This thesis investigates the processing of words written in Japanese kanji and Chinese hànzì, i.e., logographic scripts. Special attention is given to the fact that the majority of Japanese kanji have multiple pronunciations (generally depending on the combination a kanji forms with other characters).

First, using masked priming, it is established that upon presentation of a Japanese kanji multiple pronunciations are activated. In subsequent experiments using word naming with context pictures it is concluded that both Chinese hànzì and Japanese kanji are read out loud via a direct route from orthography to phonology. However, only Japanese kanji become susceptible to semantic or phonological context effects as a result of a cost due to the processing of multiple pronunciations. Finally, zooming in on the size of the articulatory planning unit in Japanese it is concluded that the mora as a phonological unit best complies with the observed data pattern and not the phoneme or the syllable.