

Processes of polymorphous concept acquisition

Andy Wills

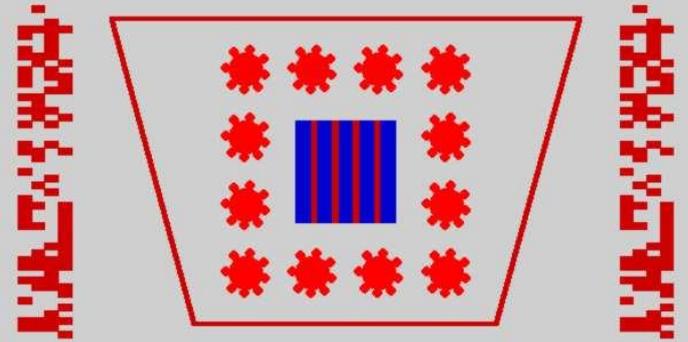
Tom Beesley

Gareth Croft

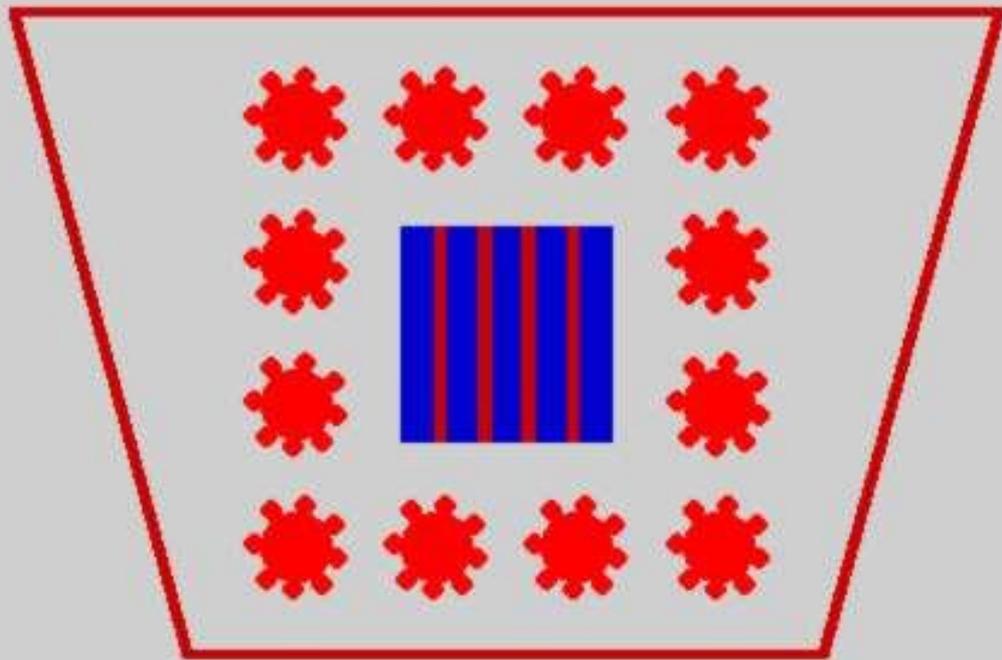
University of Exeter

Also: Fraser Milton, Lyn Ellett, Stephen Lea

Polymorphous concepts



2022年11月11日

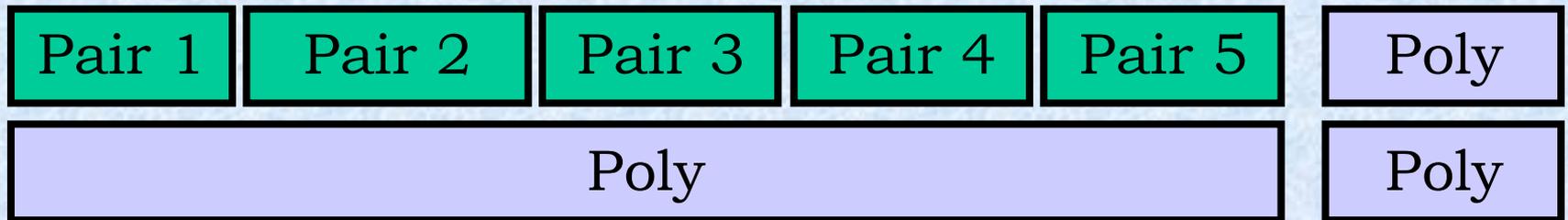


2022年11月11日

Correct.

It was category B.

