Does analogical transfer only occur in rule-based category learning?

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Human category learning 2.0

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Human category learning 2.0

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"The emphasis has begun to shift to the study of *second-generation* problems—that is, questions that begin **with the assumption** that humans have multiple systems" (Ashby & Maddox, 2011, p. 157).

COVIS (Ashby et al., 1998, *et seq.*)

Two independent, qualitatively different, competing, learning systems:

Explicit system: Hypothesis testing, verbalizable.

Procedural system: Configural S→R associative system, implicit.

Frontal lobotomy

Removing the Frontal Lobes: The Effects of Engaging Executive Functions on Perceptual Category Learning

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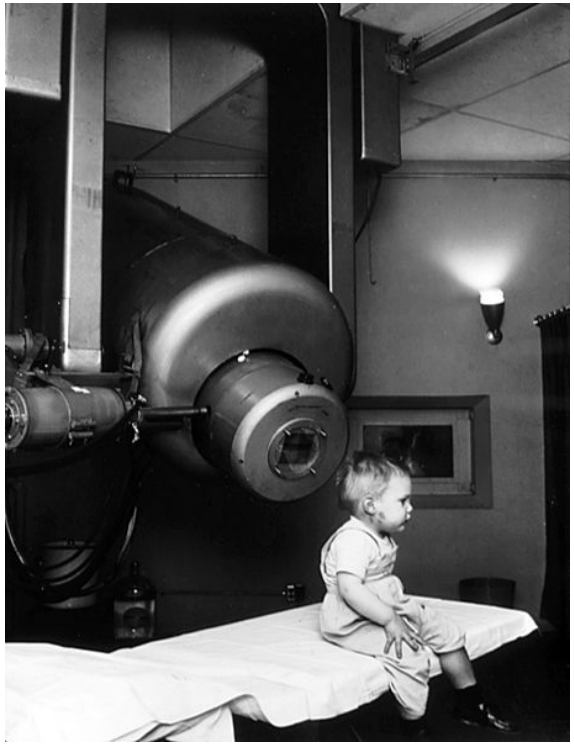
"On the basis of our findings, it may be possible to enhance training of radiologists by having them perform a secondary task"
(Filoteo et al. 2010 , p. 422).

ITI confound: Newell et al. (2013)

Dissolving dissociations

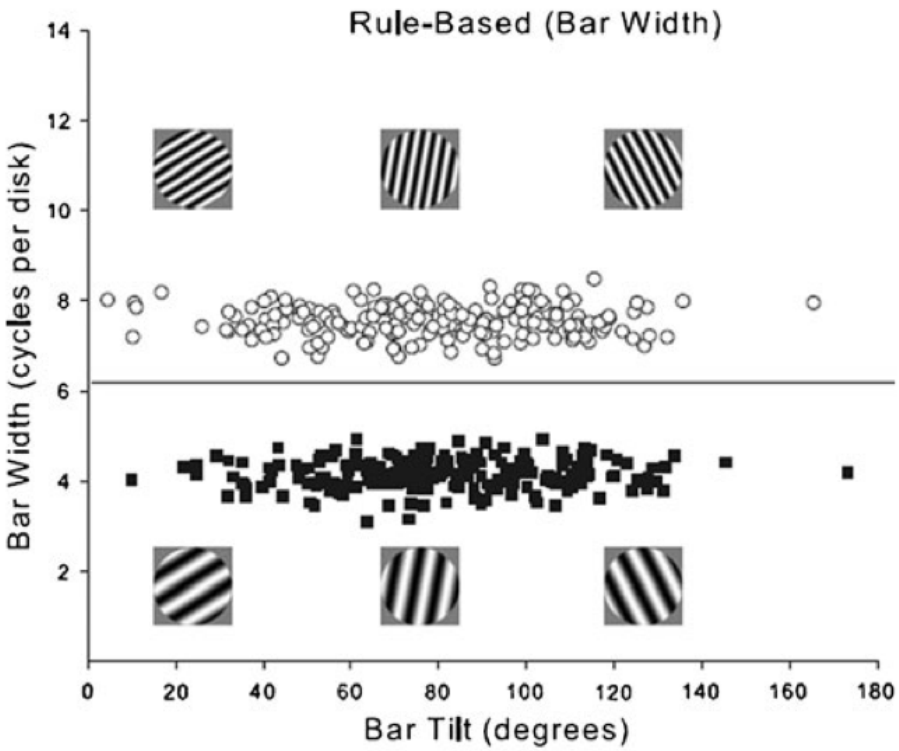
Study	Critique
Waldron & Ashby (2001)	Nosofsky & Kruschke (2002)
	Tharp & Pickering (2009)
Ashby et al. (2002)	**Edmunds et al. (2015)**
Ashby et al. (2003)	Nosofsky et al. (2005)
Maddox et al. (2003)	Dunn et al. (2012)
Maddox et al. (2004)	Stanton & Nosofsky (2007)
Maddox et al. (2004)	Stanton & Nosofsky (2013)
Maddox & Ing (2005)	Dunn et al. (2012)
Zeithamova & Maddox (2006, 2007)	Newell et al. (2010)
Maddox et al. (2007)	Stanton & Nosofsky (2013)
Maddox et al. (2008)	Dunn et al. (2012)
Filoteo et al. (2010)	**Newell et al. (2013)**

