

THE PROTO AUSTRONESIAN PHONEME \*t  
AND THE GROUPING OF THE AUSTRONESIAN LANGUAGES

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1. INTRODUCTION

Professor George Grace's *The position of the Polynesian languages within the Austronesian (Malayo-Polynesian) language family* appeared during my days as a graduate student at Yale University. I chanced on this work in the linguistics seminar room one day and could not put it down until I had thoroughly studied it. Shortly thereafter I sought an interview with Professor Isidore Dyen and asked if I could work in Austronesian (AN)<sup>1</sup> linguistics for my thesis. I thought it would be fitting to present Professor Grace, who has done so much for Austronesian linguistics as a whole and whose work played a role in attracting me to Austronesian studies, with a study on Proto Austronesian phonology which, like Professor Grace's influential monograph, has important implications for the subgrouping of the Austronesian languages. In this paper I will discuss the evidence for the contrast between the purported phonemes \*C and \*t and what this means for the position of the Formosan languages in the Austronesian family.

Dahl (1973) proposed that all of the Austronesian languages with the exception of a few in Formosa formed a single subgroup as opposed to most (but not all) of the Austronesian languages in Formosa, and this view has found wide acceptance. In fact some scholars have concluded that there are three groups in Formosa and another group containing all the rest.<sup>2</sup> In any case the basic notion holds that the languages of the Philippines, which are located just south of the Formosan languages, are more closely related to those of faraway Hawaii and Easter Island, for example, than they are to their neighbours, Puyuma, Paiwan etc., to which they are very similar in grammar, vocabulary and even phonology. It is certainly not uncommon for languages to be more closely related to spatially

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<sup>1</sup> Abbreviations used are as follows: At – Atayal, Bkl – Bikol, Bun – Bunun, Cb – Cebuano, Haw – Hawaiian, Iik – Ilokano, Jav – Javanese, Kn – Kananavu, Kpp – Kapampangan, Mal – Malay, Mad – Madurese, Pai – Paiwan, PAN – Proto Austronesian, PF – Pre-Formosan, PFN – Proto Formosan, PRT – Proto Rukai-Tsou, PSF – Proto South Formosan, Puy – Puyuma, Rk – Maga Rukai, RkDd – Budai Rukai, Sai – Saisiat, Sam – Samoan, Sar – Saaroa, Tg – Tagalog, Tha – Thao, Ton – Tongan, Ts – Tsou.

<sup>2</sup> This is the view presented by Blust (1977), and almost everyone who has referred to the subgrouping of the Austronesian languages accepts this hypothesis, questionable as it is. Not, however, Tsuchida (1976:13), who considers the Formosan languages to form a subgroup within a group consisting of the western Austronesian languages (the 'Hesperonesian' group).

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distant languages than to neighbours in the same group. French is very closely related to faraway Rumanian and not closely related to neighbouring Germanic languages. But in the case of French, German and Rumanian, French and Rumanian are remarkably similar in grammar, vocabulary and phonology and, despite more than a thousand years of contact, so different from German that there is little overt indication of a genetic relationship at all. This is the situation which often obtains: closely related languages tend to be similar and distantly related languages tend to be less similar, wherever they happen to be located. Certainly if the Philippine languages were more closely related to Malay, Polynesian, Moluccan etc. than they are to Puyuma and Paiwan it would be a unique situation, for languages like Kapampangan, Ilocano and even Tagalog are so similar in structure to Paiwan and Puyuma that one could almost translate from them into the latter on a morpheme-by-morpheme basis, and the portion of shared vocabulary in the basic items of the sort that tend to be old in a language (not just the 200-item Swadesh list, but a much broader vocabulary) is more like the portion shared by, say, French and Rumanian, than by French and German.

This is certainly enough to put under suspicion the theory of a Formosan higher order of proto-language. Many of the reasons advanced for this theory have been less than compelling. For the most part they have to do with items or processes which are lacking in the Formosan languages, but such facts tend to show that the Formosan languages form a subgroup, not that all the other Austronesian languages form a subgroup as opposed to them<sup>3</sup>. However, there have been two facts that have been totally compelling which, if true, could not be explained in any way other than that all of the languages outside of Formosa made important phonological innovations in which most of the languages of Formosa did not share. These are the phonemes *\*C* and *\*N*, for which most<sup>4</sup> of the languages of Formosa are thought to provide evidence, but which are thought to have merged with *\*t* and *\*n* respectively in all of the other Austronesian languages. If it should turn out (as I think it will) that the *\*C* and *\*t* sets are in complementary distribution and further that the *\*N* set is complementary to other sets, then the thread which holds the theory of a higher-order Formosan proto-language together is removed. No longer will one be able to defend a theory which implies a unique and difficult-to-believe situation.<sup>5</sup>

In this paper I will address only the *\*C* and *\*t* contrast. I believe that *\*N* is also non-contrastive, but that remains to be demonstrated. The distribution of the reflexes of *\*C* and *\*t* are complementary in terms of the accentual pattern of the root.<sup>6</sup>

<sup>3</sup>There is some morphological and syntactic evidence adduced, but I believe that in those cases it can be seriously questioned as to whether or not the fact adduced is an innovation or a retention. For example Blust (1977) adduces the second person singular genitive *-mu*, widespread in the extra-Formosan languages but unknown in Formosa, as an example of an innovation made in common by all of the languages outside of Formosa, but there is no compelling reason to say that the form *-mu* is innovated and not inherited from PAN.

<sup>4</sup>One must say 'most of' the languages of Formosa, not all of them, for Bunun, Amis, Kavalan, Siraya, Basay, Ketagalan (and Yami, a Batanic language) like the rest of the Austronesian family and unlike the other languages of Formosa, do not show a contrast between reflexes of *\*C* and *\*t*. Bunun, Kavalan, Basay and Ketagalan do not show a contrast between reflexes of *\*N* and *\*n*.

<sup>5</sup>Dahl (1981: section 13.3) thought that the various *\*H*, *\*Q* phonemes and the purported sibilant phonemes were further evidence for subgrouping the non-Formosan languages, but evidence for the existence of these phonemes is even weaker than for *\*N* and *\*C*. The contrasts which do seem to occur and are not explainable by borrowing or other sorts of contact phenomena are probably explainable in terms of prosodic features as our *\*C* and *\*t* contrast is.

