

Appendix D

Processed data for sub-aim two: Duration of each temporal parameter of each experimental subject expressed as a percentage of the duration of the normal group for each utterance and utterance group for each of the four contexts (L1NR, L1FR, L2NR, L2FR)

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Vowel duration of each experimental subject expressed as a percentage of the vowel duration of the normal group for utterances beginning with a *voiceless plosive*

	"pak"/puck				"pet"/pet				"pit"/pit				"pad"/putt				"pap"/pup				Utterance group			
	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR
AOS1	33.1	57.7	14.1	36.6	7.3	27.8	18.0	38.3	13.7	41.8	31.7	65.5	28.4	67.2	24.0	45.0	-14.4	19.7	7.9	25.7	13.6	42.8	19.1	42.2
AOS2	47.5	49.5	3.2	13.0	46.2	57.3	47.6	88.5	25.4	17.9	-1.1	-9.4	13.6	30.1	11.7	25.6	35.5	56.1	29.2	57.1	33.6	42.2	18.1	35.0
AOS3	21.6	0.9	-11.8	-9.4	44.5	30.1	25.6	31.1	43.4	22.6	0.8	6.7	24.3	25.4	7.4	36.2	13.0	13.3	-0.5	29.2	29.4	18.5	4.3	18.8
PP1	9.0	21.5	-8.0	-24.0	-13.6	0.6	-9.7	-5.4	-26.9	-25.8	-23.5	-25.5	-4.8	-0.8	-13.7	-13.5	-4.4	-21.1	-16.4	-16.0	-8.1	-5.1	-14.2	-16.9
PP2	-8.6	11.1	-11.1	4.4	-7.3	12.4	-2.3	16.8	22.5	40.1	16.7	13.5	-2.2	8.5	-9.3	23.9	-20.4	-19.6	-13.9	4.3	-3.2	10.5	-4.0	12.6
PP3	30.6	47.0	1.2	21.4	7.4	44.5	13.5	54.4	12.1	20.3	5.1	23.5	17.3	45.8	2.5	25.7	16.3	25.0	1.7	30.7	16.7	36.5	4.8	31.1

Vowel duration of each experimental subject expressed as a percentage of the vowel duration of the normal group for utterances beginning with a *voiced plosive*

	"byt"/bait				"bak"/buck				"bas"/bus				"bek"/back				"bed"/bet				Utterance group			
	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR
AOS1	13.5	15.8	25.6	54.7	-11.8	19.6	-5.2	30.5	-3.9	21.3	36.6	47.0	-5.1	34.0	16.9	29.0	36.4	43.3	31.0	42.8	5.8	26.8	21.0	40.8
AOS2	32.4	32.7	29.5	50.3	18.6	17.2	8.2	11.9	10.5	20.0	16.2	28.9	34.4	48.2	26.7	49.3	27.0	33.4	22.7	37.5	24.6	30.3	20.7	35.6
AOS3	45.9	49.7	31.9	52.8	35.1	2.5	19.4	9.5	60.2	48.4	37.7	27.9	46.2	47.1	32.7	36.4	47.1	45.1	24.3	49.6	46.9	38.5	29.2	35.2
PP1	-8.7	-8.6	-8.3	-4.4	0.9	-2.1	-2.8	-13.8	1.1	-5.6	4.0	-8.9	1.8	-1.5	13.4	5.1	-8.7	2.0	-11.0	0.1	-2.7	-3.2	-0.9	-4.4
PP2	18.9	47.0	9.2	40.3	-1.7	-5.1	-5.8	9.7	-7.1	2.2	-14.5	2.5	-13.6	-11.1	-12.6	20.2	-18.9	-2.3	-10.6	10.3	-4.5	6.1	-6.9	16.6
PP3	-8.0	3.6	-8.7	8.5	18.1	26.6	-1.7	11.1	6.3	21.7	10.7	25.7	5.9	6.9	23.9	56.3	11.7	22.7	1.8	25.1	6.8	16.3	5.2	25.3

Vowel duration of each experimental subject expressed as a percentage of the vowel duration of the normal group for utterances beginning with a *voiceless fricative*

