Reading & Reading Exercises Meeting 5

- Goetghebeur, E., le Cessie, S., De Stavola, B., Moodie, E. E., Waernbaum, I., & the topic group Causal Inference (TG7) of the STRATOS initiative. (2020). Formulating causal questions and principled statistical answers. *Statistics in medicine*, *39*(30), 4922-4948.
- Elwert, F., & Winship, C. (2014). Endogenous selection bias: The problem of conditioning on a collider variable. *Annual review of sociology*, *40*, 31-53.

Reading Questions

The paper by Goetghebeur et al. provides a very nice overview of multiple things we have discussed in the course, particularly in week 3 and 4. The paper also includes a bit on 'instrumental variables', something we do not discuss further in the course, but is good to know exists. It is a popular technique in, for example, econometrics and epidemiology.

1. What is an instrumental variable?
2. What are upsides and downsides of using an instrumental variable technique?

The paper of Elwert & Winship provides a very nice overview of multiple things we have discussed in the course, particularly in week 1 and 2. They build up to a discussion of *selection bias* from the perspective of causal inference – particular the DAGs context.

3. What is endogenous selection bias?
4. How can endogenous selection bias occur prior to treatment?
5. How can endogenous selection bias occur without researchers having actively selected/discarded observations?
6. Can you think of common study designs in your field where researchers may (accidentally) create endogenous selection bias?