

Categorization Lab Background

One of the most important ideas in the study of categorization is that people represent categories as “families of resemblance,” in which members of the category vary in their degree of typicality. This is opposed to the classical view that categories were like sets — objects were either members or non-members, depending on some strict definition. But what is “typicality” and what role does it play in the mental representation of a category? This experiment investigates the role typicality plays in the process of confirming that a given thing is a member of a given category.

In particular, we will attempt to demonstrate that subjects take more time to confirm category membership when the thing is an atypical example, and less time when it is a typical example. The independent variable is thus the typicality of the stimulus item (for the given category), and the dependent variable is reaction time (to say yes or no: member or non-member). Our hypothesis is that the more typical an item is of the given category, the faster subjects will be to judge whether it is a member of that category.

The script (“Categorize Script”) is made up of 15 categories with 10 words each (for 150 “yes” trials), plus an equal number of distractors (“no” trials), which are simply the same 150 words but each with the wrong category. The whole script of 300 category-word pairs should be presented to each subject in random order.

Rating Task

But how do we know how typical each thing is? What we need is a rating— a numeric score— for each item in each category, indicating how psychologically typical that item is in that category. Since there is no objective way to produce these numbers, we simply ask subjects to consider each item and subjectively produce a rating (on a scale from 1 to 7) of the typicality of the item in the category.

So in the second task of the lab, after you have run in the Categorization task, you should run yourself in the Rating task. Here the script consists of just the “yes” trials from the categorization script (why?), and are given blocked by category.

Analysis

The data from this experiment consists of a list of pairs of numbers: for each of the 150 items, its mean typicality rating and its mean reaction time (from yes trials only). That is, we are trying to produce a list that looks like:

(category) item	typicality	reaction time
(pet) cat	6.4	842
(jewelry) crown	2.1	954
(etc.)		

where 6.4 is the mean typicality rating given to the word “cat” for the category “pet” (taken by averaging across subjects); and 842 is the mean reaction time for this item (again averaging across subjects, yes trials only). You can also do this for just your own data, in which case the column entries are your own ratings and reaction times (not means).