Can a program that successfully translates Chinese writing into English writing be rightly said to "think"? (631)
  ◦ In the intuitive sense of the term, it doesn't seem like it
• Why does the idea of "symbol manipulation" seem to fall short as an approach to simulating human cognition?
• Similarly, in what sense does the notion of "information processing" accurately capture the essence of what is going on in the mind?
  ◦ At one (literal, and in a sense uninteresting) level, it is certainly accurate: individual neurons seem to be fairly deterministic in the way they handle input and produce output
  ◦ But does this truth extend directly to the "higher levels" of cognition? Is it possible definitely formalize the role that one or a few groups of neurons play in the "macroscopic" behaviors of an organism? (like in the way its possible to definitely determine the role of one bit in a computer program)?
• The case of letterforms and generalization (633): we are very good at recognizing novel versions of "a", but nevertheless we still fail from time to time. In some cases, one person will make the correct identification while another will not. How might we tell if these failures are "fundamental" or simply due to the fact that the stochastic processes underlying perception didn't coalesce at that particular time. In other words, what factors help determine the "temperature" of the system (655)?
• Is overspecialization really that bad?
  ◦ It depends on what your claims are
• Hofstadter's anagrams (640): he seems to believe that the subjective experiences associated with doing them (i.e. the "feeling" of letters glombing together) reflect the automatic, semi-random processes that underly the whole activity. If thats the case, then it wouldn't be too difficult to write a program that glombs a given set of letters together probabilistically (in fact I think H has already done this). It what sense is this a more accurate simulation? Why do I get the feeling its still missing something? How could we ever tell if it really is accurate in a deep sense?
• That 7 +/- 2 is an epiphenomenon (641) seems reasonable (but the notion also seems somewhat vague). That said, isn't it still useful to treat epiphenomena as real things?
• The truly hard problem is denotation (645-650). H says that "active" symbols - symbols whose character are being constantly determined by underlying stochastic processes - are what truly denote. And what they denote cannot be accurately predicted without reference to what's underneath (you can't "skim it off the top"). H wants to stress that active symbols in the brain have meaning because they are inextricably linked to many other active symbols. However I don't see how this refutes the claim that a relevant "lifeless" set of tokens do denote things to a programmed function on a computer. On the other hand, does an air molecule "denote" its velocity to another when they smash together? Its an unfortunate irony that the word "denote" is so underdefined (though H might say that its entirely appropriate).
• The hard thing to get your head around is that you can (in one sense) have absolutely no representation at the token level but then be able to "jump" up one (?) level and then all of a sudden get denotation and meaning.
• The idea that one "symbol" really denotes a space of possibilities instead of one specific instance is intriguing and intuitively nice but again underspecified (651)