

# LEXICAL DIFFUSION IN SANGIR

J.N. Sneddon

## 1. INTRODUCTION

In the Sangir language of northern Indonesia all non-nasal consonants were removed from word-final position through replacement by glottal stop or addition of the syllable əʔ.<sup>1</sup>

Although the two processes were largely in complementary distribution in terms of the phonological environments in which they operated, this was not always the case and apparent irregularities present a difficulty for the traditional claim that sound change operates uniformly without exception. For instance, the syllable əʔ was generally added to words ending in \*s, e.g. Proto-Austronesian (PAN) \*huRas became Sangir uhasəʔ *wash*. But in some words \*s was replaced by ʔ, e.g. PAN \*nipis became Sangir nipiʔ *thin*. No phonological or other environmental factors can account for the different changes undergone by the two words above and, as is shown below, appeal to borrowing to account for such apparent irregularity, in this and many other instances, can be rejected.

This paper aims to show that (a) the two sound changes were competing methods by which final consonants were dealt with in Sangir, (b) both innovations spread gradually through the lexicon and (c) one innovation appeared first but was blocked from reaching the entire eligible lexicon by the other rule, this resulting in the apparent irregularity in the language today. The evidence presented also offers an explanation for the occurrence of doublets in Sangir, such as saʔuʔ *river* and saʔuhəʔ *gutter, riverbed*, which both reflect PAN \*saluR, and dialect variation, such as Taruna dialect lewoʔ and Manganitu dialect lewohəʔ *young coconut*.

In this discussion evidence from some other languages needs to be considered. It is shown that not only were the changes the result of lexical diffusion in Sangir but that areal diffusion of the changes occurred also between Sangir and nearby languages which are also closely related to Sangir.

In general the languages most closely related to Sangir have been poorly documented to date. The paper therefore begins with some brief notes on the languages, before considering the historical changes which they have undergone.

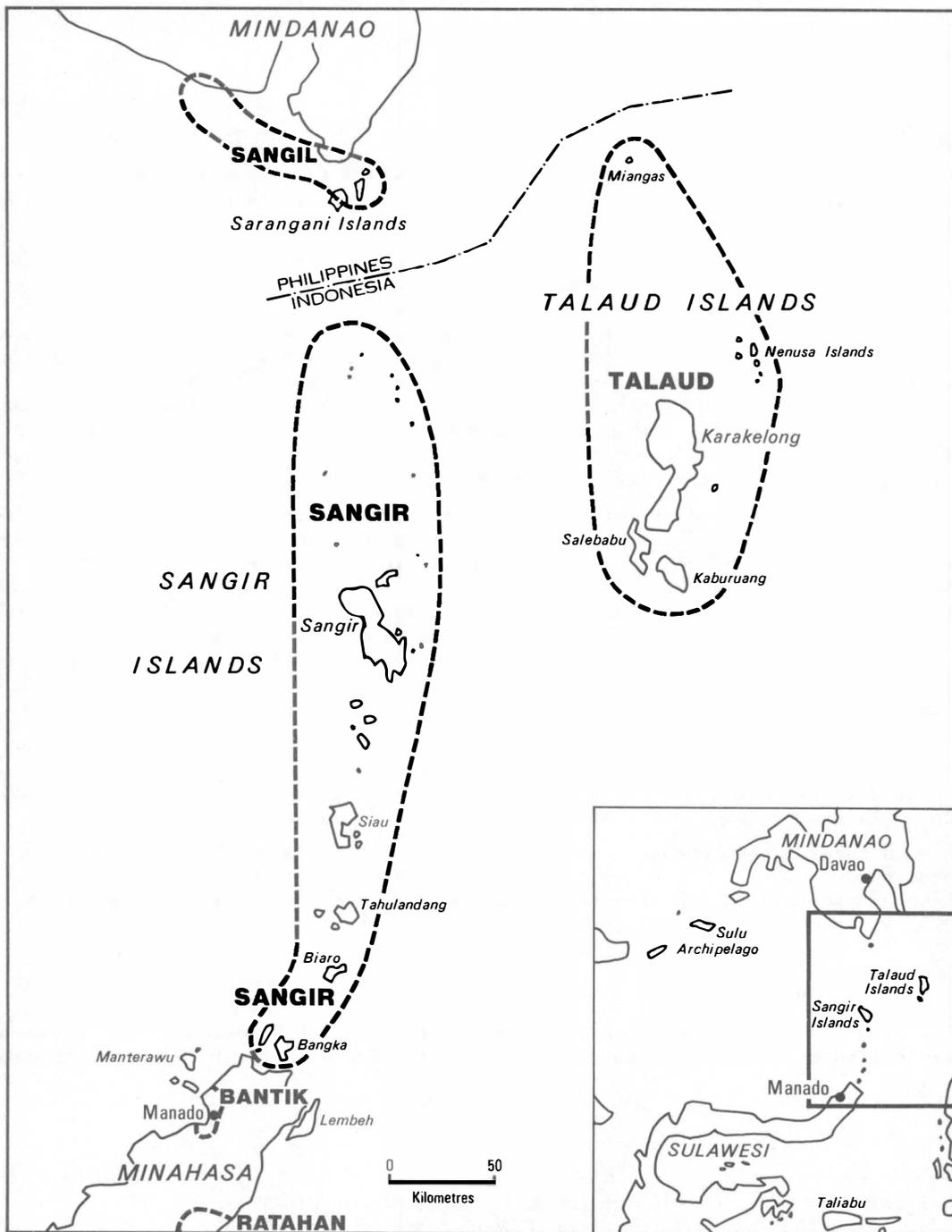
## 2. THE SANGIRIC LANGUAGES

Sangir (San) belongs to a small group of Western Malayo-Polynesian languages, here called the Sangiric group, which probably link with the Philippine languages.<sup>2</sup>

---

Paul Geraghty, Lois Carrington and S.A. Wurm, eds *FOCAL II: papers from the Fourth International Conference on Austronesian Linguistics*, 51-71. *Pacific Linguistics*, C-94, 1986.

© J.N. Sneddon



Map: The Sangiric languages and their localities

A study of the interrelationships of the Sangiric languages has recently been carried out, which includes a statement of their phonological histories and a reconstruction of their parent language, Proto-Sangiric (Sneddon 1984). Proto-Sangiric (PSan) forms cited here are from the list of lexical reconstructions given in that work.

The Sangiric languages (see map, p. 52) are:

(a) San, spoken by about 180,000 people in the Sangir (Sangihe) Archipelago, which stretches from north of the eastern tip of the North Sulawesi peninsula towards Mindanao. Unless otherwise stated, San forms in this study are from the Manganitu (Mang) dialect.

(b) Sangil (Snl), spoken by about 10,000 people in coastal areas in the Cotabato and Davao provinces of Mindanao and also in the lower Sarangani peninsula and on the nearby Sarangani islands. In this study Snl forms are from the Sarangani dialect.<sup>3</sup>

(c) Talaud (Tal), spoken in the Talaud Archipelago, north-east of the Sangir Archipelago, by about 30,000 people. Tal forms given here are from the Salibabu dialect.