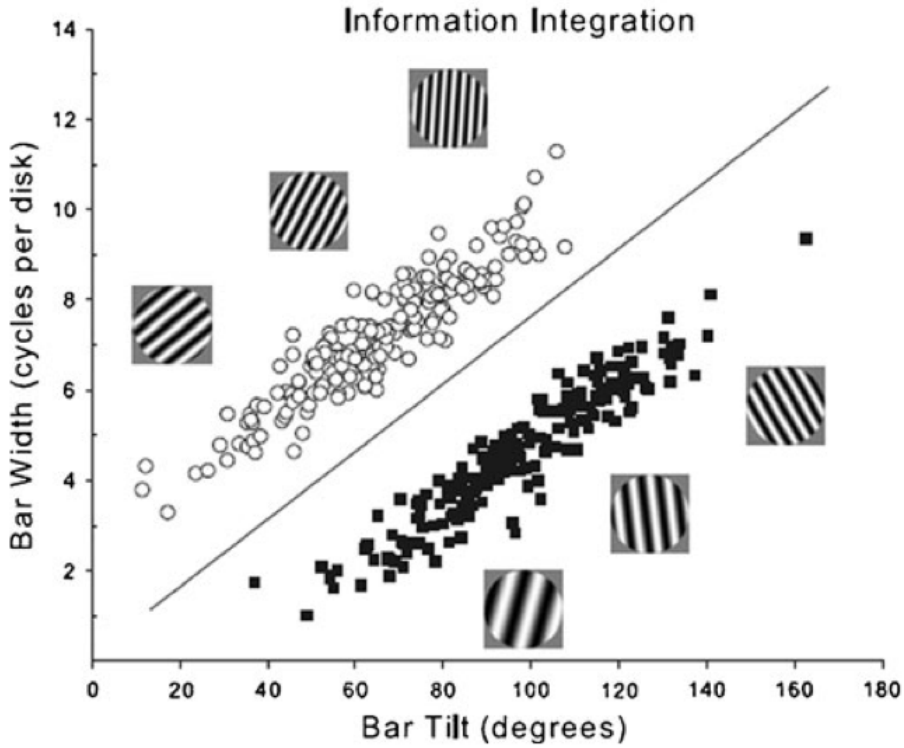
Analogy



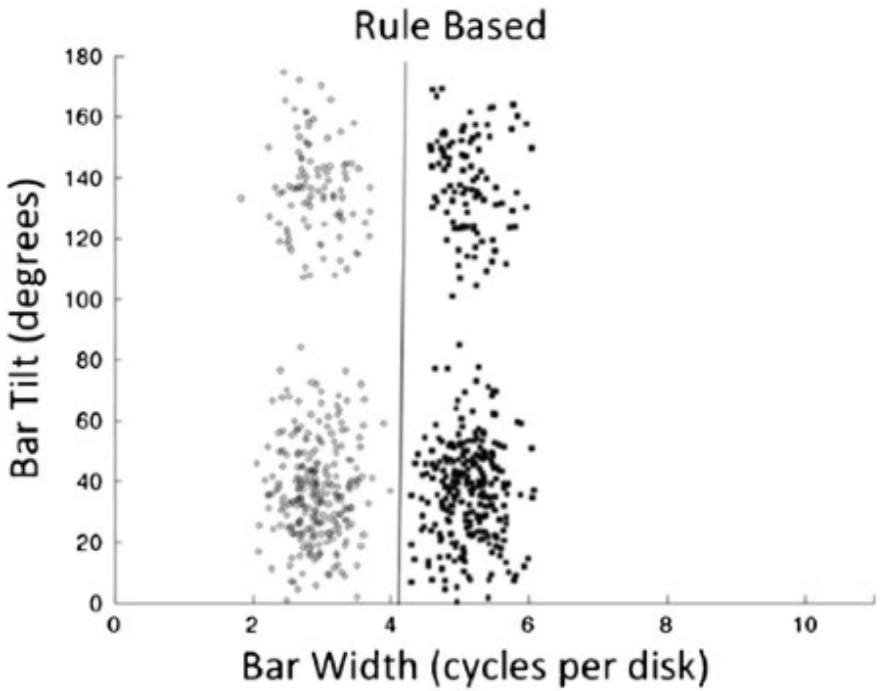
Duncker (1945); Gick & Holyoak (1980)

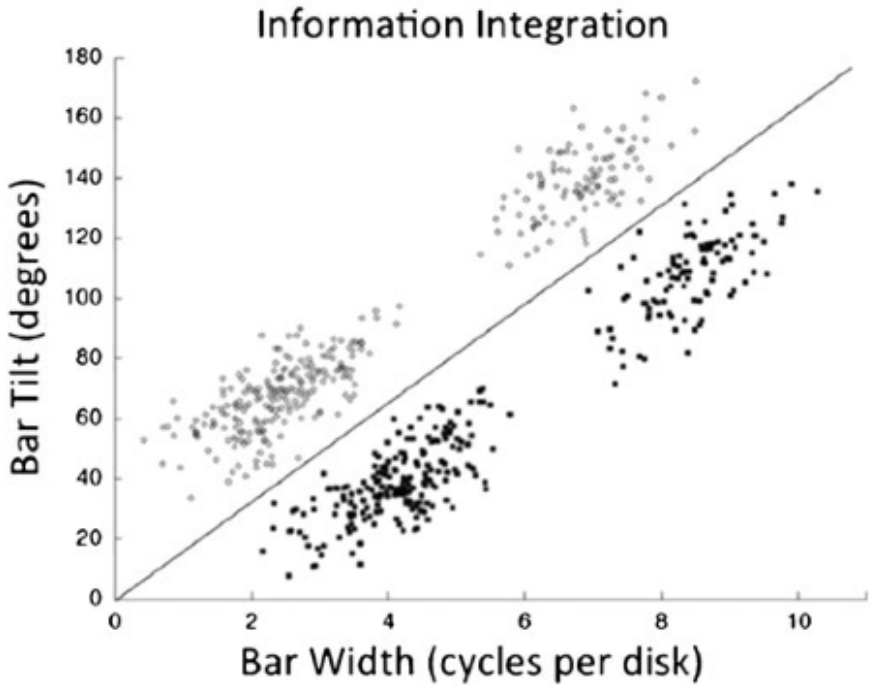
Casale et al. (2012)



