

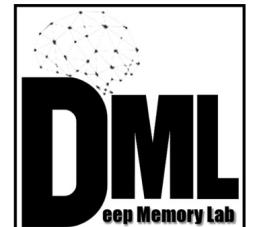
Decoding temporal structure in narratives using functional connectivity pattern

김태훈 이수현 장하림 박선희 반영은 김구태

Taehoon Kim, Suhyun Lee, Halim Jang, Seonhwa Park, Younghen Ban & Ghoottae Kim

Deep Memory Lab, Cognitive Science Research Group

Korea Brain Research Institute

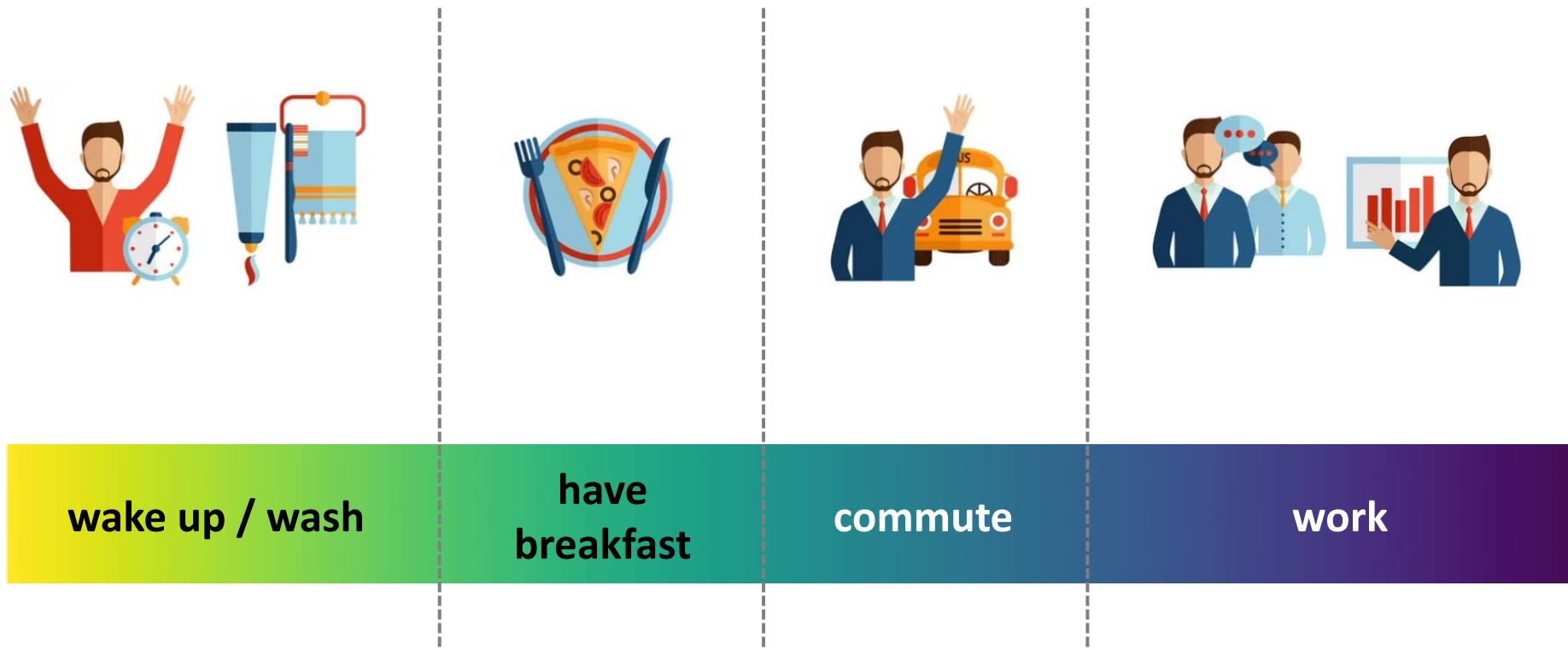


Temporal Structure in Continuous Events

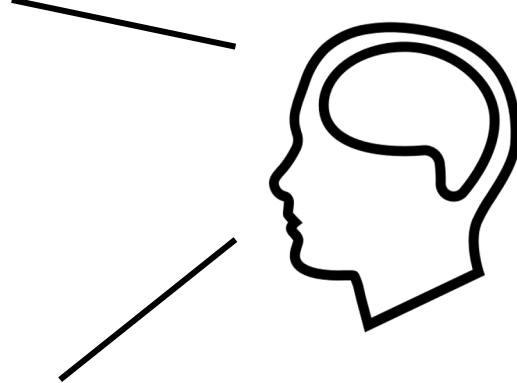


Go to work

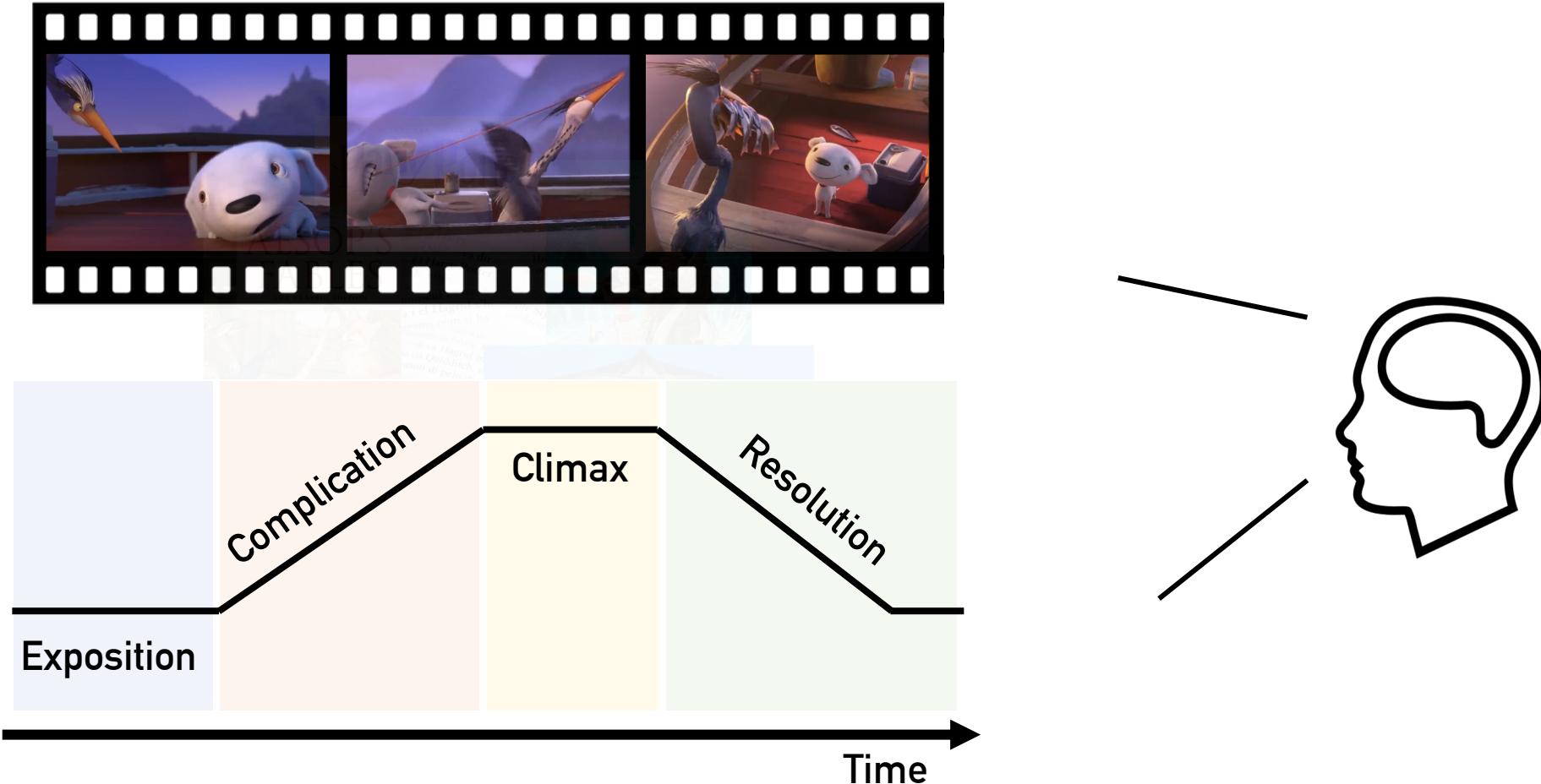
Temporal Structure in Continuous Events



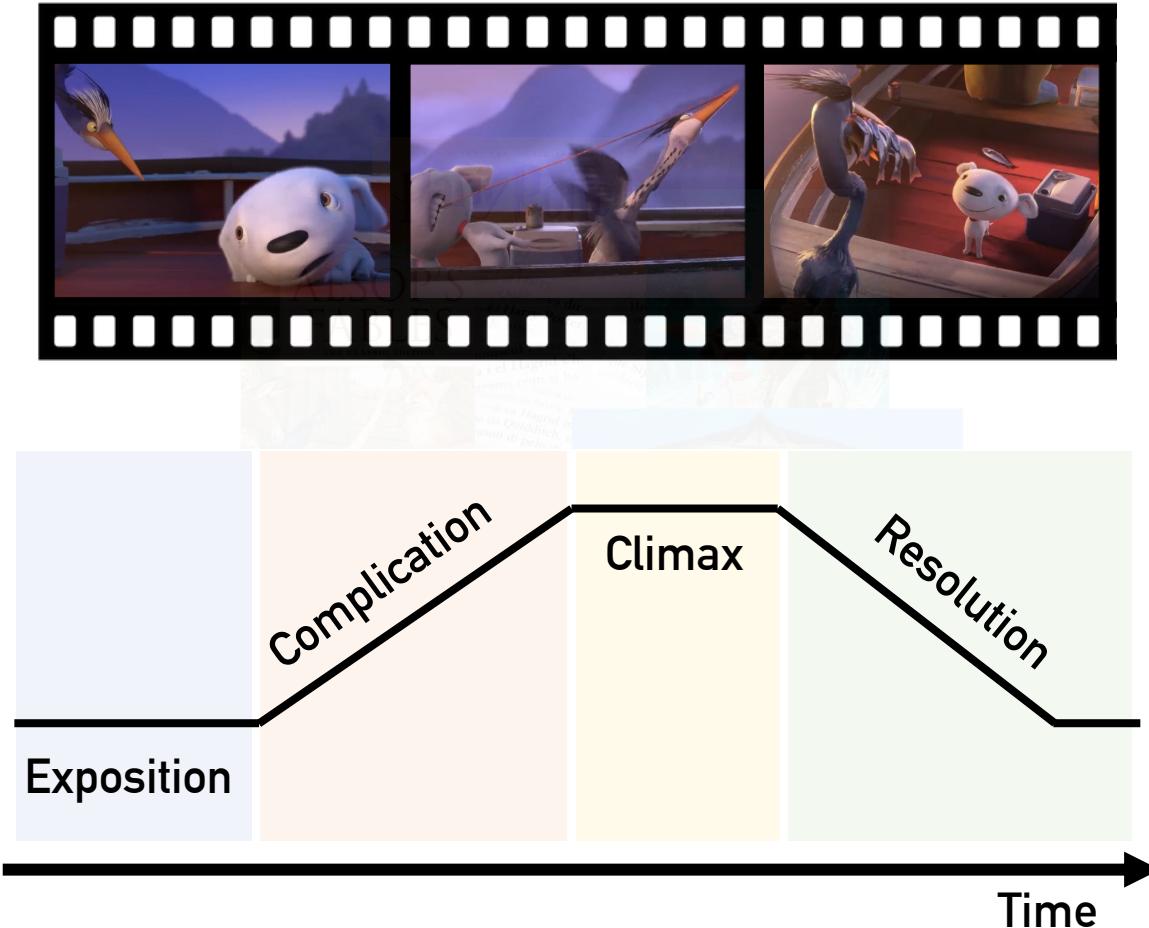
Temporal Structure in Narrative



Temporal Structure in Narrative