Pre-training effect

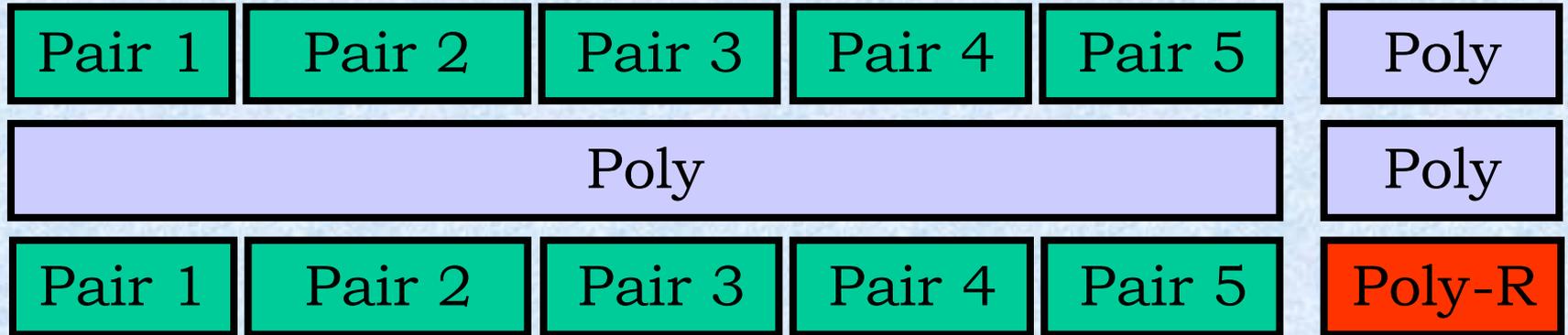


- Single-feature pre-training
- Transfer to the full concept
- Matched controls

The pre-training

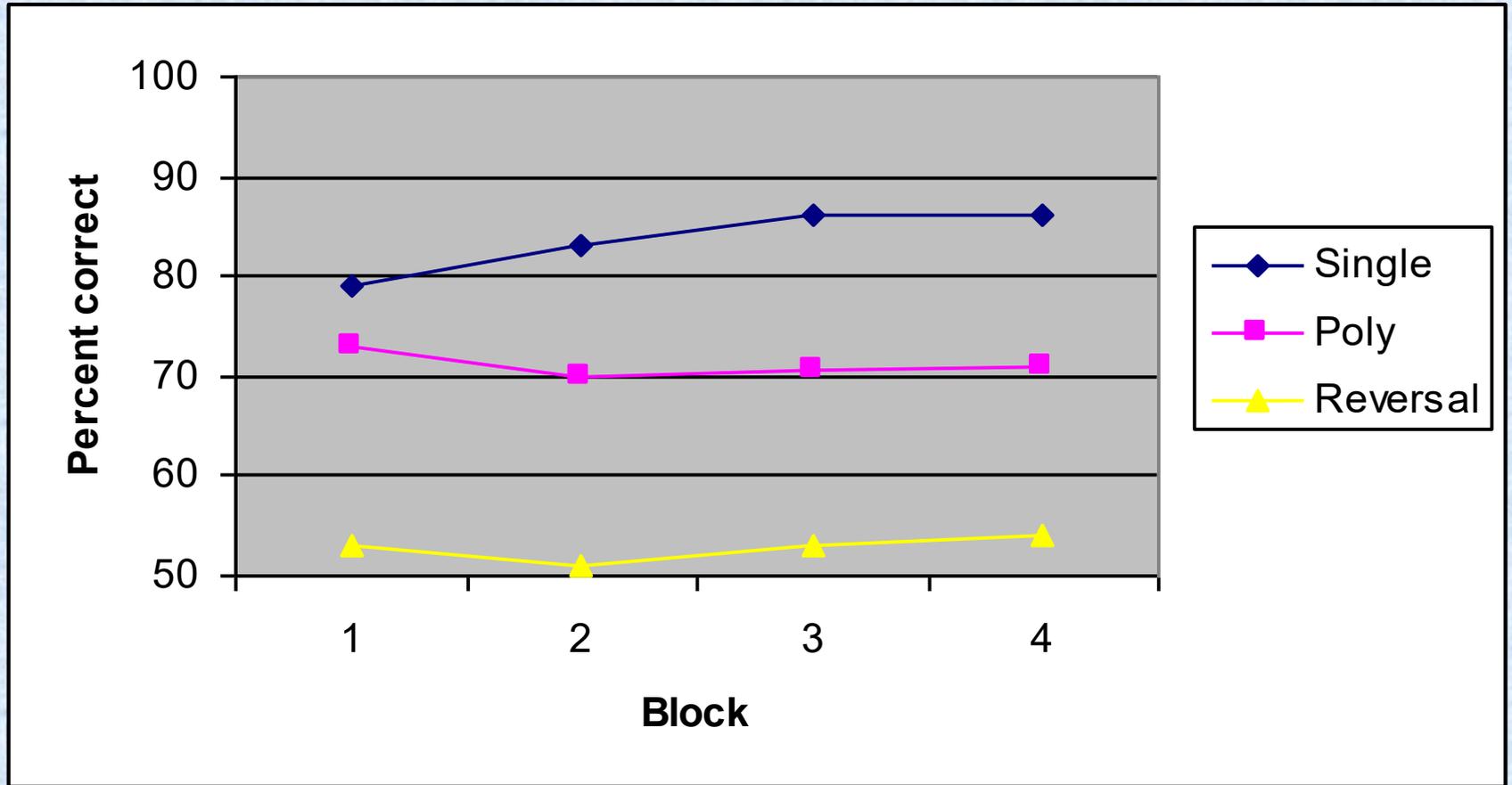


