

SCANT EVIDENCE FOR DOMAIN-GENERAL METACOGNITION

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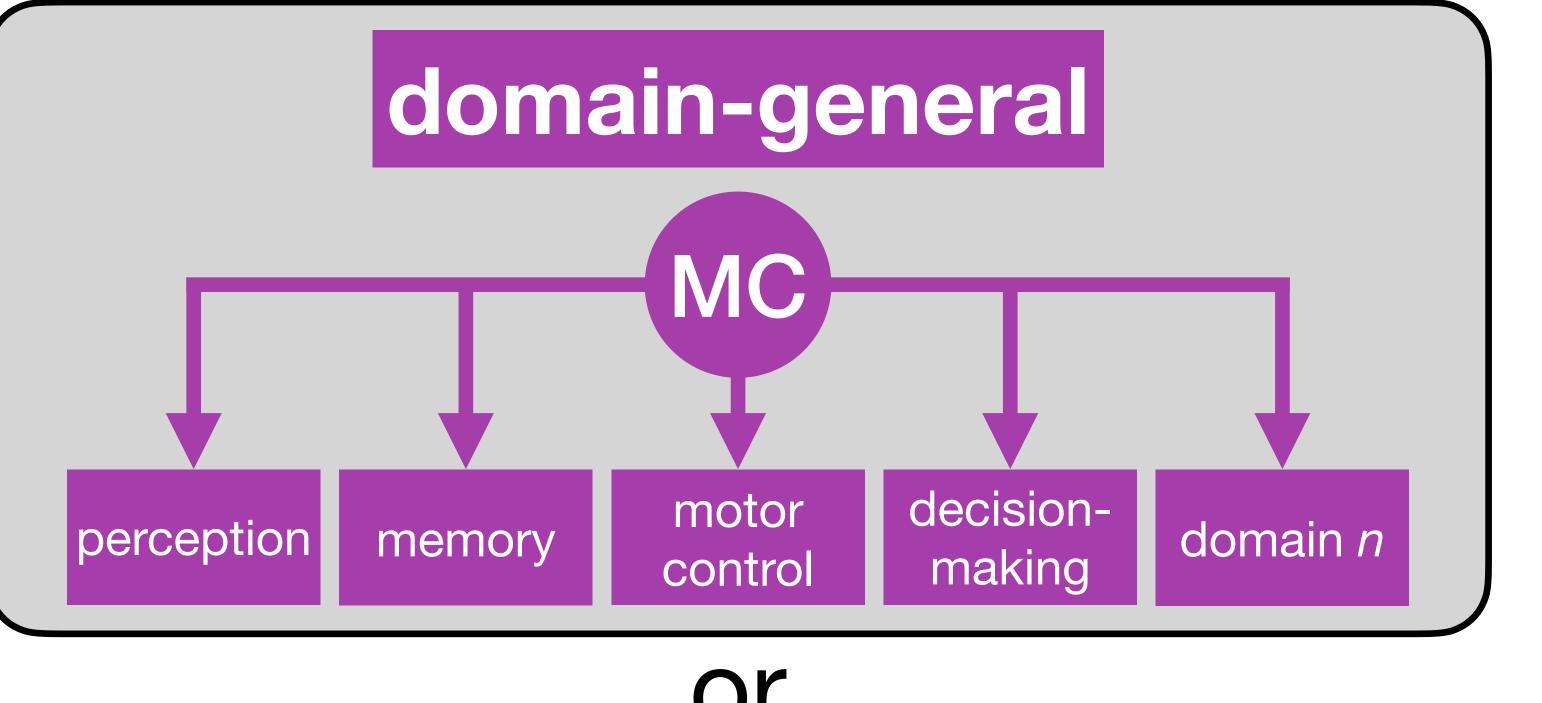


