

Prosody differs between objective and subjective causal relations in English

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Causality can be established either objectively or subjectively. The causality expressed in example (1) is objective, because both the consequence and the cause are real events; while the causality in example (2) is subjective, because “*Heidi is talented*” is one’s opinion. In languages like Dutch, these two types of causality are expressed by specialized connectives (*omdat/want*). However, in English, they are both expressed by *because*. Hence, the types of causality are left unspecified on the lexical level (if other lexical cues are not present). This leads to the question of whether these two types of causality are distinguished by non-lexical cues, e.g. prosody. We investigated this question in both forward and backward causals using a dialogue task. Taking the Bayesian approach, we examined a wide range of prosodic features, including not only static measures such as pitch and duration, but also dynamic measures on the shape of pitch contours extracted by Functional Principal Component Analysis. The results showed that in comparison with objective causals, subjective causals were produced with higher F_0 maximum, lower F_0 minimum, longer duration, and also with distinctive contour shapes. These results indicate a trade-off between lexical and prosodic cues.

- (1a) Heidi is thrilled because she won the first prize at the art festival. [backward]
- (1b) Heidi won the first prize at the art festival so she is thrilled. [forward]
- (2a) Heidi is talented because she won the first prize at the art festival. [backward]
- (2b) Heidi won the first prize at the art festival so she is talented. [forward]