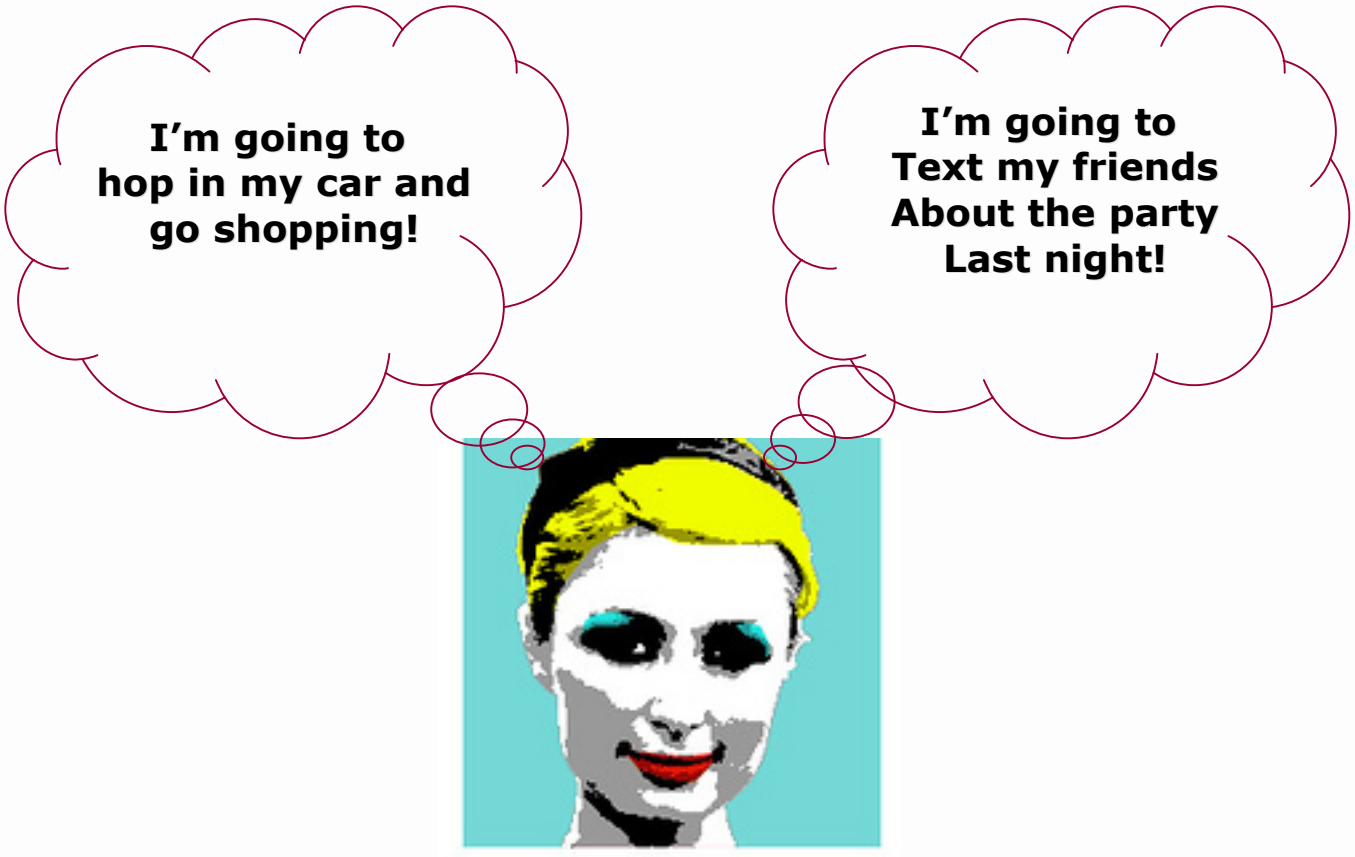
Lecture 16

Multi-tasking

- The problems of doing multiple things at once
- Task switching
    - Rapid flip-flopping between tasks
- Competition for processes
    - Multiple tasks vying for the same process
- Effects on attentional selection
    - Are we picking up important information?

