

PROTO-AUSTRONESIAN *c, *z, *g, AND *t

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0. INTRODUCTION

Dempwolff in his Proto-Austronesian Phonology posited twenty-three consonantal phonemes including the semivowels *y* and *w*. Over the past thirty years a great deal of the work which has been done on Austronesian phonology has been to look for correspondences which are not taken care of by Dempwolff's phonemes. At the latest count I reckon an additional twenty to thirty consonant phonemes which have been posited by various people at various times, mostly in a very tentative way. This gives us a total of between forty-three and fifty-three consonants, an incredible number of consonants in a system which distinguishes only two modes of articulation, voiced and voiceless. This is further an incredible collection in view of the fact that the modern Austronesian languages, for the most part, have a very modest system of consonant phonemes. Something is clearly amiss, and I suggest that we reconsider the whole question of establishing the phonology of the proto-language. Although most of these phonemes were proposed on a tentative basis, scholars who have occasion to quote PAN forms containing these tentatively proposed phonemes seem to take them as firmly established.¹ At least we often see reconstructed forms with these purported phonemes (to quote forms at random that have appeared in recent publications): *xempat, *beHi, *Wasu. It is as if it did not matter what the proto-phonemes were or how they were pronounced — as if the reconstructed form does not reflect a spoken form at all, but is just a shorthand way of listing a set of forms which are similar in various Austronesian languages. But surely a reconstructed form is more than a formula. For whatever reason we may wish to know the history of the Austronesian languages, it is most important to know what the phonemes of the proto-language were and how they must have sounded. This is the only way that we can come to meaningful conclusions as to the subgroupings, types of cultural contact within these languages themselves, contacts with outside groups, and other such questions of prehistory for which historical linguistics is the best evidence. Further, it is the only way that Austronesian historical linguistics can provide meaningful data on the basis of which the science of historical linguistics in general can be developed.

I believe that the basic principle to follow is that only those correspondences which furnish good evidence can be considered to reflect phonemes of the proto-language. It would be tangential at this point to attempt specification of what constitutes good evidence, but it is clear that in the following cases no good evidence has been presented for the establishment of a proto-phoneme:

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(1) when the phoneme is posited on the basis of an irregularity of correspondence among reflexes in two or more languages which could easily have been borrowed or readily contaminated by analogical reformations;

(2) when the irregularity of correspondence is found in languages for which the phonological development has not been worked out or where the gloss of the forms in question is not clearly known. This eliminates almost all of the additional phonemes.²

This lays to rest the numerous capitals and subscripted phonemes which Dyen and others have proposed (tentatively or with assurance). With the addition of *N, *C and *Z, we can stick to the phonemes which Dempwolff posited (as corrected by Dyen 1951, 1953a). But we can go further than that in ascertaining the phonology of the proto-language. A number of Dempwolff's correspondences prove to be invalid: to wit, the correspondences symbolised by *d, *r, *c, *z, *g, *T. I showed that the correspondences *d and *r are a chimera in my contribution to the First Austronesian Conference (1974). In this paper I shall give explanations for the other four correspondences *c, *z, *g, and *T. Thus, Proto-Austronesian had the following consonant system:³

p t C k b D Z j s m n ñ ŋ N R l q h w y.

In investigating these four correspondences I start with the same ground rules which I adopted in my 1974 paper. First, forms which were not likely to have been in the proto-language cannot serve as evidence for the existence of a certain phoneme. If there is no evidence for the existence of a certain phoneme except in forms which may have come into the language after the time of the proto-language, there is no evidence for the phoneme. Thus, loanwords can provide no evidence for a proto-phoneme, and loans from outside of Austronesian languages are eliminated from consideration.⁴ Further, forms found only in languages which have had strong influence on each other and which refer to the type of things which likely spread by borrowing cannot be considered to provide evidence. The correspondence must be found in other sorts of forms.

Also forms which refer to flora and fauna, of the sort not of basic importance to the culture, cannot be seriously considered to provide evidence. These terms tend to rapid displacement and to analogical reformation at a rapid rate. This fact can readily be substantiated by elementary fieldwork or by a glance at a handbook such as de Clercq's and the like, which list enormous numbers of synonyms, forms clearly borrowed from language to language, and forms obviously reformed by analogical processes. Also forms which refer to noises or meteorological phenomena tend to be subject to rapid reformation of an onomatopoeic type, so that such forms cannot provide evidence for the existence of proto-phonemes. These considerations eliminate a fairly large portion of the forms presented by Dempwolff for the phonemes *c, *z, *g, and *T. We will now proceed to examine forms containing these forms which have been reconstructed by Dempwolff and the addenda by Blust. My conclusion is that in the case of *c, *z, *g, and *T (just as for *r and *d), the evidence is so weak that we need no longer consider these phonemes to have been part of the inventory of the proto-language.

There are many commonsense considerations which support the correctness of this conclusion. First, the numerous reconstructions which have been attempted from the bottom up have failed to reconstruct any of these phonemes for the proto-languages of subgroups. That is, there is no correspondence in any of the proto-languages of subgroups which reflects PAN *d, *r, *c, *z, *g, or *T — not in proto-Minahassan, proto-Polynesian, Proto-Paiwanic, Proto-Tsouic,

Proto-Manobo, Proto-Bisayan, to quote published studies, nor has anything turned up in the unpublished materials to which I have had access.

Further, all of the languages which Dempwolff chose outside of Melanesia and Polynesia were in contact with and under the influence of Malay, and most of the forms which Dempwolff thought to reflect these proto-phonemes are found in Malay and often can be proven to have been borrowed from Malay into the languages cited. We shall now proceed with an examination of the forms in question.

1. *c

The evidence for *c is very shaky, although a fairly large number of forms were reconstructed with *c. The evidence for *c was thought to be the following correspondence: Ml, Ja c, Ho ts, and the other languages show the same reflex as for *s.⁵ We need not look at all forms which Dempwolff listed with *c: we may eliminate loanwords, and further we need not look at forms which were reconstructed with *nc. Any form reconstructed with *nc can as well be reconstructed with *ns.⁶ Although few of the forms listed with *nc do, in fact, look as though they derive from the proto-language, we need not consider them further here as they provide no evidence for the phoneme *c. Other forms thought to have *c are not good evidence for *c for various reasons:

(1) they are onomatopoeic or otherwise likely to have been affected by analogical reformations;

(2) they are found only in languages in close contact with Ml and are likely to be from Ml;

(3) the meanings of the attested forms are unconnected or the correspondences of the other phonemes in the form are not regular;

(4) the proto-form could be reconstructed with *s. This leaves us with a small residue of forms which provide the shaky evidence for *c. But these forms are too few and too shaky to be convincing evidence for *c, and I conclude that there was no phoneme *c. Let us look at these forms individually.

1.1. First, we list the onomatopoeic forms and the forms likely to have been affected by analogical changes: *ceguk Tg sigok, Ja ceguk 'hiccough'; *ciap Tg siyap, Ml ciap 'chirp'; *citicit Tg sagitsit 'hissing noise', Ml cicit 'squeak, twitter', NgD kasisit 'hissing noise', No tsetetra 'click of tongue in approval'; *cecak TB sosak (I have been unable to confirm Dempwolff's gloss of 'house lizard'), Ml cecak, NgD tasak 'house lizard', Ho tsatsaka 'kind of lizard'; *licak Ml lècak 'moist and slippery', Ho ditsaka 'wet, soaked, drenched' (Ml has the following forms all of which mean something similar to lècak and which point to analogical reformations of forms with similar meanings: lecap, lincum, lècèk, bècèk, bècak, lècah, lècèt, lèncèt. The chances that Ml lècak has been influenced by some other form of similar meaning are very great.) *pucuk TB putsu 'tip, peak' (=pusuk), Ja pucuk 'point, tip', Ml pucuk 'shoot, top branchlet', NgD tampusok 'end of a fishnet, go upwards to the heights'. (There likely was contamination with Ml puncak 'climax, summit', a point supported by the TB form which reflects a nasal. Further NgD also has kapucok 'a counter for weaponry', a loanword from Ml, and TB pusuk is likely to be a loanword, so that the forms in the various languages with c are all probably from Ml.)

