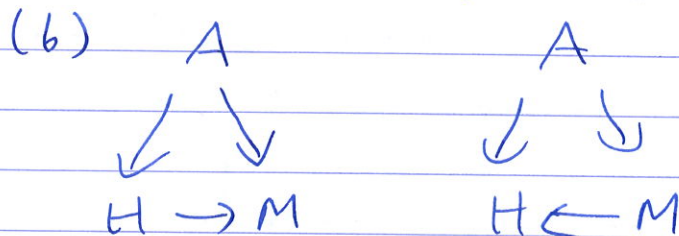


[Minor II]

1. (a) Model 1 has access to an extra predictor, so in general should make better predictions, assuming it is well-fitted. This is irrespective of direction of causal relation between H and M.



(c) First DAG: for $A \rightarrow H$ direct effect, M is a collider, hence we don't want to stratify by it. So Model 2 better.

Second DAG: for $A \rightarrow H$ direct effect, M is a false confounder, so we need to stratify by it. So Model 1 better.

2. (a) Yes; no backdoor paths, so nothing to stratify by

(b) No; backdoor criterion gives either U/G as variable to stratify by, ^{for backdoor paths} but U not available, and stratifying by

G blocks a causal path as well
(c) yes; no backdoor paths, so
nothing to stratify by

(d) yes; stratifying by G blocks
all alternative paths

(e) same as (d)

(f) No; backdoor path via
 U cannot be blocked

(g) yes; stratify by F to
block both backdoor paths

(h) yes; stratify by F to
block both confounding paths
(paths from F, U)