

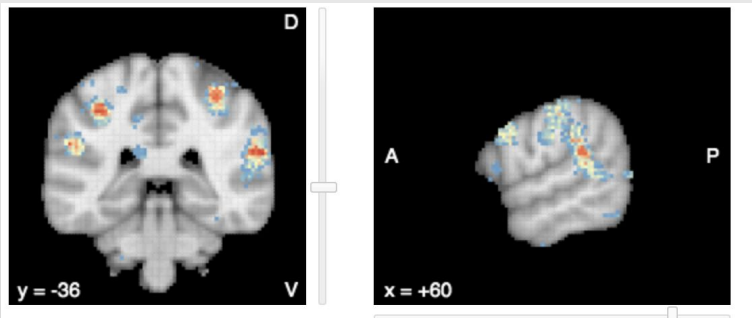
Third person perspective impedes comprehension in patients with lesions in right temporo-parietal junction

Franziska Hartung¹, Emily Coderre², Stacey Humphries¹, Anjan Chatterjee¹
¹Penn Center for Neuroaesthetics, University of Pennsylvania, ²University of Vermont

Does right TPJ have a relevant function for perspective taking in comprehension?

Previous research suggest that

- a) 3rd person perspective in comprehension can be more difficult
- b) perspective taking relies on (right) TPJ activation



118 studies on Neurosynth for action observation

Methods

Narrative Comprehension task

Participants listened to 6 short stories; 50% in 1st person perspective, 50% in 3rd person perspective. Comprehension probe after each paragraph; 50% target sentences literal action (low cognitive load), 50% metaphor (high cognitive load)

Spatial-visual perspective taking

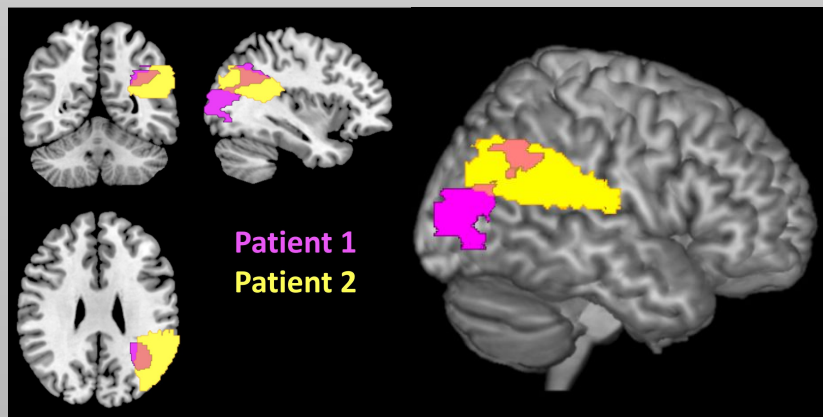
Indicating turns for a virtual agent that includes mental rotation

Participants

2 focal lesion patients (R TPJ, cause = stroke);
P1: f 88ye 12yoe;
P2: m 84y 18yoe, both read daily, >12 books per year

Healthy controls

5 (2f, 3m), 80-90 y;
(data collection paused, 15 more data sets to be collected)