<sup>6</sup>This notion is not original. I.I. Peiros of the Soviet Academy of Sciences suggested in a conversation with me that the accentuation combined with the phonological make-up of the root holds the key to unravelling the mystery of the *\*C* - *\*t* contrast. He was planning to work this out fully in his book *Problems of comparative-historical linguistics and linguistic history in east and south Asia (Problemy izucheniya sravitelinoistoricheskovo yazykoznaniya i lingvisticheskoi istorii vostoka i yuga Azii)*, hopefully to be published by the Soviet Academy of Sciences. This was

Of the Formosan languages we cite here, stress (or vowel length) is contrastive only in Kanakanavu and Rukai. Further, Rukai stress carries such a small functional load and has been subject to such strong analogical influence, that Rukai stress furnishes no evidence for stress in Pre-Formosan. Nevertheless, it is certain that the PF languages all had contrastive stress or length. Tsou, Rukai (Maga dialect) and Atayal retain traces of contrastive stress in the make-up of the root. In Atayal and Rukai if the penult was unstressed in the proto-language the resulting vowel in general is lost in the penult (phonetically becomes a schwa). If the penult was stressed, the resulting form has one of the vowels other than schwa. Atayal is not, however, a good witness for the stress pattern of the root in the proto-language for reasons discussed immediately below. Tsou has lost contrastive stress except on the morphophonemic level, that is, although phonetic stress is predictable in terms of the phonemic structure of the form in Tsou, the morphophonemic alternations involving vowel loss are motivated by morphophonemic stress position (Tsuchida 1976: section 2.3.1.3). Except for verbal roots, morphophonemic stress of the root in Tsou is taken to be evidence for the PF stress pattern.

There is a problem with demonstrating the hypothesis that the distribution of \*C and \*t is determined by the stress pattern of the root: the stress pattern in the PF root is not unequivocally determinable in terms of the present state of research on the Formosan and PAN stress. The stress patterns in all of the Austronesian languages are very heavily subject to analogical changes. Shift of stress is a morphological process in many of the languages, and compounding and affixation automatically shift the stress pattern of the word. Verb forms in Tsou and Kanakanavu rarely provide evidence for root stress because stress shift is part of the verbal morphology. In Tsou active verbs almost always show long-vowel roots, and suffixed verbs show shift in the stress from the first to the second syllable of the root. Further, compounding is so productive in Tsou, Kanakanavu and in Rukai that certain compounds have become part of the derivative morphology. Thus, a definitive determination of the stress pattern of PF forms will require much more detailed work on these languages than has been done heretofore. In short, there often is no agreement in stress patterns over languages. In fact, even within the same language and dialect alternative ways of stressing the root are common. Hence in many cases we can only make a hypothesis as to the stress pattern of the root in PF. There are, however, factors which enhance the probability that the hypothesis is correct. The following hypotheses come from detailed work with Cebuano and Tagalog and careful scrutiny of Tsou and Atayal data:

- (a) The stress patterns of nouns and some other forms which, other than stative adjectives, occur unaffixed tend to remain unchanged.<sup>7</sup>
- (b) In the Philippine languages in verbal roots the stress pattern of the actor focus verbs tends to reflect the inherited stress pattern. Verb forms in the Formosan languages rarely provide evidence.

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not worked out completely in the version of the manuscript which he left with me, and the argumentation I adopt here is original. However, I would like to give Peiros credit for steering me to the notion that there might be a Verner's law-type solution to the \*C – \*t problem. David Zorc has also been working with this notion over the years.

<sup>7</sup>In Tsou morphophonemic stress in unaffixed forms of this sort is a good indication of the stress of the root in Pre-Formosan. For example, a form like *fatu* [fátu] 'stone' is pretty good evidence for a Pre-Formosan form with penultimate stress, \*bátu, and a form like *mcoo* [mcó] 'eye' is pretty good evidence for final stress in Pre-Formosan, \*maCá.

Thus, if there is agreement across languages in the stress pattern in these forms, the stress pattern can reliably be attributed to PF. A common situation is one in which there is disagreement among our Formosan languages, but the Philippine languages show agreement with some of them and confirm the hypothesis which we are seeking to demonstrate here. Such forms we will list here as confirming the hypothesis with the annotation that not all of the Formosan languages agree. However, we think the hypothesis is confirmed because the process of re-formation of accentual pattern due to compounding and affixation in the Formosan languages is overwhelming, and some disagreement in stress has to be expected.

### 1.1 ACCENT, STRESS AND LENGTH

The term accent in this paper refers to any stress or length phenomena. Stress is a combination of force, pitch, and length. We can reconstruct two types of roots for PAN: those which contained a long or stressed vowel on the penult<sup>8</sup> and those which did not. The actual phonetic facts are not reconstructable. Many of the current AN languages (e.g. Tagalog) distinguish long-vowel roots versus short-vowel roots. In some AN languages the contrast is between roots with a stress on the penult and those with no stress on the penult. We will talk about LONG-VOWEL ROOTS to refer to the type with a long vowel or stress in the penult and SHORT-VOWEL ROOTS to refer to the type with a short vowel or unstressed vowel in the penult. In any case PF maintained the distinction between these two kinds of roots. We hypothesise that the stress of PF functioned much as it does currently in the Philippines, where for words containing no long vowels (or no phonemic stress) the stress moves to the end of the word, and if there are suffixes or enclitics, there is no stress at all on the word and the stress is located on the enclitics; for example, Cebuano *ugát* 'veins' *ugatún* 'having prominent veins'. In short, in long-vowel roots the stress was on the long vowel, and in short-vowel roots the stress was at the end of the phonological word. We will transcribe long-vowel roots by writing an accent mark on the penult, and short-vowel roots by writing an accent mark on the final syllable.

### 1.2 THE RULE FOR THE DISTRIBUTION OF THE ALLOPHONES [\*C] AND [\*t] OF THE PHONEME \*t

The allophone \*C occurs in monosyllabic roots and in all short-vowel roots.<sup>9</sup> It also occurs in the initial and medial position of trisyllabic roots with a long vowel.<sup>10</sup> This rule applies irrespective of the position of the \*t phoneme within the word. However, for purposes of presenting the data, we will treat each position in the word separately. In other words, the rhythm of the root determined the distribution of the allophones of \*t, and further, \*t behaved differently in disyllabic roots than in trisyllabic roots. Disyllabic trochaic roots: that is, with a long penult (of the shape CÚ(C)CU(C), where U stands for vowel and C stands for consonant and parentheses stand for optional elements) had the allophone \*t. Disyllabic iambic roots: that is, with a short penult (of the shape CUCÚ(C) had

<sup>8</sup> Accent (contrastive stress or length) occurs only on the penult of the root in most AN languages which have retained this contrast. In most AN languages contrastive stress or length does not occur elsewhere in the root.