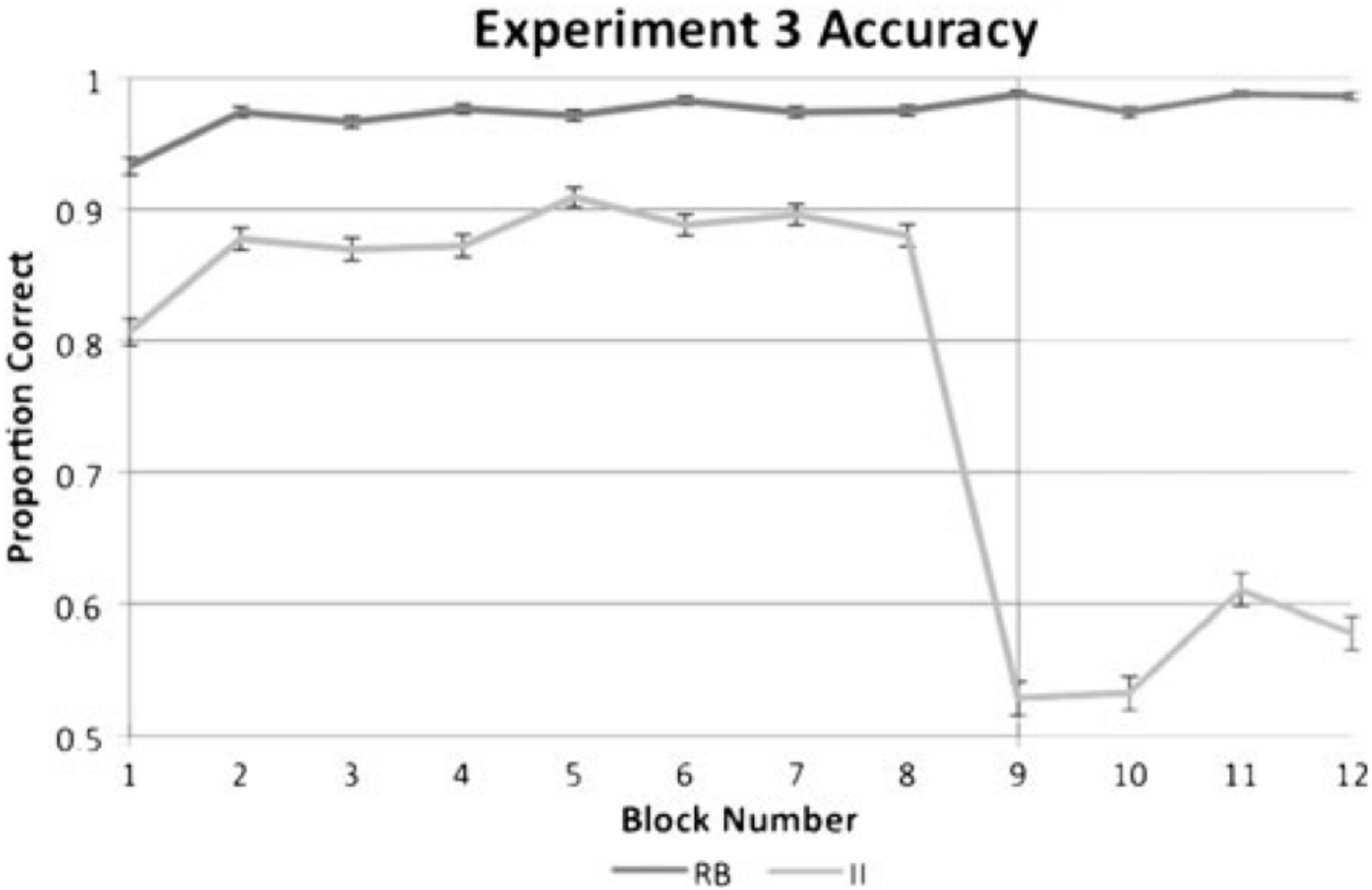


Casale et al. (2012)