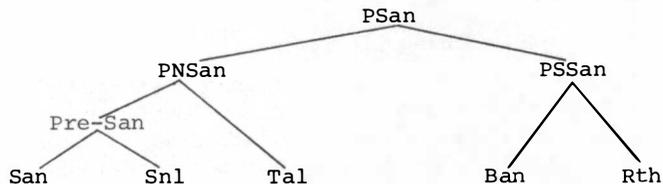
(d) Bantik (Ban), spoken in north-west Minahasa, the easternmost region of North Sulawesi, in about ten villages surrounding Manado, the provincial capital, and in several isolated villages further south.

(e) Ratahan (Rth), spoken by about 20,000 people in south-east Minahasa. The name Benteenan was sometimes used in earlier literature for this language.

Of these languages, San is by far the best known to linguists, publications including Adriani's grammar (1893) and Steller and Aebersold's dictionary (1959). San has also been used in wider comparative studies, e.g. Reid (1971), Charles (1974), Mills (1981).

There is sufficient high-quality evidence (which is presented in Sneddon 1984) to establish that Ban and Rth form one branch of the Sangiric group, the South Sangiric subgroup, continuing Proto-South-Sangiric (PSSan), while San, Snl and Tal form another, the North Sangiric subgroup, continuing Proto-North-Sangiric (PNSan). Within the North Sangiric subgroup San and Snl link closely together and could be regarded as two dialect groups, each with its own subdialects, of a single language.<sup>4</sup> Because of their close relationship and the frequent need to refer to them together the abbreviation San/Snl is often used below. The historical changes discussed in this paper occurred largely within the period of their shared history, a stage here called Pre-Sangir (Pre-San), following Maryott (1978).

The genetic relationships of the Sangiric languages can be represented as follows:



Rth is geographically isolated from the other Sangiric languages and did not share in any of the innovations which spread through them. It is probable that the Rth community moved to their present location soon after their split with Ban.

The other Sangiric languages appear to have maintained close contact and a number of shared phonological characteristics are the result of areal spread.<sup>5</sup> San and Tal are spoken on scattered island chains by predominantly fishing communities skilled in boating and there has always been a considerable amount of inter-island contact. San is spoken in at least one port in the Talaud islands (Team Fakultas Sastra Unsrat 1976-77). The Sangil people migrated to the Philippines from the Sangir Archipelago several hundred years ago (Maryott 1978) at which time they must have constituted simply another San dialect group. There has clearly been on-going contact between Ban and southern San communities and Ban shares a number of lexical items with the southern dialects Siau and Tahulandang (Thl) which are not found in the more northerly San dialects, such as Mang, Taruna and Tabukang, or in Snl. Also, there have long been Sangirese settlements on the Minahasan coast near the Ban speech area.<sup>6</sup>

### 3. TERMINOLOGY AND ABBREVIATIONS

Replacement of final consonants by  $\text{ʔ}$  is henceforth referred to as final consonant reduction, for which the abbreviation FCR is used. Any word-final consonant so affected is said to have reduced to  $\text{ʔ}$ . Thus the term 'reduction' for the purposes of this paper is clearly defined and distinguishes replacement of a final consonant by  $\text{ʔ}$  from other replacement or loss.

The additional or paragogic syllable,  $\text{ə}^{\text{p}}$  in San but phonologically different in some other Sangiric languages, has also developed independently in a number of other Sulawesi languages. It occurs in Makassarese, where Mills has called it 'the echo-vowel + [q] sequence' (1975:74). Adriani refers to it as an 'unaccented final syllable' ('*toonlooze eindlettergreep*') for San (1893:37). Such terms are too cumbersome for continual use; for ease of description and because of its precise definition the term paragoge will henceforth be used. This follows Maryott (1977) who uses the term to refer to the phenomenon in Snl. Pei (1966) defines 'paragoge' as: "The addition of a sound, letter or syllable to the end of a word, without etymological justification ... and without change of meaning in the word." There appears to be no derivative of the term 'paragoge' which refers to the paragogic syllable itself. Because of the constant requirement in this paper to refer to the syllable itself the term 'paragoge' is here used to refer to this paragogic or additional syllable and not to the process of its formation. The process of paragoge, as defined by Pei, will be referred to as paragoge addition, abbreviated to PA.

### 4. THE DIACHRONIC CHANGES

#### 4.1 Final consonant reduction

FCR occurred in all Sangiric languages except Tal.<sup>7</sup>

In Rth  $*t$  regularly reduced to  $\text{ʔ}$ , e.g. PSan  $*\text{əpat}$  > Rth  $\text{pa}^{\text{p}}$  *four*, PSan  $*\text{laŋit}$  > Rth  $\text{laŋe}^{\text{p}}$  *sky*, PSan  $*\text{ikit}$  > Rth  $\text{iki}^{\text{p}}$  *tie*. No other consonants underwent reduction.<sup>8</sup> It is possible that t-reduction occurred in PSSan, before its break-up into Ban and Rth. If so, then following the separation of Rth and its isolation from the other languages the change did not spread to other classes of sounds. Alternatively, t-reduction may have been an independent, parallel development in Rth after its separation from the other Sangiric languages. (Final consonant loss or reduction occurred separately in languages of various subgroups throughout Sulawesi.)

In Ban the voiceless stops \*p, \*t and \*k reduced to ʔ: PSan \*atup > Ban atuʔ *roof*, PSan \*tiap > Ban tiaʔ *count*, PSan \*takut > Ban takuʔ *afraid*, PSan \*Ramut > Ban hamuʔ *root*, PSan \*utak > Ban utaʔ *hair*, PSan \*baluk > Ban baluʔ *sell*.<sup>9</sup> No other consonants reduced to ʔ in Ban.<sup>10</sup>

Where FCR occurred in Rth and Ban the original consonant is not recovered before a suffix: Rth luwaʔ, Ban labaʔ *to cross (river)* (PSan \*ləbat) → Rth luwaʔen, Ban labaʔen *be crossed*.

PSan voiceless stops reduced to ʔ in Pre-San, as reflected in San and Snl: PSan \*atup > San, Snl atuʔ *roof*; PSan \*ontap > San, Snl ontaʔ *bellows*; PSan \*sepet > San, Snl sepeʔ *carry under arm*; PSan \*ikit > San, Snl ikiʔ *tie*; PSan \*utak > San, Snl utaʔ *hair*; PSan \*manuk > San, Snl manuʔ *fowl*. There are some lexical items in modern San and Snl which have preserved p, t and k through paragoge addition; these are probably all borrowings (see Section 6 for discussion of these forms).

In Pre-San FCR also affected all other consonants other than nasals, i.e. voiced stops, \*s, \*l and \*R (reflected as h in San and r in Snl), but only in a limited number of lexical items (see detailed discussion, with examples, in Section 6).

In San and Snl word-final glottal stop, whether reflecting PSan \*ʔ or reduction of some other consonant, is replaced by another consonant preceding a suffix; by t if the preceding consonant is velar and by k elsewhere: San, Snl tiuʔ *blow* (PSan \*tiup) → tiukaŋ *be blown*; San, Snl takaʔ *cover* (PSan \*takap) → takaten *be covered*; San boheʔ *write* (PSan \*boRet) → bohekaŋ *be written*, Snl woreʔ *make designs or decorations* → worekaŋ *be designed*.

There are a number of words in which the original consonant is retained before a fossilised suffix. It might appear at first that in these words the original consonant is recovered preceding suffixation. However, Maryott (personal communication) explains these forms:

There is a small class of words that may at first appear to have realisations other than the expected k or t. A more careful investigation reveals these forms to be artifacts of an obsolete, non-productive system explainable on historical rather than descriptive grounds. Some of these forms have counterparts, often with a shift in meaning, in the productive system.