1.2. Now we list forms found only in languages which were under the influence of Ml (or took forms from Ja via Ml). The following list gives those only in Ml and in one other of Dempwolff's languages which was in contact with Ml: *cepat (sic Dempwolff) Ml cepat, Ja cepet, NgD capat 'fast' (Sa toha 'rejoice' is unconnected.) *lucut Ml lucut 'become undone, slip away', NgD lusut 'be loose' (Tg lusot 'pass through', TB lusut 'for the sun to set' are unconnected.) *suci Ja suci, Ml suci 'pure, holy, sacred' (Tg masusiq 'minutious' is borrowed from Ml as attested by the final glottal stop; TB sutsi 'wash' is unconnected [borrowed from Ml cuci 'wash'].) *pucat (sic Dempwolff) Ja pucet, Ml pucat 'pale' (NgD musat 'pale' must be borrowed because of the a of the final syllable.) *ciTak Ja ciTak, Ml cètak 'print'; *canTung Ja canTung, Ml cantung 'kind of dipper'; *canTing Ja canTing, Ml canting 'small dipper for wax'; *cacing Ja, Ml cacing 'worm'. *kucak Ja, Ml kocak 'mix up, stir up', *celak Ja, Ml celak 'eye shadow'; *canTik Ja canTik 'kind of bent knife', NgD nyanyantik 'bent a bit'; *capah Ml capah 'shallow platter', TB sapa 'wooden plate'; *cambuk Ml, Ja cambuk 'large whip', *picek Ml pècak 'one-eyed', Ja picek 'blind' (Tg pisak 'one-eyed' is borrowed from Ml as indicated by the a of the penult.) *ca(n)kup Ml cakup 'catching in the open mouth', NgD mansakop 'snap at' (with irregular morphophonemics), bacakop (=basakop) 'greedy' (Tg sakop 'be under the power of something else', Ja cakup 'get hold of something', Ho tsaku 'be chewed, masticated' do not seem to be connected with the Ml and NgD forms.) The following forms are related by borrowing, for the Tg term refers to a geographical designation, the type of meaning which many loanwords from Ml have: *cabang Tg sabang 'branching of river, bifurcation of roads', Ml cabang 'branch', Ja, Ml cawang 'branching, bifurcation', TB sabang 'lengthwise bind of two rafters'. We include Ho in the languages which were in contact with Ml, as there are forms in Ho clearly borrowed from Ml.⁷ Thus the following forms are connected by borrowing from Ml: *pecut Ja, Ml pecut 'whip', Ho fitsuka 'horsewhip'.

Some of the forms with *c are found in several languages, but they still must be regarded as loanwords because they occur in Ml and only in languages which were in contact with Ml and have the meanings of forms which are likely to be borrowed: *cincin Tg singsing, Ja, Ml cincin, NgD tisin 'finger ring' (The Tg form is also phonologically aberrant.) *cium Ja, Ml cium 'kissing by sniffing, sniff', NgD sium 'kiss', Ho tsiutsiuna 'name of fragrant plant'; *cacar Ml, Ja cacar, NgD kacacar 'smallpox' (stated to be Banjarese by Hardelandt); *cagak Jav cagak 'pillar to hold up a house', Ml cagak 'forked pillar', NgD sagak 'a small protrusion in a cannon which fits into a hole in the support'; *cakep Ja cakep 'can grasp, understand', Ml cakap 'undertake, promise, be able', NgD cakap (=sakap [noted as Banjarese]) 'able, willing'; *candu Ja candu 'essence' Ml candu, TB sandu 'opium', NgD sando 'a fragrant oil'; *cangkul Ml cangkul, Ja cangkol, NgD sangkul 'hole'; *cemeD Ja cemer 'unclean', Ml cemar 'dirt, pollution' (NgD samar 'polluted [by a sickness caused by eating something forbidden]' is borrowed as the vocalisation shows. The forms quoted from the other languages do not have a good semantic connection: TB somor-somor 'bringing bad luck', Fi samo 'stained black', Sm samo 'gum from the eyes'.); *cenTung TB parsottingan 'decorative bow', Ja cenTung 'curly adornment', Ml centung 'erectile tuft or crest of birds'; *ci(m)pi(r) TB sippir, Ml cèpèr 'low rimmed saucer or salver of metal' (also Ml tèpèr), Ja cèpèr (=cepèr) 'saucer shaped'; *cu(ng)kil Old Ja cukil 'dig up', Ja, Ml cungkil 'pry up', NgD sungkil 'log used as lever to lift something' (Ho tsuki 'having a sharp point' does not seem to be connected.) *cukup Ml, Ja cukup, NgD sukup 'sufficient'; *ki(n)cu TB hitsu, Ml kicu 'swindle', Ja kècu 'banditry with force' (? connected); *ka(n)cang TB hacang, Old Ja, Ml, NgD kacang 'bean', NgD kasang (=kacang); *ucap Tg usap 'conversation' TB mangusaphon 'point to good deeds one did for someone', Ja ucap 'what someone says',

Ml ucap 'utterance' (Fi vosa 'speak talk' cannot be connected because the sound correspondences are widely off.)

1.3. Let us now look at the forms which do not have a meaning in common. These provide no evidence for a proto-form, much less for *c. *ca(ng)kem (sic Blust) Ml cengkam 'nipping', Tg sakam 'get with the hand'; *kucup Ml kucup 'kiss' (=kecup), Fi kucuva 'rape a woman'; *li(n)cad Tg linsad 'dislocated, derailed', TB lisat 'pressed flat', Ja lincad 'withdraw', Ml lécat (Dempwolff's gloss 'glassy smooth' not verified.); *lucak Tg lusak 'black mire', TB lusak 'rinse something in water by putting it in a basket and jiggling the basket around', Ho lutsaka (Dempwolff's gloss 'sediment from a solution' not verified); *pecaq TB posa 'grave (of an illness)', Ml pecah 'breaking up into bits', NgD pacah 'shattered' (borrowed from Malay as shown by the vocalism), Ho fetsaka 'thrown down violently, beaten', Fi voca 'be wrecked on a reef', Sa potu-potu 'break by knocking against one another' (Tg pisaq 'crushed' is not connected, as shown by the Cebuano pisaq 'crushed'. Cebuano reflects PAN *e as u.); *pecel Ml pecal 'crush with the fingers, squeeze with the hands', Tg pisil 'squeeze with hands'. (Again Cebuano pisil 'squeeze in hand' shows that the Tg pisil is not connected with Ml pecal.) *cemcem Tg simsim 'eat as a snack, try eating something', Ja cemcem (Dempwolff's gloss 'moisten' unverified). cahing Ja cèng 'thickened sugar cane juice', Tg sahing 'white sticky resin' is from saleng. NgD saing 'taut' is not connected.

1.4. In the following forms the reflexes which were thought to prove *c are unconnected and the reconstruction may as well be with *s (if indeed any of the attested forms reflect a proto-form): *cabat Tg sabat 'intercept', TB sabat 'hindrance'. (The following forms are not semantically connected with the above two: Ja cawad 'omission', Ml cawat 'loincloth' [=Jv cawet 'loincloth'], Fi cambaka 'blurt out a secret', Fi saambaya 'ward off a blow'.) *cacah Tg salasaq 'destruction', TB sasa 'be fallen in' (Ja cacah 'cut up', Ho mitsatsa divided into two or more parts are unconnected with the above and probably unconnected with each other.) *calcal Tg salsal, NgD tasal 'forge' (Ja cacal 'chipped, hacked, be planed off from' is unconnected.) *cencen Tg sinsin 'closeness of intervals', TB sotson 'be situated close to one' (Ho tsentsina 'plugged, stopped up' and Fi sosoo ucu 'put finger in nose to keep out bad smell' are unconnected.)

