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A Reply to Patton's "Incommensurability and the Bonfire of the Meta-Theories"

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Lydia Patton (2015) and I agree that philosophers of science need to exercise more argumentative caution when it comes to the stories they tell about science. One such story, namely, Kuhn's account of theory change (more specifically, his incommensurability thesis), lacks this kind of argumentative caution, or so I have argued (Mizrahi 2015). Patton (2015) disagrees. She claims that Kuhn does offer a good argument in support of taxonomic incommensurability (TI). Kuhn's argument, however, is neither deductive nor inductive. According to Patton (2015, 57), Kuhn "was pursuing an explanatory, not an inductive project." In other words, Patton argues that Kuhn's argument for TI should be construed as an Inference to the Best Explanation (IBE). In a follow-up comment, Patton clarifies her claim by writing:

> I didn't mean to make the positive claim that Kuhn is giving an IBE, just that he could be. Or he could be giving an abductive argument, or a transcendental one, or a regressive argument … or he could be proposing a historical interpretation. The question of at which point Kuhn is making an argument, and at which point he is constructing an historical narrative or interpretation, is tricky and crucial (July 30, 2015; http://bit.ly/1MIzaHi).

As I said in the comments section as well, I am open to the possibility that Kuhn's argument for TI should be construed as an IBE (July 28, 2015; http://bit.ly/1NSXdn1). Unfortunately, Patton does not say how the IBE for TI is supposed to run. In fact, she says that TI is the *explanandum*, not the *explanans* (July 30, 2015; http://bit.ly/1MIzaHi). But if TI is the *explanandum,* then it is what is taken for granted as that which needs to be explained in an IBE. In that case, we still need an argument for TI. An IBE for TI needs to have a premise to the effect that TI, if it were true, would explain some phenomenon better than other competing explanations for that phenomenon. To run an IBE for TI, then, we need to answer the following questions:

1. What is TI supposed to explain? What is the *explanandum*?

2. Are there competing explanations for the *explanandum*? If so, what are they?

3. In what respects is TI better than any competing explanations?

Patton (2015, 56) seems to suggest that TI is supposed to explain revolutionary change (or paradigm shifts) when she writes that Kuhn "formulates explanatory hypotheses about those theory changes that are demonstrable cases of incommensurability: paradigm shifts." As I wrote in my (2015, 376), however, I don't think that TI is supposed to be the best explanation for revolutionary change (or paradigm shifts). After all, TI is supposed to be a *mark* of revolutionary change, not *an explanation* for revolutionary change. In other words, from the fact that the theoretical terms of two theories, T_1 and T_2, have different referents, we are supposed to infer that T_1 and T_2 are taxonomically incommensurable (Mizrahi 2015, 373-374). In fact, since TI is a thesis about theoretical

terms and their referents, it cannot be the *explanandum* in and IBE. In an IBE, the *explanandum* is supposed to be "a collection of data (facts, observations)" (Psillos 2007, 442). As I argue in my (2015, 373-374), TI is not simply a fact that can be gleaned from case histories of theory change. Rather, TI must be *inferred* from reference change or reference discontinuity. If TI must be inferred from something else, then it cannot be a fact or an observation, which is why TI cannot be the *explanandum* in an IBE.

I think that Patton is right to point out that philosophers of science frequently use IBE. But I would say that they often *abuse* IBE. Take, for example, the case of the "no miracles argument," which Patton (2015, 54) cites as "an example of an IBE." If the no miracles argument is supposed to be an IBE, it would run roughly as follows (following Psillos 2007, 442-443):

> P1. Science is successful.
>
> P2. Scientific realism explains the success of science.
>
> P3. No other hypothesis can explain the success of science as well as scientific realism does.
>
> Therefore, scientific realism is (probably) true.

In offering this argument, scientific realists rarely go beyond the claim that scientific realism is the best explanation for the success of science. As Putnam (1975, 73) puts it, scientific realism "is the only philosophy that doesn't make the success of science a miracle." For this IBE to work, however, it must be shown that scientific realism is indeed better than competing explanations for the success of science. As I have argued elsewhere (Mizrahi 2012), that is not an easy task. One would have to show that scientific realism makes novel predictions that competing explanations for the success of science do not, and that those novel predictions can be tested independently of the *explanans.*

To sum up, as I see it, the issue is not whether or not there are counterexamples to TI (Patton 2015, 56; although if the transition from thinking about the heart as a *furnace* to thinking about the heart as a *pump* is not a paradigm shift, then nothing is, see Aird 2011), but rather whether or not there is evidence for TI. Perhaps Patton is right that there is a strong IBE for TI to be made. But a lot more work needs to be done for this IBE to work.

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