Intelligent Goal Directed Systems

By Dennis J. Darland

October 4, 2013

Copyright © 2013 Dennis J. Darland

There is a affinity of the views that I wrote yesterday in http://dennisdarland.com/philosophy/determinism_vs_free_will.pdf and those of Karl Popper. I started thinking to try to find what might be lacking in those views. As I remember Popper, the problem seemed that a deterministic system could not be intelligent because there was nothing to distinguish when it acted correctly from when it did not. So it was not intelligent. So I started thinking about what was required for an intelligent system. My ideas are influenced a lot by my recent reading in cognitive science see http://dennisdarland.com/my_reading/index.html . Especially Jerry A. Fodor. Once I thought about that things quickly started to fall in place.

There seem to be needs for the following:

Sensory input system. It receives input from the immediate environment and filters and translates to immediate beliefs.

Situational beliefs. Beliefs about your current situation which are changed according to your situation.

More permanent beliefs, but which may change over time.

Theories which allow you to infer new beliefs from other beliefs.

Desires which contribute to inferring desired actions from beliefs.

Output mechanism which translates desired actions to actions.

Linguistic input system which translates linguistic input into some sort of belief.

Linguistic output system which translates beliefs into linguistic output.

Inference system which infers new beliefs from prior beliefs – including new theories.

I think the reason Popper is convincing is that you imagine a system responding the same (wrong) way to some input. In a way that does not achieve the desired result. Insanity is doing the same thing and expecting a different result. The key to an intelligent system is not that it already has a vast knowledge, but that it can learn and modify is behavior when what it is trying fails. Of course any intelligent system will have limitations. For any intelligent system, there are situations that it will never adapt to.

This is a starting point. Of course one needs to account for negative beliefs. And lying etc. It seems this approach would permit the definition of moral language (along the lines of R. M. Hare) independently of determinism or free will.