1.5. We now come to the forms which cannot be dismissed out of hand. There are only two forms which have correspondences outside of Indonesian and are good strong cases: *cabut TB sarbut, Ja cabut, Ml cabut 'extract, pull out by force', Fi tacavu 'uprooted', cavuta 'extraction by force'. This is a convincing form, but nevertheless I think that the initial c's of the Ml and Ja are secondary. The chances that analogical reformation took place in the first syllable are very good in view of the large number of forms which have a meaning of 'uproot' which end in a reflex of *but or *bet: Ja jabut 'uproot', Ml rebut 'grab', Cebuano gábut, ibut 'uproot', to mention a random sample. The other form is *camuk Tg samuk (Noceda's gloss: 'a large mouthful'), Ja camuk 'chew on', Ho tsamutsamuka 'smack the lips', Fi namuta 'chew and spit out again', Ulawa dremu 'eat areca nut', To hamu, Sm samu 'eat vegetables or yams alone'. In this case the meanings of the various forms are quite far apart and the resemblances are probably

fortuitous (at least between the Oceanic forms and the Indonesian forms.) In the following case the Tg form shows *l* corresponding to Ja *D*, something not elsewhere found in borrowed forms, but which is the normal correspondence in inherited forms. However, the Tg meaning is not close to the Ja and Ml and the resemblance is probably fortuitous: *ci(n)Duk Tg sílok 'spoon', Ja ciDuk 'ladle, scoop, dipper', Ml ciduk 'digging up with a spade'. (Ho tsindruga 'little things which are picked up for eating' is not connected.) In the following two cases the meaning is of a sort which does not point to a borrowing. However, the likelihood that the first syllable with a *c* in Ml and Ja is a reformation is great because of the synonyms or words of similar meaning which share the second syllable: *cahuR Tg sahog 'mixture' TB saor 'mixed', NgD caur (=saur) (said to be from Banjarese) 'mixed' (cf. Tg bahug 'mixed, diluted', Ml baur 'mix', Cebuano láhug, káhug 'mix'.) Similarly, *cuping TB suping, Ml cuping 'earlobe', Ho sufina 'ear' (Sa suhi 'shave the head' is unconnected.) Note that the Ho has a reflex with *s* which is evidence that the *c* of Ml cuping is secondary. (Ja has kuping 'ear'.) In the following case the Tg form only vaguely resembles the Ml and Ja in meaning and there may well be no connection: *campur Tg sapol (Laktaw: 'inclusive') TB suppur, Ml, Ja campur, NgD campur (=sampur) 'mixed'. Further, the Tg final *l* fits into no well-established correspondence with the other forms.

2. *z

Dyen (1951) proposed a proto-phoneme *Z to account for the correspondence Ml, NgD *j*, Ja, TB *d*, Tg *d*, *l*, Ho *r* as opposed to *z which would account for Dempwolff's correspondence Ml, NgD, Tb, Ja *j*, Tg *d*, *r* Ho *z*. Dyen thought that *nZ is reflected as Ho ndr and, *NZ as Ho nj. As in the case of *c, a serious question arises as to whether the forms in the correspondence *z are actually related by inheritance from the proto-language. Again we may note that the forms in the *z correspondence have no good cognates outside of those languages which are all strongly influenced by Ml. Further, the semantic character of the forms which exhibit the correspondence for *z is often such that the forms are likely to be borrowed from Ml. Some of the other forms cited for the *z correspondence in fact enter the correspondence for *Z, and a number of the forms in the *z correspondence are unconnected in meaning.

2.1. First, we will look at the forms which are very likely to be borrowings. Those found only in Ml and one other language are the following forms: *ta(n)zak Ja tanjak 'holding oneself upright', Ml tanjak 'sticking up, rising up to a point' (if these are connected); *tinzu TB, Ml tinju 'box'; *z(a,e)(m)but TB jabut 'hair on chest', TB jambut 'hair of animals', Ja jembut 'pubic hair' (There is no Ml form attested in this correspondence, but the vocalism of TB proves it to be a borrowing and probably it was from a Ml dialect with a for e.) *zalu Ml, Ja jalu 'cock's spur'; *zangkah Ja jangkah 'step, stride', Ml jangkah 'step over with difficulty' (The Polynesian forms which mean 'dance' are unconnected: To haka, Fu saka, Sm sa'a.) *zantung Ml jantung 'heart', Ja jantung 'heart, bud of banana blossom'; *zatuh Ml jatuh, NgD jato 'fall' (The o of the final syllable in NgD points to borrowing.) *zempuT TB jopput 'pick up with two or three fingers', Ml jempuT 'pinch between the fingers, press hand of visitors' (Tg dampuT 'pick up with the hand' is not connected; neither is Fi covuta 'break or cut food small, peck at'.) *zemuR TB jomur 'dry rice in the sun', Ml jemur 'dry by exposure to air'; *zulzul Ja jujul 'sticking out by being too large and not

fitting', Ml jujul, jojol '*sticking out in a pointed way*' (Tg duldul '*shove with force*' and TB juljul '*add to something forcefully*' are not connected.) *zu(m)put Ja jumput '*pick up something small with fingers or tweezers*', NgD jumput '*pick up something small*' (=sumput) (There is no Ml form attested for this correspondence, but the doublet in NgD attests outside influence. Further, there are doublets with similar meaning e.g. Ja jumput, jukuk, jupuk '*pick up*' and also the forms listed under *zempt above, so that the initial j is the result of analogical developments in all likelihood.) *zungzung TB, Ml jungjung '*support on head*' (Ho junjuna '*haughtiness, pride*' is not connected.) Other forms are widespread in Indonesian languages, but they have the meanings of forms which are subject to learned borrowing: *azi Tg pangadyiq '*pray*' (with irregular correspondences, attesting to the fact that it is a loanword), Old Ja aji '*sacred book*', TB aji '*magical formula*', Ml aji (said to be a Ja loanword), kaji '*study religious works*', NgD kaji '*learn, study*' (Fi kaci '*call, invite*' is not connected.) *bazi TB, Ml, NgD baji '*wedge*'; *kazang Tg kárang, TB hajang, Ja, Ml, NgD kajang '*awning on a small boat*'; *panzi Tg pandi-pandi '*banneret*' TB panji-panji '*ornament of feathers like that worn by children on their heads*', Ja panji '*flag*', Ml panji-panji '*streamer, pennant*'; *puzi⁸ Tg puri, TB, Ml puji '*honour, fame, praise*', Ja puji '*prayer, wish, hope*'; *suzi Tg suri '*needle used to separate the threads in weaving*', Old Ja suji '*needle, thorn*', Ml bersuji '*embroidered*'; *tanzung TB pulo tanjung '*peninsula*' Ml tanjung, NgD tanjong, Ho tanjuna '*cape*'; *tazak Tg tárak '*stabbing forcefully with knife*' (probably not connected), TB tajak '*knife for hacking*', Ml tajak '*grass cutter*', NgD tajak '*strike*', (Sa ata-ata is not connected. I was unable to confirm Dempwolff's gloss of '*grater for yams*'.); *tazi Tg táriq, TB, Ja, Ml, NgD taji '*blade used in cockfighting*'; *uzi Tg úriq '*kind, class, karat*', TB manguji, Ml, Ja uji '*test*', NgD puji '*admonish*'; *zabi TB jabi-jabi, Ho zavi, Fi savirewa '*kind of ficus tree*' (These are names of plants not basic to the culture and thus no evidence for a proto-phoneme.) *zalang TB jalang '*running wild (as of boys that go away from home)*'; Ja, Ml jalang '*running wild (especially of prostitutes)*'; *zagal TB jagal '*meat sold in trade*', Old Ja jagal '*slaughter*', Ml jagal '*deal in trade*'; *zambay Old Ja jambé '*areca palm*', Ml jambi '*areca nut*'; *zamban TB, Ja, Ml jamban '*privy (over a stream)*', NgD jamban '*hut over a river*' (Sa tapa-tapa is not connected. I have not been able to confirm Dempwolff's gloss '*fenced-in place for offal at death feasts*'.); *zanggut TB, Ml, Ja, NgD janggut '*beard*', zangka TB jakka, Ml jangka '*measure off*', Ja, NgD jangka '*compass or callipers for measuring off*'; *zava Tg dáwa, NgD jawe '*millet*' (No Ml form survives, but this is a Sanskrit loan, although Dempwolff does not list it as such.); *zinten, MgD, Ml jintan, Ja jinten '*caraway*'; *zelai Ml jelai, Ja jali, NgD jilai '*kind of grass*' (This form has all sorts of unusual sound correspondences, as is common with plant names which travel from language to language.) *zengkal Tg dangkal, TB jokkal, Ml jengkal, Ho zehi '*span*'; *zu(ng)kung Ja jukung, jungkung, Ml jongkong, jukung, jungkang, etc., NgD jukung '*dugout canoe*'; *uzung TB ujung '*end, exit*', Ja, Ml ujung '*end, tip*' (Fi ucu '*nose*' is not connected.)