His examples include San, Snl katatikilaŋ *sleeping loft, bed* (a form reflecting earlier \*tikil *sleep* with fossilised affixation) besides katatikitaŋ *any place on which one sleeps* (a derivative of modern tikiʔ) and San, Snl sədapeŋ *west, place where sun sets* (reflecting earlier \*sədap *to set (of sun)*, *go down* with fossilised suffix) besides sədakeŋ *be put down into something* (modern sədaʔ + -eŋ). Other examples are San gəliraŋ *be presented* (reflecting earlier \*gəlid *give* + \*-an) as well as gəlikaŋ *be presented* (a derivative of modern gəliʔ) and kakinaseŋ *small plate from which fish or meat is eaten* (reflecting earlier \*kinaš *fish* + \*-en), cf. modern kinaʔ.

#### 4.2 Paragoge addition

The paragoge occurs in all languages except Rth, although it differs somewhat from language to language.

In Tal the paragogic vowel is a, occurring on all words which previously ended in a consonant other than \*ʔ. (The original nature of the paragoge is discussed in the appendix.) The consonant preceding the paragoge is usually doubled, e.g. atuppa *roof* (PSan \*atup), inassa *fish* (PSan \*kinas), laŋitta *sky* (PSan \*laŋit). It is not geminate if the preceding syllable contains a geminate consonant, e.g. annuma *six* (PSan \*ənum), a nasal-stop cluster, e.g. sandaka *lean* (PSan \*sander) or z, e.g. uzasa *wash* (PSan \*uRas).

The paragoge does not occur on words which earlier had final \*ʔ, either because \*ʔ resisted the addition of the paragoge, as it did in Pre-San and Ban, or because PA developed subsequent to the historical loss of \*ʔ. Where the paragoge now occurs after ʔ in Tal, ʔ reflects an earlier \*k, e.g. utaʔa *hair* < Pre-Tal \*utakka (PSan \*utak), zusuʔa *rib* < Pre-Tal \*zusukka (PSan \*Rusuk).<sup>11</sup>

In San and Snl the paragoge is əʔ: San uhasəʔ, Snl urasəʔ *wash* (PSan \*uRas); San, Snl likudəʔ *back* (PSan \*likud); San linuhəʔ, Snl rinurəʔ *earthquake* (PSan \*linuR); San əhabəʔ, Snl rabəʔ *sharpen* (PSan \*əRab); San beŋeləʔ, Snl weŋeləʔ *deaf* (PSan \*beŋel).

In the Thl dialect of San the paragoge is iʔ, e.g. likuriʔ *back* (cf. Mang likudəʔ), Thl wiwihiʔ *lip* (cf. Mang biwiheʔ).

In Ban the paragoge is Vʔ, where V assimilates to the preceding vowel: uhasəʔ *wash* (PSan \*uRas), dakeleʔ *many* (PSan \*dakel), taŋisiʔ *cry* (PSan \*taŋis), sokoloʔ *cough* (PSan \*səkol), likuduʔ *back* (PSan \*likud).

In present-day San, Snl and Ban the paragoge occurs on all words which would otherwise end in a consonant other than ʔ (whether original or the result of FCR) or a nasal.

In San, Snl, Ban and Tal the paragoge is lost if there is a suffix beginning with a vowel. Thus, San uhasəʔ, Snl urasəʔ, Ban uhasaʔ, Tal uzasa *wash* with the passive suffix become respectively uhasen, urasen, uhasen, uzasanna *be washed*.

## 5. AREAL DIFFUSION

Neither FCR nor PA occurred in a language ancestral to all the Sangiric languages; Tal does not reflect FCR and Rth does not reflect PA.

It is important to establish that neither FCR nor PA occurred in a language ancestral to San/Snl and Ban. Evidence is here given that Ban had split from the North Sangiric languages before either change appeared and consequently their occurrence in both Ban and San/Snl must be the result of areal spread.

The North Sangiric languages reflect metathesis of word-final \*s and a preceding \*t. In Pre-San the resulting final \*t later reduced to ʔ. Metathesis was regular where \*t was the consonant in the syllable immediately preceding final \*s, as in the first two examples below. The change sometimes also occurred when \*t was separated from final \*s by two syllables, most examples recorded being of two-syllable words, with metathesis of initial \*t and final \*s, as in the second two examples below. This metathesis (MET) did not occur in Ban and Rth:

PSan	San	Snl	Tal	Ban	Rth	
*bitis	bisi?	wisi?	bisitta	bitisi?	witis	<i>calf</i>
*Ratus	hasu?	rasu?	zasutta	hatusu?	-	<i>hundred</i>
*taŋis	saŋi?	saŋi?	saŋitta	taŋisi?	taŋis	<i>cry</i>
*tages	sage?	sahe?	sahatta	tagese?	tahis	<i>reef</i>

MET is one of the strongest pieces of phonological evidence available for subgrouping the Sangiric languages, showing that San, Snl and Tal share a parent language not ancestral to Ban and Rth.

As Tal does not reflect FCR it must have split from San/Snl before FCR occurred. Since s-t metathesis is reflected in all three North Sangiric languages it follows that the occurrence of MET predated FCR (in fact, MET could not have occurred if final \*t had already reduced to ?).

Since Ban does not reflect MET it, and Rth, had split from the North Sangiric languages before MET, and consequently before FCR, had occurred. Thus MET provides the important information that FCR did not occur in a language ancestral to Pre-San and Ban but that the innovation spread geographically subsequent to their period of common development.

The occurrence of PA in Ban and San/Snl must also be the result of areal spread. First, Ban and Rth form a subgroup but PA does not occur in Rth. Therefore its occurrence in both Ban and San/Snl cannot be the result of direct inheritance from a period of common development. Secondly, as is shown below, PA must have appeared in Ban and Pre-San chronologically later than FCR, which was itself the result of areal diffusion.

Also the occurrence of PA in San/Snl and Tal must be the result of areal spread rather than a shared inheritance from PNSan. As FCR occurred in Pre-San but not in Tal then it developed after the language split. Consequently, since PA appeared in Pre-San later than FCR, it also must have developed after the languages split.

Although the place of origin of the two innovations cannot be established some assumptions can be made. Barrack (1978:5) writes: "If we find evidence of lexical diffusion" [where an innovation is spreading through the lexicons of a number of contiguous dialects] "then we should expect the innovation to appear with greatest consistency in that dialect closest to the point of origin." He points out that there is no necessary reason why this should be so but that "the expectation of a higher degree of diffusion in dialects closest to the point of origin is corroborated by empirical investigation."

PA affected the whole of the Tal lexicon. It continued to operate in Ban and San/Snl after FCR and displaced it as the method for removing consonants from word-final position. It is unlikely that either of these languages would have displaced one successful method for dealing with final consonants by another innovation unless under external influence. Thus it is most probable PA began in the Tal-speaking area.

FCR clearly did not first appear in the Tal-speaking area as it did not operate there. FCR spread through more of the lexicon in San/Snl than in Ban, operating on consonants other than voiceless stops, and thus probably first began in the San/Snl speech area.

## 6. LEXICAL DIFFUSION

Chen (1972:468-469) writes:

Sound change does not operate on the lexicon en bloc and instantaneously or according to a uniform schedule; rather, it spreads itself gradually across the lexicon, and operates on words or groups thereof one after another ... this gradual spread of phonological change from morpheme to morpheme has become known under the name of 'lexical diffusion'.

