True Name

Advanced

- Humankind seems to have wondered about "true names" for quite some time in many cultures. A true name is the (always rather secret) name of a thing or being that expresses, or is somehow identical with, its *true* nature.
  - Behind that somewhat strange notion hides the philosophical question whether language is a system of arbitrary signs or whether words have an intrinsic relation to the things they signify. **Socrates** wondered about that.
    If you believe in true names, it is only one more step to come up with the sacred **true language** that is not open for everybody. It is either secret, lost or hidden. In this language *all* things have their true names. People may have secret "true names" too, and only a few select friends are allowed to know the true name.
    True name "philosophy" was and is popular. Modern phantasy literature, from "Lord of the Rings" via "Earthsea" to "Eragon", is full of true name or secret language stuff.
  - Knowing the true name of something meant to have power over that thing, making it more prone to do your bidding. Knowing the true name of your spouse, for example, would be really helpful. That's probably why we use different names for the Beloved One when we want special favors from her / him. We hope to happen on the true name. You might try the following names, they are given in the true language: Bärchen, Biene, Engel, Gummibärchen, Hasi, Honigbienchen, Knuddel, Kuschelbär, Liebling, Mausi, Schatzi, Schnuckiputzi, Spatzi, Zaubermaus, Sweetheart, ..would you come to bed?
    Knowing the true name of your spouse is great. Knowing the true name of God might be better - on occasion. It is thus no wonder that a whole mythology developed around the true name of God, especially among those without benefit of girl friend. For example, the true name of the Hebrew God was considered extremely potent, and the ancient Jews believed that its invocation would confer tremendous power upon the speaker. Same things for other Gods and all kinds of demons. ("Bei euch, ihr Herrn, kann man das Wesen, Gewöhnlich aus dem Namen lesen, Wo es sich allzu deutlich weist, Wenn man euch Fliegengott, Verderber, Lügner heißt." Goethe, Faust I, of course).
  - The way it works is made clear in the fairy tale "**Rumpelstiltskin**". Knowing the name of that cobold gave the fair maiden all the power she needed. Just imagine what she could have done knowing the true name of some God!

- So what's the **true name of iron** / steel? Here it is:

$$H\psi = E\psi$$

H = Hamilton operator for an atom with 26 electrons
ψ = wave function of iron
***E* = total energy of the electrons in the iron atom.**

- Solve this so-called **Schrödinger** equation (the solution gives you ψ and **E**) and you know all about iron that there is to know. Well, almost. The Schrödinger equation is actually a simplified version of the **Dirac** equation (a bit more difficult to solve) but good enough for starters.
  - What? You can't solve this equation and thus gain power over iron? What do you kids learn in school nowadays? Well, remember the first law of economics? You must put some effort into it. Nothing is for free.
    You might be better off to gain some power over hydrogen first. Here is the **true name of hydrogen**, completely spelt out:

True name of Hydrogen

$$-\frac{\hbar^2}{2m}\left(\frac{\partial^2\psi(r)}{\partial x^2}+\frac{\partial^2\psi(r)}{\partial y^2}+\frac{\partial^2\psi(r)}{\partial z^2}\right)+\left(\frac{e^2}{4\pi\epsilon_0 r}-E\right)\cdot\psi(r)=0$$

with $r = (x^2 + y^2 + z^2)^{1/2}$

- Nothing but a second order partial differential equation in regular space and time. Kindergarten stuff. Far easier to solve than the one for iron; pencil and paper (plus a few years of studying advanced math) will be sufficient.

If you know the true names of the atoms, you can go now for the true names of all you can do with atoms, i.e. making a sword blade. The equations just get (a hell of a lot) more complex. If we look, for example, at the bunch of atoms that hang together to form you, I can't even write down the detailed equation anymore since it simply takes too much time. And I certainly can never solve it during your lifetime (which might be short because there is strong tendency to murder you instead of calculating you). There is also no reason to even try, you're just not all that interesting (sorry).

- However, we are getting close to spelling out the full true names of simple one-cell organisms like certain fungi. Bankers will be next on the list; just think of the power that will give us!