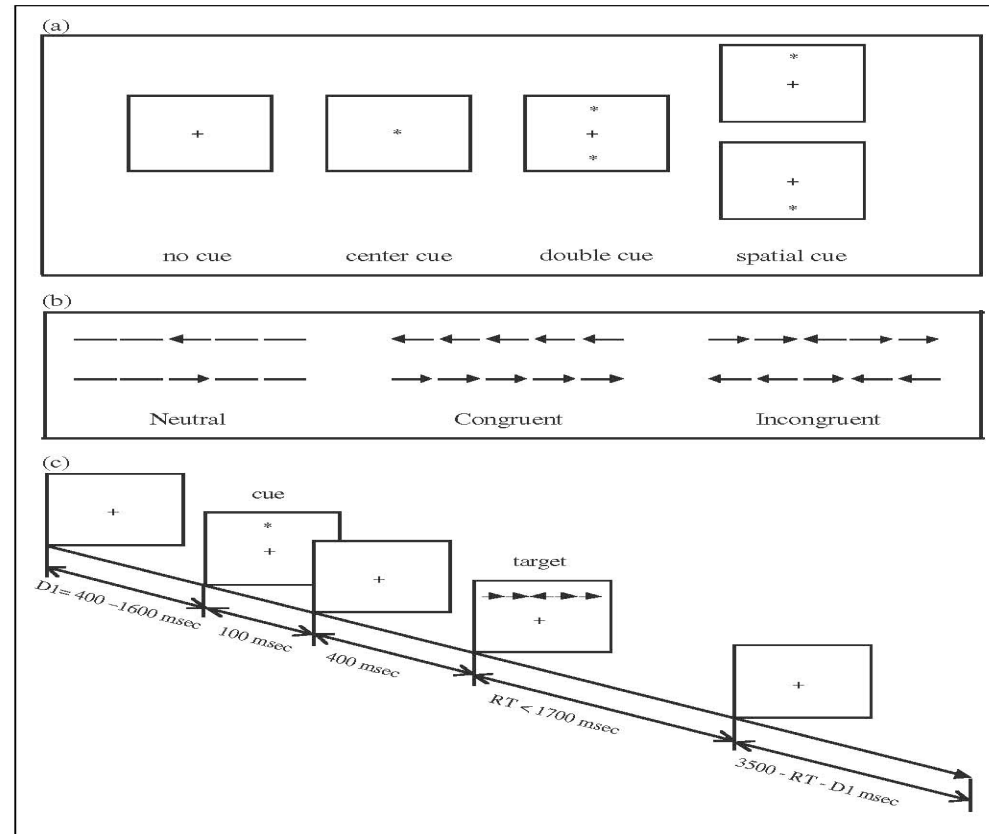


Attention Networks Task

Figure 1. Experimental procedure. (a) The four cue conditions; (b) The six stimuli used in the present experiment; and (c) An example of the procedure.



Lesions of the temporal–parietal junction are most likely to produce a difficulty in disengaging to deal with stimuli in a direction opposite the lesion (Friedrich, Egly, Rafal, & Beck, 1998).

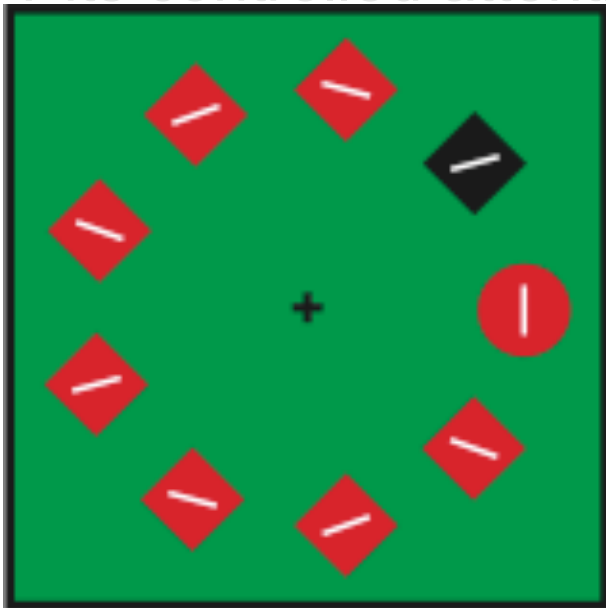
Executive control of attention is often studied by tasks that involve conflict, such as various versions of the Stroop task, which activate midline frontal areas (anterior cingulate) and the lateral prefrontal cortex (Bush, Luu, & Posner, 2000; MacDonald, Cohen, Stenger, & Carter, 2000). There is now considerable evidence for their common activation in tasks involving conflict and other forms of mental effort (Bush et al., 2000). Recently, other

tasks involving cognitive conflict, such as variations of the flanker task developed by Eriksen and Eriksen (1974), have been shown to activate several areas involved in the executive attention network, but in functionally distinct ways. These experimental tasks may provide a means of fractionating the functional contributions of areas within the executive attention network (Casey et al., 2000; Botvinick, Nystrom, Fissell, Carter, & Cohen, 1999).

