Hi Alan,

I wanted to send you a summary email of our Zoom meeting on Wednesday, February 19th 2020.

We discussed:

* Current issues with latent-trait testing and diagnostics. These include lack of actionable information, physician failure to follow-up (clinical screening fatigue), poor measures of classification (high false positive/false negative rates).
* The required steps to rectify these issues with the implementation of Probabilistic Scoring methods:
  + Expand questionnaires to as-needed (logic-decision driven) to include further diagnostic screening test (e.g. GAD-7)
  + Dynamically score and diagnose each screening against established data distributions that are continually updated after each response.
  + Derive actionable information based upon dynamic diagnosis
* Goals surrounding theoretical accuracy comparisons, including:
  + Comparing Probabilistic Scoring to Conventional Linear Scoring
  + Result should be generalizable to a test for an arbitrary Latent Trait
  + Use an evidence-based validated measure for supervision
* Questions:
  + The diagnostic tests are designed to approximate the value of the Latent Trait “truth”; however, each data-point is influenced by variation in the test-taker, and therefore, can be a misrepresentation of the Latent Trait “truth”. If this is the case, what is the test representing? How much different is this value than the theoretical truth?
  + How does the proximity to a threshold value of a score affect the comparative accuracy and convergence of the two methods?
  + If the concept of diagnostic testing is expanded across multiple Latent Traits into a weighted-network structure, how can it be shown that Probabilistic Scoring is more accurate between traits?

During our discussion it was decided that I would attempt a replication of the weighted network structure displayed in the “More Effective and Cost-Effective Use of the PHQ-9” paper using provided data. If this attempt proves to be successful, I will attempt to derive a likelihood function specific to the PHQ-9 using the assumptions:

* Questions are administered in order
* Subjects are not influencing each other’s outcome

If I am successful calculating a likelihood function, I will pursue a comparison of sufficiency or possibly a bounded-monotone convergence proof. Given our next meeting time, it is most likely that I will not make it this far.

We have set up our next meeting for Wednesday, February 26th, 2020 at 10:00 AM. I have included the link again for convenience.

Please let me know if there is anything on this email that is incorrect or confusing.

I look forward to seeing you on Wednesday.

Best,

Lee