Partial reversal control

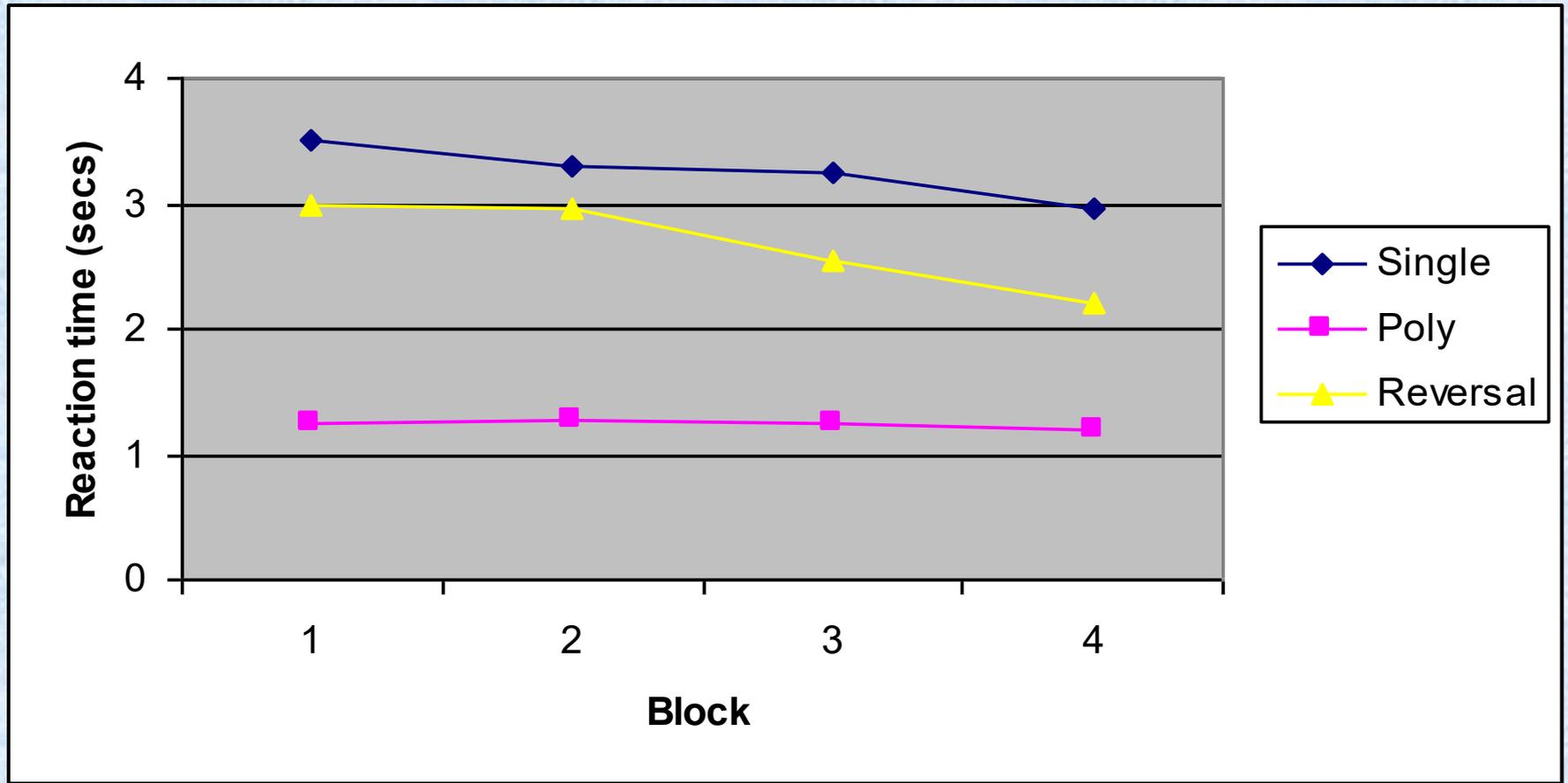


- 3 out of 5 associations swapped between phases 1 and 2
- Vertical stripes now = category A.

