

Re: Simplification: science or heuristics?

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Science or heuristics? Both.

1) simplification is in general undecidable
(see <http://mathworld.wolfram.com/RichardsonsTheorem.html>
and

Caviness "On Canonical Forms and Simplification."
J. Assoc. Comp. Mach. 17, 385-396, 1970.)

2) simplification is context dependent, i.e., what is the simplest form of an expression depends on what are you using the expression for.

If you want to try a top-down approach to the bibliography, see:
<http://www.cas.mcmaster.ca/~curette/publications/simplification.pdf>

In practice, the standard simplification procedure of you CAS should be the last resort. You should try other rewrite functions first, or build your own combination of transformations starting from:

- the form of the expressions you get
- the form of the expressions you expect

That's easy for me to say :)

If you can be more specific on the problem you have and the CAS you're using, then maybe someone out here will be able to give you a more specific advice.