

Chapter 8 nb: Implicit measures of the strength of associations between constructs in memory

Researchers are sometimes interested in demonstrating that one construct (word, concept, etc) is strongly related to another construct in memory. In other words, that activation of one construct leads to higher likelihood of activation (also called increased accessibility) of another construct.

We can see this sort of thing in “free association” where you are given a word and asked to say the first word that pops into your mind. What “pops into your mind” will probably be the word that is most strongly associated to the “prime” word (prime word is the word you are given first and asked to respond to). For example, if I say “salt”, what is the first word that pops into your mind?

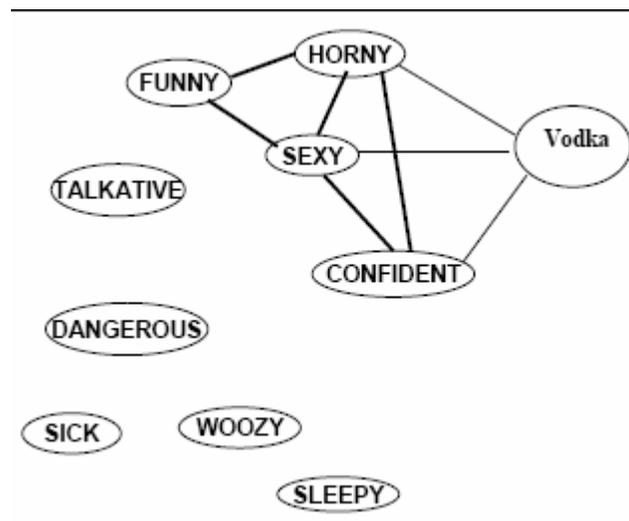
Imagine walking into an office and seeing a gun on a table. Just seeing a weapon can cause you to act aggressively. Researchers call this The “Weapons’s Effect”. The mere presence of a weapon can cause one to act aggressively. What causes this effect? One explanation for the “Weapon’s Effect” is that when one merely sees a weapon, other closely associated constructs in memory become activated. Notice the hypothesized memory network at the right.

This activation may be sufficiently strong to influence behavior. Constructs may become strongly related from past experience or general knowledge of the word. For example, it is more likely that “gun” has mostly been associated with aggressive constructs (kill, hurt, etc) than it has been associated with non-aggressive constructs (love, peace, etc). So the activation in memory of “gun” makes the activation of “kill” more likely. This activation can occur at a non-conscious level or at a conscious one. If researchers want to activate a construct at a non-conscious level they would use an “implicit” priming technique (in other words, expose you to the word or construct without you being aware that the exposure has anything to do with anything, such as what might happen if you just noticed a gun and thought nothing more about it). We could even expose you to a word (construct) so quickly that you don’t know that you’ve seen it.

Aggression Concepts



Researchers have also demonstrated that the strength of memory associations is also relevant to college student drinking. Heavy drinking college students say they most frequently expect that alcohol makes them brave, bold, wild (arousing effects). Not so for light drinkers (sleepy, relaxed). If it is appropriate to think of these beliefs as “information stored in memory” then we would expect that activation of alcohol constructs (beer, vodka, etc) would activate the arousing expectations in memory, at least for heavy drinkers. This was demonstrated in Dr. Kramer’s dissertation and article published in Journal of Abnormal Psychology.



How can we measure the strength of memory associations? How can we tell if some constructs are more strongly related than others?

A **lexical decision task** has sometimes been used to measure the strength of the association between constructs. As a subject you might be exposed to a series of trials while sitting at a computer. Each trial might consist of a prime word and then a target word. You'd be instructed to just pay attention to the prime word and then when the target word appears, to push a button Yes or No as to whether the target is a word or not. We know if 2 constructs (prime and target) are strongly related in memory (salt-pepper), you will be faster in deciding that the target is a word. For example, one trial has the prime word "salt" appear. You just read it silently. Then it goes off the screen and the target word "pepper" appears. You press a button as quickly as you can "yes" or "no" as to whether the target "pepper" is actually a word or not. If you can quickly decide it is a word, then the prime and target are more closely related than if it took you longer to decide the target is a word.

A "**word reading**" task can be used to measure the strength of memory associations. We could also present a prime and target and ask you to just read out-loud, the target word when it appears. We could record your reaction time. We know you'll be faster to read the word (i.e. pronounce it) if the prime and target are strongly related.

We could also use a "**modified Stroop task**". In this task you might be sequentially given a prime and target, but your task is to name the color of ink that the target is printed in. If the prime and target are strongly related, you will be SLOWER to name the ink color to the target. This is because if the target and prime are strongly related, activation of the prime causes an increased accessibility of the target. This makes you quicker at reading the target or deciding if it is a word. But your task in a modified stroop is to NOT read it. This means you have to expend cognitive resources to inhibit reading it. Think of it this way: increased activation of the target puts it on the tip of your tongue. But to ink name, you don't want it on the tip of your tongue. The more it's on the tip of your tongue, the harder (i.e. longer) it is to ink-name.

We could also use a **word-fragment completion** task. If we are interested in alcohol expectancies, (brave, bold, etc) we might prime you with alcohol beverage words (beer, vodka, etc) and then have you complete alcohol expectancy word fragments (e.g. W _ _ D). So for example, in your memory, if vodka and wild are strongly related you'd be more likely to complete the fragment as "wild" than as "wood".

Material Below is Different from that above

Mnemonics for the Peg Method

TABLE 1

MNEMONIC NUMBER RHYMES FOR 1-20

One is a gun	Eleven is "penny-one," hotdog bun
Two is a shoe	Twelve is "penny-two," airplane glue
Three is a tree	Thirteen is "penny-three," bumble bee
Four is a door	Fourteen is "penny-four," grocery store
Five is knives	Fifteen is "penny-five," big bee hive
Six is sticks	Sixteen is "penny-six," magic tricks
Seven is oven	Seventeen is "penny-seven," go to heaven
Eight is plate	Eighteen is "penny-eight," golden gate
Nine is wine	Nineteen is "penny-nine," ball of twine
Ten is hen	Twenty is "penny-ten," ball point pen