Phase 2 accuracy



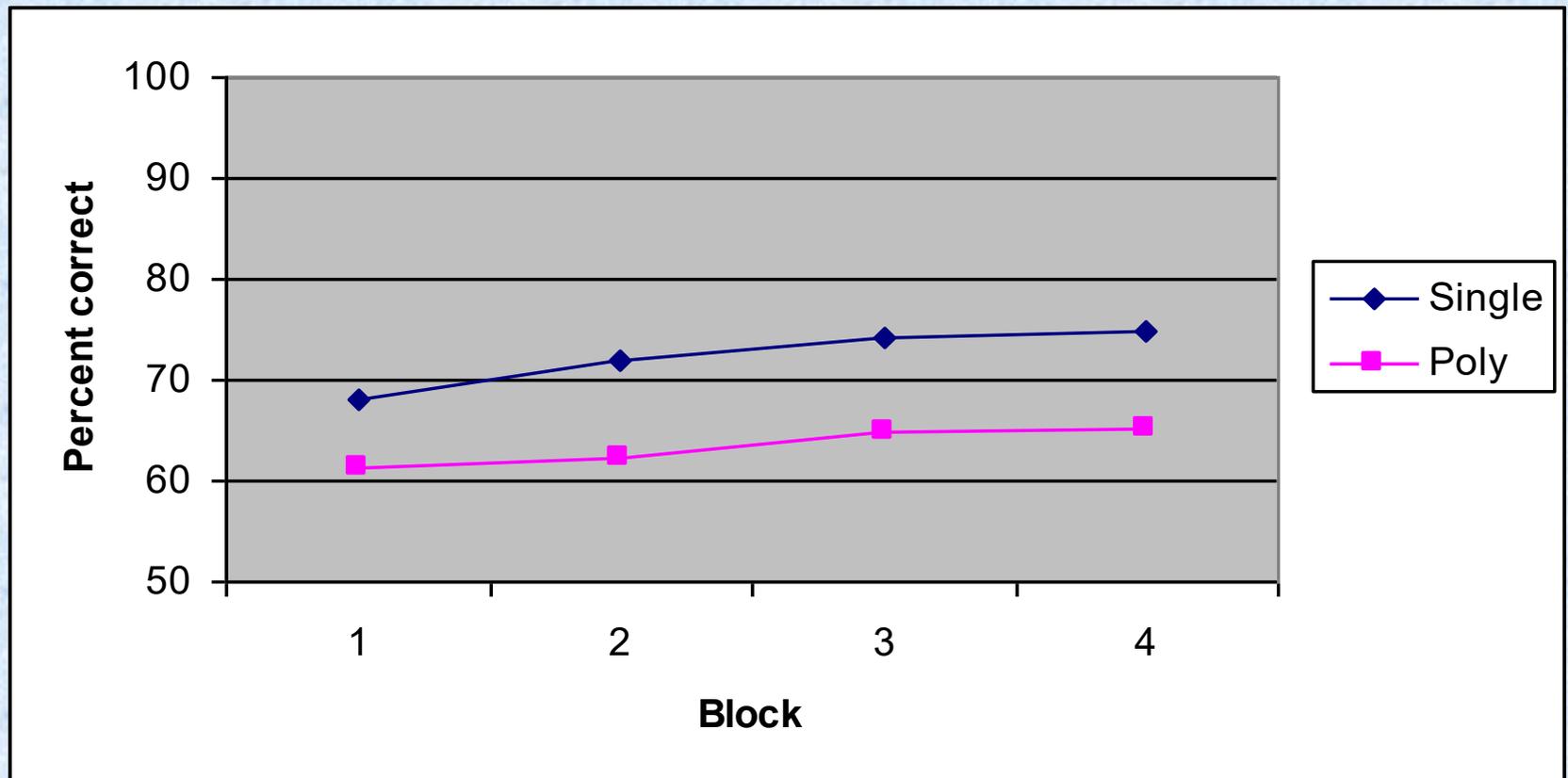
Phase 2 reaction time



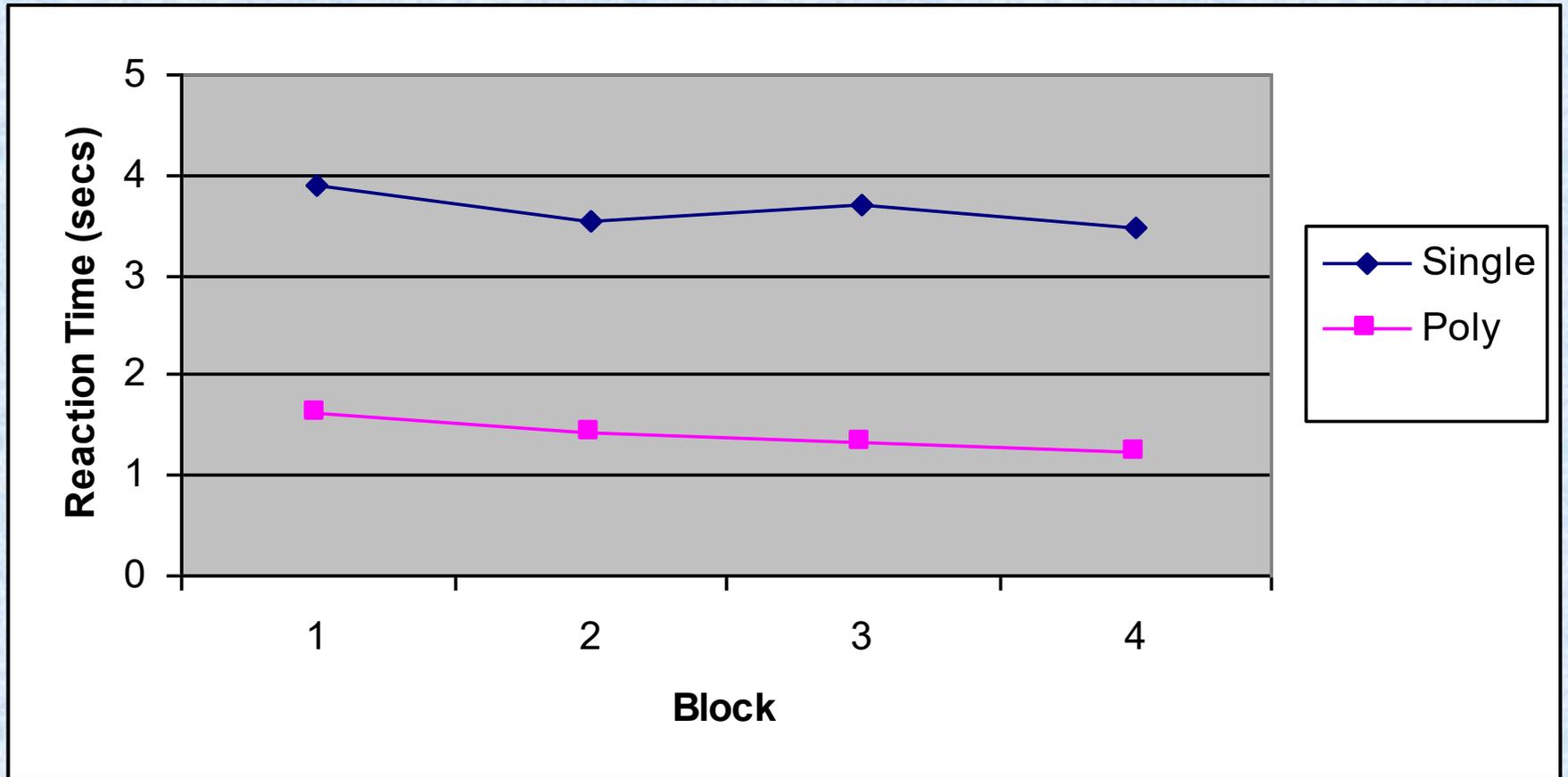
Robustness of effect



Phase 2 accuracy



