

Appendix G

Standard deviations of each temporal parameter of each experimental subject expressed as a percentage of the standard deviation of the normal group for each utterance and utterance group for each of the four contexts (L1NR, L1FR, L2NR and L2FR) Page 2-4

The standard deviation of vowel duration of each experimental subject expressed as a percentage of the standard deviation 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	-35.2	134.2	43.1	-51.1	-31.6	125.0	132.2	34.5	-51.6	249.4	4.7	350.2	-37.5	176.9	355.4	69.0	5.8	73.1	95.0	95.9	-30.0	151.7	126.1	99.7			
AOS2	62.1	227.7	62.8	45.3	48.2	44.7	29.5	106.6	-47.2	-23.8	-1.9	-59.9	34.8	46.1	107.9	16.2	5.9	71.4	68.4	-3.6	20.8	73.2	53.3	20.9			
AOS3	194.0	143.1	104.0	121.5	-67.1	57.7	-28.3	22.9	152.4	246.8	-19.9	20.7	-25.1	8.2	67.4	-23.9	0.1	67.5	297.4	226.1	50.9	104.7	84.1	73.5			
PP1	-61.0	-6.7	16.3	-1.4	8.6	36.3	0.7	19.1	-2.5	17.2	-41.5	-57.3	1.5	-11.4	53.3	-49.0	1.7	-16.6	44.3	-62.9	-10.3	3.8	14.6	-30.3			
PP2	-26.9	-21.9	-46.8	71.3	32.3	65.5	-50.1	-1.1	-23.6	-20.5	-21.7	32.0	-76.6	-16.5	-1.8	77.1	16.6	-25.4	87.0	-37.1	-15.7	-3.8	-6.7	28.4			
PP3	-28.4	92.8	56.5	-27.9	-77.5	104.9	5.4	106.6	-1.7	114.8	-22.8	109.2	-28.9	147.0	70.4	10.0	24.1	-31.2	11.2	72.0	-22.5	85.7	24.1	54.0			

The standard deviation of vowel duration of each experimental subject expressed as a percentage of the standard deviation 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	103.4	482.7	119.0	198.4	155.6	103.2	60.9	159.8	67.6	77.2	113.2	155.9	73.8	230.4	121.0	177.2	82.7	179.9	110.8	211.4	96.6	214.7	105.0	180.5			
AOS2	-20.8	95.8	55.9	110.4	149.9	101.3	-3.7	3.6	30.2	210.2	21.1	10.7	99.8	10.4	6.3	20.6	41.5	78.5	-46.0	-8.6	60.1	99.2	6.7	27.4			
AOS3	8.9	903.1	18.2	260.3	84.9	119.4	158.2	192.7	431.9	165.4	176.5	237.8	93.4	-27.7	165.0	105.1	90.8	241.8	12.5	47.8	142.0	280.4	106.1	168.7			
PP1	31.4	-39.5	-54.6	-37.0	23.8	-19.2	157.5	-43.4	87.2	-17.9	51.9	51.1	58.8	16.9	20.0	-1.9	-12.8	127.0	48.3	117.9	37.7	13.5	44.6	17.4			
PP2	142.2	280.4	69.8	206.1	41.7	11.5	-54.1	114.4	-39.9	16.5	-24.1	0.3	-37.1	-19.4	26.4	-21.7	65.2	-42.4	71.0	-13.5	34.4	49.3	17.8	57.1			
PP3	82.5	31.9	-23.1	42.0	78.9	170.3	-10.4	47.0	57.9	9.9	18.1	-41.2	-5.5	-27.6	130.5	39.4	38.6	-42.6	-6.3	25.6	50.5	28.4	21.8	22.6			