<sup>9</sup>Henceforth we will write \*C and \*t meaning the allophones [\*C] and [\*t] respectively of the phoneme \*t.

<sup>10</sup>As a matter of fact we have no examples of final \*t in long-vowel trisyllabic roots.

the allophone \*C. In trisyllabic roots the rule was the opposite: roots of the shape CUCÚ(C)CU(C) had \*C, whereas roots of the shape CUCUCÚ(C) had \*t.<sup>11</sup>

### 1.3 SOURCES AND DEFINITIONS

The materials here presented come from Tsuchida (1976). All forms which are cited in this work with PAN \*C, \*t or \*T are taken up here, with the exception of those which are confined to the Tsouic languages, for these can have no bearing on the hypothesis. I quote forms from Kanakanavu, Tsou, Atayal, Tagalog, Cebuano and from the Maga dialect of Rukai. Forms from other languages or dialects are only quoted if they are essential to the argument. Transcriptions for reconstructions, and for all Formosan forms except Atayal and Paiwan follow Tsuchida's transcriptions. Forms from Atayal and Paiwan and from the Philippine languages are transcribed as in the sources except that the glottal stop is transcribed with the symbol ʔ.

The reconstructions which we list are at the earliest level for which they can be posited. Not all are Proto Austronesian. Some are found only in Formosa, some in the Philippines and Formosa, some in the western languages, and some throughout the Austronesian area. This paper deals with a Formosan development, and it is not pertinent to the discussion how widely the forms are distributed. The reconstructions are transcribed as given by Tsuchida (except for immaterial typographic changes) with the following exceptions: we have omitted all subscripts, as they refer to facts not pertinent to our argument.<sup>12</sup> Also we do not transcribe \*H or \*W, as there is no good evidence that these proto-phonemes existed, and we transcribe \*T as \*t, and \*Q as \*q, as again there is no good evidence for a contrast between \*T and \*t, \*Q and \*q.<sup>13</sup> Also we transcribe \*D as \*d, for there is no contrast (Wolff 1975). The accent which we write on the reconstructed forms is the accent which we believe the form had in Pre-Formosan. We use the term Pre-Formosan (PF) to refer to the language or languages in which the two allophones of PAN \*t developed.<sup>14</sup>

## 2. DISYLLABIC SHORT-VOWEL ROOTS

Disyllabic short-vowel roots reflect the allophone \*C.

<sup>11</sup>In fact, we do not know that this was the stress pattern in trisyllabic roots rather than CÚCUCU(C). It does not matter. The main point is that only two accentual patterns can be reconstructed for PAN trisyllabic roots: one with a long vowel or stress on the penult of the root and one with no long vowel or no penultimate stress.

<sup>12</sup>However, Tsuchida's notations C<sub>1</sub> and t<sub>1</sub> refer to facts discussed in section 2.1.2.

<sup>13</sup>The tradition of hypothesising multiple proto-phonemes for correspondences which Dempwolff (1934-38) assigned to a single proto-phoneme stems from the clearly wrong-minded procedure of assigning a new symbol to every single irregularity in correspondence. Although Tsuchida (following Dyen 1971) states that these symbols are meant only as a notational device to indicate an irregular correspondence which needs to be explained in some way, in fact, he treats most of these symbols as a proto-phoneme, speaking of mergers and splits, and using these to define phonological environment. Other scholars have done the same. Doing so is tantamount to jumping to unjustified conclusions and forecloses the possibility of finding explanations for the irregularities which these correspondences symbolise in terms of analogy (including contamination and sound symbolism), borrowing or phonological environment. Surely only after the data from the languages showing the irregularity are completely understood could one give an explanation so definitive as to say that the irregularity is evidence for the existence of a new proto-phoneme.

<sup>14</sup>It is not germane to our argument whether PF was a subgroup or not. Because our hypothesis is that PAN \*t split into two phonemes \*C and \*t (this is a shared innovation), the PF languages might well be considered to form a subgroup. In fact, however, we are not forced to draw this conclusion. This was an innovation that may well have spread over language boundaries.



## 2.1 INITIAL POSITION

## 2.1.1 CASES IN WHICH THE ACCENT CAN BE RECONSTRUCTED UNEQUIVOCALLY

*CaNém	Sar <i>c-um-a-całəmə</i> 'bury'; Tg <i>taním</i> , Cb <i>tanúm</i> 'to plant'
*CaRéb/CaRúb (PSF)	Kn <i>c-um-a-carúvu</i> , Ts <i>m-a-crofə</i> 'cover oneself with a coverlet'
*CawíN <sup>15</sup>	Kn <i>cain-ána</i> , <sup>16</sup> Rk <i>cvéle</i> , Tg <i>taʔón</i> , <sup>17</sup> Ilk <i>tawén</i> 'year'
*Cebúng (PSF)	Kn <i>cuvúng-unu</i> , Ts <i>tro-cfung-a</i> 'confluence of rivers'; Pai <i>məcəvung</i> 'meet'
*CeRáb	Kn <i>c-um-a-cirávə</i> , Cb <i>tugʔab</i> , <sup>18</sup> Jav <i>atob</i> 'belch'; Tg <i>tigáb</i> 'gasp'
*Ciqáú	Kn <i>ciʔáú</i> , Ts <i>czou</i> 'kind of riverine fish'; Pai <i>ciqaw</i> 'fish'; Cb <i>tíʔaw</i> 'goatfish'
*Cumáy (PSF)	Kn <i>cumái</i> , Ts <i>cmoi</i> , Rk <i>cmée</i> 'a bear'

## 2.1.2 CASES WHICH REQUIRE DISCUSSION

For the following form there is no good evidence for the stress pattern of the root. (Because it is a verbal root, Tsou and Kananavu stress can provide no evidence.)

*Cungút (PSF)	Kn <i>apa-a-cúngunu</i> , Ts <i>cmunghu</i> , Rk <i>cunglu</i> 'join'
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The following form probably had a short vowel, but there is no documentation. The Tsouic cognates are compounds, and Philippine languages show both short-vowel and long-vowel roots.

*Cawá	Kn <i>m-a-á-caca</i> , Ts <i>co-cvo</i> , Tg Cb <i>táwa</i> or <i>tawá</i> 'laugh'
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In the following case Tsou shows a long-vowel root, but Kananavu and the Philippines show a short-vowel pattern. Verbs in Tsou do not provide reliable information on the accentual pattern at an earlier stage.