	"set"/set				"vas"/fuss				"feit"/fête				"voet"/foot				Utterance group			
	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR
AOS1	18.0	28.5	18.9	40.9	19.6	37.4	1.0	21.0	10.3	39.4	55.7	61.1	33.7	83.8	24.0	87.4	20.4	47.3	24.9	52.6
AOS2	54.7	25.3	53.3	40.8	10.2	19.3	14.8	27.1	37.7	50.3	30.5	65.9	35.7	40.4	-6.5	20.6	34.6	33.8	23.0	38.6
AOS3	34.3	12.1	24.0	16.6	47.5	32.1	40.3	28.2	44.4	45.0	25.6	67.3	46.3	6.5	-13.6	-3.8	43.1	23.9	19.1	27.1
PP1	-21.2	-14.1	-15.6	-19.1	15.8	-7.7	9.3	2.0	-18.9	-8.3	-4.8	-9.8	-14.2	-8.5	19.6	33.2	-9.6	-9.6	2.1	1.6
PP2	-0.4	20.4	5.4	26.1	17.7	21.5	5.4	22.4	25.6	76.3	37.7	112.9	20.9	35.0	10.7	17.2	15.9	38.3	14.8	44.6
PP3	9.4	24.3	24.0	38.8	8.5	34.4	16.6	46.7	-7.6	14.1	-17.5	3.3	9.5	34.6	-11.8	23.3	5.0	26.8	2.8	28.0

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Utterance duration of each experimental subject expressed as a percentage of the utterance duration of the normal group for utterances beginning with a *voiceless plosive*

	"pak"/puck				"pet"/pet				"pit"/pit				"pad"/putt				"pap"/pup				Utterance group						
	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR
AOS1	56.6	67.1	44.5	100.1	14.7	47.4	56.4	55.0	76.1	48.0	25.1	48.3	37.8	67.2	31.7	65.6	12.9	28.2	24.8	34.1	39.6	51.6	36.5	60.6			
AOS2	69.5	39.1	59.1	63.8	58.6	32.2	46.8	54.6	49.3	35.6	31.5	37.0	72.3	59.7	71.7	116.5	70.6	35.6	63.0	30.9	64.0	40.5	54.4	60.6			
AOS3	-3.6	0.7	-8.8	-5.3	-4.6	-11.7	-5.3	-10.3	0.5	-9.0	-17.0	-18.1	-5.5	3.8	0.3	32.3	-24.5	8.3	-17.8	16.6	-7.5	-1.6	-9.7	3.0			
PP1	21.8	43.0	-7.4	27.2	26.2	30.8	3.7	17.0	20.8	18.4	-11.4	21.9	20.5	9.1	3.5	1.5	18.6	34.5	8.3	-15.1	21.6	27.2	-0.7	10.5			
PP2	106.9	93.4	61.7	129.7	61.6	101.8	60.0	95.9	55.0	62.0	46.2	79.5	70.4	72.0	72.2	131.8	52.1	67.6	39.9	83.9	69.2	79.4	56.0	104.2			
PP3	29.9	45.1	18.0	24.9	22.4	56.9	34.2	69.8	21.5	40.9	15.4	46.9	21.7	49.3	17.2	56.0	17.3	32.5	-5.6	15.9	22.5	44.9	15.8	42.7			

Utterance duration of each experimental subject expressed as a percentage of the utterance duration of the normal group for utterances beginning with a *voiced plosive*

