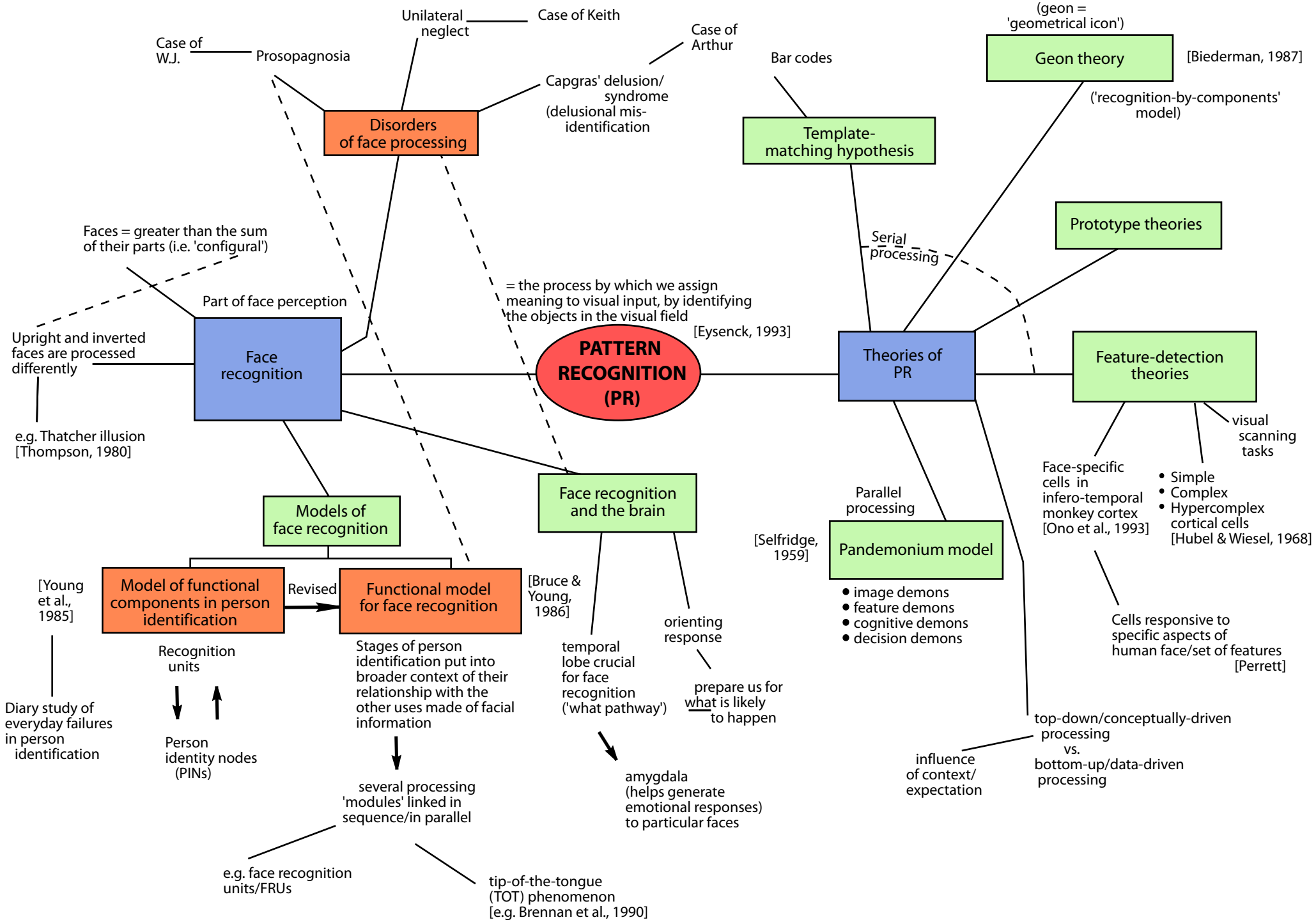
PATTERN RECOGNITION (PR)
= the process by which we assign meaning to visual input, by identifying the objects in the visual field
[Eysenck, 1993]
Face recognition
Part of face perception
Faces = greater than the sum of their parts (i.e. 'configural')
Upright and inverted faces are processed differently
e.g. Thatcher illusion [Thompson, 1980]
Disorders of face processing
Case of W.J.
Prosopagnosia
Unilateral neglect
Case of Keith
Case of Arthur
Capgras' delusion/ syndrome (delusional mis-identification
Models of face recognition
Model of functional components in person identification
[Young et al., 1985]
Diary study of everyday failures in person identification
Revised
Functional model for face recognition
[Bruce & Young, 1986]
Recognition units
Person identity nodes (PINs)
Stages of person identification put into broader context of their relationship with the other uses made of facial information
several processing 'modules' linked in sequence/in parallel
e.g. face recognition units/FRUs
tip-of-the-tongue (TOT) phenomenon [e.g. Brennan et al., 1990]
Face recognition and the brain
temporal lobe crucial for face recognition ('what pathway')
amygdala (helps generate emotional responses) to particular faces
orienting response
prepare us for what is likely to happen
Theories of PR
Serial processing
Template-matching hypothesis
Bar codes
Geon theory
(geon = 'geometrical icon')
[Biederman, 1987]
('recognition-by-components' model)
Prototype theories
Parallel processing
Pandemonium model
[Selfridge, 1959]
• image demons
• feature demons
• cognitive demons
• decision demons
Feature-detection theories
Face-specific cells in infero-temporal monkey cortex [Ono et al., 1993]
Cells responsive to specific aspects of human face/set of features [Perrett]
• Simple
• Complex
• Hypercomplex cortical cells [Hubel & Wiesel, 1968]
visual scanning tasks
top-down/conceptually-driven processing vs. bottom-up/data-driven processing
influence of context/ expectation