2.2. The resemblances among some of the forms which Dempwolff cites are purely fortuitous, and the meanings are not connected: *zagzag Old Ja jagjag '*touch ground with feet*', TB jakjak '*for flowers or rice panicles to be erect*', NgD jajak '*go, tread on*' (from the language of magic)', zamzam Tg damdam '*feel pain*', TB jamjam '*sharp, hot*'; *zawazw Ja jojo '*trying to resell something*', NgD jao-jaoi '*for the chin to move, rechew*'; *zegzeg Ja jejeg '*straight, upright, always, steady*', Ml jejak '*step, footprint*'; *zehet TB jehet '*earth that is sticky and*

clay-like and hard to work', Fi koko 'join, fasten', PPN *soko 'tie, fasten'; *zengat Ja njengat 'in an upright position', Fi cenga 'lift things up by one side only (as the leaves of a book, or a lid)'; *zelag Tg dilag 'beauty', Ho jelaka 'glaringly bright'; *zeng Ja jeng 'foot', TB jongjong 'stand upright'; *zingzing TB jingjing 'held in the air, carry held in the air', Ja jinjing 'walk on toes' Ml jinjing, jènjèng 'carry a light burden dangling from the hand'; *zu(ng)kit Tg dukit 'hole made by poking the finger into something', TB jukkit 'pull fruits down from tree'; *zu(ng)kuk Ja jungkruk 'with bent head', Ml jongkok 'squat', Ho juku 'approach quietly, stooped down'.

2.3. For a number of the forms reconstructed with *z, the TB, Ja, or Ho forms are borrowed from Ml, are unconnected, or affected by analogical developments. If the other forms cited are cognate, the proto-form can be reconstructed with *Z. *hizaw Tg hilaw 'unripe', Ml hijau 'green'. The following forms are borrowings from Ml: Ja ijo, NgD hijau 'green'. (Ho maitsu 'green' does not fit into this correspondence.) *tin(z)ak Cebuano tindak 'tread on', Minangkabau tijak 'step, tread', NgD (said to be from Banjarese) tinjak 'stepped on', Ja tindak 'go (honorific)'. (Ho tsinjaka 'a dance with stamping of feet' could well be a borrowing from Ml.) *zahat Ml jahat, Fi caa, Cebuano daqut 'bad'. A reconstruction *Zaqet would account for these forms. The Polynesian forms which Dempwolff cites are not directly comparable, neither phonologically nor in meaning. TB jat 'bad' and Ja jahat 'grave (illness)' must be borrowed from Ml because of the vocalism.) *zahit Tg dait 'close, contiguous', TB, Ja, Ml jait 'sew', Ho zaitra 'sewn', Fi caita 'coitus', PPN *saqi 'bind'. We may reconstruct *Zaqit if we take the TB, Ja and Ho forms to be borrowed from Ml. Since all these forms show a semantic development in common, they are most probably indeed borrowings. *zalateng This is not an inherited form, but if it were, there is no reason not to reconstruct with *Z: M jelatang, Fi salato, Sm salato 'kind of tree'; *zalzal Tg daldal 'blow', To haha, Sm sasa 'beat, thrash'. (If these are connected at all, reconstruct *ZalZal. TB jaljal 'cut meat up fine' is unconnected.) *zaRum Ja dom, Ml jarum, Fi sau, Sa sulitelu, To hau 'needle'. Tg karayom 'needle' has an irregular correspondence for *R and has a petrified prefix. It is not directly inherited. Similarly, TB jarum is a borrowing from Ml. This form should be reconstructed as *ZaRum. *zual Ja dol, Ml, NgD jual 'sell'. (TB jual 'measurement for rice' is certainly not connected by inheritance, if it is connected at all.) We may reconstruct *Zual, if this form is inherited at all. *zuling Ml juling, Tg duling 'cross-eyed'. There is no reason not to reconstruct *Zuling, if the forms are inherited. *enzut Ml enjut 'move with a jerk', Tg undot, kundot 'fall back in fear'. There is no reason not to reconstruct *enZut if these forms are connected. *panzang Ml panjang, anjang, NgD panjang 'long', Ho andrandrana 'erectness, uprightness of men'. The Ja panjang 'long' is of the Krama (high) speech level and likely to be borrowed from Ml. Also Ja shows the accretion of initial p as does Ml. We may reconstruct *anZang. *tinzaw TB tindo 'look in the distance'; Ml tinjau 'look', Fi tirova 'look at in mirror', Sa 'iro 'look at, for'. Reconstruct *tinZaw. Ja tinjo 'visit' is an honorific and borrowed. Ho tsinju 'gaze at from distance' has the reflex of a borrowing. The TB form with nd proves that the proto-form had *nZ, and the Ho must be a loanword.

2.4. The following forms do not have the semantic character of learned borrowings, and they cannot be dismissed outright. However, they are confined to languages which are in contact with Ml and even if they are of the basic vocabulary, they probably are borrowed nevertheless. In a few cases there is other evidence that these forms, which point to *z, are, in fact, not inherited, but borrowed. There are only two forms in this group which are not readily explained as loanwords. They are *tazem 'sharp' and *za(m)bay 'for branches to hang down'. But it is certainly not impossible that they are loanwords or affected by analogical changes.⁹ These are the forms in this group: *azar Ml, Ja, TB, NgD ajar, Tg áral 'teach, learn'. The Sa manata'ini 'know' is not connected; *banzar TB, Ja, Ml banjar 'row'. (Fi basa 'level, in a line with' is probably not connected.) *ta(n)zuk Ml tajuk, Ja tanjuk, NgD tajok 'tuft'. (The o of the final syllable in NgD is indicative of a loanword.) *tazem Tg talim, TB tajom, Ja tajem, Ml tajam, NgD tajim 'sharp'. Fi tasi 'shave, scrape wood' is unconnected. *za(m)bay TB jambe, NgD jawei 'for branches to be hanging down'. (See n.9 above for a discussion of this form.) *zanzi TB, Ja, Ml, NgD janji 'promise'; *Zalin TB, Ml, NgD jalin 'bind, braid'; *za(m)bat Ml jabat, jambat 'take in hands, hold on to', PPN *sapai 'lift, carry'. If these forms are related, the reconstructed form can be *Zambat. TB jabatan, Jav jawatan 'office, duty' are borrowed from a Ml form with a derivative meaning jabatan 'office, duty'. *zamah Tg dama 'perceived, felt', TB jama 'touch', Ja jamah 'having relations with a woman not one's wife', Ml jamah 'physical possession, handling of a woman not one's wife' (The meaning of the Ja form proves that it is borrowed. The Tg must be borrowed because of the lack of final -q, and thus it is likely that the TB is also a loanword.) *azak Ml, NgD, ajak Ja jak 'urge, invite, incite'; *zayu Tg dayo (Cebuano dayqu), TB jau 'foreigner', Tg láyoq 'far', Sm sau 'ai tangata 'cannibal (eating foreigners)'. The TB form is probably not connected, but a borrowing from Ml jauh 'far'. If the Sm and Philippine forms are related, we could reconstruct *Zayqu or *Zayuq. *zinak TB, Ja, Ml, NgD jinak 'tame'. *zuluk TB julluk 'bore, force into (like worms)', Ja julukaké 'push something upwards', Ml jolok 'poling, thrusting upwards, forwards'. The other forms cited in this group are not connected in meaning: Tg dulok 'remove, excavate', NgD julok 'be reached, brought here', Ho juluka 'enter, go in', Sm sulu 'tuck in, insert, sheathe'.

The forms cited in this section are the only ones that cannot be dismissed out of hand, but they do not offer strong enough evidence to allow us to reconstruct a proto-phoneme *z. This phoneme did not exist in the proto-language.

3. *g

The evidence for *g is better than for *c and *z, but still not strong enough to warrant the establishment of a proto-phoneme *g. First, correspondences of forms with *g are not attested outside of Indonesia-Philippines. A good number of the forms with *g are borrowed from Chinese or Indic sources. Others can be proven to be loanwords on internal grounds (other than that provided by *g). Further, there is evidence that the reflexes of *g had a marginal status, although everywhere they are well established now. Ml and Ja have many forms with doublets showing g and b, g and d, or g and k.¹⁰ Also, many forms with g in Ja and Ml have correspondences with k in other languages, and occasionally, vice versa, forms with g in other languages have k in Ja or Ml. All of this mitigates against the likelihood that there was a proto-phoneme *g. We cannot dismiss out of hand all of the forms in the *g correspondence, and we will present those forms which cannot be readily explained below in Section 3.5. We need not, however, consider forms reconstructed with *ngg. Since there are no forms

which were reconstructed with *nR, and only one form which has tentatively been reconstructed with *nj (*anjaw 'day'), the forms with *ngg may actually reflect *nR or possibly *nj (if they are indeed inherited forms). In any case, they offer no evidence for a phoneme *g.

