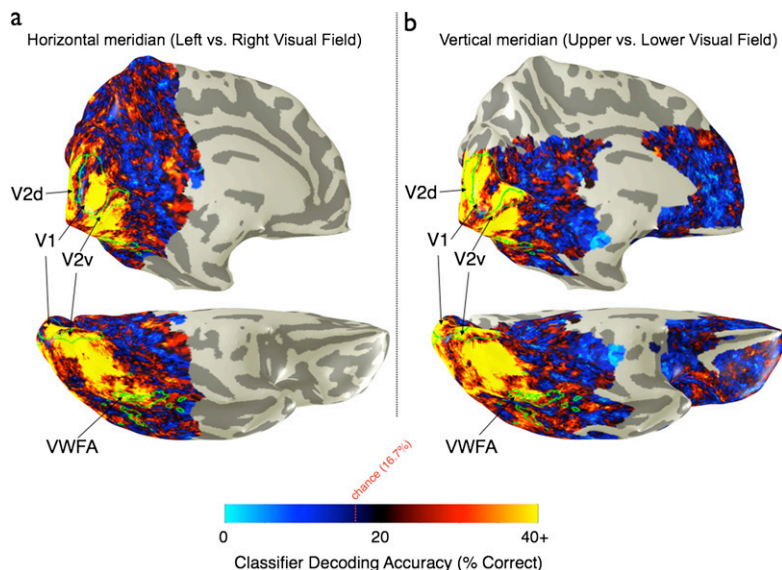
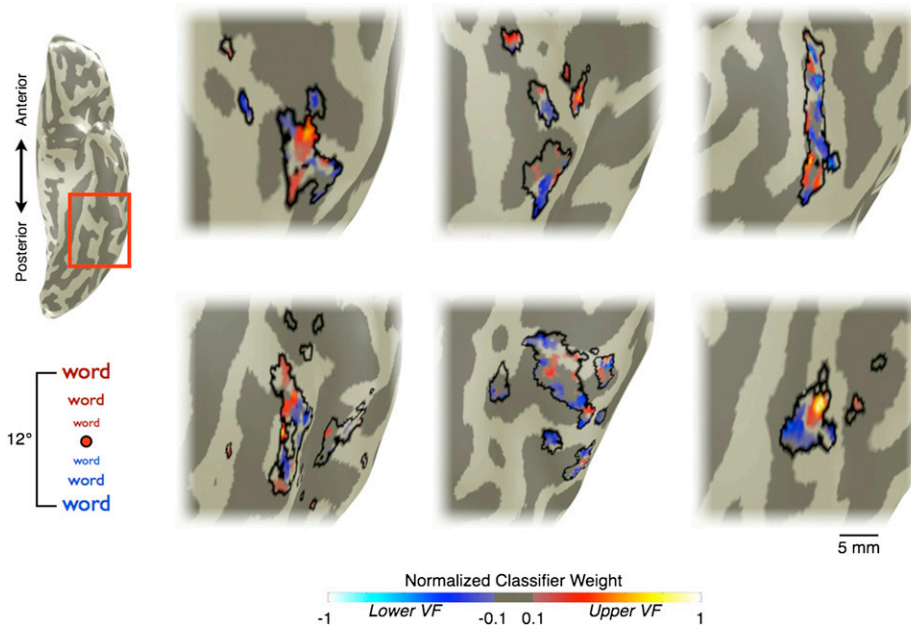


# Supporting Information

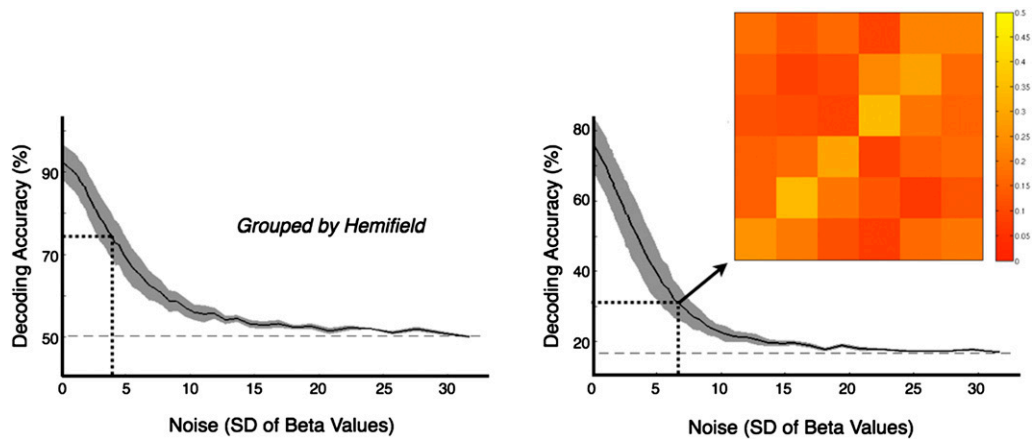
Rauschecker et al. 10.1073/pnas.1121304109



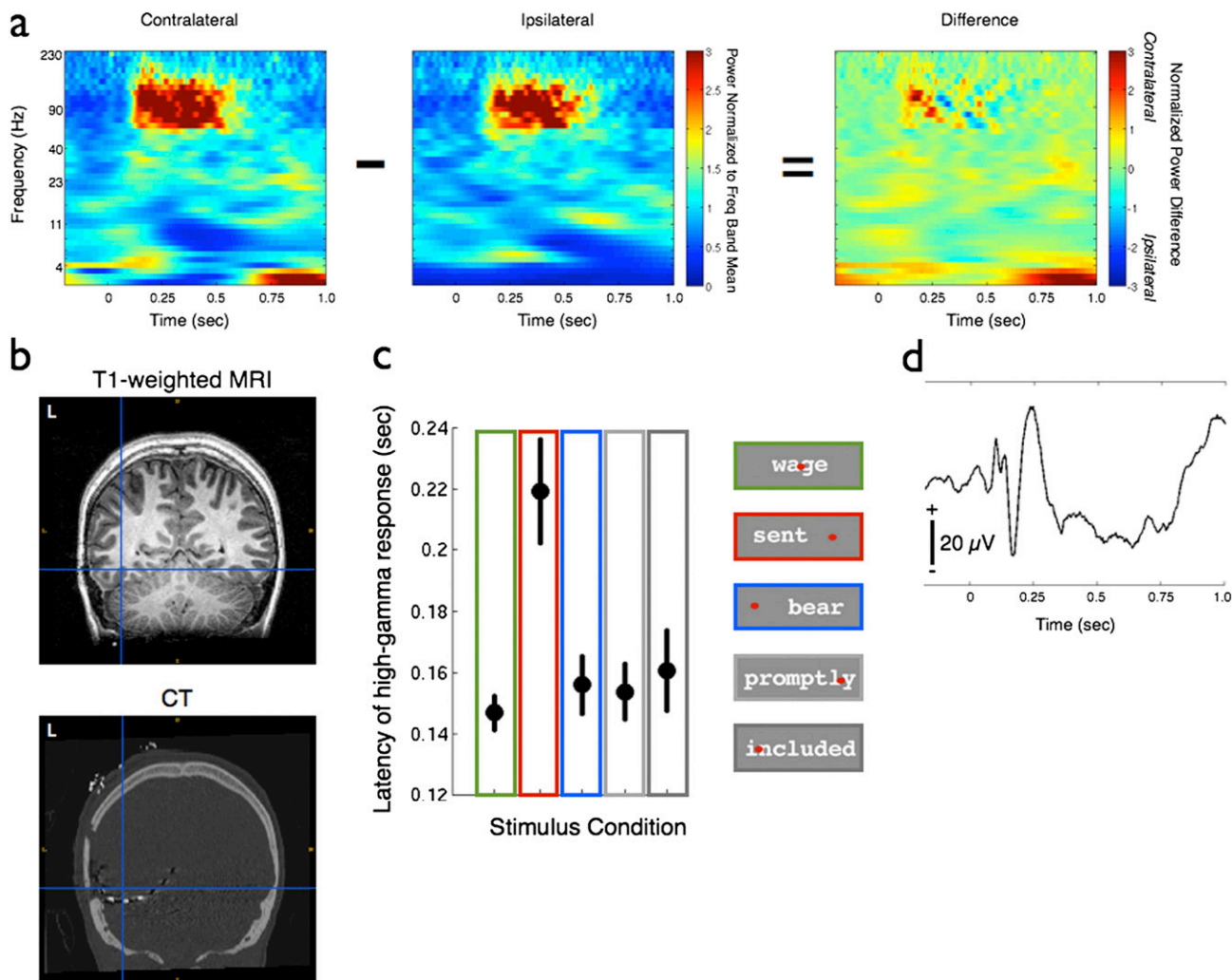
**Fig. S1.** Searchlight analysis of visual stimulus position classification. (A) Classification along the horizontal meridian. Visual field position classification was performed using data from a 5-mm radius disk centered at each gray matter voxel. Each voxel is colored according to decoding accuracy within that disk. Chance performance is 1/6 (16.7%). The V1, V2, and VWFA boundaries are indicated by the green outlines. Note the high classification accuracy in the center of V1 (horizontal meridian representation) and the low classification accuracy along the V1/V2 borders (vertical meridian representation). High decoding accuracy extends well into VOT cortex, including in the VWFA. (Upper) Posterior-medial view of the left hemisphere. (Lower) Ventral view of the left hemisphere. (B) Classification along the vertical meridian. In this condition classification accuracy in V1 is high along the V1/V2 borders (vertical meridian representation) and low in the center of V1 and the V2/V3v border (horizontal meridian representations). High classification accuracy extends into VOT cortex, especially the VWFA. The low classification accuracy along a strip cutting through the VWFA in both A and B is likely due to measurement limitations near the dural venous sinus (49).



