

Supplementary Materials for
Prenatal experience with language shapes the brain

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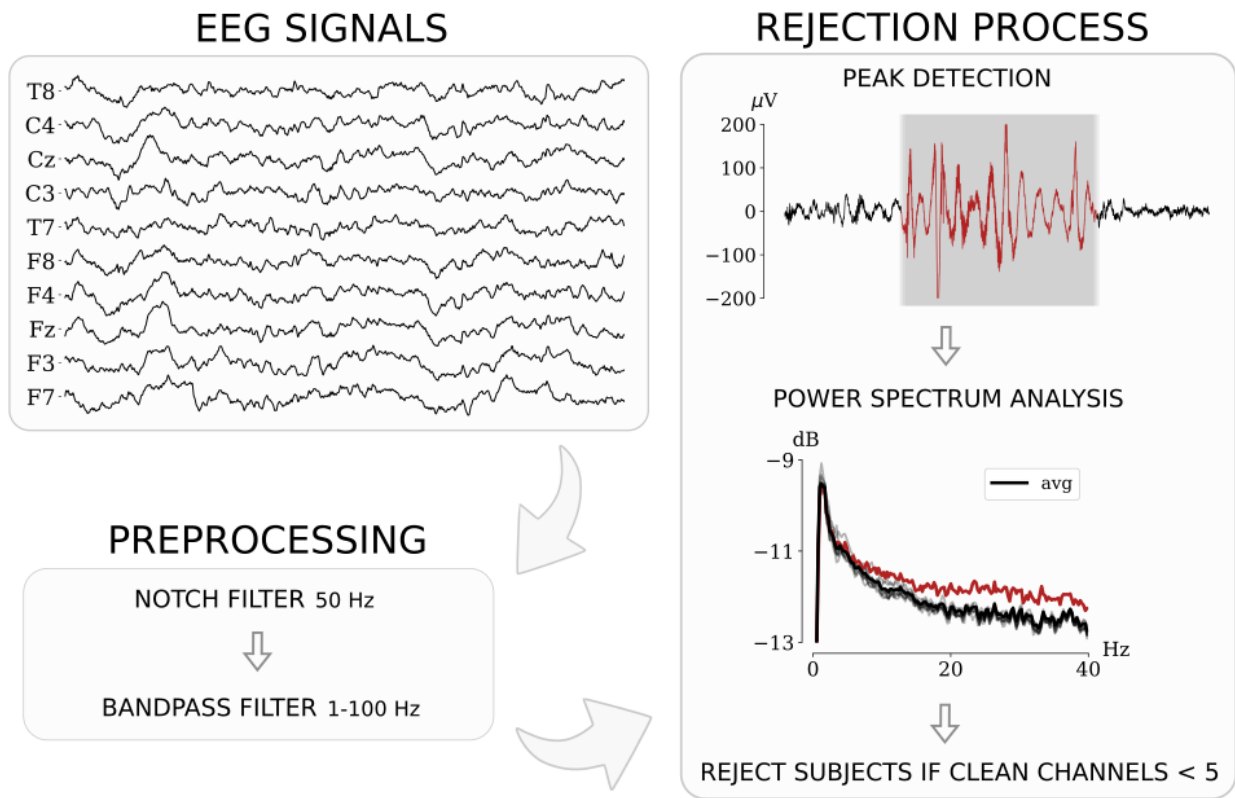
Fig. S1
Tables S1 to S5

Table S1.

	Set 1	Set 2	Set 3
English	<p><i>The bears lived all together in a beautiful house</i></p> <p>Syllables: 13 Duration: 2,50 s Syllabic rate: 5 Hz Pitch_min: 142,5 Hz Pitch_max: 700,8 Hz Pitch_range: 558,3 Hz Pitch_mean: 303,4 Hz</p>	<p>The bears decided to take a walk that day</p> <p>Syllables: 11 Duration: 2,16 s Syllabic rate: 5 Hz Pitch_min: 181,2 Hz Pitch_max: 400,2 Hz Pitch_range: 219,0 Hz Pitch_mean: 261,8 Hz</p>	<p>The little bears saw that their chairs were used by the naughty girl</p> <p>Syllables: 15 Duration: 2,96 s Syllabic rate: 4 Hz Pitch_min: 171,2 Hz Pitch_max: 735,9 Hz Pitch_range: 564,7 Hz Pitch_mean: 322,1 Hz</p>
French	<p>Les ours habitaient tous ensemble dans une maison</p> <p>Syllables: 13 Duration: 2,66 s Syllabic rate: 4 Hz Pitch_min: 195,6 Hz Pitch_max: 556,5 Hz Pitch_range: 360,9 Hz Pitch_mean: 307,6 Hz</p>	<p>Les ours décidèrent d'aller se promener</p> <p>Syllables: 11 Duration: 2,17 s Syllabic rate: 4 Hz Pitch_min: 99,7 Hz Pitch_max: 342,3 Hz Pitch_range: 242,6 Hz Pitch_mean: 224,7 Hz</p>	<p>Les ours virent que leurs chaises avaient été utilisées</p> <p>Syllables: 15 Duration: 2,93 s Syllabic rate: 6 Hz Pitch_min: 95,7 Hz Pitch_max: 263,2 Hz Pitch_range: 167,5 Hz Pitch_mean: 190,1 Hz</p>
Spanish	<p>Los osos vivían juntos en una casa</p> <p>Syllables: 13 Duration: 2,60 s Syllabic rate: 4 Hz Pitch_min: 164,4 Hz Pitch_max: 287,3 Hz Pitch_range: 122,9 Hz Pitch_mean: 219,8 Hz</p>	<p>Los osos tomaron un gran paseo</p> <p>Syllables: 11 Duration: 2,19 s Syllabic rate: 3 Hz Pitch_min: 178,2 Hz Pitch_max: 423,5 Hz Pitch_range: 245,3 Hz Pitch_mean: 245,9 Hz</p>	<p>Los osos vieron sus sillas siendo utilizadas</p> <p>Syllables: 15 Duration: 3,00 s Syllabic rate: 4 Hz Pitch_min: 99,0 Hz Pitch_max: 420,8 Hz Pitch_range: 321,8 Hz Pitch_mean: 260,0 Hz</p>