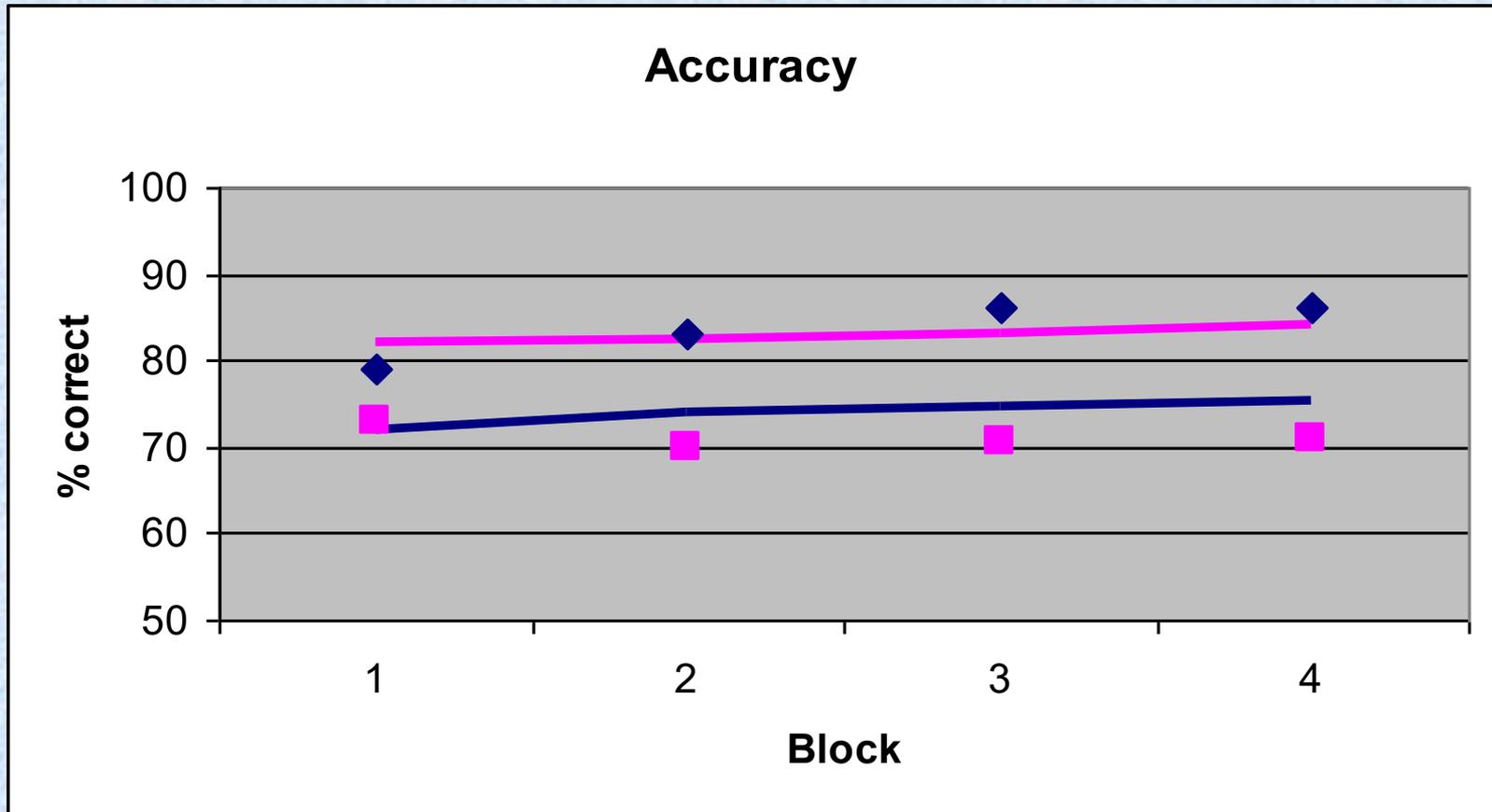
Phase 2 reaction time



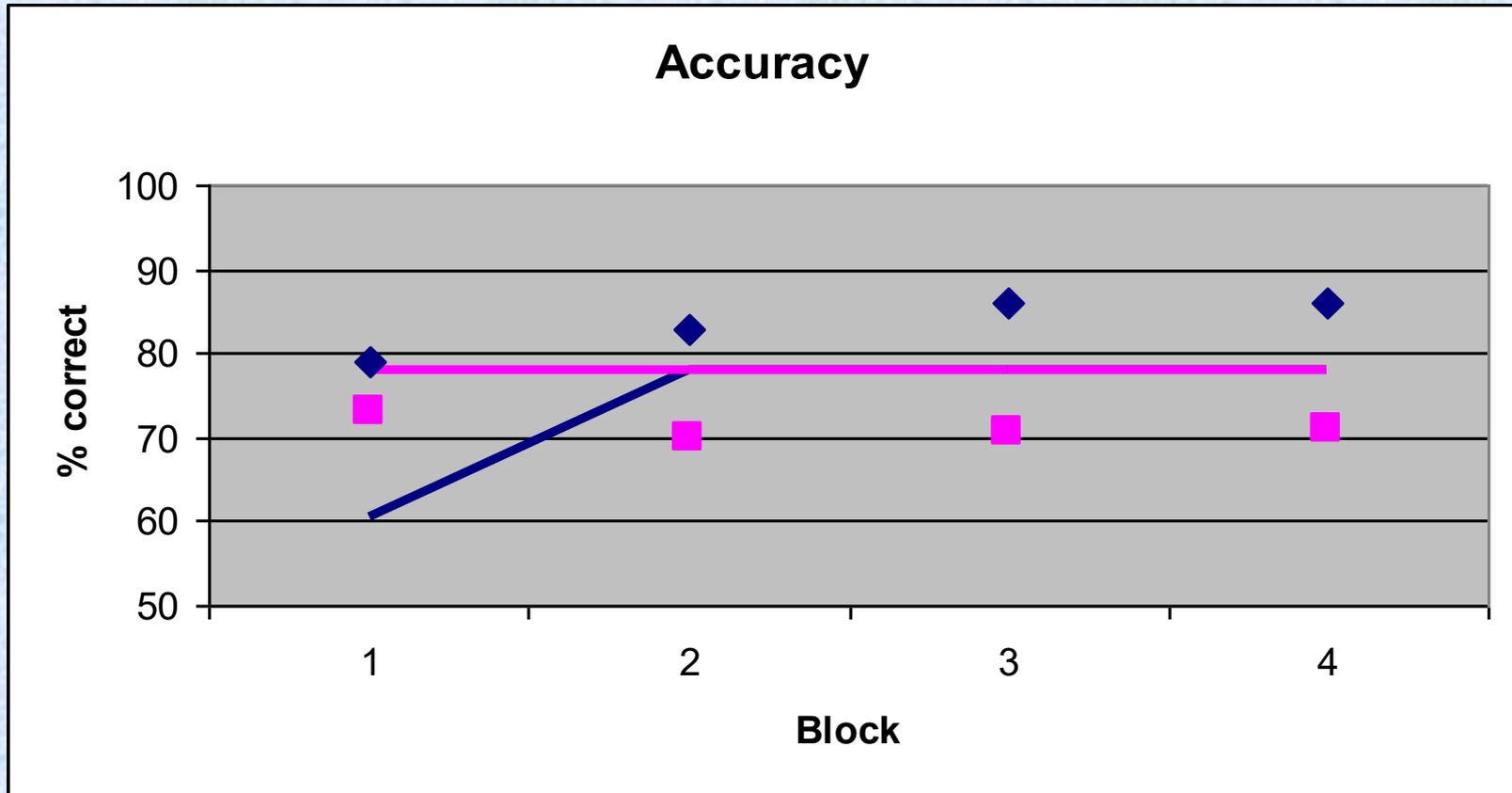
Implications for formal theory

- Instance-based models
 - Pearce (1987)