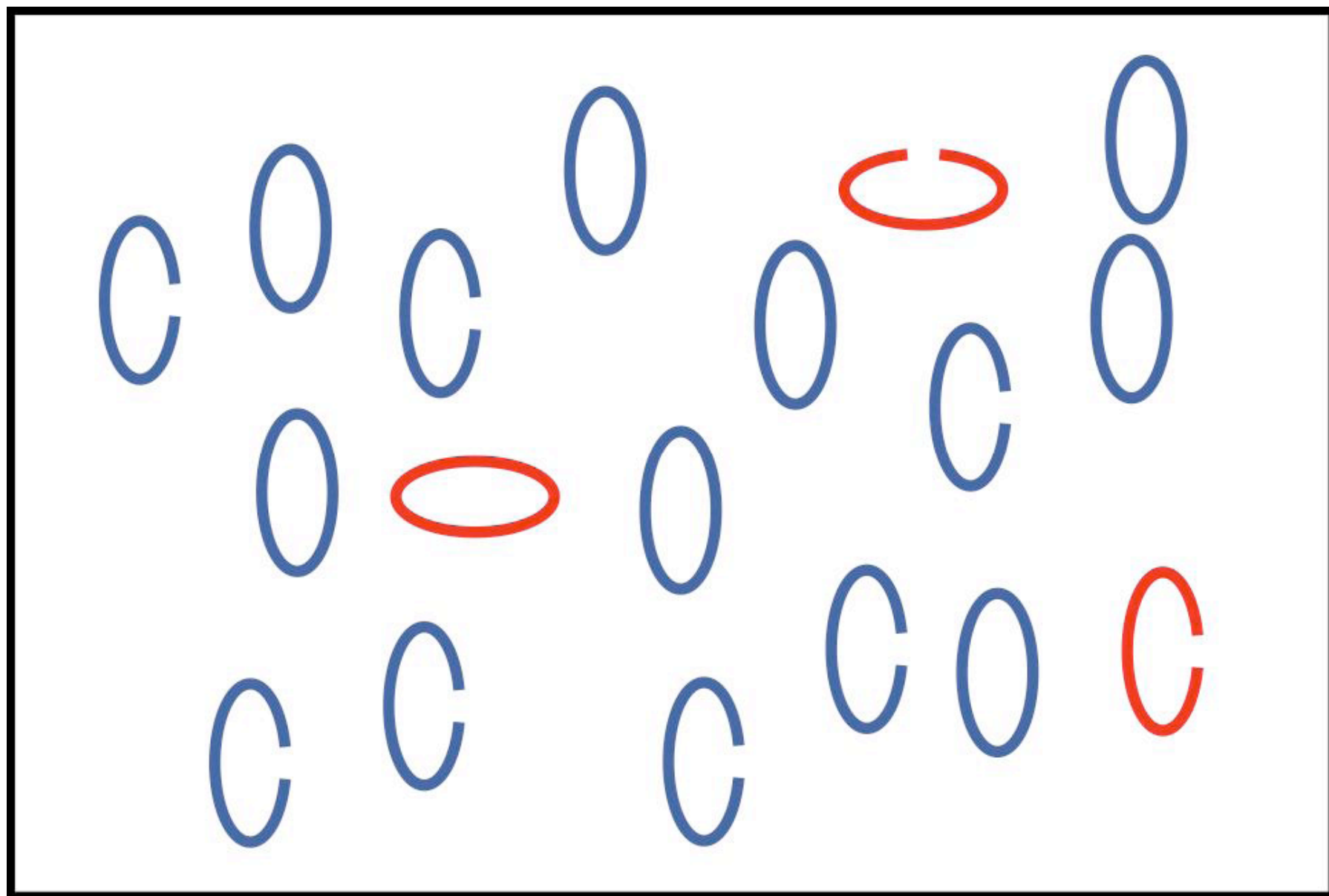
We have confirmed that the flanker task activates an area of the anterior cingulate, which is distinct from, but overlaps, activations produced by other conflict tasks (Fan, McCandliss, Flombaum, Thomas, & Posner, 2001).