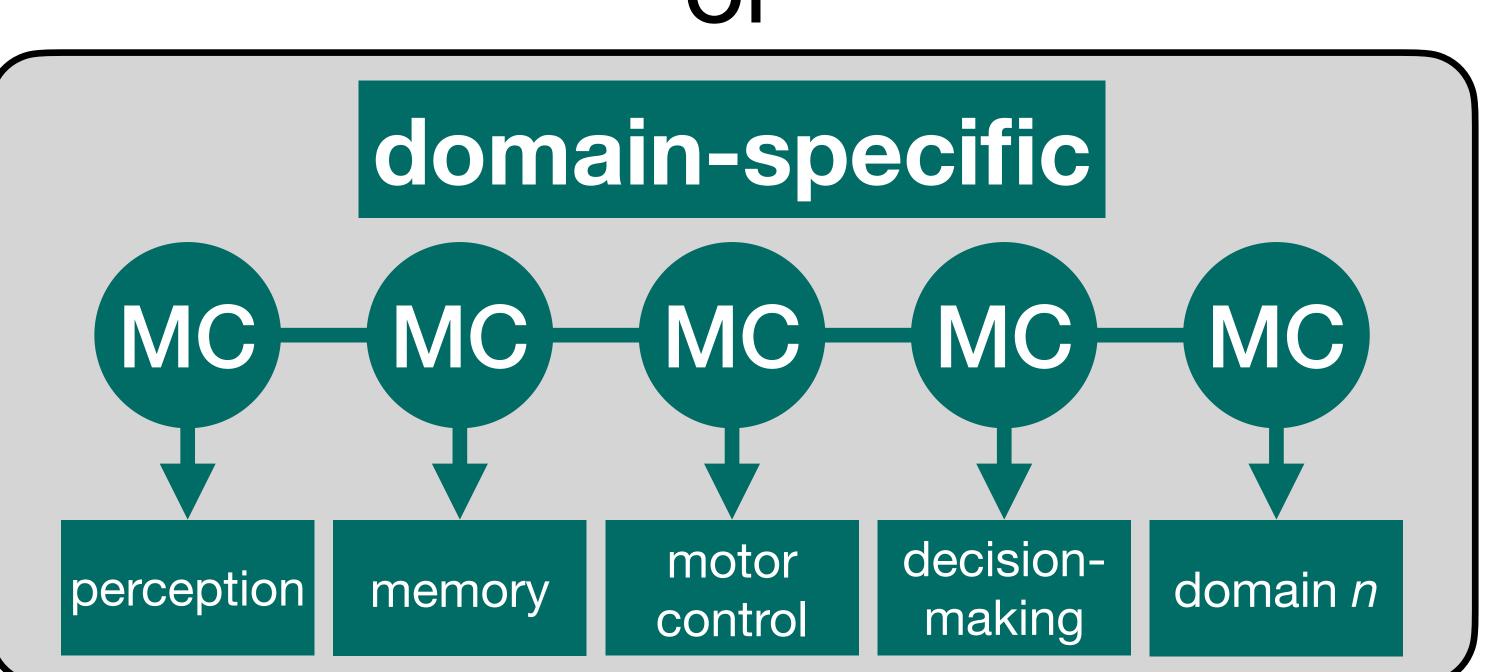
Metacognition: one or many?

Metacognition (MC) is the capacity to evaluate one's cognitive processes.

> e.g. when you assess how confident you are that you saw your friend across the street

