

Discovery or Invention?

Advanced

- ▶ Did the fathers of quantum mechanics, of statistical thermodynamics, of the theory of relativity, of dislocations as the source of plastic deformation, and so on, did they **invent** their theories, or did they **discover**, did they *find* them?
 - Are all those theories simply human inventions, intimately tied to carbon-based life on this planet, or are they absolute, invariant truths completely independent of the existence of humans?
- ▶ The answer, somewhat surprisingly for **scientists**, does not seem to come easily to the **philosophers**, who are the people who worry about those things.
 - *Invention* means that the laws of nature are nothing but an outgrowth of human activities; other thinking beings at other places or times may invent completely different systems fitting their peculiar needs. At best, we may come up with some approximation to something intrinsically intangible, because there are no absolute truths. This statement, of course, must be an absolute truth, which opens a different can of worms labeled "**Gödel's** theory".
 - *Discovery* means that the laws of nature exist in a defined form, totally independent of humans or anybody else below the level of an almighty being, and that there is a possibility to discover them in total (if there is a finite number of natural laws) or at least in parts and to describe them in some language (including the language of mathematics). Maybe we find only parts, or we see the laws coarse-grained (i.e., in some approximations), but it is out there to be discovered.
- ▶ We move quickly to **metaphysics** this way, to the *theory of science* with all its changes, developments, and idiosyncrasies.
 - And if you think that there can be little doubt that we scientists *discover* truths and do not *invent* them, you should take note that this position is in total opposition to the current beliefs in modern philosophy, especially in the branches known as "post-modernism" or "positive realism".
 - If you are interested in this, read, e.g., [John Horgan](#) : "The End of Science", which gives a well written, if not outright exciting account of the various metaphysical developments in the last **100** years or so.