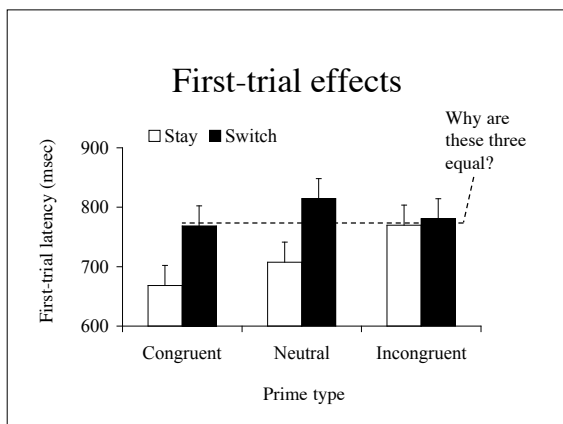
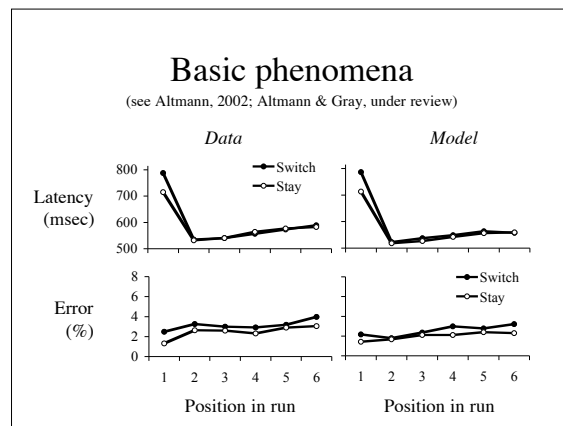
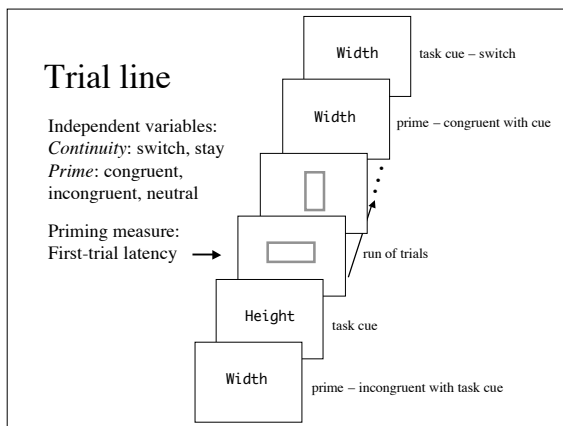


AWOL homunculus: Cue activation processes in task-switching

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Task switching

- One aspect of cognitive control
- Literature is dominated by *switch cost*
 - Performance penalty when the task switches
 - Operating time for the switching homunculus (Monsell, 2003)
 - The tail wagging the dog (Altmann, 2003; Altmann & Gray, under review)
- Control is effected by memory processes, like decay, interference, and *priming*



A homunculus account

trials	prime	task cue	first trial	
A A A A	B	A	A A A A	<i>incongruent stay</i>
A A A A	A	B	B B B B	<i>incongruent switch</i>
A A A A	B	B	B B B B	<i>congruent switch</i>

- Fooled the homunculus!
 - B prime □ switch, A cue □ switch back
- Prediction:
 - B prime □ switch, B cue □ already switched
 - Not supported

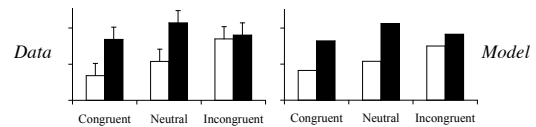
A conflicting-sources account

<u>condition</u>	<u>stay</u>	<u>old</u>		<u>task</u>	<u>conflicting</u>	<u>latency</u>
		<u>task</u>	<u>prime</u>	<u>cue</u>		
congruent	stay	A	A	A	0	1
	switch	A	B	B	1	3
neutral	stay	A	N	A	.5	2
	switch	A	N	B	1.5	4
incongruent	stay	A	B	A	1	3
	switch	A	A	B	1	3

Conflicting sources create Stroop-like interference
Lengthening the time spent activating each task cue
(threshold adaptivity; ACT-R 2000)

Conclusions

- A simple homunculus account fails to explain these first-trial effects
- A source-activation account succeeds
 - Integrated with a broader model of cognitive control



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