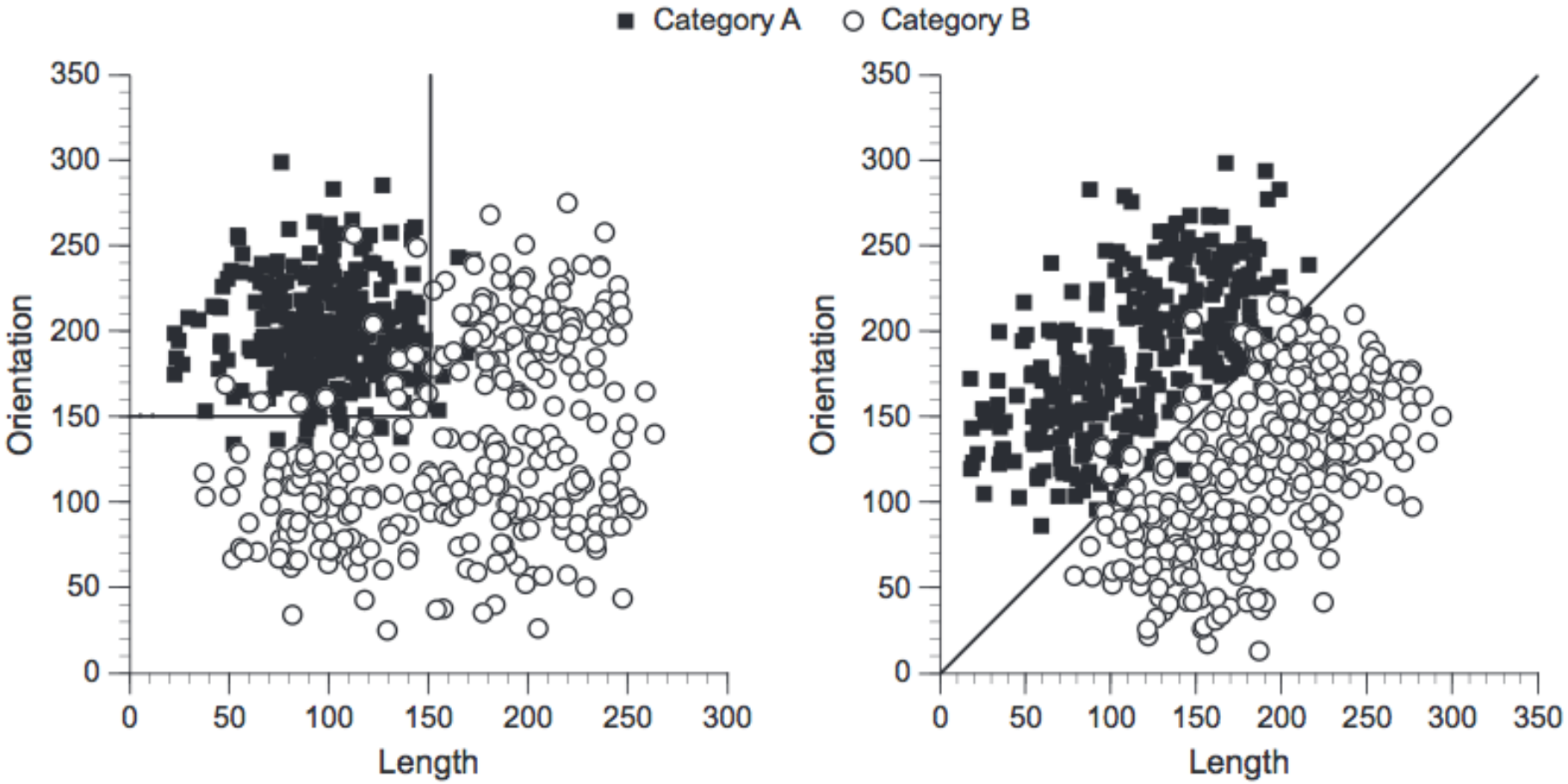


Casale et al. (2012)



Experiment 1: Stimuli

Experiment 1: Abstract structures



Experiment 1: Method

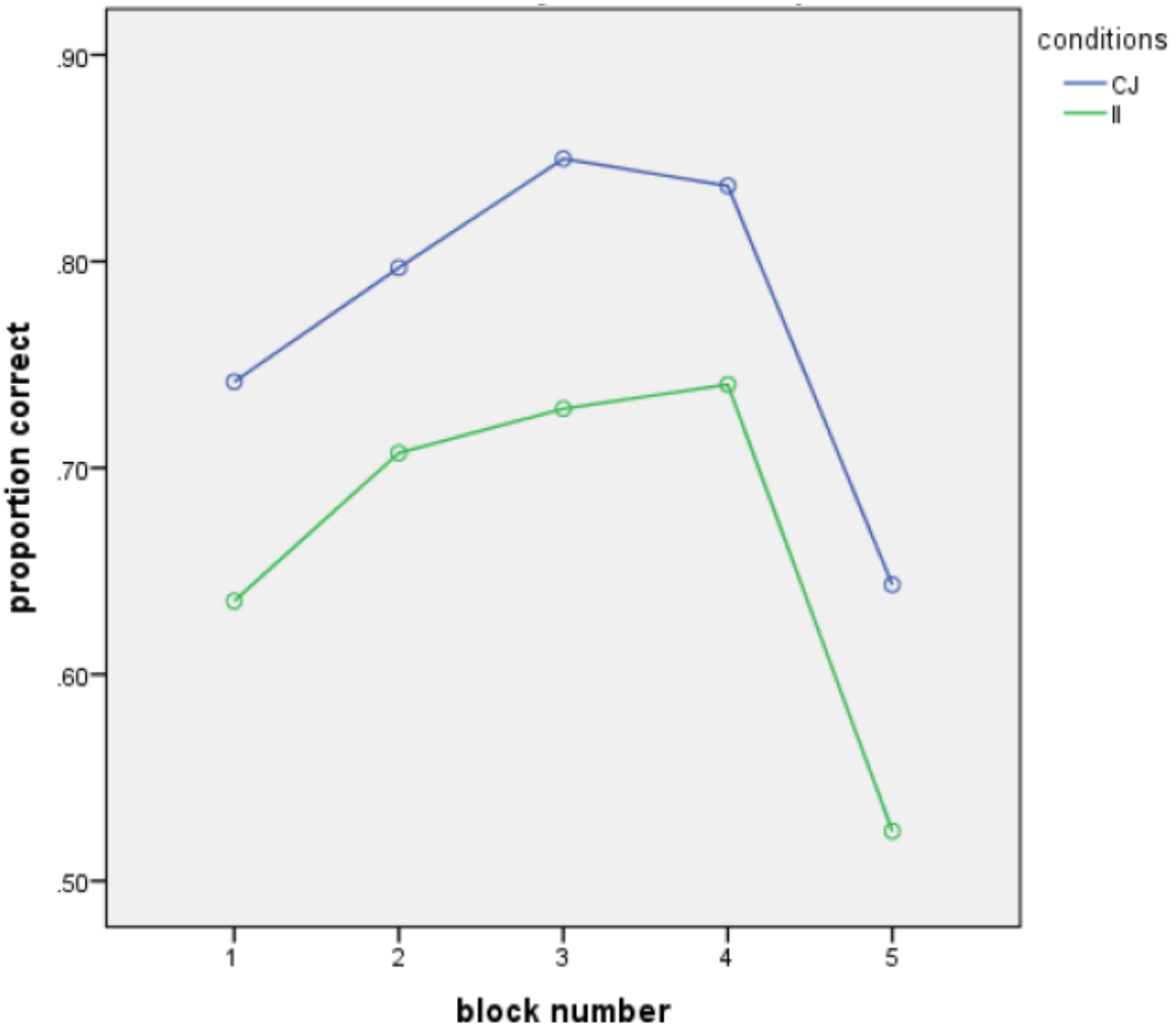
CJ group: Trained on CJ (visual), tested on CJ (auditory).

