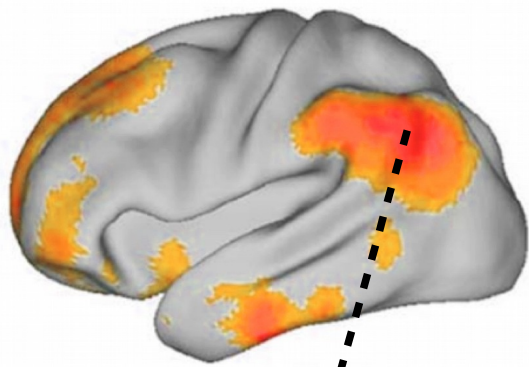


PMC: Global monitoring and information integration

$$\delta\theta_k \propto -\mathbb{E}_{(s,a,r,s') \sim \mathcal{D}}[(\tilde{Q}(s,a|\theta_k) - y_k)\nabla_{\theta_k}\tilde{Q}(s,a|\theta_k)]$$

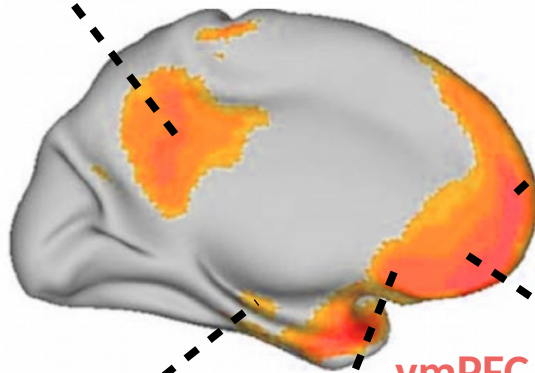
dmPFC (BA9): Action consideration

$$a_k \leftarrow \operatorname{argmax}_{a \in \mathcal{A}} \tilde{Q}(s_k, a|\theta_k)$$



Left TPJ: World semantics

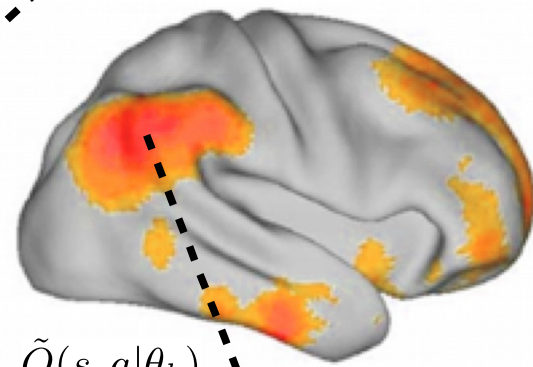
$$s_0 \xrightarrow{r_1} s_1 \xrightarrow{r_2} s_2 \xrightarrow{r_3} \dots$$



Ncl. Accumbens:

Reward / punishment signals

vmPFC (BA10): $\tilde{Q}(s,a|\theta_k)$ Stimulus-value association



Right TPJ: Prediction error signaling

$$\tilde{Q}(s,a|\theta_k) - y_k$$

Hippocampus: Memory,
space, and experience replay

$$(s,a,r,s') \sim \mathcal{D}$$