He also states (p.468):

A phonological change can gradually extend its domain by extending its phonological environment. Thus a narrowly conditioned sound change with the initial shape as (1) may extend its phonological condition successively as (2,3...) and finally become an unconditioned change (n):

- (1)  $X \rightarrow Y/C_1$
- (2)  $X \rightarrow Y/C_{1,2}$
- (3)  $X \rightarrow Y/C_{1,2,3}$
- ⋮
- (n)  $X \rightarrow Y$

It sometimes happens that as a phonological rule diffuses through the lexicon, another rule appears which begins to operate on the same items, blocking the spread of the first rule. Chen and Wang (1975:256) write:

A phonological innovation may turn out to be ultimately regular, i.e. to affect all relevant lexical items, given the time to complete its course. But more often than linguists have thought, a phonological rule peters out towards the end of its life span, or is thwarted by another rule competing for the same lexemes.

The hypothesis put forward here is that FCR and PA were competing methods by which final consonants were dealt with in the Sangiric languages. According to this hypothesis the two processes began in different localities and spread through the contiguous speech communities (areal diffusion) and gradually through the lexicon in various localities (lexical diffusion).

In Pre-San and Ban FCR was the first rule to affect final consonants, operating on voiceless stops. All final voiceless stops underwent FCR in Ban and possibly also in Pre-San, although a few may not have, as is further discussed below.

It is possible that FCR originally operated only on \*t. If t-reduction in Rth was not a separate development then this was certainly the case:

\*t > ? / \_\_#

However, this cannot be established and the rule in any case extended to the other voiceless stops in Ban and Pre-San. This is referred to as phase 1 in the operation of FCR:

C > ? / \_\_#

FCR Phase 1: [ +stop ]  
                  [ -voice ]

When the process of PA reached Ban final voiceless stops, but no other sounds, had undergone FCR. PA then operated on all remaining final oral consonants (examples given below, this paragraph). But in Pre-San almost every other final oral consonant was affected by FCR in some words. The only consonant for which no examples have been recorded for the Pre-San period is b. Although b-reduction did occur in some words there are dialect differences and changes affecting this sound may have been late (see Section 7). Examples of the reduction of other consonants are: San, Snl gəli? *give*, cf. Ban gilidi?, Rth hilir (PSan \*gəlid); San həbo? *slip into hole or mud*, cf. Rth uwoh (PSan \*Rəbog); San rene? *rotten*, cf. Tal zenessa, Rth enes (PSan \*Renes); San, Snl apu? *lime*, cf. Tal apukka, Ban apuhu? (PSan \*apuR); San kuļu? *breadfruit*, cf. Tal uļukka, Ban kuhuhu? (PSan \*kuluR); San beŋko? *bent*, cf. Tal beŋkola, Ban beŋkolo?, Rth weŋkol (PSan \*beŋkol); San, Snl tiki? *sleep*, cf. Tal ti?illa, Rth tikil (PSan \*tikil).

It is possible that FCR extended its domain to some classes of sounds before others; for instance, \*b may have been affected later than some other sounds. But this cannot be clearly determined and since FCR eventually affected all oral consonants it is suitable here to recognise a second, general phase in its operation:

FCR Phase 2: C > ? / \_\_\_#  
[-nasal]

Thus FCR began to affect classes of consonants other than voiceless stops in Pre-San, but it was stopped before it could spread to more than a limited number of lexical items ending in such consonants.<sup>12</sup>

There is evidence that FCR and PA overlapped in time of operation in Pre-San, as discussed below. Chen (1972:478-479) talks of sound changes in overlapping time relation with each other. He illustrates this with two rules, R7 and R8:

R7 a → b / \_\_\_c

R8 c → d

and writes:

If ... some ac sequences emerged as bd and some as ad then the divergent developments of ac forms would reflect a stage in historical change where two rules (R7, R8) overlapped in time and were simultaneously applicable to the same set of lexical items, with the result that whereas some lexical items underwent the changes in the order of R7-8, some other lexical items followed the reverse order of events. In this latter case R8 does not destroy the phonological environment of the input to R7 in all instances, but in some only. This is so because neither the diachronic ordering of R7-8 nor its reverse, R8-7, can account for the coexistence of both ad and bd forms.

It is proposed here that such overlapping of FCR and PA is partly responsible for the present-day variation in San and Snl. Chen's R7 and R8 can be equated with FCR and PA respectively for San/Snl:

FCR: C > ? / \_\_\_ Ø #

PA: Ø > ə? / C \_\_\_#

where C is any consonant except a nasal or ?.<sup>13</sup>



A number of words in San and Snl which have retained final p, t and k, taking PA instead of FCR, cannot be identified as borrowings. But the probability is that all such items were borrowed, entering the language after PA had replaced FCR as the method for dealing with final consonants. Of 112 items in Steller and Aebersold's dictionary ending in voiceless stop + əʔ (where groups such as kənditəʔ, kinditəʔ, kunditəʔ *thrifty* are counted only once) 31 can be identified as borrowings from Mal (often from Arabic or another language via Mal) and 35 from Dutch. Steller and Aebersold (1959) identify one as a borrowing from Chinese and one from Tidore. Of the remaining 44 items eight have vowel a in the environment əC\_\_təʔ#, e.g. bakatəʔ *darkness*, kalatəʔ *curse*. It was a regular rule in PSan that PAN \*a was replaced by \*e before a final alveolar or dental consonant if the preceding vowel was also \*a, separated from it by one consonant, e.g. PAN \*baRat > PSan \*baRet *wind*, PAN \*Zalan > PSan \*dalen *road*, PAN \*palaj > PSan \*paled *palm*. Thus these items are identified as borrowings by having a instead of e in the final syllable. Eight items have intervocalic voiced stops instead of corresponding continuants, b instead of w, d instead of r (l in Snl), g instead of ɣ (h in Snl), e.g. obotəʔ *pride*, udupəʔ *conscientious*, pagutəʔ *fastidious*. Voiced stops became continuants intervocalically in PNSan except after \*ə and these eight items can be regarded as borrowings.<sup>16</sup> One of them, uagatəʔ *kind of spirit; on quiet nights its loud steps can be heard outside*, contains both a instead of e and intervocalic g, both features identifying it as a borrowing (cf. the inherited form in San baheʔ *wind* < PAN \*baRat).

Thus of the 112 items in Steller and Aebersold ending in voiceless stop + əʔ only 29 cannot be identified as borrowings on the available evidence. However, the fact that none of these has known cognates in the other Sangiric languages, apart from Snl, lends strong weight to the likelihood that they are also borrowings.

Nevertheless, the possibility must be left open that some of them are inherited from PSan. If this is so then the only explanation is that PA reached the Pre-San speech community before FCR had spread to the entire eligible lexicon in its first phase. In that case the period in which the two rules overlapped would have begun before phase 1 of FCR was complete so that there would have been a period in which the two rules were in competition for those lexical items still retaining final voiceless stops. If this were the case then Diagram 1 would have to be modified as in Diagram 2:

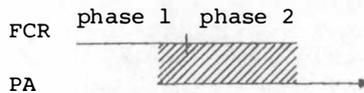


Diagram 2

Considering that PA became the preferred method for removing consonants from word-final position it seems unlikely phase 2 of FCR would even have begun if PA was already in operation. What seems more probable is that, if PA did overlap with phase 1 of FCR, the second, general phase of FCR began while phase 1 was still running its course (that is, consonants other than voiceless stops began to be replaced by glottal stop before this process had affected all voiceless stops). If so the overlap of the two rules can be represented as in Diagram 3:

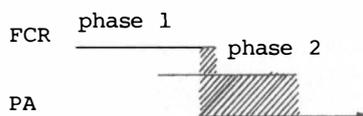


Diagram 3

Nevertheless, as mentioned above, the possibility is strong that all words ending in voiceless stop + paragoge were later borrowings and that phase 1 of FCR was completed before PA commenced in Pre-San, as represented in Diagram 1.

