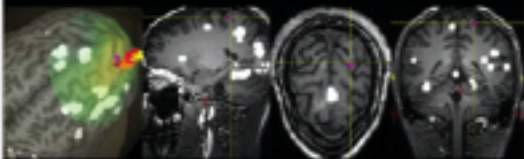


RDPModels

Modeling Recognition

- Beyond simply being a proof of concept, we can also use PDP models to test more specific hypotheses
 - e.g. does the particular pattern of deficits in a ‘damaged’ (compromised in some way) PDP model resemble what happens to humans with neurological damage (e.g. a stroke)?
- Rogers et al. (2004) programmed simulated ‘lesions’ into the system to see how disabling/compromising a random assortment of units affects the output
- They found the errors made by the compromised system were qualitatively similar to those shown by patients with semantic dementia
 - Again, this doesn’t mean that *must* be how it works in happens with human stroke damage, but rather that *could* be how it works in humans with stroke damage



ESSENTIALS OF COGNITIVE NEUROSCIENCE

Bradley R. Postle

WILEY Blackwell

RESEARCH SPOTLIGHT

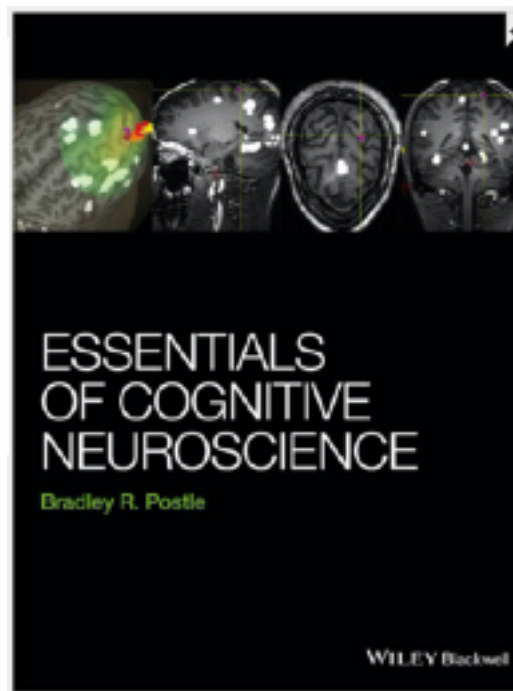
9.1 Where's the recognition in visual object recognition?

PDP Models

Modelling Recognition

RESEARCH SPOTLIGHT

9.1 Where's the recognition in visual object recognition?



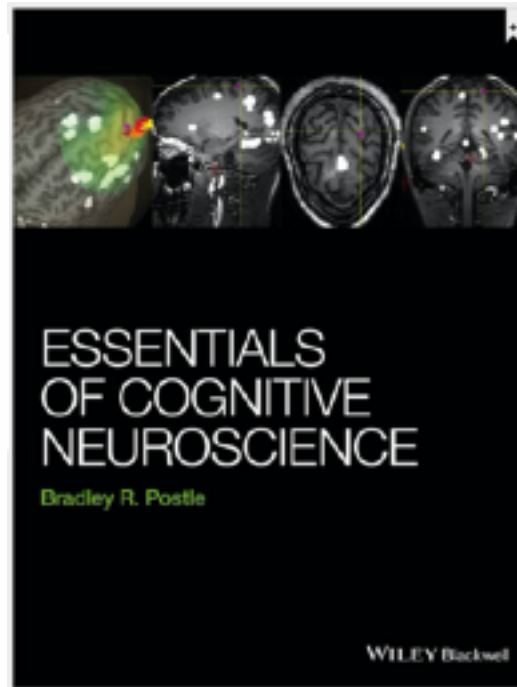
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PDP Models

Modelling Recognition

RESEARCH SPOTLIGHT

9.1 Where's the recognition in visual object recognition?



- PDP models demonstrate **graceful degradation**, which means selectively damaging certain units doesn't necessarily result in a complete breakdown of the whole system (as can happen with other kinds of system, e.g. damage the AC adaptor for a game console and it won't even turn on)
- Depending on the extent, this seems similar to what happens with neurological damage (thought continued on next slide...)

GRACEFUL DEGRADATION
(with acceptable fallbacks)



A different kind of graceful degradation...