

# Re: Universal grammar

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In article <1161934779.658332.265010@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>, "Franz Gnaedinger" <frgn@xxxxxxxxxx> wrote:

Back to language. What do you think of Rob Freeman's approach of a grammar based on examples instead of rules? I find it promising. That is the way I proceed in English. I don't consult grammar books, I rely on songlines and sentences I remember.

When I learned language, one focused much on grammar and spelling, but nowadays, one has realized that it is important to practice, practice and practice. The same as always has been known in say music performance.

Prepositions are a problem of mine:  
in the airplane? on the airplane? on an island? in an island?

I think linguists say that the treatment of prepositions is quite arbitrary in European languages.

Dictionaries offer some examples, but never enough for me, so I began to google the groups for the correct use of prepositions, for correct grammar, also for slang words I find nowhere else. A billion of messages are my grammar book and dictionary. Examples instead of rules.

I think this works in humans, because with sufficiently experience, they can build rules intuitively. This will not work with computers, or at least not as easily, even with AI, because they have very different experience.

One picture that comes to my mind is AI and chess, where the strongest computer programs on the fastest computers are nearly abreast with the strongest humans, the grandmasters. One knows pretty well what makes a

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strong player: the ability to scan forward. If a "ply" is a half-move, a chess grandmaster has the ability scans some 10–15 plys ahead, I think. The human needs only to scan a couple of hundred positions in order to achieve that. The computer needs to scan perhaps a million times more positions in order to achieve that. How is it possible for a human to scan just a fraction of positions to achieve the same or better result than a computer?

So I think this is because the human will deliberately choose moves where most positions are bad, thus cutting down radically one the needed possibilities. This can be achieved via an opening theory. The computer does not have that ability of intent. One might also note that when computer programs get stronger, humans can play against them in order to learn the playing style. But a computer chess program cannot become much stronger in by merely running on a faster computer, because the search is exponential. Computer programs need humans in order to become significantly stronger.

So there is something similar going on the parsing of languages.

I wished there was something similar for mathematical purposes, an easily searchable electronic library of numbers and number sequences, together with the algorithms that produce them. Euler's memory for everybody, so to say.

It is difficult because of how the human brain works. It inputs data fairly exactly, but it is immediately filtered through cognitive processes before put into memory. This is why, one believes, some with a certain types of brain damage where only this cognitive filter has been damaged to be disabled, can develop seemingly amazing abilities, like absolute pitch, being able to instantly perform a piece that has been heard only once, and such.

Tools don't replace the human hand, they prolong the arm.  
Computers don't replace the human brain, they enlarge the mind.

One uses to say that computers do it differently. They are good at higher speed exact computations, but poor at understanding structure, that is, cognition. This is also true about the proofs my program can do: it easily zips through low level, axiomatic proofs, which humans find very hard to do, but it can't understand anything structurally more advanced; proof searches are exponential. Therefore, I am opting for a system where the human can enter structure, where the program can support by scanning through all possibilities and check those gory details humans rather do not want to bother about.

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