II group: Trained on II (visual), tested on II (auditory).

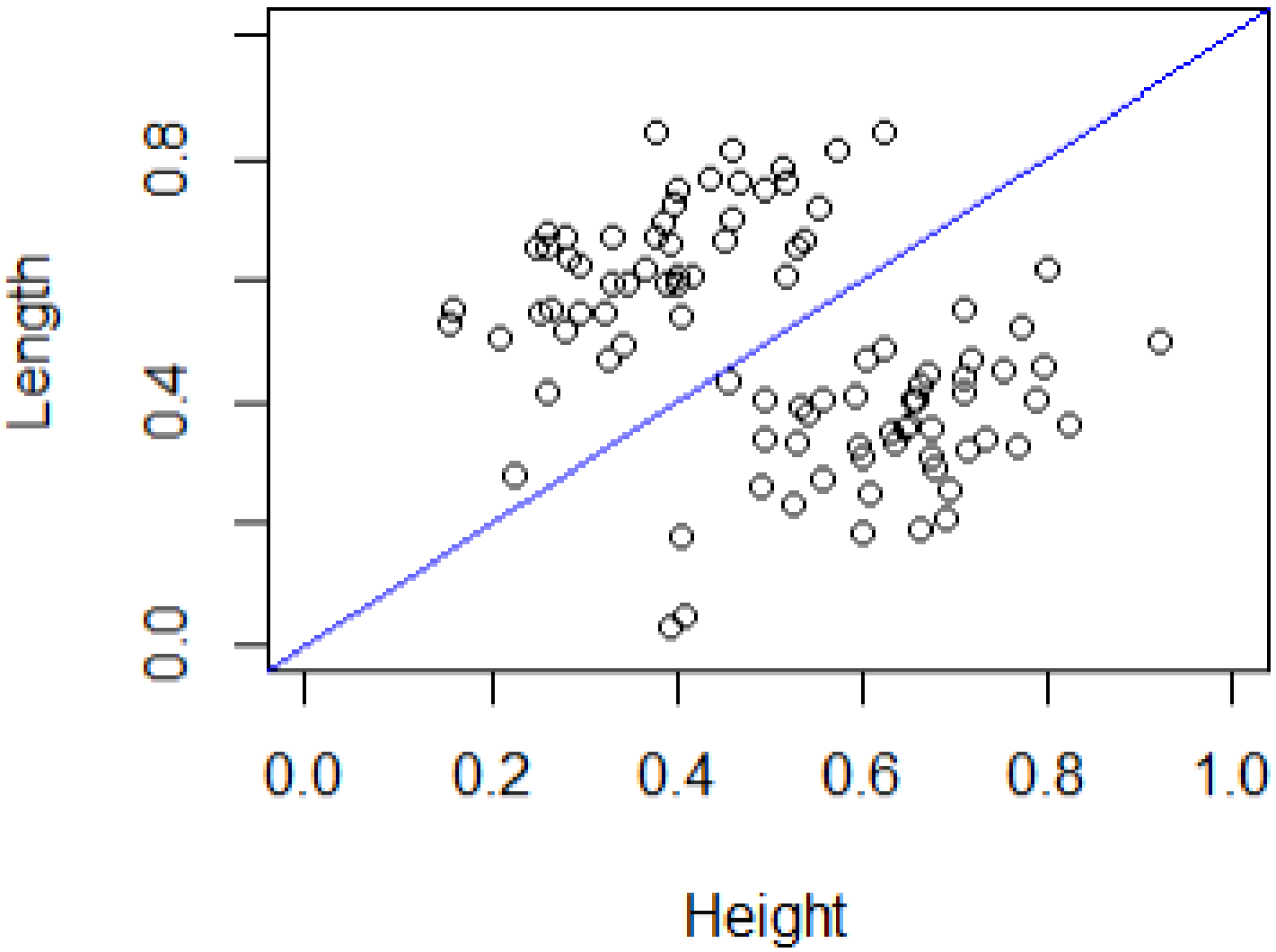
Training: Sequential, with feedback. 4 $\times$ 96-trial blocks.

