

Re: Universal grammar

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- *From:* Tak To <takto@xxxxxxxxxxxxxxxx>
 - *Date:* Mon, 23 Oct 2006 12:05:25 -0400
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Rob Freeman wrote:

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(and I am personally convinced that is for the same reason we have not been able to find universals of language or meaning.)

And the reason is?

Because I think there are many distributions which cannot be reduced to logic, Tak.

I am not sure I understand what "distribution" and "reduced to logic" means in the above statement.

By "distribution" I mean any pattern, like a string. By "reduced to logic" I mean the string can be produced by a set of rules.

If you mean that some (infinitely long) strings cannot be produced by a formalism with finite axioms, then it is true. There are $\aleph-1$ many of the former and only $\aleph-0$ many of the strings that can be produced by the latter, QED.

In any case, I think "a universal representation of meaning" exist, which is the collectively state of neurons in one's brain. It is just that it is not that convenient to "use".

Well, that is true in a way. The point is it now seems what we have in our heads is not a representation in the sense we have been looking for.

Obviously this begs for the definition of "representation of meaning". I submit that the only feasible definition is a procedural one, sort of like a Turing test -- namely that if you have a representation of the meaning of X, you can answer questions about X and your answer would be the same as that of some reference. For example, if you have a representation of the meaning of "bird", you would be able to answer questions such as "Can birds fly?", "Is a bat a bird?", or "Is a penguin a bird?", correctly.

In this context, I take "representation of meaning" to be the same as "representation of knowledge"; and in this sense, the state of the brain itself is a representation of the knowledge that it contains.

I understand many people tend to think of representation of meaning as a single point in an "epistemological space" of sorts. Well, one of the things that the AI/CogSci field has found out rather quickly was that this notion of meaning was an intractable one.

It is a "representation" which can represent contradictory "truths", and so is illogical (though it can be modeled by incompressible strings, like natural language.)

Well, "meaning" is not that same as "truth". I know the meaning of the statement " $1 = 2$ " and understand it to be untrue.

By "universal" people have traditionally meant something which is both logical and complete. That is what is not possible.

Not in the context of "universal grammar"(*), in which case it

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simply means "common to all languages".

(*) also the context of the original post.

I don't see how this is related to Goedel's Theorem.

Think of Goedel's Theorem as a proof some strings are incompressible. If some strings are incompressible, it will not be possible to produce them by rules, which means they will not have a (single, complete) logical description.

If you mean "cannot be described by a system with a finite number of axioms", then yes.

Without Goedel's proof you would not be able to have contradictory "truths" in a single representation.

Without Goedel's theorem there are still a number of equivalent theorems in mathematical logic -- but it is neither here nor there. Again, human knowledge is not the same as "truth". The entire body of human knowledge is generated by a finite number of brains each with a finite number of neurons(*).

(*) That is, if you buy into Church's Thesis instead of Penrose's idea of "Quantum Computing". If you think otherwise than there is really very little left for discussion. :-)

would be logical, and Chomsky, you, and I, would all be talking to our computers already.

That is of an entirely different issues -- that of engineering practicality.

I have the impression that you are conflating several different issues here.

Tak

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