 - Nosofsky (1992)
- Feature-based models
 - Gluck & Bower (1988)
 - Gluck (1991)

Pearce model best fit

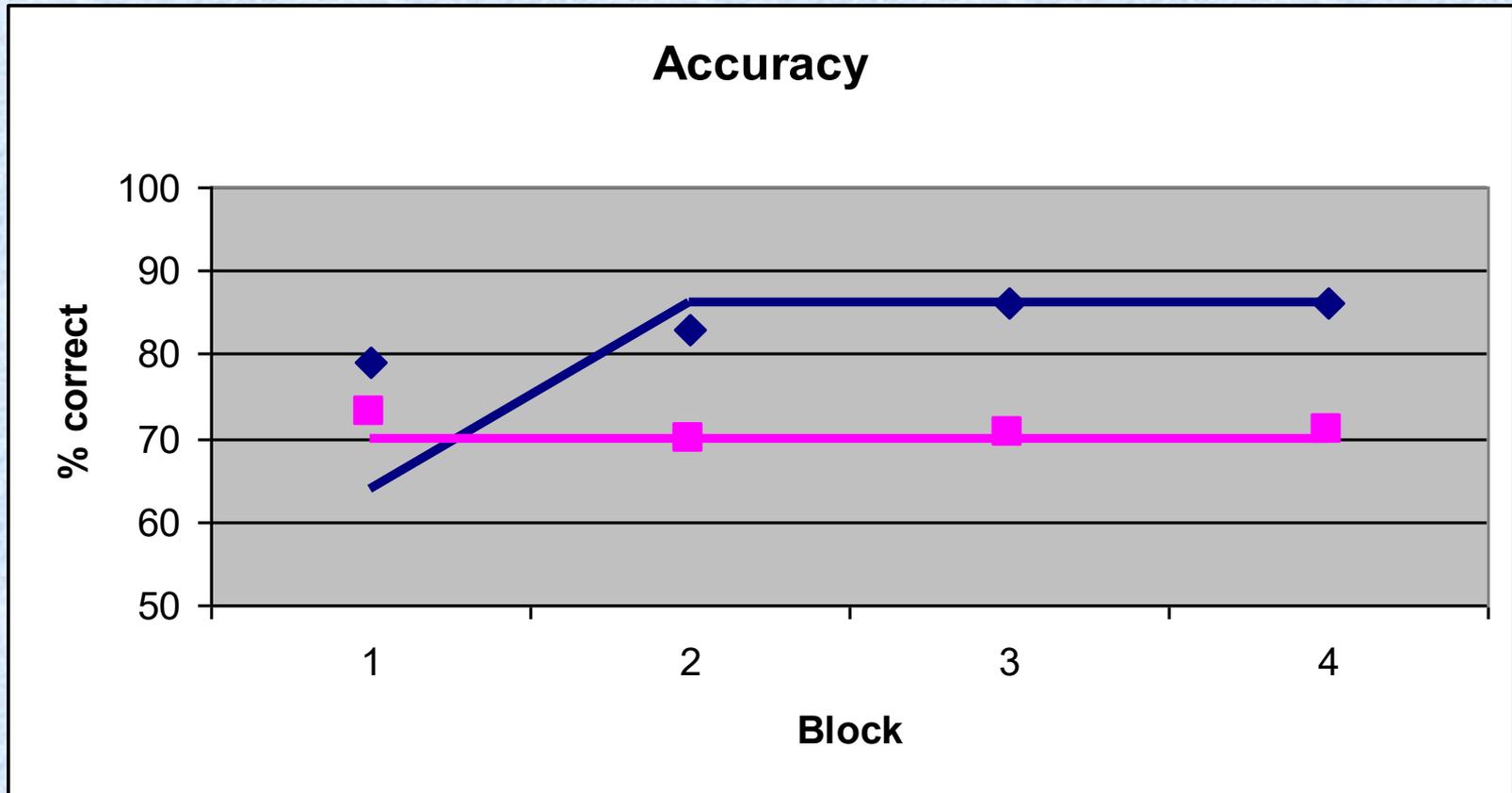


GCM best-fit (3 parameters)