Diagram 1 shows PA continuing after FCR phase 2 had ceased to operate, evidence for this coming from borrowings, as mentioned above. There are no recorded cases of recent borrowings with final consonants undergoing FCR; all have undergone PA, which is thus still in operation. Examples of recent borrowings in San are: *pələtəʔ gramophone record* from Dutch (grammofoon-) *plaat*, *səpaltəʔ asphalt*, *tərakəʔ truck*, *listrikəʔ electric*, *konsoləʔ consul*, *motorəʔ motorboat* (information from K. Maryott, personal communication).

Although most, and probably all, words ending in a voiceless stop which took the paragoge in San were borrowed, many words ending in a consonant other than a voiceless stop which underwent FCR must have been inherited. It is important to establish this here because it could otherwise be argued that in San/Snl, as in Ban, all voiceless stops underwent FCR while all other consonants were retained through PA, the 'irregular' forms being treated as borrowings. Such an approach would have the advantage of imposing regularity of sound change on the language and the need to appeal to lexical diffusion would be obviated.

Charles (1974:463) refers to San *ləhaʔ pound rice again to get it white* as problematic because the expected form would be *\*\*ləhasəʔ* (Proto-Philippine *\*DeRqas*). However, the evidence is convincing that some San words in which a previous final *s* was replaced by *ʔ* are directly inherited and need not be regarded as problematic. The list of PSan reconstructions in Sneddon 1984 contains 30 items with final *\*s* to which the paragoge was added in San but only three which underwent *s*-reduction and one case of doublets. The items undergoing FCR are San *heneʔ*, Snl *reneʔ rotten*, cf. Tal *zenessa*, Rth *enes* (PSan *\*Renes*); San, Snl *kinaʔ fish*, cf. Tal *inassa*, Ban *kinasaʔ*, Rth *kinas* (PSan *\*kinas*); San, Snl *nipiʔ thin*, cf. Ban *nipisiʔ*, Rth *nipis* (PSan *\*nipis*). San also has the pair *bəhiʔ*, *bəhisəʔ line, stripe*, cf. Ban *bihisiʔ* (PSan *\*bəRis*), which are treated in Section 7. (Other words which underwent *s*-reduction in San, such as *ləhaʔ* mentioned above, have no known cognates in South Sangiric languages and consequently have not been assigned PSan etyma.)

Although only a small percentage of inherited words with final *\*s* underwent FCR in San there are objections to any assumption that these were actually borrowings. First, with one known exception in San (*ibələʔ devil* from Mal (Arabic) *iblis*) and one in Snl (*kalətəʔ money* from Mal (Arabic) *kərtas*), all identified borrowings with final *s* underwent PA, such as San *maləsəʔ lazy* from Mal *malas*, San *galəsəʔ glass* from Dutch *glas*. Even the two known exceptions have doublets in which *s* was preserved by PA (see Section 7). Thus the absence of a paragoge itself cannot be used as evidence that a word was borrowed.

The difficulty with assuming borrowing can be seen if we look at particular cases of *s*-reduction, for instance the item San, Snl *kinaʔ fish*. Related forms occur in the other Sangiric languages but have not been recorded for other languages which are geographically close (although cognates occur in some Borneo languages - R. Blust, personal communication); therefore borrowing from an

external source would be difficult to maintain. If the word was borrowed from another Sangiric language then there are several problems: (a) Since Ban *kinasa*?, Tal *inassa*, Rth *kinas* attest to PSan \**kinas*, this item must have been replaced in Pre-San by another word, only to be borrowed again later, a not impossible but nevertheless unlikely situation. (b) If it was borrowed before FCR and PA operated it would have been borrowed from Ban or Tal as \**kinas*. But there is no reason why such a borrowed word would undergo FCR while inherited words did not. (c) If it was borrowed after the operation of PA it would have been borrowed as a form with the paragoge. Further, the word *kakinaseŋ* *small plate from which one eats fish or meat*, with fossilised affixation, attests to the earlier occurrence of \**kinas* in Pre-San.

The same arguments apply to the other words which have cognates in other Sangiric languages ending in *s*: hene? *rotten* and nipi? *thin*. Thus the application of FCR, instead of PA, to such words cannot be accounted for in terms of borrowing. It must therefore be recognised that these were directly inherited words, reflecting PSan \**kinas*, \**Renes* and \**nipis*. It follows that some words with final \**s* in Pre-San did undergo FCR rather than the more common PA.

The case of *s*-reduction has been used to show that FCR affected some words ending in consonants other than voiceless stops before PA blocked it from spreading further through the lexicon, a situation illustrated in Diagram 1 above. The same arguments can be applied to words ending in other consonants as well.

## 7. DIALECT DIFFERENCES AND DOUBLETS

The theory of lexical diffusion accounts for dialect differences within San/Snl in the treatment of final consonants. Hsieh (1977:168) points out that a sound change "will continue to proceed at a different speed and influence the lexical items in a different order in one dialect than in another."

In its second phase FCR affected certain lexical items in some San/Snl dialects but not in others. Thus at a certain time a lexical item underwent FCR in dialect A but not in dialect B. PA was prevented from affecting the item in dialect A by the earlier application there of FCR but it operated on the item in dialect B thereby in that dialect blocking FCR.

Some examples of dialect differences in San are: Siau *inti*?, Mang *intilə*? *stretch*; Siau *biu*?, Mang *biu|ə*? *despise*; Siau *ka|umbia*?, Mang *ka|umbiagə*? *twisted*; southern dialects *lələ*?, Mang *lələbə*? *bald patch*; Mang *tuma*?, southern dialects *tumadə*? *crush*; Mang *əmbə*?, Siau *əmbəhə*? *bleat*; Taruna *lewo*?, Mang *lewohə*? *young coconut*; Tabukang *səhi*?, Mang *səhidə*? *chicken lice*; Taruna, Tabukang *ulu*?, Mang *uluğə*? *massage by rubbing*; dialect (unspecified in Steller and Aebersöld) *əti*?, Mang *ətibə*? *back pain*.

Differences between San (Manganitu dialect) and Snl (Sarangani dialect) include: San *bisu|ə*?, Snl *wisu*? *boil*; San *dompo|ə*?, Snl *dompo*? *fuel a fire*;<sup>17</sup> San *apidə*?, Snl *api*? *immediately after*; San *mariri|ə*?, Snl *madidi*? *yellow*; San *aha*? *clouds on horizon outlining land below*, Snl *arabə*? *cloud cap on mountain*; San *hunu*? *small fire*, Snl *la-runusə*? *bonfire*; San *kuni*?, Snl *kunidə*? *turmeric*; San *sia*? *yell, scream*, Snl *siadə*? *cry (of infant)*.

