CSCE 420: Artificial Intelligence

Dr. Dylan Shell
Two roads diverged in a yellow wood,
And sorry I could not travel both
And be one traveler, long I stood
And looked down one as far as I could
To where it bent in the undergrowth;

Then took the other, as just as fair,
And having perhaps the better claim,
Because it was grassy and wanted wear...
What Is a Number, that a Man May Know It, and a Man, that He May Know a Number?

Warren S. McCulloch

Lewis Carroll on abstractions

From *Sylvie and Bruno Concluded* by Lewis Carroll, first published in 1893.

"That's another thing we've learned from your Nation," said Mein Herr, "map-making. But we've carried it much further than you. What do you consider the largest map that would be really useful?"

"About six inches to the mile."

"Only six inches!" exclaimed Mein Herr. "We very soon got to six yards to the mile. Then we tried a hundred yards to the mile. And then came the grandest idea of all! We actually made a map of the country, on the scale of a mile to the mile!"

"Have you used it much?" I enquired.

"It has never been spread out, yet," said Mein Herr: "the farmers objected: they said it would cover the whole country, and shut out the sunlight! So we now use the country itself, as its own map, and I assure you it does nearly as well."
He had brought a large map
Representing the sea,
Without the least vestige of land:
And the crew were much pleased
When they found it to be
A map they could all understand.

"What's the good of Mercator's
North Poles and Equators,
Tropics, Zones and Meridian lines!"
So the Bellman would cry;
And the crew would reply,
"They are merely conventional signs!"

"Other maps are such shapes,
With their islands and capes!
But we've got our brave captain
to thank" (So the crew would protest)
"That he's brought us the best --
A perfect and absolute blank!"

the Bellman's Map from
"The Hunting of the Snark"
by Lewis Carroll
René Magritte
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Banksy
(Attributed)
The physical symbol system hypothesis

"A physical symbol system has the necessary and sufficient means for general intelligent action."

The physical symbol system hypothesis (cont)

1. Intended definition of symbols: units like <chair>, <azalea>, combined via sentences to form richer sentences.
   Why is this the definition?

2. The weaker definition has symbols like \{0, 1\}.
   Does the hypothesis mean anything in this case?
The physical symbol system hypothesis (cont)

1. Intended definition of symbols: units like $<\text{chair}>$, $<\text{azalea}>$, combined via sentences to form richer sentences.
   Why is this the definition?

2. The weaker definition has symbols like \{0, 1\}.
   Does the hypothesis mean anything in this case?


"...the world is its own best model. It is always exactly up to date. It always has every detail there is to be known. The trick is to sense it appropriately and often enough."
Sources:

Robert Frost’s Poem: http://www.poetryfoundation.org/poem/173536  
Background image: http://image.slidesharecdn.com

McCulloch Photo:  

Lewis Carroll image:  
http://s1234.photobucket.com/user/Mortskcab/media/carroll.gif.html

Hunting of the Snark: https://people.duke.edu/~ng46/topics/lewis-carroll.htm
Sources:

The treachery of images image:

The graffiti:
http://minimalillusion.tumblr.com/post/417489308/this-wall-has-been-intentionally-left-blank