung, 1971, *A Bunun–English dictionary*. Taipei. Privately circulated.

Kähler, Hans, 1949–50, Untersuchung über die Entstehung klassifikatorischer Präfixe in austronesischen Sprachen. *Zeitschrift für Eingeborenen-Sprachen* 35:162–191.

1961, *Simalur–Deutsches Wörterbuch mit Deutsch–Simaluresischem Wörterverzeichnis*. Veröffentlichungen des Seminars für Indonesische und Südseesprachen der Universität Hamburg, vol. 3. Berlin: Reimer.

Karsten, Rafael, 1932, *Indian tribes of the Argentine and Bolivian Chaco.* Ethnological Studies. Societas Scientiarum Fennica, Commentationes Humanarum Litterarum, vol. 4, No. 1. Helsinki.

Keesing, Roger M., 1975, *Kwaio dictionary.* Canberra: Pacific Linguistics.

Kruijt, Alb. C., 1906, *Het animisme in den Indischen Archipel.* Koninklijk Instituut voor Taal-, Land- en Volkenkunde. The Hague: Nijhoff.

LeBar, Frank M., 1972, "Balantak". In Frank M. LeBar, ed. *Ethnic groups of insular Southeast Asia,* vol. 1: *Indonesia, Andaman Islands and Madagascar*, 138–139. New Haven: Human Relations Area Files.

Li, Paul Jen-kuei, 1977, The internal relationships of Rukai. *Bulletin of the Institute of History and Philology,* Academia Sinica, 48(1):1–92.

1981, Reconstruction of Proto-Atayalic phonology. *Bulletin of the Institute of History and Philology,* Academia Sinica, 52(2):235–301.

Lincoln, Peter C., 1977, Gitua–English vocabulary. Typescript, 48pp.

Lister-Turner, R. and J.B. Clark, 1930, *A dictionary of the Motu language of Papua.* Sydney: Government Printing Office.

Maan, G., 1940, *Boelisch–Nederlandsch woordenlijst.* Bandoeng: Nix.

McFarland, Curtis D., 1977, *Northern Philippine linguistic geography.* Study of Languages and Cultures of Asia and Africa monograph series, No. 9. Tokyo: Institute for the Study of Languages and Cultures of Asia and Africa.

Malinowski, Bronislaw, 1961, *Argonauts of the western Pacific.* New York: E.P. Dutton. (First published in 1922.)

Marshall, Harry Ignatius, 1922, *The Karen people of Burma: a study in anthropology and ethnology.* The Ohio State University Bulletin, vol. 26, No. 13, Contributions in History and Political Science, No. 8. Columbus.

Nag, Moni, 1964, "Nagas". In Frank M. LeBar, Gerald C. Hickey and John K. Musgrave, eds *Ethnic groups of mainland Southeast Asia*, 44–49. New Haven: Human Relations Area Files.

Needham, Rodney, 1964, Blood, thunder, and mockery of animals. *Sociologus* (n.s.), 14:136–149.

Neumann, J.H., 1951, *Karo Bataks–Nederlands woordenboek.* Medan, Sumatra: Varekamp.

Panitia penyusun kamus Bali-Indonesia (Committee for the compilation of a Balinese–Indonesian dictionary), 1978, *Kamus Bali-Indonesia.* Denpasar, Bali.

Parry, Neville Edward, 1932, *The Lakhers.* London: Macmillan.

Pratt, George, 1984, *A grammar and dictionary of the Samoan language.* With English and Samoan vocabulary. (3rd, rev. edn). Papakura, New Zealand: R. McMillan. (First published in 1893.)

Prentice, D.J., 1971, *The Murut languages of Sabah.* Canberra: Pacific Linguistics.

Proctor, John, 1979, A preliminary look at the language of Long Terawan. *The Sarawak Museum Journal* 27.48 (n.s.), 103–170.

Reid, Lawrence A., ed., 1971, *Philippine minor languages: word lists and phonologies.* Oceanic Linguistics Special Publication, No. 8. Honolulu: University of Hawai'i Press.

Richards, Anthony, 1981, *An Iban–English dictionary.* Oxford: Clarendon.

Richardson, J., 1885, *A new Malagasy–English dictionary.* Antananarivo: London Missionary Society.

Sabatier, E., 1971, *Gilbertese–English dictionary.* Translated from the French by Sister Oliva of the Catholic Mission, Tarawa. Tarawa: Sacred Heart Mission.

Skeat, Walter William, 1900, *Malay magic: an introduction to the folklore and popular religion of the Malay peninsula.* London: Macmillan.

Spier, Leslie, 1933, *Yuman tribes of the Gila River.* Chicago: The University of Chicago Press.

Tremearne, A.J.N., 1913, *Hausa superstitions and customs.* London: John Bale, Sons and Danielsson.

Tryon, D.T., 1976, *New Hebrides languages: an internal classification.* Canberra: Pacific Linguistics.

Tsuchida, Shigeru, 1976, *Reconstruction of Proto-Tsouic phonology.* Study of Languages and Cultures of Asia and Africa monograph series, No. 5. Tokyo: Institute for the Study of Languages and Cultures of Asia and Africa.

Tsuchida, Shigeru et al., 1987, *Lists of selected words of Batanic languages.* Department of Linguistics, Faculty of Letters, University of Tokyo.

Tylor, Edward Burnett, 1958, *Primitive culture,* 2 parts. New York: Harper and Brothers. (First published in 1871.)

1960, *Anthropology.* Ann Arbor: The University of Michigan Press. (First published in 1881.)

Vanoverbergh, Morice, 1933, *A dictionary of Lepanto Igorot or Kankanay.* Anthropos Linguistic Monograph, vol. 12. St Gabriel-Mödling: Anthropos Institute.

1972, *Isneg–English vocabulary.* Oceanic Linguistics Special Publication, No. 11. Honolulu: The University Press of Hawai'i.

Veen, H. van der, 1940, *Tae' (Zuid-Toradjasch)–Nederlandsch woordenboek, met register Nederlandsch–Tae'.* Koninklijk Instituut voor Taal-, Land- en Volkenkunde. The Hague: Nijhoff.

Verheijen, Jilis A.J., 1967, *Kamus Manggarai* 1: *Manggarai–Indonesia.* The Hague: Nijhoff.

Wagley, Charles, 1969, The Maya of Northwestern Guatemala. In Robert Wauchope, ed. *Handbook of Middle American Indians,* vol. 7, *Ethnology,* part 1:46–68. Austin: University of Texas Press.

Wallace, Alfred Russell, 1962 [1869], *The Malay archipelago.* London: Macmillan.

Wilkinson, R.J., 1959, *A Malay–English dictionary* (romanised), 2 parts. London: Macmillan.

Wisdom, Charles, 1940, *The Chorti Indians of Guatemala.* Chicago: The University of Chicago Press.

Wissler, Clark, 1905, The whirlwind and the elk in the mythology of the Dakota. *Journal of American Folklore* 18:257–268.

Zeitoun, Elizabeth, n.d., Word lists of Formosan languages. MS., 77pp.