Such dialect variation may be quite limited. Steller and Aebersöld list only 19 cases of doublets where the members are identified as belonging to different dialects of San. One reason for this could be that the modern dialects began to emerge from Pre-San only when the changes discussed here were well under

way.<sup>18</sup> If this was so then most items would be similarly reflected in all dialects of San/Snl and this does appear to be the case. Assuming that situation, Diagram 1 can be modified as in Diagram 4 to indicate the period of the emergence of modern dialects:

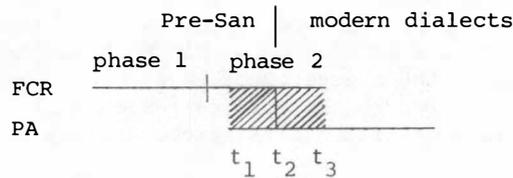


Diagram 4

Before  $t_1$  only FCR was in operation; after overtaking all final voiceless stops it began to act on other classes of consonants. From  $t_1$  until  $t_2$  FCR and PA were in competition, each affecting some items ending in consonants; these items are reflected in the same way in all modern dialects of San/Snl. From  $t_2$  to  $t_3$  the competition continued but following different schedules in different dialects. It was during this period that the dialectally different forms emerged. At  $t_3$  FCR ceased to operate;  $t_3$  could of course have been a different real time in different dialects.

Steller and Aebersold list a number of doublets in San where one results from FCR and the other from PA and where the two forms are not identified as occurring in separate dialects. Examples are: *bəhi?*, *bəhi sə?* *line, stripe*; *pongo?*, *pongo! ə?* *broken off*; *disi?*, *disi hə?* *stand firm*; *kəmi?*, *kəmi hə?* *silent*; *lau?*, *lau gə?* *mix*; *həŋko?*, *həŋko də?* *fear*; *gono?*, *gono bə?* *stalk*; *əlo toto?*, *əlo toto bə?* *easily moved to tears*.<sup>19</sup>

The theory of lexical diffusion, which recognises the possibility of the overlapping in time of competing changes, can also offer an explanation for this variation. Hsieh (1977:163) points out that as a change spreads through the lexicon each item affected undergoes a period of synchronic variation between the old and new form.

At time  $t_1$  the first item  $a_1$  begins to change by acquiring an alternative form  $b_1$  but at the same time maintaining the old form  $a_1$  .... At time  $t_2$  the old form  $a_1$  in the synchronic variation is dropped and the new form  $b_1$  is retained. At this time, another item  $a_2$  acquires the synchronic variation  $a_2 \wedge b_2$  ...."

We can imagine a situation where, for instance, *\*pongo!* *broken off* was affected by FCR. It underwent a period of synchronic variation *\*pongo!*  $\wedge$  *\*pongo?*. Then, before the next stage, loss of variant *\*pongo!* and retention of *pongo?* alone, could occur, PA operated on the variant *\*pongo!*, producing *pongo! ə?*.

Doublets occur among a few borrowed forms and they can likewise be explained, e.g. *pingu?*, *pingu sə?* *thimble* from Dutch *vinger*; *sa!ado?*, *sa!o dagə?* *slovenly* from Dutch *slordig*. In the case of *ibəla?*, *hibəlu sə?* *devil* from Arabic via Mal *iblis*, phonological differences between the two forms suggest they may have been separately borrowed rather than the result of the above-described processes operating on a single borrowing.

Sometimes differences in meaning also suggest separate borrowing of doublets, e.g. San, Snl *tampa*? *place* as well as Snl *tampatə*? *tomb, shrine (of deceased royalty or holy man)* from Mal *tempat* and San *karətəsə*?, Snl *ka|ətəsə*? *paper* as well as Snl *ka|ətə*? *money* from Arabic via Mal *kertas*. In these cases the form with consonant reduction is likely to be the older borrowing.

Steller and Aebersold note four sets of doublets in San where a previous \*t has undergone FCR in one member and PA in the other, two sets being borrowings from identifiable sources, *iŋa*? and *iŋatə*? *remember* from Mal *iŋat*, *pupu* (with irregular t-loss rather than reduction) and *puputə*? *crowbar* from Dutch *koevoet*, one set, *sahagi*? and *sahagitə*? *charm for accomplishing a job quickly*, almost certainly a borrowing because of irregular intervocalic g, though from an unknown source, and one set, *amba*? and *ambatə*? *adorn*, not identifiable as a borrowing.

Three items with earlier final voiceless stops are known where San and Snl reflect different processes (although semantic differences suggest two of these might not be directly related): San *kuku*?, San *sə-kukutə*? *kind of sea fish*; San *suri*? *recall dimly*, Snl *su|itə*? *learn*; San *bilu*? *oblique, slanting*, Snl *bilukə*? *to tack (of sailboat)*.

Although such variation involving final voiceless stops occurs in very few items it must be accounted for. The only explanations that can be offered at present are that competition between the two processes did operate marginally during the first phase of FCR, as in Diagram 3 (although if so far more evidence than this would be expected) or that all the items are borrowings, as seems likely, and that they were borrowed during the second phase of FCR, that process competing with PA for these forms as it did for forms ending in other consonants.

## 8. CONCLUSION

The apparent irregularity in the way consonants were removed from word-final position in San presents difficulties for any explanation based on the traditional view that phonological change is instantaneous and knows no exception.

On the other hand, the theory of lexical diffusion can account for the development of two different changes, FCR and PA, in the same phonological environments.

The occurrence of doublets in San, where one is the result of FCR and the other of PA operating on a common parent form, cannot be accounted for by traditional explanations of diachronic sound change. Borrowing, so frequently appealed to in the case of difficult phonological problems, offers no explanation since both clearly inherited forms with cognates in the other Sangiric languages and forms which are positively identified as borrowings have resulted in such doublets.

Nor can dialect mixture be seriously considered. Although Steller and Aebersold do not always identify dialect differences, sufficient information is available to show, as illustrated in Section 7, that dialect variation is random. The phenomenon of doublets which occurs in Mang is almost certainly a feature of the other dialects as well.

The theory of lexical diffusion offers an explanation for the origin of such pairs by recognising the possibility of one rule affecting a word while it was undergoing a period of synchronic variation between the original form and the form produced by the other rule.

The evidence presented above supports the hypothesis that FCR first operated in Pre-San but before it could spread to the entire eligible lexicon it was blocked by PA. FCR apparently did not come to a sudden stop with the arrival of PA to the San/Snl speech area but rather there was a period of competitive overlap, as represented in Diagram 4, the occurrence of doublets and dialect variation strongly supporting this.

Finally PA established itself as the preferred method for removing consonants from word-final position. PA is still in operation, with borrowings now undergoing PA rather than FCR to conform with the phonological pattern of the language.

The theory of lexical diffusion accounts for forms like San/Snl *nipi?* *thin*, for expected *\*\*nipisə?* (PAN *\*nipsis*), and *apu?* *lime*, for expected *\*\*apuhə?* (PAN *\*qapuR*). Some Austronesianists, using evidence from San in comparative studies, have regarded some forms as problematic or as borrowings because of such variation. This paper, while offering supporting evidence for the theory of lexical diffusion, shows that some apparently irregular forms in San are in fact directly inherited and can be employed with confidence in comparative studies.

#### APPENDIX

The paragoge is phonologically different in Ban, Tal and San/Snl. However, it is argued here that it was originally *\*ə* in all languages.