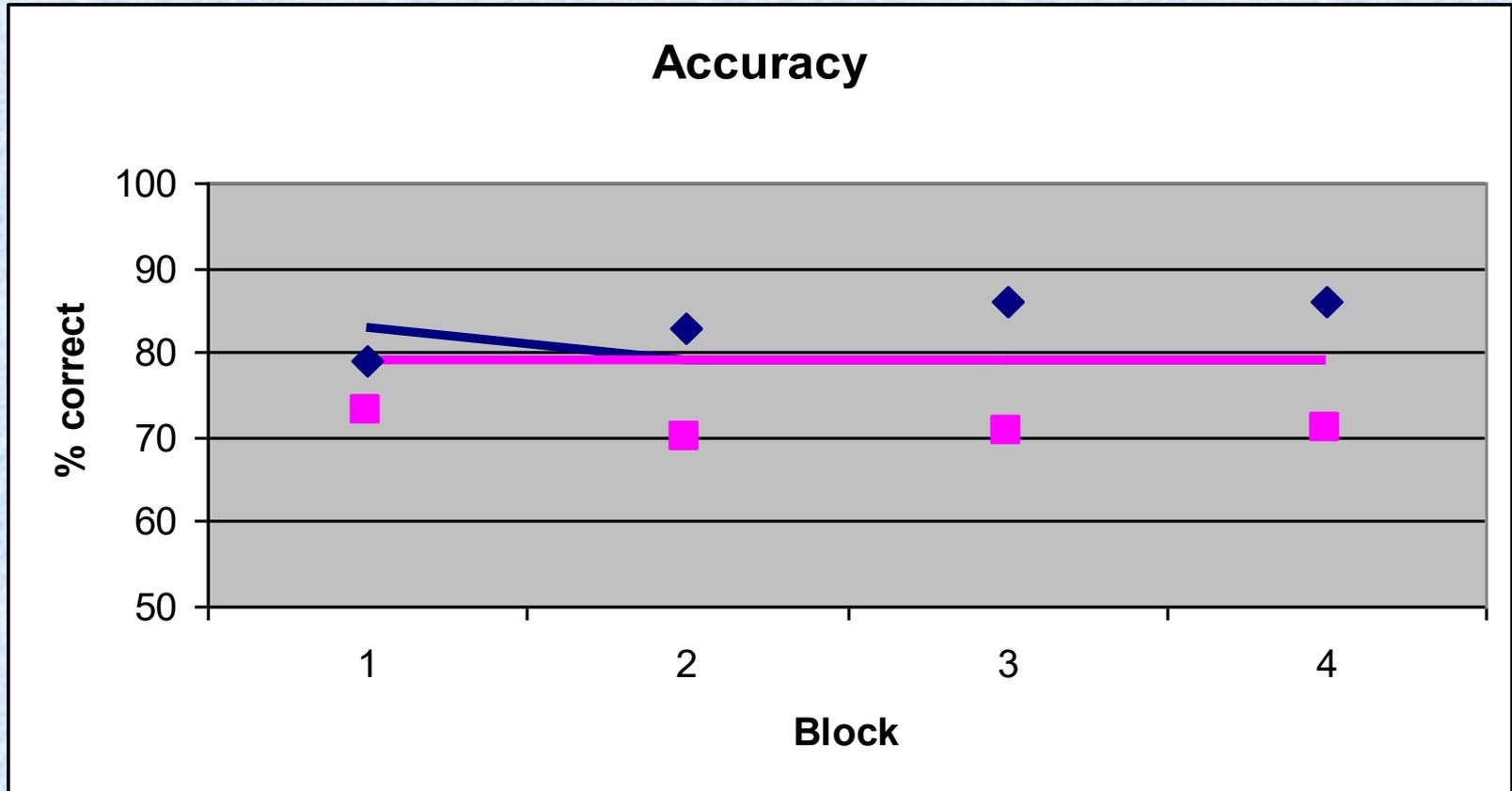
- Learning modifications

GCM best-fit (10 parameters)

