「フィンランド語と日本語の Gemination 比較」
A COMPARISON OF GEMINATION IN FINNISH AND JAPANESE

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Gemination is a phonological term which falls into the domain of quantity. Quantity is the phonologically distinctive, paradigmatic length of segments (categorically short or long, vowel or consonant), which occurs within words and which can syntagmatically occur in certain positions in words. Quantity also denotes the phonetic duration within various domains and across morae, syllables, word boundaries, or even sentence boundaries. Quantity can be related to temporal control such as speech rhythm and timing and relates to prosody. In this talk I shall discuss some similarities and differences between Japanese and Finnish geminate consonants and illustrate how they are related to quantity. Japanese and Finnish have both short and long vowels and consonants, which are categorically distinctive in phonetic duration, and phonologically and linguistically distinctive. Japanese and Finnish are linguistic-typologically different in linguistic rhythm and timing, that is, Japanese is a mora-counting and pitch-accented language, whereas Finnish has syllabic trochaic stress rhythm.

Japanese and Finnish geminate consonants

There are 14 Japanese geminates: /pp, tt, kk, cc, ss, **ɕɕ**, mm, mm^{j}, nn, **ɲɲ**, **ŋŋ**, pp^{j}, tts, tt**ɕ**/. In addition, the voiced geminates could be added to this inventory; e.g., [d**ːʑ**] in ‘ba<u>ddz</u>i’ /b**ɑ**Qd**ʑ**i/ (‘badge’) occurs only in loanwords from English. The other consonants can occur only as long consonants in emphatic expressions. There are ten possible Finnish geminates: /pp, tt, kk, ss, mm, nn, **ŋŋ**, rr, ll, (hh, vv)/. Thus, Japanese and Finnish consonants share seven common geminate consonants: three plosives /pp, tt, kk/, one fricative /ss/, and three nasals /mm, nn, **ŋŋ**/.

It must be noted that there is always a moraic boundary in Japanese geminates, as well as a syllabic boundary in Finnish.

Geminates in phonotactics

There is no phonetic boundary between geminate consonants but there is moraic or syllabic boundary in Japanese and Finnish: e.g., ‘kitte’ /ki<u>tt</u>e/ [kitːe] (‘stamp’) in Japanese where at least three morae are needed to contain the geminates: /ki|t|te/ CV|C|CV, and ‘katto’ /kɑ<u>tt</u>o/ [kɑtːo] (‘roof’) in Finnish where at least two syllables are needed: /kat.to/ CVC.CV.

Finnish case endings may have geminates, e.g., -ssa [sːɑ] (‘in’), -lla [lːɑ] (‘on’), -lle [lːe] (‘to’) as have postpositions such as ‘alla’ [ɑlːɑ] (‘under’) and ‘kautta’ [kɑutːɑ] (‘through’). Possessive suffixes can have geminates: -mme [mːe] (1st, pl.) and –nne [nːe] (2nd, pl.). -mme (1st, pl.) and -tte [tːe] (2nd, pl.) are used in verbal suffixes.

Geminate consonants in the phonological process

Geminates are produced in loanwords in both Japanese and Finnish: e.g., ‘cut’ [ˈkʌt] → ‘katto’ /kɑ<u>tt</u>o/ [kɑtːo] in Japanese, ‘bank’ [ˈbæŋk] → ‘pankki’ /pɑŋ<u>kk</u>i/ [pɑŋkːi] in Finnish. English words with a CVC (V=short vowel) structure become CV|C|CV when a short vowel is stressed in English, and because Japanese needs to have a CV structure word finally in loan words, with the exception of the moraic nasal /N/. This process (word-final CV) is similar in Finnish loanwords. In Finnish loan words /-ŋk-/ always becomes /-ŋkk-/, that is, nasals + geminates (/pp/, /tt/, /kk/, and /ss/) as seen in ‘pankki’ /pɑ<u>ŋkk</u>i/.

In Japanese particularly high vowels such as /i, e/ are devoiced. For example, ‘katsute’ /kɑ|tsɯ̥|te/ [kɑtsɯ̥te] becomes ‘katte’ /kɑ|t|te/ [kɑtːe] as a result of the devoicing and deletion of /ɯ/. On the other hand, in Finnish, there is no vowel devoicing, although in rapid speech /-tse-/ becomes /-tt-/: e.g., ‘seitseman’ /sei<u>t.s</u>eman/ [seitsemɑn] (‘seven’) → /sei<u>t.t</u>emɑn/ [seitːemɑn]; ‘itse’ /it.se/ [itse] → /it.te/ [itːe] (‘self’).

