

Simple and Choice Reaction Time

Response time is psychology's ubiquitous dependent variable. No matter what task a subject is asked to do in an experiment, its completion always takes time (Luce, 1968).

Can you beat Bolt's reaction time of .165?

Simple reaction time is the time it takes to respond to a single signal. An example is pressing a button as quickly as possible when a light comes on. A real-world example is a sprinter responding to the starter's gun. When Usain Bolt won the 2012 Olympic 100m, he had a reaction time of .165 seconds.



Source: infourthoy.com

Where there is more than one possible signal and response, then responding involves not just noticing which signal occurred, but also selecting the correct response. A real-world example is braking when a child runs in front of your car (driving involves selecting the correct response to many different situations). If you are driving 40 mph, and it you takes .400 seconds to step on the brake, the car travels about 23 feet before your foot even touches the brake.

Simple Reaction Time	
Detect Signal	Respond

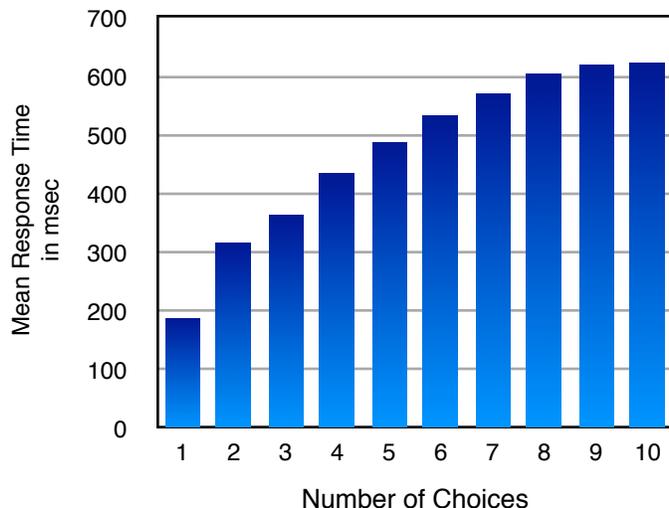
My simple RT _____

Choice Reaction Time			
Detect Signal	Classify Signal	Remember how to respond	Respond

My 2-Choice RT _____

My 3-Choice RT _____

The graph summarizes the performance of nine research participants in an early study by Merkel (1885). The graph shows how the average response time increases as the number of possible choices grows. This relationship is called Hick's Law. The increase in time reflects the increasing complexity of the mental processes that must occur in order to respond correctly. This is the basic idea behind "mental chronometry" — timing how long certain mental processes take.



References and additional reading

Hick, W. E. (1952). On the rate of gain of information. *Quarterly Journal of Experimental Psychology*, 4, 11–26.

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Merkel, J. (1885). *Philosophical Studies*, 2, 73-127.

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http://en.wikipedia.org/wiki/Mental_chronometry