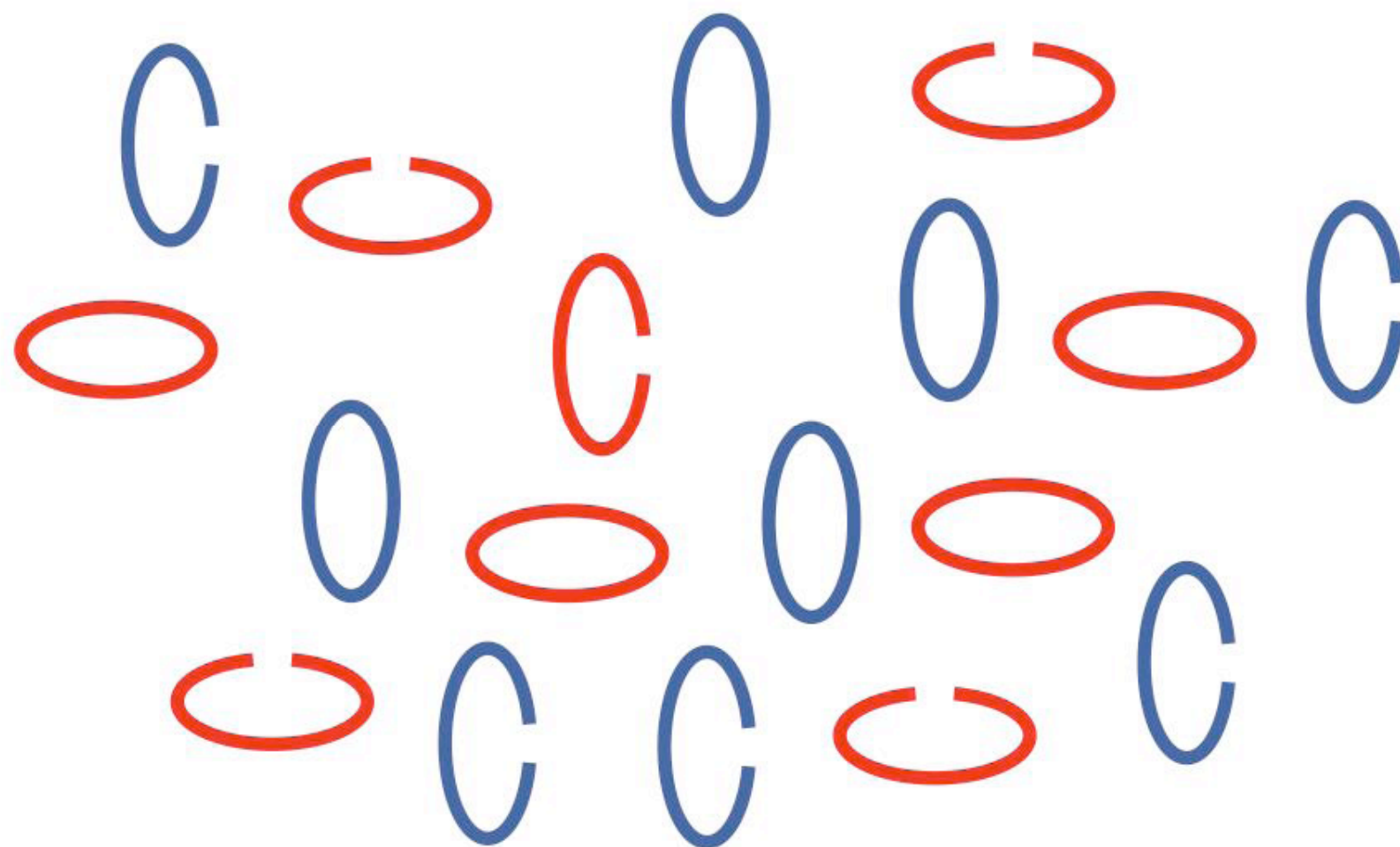
Example: Singleton Capture

- Shifting to a target in the presence of a salient distractor
 - Task: Report orientation of line inside circle
 - One item is black on 50% of trials (never the target)
 - Pits controlled attention against bottom-up salience



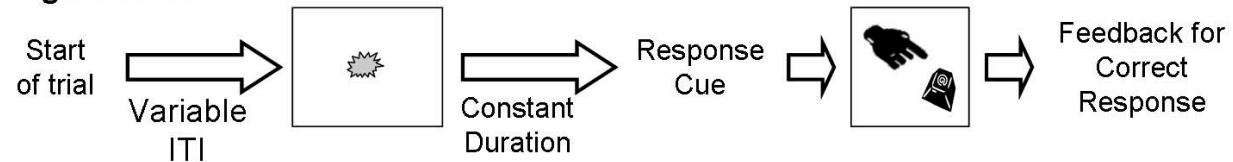
- Finding: Patients are dramatically slowed when the black item is present (but we're still working out the details)