Temporal Structure in Narrative

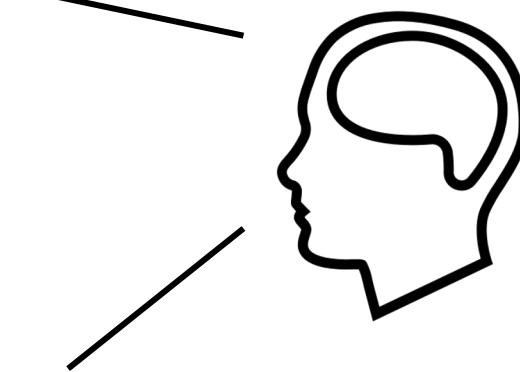


Visual & Auditory

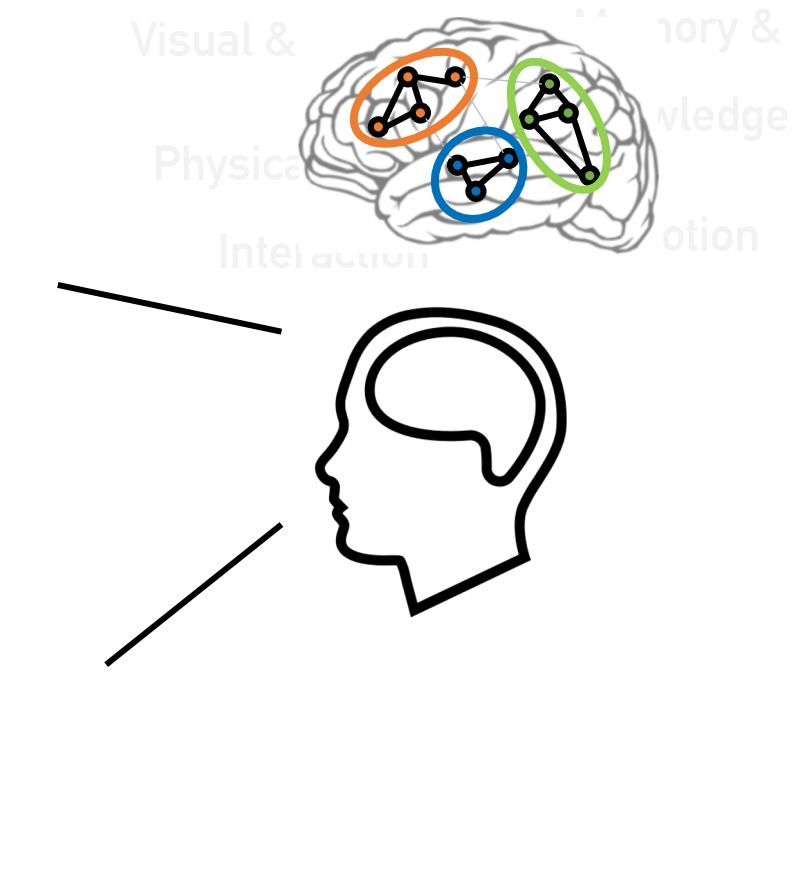
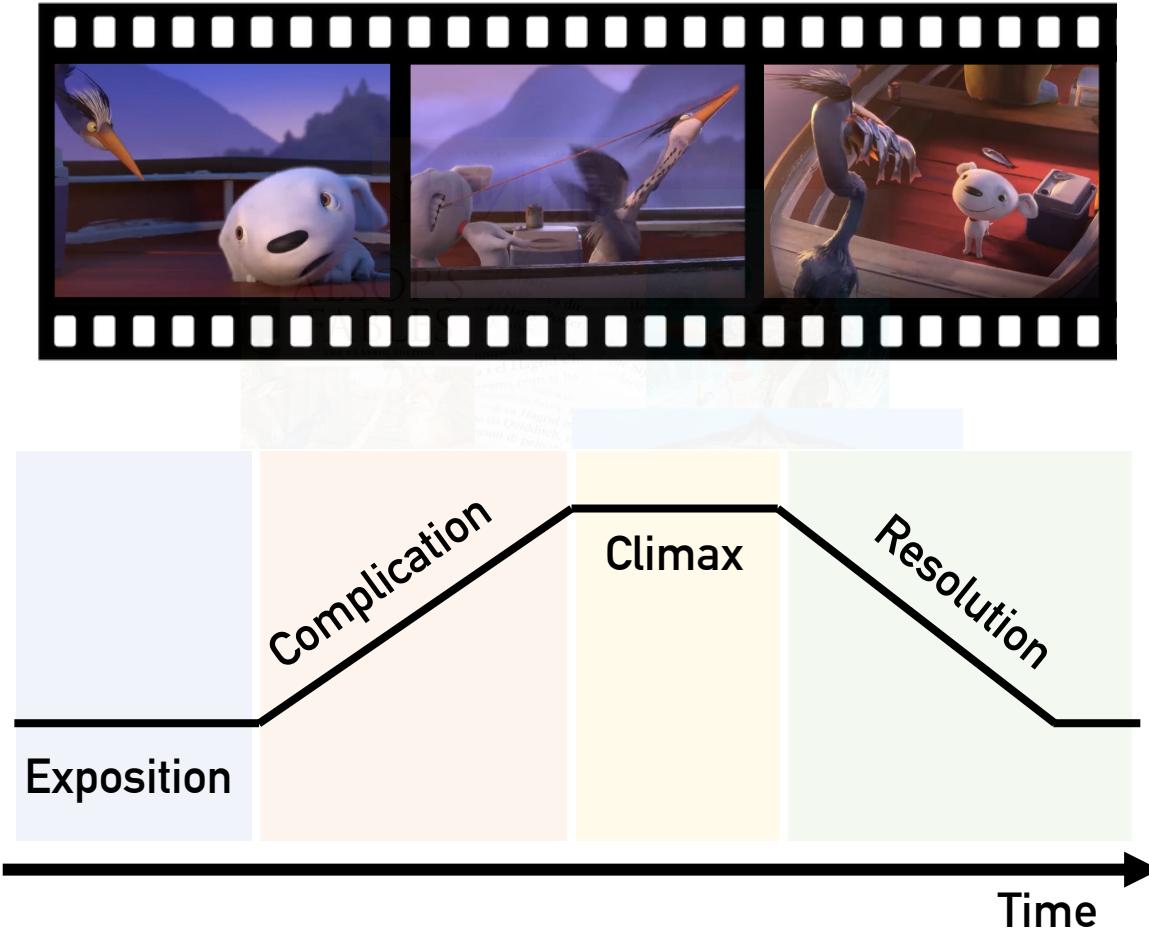
Memory &
Knowledge

Physical & Social
Interaction

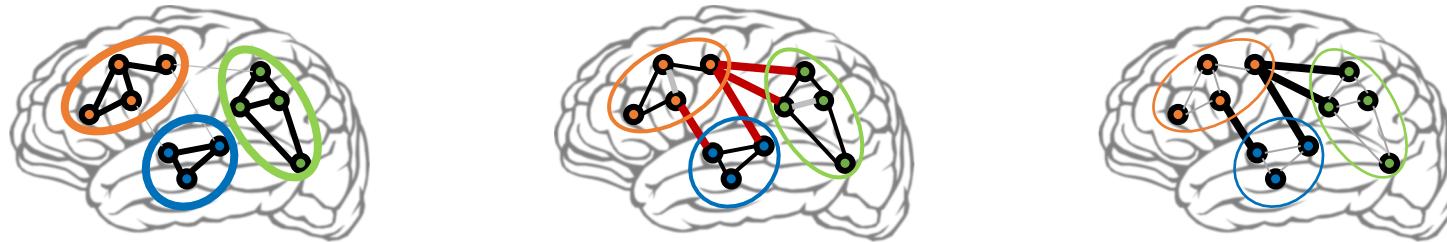
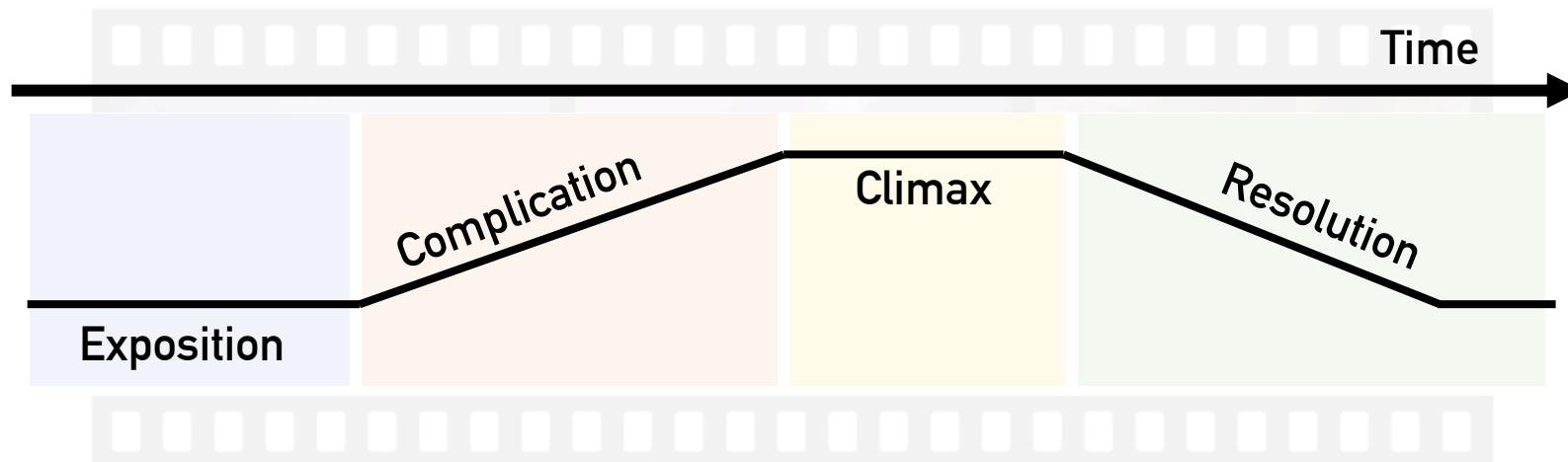
Emotion