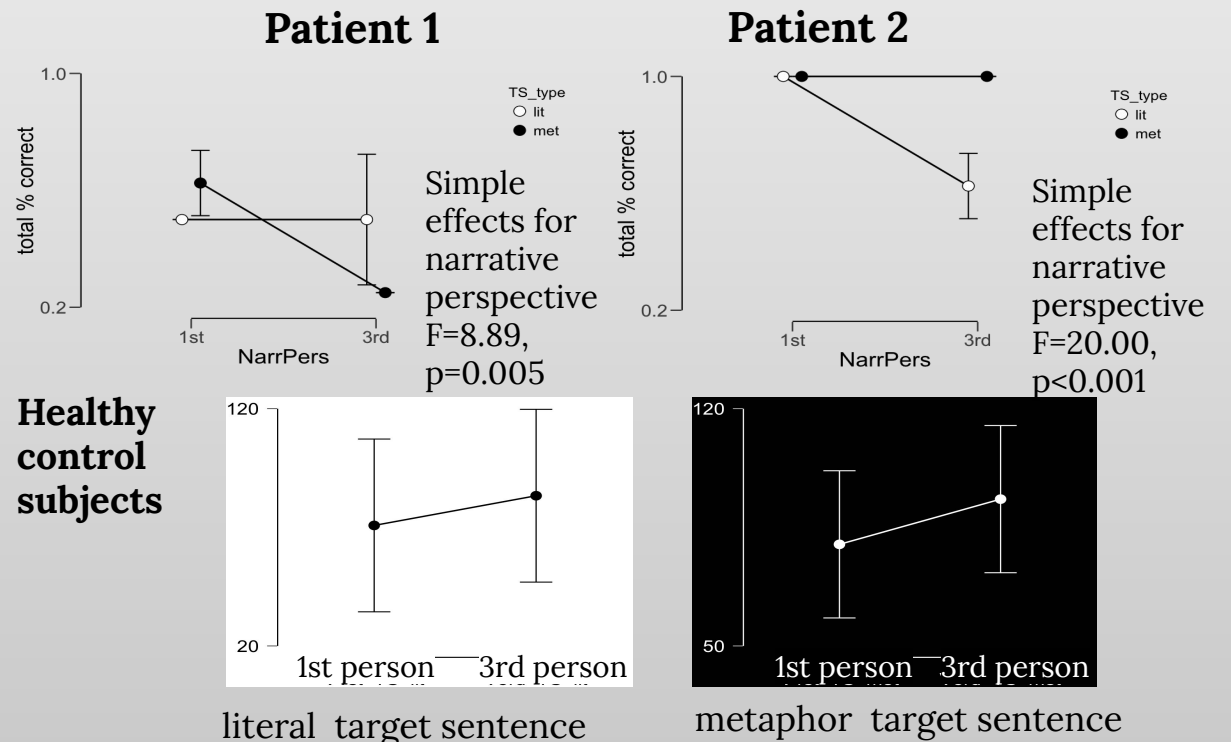


Results & Discussion

Narrative Comprehension task

Both patients show comprehension deficits for 3rd person stories (F(df=1)=6.39, p=0.015)

Target sentence type (literal vs metaphor) was not significant (F(df=1)=1.97, p=0.18), nor was the interaction (F(df=1)=0.71, p=0.40)

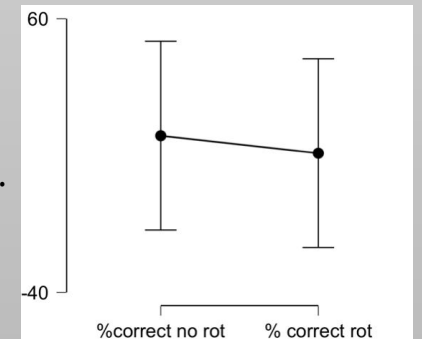


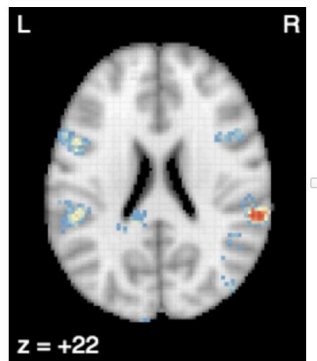
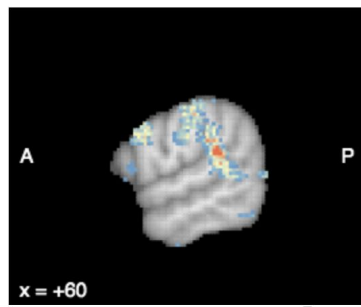
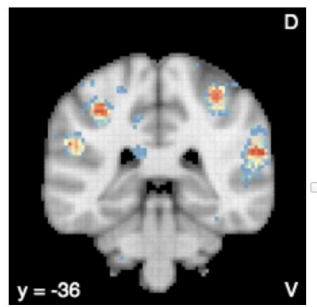
Spatial-visual perspective taking

Both focal lesion patients perform at chance for the spatial perspective taking task. Mental rotation does not affect performance.

rTPJ seems to be functionally involved in perspective taking

rTPJ involvement seems to be domain general affected spatial-visual perspective taking





z-score: 8.64

What's here?

x: y: z: