

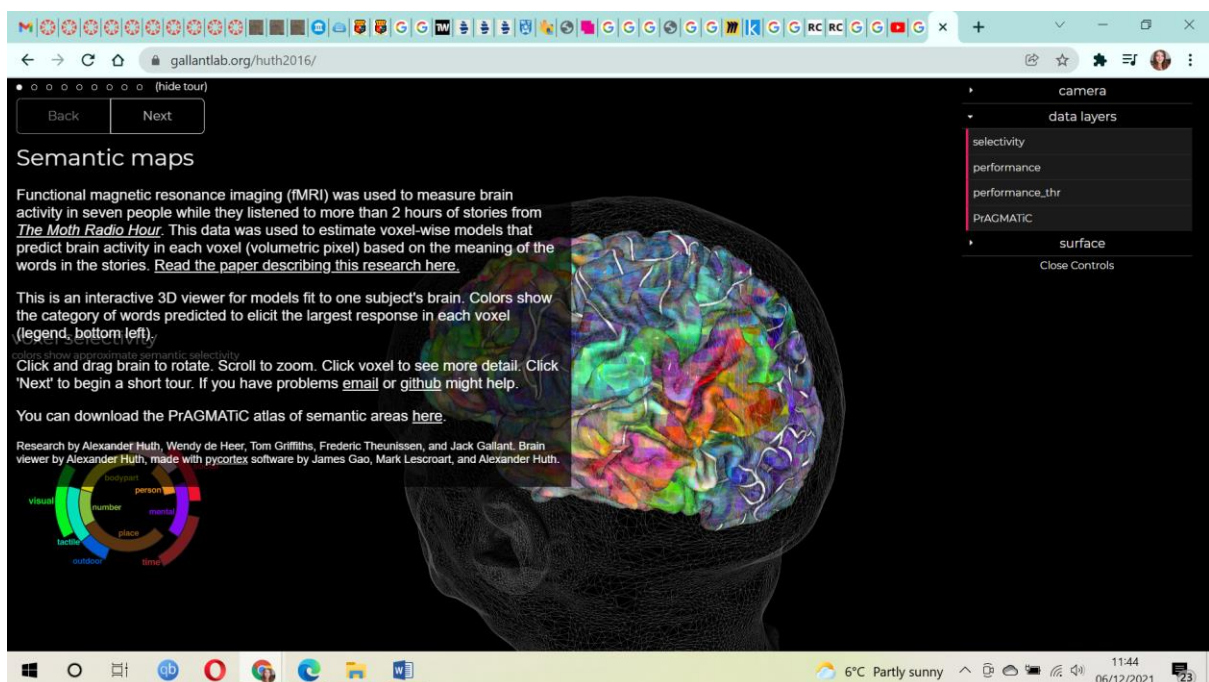
# CARTOGRAPHY OF MULTILINGUALISM

Inspired by the cartography of language in the brain, how words and semantics activate different regions of the brain



<https://blog.education.nationalgeographic.org/2016/04/28/brain-atlas-charts-how-we-navigate-language/>

<https://gallantlab.org/huth2016/>



gallantlab.org/huth2016/

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## Representation of social words

The voxel highlighted here is located on the right angular gyrus. We predict that it will respond most strongly to words that describe people or dramatic events, as well as words describing time.

Other bright red and orange voxels are also predicted to respond to social or dramatic words. Darker red and brown voxels are predicted to respond to time and place words.

voxel selectivity  
colors show approximate semantic selectivity

voxel model p

camera

data layers

- selectivity
- performance
- performance\_thr
- PRAGMATIC

surface

Close Controls

Good, very reliable

husband's  
moved  
father  
sister  
months  
passed  
son  
died  
lived  
after  
wife  
aunt  
later  
years  
went  
waited  
refused  
brother  
remarried

6°C Partly sunny 11:45 06/12/2021

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## Representation of number words

The voxel highlighted here is located in the right precentral sulcus. We predict that it responds selectively to numbers. Other avocado-colored voxels are also predicted to respond to numbers.