3.1. A great number of the forms in the *g correspondence are those which are likely to have been affected by analogic changes. The following forms are names of sounds: *gagak TB gagak 'laugh loudly', Ja, Ml gagak, Ho (dialectal) gaga 'crow', NgD gagak 'cackling of chickens', Sm 'a'a, To kaka 'chattering of birds', *gukguk Tg gukguk 'grunt of pigs', TB gukguk 'kind of bird sound', Ja nggukguk 'uncontrolled weeping', Sm 'u'u, Fu kuku 'kind of bird'; *legung Ml legung 'boom, gong', Tg lagong 'bass, low sound of voice' (The correspondence Tg a, Ml e shows that the similarity of form in these two words is coincidental.) *gembar Ml gembar-gembar 'yelling noise', Tg *gimbal 'clatter'. I believe that words meaning 'shake, shine, tremble', and the like are subject to similar kinds of analogic reformations: *gigil 'shiver', Tg gigil 'tremble with pleasure or delight'; gilang Ja, Ml gilang 'bright, glittering', To, Fu kikila, Sm 'i'ila 'shine, glisten'; *guyang Ja goyang 'unsteady, shaking', Ml goyang 'oscillation' (NgD gagoyang 'often go somewhere' is probably unconnected.) The following forms also are probably affected by analogic reformation: *gumi Tg gumi 'whiskers (as of a cat)', NgD gumi 'beard, whiskers (of cat)'. These forms may well be contaminations of reflexes of *kumis: Ml kumis, Tb gumis 'mustache, beard', Fi kumi 'chin, beard'. *(Ct)eguk Ml teguk 'gulp down', Tg tagok 'gulp, swallow', Tg tigok 'sound produced by swallowing' (In this case the numerous forms with a similar sound and similar meaning prove that these forms are analogical creations, e.g. Ml ragok, degok, cegok, Tg lagok 'gulping, swallowing, and the like'. cf. *ceguk Section 1.1., above.) Another example of numerous doublets which point to analogical contamination: *pegang Ml pegang 'grasp, hold', NgD hegang 'hold', TB rogang 'hold fast', NgD pagang, pegang 'under the power of' (borrowed from Ml). The following forms end in -tas, a sequence which many forms of similar meaning end in: *ge(n)tas Ja getas 'break apart easily', Ml getas 'brittle', Ml gentas 'snapping a twig', NgD getas 'be broken through', Ho hentana 'crack, fissure'. cf. Ml retas 'rip', Ja tuntas 'through and through', Cebuano bugtas 'snap', bitas 'lacerate', etc.) Thus it is likely that the initial syllable is a reformation. The following forms also appear to be secondary: *galing, *giling, *guling, and *gulung. The similarities of meaning point to analogical reformation and similar words have a k: e.g. TB haling 'turned', NgD kuling 'be rolled, wrapped up', Jav kilingan 'turning round and round', Ml keliling 'going round'. *galing TB haling 'turned' NgD galing 'roll', Sa 'ali 'be lying curled up'; *giling TB giling 'roll, turn around', NgD giling 'roll up', Ml giling 'rolling out, flattening with roller', Ml, Tg, Ja giling 'grind' (The Ja and Tg are probably borrowed from Ml.) *guling TB guling 'bend, roll to the side', Ml guling 'roll over', Ho hudina 'turning around'. (Fi qili 'rub' and qilica 'twist fibres in hands' is unconnected with these forms.) (The following forms are not connected with these in any way: Old Ja guling 'lie down', Ja guling, NgD gaguling 'pillow to put one's leg over while lying down'.)

3.1.1. There is a vacillation between g and k in many forms. The forms with k are original and the forms with g are secondary. If these forms are reflexes of proto-forms, they should be reconstructed with *k-: *gatel Tg kati, TB gatal, Ja gatel, NgD gatel, Ho hatina 'itch'. (The vocalism of the TB in this case confirms that the TB form is a loanword.); *ga(m)pit TB gappit 'clamped', Ja gapit 'tongs'. These forms must be reflexes of *ka(m)pit: Tg kápit 'hold, grasp', TB hapit 'clamp together', Ml kámpit 'sack' (maybe not connected), Fi kabita 'adhere to', Sm 'apili 'cling to, stick to'. (The To and Fu forms which Dempwolff cites are not easily connectible in meaning, but the Sm form is representative of cognates in a large number of Polynesian languages.) *galang/kalang TB halang, NgD galang 'something on which something else is set', Ml kalang 'support, prop', Ml galang 'thwarting beam', Ho halana 'roll on head to carry burdens'. In the case of *gapit and *galang, it is quite certain that the correct reconstruction is *kapit and *kalang respectively because their roots contain a petrified prefix *ka-. Most of these forms are of the sort that are likely to be loanwords or liable to analogical reformation. The following forms are likely to be borrowed: *gasing Cebuano kasing, TB, Ml gasing, Ja gasingan 'top' (Ho hasina 'be very round' may well not be connected.) *genDang TB gondang 'Batak orchestra music', Ja kenDang, Ml gendang, NgD gandang 'kind of drum'; *genDit, TB gondit 'kind of cloth belt', Ja kenDit 'sash, cloth belt', Ml gendit, kendit 'girdle'. Forms likely to have been subject to analogical reformation: *geli Ja geli 'have a compulsion to laugh', Ml geli 'tickled, amused', NgD kalien 'ticklish' (Sm 'oli'oli 'rejoice' is not connected.) *gitik Cebuano gitik 'tickle', TB gitik 'tease', Ml gelitik 'tickle', NgD kitik 'tickle'; *gilap Ja gilap, Ml gilap 'shining and gleaming', NgD gilap 'whetted, highly sharpened', Tg, Ml kilap, TB hilap 'flashing, flaming'; *gusok TB, Ja, Ml gosok 'clean by rubbing', NgD kusok, Ho kusuka 'rubbing'; *guncang TB gutsang, Ml guncang, goncang, kuncang, koncang 'shake' (Ho huntsana 'rinsed' is probably unconnected.)

3.2. A large number of forms in the *g correspondence have no semantic connection and are not cognate. These forms did not exist in the proto-language: *gaDgaD Tg gadgad 'shelled out (of grains)', TB gargar 'fallen apart into pieces', Jav gagar 'fail to complete a normal cycle', NgD gagar 'fall out of, fall off'; *gahul Tg gahol 'lacking in time', Jav kagol 'hindered'; *galgal TB galgal 'struggle against', Ml, Ja gagal 'fail'; *gasang TB gasang 'easily catching fire', Ja geseng 'burned, scorched', Ml gasang, gangsang 'libidinous', Fi qesa 'charred', To kakaha 'glow with heat, flare up', Sm 'a'asa 'red hot'; *gas TG gasgas 'worn out by friction', TB gas 'broken in two'; Ja gas 'make afraid', NgD gagas 'wood from interior swamps'; *gelgel Tg gilgil 'bearing down with hand' Laktaw: 'cut off', Ja gegel 'notch', To koko 'squeeze, press', Sm 'o'omi 'squeeze, crush'. *gemgem Tg galimgim 'loneliness, homesickness', Ja glenggem 'being quiet so as to steal others' property', NgD gagom 'be dumb, not know what to say'; *gesa Tg gisa 'itching, stinging in body', TB gosa 'torture', Ml gesa 'hasten', Fi qosa 'eat noisily'; *gigi TB gigi 'ends of wings', Ml gigi 'tooth', Ho hihi 'scrape, scratch'; *gilang TB gilang 'be undecided, go here and there in indecision', Ho hilana 'removed to one side'; *gilis Ja gilis, giles 'mash, flatten', Fi kilica 'exhume'; *guDang Tg gulang 'old', TB godang 'much, be grown up' Ml gedang 'large', Ho hurana 'become augmented (as a fire, plague, etc.)' (There is some similarity of meaning here, but I believe the similarity is fortuitous.) *gugut Tg kukot 'eat little by little for amusement', TB gugut 'gnaw at', Ja gugut 'kill lice by pressing against the front teeth', NgD gogot 'dried up, used up (of the soil)'; *gutem Tg gutom 'hungry', TB gutom 'scavenge', NgD getem 'to

