



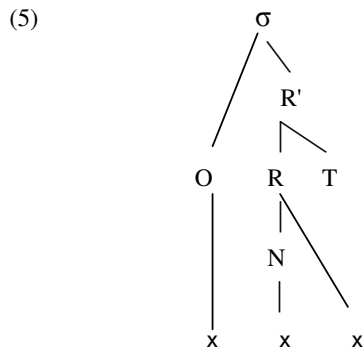
3.3 Bao (1990, 1999):

- ✓ Basic claim: following Steriade (1988), Bao assumes that partial reduplication always involves total copying of the base. Excessive material is truncated and new material is inserted.

(4) ma 55 → man 55-t'a 55

a. source syllable	b. reduplication	c. substitution
ma	mV      Ca	man      t'a
55	55      55	55      55

- ✓ Representation proposed by Bao (1999): a *constituent-based* approach



- ✓ Predictions:
  - a. Rime (R') is replaced; new tone is expected. (3a)
  - b. Segmental rime (R) is replaced; source tone is expected. (3b)
  - c. Coda is replaced; source tone is expected. (3c)
  - d. Nucleus is replaced; source tone is expected. (3d)
- ✓ Remarks:
  - a. Substitution of the rime triggers sometimes a new tone, sometimes not (cf. 3a v.s. 3b), thus, we are forced to enrich the representation in terms of primitives. What is the nature of R and R'?
  - b. A double asymmetry:
    - i.  $\sigma_2$  always retains the source tone. The following form is not attested in the literature on *fanqie* languages:

(6) t<sup>h</sup>aw 13 > \*law 13 t<sup>h</sup>i 31

- ii. The replacement of the source tone on  $\sigma_1$  implies that of the rime (cf. 7a), but the substitution of the rime doesn't trigger that of the source tone (cf. 7b). The rime can't be retained on  $\sigma_1$  if the source tone is replaced (cf. 7c).

(7) a. pən 15 > pey 51-kən 15  
 b. pã 33 > pø 33-vã 33  
 c. hyaw 53 > \*lyaw 13-hi 53

- d. Bao's theory is not capable of explaining this *double asymmetry*:
  - i. Why does  $\sigma_2$  always retain the source tone, but  $\sigma_1$  doesn't?
  - ii. Why does the replacement of the tone imply that of the rime on  $\sigma_1$ , but the converse doesn't work?

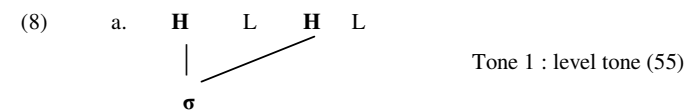
- ✓ Our proposal: a *lateral* approach, as opposed to Bao's hierarchical approach

- a. In any case, tones may be stable (and **reduplicated**) under the substitution of the rime, the nucleus and the coda.
- b. Reduplication acts on skeletal units, which encode phonological length (cf. Mokilese *sɔɔrok* → *sɔɔ-sɔɔrok*). Now, *fanqie* may involve tonal reduplication. Therefore, tones might be skeletal units.

#### 4. Hypothesis of a tonal skeleton

Basic claims:

- ✓ There is a universal tonal periodic skeleton HLHL (Carvalho 2002), analogous to the syllabic skeleton CVCV (Lowenstamm 1996).
- ✓ Chinese tones are constrained by a portion of this periodic skeleton: a tonal template HLHL.
- ✓ Chinese contour tones can be analyzed as a succession of level tones defined by an intratonal government relationship H/L encoding the notion of register. The four citation tones of Mandarin can be represented as follows (the vertical link indicates the tonal head). The register is low if and only if the head is low; it is high if and only if the head is high.





- (11) a. pǎ 33 > p<sub>o</sub> 33-vǎ 33  
 b. ma 55 > ma<sub>n</sub> 55-t<sup>h</sup>a 55  
 c. t<sup>h</sup>at 31 > lat 31-t<sup>h</sup>it 31

**Hence, tones dominate syllables, which dominate segmental primes.**

## 7. Conclusion:

- ✓ Reduplication acts on skeletal units. *Fanqie* primarily involves tonal reduplication. Therefore, tones are skeletal units.
- ✓ Source tone regular preservation in  $\sigma_2$  points to the existence of a tonal template independently required by tone sandhi phenomena.
- ✓ That reduplication may involve tones but not segments suggests the following hierarchy in phonological representation:  
**tonal skeleton > syllables > segmental melodies.**
- ✓ Typology and language acquisition concur with *fanqie* languages in providing strong evidence in favor of the existence of a tonal skeleton in Asian tonal languages. More accurately, the hypothesis of a periodic tonal skeleton enables us to explain: (a) why there are Chinese dialects having only contour tones; (b) why there is no tonal system with only level tones in Chinese dialects.

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