The standard deviation of vowel duration of each experimental subject expressed as a percentage of the standard deviation 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	52.5	130.3	385.2	51.3	363.4	338.6	64.2	99.8	40.3	217.8	449.7	267.4	181.2	556.4	8.6	306.8	159.3	310.8	226.9	181.3			
AOS2	115.2	101.1	68.5	131.3	-2.3	132.2	-53.3	18.1	141.3	162.8	165.9	162.9	62.9	-7.2	6.7	-23.5	79.3	97.2	46.9	72.2			
AOS3	92.4	220.4	119.1	-13.4	88.3	-6.3	-22.2	69.0	-50.0	140.4	168.9	27.2	131.1	103.2	3.0	-2.3	65.4	114.4	67.2	20.1			
PP1	28.4	-59.7	-21.7	-69.3	274.2	-26.8	30.8	51.1	5.8	36.1	-48.0	-2.3	59.4	-35.9	-44.3	142.1	92.0	-21.6	-20.8	30.4			
PP2	-19.9	121.1	-15.1	50.1	48.8	45.0	23.9	25.8	168.4	304.8	439.1	181.9	93.9	11.0	22.6	-22.0	72.8	120.5	117.6	58.9			
PP3	90.6	97.6	-7.0	-13.6	-9.9	120.8	-30.3	100.0	-9.8	21.3	-75.7	-18.3	9.1	-34.1	1.7	27.9	20.0	51.4	-27.8	24.0			

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The *standard deviation of utterance duration* of each experimental subject expressed as a percentage of the *standard deviation* 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	78.6	12.2	44.2	425.7	388.4	17.5	239.9	34.8	650.5	50.7	-44.7	-14.3	-33.2	197.2	69.9	35.3	24.2	170.1	40.0	46.6	221.7	89.5	69.9	105.6			
AOS2	118.3	-36.9	2.3	98.2	46.9	-27.2	9.4	94.3	-47.3	98.4	-19.8	54.0	73.0	147.3	-26.2	350.1	-29.1	-15.0	201.8	-71.0	32.3	33.3	33.5	105.1			
AOS3	155.3	121.2	-7.8	34.4	53.6	4.1	32.8	-10.4	99.7	83.8	-66.2	-3.8	17.0	-67.0	10.8	97.6	18.4	50.3	11.3	109.0	68.8	38.5	-3.8	45.3			
PP1	83.8	98.6	31.3	285.2	125.2	52.1	18.9	-49.3	-14.5	-15.5	-28.8	-26.0	19.0	25.9	-39.6	-9.8	-58.6	542.0	79.8	-9.2	31.0	140.6	12.3	38.2			
PP2	237.7	11.2	44.1	230.4	173.5	42.7	13.1	22.8	29.4	64.1	-2.8	42.2	165.7	-23.9	162.7	116.4	-24.2	241.9	-5.8	-24.8	116.4	67.2	42.3	77.4			
PP3	78.1	89.8	85.7	137.0	191.0	115.4	3.5	88.9	21.1	69.3	-31.9	90.4	-39.5	88.7	-36.7	35.2	128.8	178.7	37.8	62.9	75.9	108.4	11.7	82.9			

The *standard deviation of utterance duration* of each experimental subject expressed as a percentage of the *standard deviation* 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	57.9	66.2	58.8	104.4	-56.5	214.5	169.1	59.5	124.0	-31.7	91.8	-5.1	2.7	378.0	111.8	3.7	-39.5	-3.1	190.2	48.4	17.7	124.8	124.3	42.2			
AOS2	28.3	17.2	30.2	181.3	-46.9	180.8	25.5	32.2	939.7	-23.8	-7.3	-44.2	46.5	204.9	-41.8	185.6	98.3	211.1	176.0	234.0	213.2	118.0	36.5	117.8			
AOS3	4.2	186.8	-11.5	120.5	-14.1	7.5	43.5	91.3	62.2	32.2	26.8	44.5	-17.5	-49.0	78.8	-50.2	7.0	78.0	-48.9	-21.1	8.4	51.1	17.8	37.0			
PP1	39.0	67.7	-41.9	-28.8	35.2	578.1	46.0	813.0	66.0	-23.9	41.0	92.1	475.6	427.3	60.5	90.6	119.4	27.4	30.4	-36.3	147.0	215.3	27.2	186.1			
PP2	72.7	36.3	76.3	390.1	81.4	88.7	145.5	-34.7	279.9	2.8	15.3	-33.9	31.4	527.4	162.7	28.7	16.4	44.4	-7.0	17.6	96.4	139.9	78.6	73.5			
PP3	4.9	122.9	84.3	128.5	82.3	188.1	54.0	51.7	50.0	-79.9	34.4	-27.7	3.1	82.9	166.0	-26.1	211.7	103.1	134.6	146.8	70.4	83.4	94.7	54.6			