Multi-Tasking

Selecting for task(s)



We can do more than one "task" at a time

Multi-Tasking

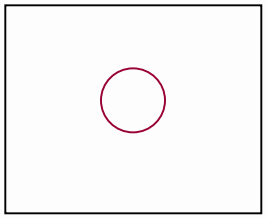
(08-16) 12:29 PDT ISLETON, SACRAMENTO COUNTY -- An Antioch woman died after she drove off a boat ramp and into the Sacramento River while she was talking on a cell phone with her daughter, asking for directions, authorities said Monday. Kathleen Gomez Collier, 47, drove her Ford Expedition into the water near Isleton around 11:45 p.m. Saturday, said Officer Michael Bradley of the California Highway Patrol. Collier was lost on Highway 160 and was trying to find her way back to Antioch, so she stopped at Vieira's Resort to get directions, Bradley said. She was on the phone with her daughter when she drove onto the boat ramp at the resort, Bradley said. She paused briefly before driving into the river. Just before the call was cut off, Collier told her daughter that her car was filling up with water and to phone her insurance company, Bradley said. Divers found Collier's body about 9:45 a.m. Sunday.

HTTP://WWW.SFGATE.COM/CGI-BIN/ARTICLE.CGI?F=/C/A/2010/08/17/BAAH1EUOCI.DTL

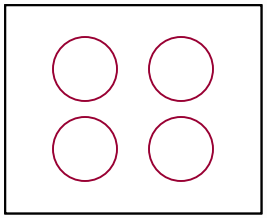
Task Switching

Does the target match the test item on shape?

Target



Test Item

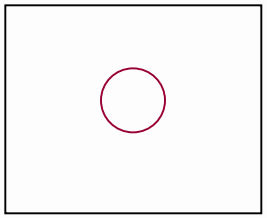


Meyers (2001)

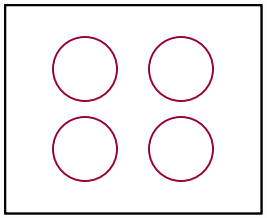
Task Switching

Does the target match the test item on # of objects?

Target



Test Item

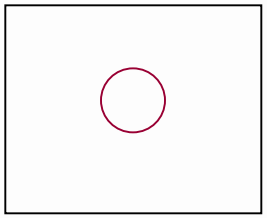


Meyers (2001)

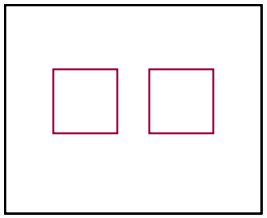
Task Switching

Now, alternate the matching rule on each trial between the object shape and the # of objects.

