

Prosody and listeners' interpretation of ambiguous discourse



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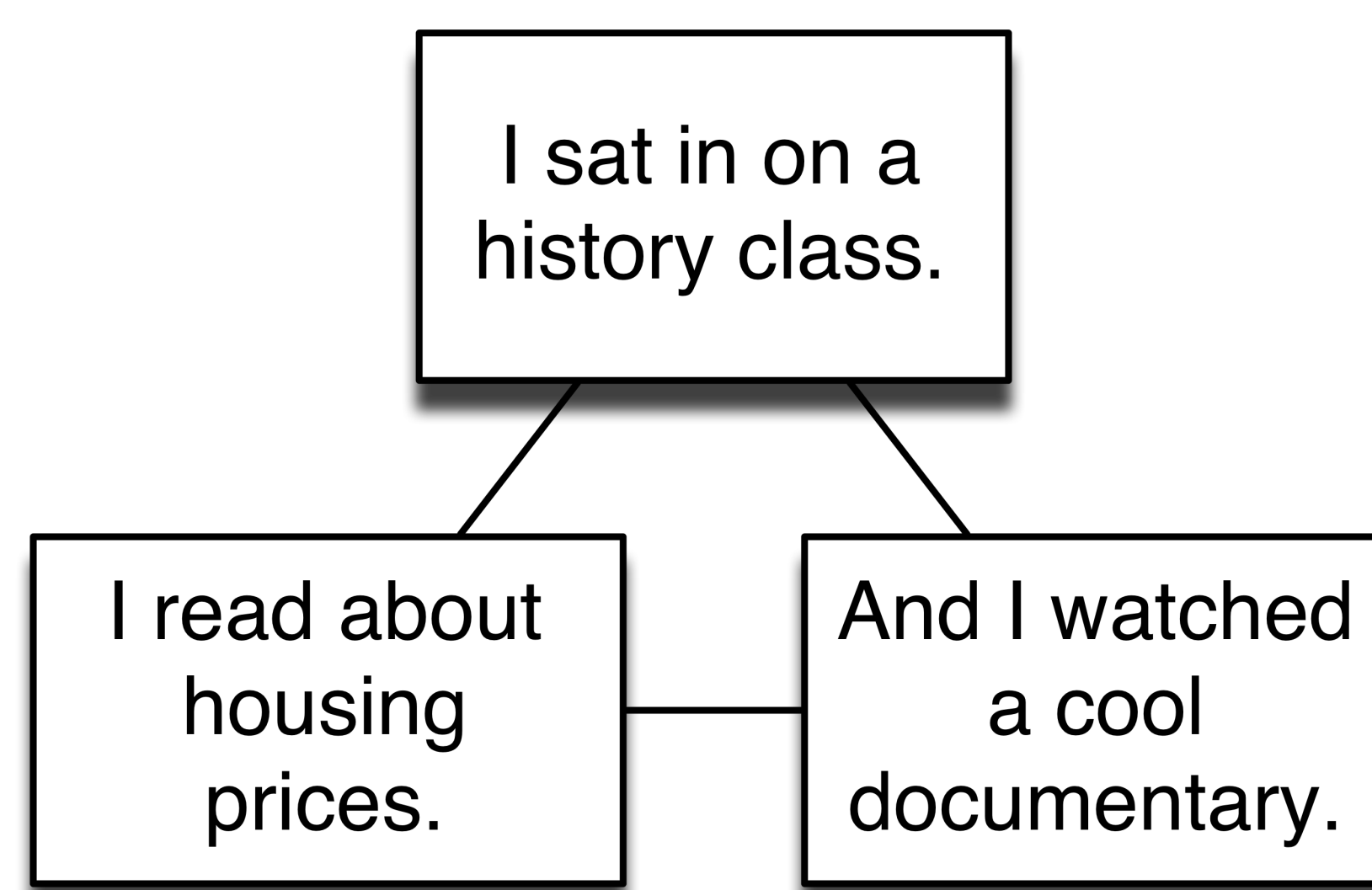
The Discourse Ambiguity