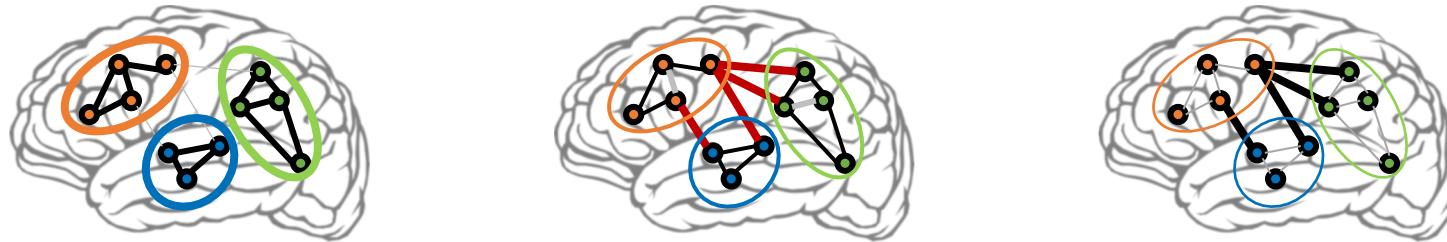
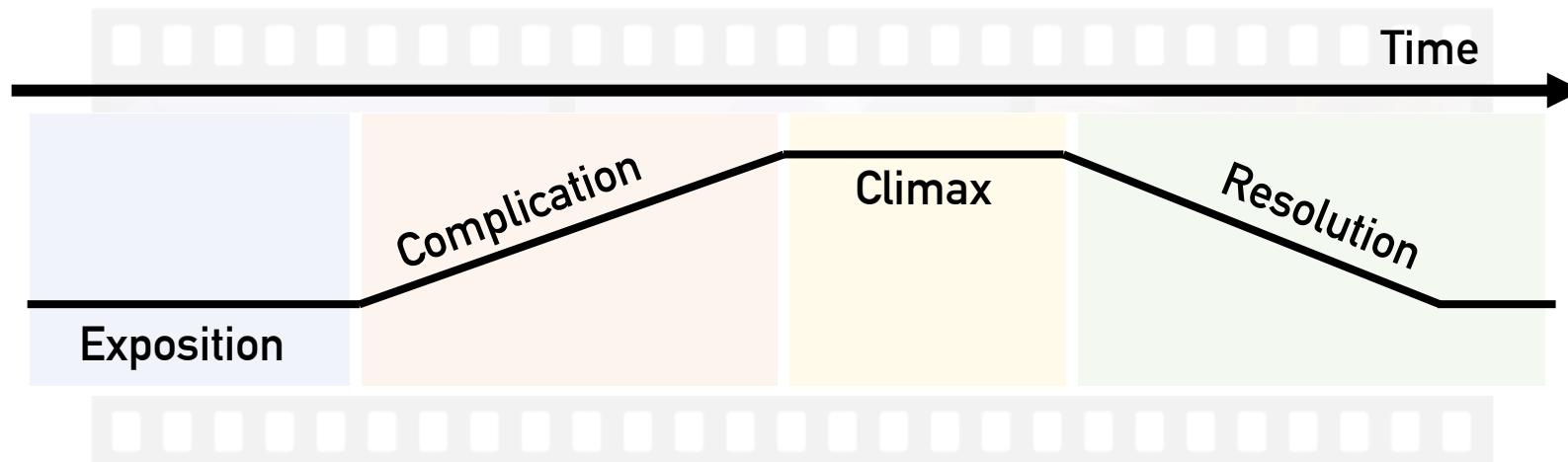
Temporal Structure in Narrative



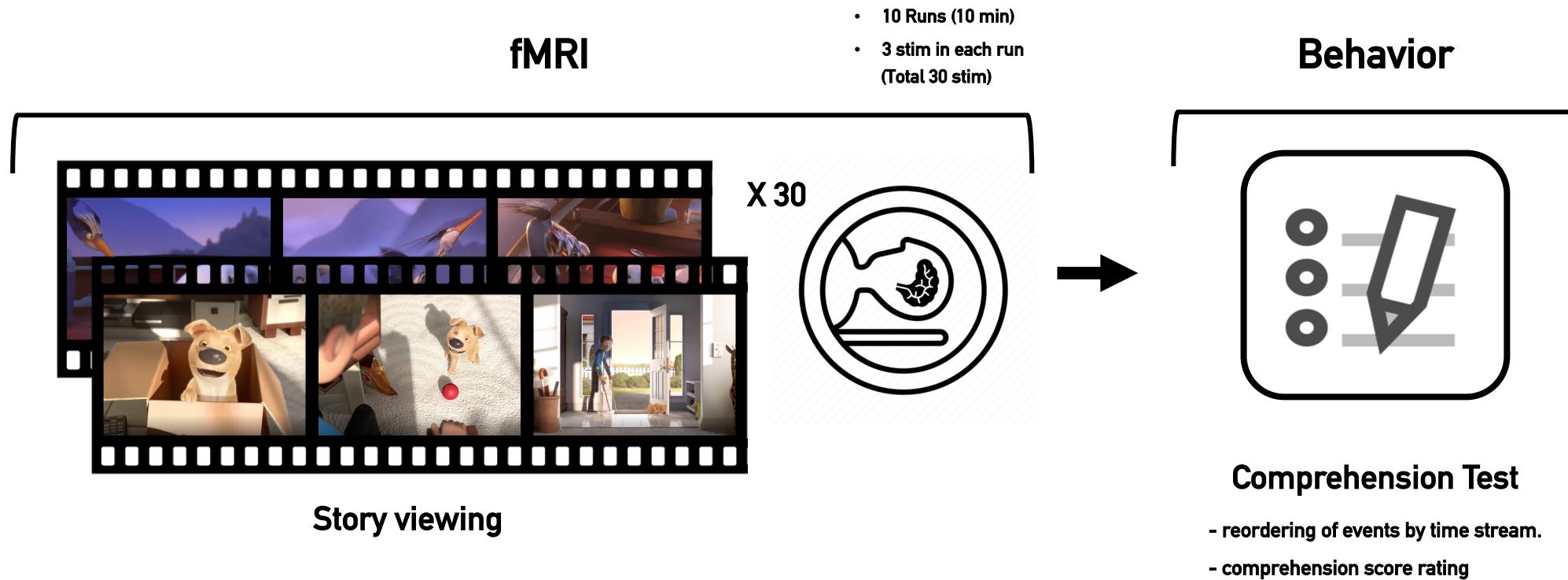
Temporal Structure in Narrative



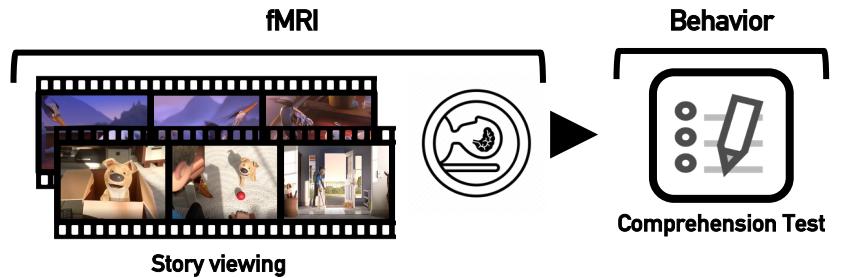
Temporal Structure in Narrative



Method

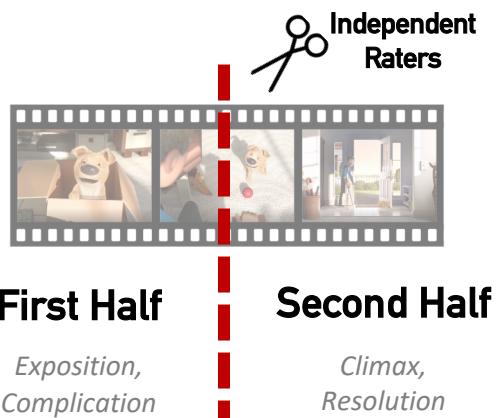


Method

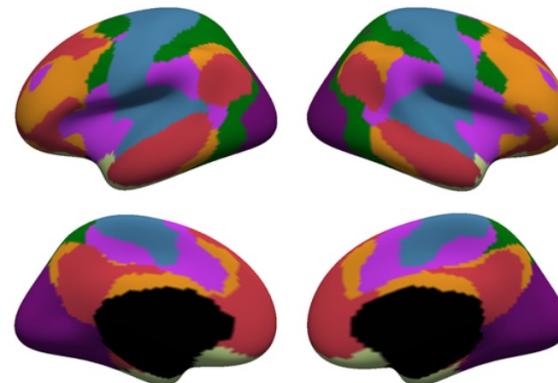


Stimuli

- **30 Short Animation**
- **Duration 2~3 min**
- **Split time into two part by independent raters**



