

What ChatGPT lacks: How do words get their meaning?

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Abstract:

To pass the “[Turing Test](#)” a system has to be able to talk to you indistinguishably from a normal human. Does [ChatGPT](#) pass the T-test? If not, why not? This is the “[symbol grounding problem](#).” Words have *referents* (“apple” refers to apples) and “meanings” (an apple is “a round, red fruit”). How do words get connected to their referents? and how do they get their meanings? Some words get connected to their referents *directly*, through sensorimotor category learning, by trial, error and feedback. Most words get connected *indirectly*, through words, by descriptions or definitions. Look in a dictionary and you’ll see that *most words could not be connected to their referents directly*. How would you learn what “abstract” or “anarchic” means by sensorimotor trial and error? It has to be defined for you in words. All words can be defined in words. But to learn from a definition you need to already know the meaning of the words used to define it. So you cannot learn all your words indirectly, through words. Some of them must be learned directly, from sensorimotor experience. Which words? And how many? I will describe (1) how [human participants](#) and [machine models](#) can learn sensorimotor categories directly through reinforcement learning, (2) how this can change their perception (“[categorical perception](#)”) and (3) how dictionaries can be shrunk to their “[minimal grounding sets](#),” the smallest number of words (about 1500) that can define all their other words.