Test: Sequential, no feedback. 1 $\times$ 96-trial block.

Experiment 1: Results



Experiment 2: Abstract structure



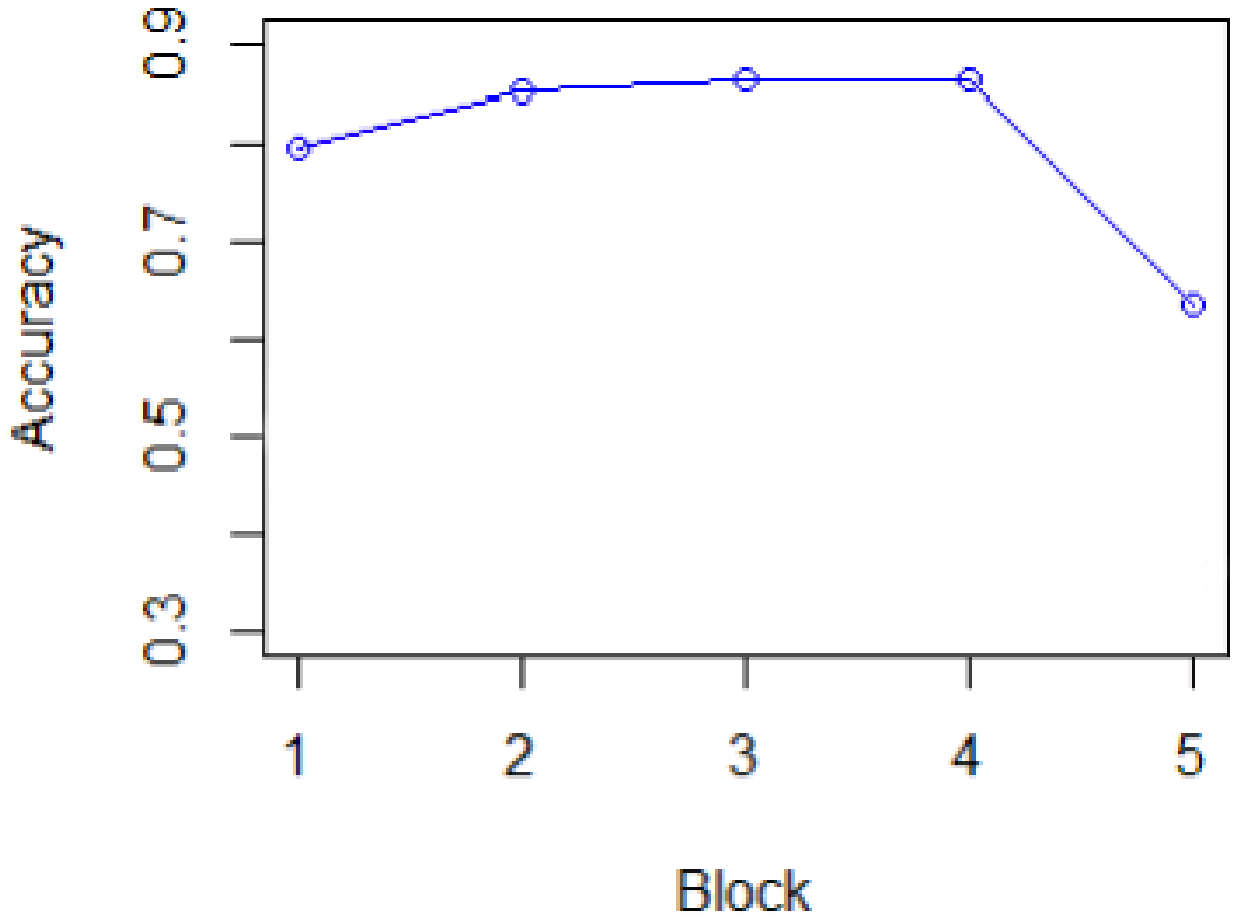
Experiment 2: Method

Trained on II (visual), tested on II (auditory).