	"byt"/bait				"bak"/buck				"bas"/bus				"bek"/back				"bed"/bet				Utterance group						
	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR
AOS1	41.4	50.1	50.8	60.4	35.4	49.1	40.5	58.6	38.5	49.4	48.3	51.3	26.8	58.1	39.7	72.1	46.5	46.3	49.8	57.6	37.7	50.6	45.8	60.0			
AOS2	54.0	31.3	36.8	41.4	51.4	40.7	51.4	41.8	93.4	40.6	31.5	30.8	52.7	36.3	30.1	62.5	74.8	44.7	39.4	57.2	65.3	38.7	37.8	46.8			
AOS3	4.1	4.6	-8.8	-3.7	2.3	-2.7	-10.4	-1.7	2.1	1.8	-0.6	25.1	-9.2	14.9	-4.0	8.3	12.8	-0.5	-9.8	-5.2	2.4	3.6	-6.7	4.6			
PP1	24.8	24.4	2.0	2.8	18.5	32.8	9.3	-43.3	-3.6	3.9	-18.9	45.0	39.6	28.1	2.8	11.6	38.2	15.8	-9.7	0.9	23.5	21.0	-2.9	3.4			
PP2	63.9	80.4	64.5	93.4	50.4	82.9	68.4	111.8	43.8	43.9	45.1	91.7	55.2	98.7	50.8	110.9	56.1	81.8	43.1	82.2	53.9	77.5	54.4	98.0			
PP3	21.5	54.6	21.7	3.6	25.8	39.0	36.9	46.5	38.5	45.7	31.1	52.2	9.1	31.3	21.5	50.1	24.1	41.2	6.1	43.7	23.8	42.4	23.4	39.2			

Utterance duration of each experimental subject expressed as a percentage of the utterance duration of the normal group for utterances beginning with a *voiceless fricative*

	"set"/set				"vas"/fuss				"feit"/fête				"voet"/foot				Utterance group						
	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR
AOS1	29.2	60.9	38.3	78.8	13.5	48.5	25.4	75.4	42.6	50.8	40.5	78.8	34.6	64.4	45.4	67.7	30.0	56.1	37.4	75.2			
AOS2	50.1	38.1	26.3	48.7	36.4	58.3	32.8	75.0	30.1	66.4	43.1	92.4	40.2	33.9	26.9	39.2	39.2	49.2	32.3	63.8			
AOS3	7.3	5.4	18.2	13.9	-1.6	4.1	2.7	7.6	3.9	4.4	-3.5	15.2	0.0	0.7	-1.7	17.5	2.4	3.7	3.9	13.5			
PP1	28.0	13.1	-1.4	23.4	12.5	14.6	11.0	22.5	24.1	19.2	2.0	-1.2	26.3	28.2	1.3	32.7	22.7	18.8	3.2	19.3			
PP2	23.5	48.7	41.9	72.6	17.9	50.3	46.5	77.2	43.4	76.9	41.2	86.8	20.4	85.6	41.2	69.1	26.3	65.4	42.7	76.4			
PP3	9.7	13.0	-0.9	14.3	6.5	21.9	-3.8	55.4	-3.5	33.8	-11.2	20.3	-1.6	22.5	6.2	23.0	2.8	22.8	-2.4	28.3			

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Utterance onset duration of each experimental subject expressed as a percentage of the utterance onset duration of the normal group for utterances beginning with a *voiceless plosive*

	"pak"/puck				"pet"/pet				"pit"/pit				"pad"/putt				"pap"/pup				Utterance group			
	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR
AOS1	135.2	667.0	545.3	564.8	312.1	304.6	481.6	1145.4	399.6	1210.3	618.2	1212.6	176.7	372.8	593.8	860.6	244.2	737.0	307.8	542.4	253.6	658.3	509.3	865.2
AOS2	229.6	298.8	154.8	657.8	177.0	132.6	63.0	394.4	230.4	239.6	294.5	313.2	351.8	186.8	105.9	510.9	128.1	223.3	204.7	164.6	223.4	216.2	164.6	408.2
AOS3	70.9	33.9	1.1	45.6	112.5	89.6	240.5	277.7	148.2	70.6	27.5	103.6	83.0	229.4	55.0	121.9	212.1	101.8	7.8	24.4	125.3	105.0	66.4	114.6
PP1	94.3	104.0	234.9	99.9	59.2	0.1	316.8	117.8	67.8	10.7	46.9	62.5	510.1	-8.2	92.7	30.6	426.7	113.3	214.4	79.4	231.6	44.0	181.2	78.0
PP2	555.4	108.8	261.4	351.0	-0.1	44.3	0.5	54.2	26.6	38.2	0.5	107.3	3.3	97.4	60.0	201.8	9.4	32.5	-11.6	64.3	118.9	64.2	62.2	155.7
PP3	-24.7	-11.0	22.6	292.8	-25.2	-1.2	-45.7	-7.1	-26.0	-18.7	-35.5	-17.5	-16.2	-24.7	-33.8	12.9	68.5	-13.9	-22.3	-22.2	-4.7	-13.9	-23.0	51.8

