RETROFLEXION IN SOUTH ASIA
TYPOLOGICAL, GENETIC, AND AREAL PATTERNS

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WORKSHOP ON TYPOLOGICAL PROFILES OF LANGUAGE FAMILIES OF SOUTH ASIA, UPPSALA UNIVERSITY, 15-16 SEPT 2016
INTRODUCTION


▶ Typological: identify patterns of contrast in consonant and vowel inventories.

▶ Dialectological: map phonological oppositions as isoglosses.

▶ “more in the nature of a preliminary report than a conclusive statement” (544)

▶ Envisioned its “further refinement into a definitive typological inventory of South Asian phonologies by the cooperative endeavor of all concerned” (552)

- Larger sample (esp. languages of the northwest)
- Revised typology of retroflexion
- Included revised map
**Need for revision**

- Limited data; notable gaps
- Qualitative, not quantitative (no statistics)
- Maps are hand-drawn & monochrome; areal patterns are not always clear
INTRODUCTION

Ramanujan & Masica 1969

Tikkanen 1999
INTRODUCTION

The Current Study

▶ Larger sample; incorporates more recent scholarship
▶ Quantify data; provide basic statistics
▶ Create computer-generated colour maps using a Geographic Information System (GIS) software

Key Results

▶ No clear correlation between type of retroflex system and genetic groups (or sub-groups)
▶ Distribution of system types is more geographic than genetic; each cuts across genetic lines to define its own geographic area.
1. Introduction
2. Methodological preliminaries
3. Retroflexion in South Asia
4. Obstruents
5. Nasals
6. Liquids
7. Approximants & vowels
8. Conclusion
MAP 1: LANGUAGES OF SOUTH ASIA

Languages of South Asia

INDO-IRANIAN
- Iranian
- Nuristani
- Indo-Aryan

DRAVIDIAN
- Dravidian

AUSTRO-ASIATIC
- Munda
- Other AA

SINO-TIBETAN
- Tibeto-Burman

OTHER LANGUAGES
- OTHER
### TABLE 1: LANGUAGE SAMPLES

<table>
<thead>
<tr>
<th>LANG FAMILY</th>
<th>SUB-FAMILY</th>
<th>R&amp;M 1969</th>
<th>TIKKANEN 1999</th>
<th>CURRENT STATS¹</th>
<th>CURRENT MAPS²</th>
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<tbody>
<tr>
<td>INDO-IRANIAN</td>
<td>IRANIAN</td>
<td>4</td>
<td>14</td>
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<td>12</td>
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<td></td>
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<td>39</td>
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<td>DRAVIDIAN</td>
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<td>15</td>
<td>20</td>
<td>37</td>
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<tr>
<td>AUSTRO-ASIATIC</td>
<td>MUNDA</td>
<td>7</td>
<td>7</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>OTHER AA</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>8</td>
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<tr>
<td>SINO-TIBETAN</td>
<td>TIBETO-BURMAN</td>
<td>8</td>
<td>30</td>
<td>72</td>
<td>96</td>
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<td>CHINESE</td>
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<td>0</td>
<td>2</td>
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<tr>
<td>OTHER</td>
<td>—</td>
<td>1</td>
<td>5</td>
<td>8</td>
<td>21</td>
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<td>TOTALS</td>
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<td>67</td>
<td>122</td>
<td>205</td>
<td>259</td>
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</tbody>
</table>

¹ The sample used to calculate statistics is limited to those languages spoken within the countries of South Asia.
² The sample used to generate maps includes additional languages spoken in the regions surrounding South Asia.
SOME CAVEATS

▶ Focus on phonological contrast, not phonetic implementation.
  ▶ Ignore different degrees of retroflexion
    (e.g., ‘weak’ apical [post-]alveolar vs. ‘strong’ sub-apical palatal).
▶ Loanword phonemes excluded.
  ▶ Unless they are very frequent and well-integrated.
RETROFLEXION IN SOUTH ASIA

