

Podcast Plan
Douglas Kutach

Title: Entropy and The Influence Asymmetry

Goal: To explain how lessons from statistical physics can help explain why we believe that the past is fixed and the future is open.

Estimated Time: 31 min.

Outline:

1. Introduction to *Science, Perception, and Reality* podcast (Time 0:15)

Intro jingle, etc.

2. Introduction to this podcast (Time 1:00)

Describe the influence asymmetry in simple terms.

Example: One bit of folk wisdom is that people have some degree of control over the future, yet no control whatsoever over the past. This idea seemingly expresses not a fact about human beings but something about the nature of time itself--that the past is fixed but the future is at least to some degree susceptible to present influences. This difference between the past and the future is what we call the influence asymmetry: we can affect the future, but not the past.

There are lots of questions about the influence asymmetry. The questions I want to focus on in this presentation are (first) Is the influence asymmetry an objective fact about or is it somehow just a matter of our limited human perspective? and (second) What kind of scientific facts explain the asymmetry of influence?

The answer I will be aiming at, is that the influence asymmetry is partly perspectival and partly objective, and the objective part is due to the fact that the universe started out in a special kind of physical state.

To investigate the influence asymmetry, let's start by looking at various explanations of what the influence asymmetry might consist in....

3. Describe the history (Time 4:00)

Note (a) attacks on the idea that we have control over the future (determinism and its alleged incompatibility with freedom, fatalism), and (b) non-scientific explanations, like that the deep metaphysical structure of reality treats future facts and past facts differently—that somehow past facts are more real or determinate than future facts.

Example: The influence asymmetry has been challenged on a number of fronts. One challenge attacks the idea that we can affect the future by suggesting that some kind of fate or determinism disallows our control over the future. Thus, both the past and the

future are equally immune from manipulation. While arguments like this may have merit, they don't undermine the apparent fact that it at least *seems* that people can sometimes make at least mundane choices, and that it is extremely useful to act as if we can affect the future. That is, appeals to fate don't explain the utility of believing in the ability to affect the future.

Another challenge is...

4. Clarify how influence should not be understood in terms of **changing** the future facts, but of there being a counterfactual difference between what actually will happen and what could have happened but didn't. Use a simple example here. Emphasize that there is no difference between the future and the past in this regard. (Maybe mention a time-travel example here to nail down the distinction? Only if there is extra time. Might be too off-topic) (Time 2:00)

5. Mention that Hans Reichenbach tried to give a scientific answer to this question. Possible guest appearance by Huw Price, just to short explanation. (Time 2:30)

6. Explain David Lewis' idea of overdetermination. (Time 4:00)

7. Tease with the new idea that entropy might be related. (Time 0:20)

[Short break here to give the listener some contrast and work against mental fatigue. 10 seconds.]

8. Discuss what the thermodynamic asymmetry is, how statistical mechanics explains thermodynamic phenomena (by way of boundary conditions). Use a diagram of a sample of gas expanding in a box. (Time 8:00)

9. Discuss the theory that having a highly constrained initial condition also explains the counterfactual asymmetry. Point out the common cause structure of the argument (used by Albert) (Time 4:00)

10. Point out that this theory has the consequence that we can in some sense change the past, but that we cannot exploit the ability for any practical purpose except in special situations. Thus, the world appears to us as if the past is wholly fixed. (Time 4:00)

11. Summary (Time 1:00)

12. Exit jingle (Time 0:15)