The acoustic measures of the stimuli used in the study: duration, syllabic rate, and pitch details. Table adapted from (23).

Fig. S1.



EEG Data Pre-Processing Pipeline

Table S2.

	Fixed effects:	Estimate	SE	t value	Pr(> t)
All subjects	(Intercept)	0.757	0.008	89.52	< 2e-16 ***
	Silence (slope)	0.050	0.013	3.87	0.0005 ***
	<i>Random effects</i>	<i>Variance</i>	<i>Std. Dev.</i>		
	Subject (intercept)	0.002	0.046		
	Silence (slope)	0.005	0.073		
Last language: French	(Intercept)	0.757	0.012	64.12	< 2e-16 ***
	Silence (slope)	0.065	0.013	4.94	0.0003 ***
	<i>Random effects</i>	<i>Variance</i>	<i>Std. Dev.</i>		
	Subject (intercept)	0.002	0.039		
	Silence (slope)	0.002	0.041		
Last language: Spanish	(Intercept)	0.756	0.014	55.07	2.22e-12 ***
	Silence (slope)	0.052	0.032	1.64	0.14
	<i>Random effects</i>	<i>Variance</i>	<i>Std. Dev.</i>		
	Subject (intercept)	0.002	0.039		
	Silence (slope)	0.009	0.093		
Last language: English	(Intercept)	0.758	0.017	44.03	9.03e-15 ***
	Silence (slope)	0.036	0.023	1.54	0.15
	<i>Random effects</i>	<i>Variance</i>	<i>Std. Dev.</i>		
	Subject (intercept)	0.003	0.058		
	Silence (slope)	0.006	0.078		

Linear mixed effects model results: Theta band.

Table S3.

	Fixed effects	Estimate	SE	t value	Pr(> t)
All subjects	(Intercept)	0.954	0.022	44.01	<2e-16 ***
	Silence (slope)	-0.069	0.027	-2.60	0.014 *
	<i>Random effects</i>	<i>Variance</i>	<i>Std. Dev.</i>		
	Subject (intercept)	0.015	0.124		
	Silence (slope)	0.023	0.150		
Last language: French	(Intercept)	0.970	0.095	35.07	1.88e-13 ***
	Silence (slope)	-0.043	0.039	-1.08	0.3
	<i>Random effects</i>	<i>Variance</i>	<i>Std. Dev.</i>		
	Subject (intercept)	0.009	0.039		
	Silence (slope)	0.018	0.136		
Last language: Spanish	(Intercept)	0.875	0.054	16.11	6.06e-08 ***
	Silence (slope)	-0.015	0.055	-0.27	0.79
	<i>Random effects</i>	<i>Variance</i>	<i>Std. Dev.</i>		
	Subject (intercept)	0.026	0.162		
	Silence (slope)	0.027	0.163		
Last language: English	(Intercept)	0.998	0.023	42.48	2.08e-14 ***
	Silence (slope)	-0.136	0.038	-3.60	0.004 **
	<i>Random effects</i>	<i>Variance</i>	<i>Std. Dev.</i>		
	Subject (intercept)	0.006	0.080		
	Silence (slope)	0.017	0.129		

Linear mixed effects model results: Gamma band.

Table S4.

	<i>AIC DFAexp ~ Silence + (1 + Silence Subject) model</i>	<i>AIC DFAexp ~ (1 + Silence Subject) model</i>	Pr(>Chisq)
All subjects	-1879.7	-1869.4	0.0004 ***
Last language: French	-712.30	-700.99	0.0003 ***
Last language: Spanish	-510.95	-510.60	0.12
Last language: English	-642.48	-642.30	0.14

Linear Mixed Effects Model Selection: Theta band.

Table S5.

	<i>AIC DFAexp ~ Silence + (1 + Silence Subject) model</i>	<i>AIC DFAexp ~ (1 + Silence Subject) model</i>	Pr(>Chisq)
All subjects	-1710.7	-1706.5	0.013 *
Last language: French	-729.02	-729.91	0.29
Last language: Spanish	-383.07	-384.99	0.78
Last language: English	-636.17	-629.38	0.003 **

Linear Mixed Effects Model Selection: Gamma band.