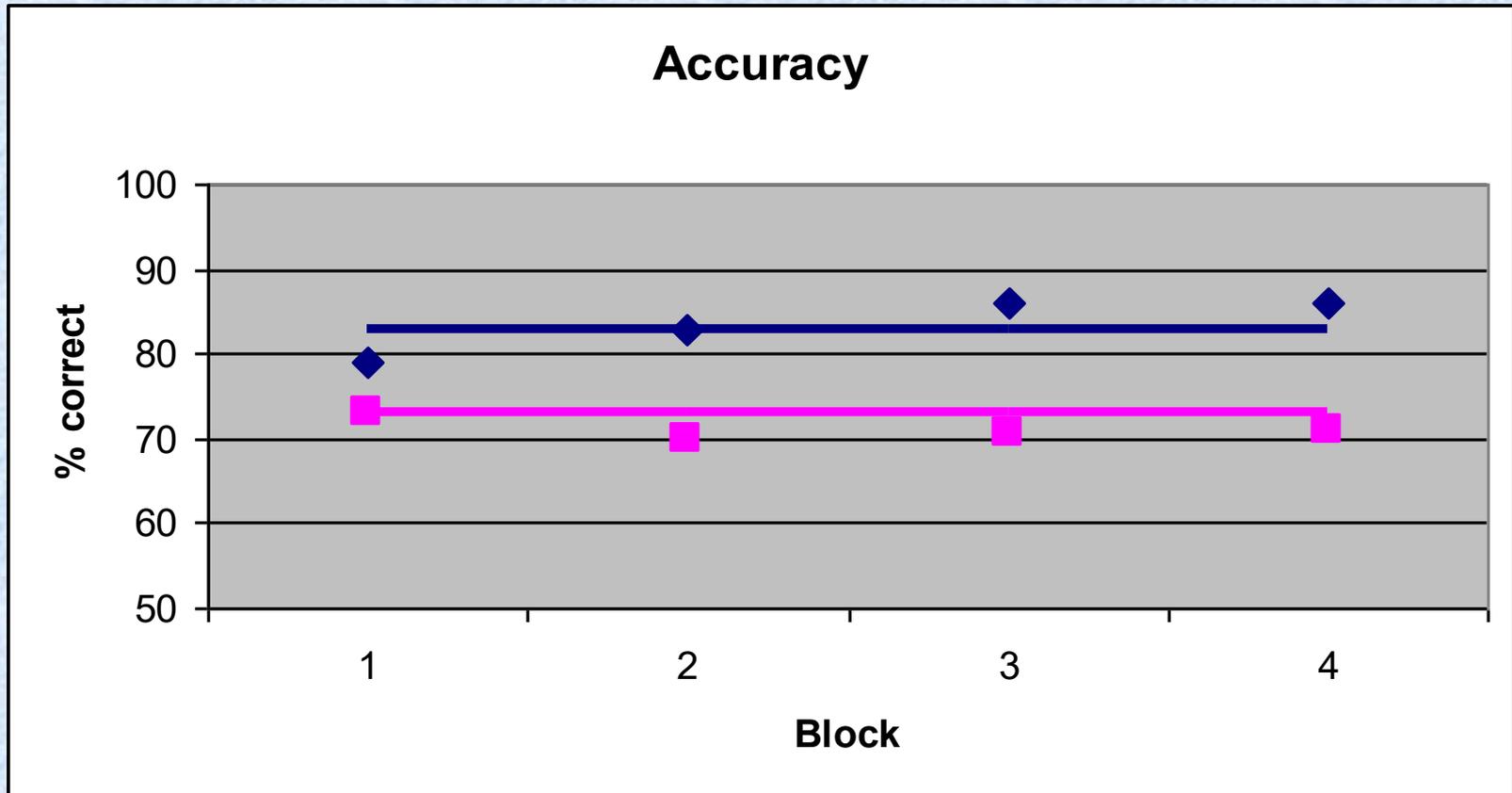


- Memory strength & learning modifications.

G&B best-fit (2 parameters)



G&B best-fit (2 parameters)



- $\beta_0 = 0$

Dual-task experiments

- Asynchronous, auditory presentation of digits in phase 2
 - Digit range 11 to 99
 - Presentation rate: 1300ms

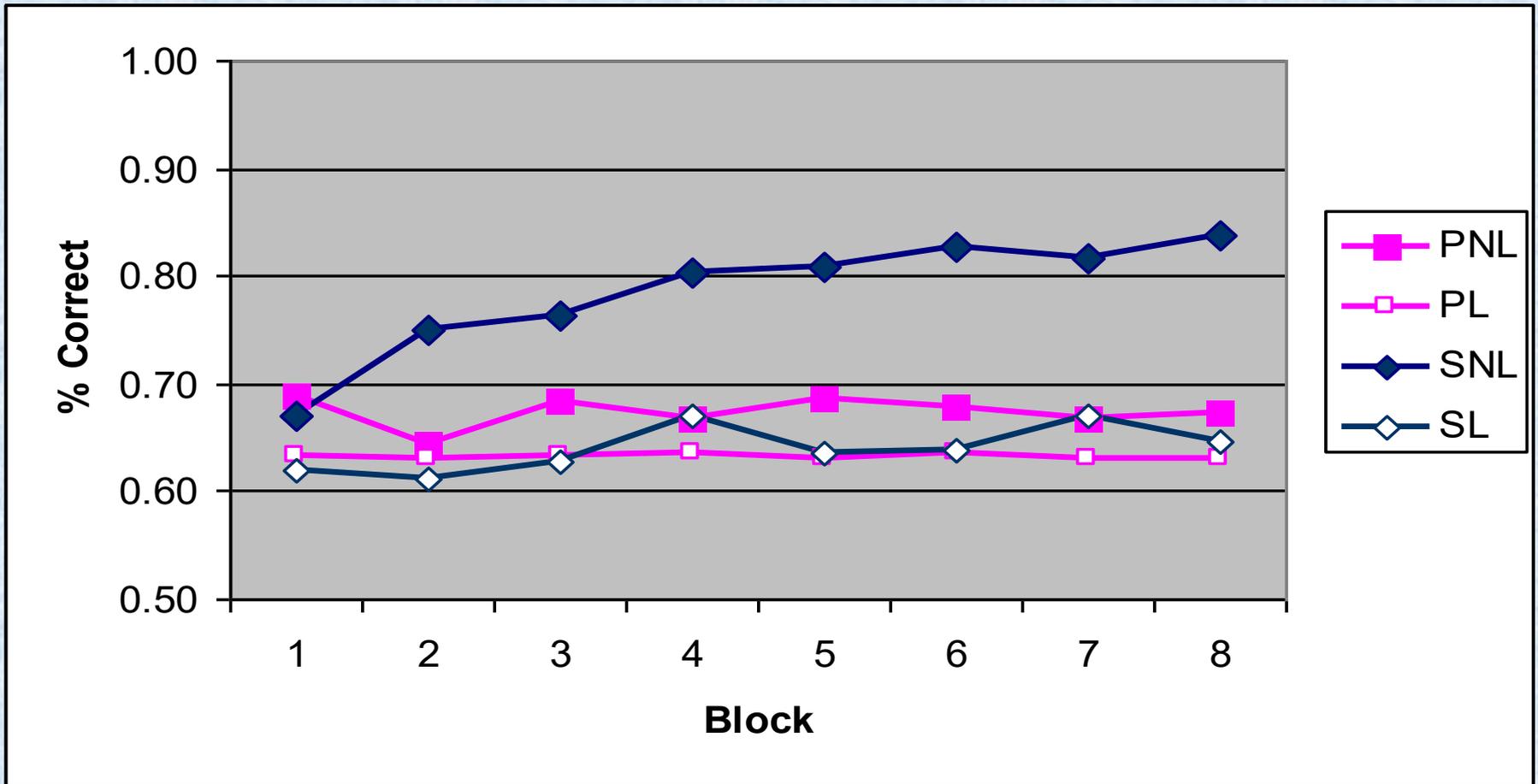
Dual-task experiments

- Load condition
 - Count number of even digits
 - Report at end of each block
 - Feedback on accuracy
 - Digit counting stressed as primary task

Dual-task experiments

- No Load condition
 - “Incidental performance experiment”
 - Asked to guess number of even numbers.
 - Feedback stresses accuracy not at all important.
 - Digit counting stressed as task for which no explicit attention should be directed.

Phase 2 accuracy



Phase 2 reaction time