harvest'; *gusgus Tg gusgus '*rinse the hair with gogo*', TB gusgus '*scrub, rub*', Ja gugus '*corroded*', gogos '*eroded*'; *sa(n)gap Tg sagap '*scooped up from just below the surface*', Ho tsaka '*be fetched from a well (water)*'; *teges TB togos '*dedicate to*', Ja teges '*meaning*', Fi doka '*respect, honour*'; *ulug Ml olok '*tease*' Tg úlok '*coax, cajole, induce*', Cebuano ulug-úlug '*flatter*'; *DegDeg Tg liglig '*shake, jolt, rinse*', Ja DegDeg '*thumping heart beats*'; *cekig Ml cekik '*strangle*', Tg sikig '*tight-fitting (around neck or armpits)*', Ja cekik '*hiccough*'; *sugsug Ml susok '*stab, pierce*', Tg salugsug '*sliver*', Ja susuk '*something stuck under the skin as a charm*'; *tibag Tg tibag '*demolished*', Ml tebak '*crowbar used to break stone*'.

3.3. A great number of the forms with the correspondence *g are clearly borrowed from Ml. They occur only in languages which were in contact with Ml and have meanings typical of loanwords: *agak Ml agak '*guess*', Ja agak '*thought, opinion*', TB agak '*estimate*'; *bagus Ml, Ja bagus '*handsome*'; *ager TB, Ml, Ja agar-agar, Ja ager-ager '*agar-agar*'; *gayang TB geang-geang, Ml gayang '*kind of hanging shelf or basket*' (NgD gayang '*kind of sickness*' is not connected.) *gaduk TB gaduk '*haughty, conceited*', Ml gaduk '*swagger*'; *gaDay TB gade, Ja gaDe, Ml, NgD gadai '*pawn*'; *gaDung TB gadong, Ja gaDung, Ml gadung '*kind of yam*', NgD gadung '*kind of medicinal plant*'; *gagah Tg gaga '*usurpation*', TB gaga barani '*brave*', Ja gagah '*strong, muscular*', Ml gagah '*great physical strength*', NgD gagah '*stand up and fight, not give in*'; *ganzil Tg garil '*defective in pronunciation*', Ml, Ja, TB ganjil '*uneven, odd*', NgD ganjil '*not easily divisible, lacking*'; *galumbang TB galumbang Ml gelumbang NgD galombang '*long waves*'; *galumat Ml gelumat, NgD gaiomat '*decking*'; *gana TB gana '*a picture one swears by*', Ja gana '*figurine*', NgD gana '*the spirit (soul) of a thing in human form which leaves the thing and appears in dreams*'; *gantang TB gattang, Ja, Ml, NgD gantang '*a dry measure*', Cebuano ganta '*a dry measure*'; *gangsai Tg gansai '*excess, unpaired*', Ml gasal '*uneven*', Old Ja gangsai '*five*'; *gawai Tg gawai '*wizardry, witchery*', Ja gawe '*work*', Ml gawai '*work*' (from Ja), NgD gawayan, goayan '*rice or work given in payment for interest on borrowed money*'; *geber Ja geber '*screen, curtain*', Ml gebar '*coverlet, tapestry*', NgD gabar '*kind of coarse material*'; *galang Tg galang '*bracelet*', TB golang, Ja gelang '*armband*', Ml gelang '*circlet, circuit, bracelet*', NgD gelang '*copper leg rings*'; *genep Tg ganap '*completed, fulfilled*', TB gonop, ganup '*each and every*', Ja genep, ganep '*completed, fulfilled*', Ml genap '*completing, even number*', NgD genep '*each and every*', kagenep '*even number*', Ho henika '*full, complete*' (The irregular correspondences in Tg, Ja, and TB confirm that this form spread by borrowing.) *getaq Tg gataq '*coconut milk*' (with the correspondence of a for Ml e indicating a loanword), TB gota '*sap*', Ml getah '*sap, latex*', NgD gita (also not a normal reflex of *e) '*sticky tree sap*'; *gunung Ja, Ml gunung '*mountain*', NgD gunong '*name of mountainous geographical area near Banjarmasin*'; *gila TB gila '*excited out of joy*', Ja gila '*be crazy for something*', Ml, NgD gila '*crazy*', Fi kiila '*wild, savage (of animals)*'; *gusi TB gosi (I was unable to confirm Dempwolff's gloss '*gums*'). Ja, Ml gusi '*gums*'; *gusa(r) TB, Ja, Ml gusar '*furious*' (Fi kusa '*be quick, hasten*' is unconnected.) *gunDul Ja *gunDol, Ml gundul, gondol, NgD gundul '*shorn, bare*'; *gunDik Ml, NgD gundik, Ja gunDik '*concubine*'; *gulai Tg gulai '*vegetables*', TB gule '*sauce for vegetables*', Ml gulai '*wet curry*', NgD gulai '*stirred*'; *gunting Tg, Ja, Ml gunting, TB gutting, gusting '*scissors*', NgD gunting, kunting '*be cut*'; *guRi TB guri-guri, Ml guri, kuri '*small earthenware vessel*'; *guluk TG gulok '*short machete*', TB goluk (with o for u, an indication of a borrowing) '*a knife to hack with*', Ja golok '*machete, dagger*',

Ml golok 'sword with convex cutting edge, kind of machete'; *guham Tg guham 'fiery blisters on the body', TB, Ml guam, Ja gom, NgD goam 'thrush, eruption in mouth' (Tg guham is perhaps directly related to Ml ruam 'rash'); *suligi Tg sulígiq (with a final -q, an indication of borrowing) 'dart, lance', TB, Ja suligi 'bamboo lance', Ml seligi 'dart, javelin'; *sagu Ml sagu 'mealy pith (usually of sago palm)', Ja, TB, Tg sagu, NgD sago 'sago', Ho saku 'corn'. The following forms are probably related by borrowing because the vowel of the first syllable fluctuates between e and a: *ganti/genti Tg ganti 'reciprocal act', TB gotti 'one who replaces', Ja ganti, genti, Ml, NgD (noted as Banjarese) ganti 'replace', *sigai Tg sigay, Ml sigau 'small cowrie'. The following set comes from a reformation of *belaj 'spread out' which has passed into other languages from Ja via Ml as the meanings attest: *gelar Ja gelar 'spread out, title',¹¹ TB goar, Ml gelar, NgD galar, garar 'title, name by which one is honoured'. The following form is no longer attested in Ml except in titles, but the final -q in Tg proves that it is a loanword: *gawa Tg gawaq 'do', TB margao 'work (used in idioms)', Ml penggawa 'a military rank', NgD panggawa 'chief (in the language of magic)' (Ho kava-kava 'move the hands and feet about, as soldiers out of step' is not connected.) Forms with reflexes found only in Ja and Ml or these two languages and NgD cannot be used as evidence for *g. We place them here: *gigit Ja, Ml gigit 'bite'; *gili(r) Ja, Ml gilir, NgD girir 'be in turns, cycles'; *gayung Ml, Ja gayung, NgD gayong 'dipper'. In the following two forms the TB is not connected in meaning or is a borrowing and the reflex is attested only for Ml and Ja. We therefore place them here: *gemuk Ml gemuk 'fat, fertile', Ja gemuk 'lubricating grease', TB gamuk 'fat' (a borrowing as the vocalism attests); *tegeng Ja tegent 'strong, firm', Ml tegang 'taut, out-stretched' (TB togong 'hard to digest' is not connected in meaning.) The following form is not attested for Ml, but the meaning is such that borrowing is highly likely: *gantai TB gatal 'food given to gamblers', Ja gantai 'rolled up betel leaf' (The Polynesian forms are not connected: To kata 'branch from the kava plant', Fu kata, Sm 'ata 'cutting from the kava plant'.)

