

Foreign-accented speech elicits a late N400-effect during semantic processing **SUPPLEMENTARY ANALYSIS**

Factors:

- Accent (foreign, native)
- Correctness (correct, incorrect)
- Phoneme (/l/, /s/)
- Longitude (frontal, central, parietal)
- Latitude (left, medial, right)

Regions of interest (9):

- Frontal left (FL): F7, F3, FC5
- Frontal medial (FM): Fp1, Fz, Fp2
- Frontal right (FR): F8, F4, FC6
- Central left (CL): T7, C3, CP5
- Central medial (CM): FC1, Cz, FC2
- Central right (CR): T8, C4, CP6
- Parietal left (PL): P7, P3, O1
- Parietal medial (PM): CP1, CP2, Pz
- Parietal right (PR): P8, P4, O2

FIRST TIME WINDOW (350-600 ms)

Repeated Measures ANOVA

	Sum of Squares	df	Mean Square	F	p
Accent	6.816	1	6.816	0.482	0.492
Residual	495.392	35	14.154		
Correctness	209.661	1	209.661	8.666	0.006
Residual	846.778	35	24.194		
Phoneme	111.266	1	111.266	10.314	0.003
Residual	377.587	35	10.788		
Longitude	72.280 ^a	2 ^a	36.140 ^a	10.838 ^a	< .001 ^a
Residual	233.410	70	3.334		
Latitude	71.621	2	35.811	16.267	< .001
Residual	154.097	70	2.201		
Accent * Correctness	2.059	1	2.059	0.147	0.703
Residual	489.129	35	13.975		
Accent * Phoneme	21.865	1	21.865	2.385	0.131
Residual	320.861	35	9.167		
Accent * Longitude	1.645 ^a	2 ^a	0.822 ^a	0.571 ^a	0.567 ^a
Residual	100.733	70	1.439		
Accent * Latitude	1.554	2	0.777	0.906	0.409
Residual	60.043	70	0.858		
Correctness * Phoneme	0.339	1	0.339	0.028	0.867
Residual	416.124	35	11.889		
Correctness * Longitude	1.293 ^a	2 ^a	0.647 ^a	0.681 ^a	0.510 ^a
Residual	66.470	70	0.950		
Correctness * Latitude	3.636	2	1.818	2.395	0.099
Residual	53.129	70	0.759		
Phoneme * Longitude	0.837 ^a	2 ^a	0.419 ^a	0.291 ^a	0.748 ^a

	Sum of Squares	df	Mean Square	F	p
Residual	100.581	70	1.437		
Phoneme * Latitude	1.371 ^a	2 ^a	0.686 ^a	1.069 ^a	0.349 ^a
Residual	44.874	70	0.641		
Accent * Correctness * Phoneme	1.140	1	1.140	0.107	0.746
Residual	373.631	35	10.675		
Accent * Correctness * Longitude	2.487 ^a	2 ^a	1.244 ^a	1.025 ^a	0.364 ^a
Residual	84.951	70	1.214		
Accent * Correctness * Latitude	0.597	2	0.298	0.516	0.599
Residual	40.428	70	0.578		
Accent * Phoneme * Longitude	7.982 ^a	2 ^a	3.991 ^a	3.972 ^a	0.023 ^a
Residual	70.339	70	1.005		
Accent * Phoneme * Latitude	0.386	2	0.193	0.245	0.783
Residual	55.122	70	0.787		
Accent * Longitude * Latitude	0.536 ^a	4 ^a	0.134 ^a	0.787 ^a	0.536 ^a
Residual	23.843	140	0.170		
Correctness * Phoneme * Longitude	0.521 ^a	2 ^a	0.261 ^a	0.335 ^a	0.716 ^a
Residual	54.402	70	0.777		
Correctness * Phoneme * Latitude	0.066	2	0.033	0.050	0.951
Residual	45.668	70	0.652		
Correctness * Longitude * Latitude	0.952	4	0.238	1.495	0.207
Residual	22.279	140	0.159		
Phoneme * Longitude * Latitude	1.787 ^a	4 ^a	0.447 ^a	3.059 ^a	0.019 ^a
Residual	20.445	140	0.146		
Accent * Correctness * Phoneme * Longitude	0.426 ^a	2 ^a	0.213 ^a	0.132 ^a	0.877 ^a
Residual	112.992	70	1.614		
Accent * Correctness * Phoneme * Latitude	3.732	2	1.866	2.327	0.105
Residual	56.144	70	0.802		
Accent * Correctness * Longitude * Latitude	0.286 ^a	4 ^a	0.071 ^a	0.438 ^a	0.781 ^a
Residual	22.875	140	0.163		
Accent * Phoneme * Longitude * Latitude	0.942	4	0.235	1.661	0.162
Residual	19.836	140	0.142		
Correctness * Phoneme * Longitude * Latitude	0.569 ^a	4 ^a	0.142 ^a	0.773 ^a	0.544 ^a
Residual	25.768	140	0.184		
Accent * Correctness * Phoneme * Long * Lat	0.576 ^a	4 ^a	0.144 ^a	0.750 ^a	0.560 ^a
Residual	26.896	140	0.192		

Note. Type III Sum of Squares

^a Mauchly's test of sphericity indicates that the assumption of sphericity is violated ($p < .05$).