*Capá	Kn <i>c-um-á-capa</i> , Ts <i>c-m-apo</i> 'roast over fire'; Tg <i>tapá</i> 'smoked meat', Cb <i>tapá</i> 'smoked fish'
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In the following case the Formosan forms reflect a short-vowel root, but the Philippine languages reflect a long-vowel root. In this case the PF roots can be taken to be with a short vowel, whatever the rhythm of the PAN root.

*Cubúq	Kn <i>cuvúʔu</i> 'bamboo shoot'; Tg <i>túboʔ</i> 'growth'
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<sup>15</sup>Tsuchida writes \*Cawít (PSF), not committing himself to the hypothesis that the forms outside of Formosa are cognate with the Formosan forms. However, I believe that the forms outside of Formosa (e.g. Mal *tahun*) can be connected with this form if we compare other PAN forms with the sequence \*-awíC.

<sup>16</sup>In Kananavu if there is a stress on the first syllable of the suffix, this is taken to reflect a short-vowel root.

<sup>17</sup>The Tagalog forms require explanation. The ʔ is explained as follows: Tagalog sporadically reflects \*-w- and \*-y- with ʔ, e.g. *táʔo* 'person', *babáʔe* 'woman' etc.(cf. the Cebuano cognates which unambiguously reflect \*w and \*y: *táwu* 'person' and *babáyí* 'woman'). The vowel of the final syllable is explained by a hypothesis that PAN \*-win, which in Tagalog becomes -wun, becomes \*-wen in the Philippine languages (and perhaps in a wider group).

<sup>18</sup>The glottal stop in the Philippine languages may well reflect contamination from words having similar meanings. We do not reconstruct a PAN \*q in these forms because PAN \*q is reflected by a glottal stop in Kananavu.

In the following case the Philippine form has a short vowel in the penult of the root, but there is no evidence from the Formosan languages, and only the Philippine form provides evidence for the PF accentuation.

\*Cazém Sai s-əm-aəm, RkBd cáiti, Tg talím 'sharp'

In the following case the only evidence for the root accentuation is from the Philippine languages, and the accent pattern in the Philippines is not unanimous.<sup>19</sup>

\*CuNú Kn c-um-ú-cunu, Ilk tunoén 'roast, broil'

In the following case Tsouic and Atayal show reflexes of a long vowel in the penult, whereas Rukai shows a reflex of a short vowel. We believe that Rukai reflects the original PF stress pattern and the other languages developed a long vowel on the penult.

\*Cábu (PFN) Kn cavu-cavúa 'rice cake'; Ts c-m-ofu, Rk o-cbóo, At smabo 'wrap'

In the following cases Tsou, Kananavu, and some of the Rukai dialects show reflexes of the \*t allophone, whereas the other Rukai dialects and other Formosan languages which have separate reflexes for \*C show the reflexes for \*C. Our theory allows us to explain these forms as having developed different stress patterns, that is, the forms which show the \*t allophone developed a long vowel in the penult: the Maga dialect of Rukai which retains evidence of the stress pattern of the root retains the vowel of the penult, indicating a long vowel in the penult.<sup>20</sup>

\*CalíS Kn talísi, Ts tresi, RkBd cálisi, Tg Cb táli?<sup>21</sup> 'rope'

\*Cangís Kn tumátangi, Ts mongsi (< \*tmongsi), Pai cmangit, Tg tángis, Cb tangís 'cry, wail'

\*Caqí<sup>22</sup> Kn táa?i, Ts t?ee, Pai caqi, Cb tá?i 'faeces'

\*CaSíq Kn tumata?isi, Ts tme?si, Pai cmaqis, Tg tahí? 'sew' (Kn and Ts reflect metathesis of \*S and \*q.)

\*CebúS<sup>23</sup> Kn təvəsə, Ts təfsə, RkBd cubúsu, Tg tubó, Cb tubú 'sugarcane'

\*Cingás Ts ru-ngtosə, RkBd mua-cíngasə, Rk mu-tingásə 'remove food particles from between the teeth'; Pai cingas, Cb tingá 'food caught in teeth'

<sup>19</sup>It would be worth investigating a theory that an accent on the prefix of the Kananavu form, as is the case here, is an indication of a short-vowel penult.

<sup>20</sup>Dahl (1981:21) suggests that the reflexes within these cases could be explained by a rule of dissimilation in roots with sibilants. The problem with this explanation is that these irregularities are not confined to roots with sibilants, and the forms with /t/ are not all found in the same language. Still, it would be worth investigating exhaustively the phonology of the languages which show this irregularity, as there seem to be some restrictions on the occurrence of affricates and sibilant /s/ in roots in these languages.

<sup>21</sup>The final glottal stop in the Philippine reflexes is unexplained.

<sup>22</sup>Kananavu and Cebuano reflect \*táqi, and this is a possible reconstruction. Paiwan reflects \*Caqí, and Tsou t?ée reflects a short-vowel penult, but the initial /t/ is anomalous.

<sup>23</sup>Tsuchida reconstructs \*tebuS.

## 2.2 MEDIAL POSITION

## 2.2.1 CASES IN WHICH THE ACCENT CAN BE RECONSTRUCTED UNEQUIVOCALLY

* <i>maCá</i>	Ts <i>mcoo</i> , Rk <i>mcáa</i> , Tg Cb <i>matá</i> 'eye'
* <i>maCéy</i>	Kn <i>maa-macái</i> , Ts <i>mcoi</i> , Tg Cb <i>matáy</i> 'die'
* <i>NaCéng</i>	Kn <i>naténgə</i> , Rk <i>lcéngə</i> , Ilk <i>naténg</i> 'vegetables'; Bkl <i>natóng</i> 'taro leaves'
* <i>paCéy</i>	Kn <i>m-ia-pacái</i> , Ts <i>o-pcoi</i> , Tg Cb <i>patáy</i> 'kill'; Rk <i>ma-pcée</i> 'wither'
* <i>puCáq</i> (PSF)	Kn <i>pucáʔə</i> , Pai <i>pucaq</i> 'bubble, foam'
* <i>qaCáng</i> (PSF)	Kn <i>ʔacángə</i> 'stone walls'; Pai <i>qacang</i> 'pigpen'
* <i>qaCéy</i>	Pai <i>qacay</i> , Tg Cb <i>atáy</i> 'liver'
* <i>qaCí</i>	Kn <i>ʔum-á-ʔaci</i> , Rk <i>u-cfi</i> 'dam up side stream to catch fish'; Bkl <i>atí</i> 'low tide'

## 2.2.2 CASES WHICH REQUIRE DISCUSSION

In the following case Atayal reflects a long-vowel root, but all the other forms reflect a short-vowel root. There may well have been alternative accentuation of this root in PF, and this accounts for the reflex /t/ in Kanakanavu, Rukai, Tsou and Atayal.

