

REDRESSING THE BALANCE ON AUSTRALIAN STOP CO NTRASTS:

COMMENTS ON AUSTIN'S (1988) "PHONOLOGICAL VOICING CONTRASTS IN
AUSTRALIAN ABORIGINAL LANGUAGES"

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1. Introduction

Although the above article has appeared in a volume of *Working Papers*, rather than in an established journal, it is nevertheless widely available in Australian linguistic circles and, since it claims to be an “Australia-wide survey”, the result of twelve years of research (title footnote), it is likely to be recommended reading for many students of Australian linguistics. It is for these reasons - the claimed scope and the likely readership - that we feel it appropriate to express a number of criticisms we have of this work. These criticisms fall under two major headings: (1) The comparatively scanty treatment of the area of Australia which has the highest concentration of languages with two stop series, namely the ‘Top End’ of the Northern territory; (2) The failure to distinguish adequately between the level of phonological contrast and the level of phonetic parameters underlying the contrast.

2. Scope and Depth

The assertion (title footnote) that “the available descriptions of Australian languages have improved in both quantity and quality” over the past twelve years is no doubt correct. The list of languages surveyed by Austin is therefore all the more surprising, both for the work it ignores and for the bias it shows towards the area of Austin’s own research. For the sake of completeness, we shall, in what follows, occasionally make reference to research which, although it has been in progress for some years, has only recently been formally written up or is in the process of being written up (e.g. Butcher 1989, Eather 1990, I.Green 1989, R.Green [forthcoming], Reid [forthcoming]). There is, of course, no implied expectation that Austin should have had access to this material. On the contrary, the main thrust of our criticism is based on information which has been available for some years. It is, for example, difficult to understand the omission from consideration of published work such as Wood (1977, 1978), McKay (1980) or Jaeger (1983). One might even perhaps have expected some reference to relevant material available in the Australian Institute of Aboriginal Studies, such as Schebeck

(1968, n.d.), Reid (1982) or Hoddinott & Kofod (1985). That most of this ignored research is concerned with Northern Territory languages, contributes to the imbalance in Austin's presentation of the geographical distribution of the stop contrast phenomenon. Judging from the map he provides (p 21), a sprinkling of languages with two stop series are found in the Pilbara region of Western Australia, the 'Top End' of the Northern Territory and the Cape York Peninsula, while the hotbed of stop contrast distribution is based around the north-east South Australia and south-west Queensland border region (henceforth SA/Qld). In reality, not only does the Top End manifest the highest density of languages with a stop contrast, but it is also amongst these languages that the contrast is most widely exploited across the range of articulatory and phonotactic positions. On the other hand, among the SA/Qld languages to which Austin gives such prominence, the contrast is typically highly restricted (both articulatorily and phonotactically) and in some cases is arguably not best analysed as a stop contrast at all (see Trefry 1984:228).

Austin, in fact, seems to have an idiosyncratic conception of what constitutes the Top End. Under the heading "3.2 Northern Territory", he states that "There are three groups of languages in the north of this territory" described as having stop contrasts (p23). These "groups" turn out to be "3.2.1 Murinypata", "3.2.2 Warumungu" and "3.2.3 'Top End' Languages" - by which he appears to mean Arnhem Land languages. A more equitable and better informed treatment of the Top End area might have avoided the lumping together of "A large number of (apparently unrelated) languages" (p 25) and their dismissal in less than a page of text. By comparison, nine pages (pp 27-36) are devoted to a dialect-by-dialect discussion of the SA/Qld area. Those languages or dialects of Arnhem Land said to have contrasting stop series are certainly large in number (probably at least 30), but not, of course, "apparently unrelated". The languages listed by Austin are, in fact, (with the possible exception of Wagiman) all members of either the Yolngu group or the Gunwinguan group. On the other hand, in view of the differences between these two groups, it is not at all clear why he has chosen to treat them under the same heading.

Equally inexplicable is the omission of all four members of the Burarran subgroup (Burarra, Ndjébbana, Nakkara, Gurr-goni), all of which also have two stop series, and which are among the best-documented of Top End languages in this respect (Glasgow & Glasgow 1967, Glasgow 1981, McKay 1979, 1984, Eather 1979). Austin does, however include Mangarayi in his list, which, according to the reference he himself cites, does not have two stop series. Merlan (1982:178) explicitly states: “Mangarayi differs from some neighbouring Arnhem Land languages (Ngalakan, Ngandi) in that there is no significant fortis-lenis stop contrast”.