Utterance onset duration of each experimental subject expressed as a percentage of the utterance onset duration of the normal group for utterances beginning with a *voiced plosive*

	"byt"/bait				"bak"/buck				"bas"/bus				"bek"/back				"bed"/bet				Utterance group			
	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR
AOS1	519.7	322.6	1130.9	2324.7	374.9	515.9	1029.2	1020.2	1063.3	1790.6	589.5	384.2	896.0	646.6	1710.6	2140.6	178.0	195.6	1359.5	1276.4	606.4	694.3	1163.9	1429.2
AOS2	252.7	465.1	140.0	246.4	260.9	196.3	311.0	358.7	275.4	480.8	147.4	264.2	288.0	518.7	626.3	583.8	208.2	320.6	177.0	203.1	257.0	396.3	280.3	331.2
AOS3	140.2	37.8	93.1	340.3	173.8	105.4	76.5	60.1	142.0	261.8	86.8	376.4	155.5	52.2	65.6	405.7	53.8	206.2	4.9	88.7	133.1	132.7	65.4	254.2
PP1	105.8	20.8	448.6	126.5	88.1	23.4	288.6	388.1	378.0	10.5	19.7	60.2	33.3	431.1	107.3	143.6	266.7	-5.0	366.1	8.5	174.4	96.2	246.1	145.4
PP2	14.8	37.7	178.0	198.5	33.5	55.7	20.7	179.0	233.6	122.8	64.8	64.2	37.4	102.9	-0.7	49.9	-5.3	112.7	-0.7	53.0	62.8	86.4	52.4	108.9
PP3	0.7	-26.1	-35.0	114.0	-13.9	60.1	-33.4	-14.1	-28.7	-31.3	-37.1	114.8	108.5	-18.6	-43.8	-25.1	-38.5	1.2	143.2	24.0	5.6	-2.9	-1.2	42.7

Voice onset time of each experimental subject expressed as a percentage of the voice onset time of the normal group for utterances beginning with a *voiceless plosive*

	"pak"/puck				"pet"/pet				"pit"/pit				"pad"/putt				"pap"/pup				utterance group			
	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR	L1NR	L1FR	L2NR	L2FR
AOS1	139.5	144.5	141.3	145.5	130.5	111.2	111.4	125.5	67.5	184.1	119.4	166.5	127.1	138.6	158.9	191.4	80.8	95.2	92.5	119.5	109.1	134.7	124.7	149.7
AOS2	18.3	24.4	-11.8	29.1	-3.2	-8.6	-11.8	-33.6	19.5	30.9	1.1	7.5	14.0	40.2	2.8	-22.3	28.0	16.4	-36.7	-18.4	15.3	20.7	-11.3	-7.5
AOS3	-9.5	-1.6	72.5	45.0	23.4	-24.3	46.0	71.5	0.9	-5.4	36.2	31.2	-0.9	40.0	203.0	27.3	9.6	-12.4	104.5	6.3	4.7	-0.7	92.4	36.2
PP1	76.5	38.3	43.2	48.3	63.2	72.1	109.4	49.5	57.3	54.4	15.1	35.3	102.4	63.5	165.3	64.3	39.0	62.3	97.4	48.0	67.7	58.1	86.1	49.1
PP2	225.5	60.3	59.1	102.9	28.3	7.1	-22.7	23.8	26.9	-2.0	33.3	60.8	53.8	29.1	-0.9	50.8	25.1	52.8	-5.7	78.1	71.9	29.5	12.6	63.3
PP3	4.8	14.4	-16.7	26.2	15.3	11.2	4.0	2.2	-11.0	8.8	-6.5	16.6	4.4	20.7	-3.5	-2.2	9.5	-22.1	-11.1	-26.3	4.6	6.6	-6.8	3.3