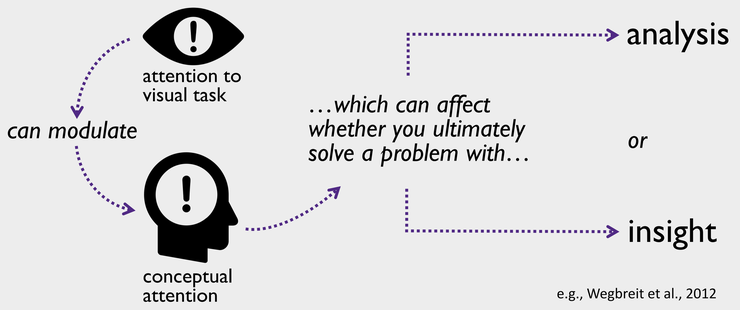
Selective attention to global stimuli induces analytic problem solving

Tiffani Ng & Mark Beeman



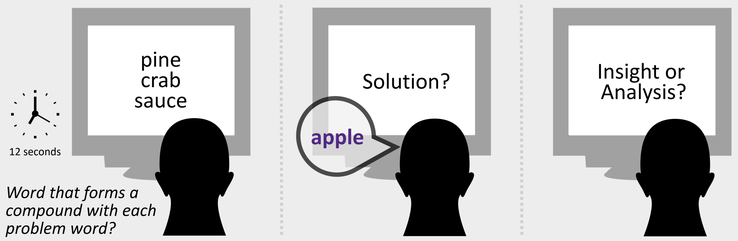
Which interpretation best explains attention's role on problem solving?

Spatial breadth of attention to visual tasks modulates *spatial breadth* of conceptual attention, which affects analytic and insight problem solving
(e.g., Rowe, Hirsh, & Anderson, 2007)

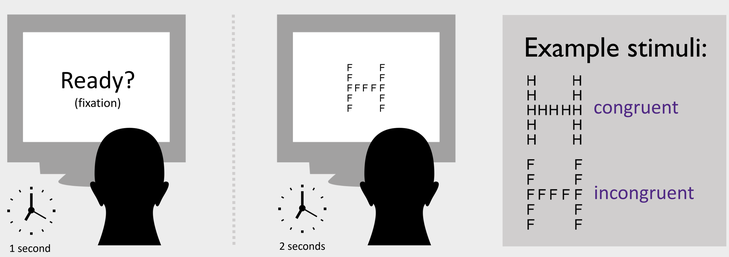
Selectivity of attention to visual tasks modulates *selectivity* of conceptual attention, which affects analytic and insight problem solving

Methods (Two Experiments)

Same procedure for both experiments, but in Experiment 2:
- Counterbalanced CRAs to account for possible set effect in Experiment 1
- Reintroduced Local-Global Letter task during final set of CRA problems



1. Compound Remote Associates (50 CRA) Problems



2. Local-Global Letter Task (modified hierarchical letter task)

3. Compound Remote Associates (50 CRA) Problems

DV. Change in analytic versus insight solving

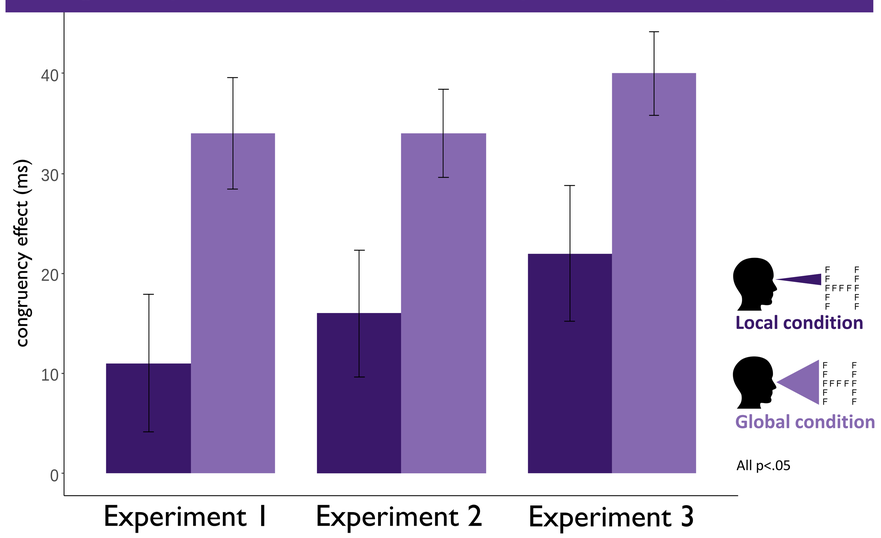
F F H H
F F H H
F F F F F H H H H H
F F H H
F F H H

latencies of incongruent trials **–** latencies of congruent trials **=** Indexes selective attention (Congruency Effect)

Modulates breadth of attention

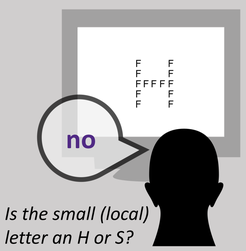
and…

Congruency Effect: Global > Local, replicated in 3 experiments



Global letter task puts greater demand on selective attention.