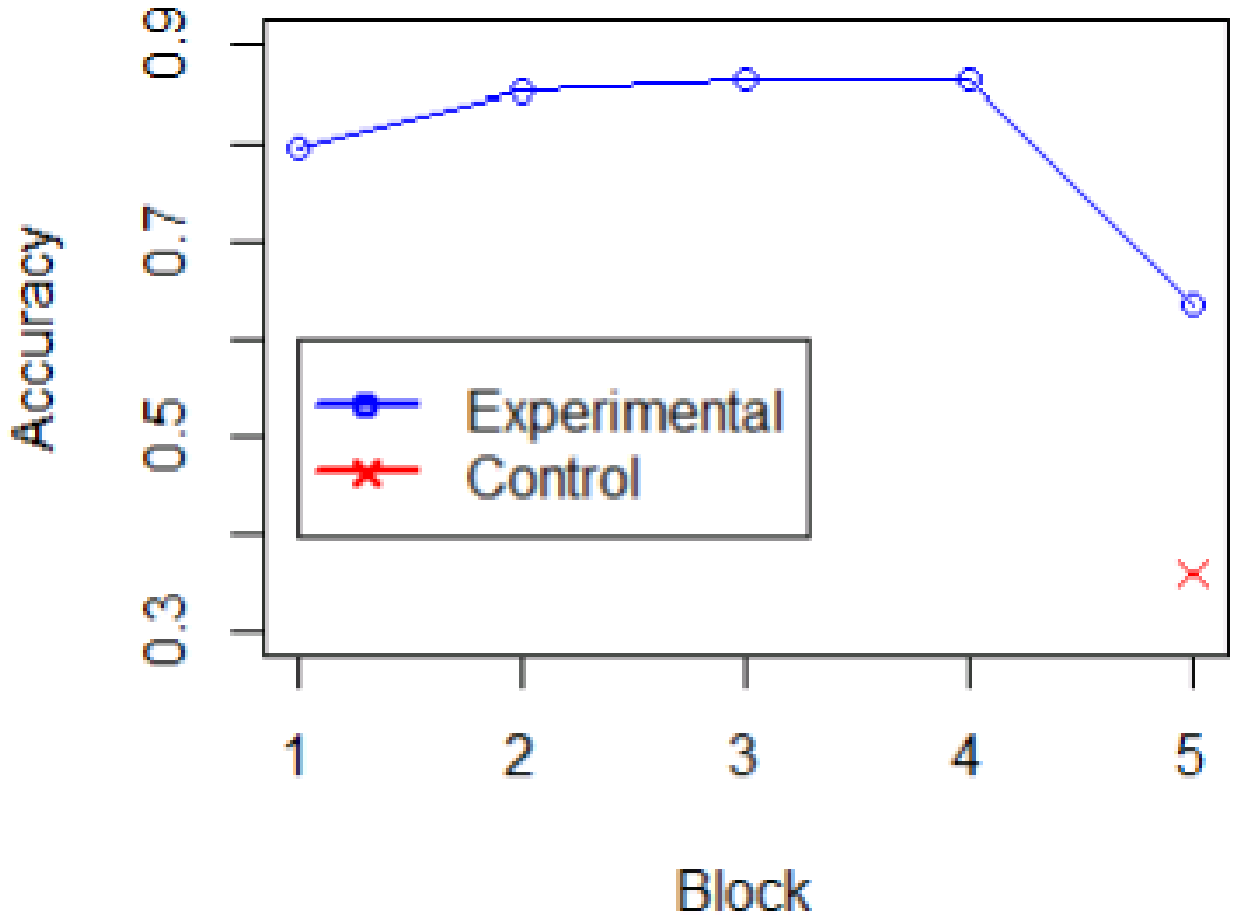
Training: Sequential, with feedback. 4 $\times$ 96-trial blocks.

Test: Sequential, no feedback. 1 $\times$ 96-trial block.