Between Subjects Effects

	Sum of Squares	df	Mean Square	F	p
Residual	1251.979	35	35.771		

Note. Type III Sum of Squares

SECOND TIME WINDOW (600-900ms):**Repeated Measures ANOVA**

	Sum of Squares	df	Mean Square	F	p
Accent	6.583	1	6.583	0.249	0.621
Residual	924.965	35	26.428		
Correctness	41.107	1	41.107	1.817	0.186
Residual	791.709	35	22.620		
Phoneme	8.668	1	8.668	0.653	0.424
Residual	464.280	35	13.265		
Longitude	9.208 ^a	2 ^a	4.604 ^a	1.144 ^a	0.324 ^a
Residual	281.701	70	4.024		
Latitude	62.607	2	31.304	10.543	< .001
Residual	207.830	70	2.969		
Accent * Correctness	16.552	1	16.552	0.782	0.383
Residual	740.837	35	21.167		
Accent * Phoneme	5.738	1	5.738	0.485	0.491
Residual	413.749	35	11.821		
Accent * Longitude	0.434 ^a	2 ^a	0.217 ^a	0.125 ^a	0.883 ^a
Residual	121.920	70	1.742		
Accent * Latitude	2.809	2	1.404	1.309	0.276
Residual	75.074	70	1.072		
Correctness * Phoneme	4.931	1	4.931	0.226	0.637
Residual	763.311	35	21.809		
Correctness * Longitude	0.481 ^a	2 ^a	0.240 ^a	0.170 ^a	0.844 ^a
Residual	98.761	70	1.411		
Correctness * Latitude	1.405	2	0.703	0.731	0.485
Residual	67.314	70	0.962		
Phoneme * Longitude	1.390 ^a	2 ^a	0.695 ^a	0.673 ^a	0.513 ^a
Residual	72.220	70	1.032		
Phoneme * Latitude	2.109	2	1.055	1.139	0.326
Residual	64.789	70	0.926		
Longitude * Latitude	39.804 ^a	4 ^a	9.951 ^a	18.536 ^a	< .001 ^a
Residual	75.159	140	0.537		
Accent * Correctness * Phoneme	0.048	1	0.048	0.004	0.953
Residual	477.217	35	13.635		
Accent * Correctness * Longitude	7.345 ^a	2 ^a	3.672 ^a	3.695 ^a	0.030 ^a
Residual	69.576	70	0.994		
Accent * Correctness * Latitude	0.152	2	0.076	0.106	0.900
Residual	50.478	70	0.721		
Accent * Phoneme * Longitude	2.074 ^a	2 ^a	1.037 ^a	0.772 ^a	0.466 ^a
Residual	94.036	70	1.343		
Accent * Phoneme * Latitude	0.678	2	0.339	0.457	0.635
Residual	51.956	70	0.742		
Accent * Longitude * Latitude	0.565 ^a	4 ^a	0.141 ^a	0.649 ^a	0.628 ^a
Residual	30.427	140	0.217		

	Sum of Squares	df	Mean Square	F	p
Correctness * Phoneme * Longitude	0.508 ^a	2 ^a	0.254 ^a	0.215 ^a	0.807 ^a
Residual	82.640	70	1.181		
Correctness * Phoneme * Latitude	0.924	2	0.462	0.553	0.578
Residual	58.504	70	0.836		
Correctness * Longitude * Latitude	1.028 ^a	4 ^a	0.257 ^a	1.100 ^a	0.359 ^a
Residual	32.695	140	0.234		
Phoneme * Longitude * Latitude	0.134 ^a	4 ^a	0.034 ^a	0.164 ^a	0.956 ^a
Residual	28.559	140	0.204		
Accent * Correctness * Phoneme * Longitude	0.054 ^a	2 ^a	0.027 ^a	0.016 ^a	0.984 ^a
Residual	116.460	70	1.664		
Accent * Correctness * Phoneme * Latitude	2.534	2	1.267	1.303	0.278
Residual	68.057	70	0.972		
Accent * Correctness * Longitude * Latitude	0.342 ^a	4 ^a	0.085 ^a	0.476 ^a	0.753 ^a
Residual	25.130	140	0.180		
Accent * Phoneme * Longitude * Latitude	1.729	4	0.432	2.184	0.074
Residual	27.706	140	0.198		
Correctness * Phoneme * Longitude * Latitude	0.686	4	0.171	0.839	0.503
Residual	28.602	140	0.204		
Accent * Correctness * Phoneme * Longitude * Latitude	0.709 ^a	4 ^a	0.177 ^a	0.698 ^a	0.595 ^a
Residual	35.564	140	0.254		

Note. Type III Sum of Squares

^a Mauchly's test of sphericity indicates that the assumption of sphericity is violated ($p < .05$).

Between Subjects Effects

	Sum of Squares	df	Mean Square	F	p
Residual	1358.543	35	38.816		

Note. Type III Sum of Squares