* <i>paCás</i> <sup>24</sup> (PFN)	Kn <i>tapásə</i> , Ts <i>ta-tpos-a</i> 'pattern, design'; Ts <i>tposə</i> 'letter, book'; RkBd <i>ua-pacásə</i> 'write'; Rk <i>ptásə</i> 'embroider'; At <i>patas</i> 'tattoo'
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In the following case Tsou and Rukai reflect a short-vowel root, but Kanakanavu reflects a long vowel. The Philippine cognates have long-vowel penults. It is nevertheless likely that Tsou and Rukai forms reflect the PF accentuation.

* <i>kuCú</i>	Kn <i>kúucu</i> , Ts <i>ʔcuu</i> , Rk <i>kcúu</i> , Tg <i>kúto</i> , Cb <i>kútu</i> 'head louse'
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In the following case Cebuano has a long-vowel root, but Tsou reflects a short-vowel root. The Bikol accent is not given in the sources.

* <i>qaCéb</i>	Ts <i>cəfə</i> , Cb <i>átub</i> , Bkl <i>atob</i> 'deadfall trap'
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In the following case the stress pattern cannot be reconstructed. There has been contraction of the root with the adjective-forming prefix *\*ma-* in many of the forms. Another factor which affects the outcome is that the *\*t* may have been preceded by /n/ in PF. Since in PF closed syllables were treated like long-vowel syllables, a *\*t* preceded by *\*n* would be reflected as /t/.

* <i>qetaq/qentaq</i> <sup>25</sup>	Kn <i>matáʔə</i> , Ts <i>mato</i> , Sai <i>mantäʔ</i> , Bun <i>matʔah</i> , <sup>26</sup> Mal <i>mentah</i> , Ton <i>mata</i> 'unripe, uncooked, raw'; At <i>qmataq</i> , Ton <i>ʔota</i> 'eat raw'
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No stress pattern can be reconstructed for the following case either.

* <i>CekeS</i> (PSF)	Pai <i>cəkəs</i> 'kind of bamboo'
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<sup>24</sup>Or we could reconstruct *\*pátas*; Tsuchida reconstructs *\*patas*.

<sup>25</sup>Tsuchida reconstructs *\*ma(n)taq*.

<sup>26</sup>Quoted by Dahl (1981:146).



### 2.3 FINAL POSITION

#### 2.3.1 CASES IN WHICH THE ACCENT CAN BE RECONSTRUCTED UNEQUIVOCALLY

* <i>kulíC</i>	Kn <i>kuíci</i> , Ts <i>rici</i> , Tg <i>kulít</i> 'peelings'
* <i>LekéC/zekéC</i>	Kn <i>ma-ta-nəkácə</i> , Ts <i>hʔərc-a</i> 'sticky'; Pai <i>sə-djəkəc</i> 'adhere'; Tg <i>dikít</i> , Cb <i>dukút</i> 'stuck, adhering'
* <i>SeRéC</i> <sup>27</sup>	Kn <i>ma-ʔəracə</i> , Ts <i>s-m-o-rəcə</i> 'tie tightly'; Rk <i>u-rəcə</i> 'tie two strings'; Mal <i>herat</i> 'tied tight'

#### 2.3.2 CASES WHICH REQUIRE DISCUSSION

In the following cases Tsou does not agree with the Philippine stress, but the Philippine languages provide the most reliable evidence for reconstructing stress patterns in the first example because it is a verb. The second example is a noun and we take the Tsou form to provide the evidence for the PF stress pattern.

* <i>kaRáC</i>	Sar <i>um-a-aracə</i> , Ts <i>b-orcə</i> , At <i>kmat</i> , Tg Cb <i>kagát</i> 'bite'
* <i>qañíC</i>	Sar <i>ʔatíci</i> , Ts <i>hici</i> , Cb <i>ánit</i> 'leather'

In the following case Rukai retains the vowel of the first syllable. The loss of the vowel of the first syllable perhaps does not apply to /u/.

* <i>uRáC</i>	Kn <i>urácə</i> , Ts <i>vrocə</i> 'blood vessel, vein'; Rk <i>uvácə</i> , Tg Cb <i>ugát</i> 'artery, vein'
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In the following case the accent in PF cannot be reconstructed.

* <i>rengəC</i> (PSF)	Kn <i>ara-ca-rəngəc-a</i> , Pai <i>ma-rəngəc</i> 'jealous'
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#### 2.3.3 COUNTERCASES

In the following case the Philippine languages have a long-vowel root.<sup>28</sup>

* <i>langíC</i> <sup>29</sup>	Puy <i>ringaT</i> , Tg Cb <i>lángit</i> , Mad <i>langngeʔ</i> 'sky'
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### 3. DISYLLABIC LONG-VOWEL ROOTS

Disyllabic long-vowel roots reflect the allophone \*t.

<sup>27</sup>Tsuchida reconstructs \**qeReC*, as he did not have the Philippine cognates. The correspondence Philippine /h-/ , Kananavu /ʔ-/ is not explained. The Kananavu initial glottal stop developed in word-initial position before a vowel. There are several forms in the correspondence Philippine initial /h/ – Tsouic nothing to which Dyen and Tsuchida assigned the symbol S<sub>2</sub>.

<sup>28</sup>Zorc (1978) believed that Madurese *langngeʔ* reflects \**langít* (because of the doubled medial consonant). However, there is no strong correlation between gemination in Madurese and root final stress in other languages.

<sup>29</sup>This form is not quoted by Tsuchida.

