Reader Report
Reading: Shalizi Chapter 23
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Matching
There's an over arching theme here: "fundamental identification" Shalizi points out three aspects of matching. 1) matching one with multiple units to reduce noise. 2) matching does not solve the identification problem. 3) matching is really just nearest neighbor. I find the discussion on the third point quite inspiring. When framing matching as nearest neighbor regression, we converted this to an ML question. It is then easy to apply analysis such bias variance trade-off or curse of dimensionality. [1]

Propensity Score and Propensity Score Matching
Propensity score is remarkable! (As Shalizi says) It transforms a large set of covariates with perhaps complex relationship into a number between 0 and 1. It naturally follows that we would want to do matching using one dimensional propensity score instead of the high dimensional covariates, since the former is clearly more tractable. Shalizi also points out that propensity score matching is **emphatically** not the same as randomization. Interesting... I see that there are inherent/philosophical differences between propensity score matching and randomization, but other than that isn't propensity score matching an approximation of randomization?

Omitting 23.2 since I don't have any particular thoughts insight.

If there's only one takeaway from this chapter, it'd be IVs or PSM only work when there's correct identifications, which is especially hard with observational data. I also wonder if there's a flavor of problem that's more prone to error using the IVs approach in comparison to PSM?

[1] This could easily be a common approach: looking at or explaining statistics methodologies through an ML perspective. But as someone who has not read much, if any, literature on matching, I dig this. Oh, I guess there 's paper specifically drawing the connection between nearest neighbor and matching. (Abadie, Alberto and Imbens 2006).