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What episodic memory reveals about the default mode network

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Abstract

Episodic memories showcase the complexity of internal thought: they bind together people, places, and events into coherent narratives, and they carry a subjective quality that sets them apart from other mental representations. In this review, I argue that episodic memory provides a powerful lens for understanding the functional organization of the default mode network (DMN). Recent research reveals that memory-related functions of the DMN are organized along at least two key dimensions— content and specificity. Distinct areas support memory for different types of content (e.g., object, spatial, and social information) and with varying levels of specificity (e.g., detailed episodes vs general schemas). Together, DMN pathways can support the diversity of episodic thought, imbuing multidimensional representations with subjective experience. By delineating how these pathways correspond with memory features, we can gain insight into how the DMN builds and updates internal narratives across cognitive domains.

Highlights

- Different DMN areas support memory for object, spatial, and social information
- Across DMN pathways, there are differences in sensitivity to general and specific memory features
- Functional brain networks, together with the hippocampus, shape the subjective experience of memory

Memory has been a part of the conversation about the resting brain since the very beginning. Before it was coined the "default mode" (Raichle et al., 2001), Nancy Andreasen and colleagues referred to this state as "random episodic silent thinking" (Andreasen et al., 1995), highlighting the central role of memory processes in the brain at rest. In their view, this state was "both active and interesting," characterized by spontaneous remembering and free association. Thirty years later, it is well known that the default mode network (DMN) is strongly and reliably active during episodic memory tasks, and in particular, when individuals recall or imagine specific contextual details about an event (Ranganath & Ritchey, 2012; Rugg & Vilberg, 2013; Schacter et al., 2007).

While a major theme of past work has been to ask what the DMN contributes to episodic memory, it may also be productive to consider what episodic memory can offer for understanding the DMN. Episodic memories showcase the complexity of our internal representations: they bind together details about people, places, and things into a coherent narrative. As experimenters, we have inside knowledge about their contents and structure. Moreover, they have a phenomenological quality that sets them apart from other mental representations. Together, these features make episodic memory an appealing domain in which to study the richness of internal representations afforded by the DMN.

In this review, I will discuss recent findings relevant for examining the DMN through the lens of episodic memory. In doing so, I will attempt to identify organizing principles that systematically link DMN responses to memory representations, i.e., the content of what is remembered (De Brigard, 2014).

Functional organization of the DMN

Recent research on the DMN has focused on characterizing its functional diversity, rather than treating it as a single monolithic network. The DMN consists of multiple systems that are dissociable on the basis of functional connectivity and their participation in different kinds of cognitive tasks (Andrews-Hanna et al., 2010; DiNicola et al., 2020). Different approaches to defining these networks are summarized in **Figure 1**. In one formulation, episodic processes have been ascribed to a medial temporal subsystem, which includes the parahippocampal cortex, posterior lateral parietal cortex, and retrosplenial cortex, areas that closely interact with the hippocampus (Andrews-Hanna et al., 2010). This system can be contrasted against a dorsomedial prefrontal subsystem, which includes dorsomedial prefrontal cortex and anterior temporal lobe areas and has been linked to mentalizing processes. Initial research identified a set of "core" regions that bridge these two subsystems, evident in group-level parcellations (e.g., Yeo et al., 2011). Recently, however, subject-specific parcellations have clarified that these functionally dissociable systems are interdigitated and distributed throughout association cortex (Braga & Buckner, 2017), leading to the conclusion that they should be considered as separate, parallel networks, labeled DN-A and DN-B, rather than overlapping subsystems. See **Figure 1** for visual comparison of these network definitions.

Because these parcellations have tended to focus on large-scale cortical networks, they have not directly addressed the different functions and connectivity patterns of the medial temporal lobes (MTL), which play an essential role in episodic memory. Other frameworks have prioritized understanding MTL function in light of dissociations seen in lesion studies and in how MTL areas interact with the hippocampus and with the rest of the brain, arguing that these areas are part of large-scale cortical systems supporting memory-guided cognition (Barnett et al., 2021; Ranganath & Ritchey, 2012). These systems, labeled the posterior medial (PM) and anterior temporal (AT) networks in one framework

(Ranganath & Ritchey, 2012), are broadly aligned with the subsystems described above, but differ in their segregation in MTL cortex. Recently, high-field fMRI revealed that individually-defined DN-A and DN-B networks extend into the MTL, with DN-B represented within the amygdala and anterior MTL cortex and DN-A in the posterior MTL cortex (Edmonds et al., 2024). Here, in order to bridge across studies, I will highlight parallels between these approaches (**Figure 1**), referring to these areas broadly as the PM and AT networks to facilitate comparison.