## 3.1 INITIAL POSITION

## 3.1.1 CASES IN WHICH THE ACCENT CAN BE RECONSTRUCTED UNEQUIVOCALLY

* <i>tápis</i>	Sar <i>tapisi</i> 'man's skirt'; Tg Cb <i>tápis</i> 'cloth wrapped around waist worn like a skirt'
* <i>táRa</i>	Kn <i>t-um-á-tara</i> 'ambush'; Ts <i>m-oo-tro</i> , At <i>m-naga</i> 'wait'; Ilk <i>tága</i> 'await'
* <i>télu</i>	Kn <i>u-túlu</i> , Ts <i>туру</i> , Rk <i>túru</i> , Cb <i>tulú</i> <sup>30</sup> 'three'
* <i>témuy</i> (PFN)	Kn <i>?i-túmulu</i> 'many, much'; Ts <i>o-tmuzu</i> 'eat much'; <i>pe-tmuzu</i> 'drink much'; Puy <i>ma-təmuy</i> 'full'
* <i>téNuq</i>	Kn <i>tənəʔe</i> 'resin, sap'; Rk <i>túlu</i> , Cb <i>túnu?</i> or <i>tunú?</i> 'coconut milk' <sup>31</sup>
* <i>túduq</i>	Kn <i>tucúʔu</i> , RkBd <i>ua-túDu</i> , Tg <i>túlo?</i> , Cb <i>túlu?</i> 'leak'

The following forms have a suffix. If the suffixed root has a long penult, we hypothesise that in PF the root alone had a long vowel.<sup>32</sup>

* <i>taRúqan</i> (root * <i>táRuq</i> )	Kn <i>tarúʔanə</i> , Ts <i>trova</i> 'shelter used when hunting'; Rk <i>tovnáa</i> 'shelter in fields'; Tg <i>tágoq</i> 'hide'; Cb <i>táguq</i> 'put, hide'
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Roots with a medial consonant cluster were treated like long-vowel roots and reflect the allophone \**t*.

* <i>taktak</i>	Kn <i>t-um-a-takətakə</i> 'hew down'; Ts <i>m-oʔtoʔə</i> 'clear land for swidden'; Kpp <i>taktak</i> 'cut grass with bolo'
* <i>téRbeS/túRbeS</i> (PSF)	Kn <i>tərvəvəsə</i> , Ts <i>təfsə</i> , Rk <i>tíbsə</i> <i>Zelkova formosana</i>

The resemblance of the following forms may have to do with sound symbolism rather than inheritance.

* <i>tuktuk</i>	Kn <i>m-akí-tuku</i> , Ts <i>m-ʔo-tʔu-tʔu</i> , Rk <i>u-tkútku</i> 'pound'; Jav <i>TuTuk</i> 'knock'
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The following form should be reconstructed as a disyllabic root consisting of a doubled syllable.<sup>33</sup> The \**t* allophone occurs because the root had a medial consonant cluster.

* <i>witwit</i>	Kn <i>m-ari-itítiti</i> 'wave'; Ts <i>reu-vtítviti</i> 'move and swing tail or ears (of animal)'; Tg <i>witwit</i> 'shake forefinger in scolding'; Bkl <i>witúwit</i> 'mechanical swing ride in carnival'
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<sup>30</sup>In the Philippine languages roots which had \**e* in the penult in PAN always stress the final syllable.

<sup>31</sup>In Cebuano in the case of nouns which refer to the result of the action of a verb and which occur with both penultimate and final stress, it is probable that the form with the penultimate stress is original, as there is an analogical tendency to give final stress to nouns of this class.

<sup>32</sup>This is the process which is productive in the Philippine languages. The accent stays on the penult of the affixed form if the form without the suffix has penultimate accent, e.g., Tagalog *pútol* 'cut', *putúlan* 'cut from'. If the accent is on the final syllable of the root, the accent of the suffixed form is also on the final syllable, e.g. Tagalog *inóm* 'drink', *inumín* 'drink it'.

<sup>33</sup>Tsuchida reconstructs \**witúwit*, but the middle vowel is epenthetic. In the Philippine languages doubled monosyllables sporadically develop stressed epenthetic vowels, where the epenthetic vowel is /i/ if the root vowel is /i/ and otherwise /u/. In this example Bikol shows a reflex with the epenthetic vowel, C<sub>1</sub>UC<sub>2</sub>ÚC<sub>1</sub>UC<sub>2</sub>, whereas Tagalog shows a reflex without the epenthetic vowel, C<sub>1</sub>UC<sub>2</sub>C<sub>1</sub>UC<sub>2</sub>.

### 3.1.2 CASES WHICH REQUIRE DISCUSSION

In the following case the Formosan forms indicate a long-vowel root but the Philippine languages reflect a short-vowel root. As in the case of \**Cubúq* in section 2.1.2 above, the PF stress pattern is reflected by the Formosan forms, whatever the PAN stress pattern was.

\**taSáNan* (root *táSaN*) Kn *tanásə*, Ts *hos-a* 'village'; Tg *tahán* 'reside'

In the following cases there is no good evidence for the stress in PF.

\**tákid* Kn *m-aa-takíci*, Kpp *tákid*<sup>34</sup> 'adhere'

\**táLam* Kn *ku-a-tanámə*, Ts *oo-thomə*, At *tmalam* 'taste'

\**túqaS* Tha *tuqa-tú:qaš*<sup>35</sup> 'old (of age)'; Ton *motuʔa* 'old man'

In the following example Kanakanavu reflects a long-vowel root but the Philippines a short-vowel root.

\**túqed* Kn *t-an-əʔəcə*, Tg *tuʔód*, Cb *tuʔúd* 'stump of tree'

### 3.1.3 COUNTERCASES

In the case of roots with open penult there is only one counter case and three other forms which look like counter cases, but are not. First the counter case. This form may be a counter case, but it is not a strong one. To be sure, the Philippine languages show a short-vowel root, but in this case the unaffixed root alone in the Philippine languages refers to the result of the action of the verb, a type of noun which normally has a short vowel in the penult. This short-vowel pattern is often generalised throughout the paradigm, and roots of this type which show a short-vowel penult may well have had a long vowel at an earlier stage. Rukai also points to a short vowel in the penult, and the explanation for the Rukai phenomenon may be the same.

\**tapéS* Kn *t-um-a-tapəsə*, Ts *m-opsu*, Rk *o-tpəsə*, Tg *tahíp*, Cb *tahúp* 'chaff'

The following cases look like counter cases, but definitely are not so. In the first example, the forms compared are not cognate: their resemblance is coincidental.

\**tu(m)bák* Kn *tuvákə*, Rk *tbákə* 'cowrie'; Haw *kupa* 'kind of red cowrie'<sup>36</sup>

The second example consists of a doubled monosyllable, but the forms cited may not be related.