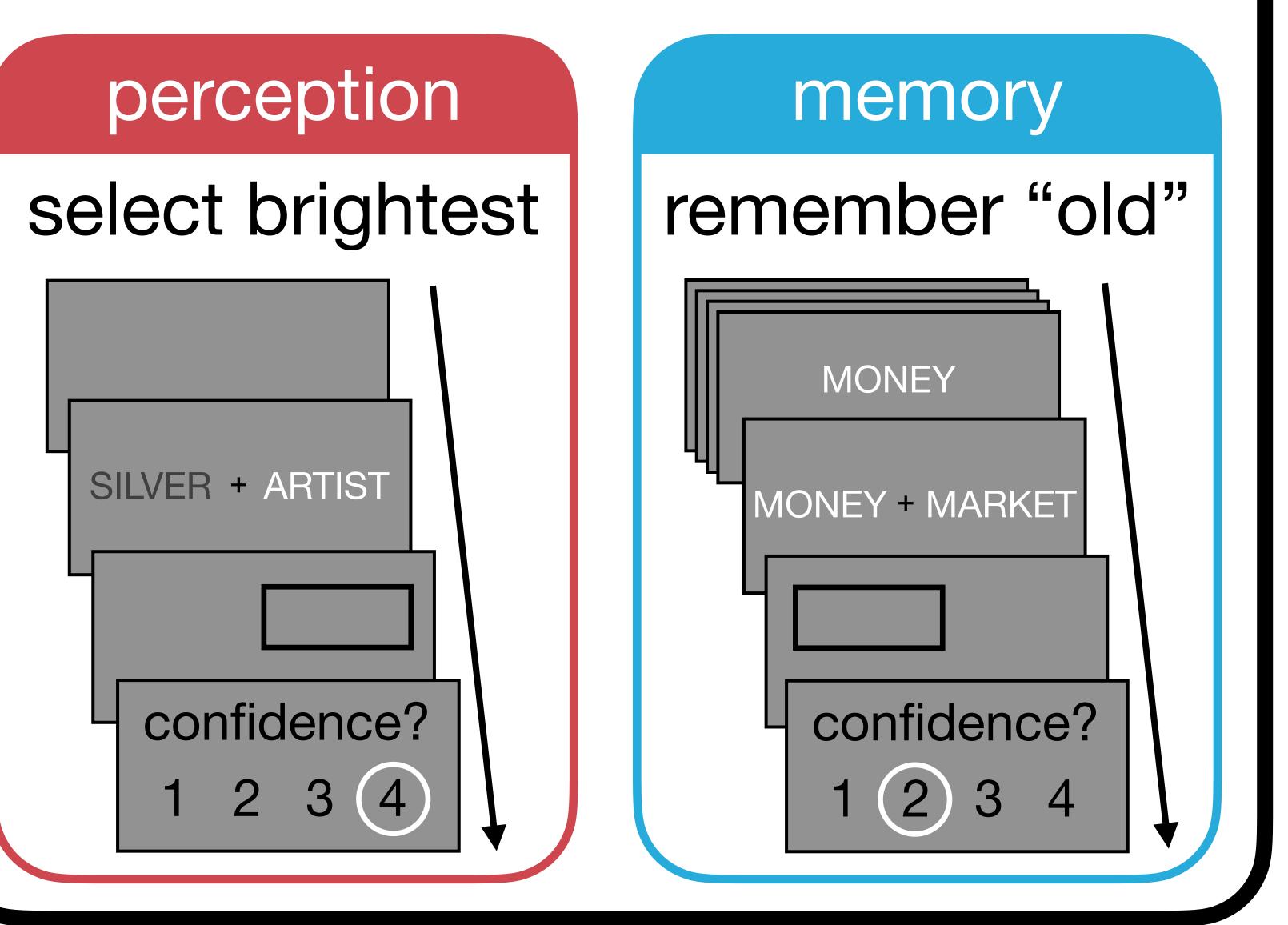
Does MC monitor different domains through a *single mechanism* or through several mechanisms?