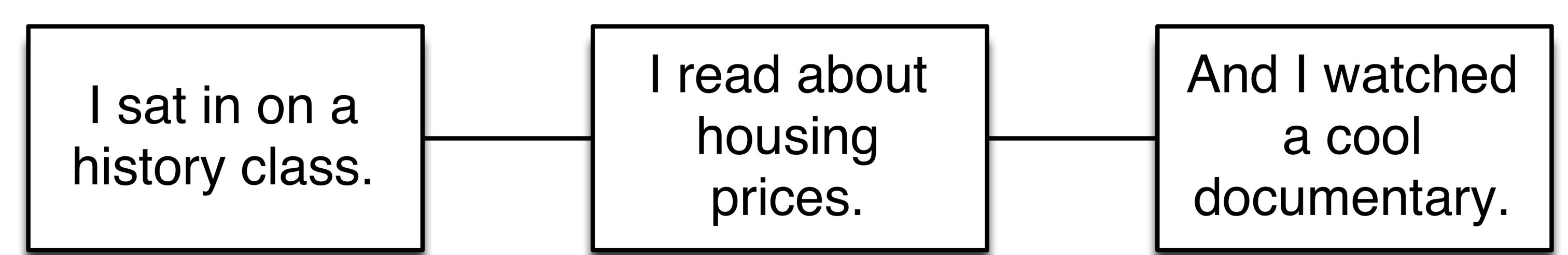
I sat in on a history class.
 I read about housing prices.
 And I watched a cool documentary.

Q: Can prosody of this discourse bias interpretation?

Subord Interpretation



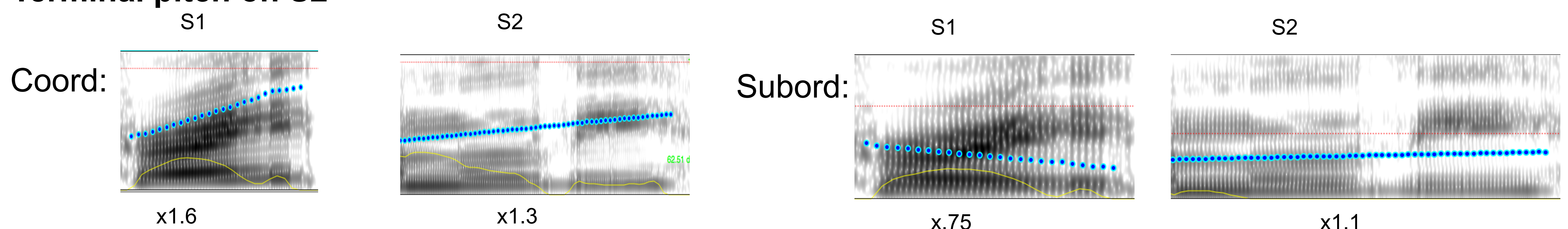
Coord Interpretation



Did Sally mean that she read about housing prices and watched a cool documentary (in history class/separate from history class)?

- 1: Terminal pitch on S1 (S1 = sentence 1)
- 2: Terminal pitch on S2

Prosodic Manipulations



- 3: Pause duration between S1 and S2
- 4: Pause duration between S2 and S3

Coord:	S1	Pause1(920ms)	S2	Pause2(400ms)	S3
Subord:	S1	Pause1(400ms)	S2	Pause2(20ms)	S3

- 5: Mean pitch and intensity on S2 and S3

Coord:	S2 and S3 mean pitch & intensity x <u>1.1</u>
Subord:	S2 and S3 mean pitch & intensity x <u>0.9</u>

The Experiment

Results

	MTurk12345	MTurk12	MTurk1	MTurk2	MTurk345	PsychPool12345
Match	t=4.415, p<.001	t=3.902, p<.001	t=2.743, p=.006	t=-.582, p=.561	t=-.222, p=.825	t=3.931, p<.001
Coord prosody (Match/mismatch)	747/693	746/646	747/693	687/825	686/778	571/389
Subord prosody (Match/mismatch)	846/594	784/608	818/622	809/703	772/692	547/413

Rising pitch at end of S1 appears to be driving effect, biasing towards Coord interpretations

Conclusions

These experiments show that prosody, specifically a terminal pitch rise, can systematically bias the interpretation of ambiguous discourse. These results bring a novel kind of discourse ambiguity to work on prosodic disambiguation, an area that has largely focused on syntactic ambiguities. The generalizability of the current results to other kinds of discourse structures is the object of subsequent study.

References: Lehiste, I. (1982). Some phonetic characteristics of discourse. *Studia Linguistica*, 36(2), 117-130. Mayer, J., Jasinskaja, E., & Kölsch, U. (2006). Pitch Range and Pause Duration as Markers of Discourse Hierarchy: Perception Experiments Paper presented at the Ninth International Conference on Spoken Language Processing, Potsdam, Germany. Silverman, K. E. A. (1987). The structure and processing of fundamental frequency contours. Unpublished Doctoral Dissertation, University of Cambridge, Cambridge, U.K. Smith, C. L. (2004). Topic transitions and durational prosody in reading aloud: production and modeling. *Speech Communication*, 42(3-4), 247-270. doi: 10.1016/j.specom.2003.09.004