\**CengCeng* Rk *i-cngəcngə* 'boy or girl of right age to be married'; Pai *cəngcəng* 'enough, fitting, just right'; Cb *tungtung* 'reach a certain step, age, degree'

The third example includes forms which have the \**t* reflex in Saaroa and Rukai but the \**C* reflex in Paiwan. In any event, this is a form which is likely to be affected by sound symbolism and does not provide evidence for or against our hypothesis.

\**CugCug* (PSF) Sar *m-utu-tukutuku*, Rk *ruu-tgútgu*, Pai *ma-cugcug* 'bumped on head'

<sup>34</sup>The sources do not provide the accent for this root. Blust (pers. comm.) states that the Kapampangan form is *tákid*, which supports my reconstruction.

<sup>35</sup>The vast majority of the Thao forms quoted by Tsuchida have penultimate stress.

<sup>36</sup>Biggs (1979) reconstructs Proto Polynesian \**tupa* 'land crab' and the Hawaiian form refers to a dark red cowrie. The resemblance to the Formosan forms is purely coincidental.

## 3.2 MEDIAL POSITION

## 3.2.1 CASES IN WHICH THE ACCENT CAN BE RECONSTRUCTED UNEQUIVOCALLY

* <i>kíta</i>	Ts <i>b-a-ito</i> , At <i>kíta</i> , Tg Cb <i>kíta?</i> 'see' <sup>37</sup>
* <i>útaq</i>	Ts <i>tra-vto</i> , RkBd <i>pua-úta</i> , Ilk <i>úta</i> , Mal <i>muntah</i> 'vomit'
* <i>qútiN</i>	Kn <i>utini</i> , Puy Hutil, CB <i>útin</i> 'penis' <sup>38</sup>

## 3.2.2 CASES WHICH REQUIRE DISCUSSION

In the following cases Formosan languages all reflect a long-vowel root, but Philippine languages reflect a short-vowel root. The Madurese cognates also reflect a short-vowel root, which makes it likely that the long-vowel penult developed in Formosan languages. In any case the PF had a long-vowel penult for these forms.

* <i>bátu</i>	Kn <i>váatu</i> , Ts <i>fatu</i> , At <i>btu-nux</i> , <sup>39</sup> Tg <i>bató</i> , Cb <i>batú</i> 'stone'
* <i>pítu</i>	Kn <i>u-pítu</i> , Ts <i>pitu</i> , Rk <i>pítu</i> , At <i>pitu?</i> , Tg <i>pitó</i> , Cb <i>pítú</i> 'seven'

The following example shows a disyllabic root with a long-vowel penult. The prefix is \**qali-* found in many languages with names of small animals, insects, sea creatures and the like.

* <i>qaNimátek/qaNimátaq</i> <sup>40</sup>	Kn <i>?animətək-a</i> 'creek leech', <i>?aʔimətək-a</i> 'paddy leech', <i>nimócaʔə</i> 'paddy leech'; Rk <i>Imótkə</i> , Tg <i>limátik</i> , Cb <i>limátuk</i> , Mal <i>halintah</i> 'leech'
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In the following case it is not possible to reconstruct the accent:

* <i>tutu</i>	Kn <i>maká-tutu</i> 'hit with fist'; Ts <i>m-uutu</i> 'strike'; Jav <i>tutu</i> 'pound rice'; Sam <i>tutu</i> 'beat bark for cloth'
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## 3.3 FINAL POSITION

## 3.3.1 CASES IN WHICH THE ACCENT CAN BE RECONSTRUCTED UNEQUIVOCALLY

* <i>búut</i>	Kn <i>vuútu</i> , Rk <i>bútu</i> 'squirrel'; Tg <i>búʔot</i> 'rabbit'
* <i>páqet</i> (PSF)	Ts <i>pəʔtə</i> , Bun <i>pa-pahut</i> 'horsefly'

<sup>37</sup>The final glottal stop in Philippine languages is unexplained. Tagalog shows two alternants, one with and one without glottal stop. With certain affixes the root has a glottal stop and with certain others it does not. Tsuchida reconstructs this root with a final glottal stop.

<sup>38</sup>This form is not quoted by Tsuchida.

<sup>39</sup>Atayal *btunux* shows accent shift to the second syllable of the root with the addition of the suffix *-nux*.

<sup>40</sup>Tsuchida reconstructs \**Limatek* and \**LimeCag*. The Malay *halintah* retains an initial syllable /ha-/ which reflects the first syllable of the prefix \**qaNi-*. Tsuchida's reconstruction with C is based on Kananavu which has three alternative reflexes of this word. One of the alternant forms in Kananavu has /c/ instead of /t/. The /c/ in that form is purely a question internal to Kananavu.

### 3.3.2 CASES WHICH REQUIRE DISCUSSION

In the following case Cebuano has a short-vowel penult (for in the Philippine languages all roots with a reflex of \*e in the penult have a short vowel).<sup>41</sup> The Tsouic forms point to a long vowel in the penult, but Atayal and Rukai show a short vowel. The initial /s/ in some languages is from a prefix, as the meaning of the Atayal form indicates,<sup>42</sup> and the difference in accent between Tsouic and Rukai and Atayal probably has to do with the fact that the first syllable is contracted with the prefix.

\*épat                      Kn *u-súpatə*, Ts *səptə*, Rk *patə*, Tg *ápat*, Cb *upát* 'four'; At *spat* 'eight'

### 3.3.3 COUNTERCASES

The following form is a counterexample. However, if the Malay or Javanese forms reflect a medial cluster at an earlier stage, this form may still have retained the cluster in PF and still pattern as a long-vowel penult.

\*qe(n)tút                      Kn *?utútu*, Tg *utót*, Cb *utút*, Mal *kentut*, Jav *entot* 'flatulence'

## 4. TRISYLLABIC ROOTS

### 4.1 LONG-VOWEL ROOTS

Trisyllabic roots with a long-vowel penult, reflect \*C.

