

Effects of Length and Ordering Preference on Intonational Phrasing: Evidence from Pauses

GERRIT KENTNER

gerrit@ling.uni-potsdam.de

Department of Linguistics, University of Potsdam, Germany

I. BACKGROUND

Pauses are an important feature of intonational phrase (IP) boundaries in speech (Cruttenden 1997). The probability of an IP boundary related pause increases with the

length of a preceding and / or upcoming phrase

(Watson & Gibson 2004) and with the

number of syntactic brackets

at the relevant position (Gee et al. 1983).

Watson & Gibson (2005) hypothesise that the

integration distance

between heads and their arguments also influences IP boundary placement and thus pauses in speech.

Speakers tend to concatenate equal-sized IPs, thus pauses usually occur at regular intervals. In case the IPs differ greatly in length, the order

short before long

is preferred (Wasow, 1997). However, speakers do not always have the choice which sequence to utter.

The purpose of this study is to ascertain the effects of the length of preceding and upcoming material and the head–argument distance on the duration of intra-sentential pauses.

III RESULTS

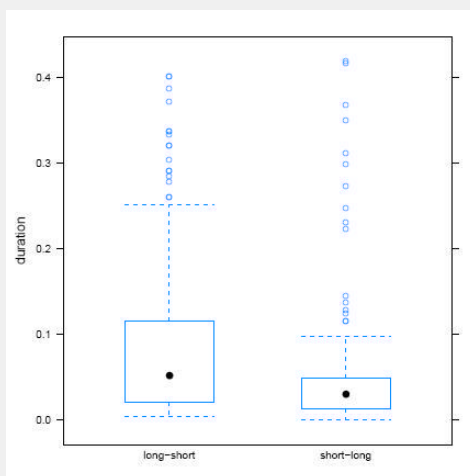


Figure 1: Box plots showing pause durations (in sec) at the conjunction as a function of the ordering of a long and a short conjunct.

A linear mixed effects model with the crossed fixed factors “ordering”, “head direction”, and “position of main verb” yields a **significant main effect for “ordering”** ($t=-2.11$, $df=324$, $p=0.036$) on pause duration. All other main effects and interactions remain non-significant.

II. EXPERIMENT

Three two-sided factors were systematically varied in coordination structures:

1. **Ordering of a short and a long conjunct** (short-long vs. long-short)
2. **Position of the main verb** (verb-2nd vs. verb-end)
3. **Direction of lexical head of long constituent** (head left vs. head right)

In conditions 1-4, the conjunction appears left of the middle (short-long), in 5-8, the conjunction appears right (long-short order). Conditions 1-4 are shown below. Conditions 5-8 are made up of the same material but the order of the underlined objects is reversed.

Short-long, verb-2nd, head left

Paul malt den Fluss und das Haus von Melanies Großtante.
Paul paints the river and the house of Melanie's grand aunt

Short-long, verb-2nd, head right

Paul malt den Fluss und das winzige geklinkerte Gartenhaus.
P. paints the river and the tiny clinker-bricked summer house

Short-long, verb-end, head left

Paul will den Fluss und das Haus von Melanies Großtante malen.
P. wants to paint the river and the house of M.'s grand aunt

Short-long, verb-end, head right

Paul will den Fluss und das winzige geklinkerte Gartenhaus malen.
P. wants to paint the river and the tiny clinker-bricked summer house

24 sets of sentences were created. 16 speakers read 24 sentences each (3 from each condition) in randomised order, interspersed with fillers.

The **duration of the silent interval before the conjunction** was taken as the dependent measure

IV. DISCUSSION

- Pause duration indicates that **boundary strength** at the conjunction is **higher in sentences with long-short ordering** than in short-long versions.
- The **size of the preceding phrase is a stronger predictor** for the strength of the prosodic boundary than the size of the upcoming one
- The **unpreferred long-short order results in a more complex phrasing structure** with a stronger prosodic boundary between the unequal-sized constituents
- When forced to utter the unpreferred order, **speakers avoid a violation of the short-long preference** within IPs by inserting an IP boundary after the long constituent.
- The IP can be seen as a domain for the short-long ordering preference.

V. REFERENCES

1. Cruttenden, A., Intonation, Cambridge University Press, Cambridge, 1997
2. Gee, J.P., Grosjean, F., “Performance structures: A psycholinguistic and linguistic appraisal”, *Cognitive Psychology*, 15, 1983, 411-458.
3. Watson, D., Gibson, E., “The relationship between intonational phrasing and syntactic structure in language production”, *Lang. Cogn. Proc.*, 19, 2004, 713-755.
4. Watson, D., Gibson, E., “Intonational phrasing and constituency in language production and comprehension”, *Studia Linguistica*, 59, 2005, 279-300
5. Wasow, T., “End-weight from the speaker's perspective”, *Journal of Psycholinguistic Research*, 26, 1997, 347-361.

ACKNOWLEDGEMENTS: This research was financed by a grant from the German Research Foundation (DFG Priority Programme no. 1234) to the project “Prosody in Parsing” at the University of Potsdam.

I would like to thank Caroline Féry, Frank Kügler, Anja Gollrad, Umesh Patil, and Shraavan Vasishth for helpful comments and suggestions.