

# A study on the pattern of focal lengthening in Chinese

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The present study aims at investigating the temporal pattern of trisyllabic words and phrases in Chinese, particularly the realization of neutral tone syllables in the sequences. Neutral tone syllables are syllables which lose their original tones, and become shorter and weaker than the non-neutral tone syllables.

Syllables tend to lengthen under focused conditions, and the final syllable lengthens more than the other syllables [1]. What about the realization of neutral tone syllables under focused condition? Do neutral tone syllables lengthen when they are on focus?

## Method

The key syllables of this study are trisyllabic words or phrases. There are four types of trisyllabic sequences: (a) those with no neutral tone syllables, (b) those with one neutral tone at the third syllable, (c) those with one neutral tone at the second syllable, and (d) those with two neutral tones at the second and third syllables. If normal and neutral tone syllables are represented as '1' and '0' respectively, the four types of sequence can be written as: 111, 110, 101 and 100. For example,

111: Sun Shiheng (name of a person)

110: da xingxing (gorilla)

101: putaogan (raisin)

100: zhuangjia shang (on the crops)

The key sequences were embedded in sentence medial position, and focus was induced by questions. Eight native speakers of Standard Chinese, four male and four female, were recruited for the recording. The orders of the sentences were randomized for recording.

## Results

Figure 1 depicts the mean syllable durations of the four types of trisyllabic sequences, with sy1, sy2, and sy3 refer to the first, second and the final syllable, respectively. It is shown that syllables under the focused condition are longer than those under the unfocused condition. Repeated measures ANOVA analysis was performed on the effect of focus on the syllable duration.

## Discussion and conclusion

When a trisyllabic sequence is on focus, all the syllables will increase in duration, independent of type (neutral tone or not) or position (first, second, and third) of the syllable. The effect of focus on the syllable duration is prevailing. Detailed observation shows that,

(a) Except in the 100 sequence, the first syllable lengthens less than the other syllables. For a three-syllable unit, when the syllables lengthen, the first syllable will not lengthen much, as it is followed by two syllables.

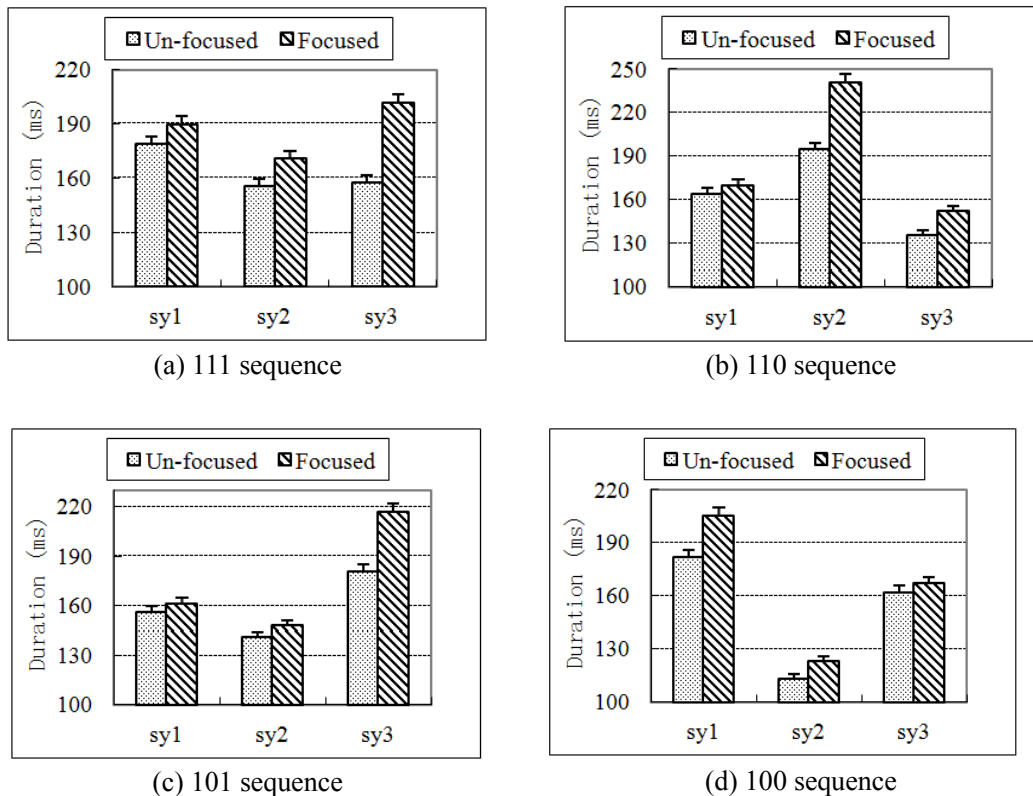


Figure 1. Average syllable durations of trisyllabic sequences under unfocused and focused conditions.

(b) Non-domain initial normal syllables lengthen more than neutral tone syllables. For example, in the 110 sequence, the second syllable lengthens more than the final syllable, and in the 101 sequence, the final syllable lengthens more than the second syllable. In a trisyllabic sequence with neutral tone, the normal syllables are strong, and they tend to lengthen more than neutral tone syllables. That is to say, focal lengthening tends to affect strong syllables more than weak syllable.

(c) The last normal syllable lengthens more than the other syllables. For example, in the 111 sequence, the final syllable lengthens more than the other two syllables, in the 110 sequence, the second syllable lengthens more than the first syllable, and in the 101 sequence, the final syllable lengthens more than the first.

To sum up, it is shown that in Chinese, when a trisyllabic sequence is on focus, all the syllables will lengthen. Strong syllables lengthen more than weak syllables, and among strong syllables, later syllable lengthens more than earlier syllables. Dimitrova & Turk [2] found that focal lengthening sites include the primary stressed syllable and the final syllable. The present result is similar to their findings to some extent. The difference is that, in Chinese, there is no primary or secondary stressed syllable.

## References

- [1] Y. Chen, "Durational adjustment under corrective focus in Standard Chinese", *Journal of Phonetics*, 34, pp. 176-201, 2006.
- [2] S. Dimitrova and A. Turk, "Patterns of accentual lengthening in English four-syllable words", *Journal of Phonetics* 40(3):403-418, 2012.