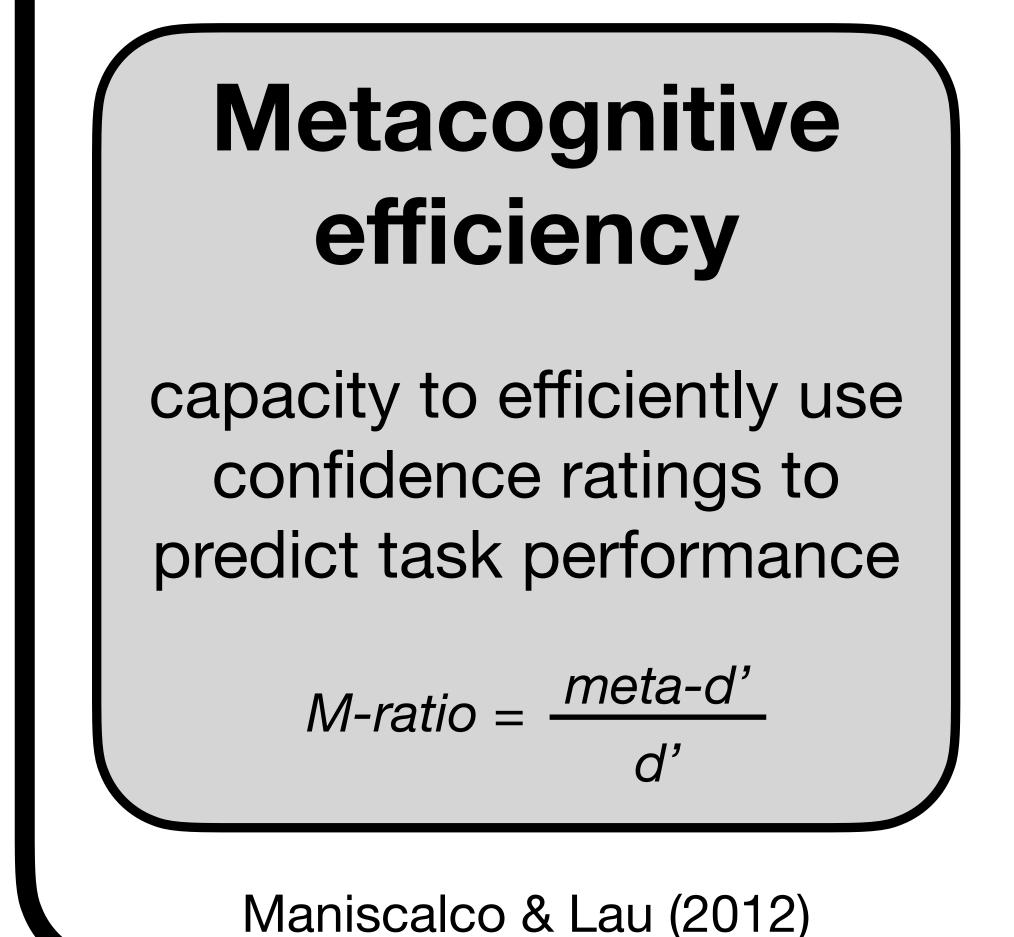


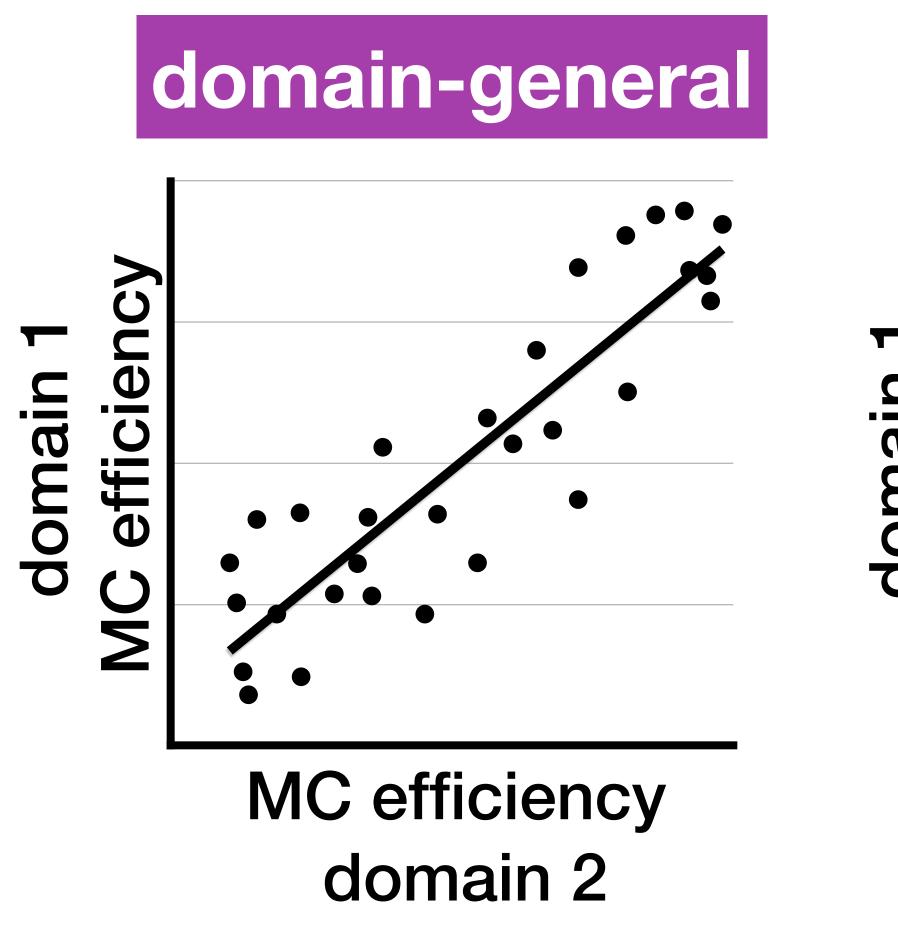
Rouault et al. (2018)