Still in this same short section (p 25), Austin goes on to quote Cook (1987:34) concerning the phonological environments in which stop contrasts occur, namely intervocalically and following the lateral /l/ and the tap /ɾ/. Cook’s remarks apply specifically to Wagiman. Austin appears to generalize this to “all the relevant languages”. This is erroneous. In Burrara, for example, non-apical stops contrast after nasals, glides, both laterals and both rhotics, as well as intervocalically:

rarnba	<i>thigh</i>	djarnpa	<i>tree bark</i>
ngamngamdja	<i>taste</i>	djamtja	<i>mo. bro.</i>
djingga	<i>pandanus nut</i>	mingka	<i>sandfly</i>
waygadja	<i>maybe</i>	waykanrarnba	<i>thigh</i>
ngiwdja	<i>to beg</i>	ngawtja	<i>to yawn</i>
worlba	<i>dragonfly</i>	worlpa	<i>hunt</i>
wurdja	<i>to whistle</i>	yurtja	<i>run</i>

(Glasgow 1981:67- 68)

Rembarnga and Ngandi also have the contrast after both laterals, both rhotics and both glides (McKay 1975:48, Heath 1978:12) and Nakkara and Gurr-goni have it after both laterals, both rhotics and /j/ (Eather 1979:15, R.Green [forthcoming]).

In his treatment of the Daly languages, Austin quotes Tryon's observation that languages of the Daly subgroup have an intervocalic geminate contrast, additionally noting Hoddinott's belief that there exists a phonemic contrast between voiced and voiceless stops word initially in Ngan'gikurunggurr. That all this is relegated to a single footnote (p 23) seems rather dismissive when other languages analysable as having single versus geminate contrasts are treated in some detail. The fact that, like Murrinh-patha, many of the Daly languages, have two contrasting stop series seems to be widely accepted by linguists working in the area, and has been established for Ngan'gikurunggurr by Hoddinott & Kofod (1985) and Reid (1982). For example:

dege	<i>belly</i>	eke	<i>mo.bro.</i>
adi	<i>spouse</i>	ati	<i>cod sp.</i>
ebe	<i>marchfly</i>	epe	<i>perhaps</i>

(Reid [forthcoming])

Austin's inadequate coverage of Northern Territory languages also adversely affects the phonological generalizations he makes in his final section (p38). For instance, as far as the stop contrast in initial position is concerned (2.3), as well as the languages mentioned, it is clear that several of the Daly languages have a stop contrast in this environment, which somewhat weakens the force of the generalization. For example:

<u>Ngan'gikurunggurr</u>	bi	<i>axe</i>	pi	<i>head</i>
	gagu	<i>meat</i>	kanbi	<i>didjeridu</i>
	dirrkuru	<i>riverbank</i>	tingityirr	<i>hibernation</i>

(Reid [forthcoming])

Secondly, it is not true that no language other than Kala Lagaw Ya and Murrinh-patha contrasts apical alveolar stops in intervocalic position (4.2). Although this contrast often seems to carry a low functional load, a number of other languages besides those mentioned distinguish apical alveolar stops intervocalically in at least some words. For example:

<u>Ngan'giwumirri:</u>	angidi	<i>hookworm</i>	angiti	<i>meat for me</i>
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(Reid [forthcoming])

<u>Marrithiyel</u>	gadi	<i>we (pl. excl.)</i>	gati	<i>good</i> (I.Green 1989)
<u>Rembarrnga</u>	wato?	<i>afterwards</i>	watto	<i>behind</i> (McKay 1975:17)
<u>Warray:</u>	putu	<i>tree sp.</i>	kut:ukut:u	<i>bird sp.</i> (Harvey 1986:28)
<u>Kunwinjku:</u>	kabenedi	<i>they will stand</i>	kaddum	<i>above</i> (Carroll 1976:21,23)
<u>Ndjébbana:</u>	nakkuratuk	<i>(clan)</i>	ritta	<i>teeth</i> (McKay 1979:A-4)

It is also an overgeneralization to state that, a language with contrasting intervocalic velar stops will also have contrasting laminal stops (4.3). As well as Purduna, Ngan'giwumirri is a further exception to the rule, having a velar contrast but no laminal contrast in this position.