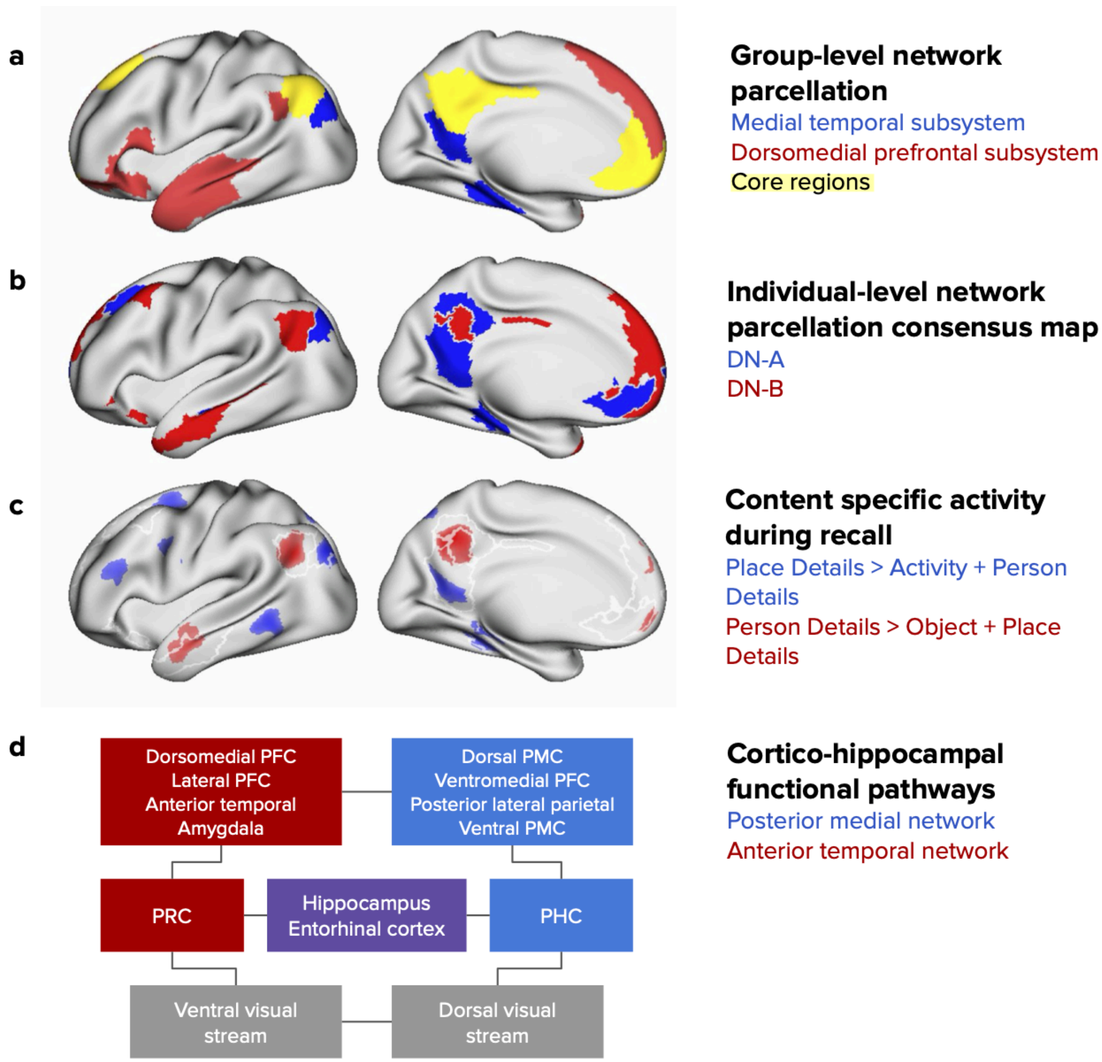

Figure 1. Frameworks for considering the functional organization of the DMN with respect to episodic memory. **a)** Group-level parcellation separating the DMN into 3 components, here defined by the Yeo 17-network labels (Yeo et al., 2011) applied to the Schaefer-200 parcellation (Schaefer et al., 2018). These 3 components generally correspond with the subsystems described by Andrews-Hanna et al. (2010): the dorsomedial prefrontal subsystem (red), the medial temporal subsystem (blue), and core regions interacting with both (yellow). **b)** Functional brain networks DN-A (blue) and DN-B (red) as defined by the DU15NET consensus maps (Du et al., 2024), which identify the most common network assignments from individual-specific parcellations. **c)** Results from a comparison of brain activity during recall of people and places in an autobiographical retrieval task (Gilmore et al., 2021). The borders of DN-A and DN-B from the DU15NET consensus maps are outlined in white. **d)** Schematic overview of the posterior medial (PM) and anterior temporal (AT) networks, highlighting some of the key functional connections of the medial temporal lobes (Barnett et al., 2021; Ranganath & Ritchey, 2012). Hippocampus and entorhinal cortex are color-coded in purple to indicate their connections with both networks; see Edmonds et al. (2024) and Maass et al.

(2015) for further characterization of their relation to these pathways. Abbreviations: PRC=perirhinal cortex, PHC=parahippocampal cortex, PMC=posteromedial cortex, PFC=prefrontal cortex. Brain plots were generated using the surfplot package in Python (Gale et al., 2022). Integrating across these 4 approaches, there is evidence for segregation among DMN areas in terms of their functional connectivity profiles, their connections with the medial temporal lobes, and their relationships to memory features. Across the panels, red and blue color-coding is used to highlight parallels between areas described as part of the PM network, medial temporal subsystem, and DN-A, on the one hand, and areas typically assigned to the AT network, dorsomedial prefrontal system, and DN-B, on the other.

Content specialization in the DMN

DMN regions are more responsive to internally generated content, such as thoughts and memories, than to external stimuli. While research on cortical category selectivity has primarily focused on mapping sensory cortical areas, there is growing evidence for content dissociations within the DMN (Steel & Silson, 2022). A prominent example is the distinction between DMN areas associated with memory for object and spatial information (previously reviewed by Ranganath & Ritchey, 2012; Reagh & Ranganath, 2018). Whereas retrieving semantic information about objects involves areas in anterior temporal and lateral frontal areas, remembering their spatial contexts involves the parahippocampal cortex, lateral parietal cortex, and posteromedial cortex (Gonzalez Alam et al., 2025). These pathways exhibit differences in structural connectivity with object and scene processing areas in visual cortex (Gonzalez Alam et al., 2025), suggesting they may be derived from interactions with sensory processing streams. MTL areas are well-positioned to bridge sensory and mnemonic representations, as object representations are conveyed from the ventral visual stream to the perirhinal cortex and scene representations are conveyed from the dorsal visual stream to the parahippocampal cortex (Davachi, 2006; Eichenbaum et al., 2007). These MTL areas, in turn, functionally interact with AT and PM areas supporting semantic and spatio-contextual memory, respectively (Ranganath & Ritchey, 2012).

Recent research has increasingly focused on how social information is represented in memory, building on earlier work implicating the medial prefrontal cortex in person-specific representations (Wagner et al., 2012). Newer studies show that this specialization extends across the DMN. For example, within the posteromedial cortex, dorsal regions are more engaged in person memory, while ventral regions are more involved in place memory (Gilmore et al., 2021; Silson et al., 2019), aligning with distinct DMN pathways (**Figure 1c**). These different areas are functionally connected with category-selective areas in the ventral visual stream (Silson et al., 2019) and overlap with areas activated during perception (Gilmore et al., 2021). Beyond the posteromedial cortex, person memory is associated with brain activity in the AT network, eliciting greater activity in anterior lateral parietal areas, anterior temporal areas, and the dorsomedial prefrontal cortex (Gilmore et al., 2021), and semantic knowledge about people is apparent in anterior temporal and inferior frontal areas (Morton et al., 2021). During recall, person-specific patterns are evident in the perirhinal cortex and anterior temporal cortex, in contrast to place-specific patterns in the PM network (Reagh & Ranganath, 2023). These findings converge with findings from naturalistic event perception that anterior temporal and dorsomedial prefrontal areas represent social information (Karagoz et al., 2023; Raykov et al., 2021; Thye et al., 2024).

