Revisiting Phonotactic Generalizations in Australian Languages
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Australian languages are famous for their uniform phonological systems (see Figure 1 for a common system). Cross-linguistic surveys of (or including) Australian languages such as Maddieson (1984), Dixon (1980, 2002), and Hamilton (1996) have reinforced this view of Australian inventories and phonotactics. Such uniformity is surprising and unusual given the phylogenetic diversity in the country (28 phyllic families). Moreover, although Australianists have assumed that uniformity in phonemic inventory is coupled with unity in phonotactics, this has not been tested. The purpose of this paper is to statistically test the generalizations current in the literature on Australian languages by deriving inventory information from lexical data (rather than grammatical descriptions).

![Figure 1: Common Australian Phoneme Inventory](image)

<table>
<thead>
<tr>
<th></th>
<th>Labial</th>
<th>Labio-</th>
<th>Apico-</th>
<th>Retroflex</th>
<th>Palatal</th>
<th>Velar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal</td>
<td>m</td>
<td>η</td>
<td>n</td>
<td>η</td>
<td>n</td>
<td>η</td>
</tr>
<tr>
<td>Stop</td>
<td>p</td>
<td>t</td>
<td>t</td>
<td>c</td>
<td>k</td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td>j</td>
<td>ɿ</td>
<td>ɿ</td>
<td>ɿ</td>
<td>Λ</td>
<td></td>
</tr>
<tr>
<td>Glide</td>
<td>w</td>
<td></td>
<td></td>
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</tbody>
</table>

We utilize a comparative database of lexical items from predominantly Pama-Nyungan languages in order to test published generalizations about phoneme inventories, phonotactics, and other phenomena (such as root internal vowel harmony patterns). By using lexical materials to derive inventories and segment frequencies, we are able to assemble a nuanced picture of the diversity of systems present among the languages. Results here are presented from 120 languages for which extensively phonemically transcribed materials were available; a map of language locations is given in Figure 2. 200,125 lexical items were included. Materials were compiled from electronic dictionaries, print materials and fieldnotes.

Inventory studies confirm, to some degree, the impression of uniformity. However, phoneme frequencies vary substantially across the sample even among languages with similar inventory types. We also, to a large extent, confirm the tendency for languages to have symmetrical stop-nasal series. However, there are exceptions. Bidjara-Gungabula, for example, lacks a retroflex nasal, while Guwamu lacks both dental and retroflex nasals, though in both of these languages the accompanying oral stop is robustly attested.

We also have data on marginal phonemes. For example, while 97 of the 120 languages in the sample provide at least some evidence for /ɿ/, token frequency varies from 0.004% (Burarra; a single word) to 2% (Warlpiri). Similar variation is found with the vowel /e/, found to some extent in 51 languages, with a prevalence of between 0.004% (Walmajarri; one word) and 23% (Western Arrarnte).
Phoneme distribution also varies. We generally find support for Dixon’s claim for increased incidence of peripheral (labial or velar) consonants in word initial position. However, there is substantial variation in actual frequency. While nearly 80% of the lexical items in Wiradjuri begin with peripheral stop or glide, only 14% of Alyawarr’s words do so.

Beyond bringing large-scale quantitative data to bear on previously-made phonotactic claims, this work has also uncovered new patterns. Dixon has pointed out that languages with two laminal series (dental vs. palatal) tend to retain this contrast in word-initial position, while apical (plain vs. retroflex) contrasts tend to be collapsed there. This data reveals that voicing contrasts too are more likely to be maintained word-initially in laminal segments (68% of relevant languages) than in apicals (41%). Further, the contrast in place of articulation between the two apical stop series is substantially more likely to be maintained in languages with contrastive voicing (48%) than in those without it (28%)

The apparent uniformity of phoneme inventories has led to views that the languages of Australia must be uniform in other aspects of phonology. We show that this is not in fact the case. This has implications for work which treats Australian languages as uniform, for example Butcher’s “place-of-articulation imperative”.

References