The *standard deviation of utterance duration* of each experimental subject expressed as a percentage of the *standard deviation* 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	-32.0	66.6	-45.0	316.6	109.3	104.0	1.3	315.3	338.2	197.4	117.9	149.5	347.0	119.9	143.6	193.9	190.6	122.0	54.5	243.8			
AOS2	150.2	47.8	-56.9	106.8	81.1	127.5	91.0	401.7	62.3	623.7	103.9	176.1	21.9	165.7	-8.7	131.8	78.9	241.2	32.3	204.1			
AOS3	29.6	91.9	243.8	275.2	13.6	4.0	-21.9	187.2	27.4	45.1	-55.5	0.9	63.0	71.5	-0.8	298.3	33.4	53.1	41.4	190.4			
PP1	154.8	-6.8	-22.7	56.4	120.4	17.4	121.4	162.5	86.1	87.8	103.6	24.5	-36.6	187.3	-66.7	204.6	81.2	71.4	33.9	112.0			
PP2	32.2	99.2	-44.7	107.8	87.2	-18.4	189.1	2.4	143.6	-10.0	3.7	122.3	79.0	40.8	146.6	131.4	85.5	27.9	73.7	91.0			
PP3	11.6	-32.0	-48.5	126.5	54.5	155.9	-70.7	334.4	-49.1	21.1	72.2	12.1	-86.0	-28.0	-37.6	140.2	-17.3	29.3	-21.1	153.3			

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The standard deviation of utterance onset duration of each experimental subject expressed as a percentage of the standard deviation 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	359.2	5859.3	5670.9	3894.1	1754.2	1969.5	2999.7	5314.2	2057.8	4969.6	5561.3	8097.9	578.7	2283.5	3652.3	5287.5	1483.5	9401.8	2800.2	4773.4	1246.7	4896.7	4136.9	5473.4			
AOS2	1863.0	1389.4	306.1	2182.6	1622.9	292.0	122.9	1988.1	1347.6	655.8	2794.4	1148.4	1924.7	486.5	440.5	4091.3	1044.8	713.7	1747.3	687.6	1560.6	707.5	1082.2	2019.6			
AOS3	454.3	237.9	30.0	353.2	1485.9	304.2	3237.1	2861.4	726.3	131.3	358.3	569.7	838.8	1064.6	690.6	577.8	1742.6	455.5	259.0	217.2	1049.6	438.7	915.0	915.9			
PP1	1248.8	1387.1	2819.9	1916.7	909.2	14.7	1325.3	1781.5	810.9	-13.4	912.0	412.3	4137.8	-34.2	725.5	126.7	3356.4	1033.4	4120.0	1396.9	2092.6	477.5	1980.5	1126.8			
PP2	3117.8	959.2	3112.8	3473.7	97.0	15.9	-30.8	32.1	608.3	-42.3	93.3	552.8	142.0	736.8	886.6	3271.4	73.4	-34.7	-14.7	512.3	807.7	327.0	809.5	1568.5			
PP3	-28.5	-25.0	488.6	2109.2	19.2	113.0	-40.2	267.0	77.1	18.5	83.0	230.0	166.7	-13.9	-22.6	268.7	1716.1	-4.2	171.9	63.4	390.1	17.7	136.1	587.7			

The standard deviation of utterance onset duration of each experimental subject expressed as a percentage of the standard deviation 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	6260.1	1082.5	8758.7	5561.2	1251.6	1862.7	5704.1	3687.4	5981.8	9106.4	3208.6	1277.4	6148.0	3891.9	5453.6	9785.0	166.3	502.8	14077.1	7286.8	3961.6	3289.3	7440.4	5519.6			
AOS2	492.6	3560.1	684.2	783.7	1929.3	205.6	1731.4	988.3	2168.4	1406.6	303.0	662.6	3236.5	3049.0	3770.7	2729.3	765.6	2006.0	1129.2	368.9	1718.5	2045.4	1523.7	1106.6			
AOS3	2161.3	-7.9	505.1	2976.4	913.1	894.0	875.3	315.5	644.1	1475.5	519.3	4079.1	1947.7	141.9	466.0	2238.6	584.9	2627.7	92.5	668.8	1250.2	1026.2	491.6	2055.7			
PP1	1122.2	51.0	4157.7	1439.4	531.8	-10.0	1359.5	3636.9	4485.3	-67.2	139.4	619.5	627.6	5971.2	743.3	1707.7	1739.0	-31.5	1778.6	61.7	1701.2	1182.7	1635.7	1493.0			
PP2	29.7	49.3	2217.6	1721.7	314.6	122.5	254.4	1227.1	3806.3	598.6	611.7	-39.1	514.2	713.4	-57.0	3.5	-7.8	747.7	-28.9	-46.1	931.4	446.3	599.6	573.4			
PP3	1013.6	-13.5	161.2	1651.5	237.2	1012.5	116.1	13.5	23.8	15.3	-2.2	2018.9	3410.8	-40.4	-70.2	-54.4	-45.7	530.5	3528.8	685.4	927.9	300.9	746.7	863.0			

