Supporting Information

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SI Results and Discussion

The Sonority Sequencing Principle (SSP) states that *blif* is preferred to *lbif*, but the same conclusion is not valid for *oblif* and *olbif* despite the similarity of the two contrasts at a phonetic level. Crucially, the presence of the vowel at the beginning allows for *olbif* to be syllabified as *ol.bif*, taking the consonant cluster out of the domain of the SSP.

Experiment 1 found that oxyhemoglobin changes differ significantly between syllables with sonority rises and syllables with sonority falls in the left temporal-perisylvian and the right frontoparietal cortex. Experiment S1 investigated whether a similar pattern of neural activity holds for bisyllabic VCCVC words that presented a sonority rise or a sonority fall in their consonant cluster. We observed no significant differences between the syllable types in oxyhemoglobin concentration changes (all uncorrected P values >0.29, see Table S2). Deoxyhemoglobin differed significantly in the left frontoparietal region of interest [$t(21) = -2.12$, $P = 0.046$], although this result was no significant after applying the Holm-Bonferroni correction.

Table S1. Lists of words presented to newborns in Experiments 1 (monosyllabic rises vs. falls), 2 (monosyllabic rises vs. plateaus), and S1 (bisyllabic rises vs. falls)

Monosyllables			Bisyllables	
Sonority rises	Sonority plateaus	Sonority falls	Sonority rises	Sonority falls
pras	bkin	rvug	oblif	arbom
fros	dkan	rvem	ivros	ilvan
vlug	gdif	lbug	adrif	urpas
vlin	kdom	rveg	udros	arvud
brud	kvas	rdos	iflud	olbif
vros	kvif	rfug	uprif	olvud
from	fkom	lvug	oflug	urdos
bran	pkan	lbif	afrom	irvug

Table S2. Statistics for all three experiments and regions of interest, including uncorrected and corrected *P* values and both oxyhemoglobin and deoxyhemoglobin

Region of interest	Effect size (Cohen's d)	*t* statistic	Uncorrected *P* value	Corrected *P* value
Experiment 1 (oxyhemoglobin)				
Left superior	0.283	$t(18) = 1.23$	0.233	—
Left inferior	0.563	$t(22) = 2.70$	0.013	0.039*
Right superior	0.632	$t(21) = 2.97$	0.007	0.028*
Right inferior	0.232	$t(21) = 1.09$	0.289	—
Experiment 1 (deoxyhemoglobin)				
Left superior	−0.218	$t(18) = -0.95$	0.354	—
Left inferior	0.117	$t(22) = 0.56$	0.582	—
Right superior	0.207	$t(21) = 0.97$	0.342	—
Right inferior	0.086	$t(21) = 0.40$	0.692	—
Experiment 2 (oxyhemoglobin)				
Left superior	0.507	$t(19) = 2.27$	0.035	0.105
Left inferior	0.599	$t(22) = 2.87$	0.009	0.036*
Right superior	0.437	$t(17) = 1.85$	0.081	0.162
Right inferior	0.213	$t(19) = 0.95$	0.352	—
Experiment 2 (deoxyhemoglobin)				
Left superior	0.048	$t(19) = 0.21$	0.833	—
Left inferior	0.089	$t(22) = 0.42$	0.675	—
Right superior	0.214	$t(17) = 0.91$	0.376	—
Right inferior	0.029	$t(19) = 0.13$	0.900	—
Experiment S1 (oxyhemoglobin)				
Left superior	−0.104	$t(21) = -0.49$	0.632	—
Left inferior	0.165	$t(21) = 0.77$	0.449	—
Right superior	−0.247	$t(19) = -1.10$	0.283	—
Right inferior	−0.230	$t(21) = -1.08$	0.293	—
Experiment S1 (deoxyhemoglobin)				
Left superior	−0.453	$t(21) = -2.13$	0.046	0.184
Left inferior	0.268	$t(21) = 1.26$	0.223	—
Right superior	−0.196	$t(19) = -0.88$	0.392	—
Right inferior	0.166	$t(21) = 0.78$	0.444	—

*Denotes significant differences between conditions at the 5% level after applying the Holm-Bonferroni correction.