Target



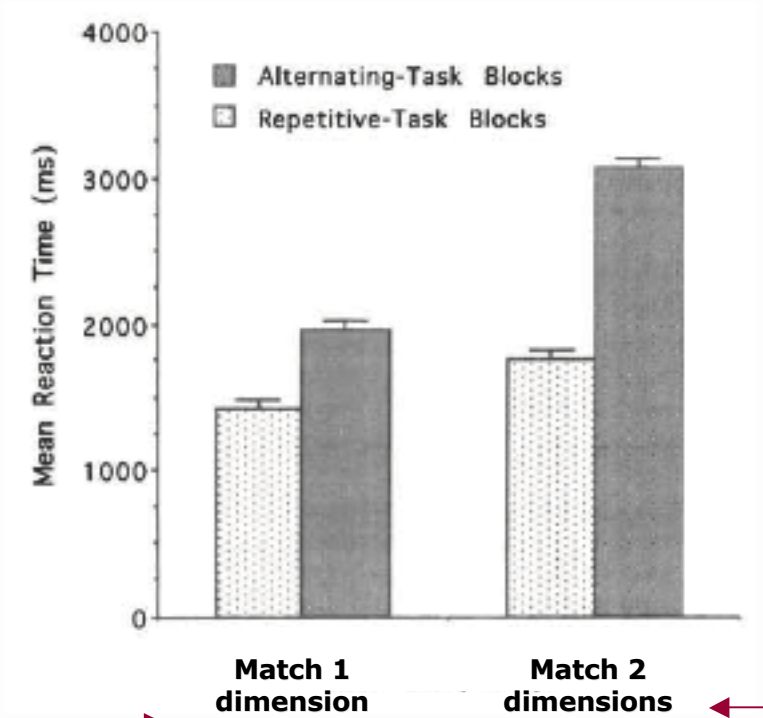
Test Item



Meyers (2001)

Task Switching

Performance drops with task switching and "complexity" of task



Lower task "complexity" → ← **Higher task "complexity"**

Meyers (2001)

Task Switching

Why does it have costs?!

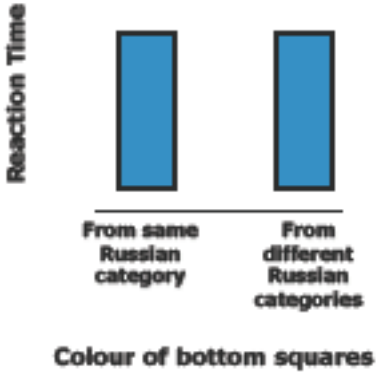
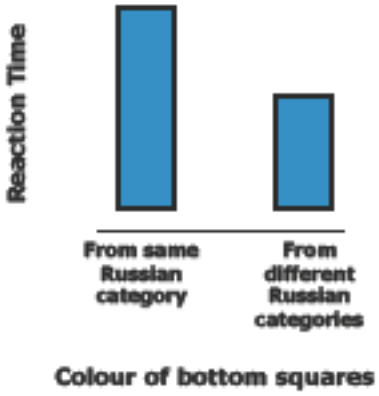
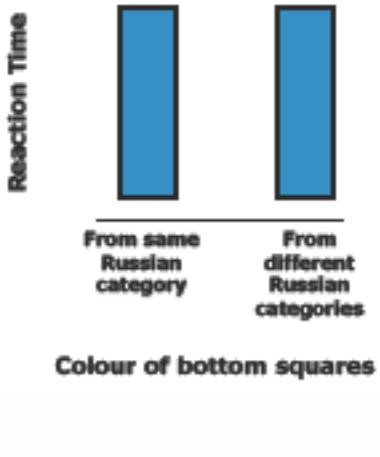
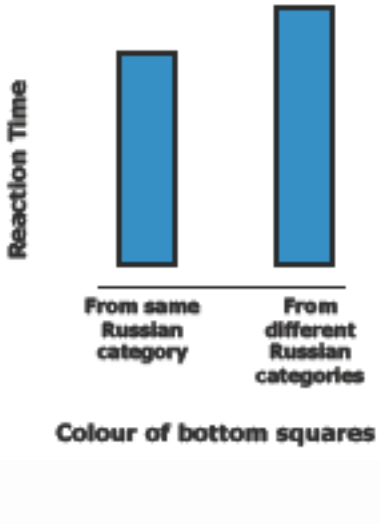
Tasks determine two things at a cognitive level:

- **What objects/object parts we attend to**
- **What processes we use or engage**

When we switch between tasks, we do two things that require time and effort:

