

Perception of fine-grained duration distinctions: Evidence from English pragmatic emphasis

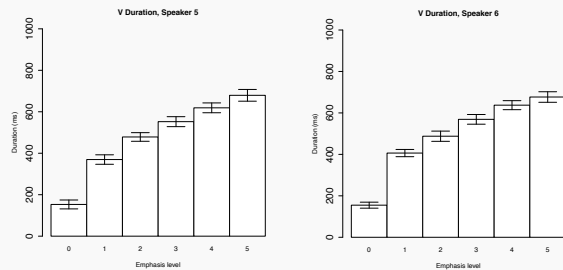
Aaron Braver (Texas Tech University)

Shigeto Kawahara (Keio University)

Introduction

Duration-based lexical vowel contrasts tend to be binary (Ladefoged and Maddieson 1996).

BDK (2016) showed that some English speakers can produce up to 6-way durational distinctions to show varying levels of emphasis in, e.g., *That guy is so(oooo) cool*.



Question: Can English speakers perceive such fine-grained distinctions?

Experimental stimuli

Tokens from three speakers from BDK (2016) who produced clearly differentiated emphasis levels were used as stimuli in this experiment, with three target intensifier words taken from each.

Speaker 5	<i>super</i>	<i>really</i>	<i>so</i>
Speaker 6	<i>too</i>	<i>really</i>	<i>so</i>
Speaker 8	<i>mad</i>	<i>super</i>	<i>so</i>

That joke is su(uuuuu)per funny.

3 speakers x 3 items x 6 emphasis levels x 10 repetitions = 540 trials

Method

24 native English speakers were told that English uses duration for emphasis and given an example.

On each trial, participants heard one token sentence and were asked to judge how emphasized that token was on a scale of 0 (no emphasis) to 5 (most emphasis)

Trials were blocked by speaker and item to maximize easiness of the task, with order within each block randomized.

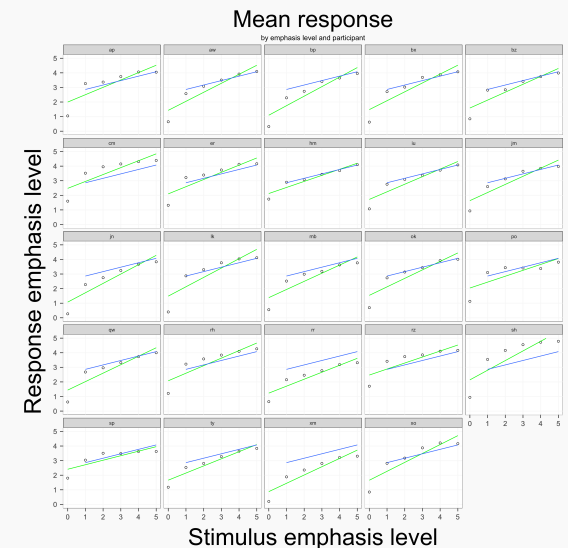
Results

Participants were able to make a broad distinction between emphasized and not, they were less able to distinguish emphasis levels.

They correctly identified non-emphasized stimuli and level 4 emphasized stimuli the majority of the time, but for all other emphasis levels, the most frequent participant response did not match the stimulus:

Response emphasis level	Stimulus emphasis level					
	0	1	2	3	4	5
0	42.75	1.39	0.14	0.14	0.25	0.24
1	35.69	10.06	5.80	2.92	1.18	1.21
2	12.21	28.50	20.98	11.17	6.81	4.41
3	5.44	33.19	35.11	32.93	26.57	21.37
4	2.94	19.97	26.10	34.42	36.62	38.23
5	0.98	6.85	11.83	18.41	28.38	34.16

Percent response by stimulus level. Shaded cells show correct response. Bold values show most frequent response for that stimulus emphasis level



Green lines show best fit for all points; blue lines show best fit for all emphasis levels above zero.

Discussion

While English speakers can produce fine-grained durational distinctions, they are less able to perceive them.

Participants' responses trend proportionally with stimulus emphasis level, but judgments on any given trial rarely match the exact emphasis level of the stimulus.

The difficulty of this task suggests that the reason for binary lexical length contrasts may be perceptual constraints, along the lines of Dispersion Theory.