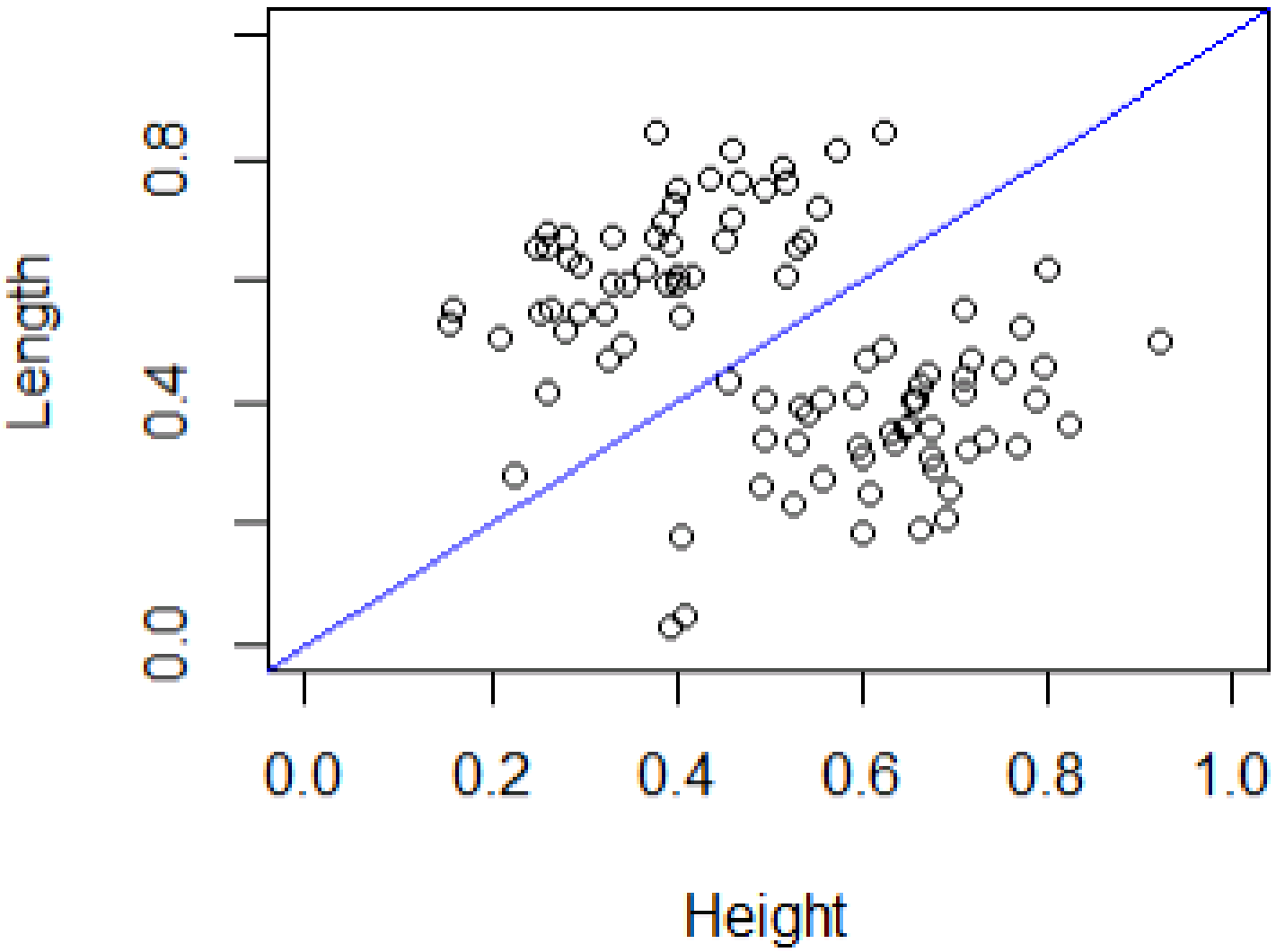
Experiment 2: Results



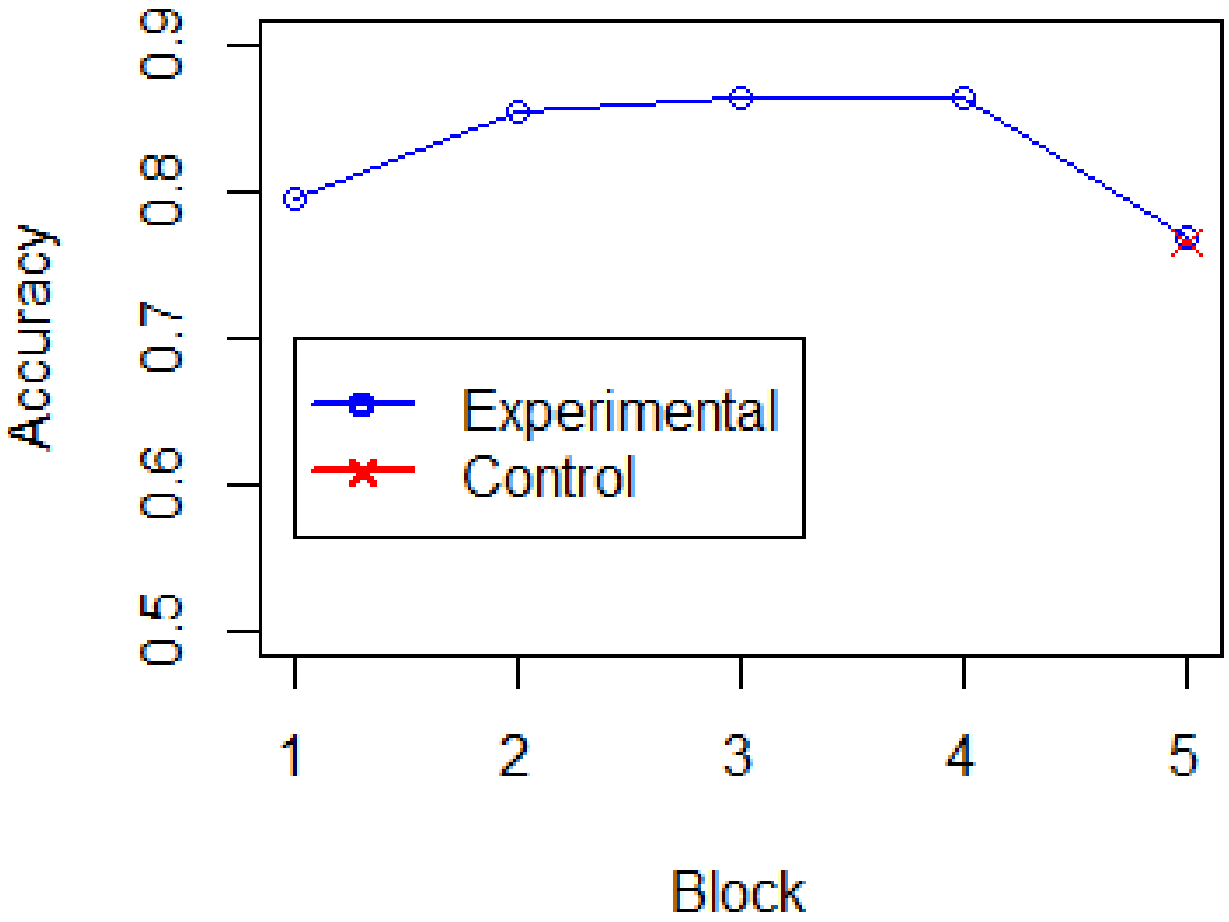
Experiments 2 & 3: Results



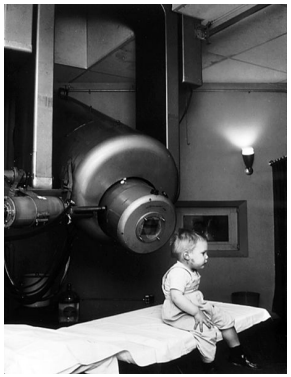
Experiments 2 & 3: Abstract structure



Experiments 2 & 3: Recoded Results



Analogical transfer in category learning



Analogical transfer in category learning may simply be making the appropriate mapping of named parts across two problems.

Participants are able to do this for both rule-based structures, and information-integration structures.

These conclusions are more consistent with a single-process hypothesis-testing account than a dual-process explicit-implicit account of category learning.