The standard deviation of voice onset time of each experimental subject expressed as a percentage of the standard deviation 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	328.7	80.7	265.8	274.6	222.0	135.3	239.8	341.5	-12.0	203.1	245.6	434.0	293.7	212.0	486.4	636.0	93.6	208.1	-21.2	120.3	185.2	167.8	243.3	361.3			
AOS2	91.6	14.4	-42.3	86.1	83.5	-19.3	40.1	-20.0	31.4	-6.7	-38.9	-57.9	102.6	78.2	61.1	58.5	47.7	53.7	43.5	13.2	71.4	24.1	12.7	16.0			
AOS3	-44.9	58.5	52.6	432.2	45.9	-17.8	8.5	371.3	-11.6	-41.3	39.1	103.3	55.7	94.0	1128.8	24.3	41.2	-18.4	141.3	61.1	17.3	15.0	274.0	198.4			
PP1	137.7	176.8	122.9	356.0	148.6	101.4	412.7	145.2	39.3	90.2	-27.2	8.2	126.6	258.2	476.1	112.9	68.8	151.9	206.4	87.0	104.2	155.7	238.2	141.8			
PP2	321.1	45.7	243.7	753.1	77.7	-28.9	-25.7	107.3	29.5	-4.0	-22.8	12.8	56.5	83.8	167.9	172.2	39.2	130.7	127.6	157.7	104.8	45.4	98.2	240.6			
PP3	-11.6	14.0	-36.8	371.1	-54.8	4.3	-18.3	36.5	-62.4	26.7	12.8	63.0	-18.2	52.6	177.2	70.9	3.7	-44.9	-21.2	104.5	-28.7	10.5	22.8	129.2			

The standard deviation of voice onset time of each experimental subject expressed as a percentage of the standard deviation 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	-83.9	796.6	121.4	-93.8	-88.4	6.0	278.7	-78.0	-64.0	-36.7	200.4	377.2	-81.1	229.9	161.7	197.3	-14.4	66.4	147.5	182.6	-66.4	212.5	181.9	117.1			
AOS2	-88.1	-67.1	-88.4	-97.5	-91.0	-90.5	-93.2	-85.3	302.4	-82.2	-77.2	-70.7	-88.0	-71.7	67.4	-43.3	-86.0	-64.9	-93.3	-96.9	-10.1	-75.3	-56.9	-78.7			
AOS3	-3.3	299.2	-93.6	-43.8	116.1	86.0	61.2	65.6	225.4	257.7	153.8	345.9	73.4	242.7	-100.0	66.2	33.8	402.4	-62.1	20.4	89.1	257.6	-8.1	90.9			
PP1	23.0	306.6	1.3	-45.5	59.0	-45.0	52.0	196.4	133.9	61.1	62.0	171.8	-2.2	200.0	69.1	-22.9	120.9	229.9	-56.1	79.5	66.9	150.5	25.6	75.9			
PP2	-84.5	193.3	-89.2	-86.7	-33.3	-67.6	-53.6	-58.2	-59.0	-65.9	73.5	-57.7	-85.7	229.9	-74.5	-53.0	-78.1	-58.5	139.5	-76.8	-68.1	46.2	-0.9	-66.5			
PP3	209.1	-8.8	-31.8	-72.6	80.8	579.8	50.3	-12.9	-36.9	-12.2	-31.7	1551.5	-12.9	-62.0	-78.4	-62.9	-67.3	331.2	-93.0	20.8	34.6	165.6	-36.9	284.8			