\*C in initial position:

\*Calínga                      Kn *caínga* 'ear ornament'; Rk *cngíra*, Cb (dialectal) *talínga* 'ear'

\*Cumqi (PRT)                      Kn *cimí?i*, Rk *cmí* 'cheeks'; Ts *cmi?i* 'temples'

\*CuqélaN                      Kn *cu?úana*, Ts *cərhə*, Cb *tul?an* 'bone'

\*C in medial position:

\*aCápi (PRT)                      Ts *copi*, Rk *acapi* 'goby (fish)'

\*amíCi                      Kn *n-amíci*, Ts *mici*, Pai *s-amci Solanum nigrum*

\*beCékaj (PSF)                      Kn *vəə-vəcəkai*, Pak *vəcəkad-an* 'middle, centre'

\*beCúgu (PRT)                      Kn *ma-vəcərəkə* 'satiated'

\*biCúka                      Kn *civúka*, Ts *cfu?o* 'stomach'; Rk *bcúka*, Tg *bitúka* 'intestines'

\*jaRáCu (PSF)                      Kn *carácu*, Ts *trocu*, Rk *gácu* 'body louse'

\*qa(n)Cípa                      Ts *acipa*,<sup>43</sup> At *qsipa*, Kpp *antípa* 'kind of turtle'

\*qaNíCu                      Ts *hícu* 'evil spirit'; Rk *alícu* 'kind of holy tree'; Tg *anító* 'idolatry'; Cb *anítu* 'benign spirit'; Mal *hantu* 'evil spirit'

\*qiCéluR                      Kn *?icúuru*, Ts *f-curu*, Tg Cb *itlog* 'egg'

<sup>41</sup>Tagalog *ápat* 'four' developed from a form with the first syllable reduplicated: \**eepát*.

<sup>42</sup>The prefix \*s- had a meaning something like 'one'. Literally, \*s-*épat* would mean 'one *épat* – one fold' or the like. The Atayal form came to mean 'two *épat*' or the like by some process we do not understand, but the fact that the Atayal cognate has this meaning makes it likely that \*s- was indeed a prefix. This explanation of the initial /s/ in Formosan languages is preferable to hypothesising another phoneme for PAN (Tsuchida's \*x).

<sup>43</sup>The initial /a/ in Tsou is unexplained. Tsuchida suggests that this word in Tsou is not an inherited form, as is very likely in view of the semantic character of this word as a term for fauna.



## 4.1.1 COUNTERCASES

The following example has a short-vowel penult but shows reflexes of *\*t* rather than *\*C*. It is the kind of word likely to be re-formed by sound symbolism and thus proves nothing.

*\*qatímula* (PSF)      Kn *ʔatímua*, Ts *timro*, Puy *Hatimuraʔ* 'flea'

## 4.2 SHORT-VOWEL ROOTS

Trisyllabic roots with a short-vowel penult reflect *\*t*.

*\*qa(ta)tabang* (PSF)      Kn *ʔatavángə*, RkBd Rk *atábngə* 'cockroach'

*\*tinəʔun/tənəʔun*      Ts *m-ənvənə*, Rk *u-inúnu*, At *tminun*, Mal *tenun* 'weave'; At *tninun* 'fate'<sup>44</sup>

In the following example Tsou reflects a long-vowel root but Kanakanavu reflects a short-vowel root. However, there is a tendency in Kanakanavu for the accent to shift to the penult in short-vowel trisyllabic roots.

*\*taNiu(d,z)* (PSF)      Kn *taníucu*, Ts *tahzucu*, RkBd *taíuDu* 'mulberry'

In the following case Cebuano reflects a long-vowel penult, but Ilokano and Tagalog have a short-vowel penult:

*\*bituqen/\*bituqan*<sup>45</sup>      Pai *vituqan*, Ilk *bituéñ*, Cb *bitúʔun*, Tg *bituwín* 'star'

The following forms, although they are related, show such a large number of phonological irregularities that they do not allow for the establishment of a form in the proto-language. Clearly they have undergone analogical re-formations.

*\*tagəRang/tagərang*      Kn *takəránga* 'sternum'; Ts *tʔomga*, Puy *tahǎrang* 'chest'; Pai *tjagərang* 'trachea, larynx'; Kpp *tagyan* 'ribs'

## 5. MONOSYLLABIC ROOTS

Monosyllabic roots show *\*C*. The occurrence of *\*C* could be explained by a hypothesis that monosyllabic roots consisted of two morae with stress on the second mora. However, the evidence to prove this hypothesis has not yet turned up.

*\*Caú*      Kn *cáau*, Ts *cou*, Rk *i-cóo*, Tg *táqo*, Cb *táwu*<sup>46</sup> 'person'

## 6. CONCLUSIONS

There is a fair number of forms with *\*C* and *\*t* for which the PF accent can be determined unequivocally. The vast majority of these forms confirms the hypothesis that the distribution of *\*C* and *\*t* is determined by the stress pattern of the root. There is only a handful of counterexamples, and many of these turn out to be forms which are not of the sort to provide good evidence for the phonology of reconstructed forms. Phonological developments motivated by accentual phenomena

<sup>44</sup>This form is the direct passive of the verbal root, which tends to reflect the accentual pattern of the root in PF.

<sup>45</sup>This form is not quoted by Tsuchida.

are in any case certain to have exceptions because of the very nature of accent (that is, that stress shift is correlated with morphological features and there is wide scope for analogical shift of stress).<sup>47</sup> There is an equal number of forms for which the evidence for the accentual pattern of the root in PF is not entirely without question. In some of these cases the reconstructed accent is close to certain; in others it is much less certain. None of these forms offer evidence against the hypothesis, but rather they tend to confirm it with great certainty in some cases and with less certainty in others. In my opinion more work on the reconstruction of the accent in PF will add confirmation to this hypothesis.<sup>48</sup> Whatever the case may be, even if we have not proven beyond the shadow of a doubt that the conditions here cited give the environments for the distribution of the two allophones of PAN \*t, \*t and \*C, we must indeed accept that they were allophones and not two contrasting phonemes, for to do otherwise – to accept the existence of a PAN \*C - \*t contrast – would be to accept the far-fetched consequence thereof, namely, that the Philippine languages are more closely related to the Oceanic languages than to the neighbouring languages of Formosa, with which they have so much in common.

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<sup>46</sup>There is no contrast in Cebuano between [áwu#] and [awú#].

<sup>47</sup>Verner's law has many exceptions, probably far more than the Neo-Grammarians realised. For example, the difference in the medial consonants in English 'hare' and its German cognate *Hase* is thought to be the result of alternant forms in Proto Germanic, one with stress on the final syllable of the stem and one with stress on the penult.

<sup>48</sup>Good work on the phonology of the Formosan languages, especially accentual phenomena, is a high priority. Many of the irregular correspondences in Formosan languages are clearly of the sort which could well be explained by accentual phenomena, and this is an area of research which promises to clear up some of the mysteries of these irregular correspondences. Also accentual phenomena in languages outside the Philippines and Formosa need investigation.