The role of the DMN in social memory goes beyond remembering information about individuals. Remembering dynamic social interactions recruits the posteromedial cortex, dorsomedial prefrontal cortex, and the temporoparietal junction (Lee Masson et al., 2024), and remembering one's own interactions engages widespread DMN areas (Katsumi et al., 2024). Integrating across lines of evidence, it appears that anterior temporal and frontal components of the AT network are recruited when remembering semantic information about persons, while memories involving complex social dynamics might engage the DMN more broadly, perhaps due to the integration of person knowledge with event context. Remembering social experiences may also place greater demands on mentalizing processes, which could account for recruitment of dorsomedial prefrontal areas during social and emotional recall (Curko et al., under review; Kensinger & Ford, 2021). Supporting this idea, generating emotional associations elicits greater activity in frontal and temporal DMN areas than generating semantic contextual associations (Souter et al., 2024). However, more work is needed to disentangle how the DMN incorporates different aspects of social and emotional experiences in memory, including information about one's own and others' mental states.

Specificity of memory representations

In addition to content specialization, DMN areas differ in the specificity of their memory representations. Within the AT network, the perirhinal cortex supports highly specific object representations that combine their individual and semantic features (Martin & Barense, 2023), while the anterior temporal lobe supports more general concepts (Ralph et al., 2017). The lateral parietal cortex has also been linked to semantic concepts, but interestingly, appears to be more sensitive to the semantics of complex event concepts compared to simpler object representations (Zhang et al., 2023). Within the PM network, retrieval of episodic details involves the hippocampus, parahippocampal cortex, and lateral parietal cortex (Cooper & Ritchey, 2019; Richter et al., 2016; Thakral et al., 2019), whereas schema retrieval has been most commonly associated with the medial prefrontal cortex (Gilboa & Marlatte, 2017; Robin & Moscovitch, 2017). Gradations of specificity are further evident during event perception: the parahippocampal cortex and ventral posteromedial cortex are especially sensitive to contextual shifts (Baldassano et al., 2017; Cooper et al., 2021), and activity increases in these regions at event boundaries predict subsequent recall (Barnett et al., 2024). In contrast, dorsal posteromedial cortex exhibits more temporally stable representations (Baldassano et al., 2017), perhaps supporting the maintenance of schemas that extend across an event. Such schema representations generalize across their specific instances, with similar patterns in dorsomedial prefrontal and posteromedial cortex for stories that share schematic structure but differ in specific details (Baldassano et al., 2018). This is thought to provide a scaffold for new learning (Masís-Obando et al., 2022).

Specificity gradients may reflect a broader organizing principle of the DMN. Hierarchical models of cortical organization propose that sensory information is progressively abstracted across processing stages, with higher-order regions in the DMN supporting increasingly transmodal representations (Margulies et al., 2016). This may explain why areas with closer ties to sensory processing streams (including perirhinal, parahippocampal, and retrosplenial cortex) are more likely to represent more specific, perceptually-grounded features, while more distant DMN areas support abstraction across modalities (reviewed by Huntenburg et al., 2018), serving as convergence zones (Damasio, 1989; Jung et al., 2022). In support, there is evidence for multimodal integration in the parietal components of the DMN (Bonnici et al., 2016; Rabini et al., 2021; Ramanan et al., 2018) stemming from parallel interactions with category-selective regions (Fang et al., 2023). Furthermore, activity patterns in these regions can be used to reconstruct the multidimensional semantic features of recalled scenes (Wang et al., 2023). Consistent with hierarchical models, Andrews-Hanna and Grilli (2021) recently proposed that the medial temporal system supports contextualized, visual representations ("the mind's eye"), while the dorsomedial prefrontal system supports abstract, verbal representations ("the mind's mind"), involved in mentalizing and narrative processing. This framework accords with recent evidence showing that the individually-defined DN-A and DN-B networks are differentially modulated by task demands, with DN-A being especially affected by scene construction demands (DiNicola et al., 2023). For the purposes of memory, these distinct pathways may allow memories to co-exist at multiple levels of resolution, supporting both perceptually detailed episodes and schematic narratives (Gurguryan & Sheldon, 2019; Sheldon et al., 2019).

Subjective experience of memory

Episodic memories are marked by autonoetic conscious awareness, that is, the subjective sense of moving through place and time to recapture a particular moment (Tulving, 1985). Though the hippocampus coordinates the reinstatement of contextual associations, DMN areas may shape the quality of the resulting experience (Ritchey & Cooper, 2020). Prior work has supported a relationship between the subjective vividness of memory and activity in the lateral parietal cortex and posteromedial cortex (Simons et al., 2021). The lateral parietal cortex, in particular, has been proposed to support vividness by integrating multisensory event features (Humphreys et al., 2021; Ramanan et al., 2018), and its disruption alters subjective ratings (Ciaramelli et al., 2017) and the relationship between vividness and accuracy (Zou & Kwok, 2022). Vividness is correlated with the strength of event representations in both lateral parietal (Kuhl & Chun, 2014) and posteromedial cortex (Sreekumar et al., 2018), even when the overall DMN activity is reduced (Barker et al., 2022). Notably, a recent study found that different DMN areas tracked the vividness and the emotional valence of imagined events, suggesting functional specialization for these different aspects of subjective experience (S. Lee et al., 2021). Recent models of consciousness have proposed that our experiences are defined in relation to one another— that subjective experience arises from the representational structure of memories (Lau et al., 2022; LeDoux & Lau, 2020). To the extent that DMN areas are sensitive to similarities among semantic features (e.g., H. Lee & Chen, 2022), social context (Bromis et al., 2021), temporal context (Aly et al., 2018), and perhaps especially, spatial context (Robin et al., 2018), this may provide an informational basis for a variety of memory experiences.

Toward a multidimensional view

Together, these results suggest that memory-related functions of the DMN are organized along (at least) two key dimensions: content and specificity (**Figure 2**). Areas in the AT network tend to be sensitive to information about objects and people, whereas areas in the PM network tend to represent scenes and other contextual associations. Meanwhile, areas that are more closely connected with sensory processing streams tend to carry information about specific item exemplars (e.g., perirhinal cortex) and events (e.g., parahippocampal cortex, posterior lateral parietal cortex). In contrast, more distant, transmodal DMN areas tend to be associated with more abstract mental representations, such as item concepts (e.g., anterior temporal lobe) and event schemas (e.g., medial prefrontal cortex, posteromedial cortex).