**Fig. S2.** Classifier maps showing informative voxels for upper vs. lower visual field classification. The separate images show classifier maps from six subjects in the VWFA (black outlines). Voxels are colored by classifier weight. Red voxels are informative for identifying upper VF stimuli and blue voxels for lower VF stimuli. (Left Insets) Approximate field of view for each subject's left hemisphere (Upper) and a schematic of word positions (Lower). Other details are as in Fig. 3.



**Fig. S3.** Matching V1/V2 classification performance to VWFA classification performance by the addition of noise. Adding Gaussian noise to V1/V2 responses degrades classifier performance. (*Left*) Classifier performance for upper vs. lower hemifield classification as a function of noise level (chance level = 50%). (*Right*) Classifier performance as a function of noise for distinguishing between six visual field positions (chance level = 16.7%). Dotted lines indicate the noise level that matches V1/V2 and VWFA classifier accuracy. Noise is measured in SDs of the data ( $\beta$ -values) within each subject for the case when there is no noise. Curves are computed for each subject via a bootstrapping procedure and then averaged across subjects. (*Inset*) V1/V2 confusion matrix in the presence of noise that equates V1/V2 and VWFA classifier accuracy. Horizontal dashed line indicates chance performance. Shading represents  $\pm 1$  SEM, computed across subjects.



**Fig. S4.** Alternate analyses for computing VWFA response onset latency to ipsilateral letter strings. (A) Event-related spectral perturbations (ERSPs) averaged across 40 contralateral and 40 ipsilateral stimulus presentations. Subtracting the two ERSPs shows that the early response latency is due to the contralateral stimuli (red) and the later responses are associated with the ipsilateral (blue) stimuli. (B) Colocalization of electrodes with anatomical T1-weighted MRI. Coronal views of the T1-weighted MRI and CT are shown after alignment. The blue crosshairs indicate the location of the VWFA in both images. Electrodes show up as bright areas under the temporal lobe in the CT image. (C) Response onset latency measured by the time after stimulus onset for high-gamma power to reach 10 SDs above baseline. Same conventions as in Fig. 6B are shown. (D) Event-related potential (ERP) from the VWFA electrode in response to foveally presented letter strings during a lexical decision task (green condition in C).

**Table S1.** MNI coordinates of the center of mass of the VWFA in seven subjects

	Center of mass MNI coordinates		
	X	Y	Z
S1	-44	-61	-24
S2	-42	-53	-37
S3	-40	-53	-28
S4	-41	-51	-23
S5	-48	-58	-18
S6	-42	-60	-20
S7	-43	-62	-11
Mean VWFA	-42.9	-56.9	-23.0
Mean rVWFA	41.3	-60.3	-20.3

Means of the VWFA and rVWFA coordinates are shown in the bottom two rows.