

## Reader Report

Reading: Causal Inference Chapter 8 (Hernan and Robins, 2019)

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8.1 and 8.2 demonstrated a few examples of selection bias. The main takeaways from these two sections are: a) selection bias is secretly a confounder that's in the form of a collider. (consequently, it causes trouble when you try to condition on it. b) randomization does not protect selection bias when selection occurs after the randomization.

8.3 discussed the differences between selection bias and confounding. I like the phrasing of the distinction: a) selection of individual into the analysis and b) selection of individuals into a treatment. 8.4 argued that we should view censoring  $C$  as a treatment. I get that we want to calculate the risks if everybody had remained, but I don't get the intuition of viewing it as treatment instead of a confounder. Also, it seems incredibly difficult to discern what's censored and what's not.

8.5 gives a few examples of common selection bias, like loss to follow up. I agree with Matt, these names are good to remember. The three conditions: exchange-ability, positivity, and consistency are also good to bear in mind. These could serve as sanity checks when examining the hypothesis.

Keyon pointed out that selection bias may only be a problem of RCTs. Self-selection bias is the kind of problem that propensity score-based methods are designed to handle. I agree to an extent. RCTs and selection bias seem to go hand in hand. This is not surprising, since RCTs assume a kind of randomness that selection bias undermines. However, I don't think we can use propensity score based method if we only have data from self-selected volunteers? We would not be able to compute propensity score of those who are not self-selected, or make a contrast? Isn't this a case of "censoring"?

A side note: I am not a fan of this writing, it kind of jumps between the style of econometric textbooks and causal inference books. Perhaps selection bias is not fully developed in the Pearl paradigm? Anyway, I do find the enumeration of examples quite useful.