voxel selectivity  
colors show approximate semantic selectivity

voxel model p

camera

data layers

- selectivity
- performance
- performance\_thr
- PRAGMATIC

surface

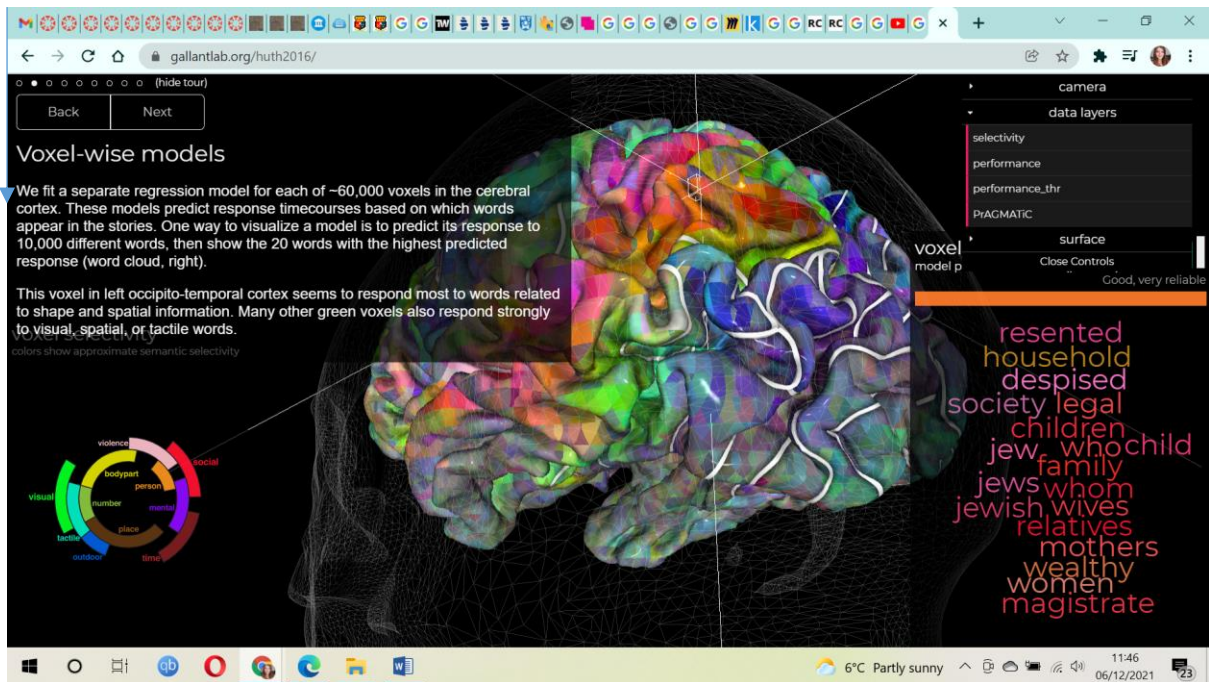
Close Controls

Good, very reliable

twelve  
quarter  
thirty  
per  
three  
five  
ninety  
hundred  
fourteen  
two  
seventy  
eight  
six  
forty  
fifteen  
fifty  
thousand  
roughly

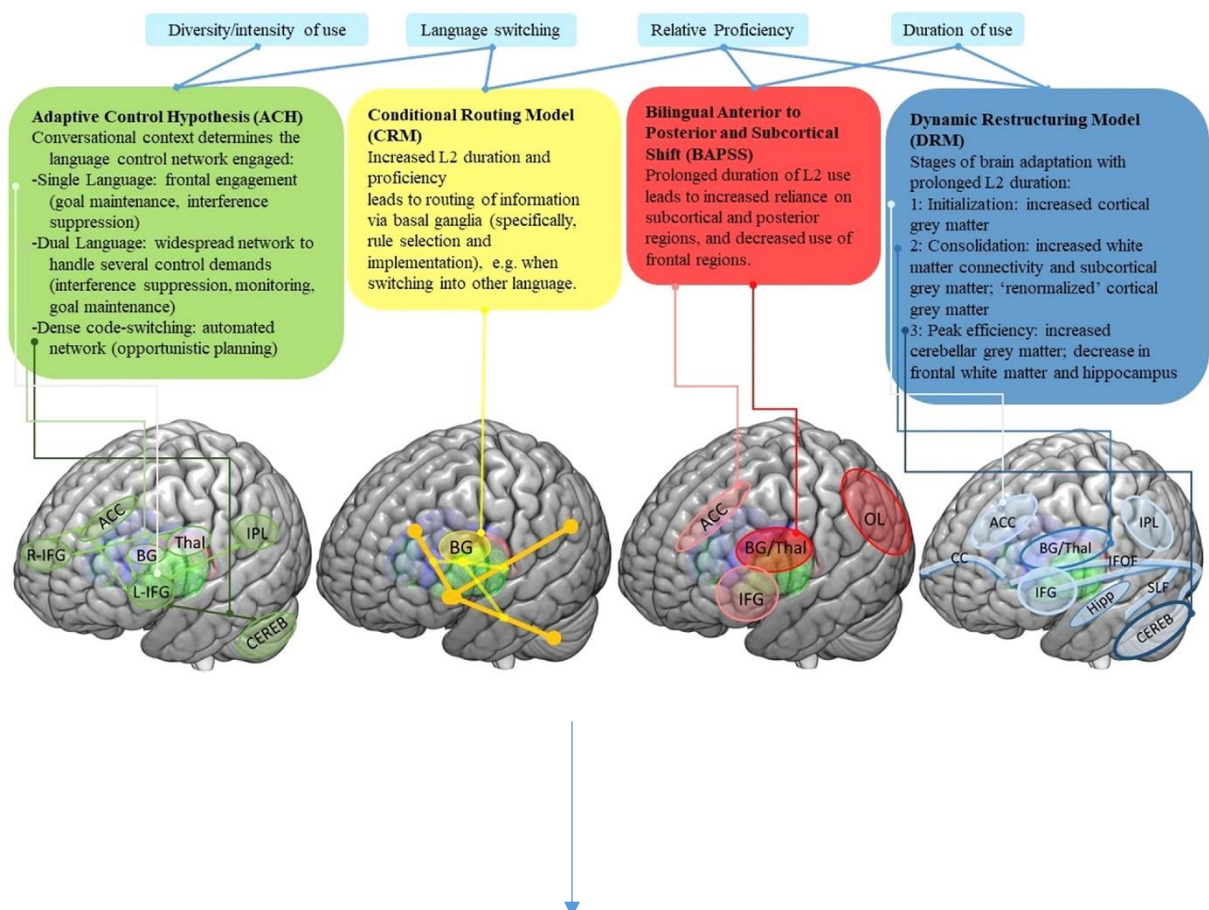
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<https://www.sciencedirect.com/science/article/pii/S0911604420300907>

## Understanding bilingual brain function and structure changes



Creating a visual representation of what speaking different languages activates in the brain



And then a cartography of languages on the body