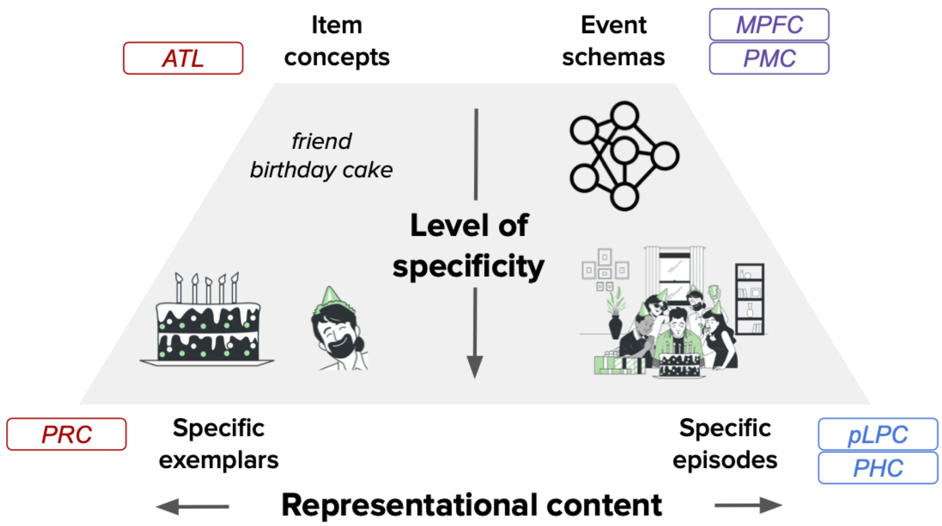

Figure 2. Schematic overview of memory representations and their relation to key areas, organized by their representational content and level of specificity. Memory for objects and people has been associated with the areas in the AT network (color-coded in red), whereas memory for events and contextual associations has been associated with areas in the PM network (color-coded in blue). The specificity of these representations tends to be highest in areas most closely connected with sensory processing streams, with more abstract representations in transmodal DMN areas spanning the AT and PM networks. Note that these dimensions are not orthogonal, such that there may be stronger content dissociations among areas sensitive to specific memory features. See **Figure 1** for specification of how these areas correspond with functional brain networks. Abbreviations: PRC=perirhinal cortex, ATL=anterior temporal lobes, PHC=parahippocampal cortex, pLPC=posterior lateral parietal cortex, PMC=posteromedial cortex, MPFC=medial prefrontal cortex.

While cortical networks may shape the subjective experience of memory, they clearly do so in concert with the hippocampus. Hippocampal interactions support the compression and reinstatement of event-specific cortical patterns (Kerrén et al., 2025). Evidence from lesion studies illustrates this interdependence: whereas hippocampal damage impairs episodic memory and alters functional connectivity within the DMN (Argyropoulos et al., 2019; Henson et al., 2016; Oedekoven et al., 2019), amnesic patients can still engage DMN regions during narrative comprehension (Zuo et al., 2020) and show preserved cortical reinstatement under certain conditions (Elward et al., 2021). These findings suggest that memory experiences emerge from distributed interactions across the network.

Although the dimensions of content and specificity appear to capture considerable variability in the organization of DMN areas, other dimensions— including temporal specificity and self relevance— may also be important (Addis & Szpunar, 2024; Tanguay et al., 2023). Indeed, the DMN may play a general role in generating subjective experiences from a multidimensional conceptual space, which could explain its participation in both episodic and semantic memory (Humphreys et al., 2021; Renoult et al., 2019). At the same time, content and specificity appear to be especially useful organizing principles for explaining functional differences across the DMN, which appear to emerge from patterns of connections with sensory pathways (Gonzalez Alam et al., 2025) embedded within large-scale cortical hierarchies (Huntenburg et al., 2018).

In conclusion, episodic memories showcase the complexity of internal thought: they bind together multimodal event features, imbue them with layers of meaning, and reconstruct them with rich phenomenology. By studying how memories are organized with respect to the DMN, we can gain insight into how this network builds and updates internal narratives across cognitive domains (Menon, 2023). An important goal for future research will be to characterize how these multidimensional representations are shaped and deployed through context-dependent interactions among DMN pathways.

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Annotated References

** DiNicola, L. M., Ariyo, O. I., & Buckner, R. L. (2023). Functional specialization of parallel distributed networks revealed by analysis of trial-to-trial variation in processing demands. Journal of Neurophysiology, 129(1), 17–40.

- This study takes a data-driven multidimensional approach to defining trial-wise factors that modulate individually-defined DN-A and DN-B subnetworks. They find that the DN-A responds selectively to scene construction demands, while the DN-B tends to be more modulated by the social relevance of events, highlighting the functional significance of these networks.

* Edmonds, D., Salvo, J. J., Anderson, N., Lakshman, M., Yang, Q., Kay, K., … Braga, R. M. (2024). The human social cognitive network contains multiple regions within the amygdala. Science Advances, 10(47), eadp0453.

- This high-resolution fMRI study shows that individually-defined DN-A and DN-B networks extend into distinct MTL regions, helping to bridge between literatures that have differentially prioritized parcellating large-scale cortical networks and explaining medial temporal lobe heterogeneity.

** Gonzalez Alam, T. R. J., Krieger-Redwood, K., Varga, D., Gao, Z., Horner, A. J., Hartley, T., … Jefferies, E. (2025). A double dissociation between semantic and spatial cognition in visual to default network pathways. eLife, 13.

- This study identifies patterns of structural and functional connectivity between visual processing streams and DMN regions, showing that memory for object and spatial information are processed through distinct pathways. It provides strong support for the idea that content-based specialization in the DMN is tied to its connections to sensory processing streams.

** Reagh, Z. M., & Ranganath, C. (2023). Flexible reuse of cortico-hippocampal representations during encoding and recall of naturalistic events. Nature Communications, 14(1), 1279.

- This study demonstrates that anterior temporal and posterior medial networks contain representations of people and places during memory encoding and recall, providing strong empirical support for parallel DMN pathways that integrate distinct event features in memory.

