

# NP with oracle machines

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Hello,

I have a question pertaining to the complexity class NP and oracle machines.

Suppose you are dealing with the class NP relative to a particular oracle machine, say one for SAT or TQBF. If you wanted to actually physically compute membership to a language that belongs to this complexity class, what would you have to do?

For example, if I am dealing with a language/decision problem that is simply in NP, I could map the instance of the decision problem to an instance of SAT, and then try to calculate the solution in exponential time.

But if I am dealing with a language in  $NP^{TQBF}$ , I don't know how you would actually compute whether or not an instance is in the language or not. Could you still end up working with an instance of SAT? Would you have an instance of SAT and then end up needing to calculate a single instance of TQBF?

Anyone know the answer to this? (Did I make the question clear?)

-Phil

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