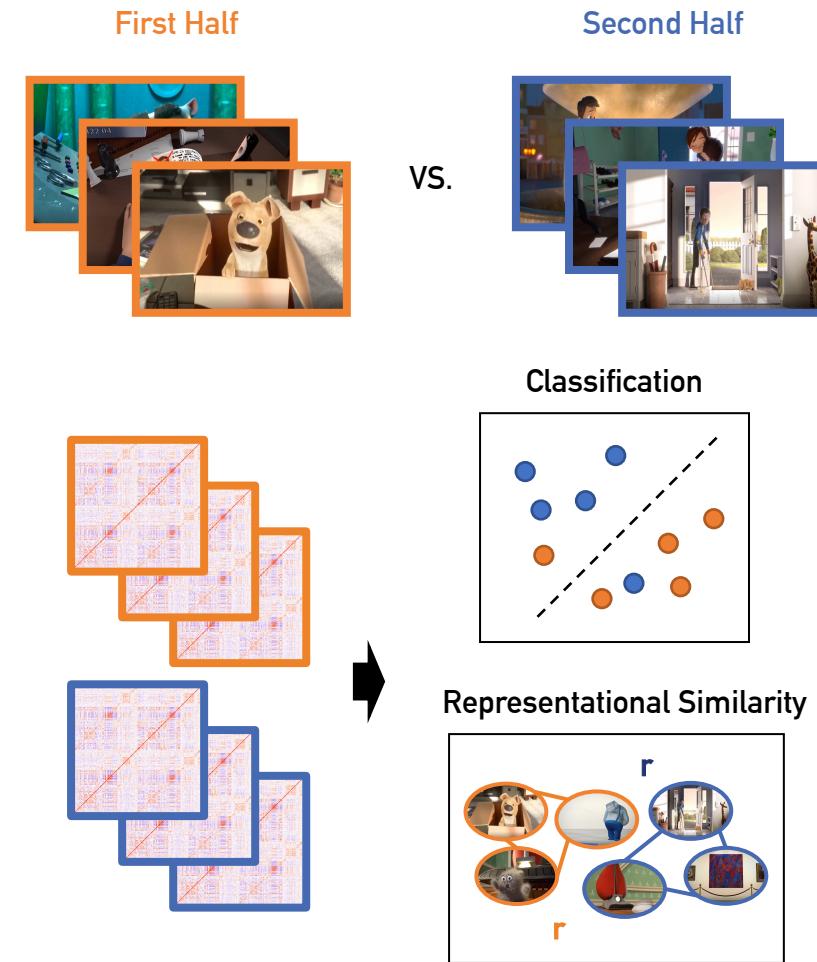
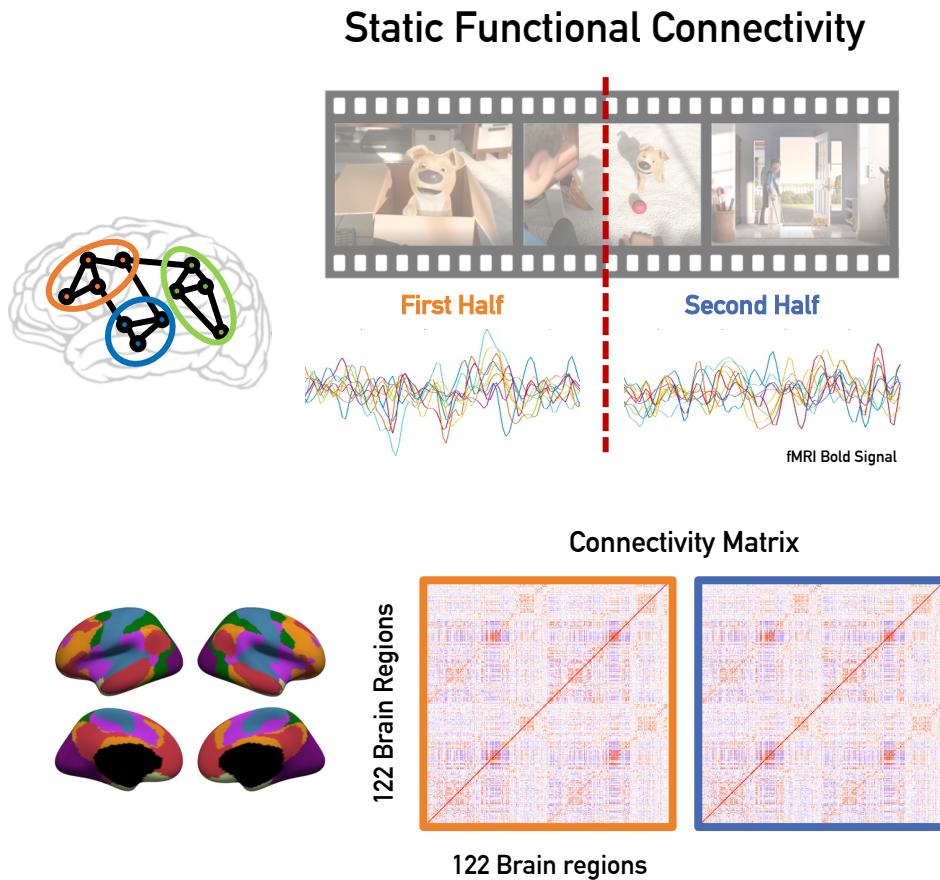
Whole-Brain Parcellations



Yeo et al., 2011. J Neurophysiol

- **Cortical functional parcellations (Yeo et al., 2011)**
- **7 + 1 Networks**
 - Vis, SM, FPN, VAN, DAN, DMN, Limbic + Subcortical
- **114 + 8 ROIs**