* Tanguay, A., Palombo, D. J., Love, B., Glikstein, R., Davidson, P. S. R., & Renoult, L. (2023). The shared and unique neural correlates of personal semantic, general semantic, and episodic memory. eLife, 12.

- This study compares memories for facts and events that vary in visual detail and self-relevance, finding that these factors modulate activity across the DMN. It provides a comprehensive approach to characterizing similarities and differences in episodic and semantic memory representations in the DMN.

* Wang, Y., Lee, H., & Kuhl, B. A. (2023). Mapping multidimensional content representations to neural and behavioral expressions of episodic memory. NeuroImage, 277, 120222.

- This paper shows that DMN activity patterns can be used to reconstruct semantic content during episodic memory retrieval. It offers clear evidence for multidimensional, content-rich representations in DMN regions during memory recall.

References

Addis, D. R., & Szpunar, K. K. (2024). Beyond the episodic-semantic continuum: the multidimensional model of mental representations. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, *379*(1913), 20230408. https://doi.org/10.1098/rstb.2023.0408

Aly, M., Chen, J., Turk-Browne, N. B., & Hasson, U. (2018). Learning Naturalistic Temporal Structure in the Posterior Medial Network. *Journal of Cognitive Neuroscience*, *30*(9), 1345–1365. https://doi.org/10.1162/jocn_a_01308

Andreasen, N. C., O'Leary, D. S., Cizadlo, T., Arndt, S., Rezai, K., & Watkins, G. L. (1995). Remembering the past: two facets of episodic memory explored with positron emission tomography. *American Journal of Psychiatry*, *152*(11), 1576–1585. https://www.academia.edu/download/108823134/ajp.152.11.157620231212-1-58xw95.pdf

Andrews-Hanna, J. R., & Grilli, M. D. (2021). Mapping the imaginative mind: Charting new paths forward. *Current Directions in Psychological Science*, *30*(1), 82–89. https://doi.org/10.1177/0963721420980753

Andrews-Hanna, J. R., Reidler, J. S., Sepulcre, J., Poulin, R., & Buckner, R. L. (2010). Functional-anatomic fractionation of the brain's default network. *Neuron*, *65*(4), 550–562. https://doi.org/10.1016/j.neuron.2010.02.005

Argyropoulos, G. P. D., Loane, C., Roca-Fernandez, A., Lage-Martinez, C., Gurau, O., Irani, S. R., & Butler, C. R. (2019). Network-Wide Abnormalities Explain Memory Variability in Hippocampal Amnesia. *eLife*, *8*, e46156. https://doi.org/10.7554/eLife.46156

Baldassano, C., Chen, J., Zadbood, A., Pillow, J. W., Hasson, U., & Norman, K. A. (2017). Discovering Event Structure in Continuous Narrative Perception and Memory. *Neuron*, *95*(3), 709–721.e5. https://doi.org/10.1016/j.neuron.2017.06.041

Baldassano, C., Hasson, U., & Norman, K. A. (2018). Representation of real-world event schemas during narrative perception. *The Journal of Neuroscience: The Official Journal of the Society for Neuroscience*, *38*(45), 9689–9699. https://doi.org/10.1523/JNEUROSCI.0251-18.2018

Barker, R. M., St-Laurent, M., & Buchsbaum, B. R. (2022). Neural Reactivation and Judgements of Vividness Reveal Separable Contributions to Mnemonic Representation. *NeuroImage*, 119205.

https://doi.org/10.1016/j.neuroimage.2022.119205
Barnett, A. J., Nguyen, M., Spargo, J., Yadav, R., Cohn-Sheehy, B. I., & Ranganath, C. (2024). Hippocampal-cortical interactions during event boundaries support retention of complex narrative events. *Neuron*, *112*(2), 319–330.e7. https://doi.org/10.1016/j.neuron.2023.10.010
Barnett, A. J., Reilly, W., Dimsdale-Zucker, H. R., Mizrak, E., Reagh, Z., & Ranganath, C. (2021). Intrinsic connectivity reveals functionally distinct cortico-hippocampal networks in the human brain. *PLoS Biology*, *19*(6), e3001275. https://doi.org/10.1371/journal.pbio.3001275
Bonnici, H. M., Richter, F. R., Yazar, Y., & Simons, J. S. (2016). Multimodal Feature Integration in the Angular Gyrus during Episodic and Semantic Retrieval. *The Journal of Neuroscience: The Official Journal of the Society for Neuroscience*, *36*(20), 5462–5471. https://doi.org/10.1523/JNEUROSCI.4310-15.2016
Braga, R. M., & Buckner, R. L. (2017). Parallel Interdigitated Distributed Networks within the Individual Estimated by Intrinsic Functional Connectivity. *Neuron*, *95*(2), 457–471.e5. https://doi.org/10.1016/j.neuron.2017.06.038
Bromis, K., Raykov, P. P., Wickens, L., Roseboom, W., & Bird, C. M. (2021). The Neural Representation of Events Is Dominated by Elements that Are Most Reliably Present. *Journal of Cognitive Neuroscience*, 1–15. https://doi.org/10.1162/jocn_a_01802
Ciaramelli, E., Faggi, G., Scarpazza, C., Mattioli, F., Spaniol, J., Ghetti, S., & Moscovitch, M. (2017). Subjective recollection independent from multifeatural context retrieval following damage to the posterior parietal cortex. *Cortex; a Journal Devoted to the Study of the Nervous System and Behavior*, *91*, 114–125. https://doi.org/10.1016/j.cortex.2017.03.015
Cooper, R. A., Kurkela, K. A., Davis, S. W., & Ritchey, M. (2021). Mapping the organization and dynamics of the posterior medial network during movie watching. *NeuroImage*, 118075. https://doi.org/10.1016/j.neuroimage.2021.118075
Cooper, R. A., & Ritchey, M. (2019). Cortico-hippocampal network connections support the multidimensional quality of episodic memory. *eLife*, *8*, 526657. https://doi.org/10.7554/eLife.45591
Curko, N. Samide, R. Krenz, V. Kensinger, E.A. Ritchey, M. (n.d.). *The role of the default network in recalling the details of naturalistic emotional memories*.
Damasio, A. R. (1989). Time-locked multiregional retroactivation: a systems-level proposal for the neural substrates of recall and recognition. *Cognition*, *33*(1-2), 25–62. https://www.ncbi.nlm.nih.gov/pubmed/2691184
Davachi, L. (2006). Item, context and relational episodic encoding in humans. *Current Opinion in Neurobiology*, *16*(6), 693–700. https://doi.org/10.1016/j.conb.2006.10.012
De Brigard, F. (2014). The Nature of Memory Traces. *Philosophy Compass*, *9*(6), 402–414. https://doi.org/10.1111/phc3.12133
DiNicola, L. M., Ariyo, O. I., & Buckner, R. L. (2023). Functional specialization of parallel distributed networks revealed by analysis of trial-to-trial variation in processing demands. *Journal of Neurophysiology*, *129*(1), 17–40. https://doi.org/10.1152/jn.00211.2022
DiNicola, L. M., Braga, R. M., & Buckner, R. L. (2020). Parallel distributed networks dissociate episodic and social functions within the individual. *Journal of Neurophysiology*, *123*(3), 1144–1179. https://doi.org/10.1152/jn.00529.2019
Du, J., DiNicola, L. M., Angeli, P. A., Saadon-Grosman, N., Sun, W., Kaiser, S., Ladopoulou, J., Xue, A., Yeo, B. T. T., Eldaief, M. C., & Buckner, R. L. (2024). Organization of the human cerebral cortex estimated within individuals: networks, global topography, and function. *Journal of Neurophysiology*, *131*(6), 1014–1082. https://doi.org/10.1152/jn.00308.2023
Edmonds, D., Salvo, J. J., Anderson, N., Lakshman, M., Yang, Q., Kay, K., Zelano, C., & Braga, R. M. (2024). The human social cognitive network contains multiple regions within the amygdala. *Science Advances*, *10*(47), eadp0453. https://doi.org/10.1126/sciadv.adp0453
Eichenbaum, H., Yonelinas, A. P., & Ranganath, C. (2007). The medial temporal lobe and recognition memory. *Annual Review of Neuroscience*, *30*, 123–152. https://doi.org/10.1146/annurev.neuro.30.051606.094328
Elward, R. L., Rugg, M. D., & Vargha-Khadem, F. (2021). When the brain, but not the person, remembers:

