Perspectives on Verification

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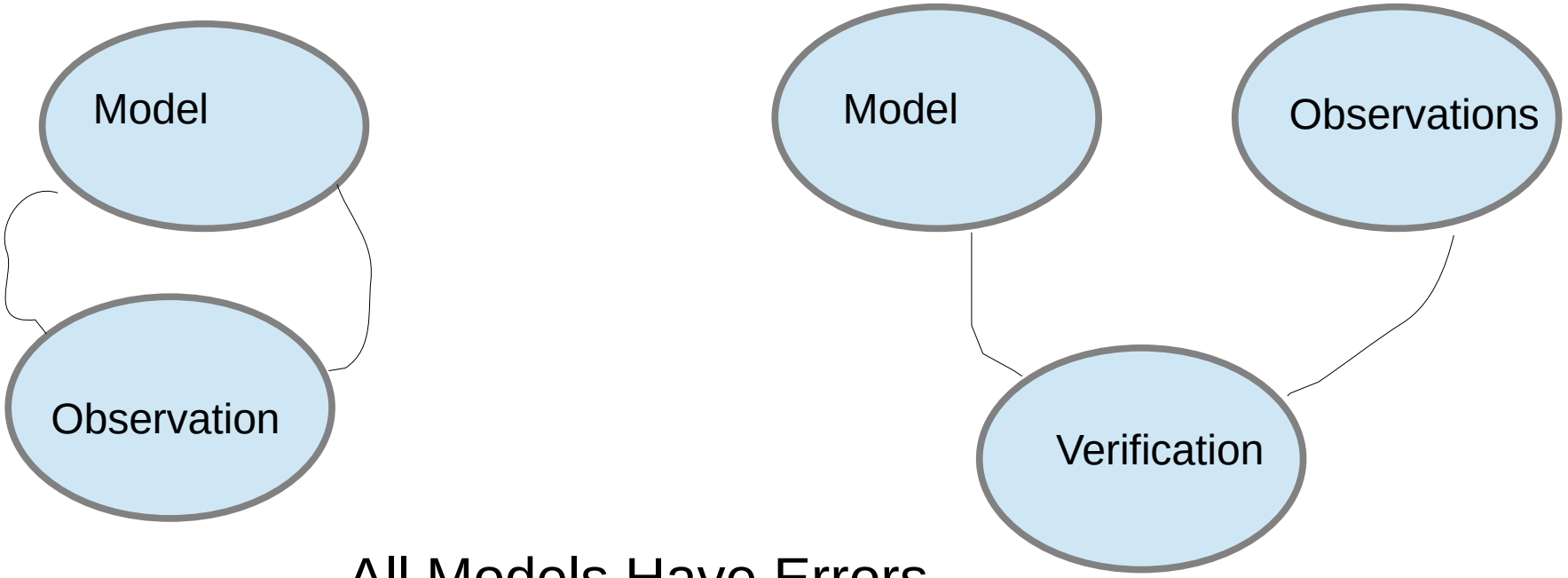
https://vlab.ncep.noaa.gov/ – group polar

Hypotheses tested in bundles

- Duhem-Quine
- Model as hypothesis
- Coupled models → presume correctness of element (e.g.)
- Model forced with observations → presume correctness of observations (e.g.)
- n.b.: Observed that better SST can give worse forecasts

Role of Verification



- All Models Have Errors
- All Observations Have Errors

Moments

- Mean, RMSE (Standard Deviation) …
  - But also skew, kurtosis, … [GFS v. ECMWF]
- Nonlinear response to errors
- Geographic Trimming
  - Only in areas that could see ice?
  - Only in areas that (are observed to) change much
  - …
- Weighted scores

Metric Complementarity

- PoD vs. FAR
- Mean vs. RMS (marksmen)
- Drift Distance vs. Direction
- Coupled models as exploiters of loopholes
- (+ metric independence)

Multiobjective Optimization