Crossmodal Translation of Complex Ideas in Left Lateral Posterior Temporal Cortex

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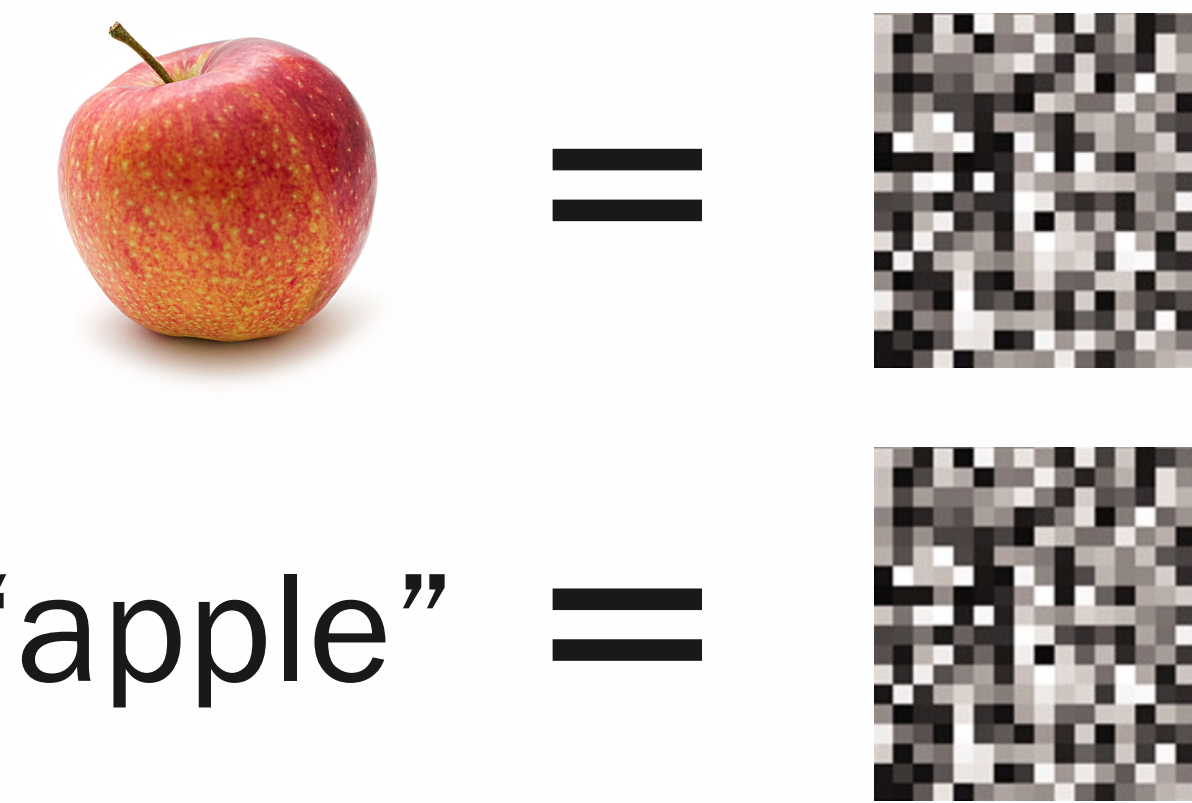How do humans understand that this sentence...   ...describes this scene?

Darth Vader has waded into the Black Sea and is filtering water with a Brita pitcher.

What We Knew

Similar activation patterns in LPTC when people see words and when they see images

🍎 = ▦

"apple" = ▦

Could be **modality-independent semantic representations**

But...

Could just be modality-specific representations:

Maybe seeing the picture makes you think of the word

Can we find evidence for crossmodal translation or amodal representation?
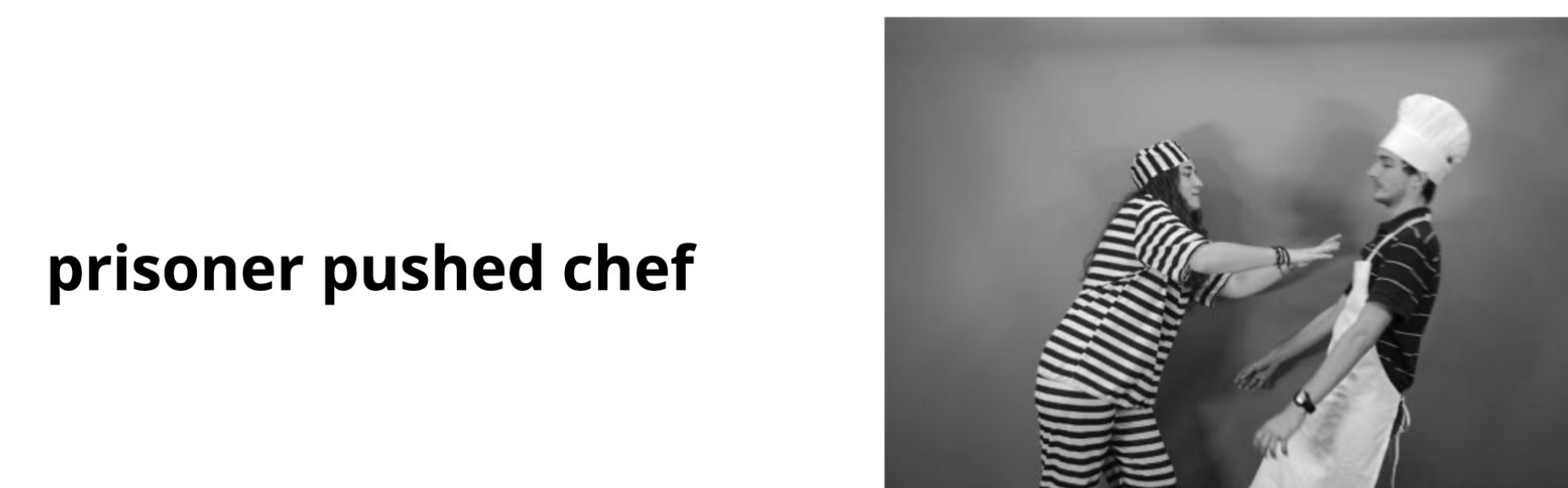
What We Did