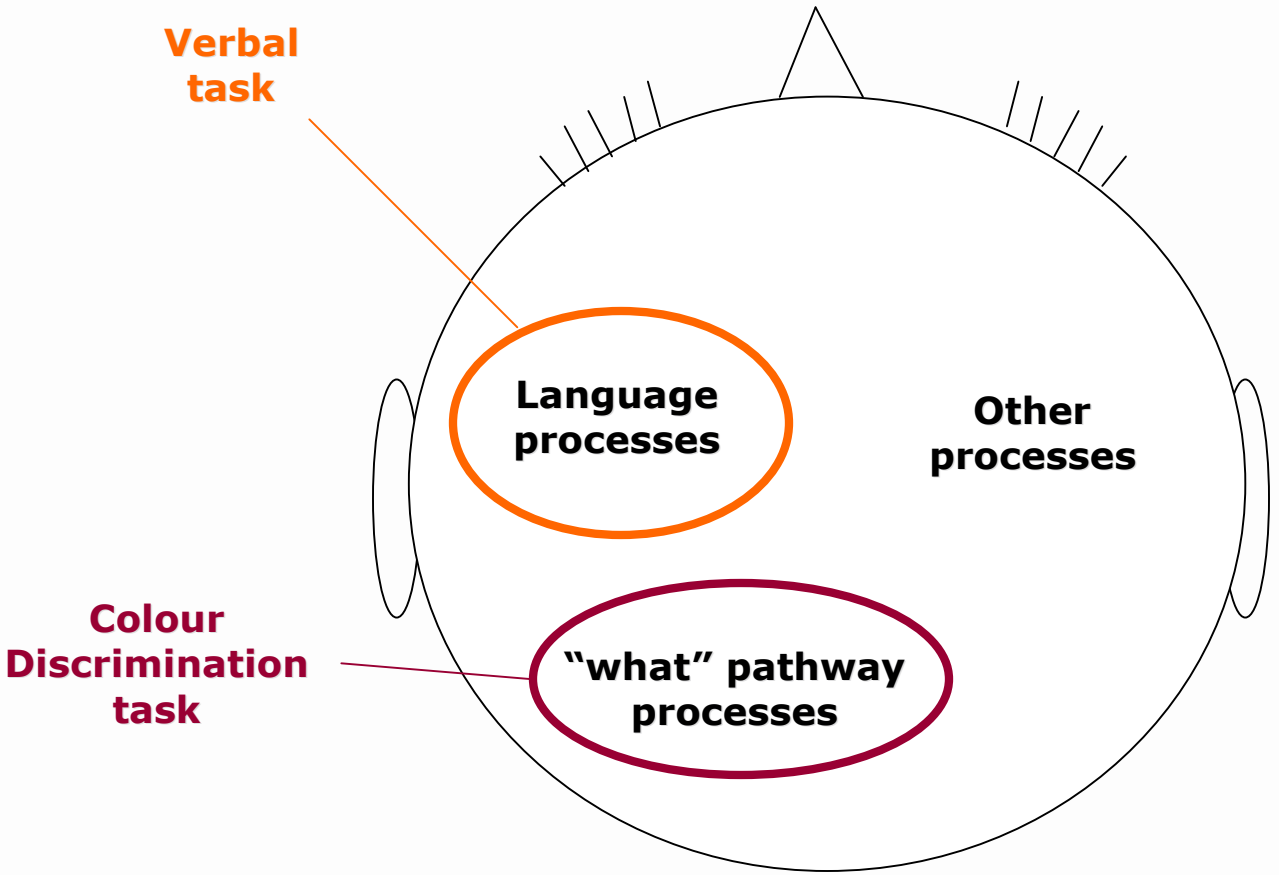
- **Reorient attention to new objects/parts**
- **Shut down some processes and start up others**

From Lecture 7

Task(s)	English Speakers	Russian Speakers
One:		
Two:		