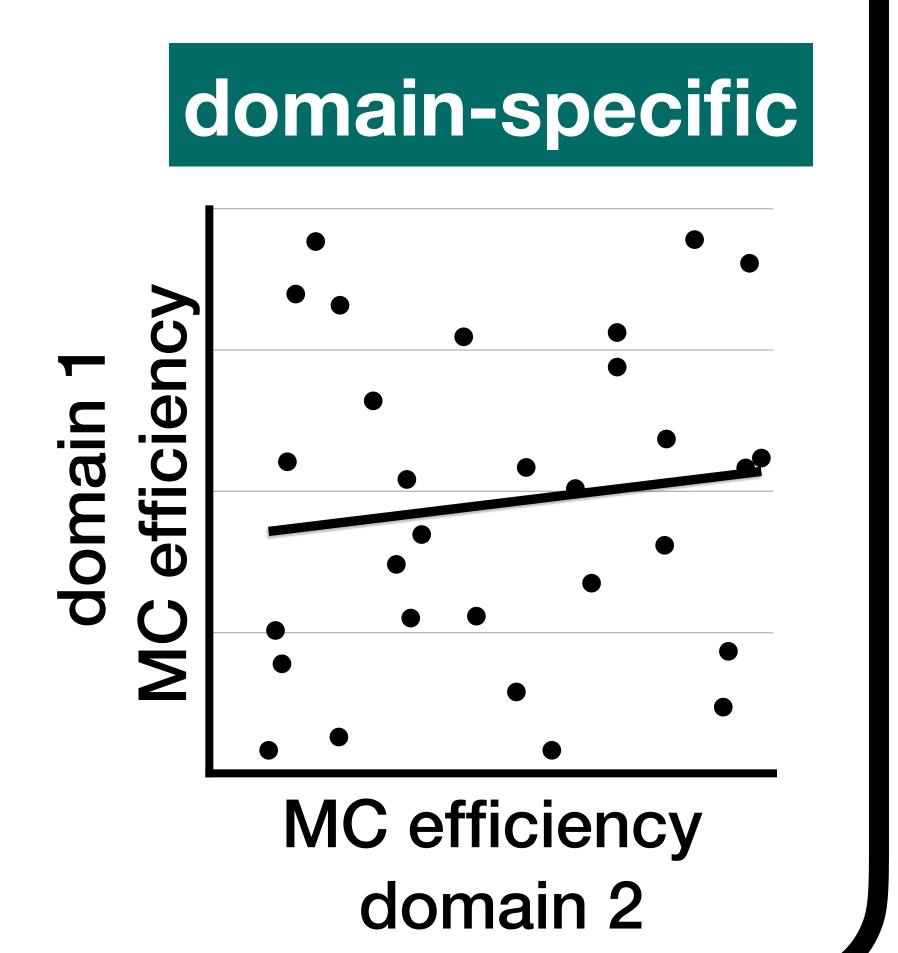
Sample tasks



How to find domain-generality: cross-domain correlations







Conclusions

We found only extremely weak evidence for domain-general metacognition in a large database.

Knowing what you see and knowing what you remember operate differently—and are probably supported by different mechanisms.

(Morales et al., 2018; Fleming et al. 2014)

Postulating a single super capacity is tempting, but the data suggests metacognition operates in a domain-specific way.

