

## Re: Perceptual symbol systems

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**From:** Sergio Navega ([snavega\\_at\\_intelliwise.com](mailto:snavega_at_intelliwise.com))

**Date:** 08/11/04

Date: Wed, 11 Aug 2004 09:53:22 -0300

"Traveler" <[traveler@nospam.com](mailto:traveler@nospam.com)> escreveu na mensagem  
news:aodih01eokk72albi9cfh1c5v70e778vb6@4ax.com...  
> *In article <4118d6a5\$1\_4@news.athenaneews.com>, "Sergio Navega"*  
> *<snavega@intelliwise.com> wrote:*  
>  
> *>I agree that this is what one should do, provided that one is trying*  
> *>to build a neural system.*  
>  
> *There is no other way, IMO.*  
>  
> *> But are we trying to build a neural system*  
> *>or are we interested in building an artificial intelligent mechanism?*  
>  
> *Unless you are talking about building toy robots and such, there is no*  
> *other solution than the neural connectionist approach.*

I don't see a way to support this claim, other than the suggestion  
that biological intelligences are neural. But that's not a good enough  
reason to think that *\*only\** neural systems must be used.

>  
> *>These questions are not the same.*  
>  
> *There are, IMO.*  
>  
> *>I don't think we should constrain our*  
> *>vision by looking specifically to a neural system.*  
>  
> *This is precisely it. The neural approach frees you from all the*  
> *constraints inherent in other approaches.*

Unfortunately, it adds a whole bunch of other constraints.

>  
> *>What I think is necessary*  
> *>is a more abstract vision of the processes going on inside that*  
> *>machine.*

- >
- > *If you are looking for abstractions, what could be more abstract than*
- > *signals and signal processing? With the neural approach there is no*
- > *need to talk about concrete objects in the world. The type of world is*
- > *irrelevant, as long as it is consistent.*

Signals and signal processing are far from the abstractions one may need to understand cognition. For one, signals are very close to sensory surfaces. Deep inside the brain the best level of analysis may be different and this may have important consequences to our understanding of the whole process.

A conventional computer can be said to be doing analogical processing, on a very low level of analysis. Or it can be said to be orchestrating a dazzling flux of electrons, on an even lower level of analysis. Or then it may be said that it is doing sequentially correlated logical (boolean) operations, on a much higher level of analysis. If we choose to understand computers in that last sense, then we can conceive *\*another kind\** of computer implemented by, for instance, a system that controls flows of water in tubes and bottles. Choosing the right level of analysis may have impressive consequences on what one's imagination can achieve.

- > >
- > > *Given a set of rules and a symbolic pattern, one can manipulate it*
- > > *and do something useful without ever needing to know what the symbols*
- > > *stand for.*
- >
- > *And how is the intelligent system going to come up with the rules with*
- > *which to manipulate the symbol if it has no clue as to what the symbol*
- > *represents?*

It is not necessary to "know" what a symbol represents, provided one has a good set of rules to use them. This is not to say that I support symbolic (or rule-based) systems. I prefer to choose the "method" of processing only after I understand what needs to be done.

Sergio Navega.