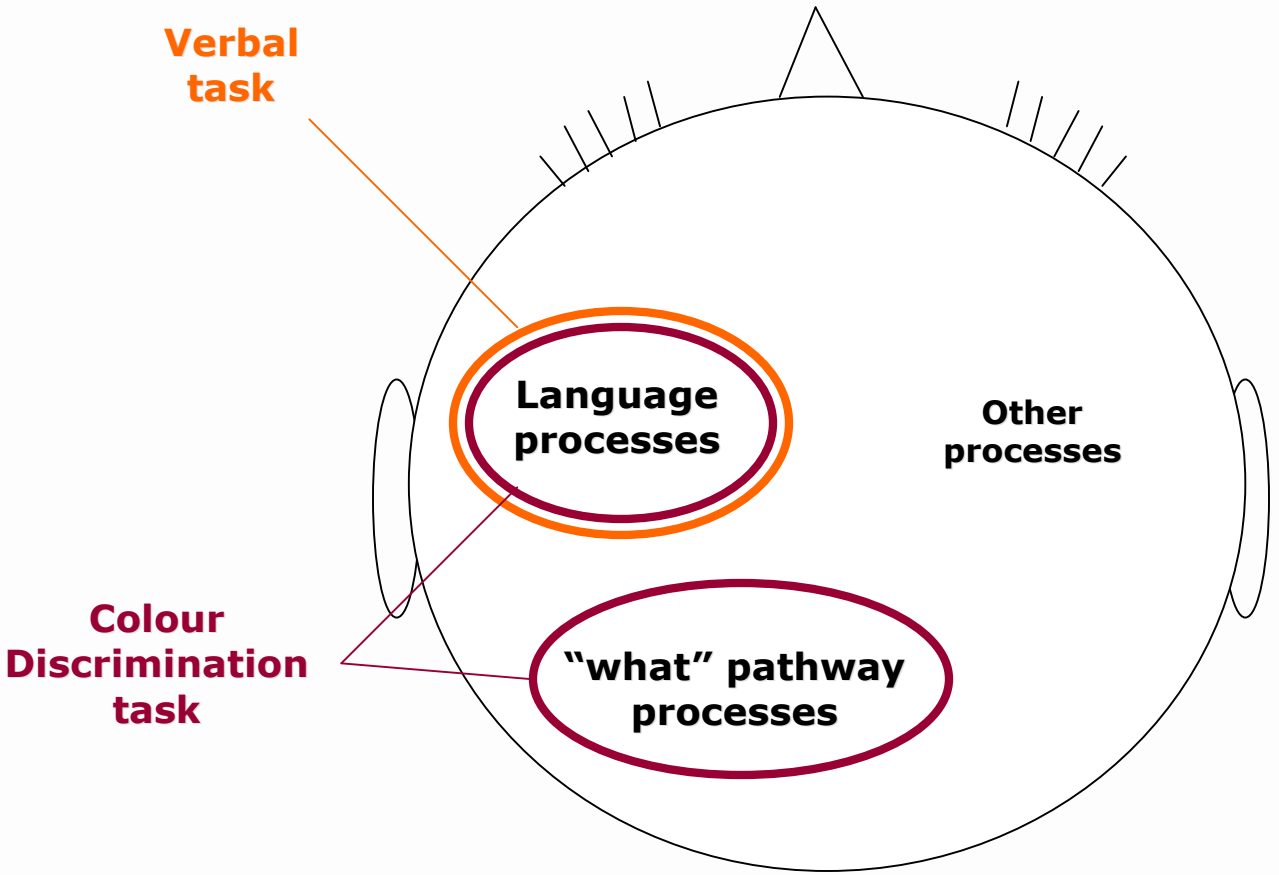
Competition for Processes

English speakers



Competition for Processes

Russian speakers



From Lecture 9

Attention to things

Expectancy, knowledge, goals, etc.

What does someone "select" for at any moment?!

Effects on Attentional Selection

12-year-old skateboarder struck by pickup truck in West Covina

By Brian Day, Staff Writer
Posted: 02/04/2010 09:35:46 PM PST

WEST COVINA - A 12-year-old boy was hospitalized but expected to survive after he was struck by a pickup truck while riding his skateboard, authorities said.

The crash occurred just before 7:50 p.m. at Sunset and Merced avenues, West Covina police Lt. Marty Sevilla said.

The initial investigation indicated the boy was riding his skateboard and texting on his cell phone just prior to the collision, Sevilla said.

He skated out into traffic, where he was struck by a southbound pickup truck being driven by a woman estimated to be 40 years old, he said.

He suffered injuries to one of his legs and his head, Sevilla said, however the injuries did not appear life-threatening.