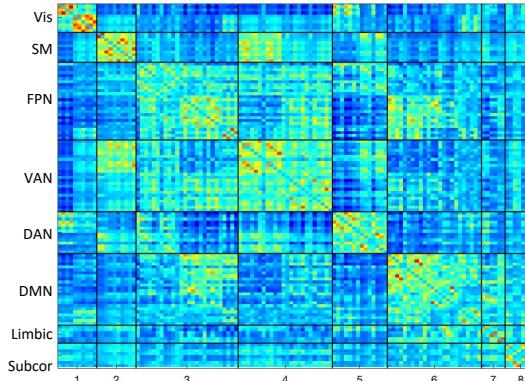
Analysis



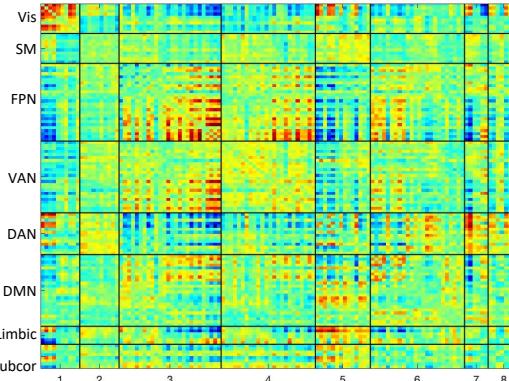
FC pattern

N = 20

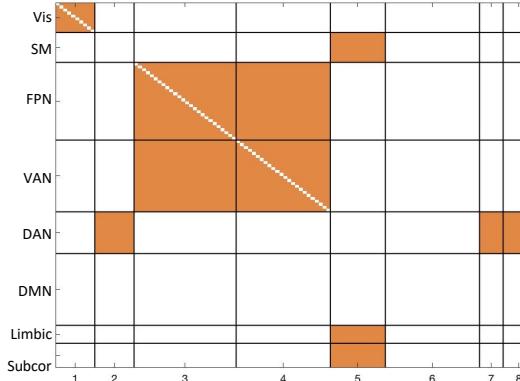
First Half



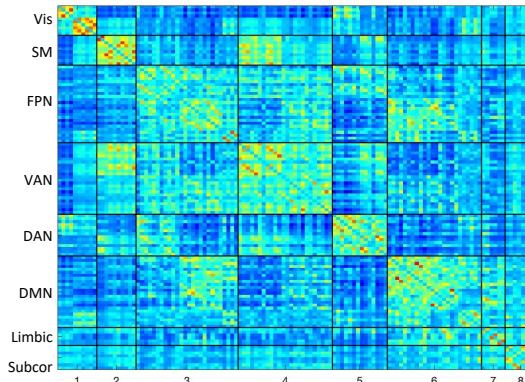
First - Second



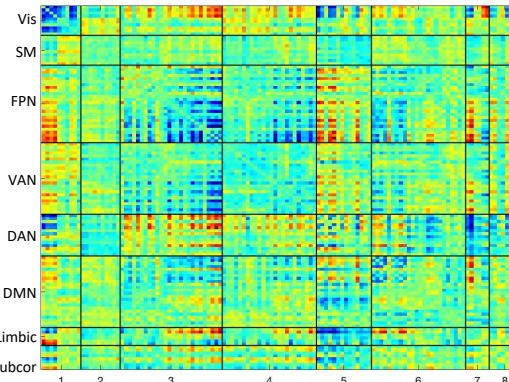
First - Second



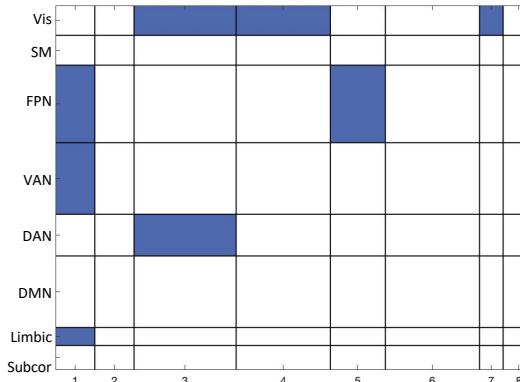
Second Half



Second - First



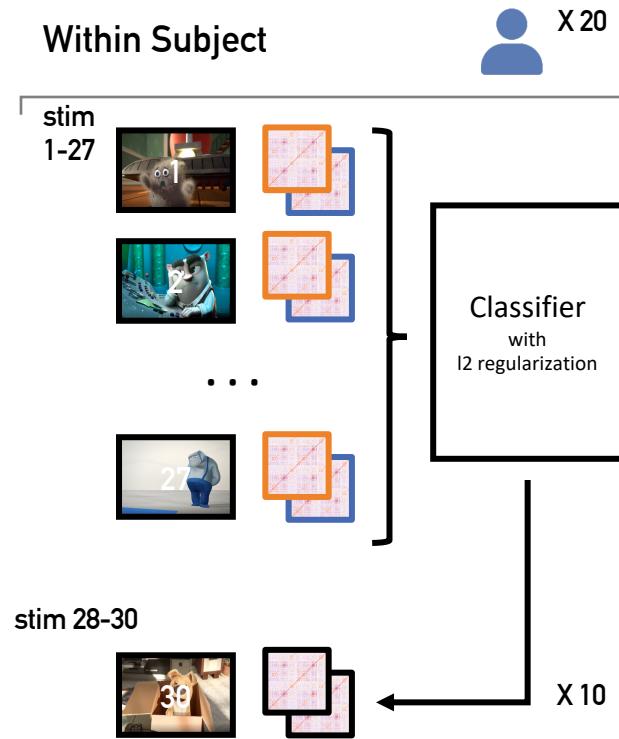
Second - First



p < .01

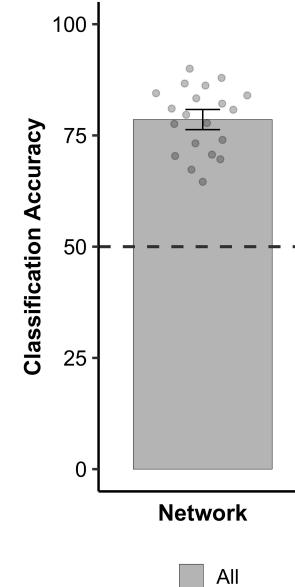
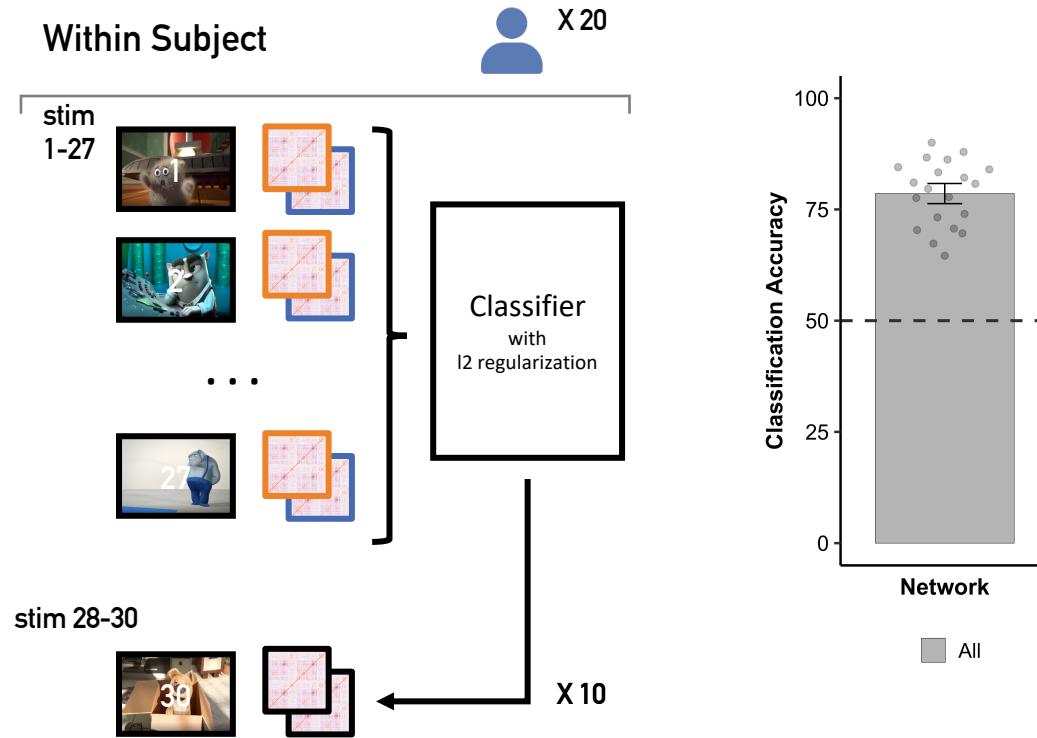
Classification (Within)