Scanned **3 individuals for over 25 hours each** (ask me why!)

Searched for regions preferentially activated by **crossmodal translation**

What's more active when people compare **images to sentences**, rather than sentences to sentences or images to images?
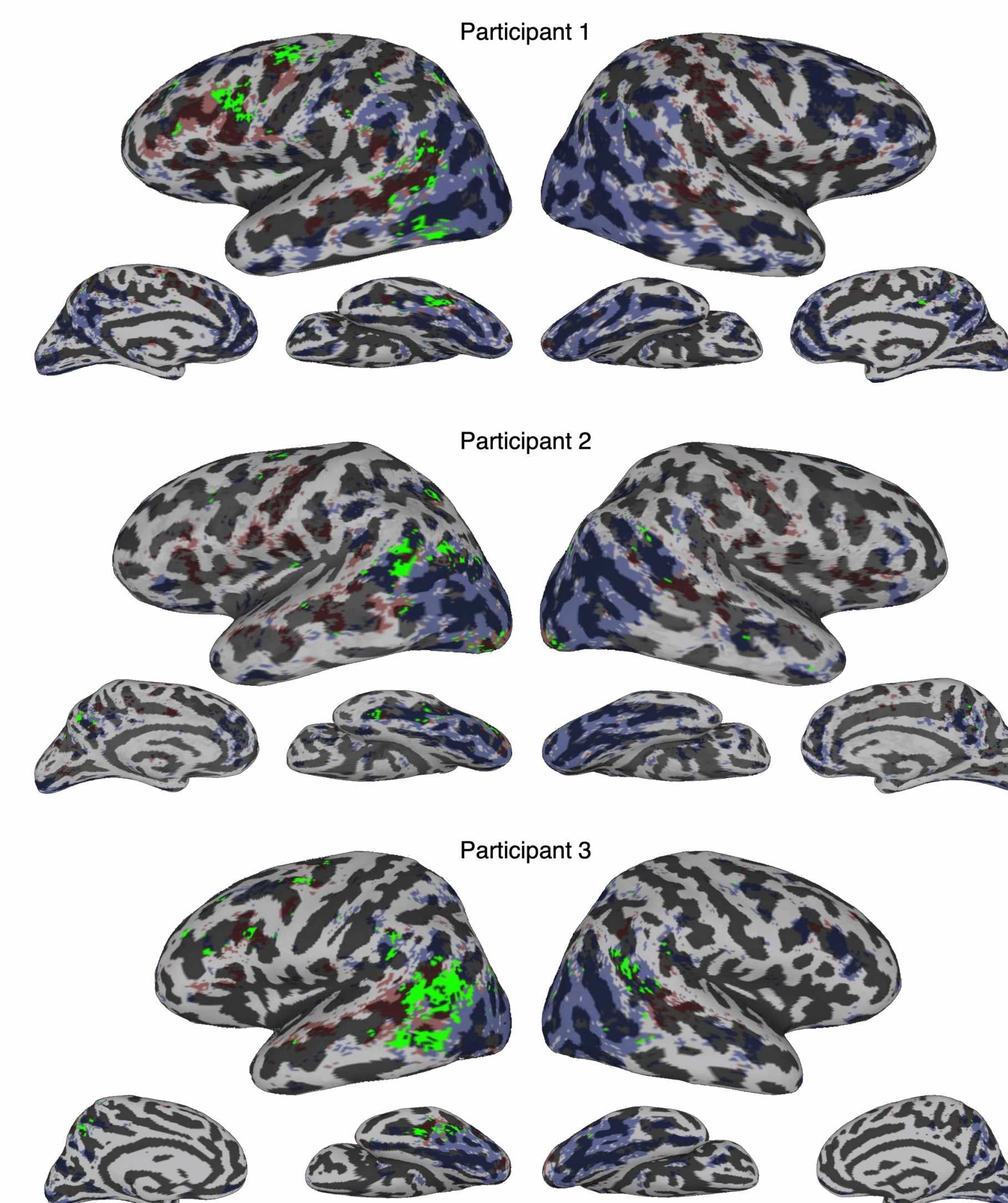
The Task

prisoner pushed chef   cook was shoved by inmate

prisoner pushed chef

(one type of comparison per trial)

What We Found

Participant 1

Participant 2

Participant 3

LPTC was preferentially activated by **crossmodal translation (green)** in all 3 participants:

LPTC activity is not driven only by images or only by words

No evidence (yet) from follow-up MVPA for **structured combinations** of concepts in LPTC