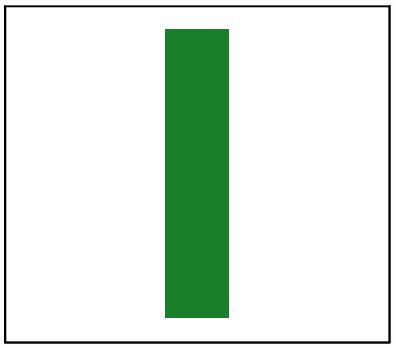
The boy was in a crosswalk, the lieutenant said, but he apparently crossed against a red light.

The driver of the pickup truck was not cited or arrested, he added.

http://www.sgvtribune.com/ci_14337406

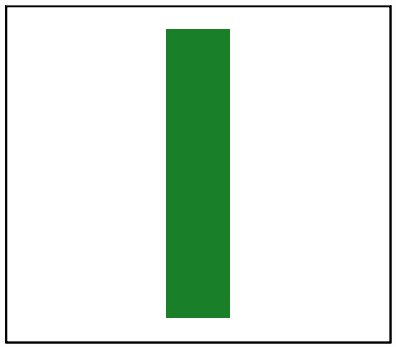
Effects on Attentional Selection

What colour is the bar?



"One task" condition

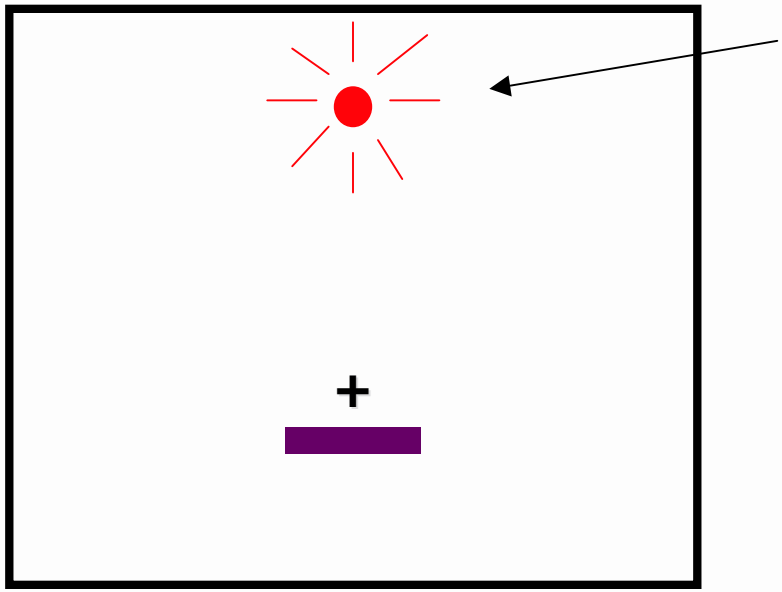
What colour is the bar, and what orientation is the bar?



"Two task" condition

Handy (2001)

Effects on Attentional Selection



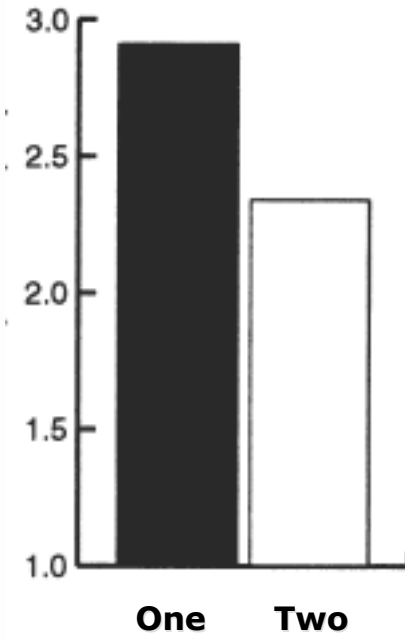
Do we pay less attention to the peripheral flash in the two-task condition?

Handy (2001)

Effects on Attentional Selection

Reduced attention to flash in "two task" condition

Intensity of the response in visual cortex to the peripheral flash of light (in μv)



Handy (2001)