N = 20



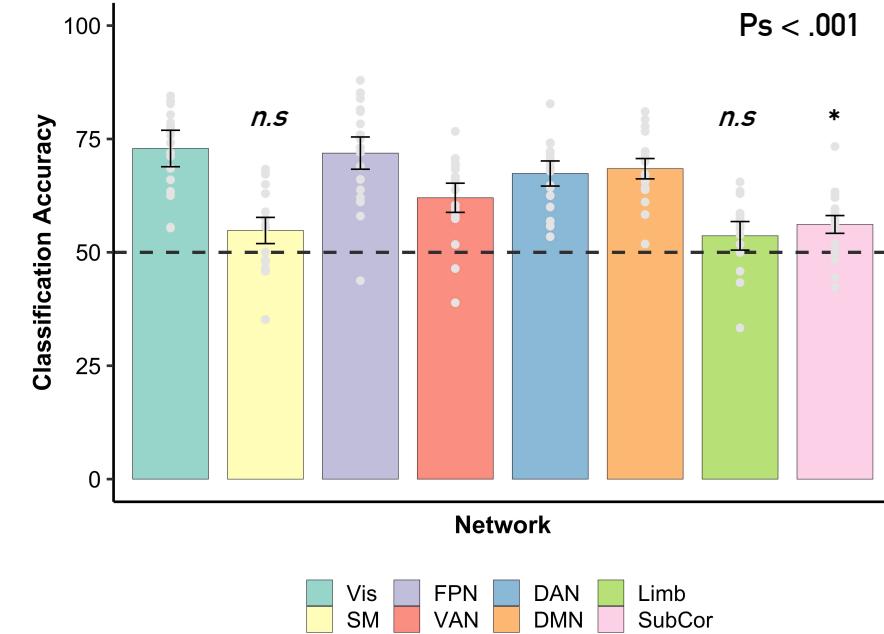
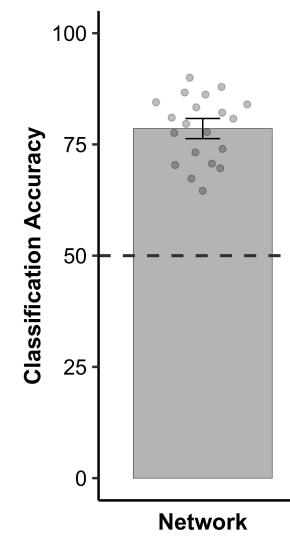
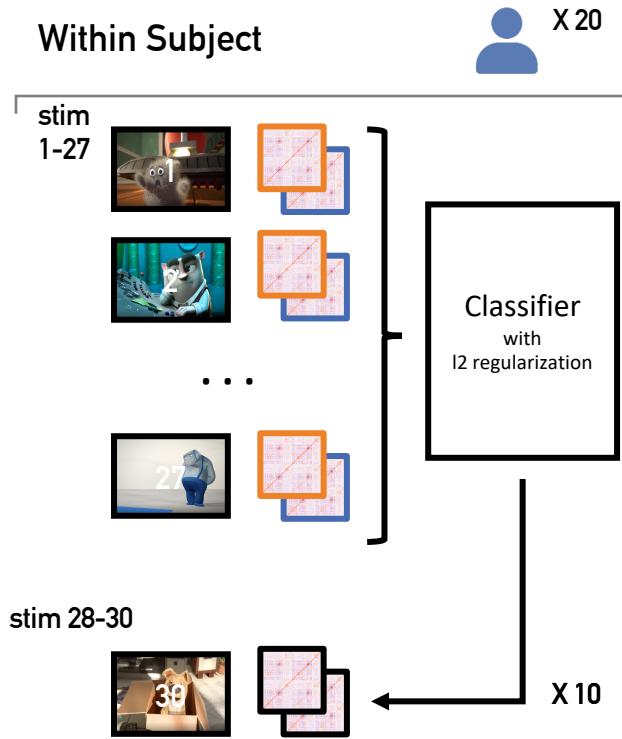
Classification (Within)

N = 20



Classification (Within)

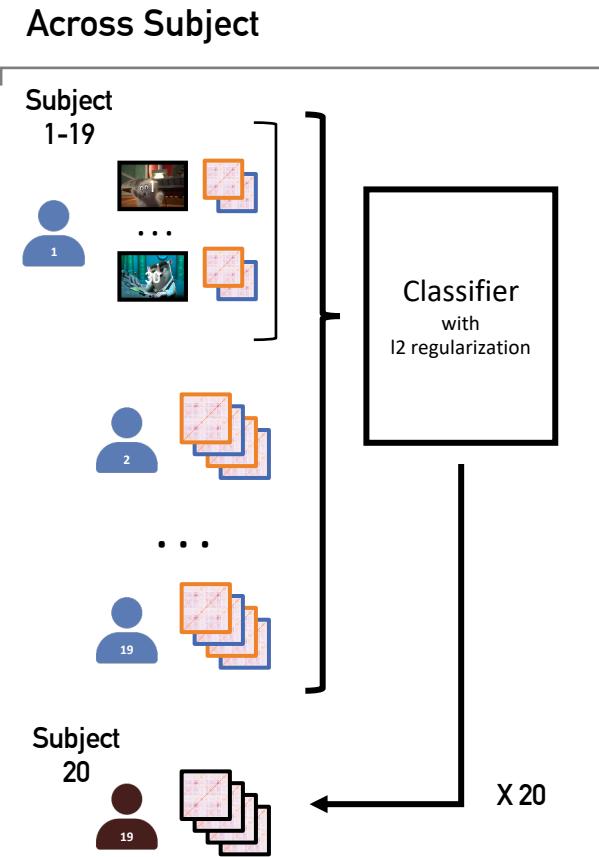
N = 20



Error bar : 95% CI

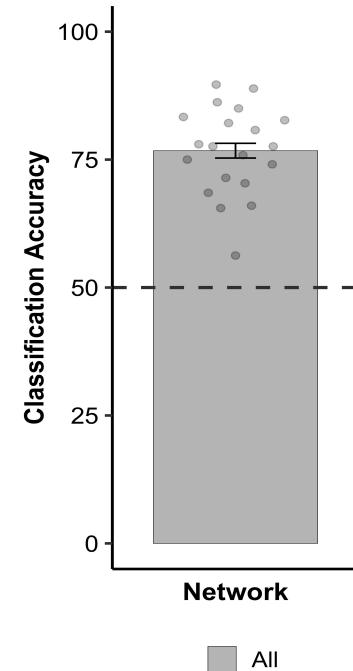
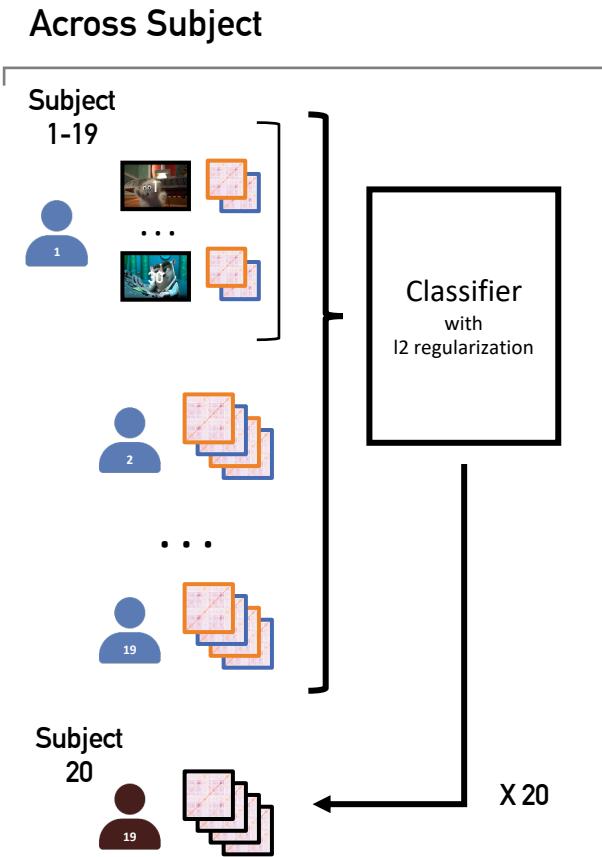
Classification (Across)