Geminate consonants in the syntagmatic process

In the structure of both languages, gemination is a frequent process in the system of derivation and inflection. In Japanese, for example, the past form of 'kau' (ka-u) is 'katta' (ka-t-ta) where *u* is deleted and instead the same consonant *t* as the word-initial consonant of the following mora is inserted. (N.B. 'ta' = the past particle) This does not apply to Finnish.

In terms of derivation, in Finnish a nominal suffix -kko/-kkö is added to the root (nom.) in order to show a collective noun: e.g., 'aalto' [ɑːlto] ('wave') → 'aallokko' [ɑːlːokːo] ('the waves'). (N.B. -lt- becomes the geminate -tt- as a result of consonant gradation.)

Geminate consonants occurring at word (or sentence) boundaries

Japanese and Finnish have word-medial geminate consonants. A difference between the two languages is that word-final geminates can occur in Japanese emphatic expressions; that is, word final /Q/ (e.g., /ɑQ/ (an interjection in a surprising state), a phenomenon which does not occur in Finnish. On the other hand, in Finnish the initial doubling of a consonant under certain word boundary conditions can occur: e.g., "*Tule pas*!" ("Do come!") /tule#pɑs/ [tulepɑs] becomes /tule#ppɑs/ [tulepːɑs].

Temporal control

In terms of linguistic rhythm and timing, Trubetskoy (1969) states that both Japanese and Finnish are mora-counting languages. Figure 1 (quoted from Jaakkola (2004)) shows the segmental distributions in a nonsense word with a $CV^1C^1C^1V^1V^1$ structure, containing the exact phonemes and geminate consonants in Japanese and Finnish. As far as such segmental distributions are observed, Trubetskoy's statement may be true in that the syllable and word structure are the same. (See Jaakkola (2004) for other structural word cases.)

However, this is not true when the syllable and word structure are different (see Fig. 2 (quoted from Jaakkola (2004)). The trimoraic word structure CV|N|CV, e.g., 'hanki' /hɑŋki/ ('half term') in Japanese and disyllabic CVn.CV, e.g., 'hanki' /hɑŋki/ ('a snowdrift') in Finnish show a very similar temporal distribution within the word (see Fig.1). These words contain /-ŋk-/ in both Japanese and Finnish. However, the Finnish disyllabic $CVnC^1.C^1V$ structure, e.g., 'pankki' /pɑŋkki/ ('bank') shows a very different temporal pattern although this word structure contains a nasal and geminate. [ŋ] in Japanese CVNCV and Finnish CVnCV has very similar durational patterns in both Japanese and Finnish, but [ŋ] in Finnish $CVnC^1C^1V$ is much shorter in duration than [ŋ] in CVNCV and CVnCV.

Thus, these experimental results prove that Trubetskoy's statement is not true when the Japanese mora concept is applied to Finnish.

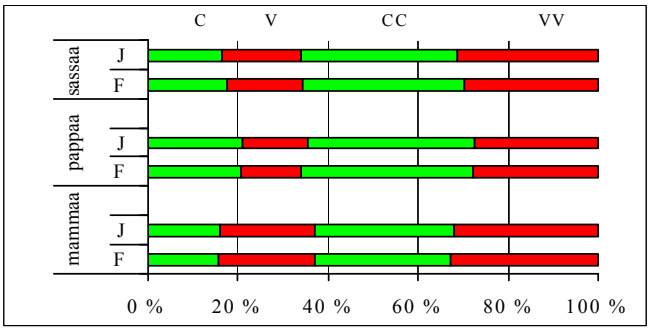

Fig. 1 Segmental distributions in $CV^1C^1C^1V^1V^1$ structure.

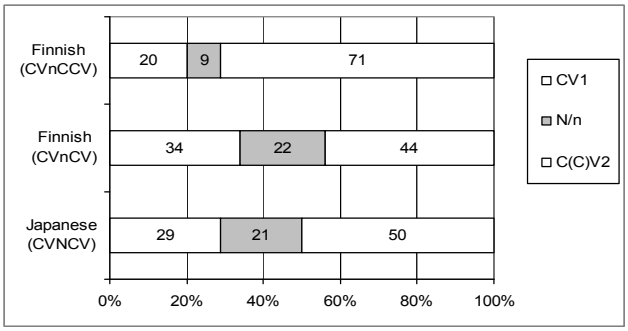

Fig. 2 Timing relationships between Japanese CVNCV, and Finnish CVnCV and $CVnC^1C^1V$/.

References

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