The Northern Territory is not, however, the only area where languages appear to have slipped through Austin's net. An important omission from section 3.1, on the languages of north Queensland (pp 20-23) is Kunjen, mentioned, however, in both quotes on p.18, and well documented as having two stop series. For example:

idhar	<i>dream</i>	ithar	<i>toffee tree</i>
iday	<i>waiting</i>	atikar	<i>hard</i>
idyarr	<i>ate</i>	ityal	<i>hungry</i>
abal	<i>tick</i>	apityar	<i>bird sp.</i>
algàl	<i>straight</i>	alkàl	<i>call out</i>

(Sommer 1969:37-38)

Perhaps a grouping of languages according to broad phonological type would have been more helpful than Austin's geographical groupings. For example, languages with only medial

contrasts might usefully have been considered separately from languages with initial contrasts and languages with phonemic vowel length contrasts distinguished from languages without. Above all, one should certainly entertain the possibility that languages with contrasting stops at several places of articulation might have different characteristics from languages which contrast apicals only. Austin appears to base many of his generalizations on evidence from the latter type of language, amongst which the phonological status of the contrast is most open to question.

3. Phonetics and Phonology

The terms “voice” and “voicing” have been widely used in Australian linguistics (and elsewhere) at both the phonological and phonetic level, and this has resulted in a certain amount of confusion. As a phonetic parameter, the terms “voiced/voiceless” generally refer to the presence or absence of glottal pulsing. Unfortunately, as a phonological feature this pair of labels may be used to refer to a contrast whose principal correlate is the presence or absence of glottal pulsing either during the consonantal closure (French, Russian, Malayalam) or during the phase immediately following release of the closure (English, Azerbaijani, Navaho). It might be argued that the use of the terms at both levels of description may not be a problem when dealing with one of the 45% or so of the world’s languages which have a two-way stop contrast known to be based on one or the other of these voice onset time (VOT) differences. On the other hand, in an article such as this, where one of the main points under discussion is the very nature of the phonetic variables underlying the contrast in a large number of different languages, there is really no room for ambiguity of the kind we find throughout the text and even enshrined in the title.

Nowhere is this ambiguity more apparent than in the crucial few paragraphs on “the PHONETIC nature of the contrasts” (p 37), where the term “voicing” seems to be used with a different meaning as we go from one sentence to the next. In his first point, Austin appears to be using the term in its phonetic sense - i.e. in the sense of VOT distinctions - since he is claiming that

“voicing (or delayed onset of voicing) is at least one parameter which is relevant to the phonological contrast”. However, his generalizations seem to be based entirely on evidence from the SA/Qld group of languages and on Murrinh-patha. There may be “reliable acoustic data” on Diyari and Murrinh-patha, but neither of these languages should be considered representative of the whole range of languages with stop contrasts. Diyari in particular only has the contrast at two places of articulation, namely the apicals, where (as in other languages) the speed of the tongue tip movement allows a brevity of closure for the short stop which facilitates the continuation of glottal pulsing in a manner not typical of other places of articulation.

Austin seems to have taken no account of phonetic research carried out on Arnhem Land languages, which differ from the two he does consider in two important respects. Firstly, they have a stop contrast only word medially, and secondly the contrast is maintained at most places of articulation. Recent work by Butcher (1989) on Burarra, Gurr-goni and Kunbarlang indicates strongly that “voicing” - i.e. the timing of glottal pulsing relative to the articulatory closure - is neither a necessary nor a sufficient cue to the contrast in these languages. But this only confirms “reliable acoustic data” which has been available for some considerable time, on Rembarrnga (McKay 1980), Jawoyn (Jaeger 1983), Ngalakan (Merlan 1983) and Warray (Harvey 1986), as well as more recent data on Nakkara (Eather 1990):

This [varying degree of voicing] may indicate that voicing should not be considered the distinctive feature involved, since it is not consistently present [in Rembarrnga]. (McKay 1980:346)

It is quite clear that voicing cannot be considered a necessary cue for the distinction in this language [Jawoyn], as there is fluctuation in voicing for both the fortis and lenis consonants. (Jaeger 1983:182)

I also show the unreliability of voicing as a fundamental phonetic parameter involved in the stop contrast by drawing attention to unpredictable voicing fluctuation in Nakkara stops (Eather 1990:8)

