

Re: Steps towards writing a computer algebra system

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Wow, what an undertaking.

My suggestion is that you write the actual system itself inside Mathematica. This may sound a little funny, but the reason I suggest it is because you're doing all this for your own educational purposes; and if you don't want *any* less-than-insightful issues to deal with, then sticking with a system as unified as Mathematica will guarantee you to not have any.

Now, of course Mathematica's built in functions were created to shortcut all the work you are trying to actually put yourself into. But you don't have to use any of these advanced built in functions at all. In fact, the core of Mathematica itself turns out to be easily idealized with sequential substitution systems. you cant really go much lower than that.

And you don't need go that low to Implement something like a CAS system within mathematica, just like you dont need to use all those high level built in functions.

You can also do a more rigorus analasys of what is actually going on. You can find out why some implementation works better than another one. You can't do a more thurough analysis than what you can do in Mathematica.

I've seen people embark on big projects like this and spend so much time on unimportant details that they ditch the whole thing before learning what they wanted to learn. I think the key to really pulling stuff like this off for fun is in using a system like Mathematica.