Cortical reinstatement is modulated by retrieval goal in developmental amnesia. *Neuropsychologia*, 107788. https://doi.org/10.1016/j.neuropsychologia.2021.107788
Fang, M., Aglinskas, A., Li, Y., & Anzellotti, S. (2023). Angular gyrus responses show joint statistical dependence with brain regions selective for different categories. *The Journal of Neuroscience: The Official Journal of the Society for Neuroscience*. https://doi.org/10.1523/JNEUROSCI.1283-22.2023
Gale, D., Ritz, H., & Goncalves, M. (2022). *danjgale/surfplot: v0.2.0*. Zenodo. https://doi.org/10.5281/ZENODO.7465338
Gilboa, A., & Marlatte, H. (2017). Neurobiology of Schemas and Schema-Mediated Memory. *Trends in Cognitive Sciences*, *21*(8), 618–631. https://doi.org/10.1016/j.tics.2017.04.013
Gilmore, A. W., Quach, A., Kalinowski, S. E., Gotts, S. J., Schacter, D. L., & Martin, A. (2021). Dynamic Content Reactivation Supports Naturalistic Autobiographical Recall in Humans. *The Journal of Neuroscience: The Official Journal of the Society for Neuroscience*, *41*(1), 153–166. https://doi.org/10.1523/JNEUROSCI.1490-20.2020
Gonzalez Alam, T. R. J., Krieger-Redwood, K., Varga, D., Gao, Z., Horner, A. J., Hartley, T., Thiebaut de Schotten, M., Sliwinska, M., Pitcher, D., Margulies, D. S., Smallwood, J., & Jefferies, E. (2025). A double dissociation between semantic and spatial cognition in visual to default network pathways. *eLife*, *13*. https://doi.org/10.7554/eLife.94902
Gurguryan, L., & Sheldon, S. (2019). Retrieval orientation alters neural activity during autobiographical memory recollection. *NeuroImage*. https://doi.org/10.1016/j.neuroimage.2019.05.077
Henson, R. N., Greve, A., Cooper, E., Gregori, M., Simons, J. S., Geerligs, L., Erzinçlioğlu, S., Kapur, N., & Browne, G. (2016). The Effects of Hippocampal Lesions on MRI Measures of Structural and Functional Connectivity. *Hippocampus*, *26*(11), 1447–1463. https://doi.org/10.1002/hipo.22621
Humphreys, G. F., Lambon Ralph, M. A., & Simons, J. S. (2021). A unifying account of angular gyrus contributions to episodic and semantic cognition. *Trends in Neurosciences*, *44*(6), 452–463. https://doi.org/10.1016/j.tins.2021.01.006
Huntenburg, J. M., Bazin, P.-L., & Margulies, D. S. (2018). Large-Scale Gradients in Human Cortical Organization. *Trends in Cognitive Sciences*, *22*(1), 21–31. https://doi.org/10.1016/j.tics.2017.11.002
Jung, H., Wager, T. D., & Carter, R. M. (2022). Novel Cognitive Functions Arise at the Convergence of Macroscale Gradients. *Journal of Cognitive Neuroscience*, *34*(3), 381–396. https://doi.org/10.1162/jocn_a_01803
Karagoz, A. B., Morse, S. J., & Reagh, Z. M. (2023). Cortico-hippocampal networks carry information about characters and their relationships in an extended narrative. *Neuropsychologia*, *191*, 108729. https://doi.org/10.1016/j.neuropsychologia.2023.108729
Katsumi, A., Iwata, S., & Tsukiura, T. (2024). Roles of the Default Mode Network in Different Aspects of Self-representation When Remembering Social Autobiographical Memories. *Journal of Cognitive Neuroscience*, 1–16. https://doi.org/10.1162/jocn_a_02143
Kensinger, E. A., & Ford, J. H. (2021). Guiding the Emotion in Emotional Memories: The Role of the Dorsomedial Prefrontal Cortex. *Current Directions in Psychological Science*, 0963721421990081. https://doi.org/10.1177/0963721421990081
Kerrén, C., Reznik, D., Doeller, C. F., & Griffiths, B. J. (2025). Exploring the role of dimensionality transformation in episodic memory. *Trends in Cognitive Sciences*, *29*(7), 614–626. https://doi.org/10.1016/j.tics.2025.01.007
Kuhl, B. A., & Chun, M. M. (2014). Successful remembering elicits event-specific activity patterns in lateral parietal cortex. *The Journal of Neuroscience: The Official Journal of the Society for Neuroscience*, *34*(23), 8051–8060. https://doi.org/10.1523/JNEUROSCI.4328-13.2014
Lau, H., Michel, M., LeDoux, J. E., & Fleming, S. M. (2022). The mnemonic basis of subjective experience. *Nature Reviews Psychology*, *1*(8), 479–488. https://doi.org/10.1038/s44159-022-00068-6
LeDoux, J. E., & Lau, H. (2020). Seeing consciousness through the lens of memory. *Current Biology: CB*, *30*(18), R1018–R1022. https://doi.org/10.1016/j.cub.2020.08.008
Lee, H., & Chen, J. (2022). Predicting memory from the network structure of naturalistic events. *Nature Communications*, *13*(1), 4235. https://doi.org/10.1038/s41467-022-31965-2