Under his points 2 and 3 (p 37) it is completely unclear whether Austin is using the term “voicing” in its phonetic or in its phonological sense, as we are told that “CONSONANT LENGTH is often a concomitant (or major) feature of consonant voicing”. If we assume that “voicing” here continues to refer to glottal pulsing, then the only conclusion we can draw from this statement is the erroneous one that there is some kind of link (either articulatory or perceptual) between two phonetic features, one of which (VOT) is in some sense more important. If, on the other hand, we are now meant to understand “voicing” in the phonological sense, then presumably we are being told that closure duration is a possible but not necessary phonetic correlate of the contrast. Either way, it is difficult to see how consonant length can be a “feature” of voicing. Closure duration and glottal timing may both be parameters used to realise stop contrasts, but there is no evidence for claiming that voicing is more important than length. Certainly in the non-Pama-Nyungan languages of Arnhem Land the reverse seems to be the case (Butcher 1989) and it would, perhaps be more appropriate to say that long stops are typically voiceless and short stops are typically voiced. Once again, a number of researchers have come to this conclusion over recent years:

It is clear that the duration differences are intrinsic to the articulation of these consonants [in Jawoyn]. (Jaeger 1983:183)

there can be no doubt that the difference between the two groups [in Warray] is fundamentally one of length. (Harvey 1986:32)

duration alone is a significant variable and is the only independently controlled phonetic parameter involved in the stop contrast in Nakkara. (Eather 1990:8)

Austin’s conclusion that there is “an inverse correlation with the phonetic length of the VOWEL which precedes the stop” appears to be based once again on auditory impressionistic evidence from the SA/Qld languages, where a phonetic voicing based contrast may well be involved. The little data available on non-Pama-Nyungan languages would suggest that the correlation of phonetic vowel length with the stop contrast is at least as inconsistent as that of glottal timing.

Butcher (1989) indicates that the relevance of this parameter seems to vary from one language to another, from one place of articulation to another and from one speaker to another. McKay (1980) also reported some years ago on the unreliability of vowel length as a cue to the stop contrast in Rembarnga:

In general shorter vowels occurred before the geminate stops than before the single stops. On the other hand there were contrasting word pairs in which the vowels before the contrasting stops were almost exactly equal in length....The length of the vowels has been interpreted here as insignificant. (McKay 1980:346)

We can only assume that Austin's failure to distinguish consistently between phonetic and phonological "voicing" stems at least in part from the unwarranted assumption that phonological stop contrasts in Australian languages are based on the presence or absence of glottal pulsing during the closure. Only in this light can we begin to comprehend Austin's reasons for including (p 38-9) the quotes from Maddieson (1984), all of which refer to languages with "plain voiced stops" - i.e. languages with at least one phoneme whose "most characteristic allophone" (Maddieson 1984:6) is a voiced plosive. Maddieson's (1984:35-6) "implicational hierarchies" refer to the occurrence of phonetically voiced sounds in the world's languages. Austin clearly interprets them as referring to the occurrence of phonological contrasts. Similarly, Maddieson's (1984:36) ratios of voiced to voiceless plosives refer to the relative likelihood of occurrence of these sounds across languages and do not constitute a generalization as to which places of articulation are more likely to be exploited for a phonological stop contrast within individual languages. Austin's comparison of his own generalizations concerning phonological contrasts in Australian languages with Maddieson's generalizations concerning the occurrence of particular sounds in the world's languages are therefore quite meaningless.

4. Conclusion

We would certainly not wish to disagree with Austin as to the appropriateness of “the sort of survey that this paper attempts”. Whilst it contains little in the way of new original research, it could have constituted a valuable contribution to the field in the form of a state-of-the-art report, which gathered together all the available material and references on this important and difficult topic and clearly set out the issues involved. In order to have achieved this goal, however, it would have needed to fulfil two conditions: (1) To be exhaustive and balanced - i.e. to take account of all the information available at the time of writing on languages with contrasting stop series and to give appropriate consideration to each language or language group for which data is available. (2) To clarify areas of potential confusion - i.e. to distinguish quite clearly between phonological language types, between types of data (auditory versus acoustic), and above all between levels of analysis (phonetic versus phonological). We hope that future contributions to this important topic will come somewhat closer to fulfilling these conditions.

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