Hi,

The code has been updated and pushed to gitHub, with fixes to the composite score. Thanks to Lucy for finding these errors.

Fixes:

* (1-alpha)% confidence intervals for composite are correct now (previously composite scores were showing (1-2alpha)% intervals
* We do the right Bonferroni adjustment for baseline cases (the groups that have been manually zero-ed out as a baseline category are no longer counted in the total number of comparisons).
* All human readable matrices should have the same columns (the order may be slightly different, but the names are the same, e.g. inst\_mat$score\_upper). Previously, the baseline matrices didn’t have several of the variables (e.g. inst\_subset\_mat\_baseline$n).
* The composite score previously only computed intervals with the normal distribution. A linear combination of t-distributed random variables does not have a closed-form distribution (unlike a linear combination of normal, which is itself normal). We approximate by using a t-distribution with degrees of freedom found using the Welch-Satterthwaite equation (https://en.wikipedia.org/wiki/Welch%E2%80%93Satterthwaite\_equation). In the composite score data.frames, *ws\_approximate\_df* records these values, which are always less than or equal to the total number of observations in the composite, recorded by *total\_n.*
* The code is sped up with colSums and rowSums instead of the apply function (Thanks for the tip, Lucy).

Default behavior: fitBabyMonitor and scoreComposite default to using t-distributed intervals with alpha = 0.01 and incorporate Bonferroni adjustment.

As one note, in certain situations (institution-subset rankings especially) some categories have very small sample sizes, and thus have very wide intervals under the t-distribution (e.g. a t-distribution with 1 degree of freedom is very wide). I did not end up removing categories that are small (e.g. if there is only one student with subset 5 at institution 4, there will still be an interval for inst4\_subset5, but it will be extremely wide). If you see critical values that are very large, this is the reason.

Let me know if you have any problems with the code!

-Daniel