

# Re: Universal grammar

---

*Source:* <http://sci.tech--archive.net/Archive/sci.lang/2006-10/msg01547.html>

---

- *From:* [haberg@xxxxxxxxxx](mailto:haberg@xxxxxxxxxx) (Hans Aberg)
  - *Date:* Mon, 23 Oct 2006 12:24:57 GMT
- 

In article <1161593335.080182.129420@xx>, "Franz Gnaedinger" <frgn@xxxxxxxxxx> wrote:

There is no problem dealing with that, as in metamathematics, one introduces the notion of a theory with equality.

Well then, let us go a step further. Mathematics relies on the basic formula  $a = a$ , while nature, life and art follow Goethe's formula "all is equal, all unequal ...". Mathematical logic is entangled with every part of the world, while covering only half of the world. You must always secure it against the wilderness of the equal unequal.

One important (meta-)scientific development coming after Goethe, was moving away from positivism, where one believed one would develop theories identified with reality, towards merely describing theories. Developments in physics such as QM, GR, etc., forced that development.

For example one is not allowed to divide a number by zero. Why? When I asked my teacher, he knocked me on the head with a large iron key. Not a very mathematical argument, I thought. Years later I found a logical answer: when I divide a number by zero, I get an infinite number as result. One times infinite equals two times infinite, three times infinite, and so on, hence I am in the realm of the equal unequal, forbidden for mathematicians. The division by zero, one may say, is a "wormhole" between mathematics ruled by the basic formula  $a = a$ , and the real world, where  $a = a$  equals  $a \neq a$ .

So, if one should make  $1/0$  mathematically usable, one will have to introduce some axioms, and show consistency. Under some circumstances, this might be useful, but mostly not.

But you see the principle: one does not speculate over what does " $1/0$ ", but merely develop s a formal description of it.

## Re: Universal grammar

Also language follows Goethe's formula. Language is full of vital ambiguities. They make words resound, store plenty information on life and nature, and allow us to speak on more than one level. You find them everywhere, even where you would expect them least. You may have read parts of Homer's *Odyssey* in school. What did you make of beautiful Helen, allegedly the cause of the Trojan war? You may consider her a historical figure, or, more probably, a fictitious woman. But no, she is no woman. In my opinion, Helen symbolizes the then rare and precious metal tin, which came from the Ore Mountain and from Central Asia and was bound to pass Ilium, where the Trojans laid hands on it. Her glittering long robes she made herself are shiploads of the glittering tin ore cassiterite. Her thread is tin wire, cut from tin foil. Her husband xanthos Menelaos symbolizes copper, the color xanthos covering all shades of copper ores, yellow, brown, red. Their daughter, lovely Hermione who resembles golden Aphrodite, symbolizes the alloy bronze, of a golden shine when freshly cast ...

In fact, most ancient Greek mythology have foundations in reality, either as symbolism, or a distortion of reality. For example, the story about Jason and the golden skin describes a real life Greek prince who went from Greece through the Bosphorus, to Armenia, where sheep skins still today are used for washing gold. To pay for the trip, one bought beautifully dyed skins at some Greek island. The story about Achilles' heal tells the dyers to not leave a spot where the skin held while being dipped. A certain percentage of the babies are born cyclops, but they are still-born. And so on.

Language and poetry are full of ambiguities, on every level.  
Drive them out and you kill them both.

Ambiguity just mean "multiple possibilities". So keep track of them, to the extent needed for the task at hand. If you take a sentence like  
Time flies like an arrow.  
at one level, there will result in multiple ASTs. If one wants to pin down word ambiguity, one will have to develop the logical model further, resulting in even more splitting.

All you can possibly achieve, in my opinion, is to reduce ambiguity in mathematical logic.

This is not really ambiguous.

## Re: Universal grammar

In order to get a more universal grammar for your software. Some clever compromises.

The situation may change with neuronal networks – genuine neuronal networks, not just simulated ones on Von Neumann computers.

These are already around, up and working – in the form of humans. :-)

I could imagine that such a machine of the near (?) future may allow to find a path from A to B – say, in the case of a mathematical problem –, whereupon a classical computer may broaden the pathway, miraculously found by the network, into sort of a highway.

More seriously, if one wants to develop machines, that is usually because one wants to do something different from what humans already can. Or at least, machines do it differently.

Sorry if I talk nonsense. I am a computer moron. But the discussions about programming remind me of discussions of turntables in the late 1970s: how can one possibly improve them? And all of a sudden there were CD players that made all those endless discussions superfluous.

My advice: prepare yourself for a new era, be open for new possibilities, adopt your work and reasoning to the future task of accompanying neuronal network computing, and don't hope to ever free language from ambiguities that make it so rich and lively! Ambiguities are emanations of the formula  $a = b$  equals  $a \neq b$ , and thus testify to the logic of nature and life.

Well, progress in AI has been slow over the last couple of decades, and there is no sign of a quick change there. The more powerful PCs available nowadays may though speed up developments.

Other forms of computing appear on the horizon as well: quantum computing, DNA computing.

For something like that to take off, it really needs to go into mass-production first.

## Re: Universal grammar

Also they may once be embedded in classical computing, and each one will excel at a different task. Consider how the brain works. Vision occupies a third or even half of the brain and involves thirty areas, each one performing a special task. Also grammar of the future may be a combination of grammars: classical grammar, generative grammar, Rupert Ruhstaller's grammar of functors and arguments, visualized in budding circles (the only grammar I know that finds meaning in seemingly free word order), and so on.

I think one will have to think carefully at the objectives at hand, not just trying to combine inputs.

Grammar of the future will achieve more than artificial language of today, however, you can never really tame language.

The problem is really trying to cope with human cognition. It does not really matter what the human means of expression are, if it now is human language, math, or something else.

Consider what language is. Here you are with my definition from 1974/75: Language is the means of getting help, support and understanding from those we depend upon in one way or another ..

A philosopher mentioned a funny story about a kitten getting stuck into a tree. Then the mom climbed up the tree, demonstratively past the kitten, and then down again. So after awhile, the kitten realized: so that is how to do it, and climbed down. So cats, by your definition, have a language. :-)

— and every means of getting help, support and understanding may be called language, on whatever level of life it occurs. What is special about human life? the use of artificial things we made ourselves. What is special about human language? the use of words, which name things and make us see a world full of things ... The more things we use, the more specialized our lives become, and the better we must be able to explain our specific situation before we can hope to get our needs satisfied and our wishes fulfilled, and so it comes that most of our language describes the world, nevertheless, language serves needs and wishes.

You can never really tame language. Already Rupert Ruhstaller told me that. Speakers will always find a way to get around

## Re: Universal grammar

rules. You can perhaps deal with some tame forms of language, but you can never tame language per se. I say this to the computer people, and to the grammar fans in sci.lang as well.

The idea is not to tame human language, but merely to get some aspects of it into the computer. This is surely possible, as it is possible to write stuff like this. :-) So one just attempts to upper the simple character representation somewhat.

—

Hans Aberg

.