3.4. Two forms reconstructed with final *-g may as well be reconstructed with final *-R, if they reflect a form from the proto-language at all: *DugDug Tg luglug 'move to and fro', To lulu-lulu 'shake' (Ja DoDog 'knocking sound' is not connected.) *segseg Tg sigsig 'torch made of bundles of reeds or bamboo cylinders', Ho sesitra 'smoke hemp' (TB masoksok 'burned up' is not connected.)

3.5. This leaves us with fifteen forms which were reconstructed with *g and which do not have reflexes in Ml, or if they have Ml reflexes, the meaning is not one which would lead one to suspect a loanword. None of these forms are of the basic vocabulary, however. They are the only evidence for *g which cannot be dismissed out of hand, but since none of these forms show cognates in Oceania or Formosa, I believe that they are likely to be related by borrowing, and I do not consider them sufficient evidence to reconstruct *g. In some cases the coincidence of meaning is probably fortuitous. *agam Tg agam-ágam 'retrospection', TB agam 'have an opinion'; *ga(r)ang TB garang 'easily inflammable (like powder)', Ja garang 'dry over fire' (These two forms may resemble each other coincidentally. The meaning connection is not good. Ml garang 'fierce, turbulent' and NgD gagarang 'for the noon to be very bright' are not connected.) *galaq TB gala, Ml galah 'long pole'; *gangu TB ganggu 'be in doubt, not trust', Ja, Ml ganggu

'bother', NgD ganggo 'hindered' (The vocalism of the NgD indicates a borrowing, and the TM may be unrelated.) *galak TB, NgD galak 'burn brightly', Ml, Ja galak 'untamed, dangerous, meracing'. (Tg galak 'joy' is not connected with the TB and NgD forms.) *ganggang TB gang, ganggang 'being apart, being too loose', Ja ganggang 'parted (as of people that are fighting)'; *gapay TB, Ja gape 'slack, weak' (These forms may be analogical reformations as many forms with a similar meaning end in -pay: Cebuano tupay 'unconscious', Ml sampai 'hang loose', Ml melampai-lampai 'swaying'.) *gantung TB gattung, Ja, Ml gantung, NgD gantong (with o of the final syllable pointing to a loanword), Ho hantuna 'hand, suspended'; *gemgem TB gomgom, Old Ja gegem 'control, rule', Ja gegem 'control, hold in fist', Ml genggam 'hold in the fist', NgD sagengem 'what one can enclose with the four fingers of each hand'. (In this case the TB and NgD forms are clearly borrowings as their meanings attest. The TB shows a semantic development in common with Old Ja, and the NgD is a term of measurement. The forms from Oceania are not connected in meaning: Fi qoma (I was unable to verify Dempwolff's gloss of 'grasp'), To kokomi, Sm 'o'omi 'squeeze, crush'.) *gelap TB golap, Ml gelap 'darkness', Ja gelap 'undercover, illicit' (The Ja has a developed meaning which makes one strongly suspect borrowing.) *genting Tg ginting 'an uneven thread', TB gotting 'small in the middle (as if pushed in by a girdle)', Ja genting 'frayed, broken nearly through', Ml genting 'slender link between two larger objects', NgD ginteng 'thin in the middle' (with an irregular vowel in the first syllable); *gayung TB gaung 'hang swaying', NgD gagayong 'hang free in the air from something' (with an o in the final syllable indicating not a direct inheritance); *hegab TB ogap, mogap, 'choke, drown', Ja megap 'pant, breathe in gasps' (Tg higab 'yawn' is unconnected.) *teguh TB togu 'sturdy, fast', Ja, Ml teguh 'firm and strong, tough', NgD tagoh (a borrowing) 'impenetrable, impervious to wounds'; *pagut TB pagut, pargut 'bill of a bird, mouth of a snake', Ml pagut 'peck (bird), bite (snake), nibble (fish)'. (Ja pagut 'take hold of' is not verified.) *tagam TB tagam 'be wary of something', Cebuano tagam 'have had a bad experience so that one does not wish to repeat it' (The similarity may be purely coincidental. Cebuano also has a form tagamtam 'experience' which is from a root *tamtam, and the form tagam may be derived from this. Dempwolff connects the TB form with *agam listed at the beginning of this section.) There is a single example of a *g in final position which cannot readily be explained away. I think that in this case we are dealing with a coincidence — that is, the Ml and Javanese forms are connected by borrowing (as the vocalism of the Ml form indicates), but these only coincidentally resemble a Tg form which has a similar meaning: *lunzag Ml lonjak, Jav lunjak 'spring up', Tg lundag 'jump, leap'.

4. *T

The evidence for *T is very slender. Dempwolff thought that the occurrence of Ja T where other languages have t (or a reflex of *t) indicated *T, but Ja was thought to be the only language that did not merge *t and *T. This fact alone makes *T suspicious. Further, we find that most of the forms in the correspondence *T are words subject to contamination (analogical reformation), a great number of them confined to only Ml and Ja, a few of them learned borrowings, a few not connected in meaning, and a few which could perfectly well be reconstructed with *t. This leaves four forms in this correspondence which could possibly be inherited. Phonemic conditioning or pure chance must account for these.

4.1. Many Ja forms which refer to sounds contain a phoneme T, whereas t practically fails to occur in onomatopoeic forms. The conclusion is inescapable that T has spread into forms of this type by an analogical process, and these forms can offer no evidence for a proto-phoneme. The following reconstructions by Dempwolff refer to forms of onomatopoeic meanings: *keTek, *keTik, *kenTung, *keTuk, *Tek, *TekTek, *Tik, *TikTik, *Tak, *TakTak, *Ting, *TingTing, *Tung, *Tuk, *TukTuk, *keTak. The form *keTer (Blust) which refers to shaking, trembling is also of the sort that is liable to analogic change (cf. the discussion in Section 3.1., above). The word for 'little' is also subject to analogical reformation of this sort: *iTik TB, Minangkabau ètèk, Ja Titik, iTik, Sm iti-iti 'little', Ho vitsi 'few' (not connected). In the first place the Ja form has an initial T, already a clue that analogical change has taken place. Further, there are numerous other forms with similar sounds in a similar meaning: Ml kecil, kecil 'little', etc. The Ja form cannot have been inherited. I believe that analogical reformation is also involved in the case of *peTik Ja peTik, Ml petik 'pluck, pick' (Fi peti 'pluck fruit' is not directly related.) The form *putik is well attested and the reflexes look inherited from the proto-language. (Dempwolff reconstructed *puTik, but there is no Ja cognate.) TB putik 'pluck', Fi vutia 'pluck out hair', PPN *futi 'pluck, pull out'. Ja peTik shows an irregularity of the vowel of the first syllable, and Ml petik probably developed from *putik, under the influence of Ja. In any case, the Ja does not reflect a proto-form directly.

4.2. A number of forms reconstructed with *T have the character of learned borrowings or are the names of flora or fauna: *baTik Tg batic 'painted cloth, tattoos (Noceda)', Ja baTik 'batik', NgD batik 'thick cloth with flowery patterns'; *keTem NgD, Tg katam 'plane' (with vocalism which proves borrowing), TB otom 'plane' (with an irregular initial sound), Ml ketam 'plane, grasp in claws', Ja keTem 'tongs to hold something in forging, grasp in claws of the like'; *kaTil Ja, katil, Ml, NgD katil 'bedstead' (This form is borrowed from Tamil kattil.) *keTu Ja keTu 'cap around which a turban is wound', Ml keto 'ascetic's headdress of Hindu period'; *banTing Old Ja banTéng 'water buffalo', Ml, NgD banting 'wild buffalo'. Other forms in addition to those above which are confined to Ja and Ml or to these and NgD are surely not related by inheritance from the proto-language: *buTak Ja buTak 'bald, bare', Ml botak 'bald, having an empty spot at crown of head'; *kanTung Ja kanTong, NgD kantong, Ml kantong 'pocket' (Fi kato, To kato and Sm 'ato 'basket' are not related.) *kenTel Ja kenTel, Ml kental 'thick, viscous'; *kenTang Ja kenTang, Ml, NgD kentang, NgD kantang 'potato' (Hardelandt explains that these were not known to the Ngajus at his time and says that the word he lists is the Ml word.) *kunTul Jav konTol 'penis, scrotum', Ml kuntut, kontrol, keruntut, kerental, kental (all referring to thick pendulous objects); *kuTung Ja kuTung, Ml kotong 'docked'; *paTi Ja paTi 'starch, essence', Ml pati 'cream, finest portion of anything' (To matsi 'scented, sweet smelling after having leaves soaked in it' is not connected.) *Tu(ng)kul Ja Tukul 'sprout', NgD tungkol 'banana bud' (Tg tukol 'even in number, overripe rice grains that are unharvested' is not connected.)

