Registrogenesis in Bunong: The Interaction of Phonetics and Phonology
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Registrogenesis: A process by which a register system emerges.

Register: A phonological system in which a historical voicing contrast on consonants is synchronically manifested on vowels.

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<tbody>
<tr>
<td>R1: */pa/ → */ba/ →</td>
<td>*/pa/ → */pa/ height</td>
<td>*/pa/ → */pha/ phonation</td>
<td>*/pa/ → */pa/ tone</td>
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<table>
<thead>
<tr>
<th>Non-low Vowels</th>
<th>Low Vowels</th>
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</thead>
<tbody>
<tr>
<td>R1: *C[i,voi]</td>
<td>R2: *C[i,voi]</td>
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<tr>
<td>V Height</td>
<td>V Quality</td>
</tr>
<tr>
<td>low</td>
<td>high</td>
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<td>high</td>
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**Experiment 1:**
What is the phonetic manifestation of register in Bunong?

**Experiment 2:**
Which cues are most perceptible to listeners?

**Stimuli:**
3 cross-spliced minimal pairs: [CgV₁V₂] and [C₁V₁V₂]

(i) Natural
(ii) VOT altered
(iii) Pitch altered
(iv) VOT & Pitch altered

**Forced Choice Task:**
-R1 or R2 (represented orthographically)
-Results: Vowel height and diphthongization are most salient cues
-Results: Goodness ratings lower when pitch, VOT don't match vowel quality
-Results: Judgments more consistent on low vowel than non-low vowels

**Phonologization of Registrogenesis** (Hyman 1976)

**Intrinsic Cues:**
- Pitch is higher on higher vowels
- Vowels are higher following voiced stops

**Registrogenesis:**
Step 1.
Voicing raises vowels (R2)

Step 2.
- Low vowel diphthongizes following voiced stops due to F1 lowering
- Vowel quality determines register on low vowels
- Non-low vowel categories conflate

Step 3.
- Result: phonation contrast emerges on non-low vowels
- Vowel quality, pitch and phonation determine register on non-low vowels

**Conclusions**
-[register] in Bunong and has various phonetic correlates
-Cues differ by vowel height
-Vowel quality is most salient, but phonation, pitch, VOT also important
-The perceived phonetic inconsistency of [register] can be understood through its diachronic evolution

**References**
Ike, Steven. In Progress. A Phonetic Study of Register in Tibetan (Central and Lhasa).

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