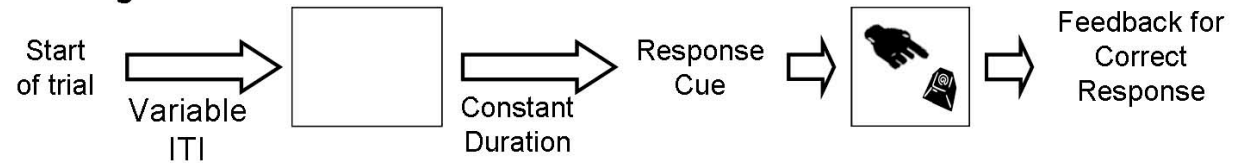


McGaughy and Sarter Sustained Attention Task

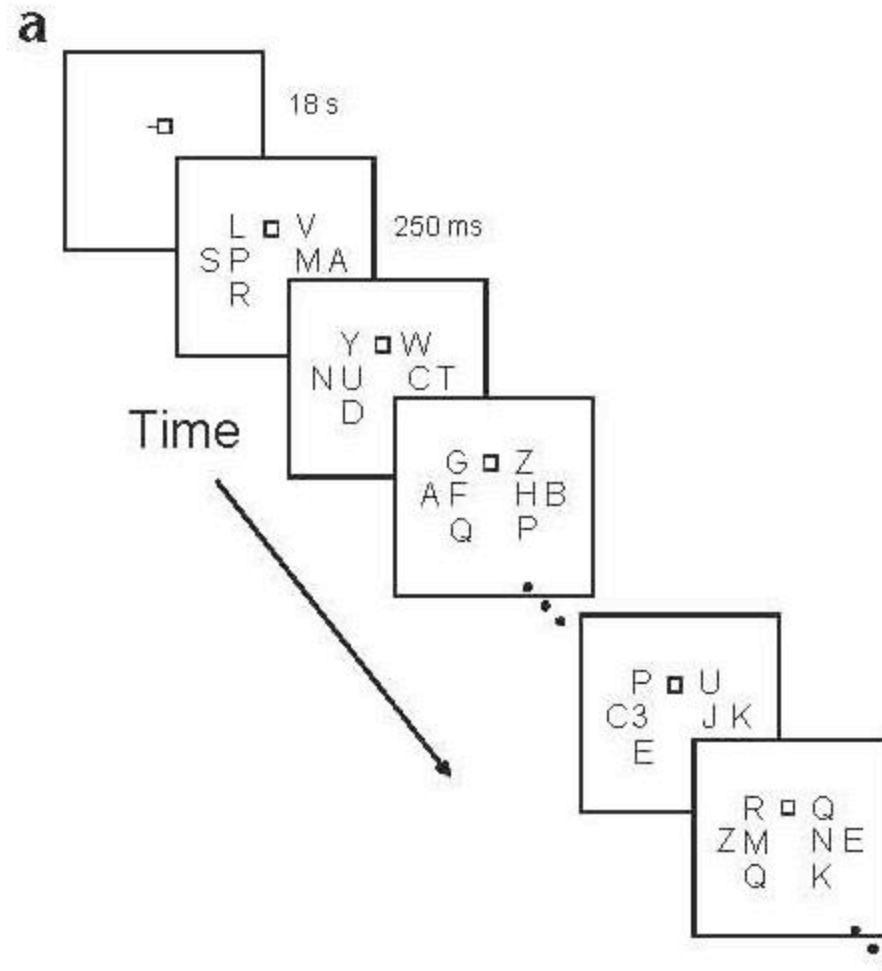
Signal Trial:



Non-Signal Trial:



Posner Spatial Cueing (in Yantis et al, 2002)



Top-Down Control of Attention

Task	OVERALL RANK OF CURRENT DEVELOPMENTAL LEVEL	Construct Validity	Clarity of link to neural circuit	Clarity of link to cognitive mechanisms	Availability of animal model	Link to neural systems through neuropsychopharmacology	Amenable for use in human neuroimaging studies	Evidence of Impairment in schizophrenia	Linked to functional outcome in schizophrenia	Good Psychometric Characteristics
Attention Networks Task		Wrong Constr.								
Attention Capture Task	3	4	3-4	3	2	NA	5	NA	NA	NA
Guided Search	1.5	5	4	5	2	NA	5	4	NA	NA
McGaughy & Sarter Sustained Attention Task	1.5	4-5	5	2-3	5	5	5	NA	NA	NA
Posner Spatial Cueing	4	2-3	5	4	3	3	5	2	NA	NA