In Tal the paragoge could not originally have been *\*a*, as it is today. Since it is most unlikely that geminate consonants occurred word finally it can be assumed that PA chronologically preceded the development of doubled consonants. If the paragoge were originally *\*a* there would be no way to explain why doubling occurred to the consonant preceding the paragoge, e.g. *laŋitta sky* < PSan *\*laŋit*, but not before a where this reflects PSan *\*a*, e.g. *mata eye* < PSan *\*mata*. Consequently the paragoge must have been a vowel other than *\*a*. The same argument can be used against its having been *\*e*, *\*i*, *\*o* or *\*u*. However, the vowel of the paragoge could well have been *\*ə*.

Schwa occurred in PSan in all but final syllables. PSan *\*ə* was replaced by *a* in Tal, the following consonant having become geminate: PSan *\*əpat* > Pre-Tal *\*əppata* > Tal *appata four*, PSan *\*bəli* > Pre-Tal *\*bəlli* > Tal *balli buy*. It can be established that consonant gemination occurred prior to changes to *\*ə* for the same reason that gemination occurred prior to the paragoge becoming *a*, namely, that gemination does not occur following a where it reflects PSan *\*a*.

In Ban *\*ə* no longer occurs, having regularly assimilated to the following vowel: PSan *\*səlet* > Ban *sele?* *insert*, PSan *\*bəka* > Ban *baka split*, PSan *\*ləno* > Ban *lono smooth*. The shape of the paragoge in Ban can be accounted for if we assume the same process of vowel assimilation applied to it, i.e. if the paragoge was originally *\*ə?* then *ə* assimilated to the closest, in this case preceding, vowel: PSan *\*kinas* > Pre-Ban *\*kinasə?* > Ban *kinasə?* *fish*, PSan *\*apuR* > Pre-Ban *\*apuhə?* > Ban *apuhu?* *lime*, PSan *\*kəmis* > Pre-Ban *\*kəmisə?* > Ban *kimisi?* *squeeze*.

There is one San dialect, Tahulandang, in which the paragoge is not *ə?* but *i?*, e.g. *tiŋari?* *correct* (cf. Mang *təŋadə?*), *tuŋuhi?* *egg* (cf. Mang *təluhə?*). In Thl, as in Tal and Ban, previous *\*ə* has been replaced by other vowels in all

positions (as in the two examples above). Thus in Thl also the vowel of the paragoge can be accounted for in terms of replacement of earlier \*ə.

In all languages except Tal the paragoge ends with *ʔ*. In Tal final \**ʔ* was lost, e.g. PSan \*kento<sup>ʔ</sup> > Tal ento *lɪmp*, PSan \*Ramu<sup>ʔ</sup> > Tal zamu *red*. It can therefore be taken that the paragoge originally ended in glottal stop which was later lost by regular rule in Tal.

Thus there is good evidence that the paragoge was originally \*ə<sup>ʔ</sup> in all languages. It would be natural that when the rule of PA spread from Tal (see Section 5) it was adopted in the other languages in the same phonetic shape, later variation occurring with the replacement of \*ə in all positions in Tal, Ban and Thl.

#### NOTES

1. I wish to thank Robert Blust and David Zorc for their helpful comments on an earlier draft. I am also very grateful to Kenneth Maryott who patiently answered questions on Sangil, providing much-needed information on that language. I also express my thanks to Professor Peter Worsley, Department of Indonesian and Malayan Studies, The University of Sydney, who provided the facilities which allowed me to commence work on this paper during a brief visiting fellowship in his department.
2. Charles (1974) believes, on lexical evidence, that San lies outside the Philippine group. On the other hand, Walton (1979), also using lexical evidence, finds San to be a first-order branch of Southern Philippine, one of the two first-order branches of the Philippine group. In a painstaking comparative study Zorc (1986) presents strong lexical evidence for recognising the Sangiric languages as a subgroup of the Philippine or Eastern Hesperonesian languages.
3. Maryott has recently begun to refer to Sangir as Sangihé, representing [səŋihə<sup>ʔ</sup>], the indigenous name in Manganitu and Tabukang dialects, and to Sangil as Sangiré, representing the indigenous name [səŋirə<sup>ʔ</sup>]. Not only could this be confusing to linguists but the name [səŋirə<sup>ʔ</sup>] is also used by some Sangirese to designate their own language, i.e. in dialects such as Taruna where r corresponds to Manganitu and Tabukang h. In this work the better known, and less confusing, names Sangir and Sangil are used.
4. A lexicostatistical comparison gives San (Manganitu) and Snl (Sarangani) a cognate percentage of 82. Walton (1979) finds them to share 90% of their basic vocabulary, basing his study on material in Reid 1971 for which the San list was drawn from the Tabukang dialect as spoken by immigrants in Mindanao.
5. Two instances, apart from those considered in this paper, are the replacement of all final nasals by ŋ in San, Snl and Ban, e.g. San ənuŋ, Snl, Ban nuŋ *sɪx* < PSan \*ənum, and replacement of medial y by l in San and Tal, e.g. San kalu, Tal alu *wood* < PSan \*kayu.
6. Danie (1981) contains maps showing the areas of San settlement in northern Minahasa.

7. Adriani (1911:4,5) notes that the Tal dialects on the remote northern islands of Nanusa and Miangas exhibit FCR rather than PA. He provides only a half dozen examples and he and Steller (1913:4) provide a few examples from the far north Essang dialect which suggest it too may have undergone FCR. But since all the Essang examples and most of those for the other two dialects involve reflexes of \*R, which has diachronically undergone a number of unique changes in Tal, the position is far from clear. Until more information is available these dialects cannot be further considered here.
8. Rth has ala<sup>?</sup> *fetch* for expected \*\*alap (PSan \*alap) but no assumptions can be made on the basis of one known occurrence of p-reduction, which must be left 'unexplained'.
9. Five Ban words have been recorded which end in voiceless stop + paragoge. These are all borrowings: pehete<sup>?</sup> *bat* (borrowed from an adjacent Minahasan language, without cognates in the other Sangiric languages), kulata<sup>?</sup> *fungus* (borrowed from a Minahasan language or Malay, without Sangiric cognates except in Rth which also borrowed the word), bebeke<sup>?</sup> *duck* (borrowed from Malay), punggutu<sup>?</sup> *stunted* (with irregular g following ŋ, instead of regular k - see Sneddon 1984:47), uagata<sup>?</sup> *strong wind* (with irregular g instead of h and occurrence of a before t - see p.61 of text for a discussion of this change in the Sangiric languages - cf. PSan \*baRet *west wind*). These forms undoubtedly entered the language after FCR had run its course and when PA was operating on all remaining final oral consonants.
10. Ban tiki *sleep* (PSan \*tikil) may be an exception. But although San, Snl tiki<sup>?</sup> results from l-reduction the absence of glottal stop in Ban suggests independent loss of \*l, not associated with FCR.
11. The change \*k, \*kk > ? occurred subsequent to PA, i.e. the paragoge was added to \*k, not to ?. This is established by items such as ba<sup>?</sup>isa *tie in a bundle* < PSan \*bəkis. The consonant before the paragoge was not doubled where the preceding consonant was doubled. As s in ba<sup>?</sup>isa is single the preceding consonant was double at the time of paragoge addition. Therefore the word was earlier \*bakkisa. The geminate \*kk blocked doubling of s but later became ?. Therefore the rule \*k(k) > ? occurred later than paragoge addition. The replacement of \*k by ? in Tal occurred in all positions in the word (since glottal stop is interpreted as non-phonemic in initial position the change there is regarded as \*k > Ø) and is therefore not a case of final consonant reduction.
12. For the majority of words ending in ? in San and Snl it is not possible to determine the original final consonant. This can only be done in cases where the consonant is preserved before a fossilised suffix (see Section 4.1) or where external cognates have been discovered. Most words ending in ? whose original final consonants have been identified are fairly common words with known cognates and it is certain there are others, as yet unidentified, which earlier ended in a consonant other than a voiceless stop. Since only a small number of basic vocabulary items previously ending with oral consonants other than voiceless stops underwent FCR it is very likely that only a very limited percentage of the entire eligible lexicon was so affected. In the list of PSan reconstructions in Sneddon 1984 (which includes only items with known reflexes in Rth and/or Ban as well as in North Sangiric languages) there are 128 items ending in oral consonants other than voiceless stops which have San reflexes which took the paragoge and only 16 with San reflexes undergoing FCR, as well as three doublets (which are discussed in Section 7).

