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HW 2 – VOT

Methods
Delimitation
1. Place marker at end of aspiration on each tier, as indicated by the great onset of energy, periodicity, and formant structure in the waveform and spectrogram.
2. Place marker at start of aspiration on 2nd tier (notes.KCH), as indicated by the onset of energy in the waveform and spectrogram.
3. If the stop is clearly voiced, place a marker at the beginning of the stop on each tier, as indicated by the onset of voicing.
4. If the stop is not clearly voiced, use the "Move cursor by" function to place the cursor an arbitrarily chosen 50 ms before the onset of aspiration, unless there is not 50 ms preceding the aspiration (e.g. at the beginning of the .wav file), in which case the onset of the stop is marked as early as possible in the file.
5. If there is frication, the beginning and ending of the frication is marked on the 2nd tier as indicated by the high energy content in the spectrogram, without evidence of formant structure.

Labelling
1. On the first tier (which only marked the start and stop of units that I hear as single groups – e.g. [kh] was marked as a single interval, an "aspirated [k]" rather than a series of [k] plus [h], and affricates were treated as single units), I labelled the segment as I actually perceive it as an English speaker listening to the entire word. This tended to result in labels of voiced stops if there was not a lot (a vague measurement!) of aspiration. Interestingly, sometimes when I listened to these segments in isolation, I would hear them as voiceless, but when I listened to them as part of a word, I heard them as voiced. For consistency, these were labelled as I heard them in the entire word.
2. On the second tier (which had more divisions, e.g. of aspiration separate from closure), I labelled each interval as I thought it was really being produced. For example, if I thought a stop closure was velar and voiceless, it was labelled as [k] even if I heard it even in combination with its aspiration as voiced when part of the whole word.

Notes
The percept of voicing seemed to be affected by the duration of aspiration, the presence of frication, and the surrounding context. If the duration of aspiration was greater than 75 ms, I always heard the stop as voiceless. However, there were also stops with aspiration durations shorter than 75 ms that were heard as voiceless, as well as some that were heard as voiced. For example, in the file c2n00f-tiu1, the duration of aspiration was almost 53 ms, and I perceived the stop as voiced; compare this to j2n09f-geta3, where the first stop had 43 ms of aspiration, but was heard as voiceless. This word is particularly interesting because the second stop in this word was also heard as voiceless when played as part of the whole word, but when I played the second syllable in isolation, I heard the stop as voiced.

Table of VOT values

Filename	Segment (WorldBet)	Duration (ms)	Segment (My Impression)
c2n00f-gol11b-KCH	k	50	kh
	h	78.371	
	p	50.458	ph
	h	75.15	
c2n00f-kaa4-KCH	t	50	tSh
	S	38.93	
	h	85.16	
	p	50	ph
	h	36.497	
c2n00f-tiu1-KCH	t	50	d
	h	52.924	
c2n05f-kou2-KCH	k	50	g
	h	23.73	
c3n01f-cin1-KCH	c	46.008	cC
	h	48.564	
	C	89.461	
	s	169.975	s
c3n01f-toi1-KCH	k	50	kh
	h	51.654	
c3n07f-kat1-KCH	k	50	kh
	h	96.571	
c3n10f-coi1-KCH	t	50	th
	h (asp)	52.905	
	h (fric)	86.843	
e2n03m-jkng1-KCH	t	50	dZ
	S (Z?)	47.817	
e2n10m-cugr3-KCH	k (g?)	50	g
	h	33.798	
e2n10m-juis3-KCH	t	50	dZ
	S	66.47	
e2n11f-tall3-KCH	t	50	d
	h	18.095	
e3n01m-ckng1-KCH	t	50	tS
	S	40.585	
	h	26.09	
e3n09m-chor3b-KCH	t	50	dZ
	S	82.996	
	Z	68.241	
e3n13f-tuth1-KCH	d	50	d
	h	24.097	
e3n14f-czen3a-KCH	t	50	dZ

Filename	Segment (WorldBet)	Duration (ms)	Segment (My Impression)
	S	70.034	
e3n14f-czen3b-KCH	d	109.053	dZ
	Z	59.586	
g3n10m-dama3-KCH	d	50	d
	h	19.504	
g3n10m-giki3-KCH	g (?)	50	g
	h	43.046	
j2n03m-gomi3-KCH	? (glot. stop)	50	?
j2n04f-gomi3-KCH	k	50	g
	h	34.862	
j2n04f-gumi2-KCH	k	50	kh
	h	39.597	
j2n05f-denw3-KCH	t	50	d
	h	9.877	
j2n07f-kate2-KCH	k	50	g
	h	16.734	
j2n07f-kuri2-KCH	k	50	g
	h	30.678	
j2n08m-daik2-KCH	t	50	d
	h	9.238	
	k	50	g
	h	21.556	
j2n09f-geta3-KCH	t	28.682	th
	h	42.637	
	t	50	th
	h	19.679	
j3n01m-temp1-KCH	t	27.23	d
	h	5.762	
	p	90.18	ph
	h	16.496	