Some of the forms in the *T correspondence are patently unconnected in meaning: *aTik Ja aTik-aTikan 'something made up', TB atik 'perhaps', NgD etek, petek 'intent'; *baTuk Tg bAtok 'nape of neck', Old Ja baTuk 'forehead', Ja baTuk 'coconut shell', Ml batuk 'coconut shell (said to be from Ja)', Sa qä'u 'head', Sm patu 'swelling, lump'; *beTak Tg bitak 'crack, cleft', Ja beTak 'boil rice', Fi beteka 'break, brittle things', Sa ho'a 'take aside, separate'; *bunTing Ja bunTing (Dempwolff's gloss 'youngest child' not confirmed), Ml bunting 'pregnant', TB butteng-butteng 'pregnant', Sa huti 'be born'; *buTek Ja buTeg 'water that is not clear, roiled up', Fi butoo 'darkness'; *hi(n)Tai Tg hintay 'wait', TB itte 'wait', Ja iTi 'take scrupulous care of', Ml intai 'spy on'. (The TB and Tg forms may be related, but they furnish no evidence for T.) *Tangkur Tg tangkol 'cuff, box', TB tahur 'hollow out a log', Ja Takur-Takur 'paw, dig with hands or feet', Ho tanggu 'stripped of wings and legs (locust), herbs stripped for cooking'; *Ta(r)ik Tg tálik 'intimate, close', Ja Tarik-Tarik 'set in neat rows'; *baTang Old Ja babaTang 'dead body', TB batang 'coffin'.

4.4. A few forms which have been reconstructed with *T can as well be reconstructed with *t: *anTuk Old Ja mangantuk (with t not T) 'sleepy, for the head to droop'; *DeTik Ml detik 'ticking sound, second', Tg lítik 'pulse beat' (no Ja form quoted); *piTik Tg pitik 'fillip' (and several other meanings referring to sudden motion), TB pitik 'thrown down, apart from others', NgD pitik 'quick, deft', Fi vidi 'jump, fly up', vidika 'fillip', PPN *fiti 'spring up, move suddenly, fillip' (Ja pèTèk 'shock of hair' has no connection.) *Tenguk Ja, Ml tèngok 'peer at', Fi digova 'examine, inspect' (There is no reason to reconstruct with *T.

4.5. This leaves us with four or possibly five forms which cannot be explained away. Two of them have cognates in languages outside of Indonesia and the Philippines. They are *puTul Tg pútol 'cut off', Ja puTul 'break off', To, Fu, Sm mutu 'cut off, ended'; *kiTa Tg kita 'see', Ja waskiTa 'with clear insight', NgD ite 'see', Ho hita 'see', Fi kida 'salute a person on arrival', kida-kida 'come on an enemy', PPN *kite 'see, appear, know'. In the case of puTul, it may well be that the Ja form happens to resemble the Philippine and Polynesian forms. Since there are endless numbers for forms for 'cut, break off' in these languages, many of which resemble each other in sound (giving rise to possibilities for analogical reformations), it can well be that the resemblance of these forms is purely fortuitous. In the case of *kiTa, it is not absolutely certain what the meaning of the Ja form -kiTa is in the compound waskiTa, although it probably does mean something like 'see'. However, even though reflexes of this form are found from Formosa to Oceania, they show irregularities of correspondence in many languages (e.g. the lack of initial k- in NgD, the final vowel of the Polynesian forms, Cebuano has kitaq with an unexplained glottal stop). This indicates that analogical changes which we are not in a position to understand have reshaped this form in many languages. Two other forms with *T are found only in Ja and one other language. Even though there is no Ml form attested for the correspondence, the meanings are such that they could well be related by borrowing, and in one case, doublets in Ja make this a virtual certainty: *piTung TB pitung 'blind', Ja piTo, piTong 'blind in one eye', Tg puntok 'cone, apex', Ja punTuk 'mound, hill, peak'.

NOTES

1. Dyen (1971) lists 25 of the correspondences which he finds may reflect phonemes which should be added to the PAN phonemic inventory.
2. The evidence for *Z, *N, and *C is very strong, and these were surely phonemes of the proto-language.
3. I adhere to the symbols for the correspondences which have become traditional, for ease of reference. However, an urgent task for Austronesian linguistics is to investigate the probable phonetic content of these phonemes on the basis of their reflexes.
4. To use a loanword as evidence for the existence of a proto-phoneme is to assert that the loanword was borrowed during the time of the proto-language, clearly a ridiculous thing to assert in the case of Indic loanwords, and not very likely in the case of Chinese forms either.
5. I am using Dempwolff's abbreviations for the languages: Ml: Malay, Ja: Javanese, Tg: Tagalog, TB: Toba Batak, NgD: Ngaju Dayak, Ho: Malagasy, Fi: Fijian, Sa: Sa'a, Sm: Samoan, To: Tongan, Fu: Futunan. I also use the abbreviations PPN for Proto-Polynesian, and PAN for Proto-Austronesian. In the case of this particular correspondence, Dempwolff thought NgD reflected *c with c, but Dyen (1956) showed that NgD forms with c were borrowings from Ml.
6. Dempwolff only thought that Ml and Ja had reflexes of *ns different from *nc (Ml and Ja ngs reflecting *ns and nc reflecting *nc). The number of forms with *ns is very small and the n is clearly a later accretion. First, the forms Dempwolff reconstructed with *ns on the basis of the Javanese reflex with ngs: *ha(n)sang, *ansu, *li(n)sa. In these three cases I believe the Javanese n to be a later accretion: Javanese has a propensity for inserting nasals at random after the vowel of the penult. These forms also occur with by-forms without the medial nasal, so that the Javanese forms cannot be taken to be evidence for a contrast between *ns and *nc. Second, forms with Malay ngs: *la(n)sat, *bu(n)su, *punsu. Here we are dealing with Malay words which have come into the other languages as borrowings. *La(n)sat is the name of a fruit. *Bu(n)su is attested by Tg bunsoq, Ml bungsu, and Ho busu. The final q in Tg proves that the form is a Tg borrowing from Ml, and the Ho form proves that the nasal is a recent development in Ml. *Pu(n)su is attested by Ml pungsu, or pusu, and Tg punso. The existence of the variant shows that the nasal most likely is secondary in Ml. The form in Tg is likely to be a borrowing, for the term is used in the phrase matandá sa punso, the name of a supernatural creature which corresponds to something in the Ml cosmogeny, and thus is likely to be a borrowing. Many of the terms for Philippine magic are borrowed from Ml magical terms. In short, there is no evidence for a contrast between *nc and *ns.

7. An example is kambana 'twin' (from Ml kembar 'twin'). The correspondence Ho a Ml e indicates a loanword. Another example is Ho ranto '*journey to distant places for commercial purposes*'. This is a borrowing from Ml rantau, the basic meaning of which is '*the reach of a river or the far shore*' but which by extension means '*go abroad to earn money*'. We know this form is a borrowing in Ho because it has the extended meaning.
8. Gonda believes this to be borrowed from Sanskrit pūjā '*worship*' in view of the Ja meaning.
9. In the case of tazem, the form tarem in Sambal (Philippines) must be a borrowing from the Cordilleran languages. The NgD form has an irregular reflex of the vowel of the final syllable. Thus, it is not unlikely that these forms are in fact spread by borrowing. In the case of *za(m)bay reflexes are attested only in TB and NgD. The meanings are close, and not of the sort to be borrowed, but it is the sort of thing that can be subject to contamination (analogical change) from forms with similar meanings, and I think the correspondence is coincidental.
10. Examples of this are Ja gendèra, Ml bendèra '*flag*' (from Portuguese), Ml gelisah, belisah '*disquiet*', Ja dandang '*steam*', Ml ganggang '*heat*', Ml gapas, Tg kapas '*cotton*', etc.
11. The basic meaning of Ja gelar is '*spread out*'. It also came to mean '*exposed to public, spread out to view*' from which the meaning '*title, thing by which one is known*' developed.

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