When we try to compare intelligence in two radically different organisms, we can look at what results they achieve, or we can look at how they do it. The Turing test looks at the former; some of its detractors insist that only the latter counts. Yet perhaps there is just no room for debate about ways and means once we’ve answered the first question: maybe those tricks could be performed only by being intelligent. On the other hand, perhaps there are only a few basic mechanisms at the ground level of implementation. (Whether you are building a cat or a cathode, you’ll have to build it out of molecules.) Neither the most abstract, top-down, nor the most concrete, bottom up approach is going to help us to tell when machines are intelligent in the same sense as we are. We need to look at the middle level of how human goals are set and “rationally” achieved. Emotions contribute in half a dozen crucial ways to both the setting of our goals and their rational pursuit. But each of these contributions of emotions to our capacity for rational thought and action carries a specific cost in potential irrationality. To be intelligent like us, machines will have to have those emotions that also make us stupid.