Local condition: Non-competing hypotheses

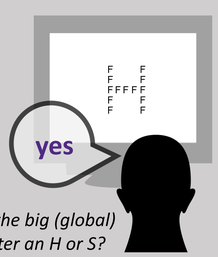


Narrow attention on local element; you can ignore global element, easier to select

spatial
Narrow attention to visual task→ narrow conceptual attention → increased analytic solving

selectivity
Selective attention to visual task → selective conceptual attention → increased analytic solving

Global condition: Competing hypotheses



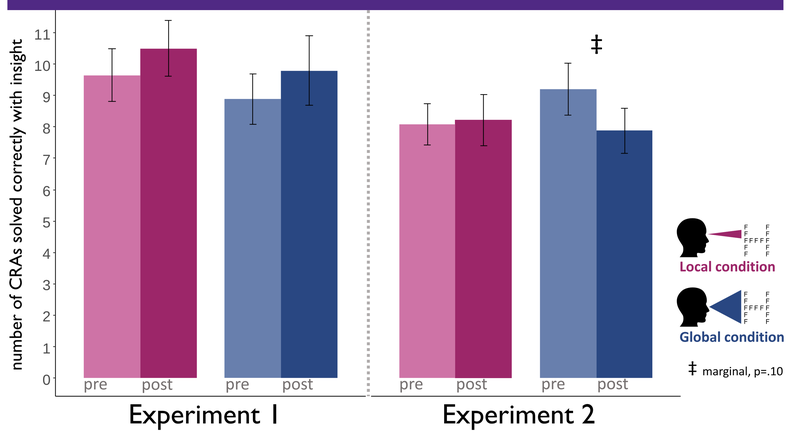
Broad attention on global element; you can ignore global element, easier to select

spatial
Broad attention to visual task → broad conceptual attention → increased ***insight*** solving

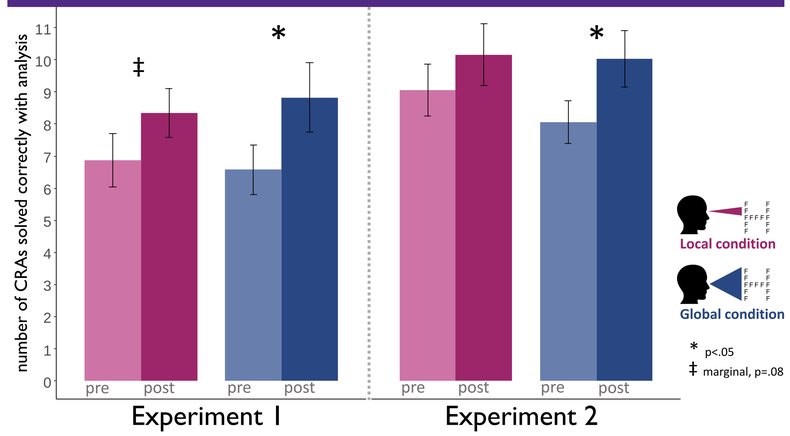
selectivity
More selective attention to visual task→ more selective conceptual attention → increased ***analytic*** solving

*There was a third ("Match") condition, but the results will not be discussed here.

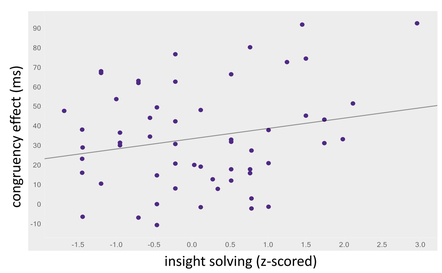
Neither local nor global task reliably increased insight solving



Global task reliably increased analytic solving

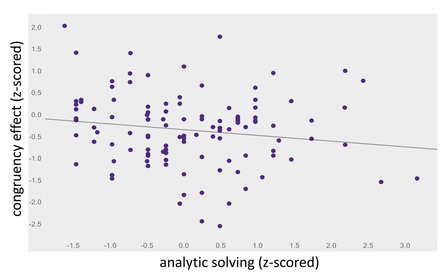


Our global task induces selective attention and analytic solving.



Less selective attention (larger congruency effects) is related to more insight solving

r = .22, p = .05



More selective attention (smaller congruency effects) is related to more analytic solving

r = -.16, p = .05

Selectivity of visual attention (indexed by congruency effects) relates to insight/analytic solving across individuals.