Lee Masson, H., Chen, J., & Isik, L. (2024). A shared neural code for perceiving and remembering social interactions in the human superior temporal sulcus. *Neuropsychologia*, *196*(108823), 108823. https://doi.org/10.1016/j.neuropsychologia.2024.108823

Lee, S., Parthasarathi, T., & Kable, J. W. (2021). The Ventral and Dorsal Default Mode Networks Are Dissociably Modulated by the Vividness and Valence of Imagined Events. *The Journal of Neuroscience: The Official Journal of the Society for Neuroscience*, *41*(24), 5243–5250. https://doi.org/10.1523/JNEUROSCI.1273-20.2021

Maass, A., Berron, D., Libby, L., Ranganath, C., & Düzel, E. (2015). Functional subregions of the human entorhinal cortex. *eLife*, *4*. https://doi.org/10.7554/eLife.06426

Margulies, D. S., Ghosh, S. S., Goulas, A., Falkiewicz, M., Huntenburg, J. M., Langs, G., Bezgin, G., Eickhoff, S. B., Castellanos, F. X., Petrides, M., Jefferies, E., & Smallwood, J. (2016). Situating the default-mode network along a principal gradient of macroscale cortical organization. *Proceedings of the National Academy of Sciences of the United States of America*, *113*(44), 12574–12579. https://doi.org/10.1073/pnas.1608282113

Martin, C. B., & Barense, M. D. (2023). Perception and memory in the ventral visual stream and medial temporal lobe. *Annual Review of Vision Science*, *9*(1), 409–434. https://doi.org/10.1146/annurev-vision-120222-014200

Masís-Obando, R., Norman, K. A., & Baldassano, C. (2022). Schema representations in distinct brain networks support narrative memory during encoding and retrieval. *eLife*, *11*. https://doi.org/10.7554/eLife.70445

Menon, V. (2023). 20 years of the default mode network: A review and synthesis. *Neuron*, *111*(16), 2469–2487. https://doi.org/10.1016/j.neuron.2023.04.023

Morton, N. W., Zippi, E. L., Noh, S., & Preston, A. R. (2021). Semantic knowledge of famous people and places is represented in hippocampus and distinct cortical networks. *The Journal of Neuroscience: The Official Journal of the Society for Neuroscience*. https://doi.org/10.1523/JNEUROSCI.2034-19.2021

Oedekoven, C. S. H., Keidel, J. L., Anderson, S., Nisbet, A., & Bird, C. M. (2019). Effects of Amnesia on Processing in the Hippocampus and Default Mode Network during a Naturalistic Memory Task: A Case Study. *Neuropsychologia*, *132*, 107104. https://doi.org/10.1016/j.neuropsychologia.2019.05.022

Rabini, G., Ubaldi, S., & Fairhall, S. L. (2021). Combining concepts across categorical domains: a linking role of the precuneus. *Neurobiology of Language (Cambridge, Mass.)*, *2*(3), 354–371. https://doi.org/10.1162/nol_a_00039

Raichle, M. E., MacLeod, A. M., Snyder, A. Z., Powers, W. J., Gusnard, D. A., & Shulman, G. L. (2001). A default mode of brain function. *Proceedings of the National Academy of Sciences of the United States of America*, *98*(2), 676–682. https://doi.org/10.1073/pnas.98.2.676

Ralph, M. A. L., Jefferies, E., Patterson, K., & Rogers, T. T. (2017). The neural and computational bases of semantic cognition. *Nature Reviews. Neuroscience*, *18*(1), 42–55. https://doi.org/10.1038/nrn.2016.150

Ramanan, S., Piguet, O., & Irish, M. (2018). Rethinking the Role of the Angular Gyrus in Remembering the Past and Imagining the Future: The Contextual Integration Model. *The Neuroscientist: A Review Journal Bringing Neurobiology, Neurology and Psychiatry*, *24*(4), 342–352. https://doi.org/10.1177/1073858417735514

Ranganath, C., & Ritchey, M. (2012). Two cortical systems for memory-guided behaviour. *Nature Reviews. Neuroscience*, *13*(10), 713–726. https://doi.org/10.1038/nrn3338

Raykov, P. P., Keidel, J. L., Oakhill, J., & Bird, C. M. (2021). Activation of Person Knowledge in Medial Prefrontal Cortex during the Encoding of New Lifelike Events. *Cerebral Cortex* . https://doi.org/10.1093/cercor/bhab027

Reagh, Z. M., & Ranganath, C. (2018). What does the functional organization of cortico-hippocampal networks tell us about the functional organization of memory? *Neuroscience Letters*. https://doi.org/10.1016/j.neulet.2018.04.050

Reagh, Z. M., & Ranganath, C. (2023). Flexible reuse of cortico-hippocampal representations during encoding and recall of naturalistic events. *Nature Communications*, *14*(1), 1279.