UPSID

- 80% retroflexion
- 20% none

South Asia

- 78% retroflexion
- 22% none
RETROFLEXION IN SOUTH ASIA

Percentage of languages with retroflexion in each family

- INDO-IRANIAN: 99%
- DRAVIDIAN: 100%
- AUSTRO-ASIATIC: 84%
- TIBETO-BURMAN: 47%
- OTHER: 50%
Figure 3: Percentage of languages with retroflexion in selected Tibeto-Burman subgroups.
MAP 2: RETROFLEXION (ANY MANNER)

Retroflexion in South Asia

- IIR
- DR
- AA
- TB
- OTHER

Legend:
- none
- retroflexion
RETROFLEX OBSTRUENTS

Indo-Iranian

- t: 94%
- tʂ: 17%
- ş: 22%

Tibeto-Burman

- t: 44%
- tʂ: 1%
- ş: 8%

Dravidian

- t: 100%
- tʂ: 0%
- ş: 3%

Austro-Asiatic

- t: 79%
- tʂ: 0%
- ş: 0%
RETROFLEX OBSTRUENTS: FREQUENCY OF SYSTEM TYPES

**UPSID**
- t: 50%
- t, s: 7%
- s: 13%
- ts, s: 20%
- ts: 7%
- t, ts: 0%
- t, ts, s: 3%

**South Asia**
- t: 85%
- t, s: 6%
- s: 0%
- ts, s: 1%
- ts: 0%
- t, ts: 0%
- t, ts, s: 8%
No language in UPSID or the current survey has /ʈ, tʂ/ without /ʂ/.

Implicational universal (?): If a language distinguishes retroflex stops and affricates, it also distinguishes retroflex fricatives.

Feature Hierarchy

```
retroflex obstruents
  non-continuant  continuant
    Ŵ / tʂ  ŝ
  non-strident  strident
    Ŵ  tʂ
```
**RETROFLEX NASALS**

- **Indo-Iranian**
  - ɳ: 52%
  - ɲ: 13%
  - ŋ: 43%

- **Tibeto-Burman**
  - ɳ: 3%
  - ɲ: 31%
  - ŋ: 97%

- **Dravidian**
  - ɳ: 76%
  - ɲ: 24%
  - ŋ: 49%

- **Austro-Asiatic**
  - ɳ: 26%
  - ɲ: 68%
  - ŋ: 95%
Statistically dominant nasal place system in each family:

- **Indo-Iranian**: /m n η/ (33 – 52%)
- **Dravidian**: /m n η/ (35 – 76%)
- **Austro-Asiatic**: /m n η ɲ/ (58 – 68%)
- **Tibeto-Burman**: /m n η/ (65 – 97%)
Dravidian: 89%
Indo-Iranian: 64%
Austro-Asiatic: 63%
Other: 25%
Tibeto-Burman: 3%
RETROFLEX LIQUIDS

**Indo-Iranian**
- 39% \( r \)
- 9% \( r,l \)
- 16% \( l \)

**Tibeto-Burman**
- 3% \( r \)
- 0% \( r,l \)
- 0% \( l \)

**Dravidian**
- 35% \( r \)
- 8% \( r,l \)
- 46% \( l \)

**Austro-Asiatic**
- 58% \( r \)
- 0% \( r,l \)
- 5% \( l \)
Statistically dominant liquid system in each family:

- Indo-Iranian: $r \ l \ ɽ$ (38 – 48%)
- Dravidian: $r \ l \ \_\_\_\_$ (30 – 54%)
- Austro-Asiatic (Munda): $r \ l \ ɽ$ (58 – 58%)
- Tibeto-Burman: $r \ l$ (86 – 89%)
MAP 6: RETROFLEX LIQUIDS

Retroflex liquids

IIR  DR  AA  TB  OTHER

- none
- [ ]
- [ , ]
- [ , ]
MAP 7: APPROXIMANTS & VOWELS

Retroflex approximants and vowels

IIR  DR  AA  TB  OTHER

- none
- [l]
- [i] + [l]
- [i]
- /l/
- /l/ + [ə]
- /ə/
Q. Are there strong correlations between certain retroflex contrasts and certain language families or genetic sub-groups?

A. No.

Some broad statistical correlations are possible, but the distribution of each retroflex contrast is more geographic in nature than genetic.

Next: Can these different retroflex areas be correlated with other factors (linguistic or otherwise) that might shed light on their origins?
Acknowledgments

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References
