Westerwald Franconian:
A different ternary scale for tone spreading

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Our fieldwork on the Westerwald (Moselle Franconian) dialect of Arzbach (Germany) leads us to posit a hitherto undected pattern of consonant-tone interaction: a **ternary scale for tone spreading** whose order differs from the scale for tonogenesis of low tones and for depressor consonants in Asian and African tone languages.

1. THE SCALES

Franconian:	sonorant	> voiced obstruent	> voiceless obstruent
Asian/African:	voiced obstruent	> sonorant	> voiceless obstruent

2. THE DATA

Franconian 'tone' languages

Open Syllable Lengthening without schwa drop

	Voiceless obstruent	Voiced obstruent	Sonorant
	'eat'	'praise'	'steal'
Medieval	ɛt/sən	lɔvən	stɛlən
Limburgian	ɛ́ɛ́tə̀	lɔ́ɔ́và	ʃtɛ́ɛ́lə̀
Arzbach	ɛ́ɛ̀sə̀	lóɔ̀và	ʃtɛ́élə̀
Ripuaric	ɛ́ɛ̀sə̀	lɔ́ɔ̀và	ʃtɛ́ɛ̀lə̀

marked red = tone merger with medieval long vowels

In some cases the tones of the lengthened vowels merged with the tones of the medieval long vowels which are fully predictable (Limburg and Ripuaric: áà, óò, éè - Arzbach: áá, óó, éé).

We see the scale sonorant > voiced obstruent > **voiceless obstruent** when comparing the dialects:

If there are two different tones (Arzbach and Ripuaric), sonorants always behave oppositely from voiceless obstruents.
Crucially, voiced obstruents behave ambivalently.

Arzbach: voiced obstruents side with **voiceless obstruents**
Ripuaric: voiced obstruents side with **sonorants**

Asian and African tone languages

Siswati (Bradshaw 1999):
After voiced obstruents, vowels are realized with a low tone. Sonorants and voiceless obstruents do not influence tone.

/kú + oŋ**ga**/ → [kóoŋ**gà**] 'to economize'
/kú + **na**/ → [kúú**na**] 'to rain'
/sí + **k**|ook|o/→ [sí**k**|ook|o] 'frog'

Western Bade (Schuh 2002):
L spreads to the following syllable if this syllable begins with voiced segment and is followed by a H after a clitic phrase- or phonological phrase-boundary. The spreading is blocked if the syllable begins with a voiceless segment.

/d͡ʒə̀-d**gɔ́** | kóórón/ →[d͡ʒə̀-d**gə̀** kóórón] 'we followed a donkey'
/d͡ʒə̀ wà**nɔ́** | kázàmə́n/→[d͡ʒə̀ wà**nə̀** kázàmə́n] 'we sent a girl'
/d͡ʒə̀ gà**fá** | kóórón/ →[d͡ʒə̀ gà**fá** kóórón] 'we caught a donkey'

We see the scale voiced obstruent > sonorant > **voiceless obstruent** when comparing both languages:

In Siswati and Western Bade, voiced obstruents always behave oppositely from voiceless obstruents.
Crucially, sonorants behave ambivalently.

Siswati: sonorants side with **voiceless obstruents**
Western Bade: sonorants side with **voiced obsturents**

3. HOW BOTH SCALES CAN BE UNDERSTOOD IN PHONETIC TERMS

Scale of audibility of tone in general:

1. any tone is most audible on sonorants;
2. any tone is less audible on voiced obstruents;
3. any tone is least audible on voiceless obstruents.

Franconian uses this scale because both H and L spread:

Ripuaric declarative focus: ɛ́ɛ̀sə̀n, ʃtɛ́ɛ́lə̀n → ɛ́ɛ̀sə̀n, ʃtɛ́ɛ̀lə̀n
Ripuaric interrogative focus: ɛ̀ɛ̀sɔ́n, ʃtɛ̀ɛ̀lɔ́n → ɛ̀ɛ̀sɔ́n, ʃtɛ̀ɛ́lɔ́n

This scale is appropriate for pitch-accent languages, where tonal material comes from grammatical H and L and hence is unpredictably associated with specific segments.

Scale of articulatory association with specific tones:

1. voiced obstruents favour low tone;
2. sonorants favour no specific tone;
3. voiceless obstruents favour high tone.

This is the scale familiar from Halle & Stevens (1971) and Bradshaw (1999).

This scale is appropriate for 'pure' tone languages, where tonal material comes from lexical H and L and hence is predictably associated with specific segments.

Conclusion:
The scales are directly phonetically appropriate for pitch-accent versus 'pure' tone languages.
Since there do not seem to be any *structural* differences between the surface forms in the two types of languages,
the difference between the two scales does not seem to have a phonological cause.

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