13. The FCR rule would not normally be written with Ø before #. This is done here so that the symbol Ø can be used in both rules to highlight the similarity of the processes involved here to those described by Chen.
14. It is possible that borrowings from Mal with ʔ for expected t in fact come from a Mal dialect where final t had been replaced by ʔ or where, as in Manado Malay, final \*t was lost, cf. Manado Mal *aŋka lift* (Mal *aŋkat*), *tampa place* (Mal *təmpat*), *iŋa remember* (Mal *iŋat*). San often added final ʔ to borrowed words ending in a vowel (see Sneddon 1984:52) and San words such as *aŋkaʔ*, *tampaʔ* (see text p.65) and *iŋaʔ* (see text p.65) could thus be borrowings from Manado Mal, as are *neneʔ grandmother* (Manado Mal *nene*) and *teteʔ grandfather* (Manado Mal *tete*).
15. Information on Snl is far from complete and no suggestion is made that other forms do not occur in that language.
16. San and Snl sometimes retained voiced stops morpheme initially after a fossilised prefix, e.g. San *kadadəməhəʔ*, Snl *kadadəməərəʔ evening star* (from a root \*dəməR), though not regularly. In Siau dialect (for which available information is insufficient to allow a phonological study) voiced stops sometimes occur intervocalically in inherited words, e.g. *laboʔ big*, cf. Mang *lawoʔ many*.
17. In Snl \*l was lost preceding the paragoge and following a back or low vowel. The vowel preceding \*l was also lost if unstressed, e.g. Snl *pundəʔ paddle* < PSan \*pundəl, Snl *kapəʔ ship* < earlier \*kapələʔ, cf. San *kapələʔ* (from Mal *kapal*). Such post-PA l-loss would have resulted in Snl \*\*wīsəʔ, \*\*dompəʔ. The forms *wisuʔ* and *dompəʔ* thus result from the final \*l having undergone FCR.
18. Another reason for apparently limited dialect variation is incompleteness of information in Steller and Aebersold. This is essentially a dictionary of the Manganitu dialect and information on other dialects is only irregularly given.
19. Steller and Aebersold give 68 doublets which have either identical meanings (48) or very similar meanings (20). Borrowed or probably borrowed forms are not counted here, nor are pairs whose meanings are not at least very similar. It cannot automatically be assumed that where there are such doublets the one with final ʔ represents reduction of the same final consonant as occurs in the other. There are numerous examples in San of doublets with different final consonants, e.g. *əŋgehəʔ*, *əŋgesəʔ noise of flowing water*; *latubəʔ*, *latugəʔ joke*; *lokabəʔ*, *lokasəʔ bract*. There could well have been doublets with different final consonants where one underwent PA and the other FCR. If we look at Malay we see pairs such as *lətup*, *lətus explode*. If this pair had occurred in Pre-San the likely reflexes would be \*\*lətuʔ and \*\*lətusəʔ, giving the appearance of two forms reflecting one etymon. Steller and Aebersold sometimes cross-reference forms which are not from the one etymon, e.g. *onaʔ fishscales* and *onəsəʔ cuttings, peelings*, where the former actually reflects PSan \*onap. Nevertheless, considering the number of doublets the probability is that there are many which reflect a single etymon which underwent both FCR and PA according to the process described here; for instance *səluʔ river* and *səluhəʔ gutter, riverbed* both clearly reflect PAN \*saluR *waters*.

## REFERENCES

- ADRIANI, N.  
 1893 *Sangireesche spraakkunst*. Leiden: Nederlandsch Bijbelgenootschap.  
 1911 *Een en ander over het Talaoetsch*. The Hague: M. Nijhoff.
- BARRACK, Charles M.  
 1978 The High German consonant shift: monogenetic or polygenetic?  
*Lingua* 44:1-48.
- CHARLES, Mathew  
 1974 Problems in the reconstruction of Proto-Philippine phonology and  
 the subgrouping of the Philippine languages. *Oceanic Linguistics*  
 13/1&2:457-509.
- CHEN, Matthew Y.  
 1972 The time dimension: contribution toward a theory of sound change.  
*Foundations of Language* 8:457-498.
- CHEN, Matthew Y. and William S.-Y. WANG  
 1975 Sound change: actuation and implementation. *Language* 51/2:255-281.
- DANIE, J. Akun  
 1981 Peta bahasa di Minahasa bahagian timur laut. Paper presented at  
 the Third International Conference on Austronesian Linguistics, Bali.
- HSIEH, Hsin-I.  
 1977 A new method of dialect subgrouping. In William S.-Y. Wang, ed.  
*The lexicon in phonological change*. The Hague: Mouton.
- MARYOTT, Kenneth R.  
 1977 The phonemes of Sarangani Sangiré. *Studies in Philippine Linguistics*  
 1/2:264-279.  
 1978 Pre-Sangir \*l, \*d, \*r and associated phonemes. *Studies in Philippine*  
*Linguistics* 2/1:115-138.
- MILLS, Roger F.  
 1975 Proto South Sulawesi and Proto Austronesian phonology. Ph.D.  
 dissertation, University of Michigan (2 vols).  
 1981 Additional addenda. In Robert A. Blust, ed. *Historical linguistics*  
*in Indonesia*, 59-82. NUSA 10, Jakarta.
- PEI, Mario  
 1966 *Glossary of linguistic terminology*. New York: Anchor Books.
- REID, Lawrence A., ed.  
 1971 *Philippine minor languages: word lists and phonologies*. *Oceanic*  
*Linguistics* Special Publication 8. Honolulu: University of Hawaii  
 Press.
- SNEDDON, J.N.  
 1984 *Proto-Sangiric and the Sangiric languages*. PL, B-91.

STELLER, K.G.F.

1913 *Nadere bijdrage tot de kennis van het Talaoetsch.* The Hague: M. Nijhoff.

STELLER, K.G.F. and W.E. AEBERSOLD

1959 *Sangirees-Nederlands woordenboek met Nederlands-Sangirees register.* The Hague: M. Nijhoff.

TEAM FAKULTAS SASTRA UNSRAT

1976-77 *Struktur bahasa Talaud.* Manado: Departemen Pendidikan dan Kebudayaan.

WALTON, Charles

1979 A Philippine language tree. *Anthropological Linguistics* 21/2:70-98.

ZORC, R. David

1986 The genetic relationships of Philippine languages. In *FOCAL II*, 147-173.