N = 20



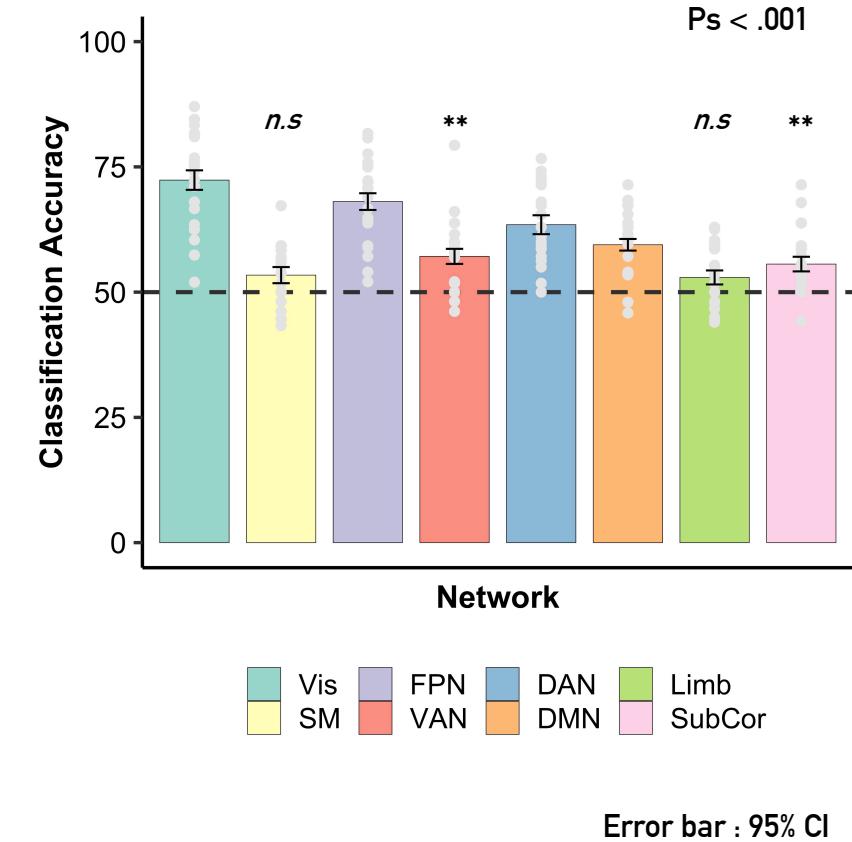
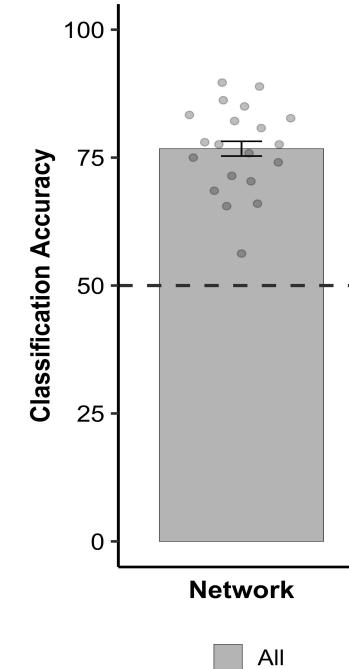
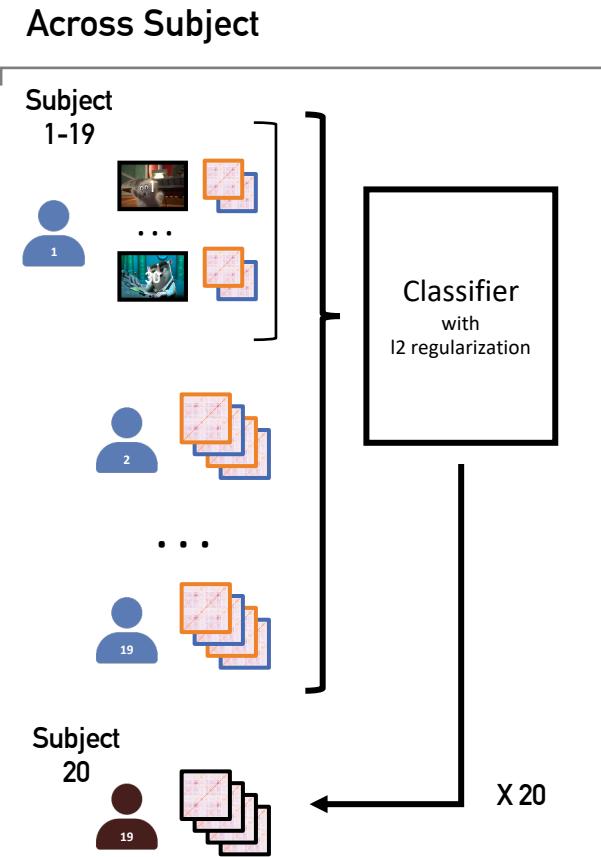
Classification (Across)

N = 20



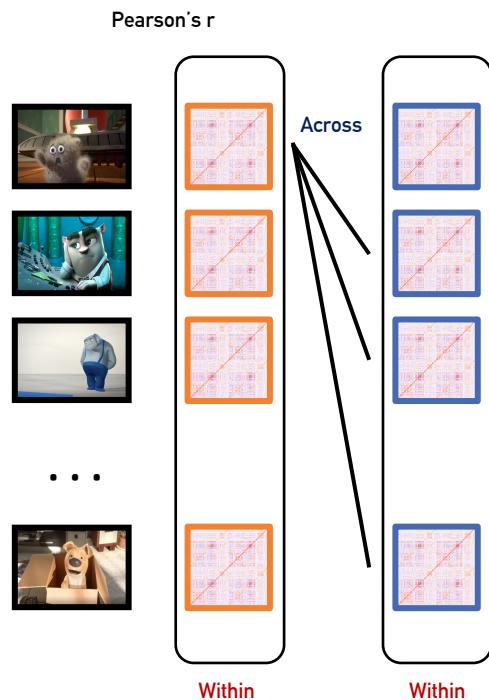
Classification (Across)

N = 20



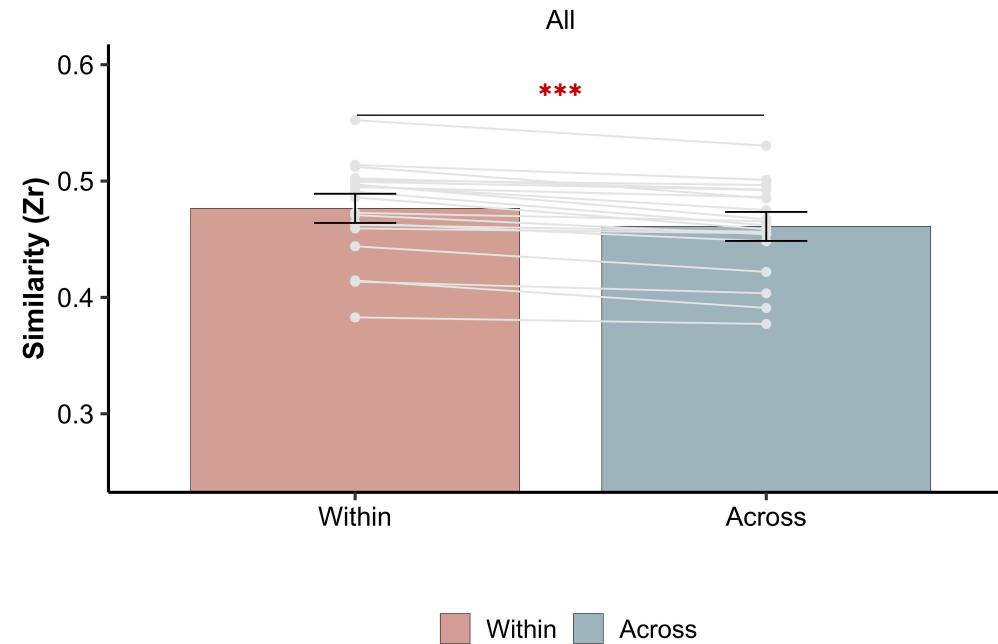
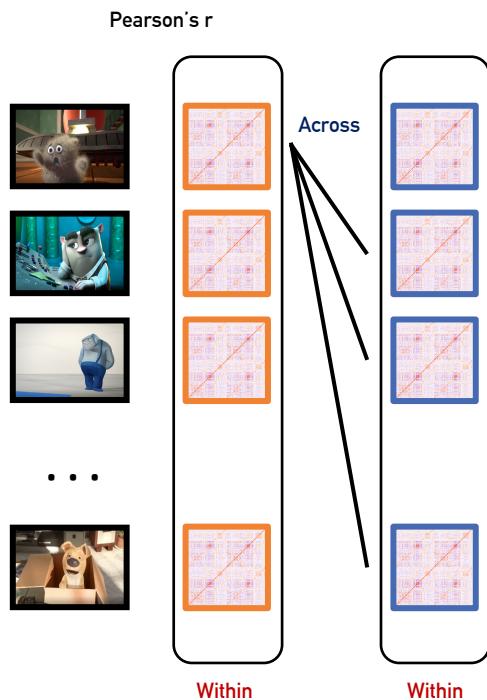
Representational Similarity

N = 20



Representational Similarity

N = 20



Summary