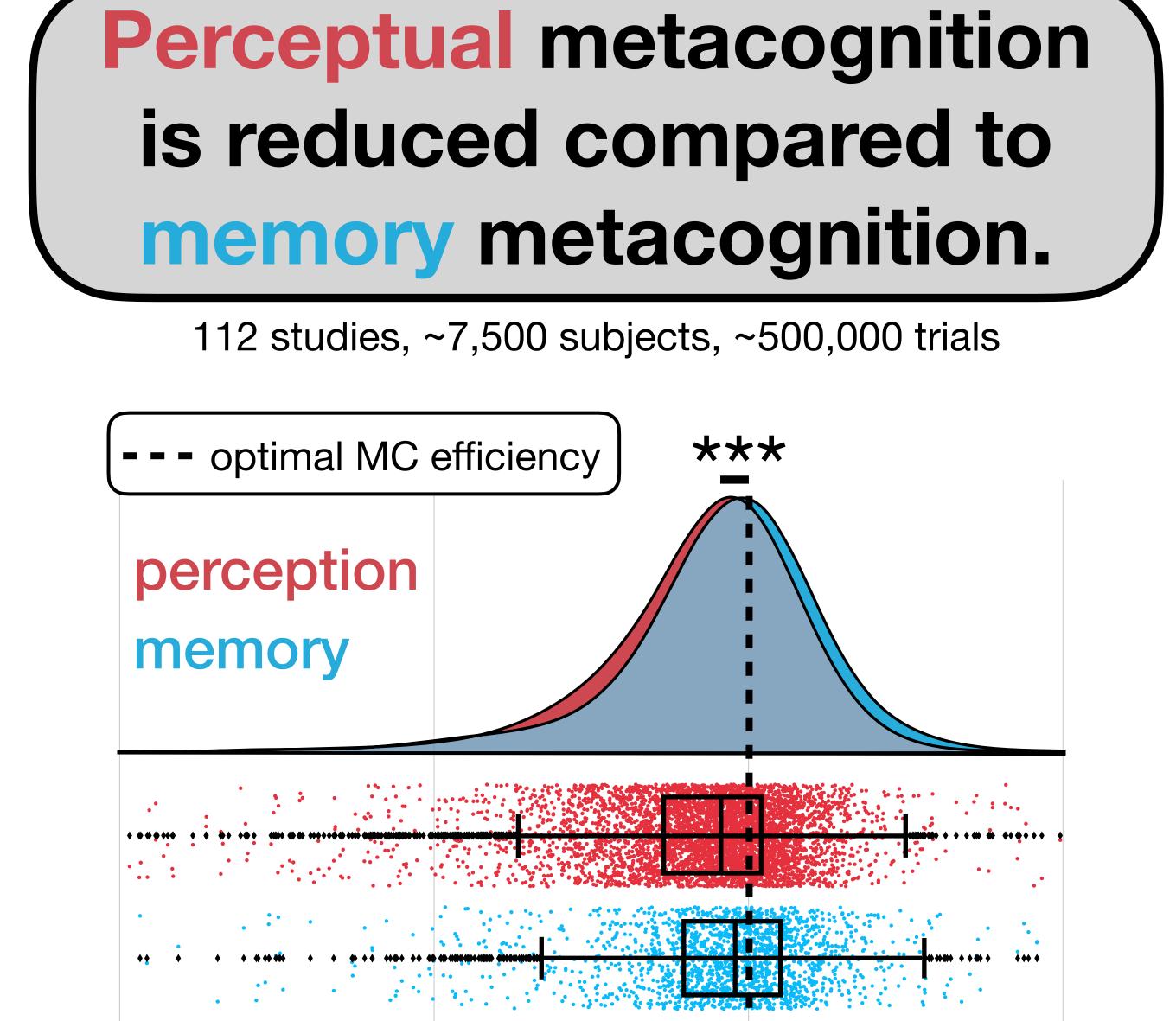
Multi-domain metacognition in the Confidence Database

significant

Domain-general metacognition is barely present in

- 9 studies
- 7 different domains visual perception, iconic memory,
- episodic memory, motor control, 33 comparisons
- ~380 subjects
- ~130,000 trials

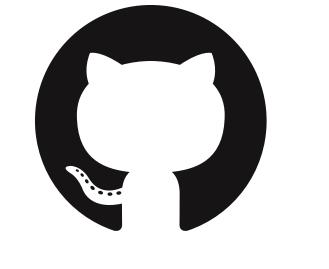
correlations significant significant working memory, semantic memory, significant (controversial multidomain labeling) Skora 2016 non-significant Samaha 2017 [Exp 3] MC efficiency domain 2 [log(M-ratio)] Open data from Rahnev et al. (2020)



MC efficiency [log(M-ratio)]

References

- Data obtained from the Confidence Database: D. Rahnev et al., Nat Hum Behav. 4, 317–325 (2020)
- S. M. Fleming, J. Ryu, J. G. Golfinos, K. E. Blackmon, *Brain*. 137, 2811–2822 (2014)
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- J. Morales, H. Lau, S. M. Fleming, The Journal of Neuroscience. 38, 3534–3546 (2018)
- M. Rouault, A. McWilliams, M. G. Allen, S. M. Fleming, Personality Neurosci. 1, e17 (2018)



Code for all analyses and a copy of this poster can be found at https://github.com/subjectivitylab/OPAM-domain-generality