

The influence of Chinese character form regularities on other orthographic systems

James Myers - National Chung Cheng University - 2018 ms.

Chinese characters obey numerous formal regularities that remain understudied (cf. Wang, 1983). Our previous corpus analyses and experiments reveal that many are productive: semantic radicals favor the left and top (吧, 花 types outnumber 刻, 熱 types), left-edge radicals change horizontal strokes to rising diagonals (土~地) or falling diagonals to dots (木~根), reduplication is restricted to certain configurations (𠔁, 呂, 品), a constituent's lowermost horizontal stroke is usually lengthened (土 types far outnumber 士 types), the leftmost vertical stroke is usually curved (川, 月 types outnumber 同 types), and leftward hooking on a vertical stroke slightly favors asymmetry and/or stroke contact at the top (寸, 丁 are more typical than 小). The present study provides further evidence for the abstractness and productivity of these patterns based on how they have been borrowed into other orthographies: Tangut script, Korean Hangeul, Mandarin Zhuyin, and Japanese katakana.

All of these systems have adapted specific Chinese characters (e.g., see Gong, 2002, for Tangut), and all maintain the same basic stroke inventory (cf. circles in Hangeul). Yet their borrowing of purely formal generalizations has not attracted attention. Tangut script not only had semantic radicals, but as in Chinese, the radicals also strongly favored the left and top edges (see examples in West, 2016). As in Chinese, constituent reduplication in Tangut favored horizontal doubling ($\overline{\text{ㄩ}} = \overline{\text{ㄩ}} \overline{\text{ㄩ}} + \text{radical } \text{一}$) over vertical doubling (radical $\text{彡} = \text{彡} \text{彡}$). Also as in Chinese, a constituent's lower horizontal stroke was lengthened (radicals $\text{一} \text{一} \text{一} \text{一} \text{一} \text{一}$). Left-edge curving was also regular (radicals $\text{ㄩ} \text{ㄩ} \text{ㄩ} \text{ㄩ} \text{ㄩ} \text{ㄩ}$), but unlike Chinese, not with top contact (radicals $\text{ㄩ} \text{ㄩ} \text{ㄩ} \text{ㄩ} \text{ㄩ}$). Leftward hooking appeared with asymmetry and top contact, though only on diagonal strokes (radicals $\text{ㄩ} \text{ㄩ}$ vs. $\text{ㄩ} \text{ㄩ}$).

Hangeul, Zhuyin, and katakana are simpler, but the first also can be decomposed into constituents, with doubling only horizontally (e.g., ㅁㅁ) as well as stroke rising and dotting in left-edge constituents (ㄱ~ㄲ, ㅈ~ㅊ). Bottommost horizontal strokes tend to lengthen (e.g., ㅈ, ㅊ), but unlike Chinese, so do leftmost horizontal strokes (ㄱ ㄱ vs. ㄱ ㄱ). Leftmost vertical strokes are not curved, but they are shortened (ㄱ ㄱ ㄱ ㄱ). Though Zhuyin and katakana were derived from regular Chinese script, variation in which formal patterns are retained suggest productivity differences. Leftmost curving in Zhuyin is copied from the source characters (ㄥ < ㄥ vs. ㄥ < ㄥ), but hooking, which is less consistent in Chinese, is often lost (ㄥ < ㄥ vs. ㄥ < ㄥ). Curving is also more productive than hooking in katakana, being generalized to central strokes (e.g., ㄥ < ㄥ), and mostly neutralizing with the Chinese hooked stroke, allowing it to appear on the right as well (e.g., ㄥ < ㄥ, サ < 散; cf. カ < 加).

Universal constraints (Morin, 2017) can give rise to similarities across orthographies, perhaps including the preference for horizontal over vertical doubling. However, many of the similarities discussed here seem arbitrary, showing how orthographies, like spoken language, can borrow abstract formal generalizations even when they are not directly functional.

References

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