https://doi.org/10.1038/s41467-023-36805-5
Renoult, L., Irish, M., Moscovitch, M., & Rugg, M. D. (2019). From Knowing to Remembering: The Semantic-Episodic Distinction. *Trends in Cognitive Sciences*. https://doi.org/10.1016/j.tics.2019.09.008
Richter, F. R., Cooper, R. A., Bays, P. M., & Simons, J. S. (2016). Distinct neural mechanisms underlie the success, precision, and vividness of episodic memory. *eLife*, *5*. https://doi.org/10.7554/eLife.18260
Ritchey, M., & Cooper, R. A. (2020). Deconstructing the Posterior Medial Episodic Network. *Trends in Cognitive Sciences*, *24*(6), 451–465. https://doi.org/10.1016/j.tics.2020.03.006
Robin, J., Buchsbaum, B. R., & Moscovitch, M. (2018). The Primacy of Spatial Context in the Neural Representation of Events. *The Journal of Neuroscience: The Official Journal of the Society for Neuroscience*, *38*(11), 2755–2765. https://doi.org/10.1523/JNEUROSCI.1638-17.2018
Robin, J., & Moscovitch, M. (2017). Details, gist and schema: Hippocampal–neocortical interactions underlying recent and remote episodic and spatial memory. *Current Opinion in Behavioral Sciences*, *17*, 114–123. https://doi.org/10.1016/j.cobeha.2017.07.016
Rugg, M. D., & Vilberg, K. L. (2013). Brain networks underlying episodic memory retrieval. *Current Opinion in Neurobiology*, *23*(2), 255–260. https://doi.org/10.1016/j.conb.2012.11.005
Schacter, D. L., Addis, D. R., & Buckner, R. L. (2007). Remembering the past to imagine the future: the prospective brain. *Nature Reviews. Neuroscience*, *8*(9), 657–661. https://doi.org/10.1038/nrn2213
Schaefer, A., Kong, R., Gordon, E. M., Laumann, T. O., Zuo, X.-N., Holmes, A. J., Eickhoff, S. B., & Yeo, B. T. T. (2018). Local-Global Parcellation of the Human Cerebral Cortex from Intrinsic Functional Connectivity MRI. *Cerebral Cortex* , *28*(9), 3095–3114. https://doi.org/10.1093/cercor/bhx179
Sheldon, S., Fenerci, C., & Gurguryan, L. (2019). A neurocognitive perspective on the forms and functions of autobiographical memory retrieval. *Frontiers in Systems Neuroscience*, *13*, 4. https://doi.org/10.3389/fnsys.2019.00004
Silson, E. H., Steel, A., Kidder, A., Gilmore, A. W., & Baker, C. I. (2019). Distinct subdivisions of human medial parietal cortex support recollection of people and places. *eLife*, *8*. https://doi.org/10.7554/eLife.47391
Simons, J. S., Ritchey, M., & Fernyhough, C. (2021). Brain Mechanisms Underlying the Subjective Experience of Remembering. *Annual Review of Psychology*. https://doi.org/10.1146/annurev-psych-030221-025439
Souter, N. E., de Freitas, A., Zhang, M., Shao, X., Del Jesus Gonzalez Alam, T. R., Engen, H., Smallwood, J., Krieger-Redwood, K., & Jefferies, E. (2024). Default mode network shows distinct emotional and contextual responses yet common effects of retrieval demands across tasks. *Human Brain Mapping*, *45*(7), e26703. https://doi.org/10.1002/hbm.26703
Sreekumar, V., Nielson, D. M., Smith, T. A., Dennis, S. J., & Sederberg, P. B. (2018). The experience of vivid autobiographical reminiscence is supported by subjective content representations in the precuneus. *Scientific Reports*, *8*(1), 14899. https://doi.org/10.1038/s41598-018-32879-0
Steel, A., & Silson, E. H. (2022). Visual category-driven differences in memory. In *Visual Memory* (1st Edition, pp. 226–245). Routledge. https://doi.org/10.4324/9781003158134-14
Tanguay, A., Palombo, D. J., Love, B., Glikstein, R., Davidson, P. S. R., & Renoult, L. (2023). The shared and unique neural correlates of personal semantic, general semantic, and episodic memory. *eLife*, *12*. https://doi.org/10.7554/eLife.83645
Thakral, P. P., Madore, K. P., & Schacter, D. L. (2019). The core episodic simulation network dissociates as a function of subjective experience and objective content. *Neuropsychologia*, 107263. https://doi.org/10.1016/j.neuropsychologia.2019.107263
Thye, M., Hoffman, P., & Mirman, D. (2024). The neural basis of naturalistic semantic and social cognition. *Scientific Reports*, *14*(1), 6796. https://doi.org/10.1038/s41598-024-56897-3
Tulving, E. (1985). Memory and consciousness. *Psychologie Canadienne [Canadian Psychology]*, *26*(1), 1–12. https://doi.org/10.1037/h0080017
Wagner, D. D., Haxby, J. V., & Heatherton, T. F. (2012). The representation of self and person knowledge in the medial prefrontal cortex. *Wiley Interdisciplinary Reviews. Cognitive Science*, *3*(4), 451–470. https://doi.org/10.1002/wcs.1183

Wang, Y., Lee, H., & Kuhl, B. A. (2023). Mapping multidimensional content representations to neural and behavioral expressions of episodic memory. *NeuroImage*, *277*, 120222. https://doi.org/10.1016/j.neuroimage.2023.120222

Yeo, B. T. T., Krienen, F. M., Sepulcre, J., Sabuncu, M. R., Lashkari, D., Hollinshead, M., Roffman, J. L., Smoller, J. W., Zöllei, L., Polimeni, J. R., Fischl, B., Liu, H., & Buckner, R. L. (2011). The organization of the human cerebral cortex estimated by intrinsic functional connectivity. *Journal of Neurophysiology*, *106*(3), 1125–1165. https://doi.org/10.1152/jn.00338.2011

Zhang, Y., Wu, W., Mirman, D., & Hoffman, P. (2023). Representation of event and object concepts in ventral anterior temporal lobe and angular gyrus. In *bioRxiv* (p. 2023.10.13.562253). https://doi.org/10.1101/2023.10.13.562253

Zou, F., & Kwok, S. C. (2022). Distinct Generation of Subjective Vividness and Confidence during Naturalistic Memory Retrieval in Angular Gyrus. *Journal of Cognitive Neuroscience*, *34*(6), 988–1000. https://doi.org/10.1162/jocn_a_01838

Zuo, X., Honey, C. J., Barense, M. D., Crombie, D., Norman, K. A., Hasson, U., & Chen, J. (2020). Temporal integration of narrative information in a hippocampal amnesic patient. *NeuroImage*, *213*(116658), 116658. https://doi.org/10.1016/j.neuroimage.2020.116658