limits comparison project
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version 1

1 model

$$n_i \sim \text{Pois}(\epsilon_i s + b_i)$$

$$y_i \sim \text{Pois}(t_i b_i)$$

$$z_i \sim \text{Pois}(u_i \epsilon_i)$$

Channels $i = 1, 2 \ldots n$. Constants t_i and u_i are known. Upper limits (or 2-sided intervals if required by the method) on parameter of interest s to be calculated at 90% and 99% level. The $2n$ parameters ϵ_i and b_i are to be considered nuisance parameters.

2 task

2.1 $n = 1$

I will provide a list of $\leq$ 100000 (n, y, z, t, u) cases for which the intervals will be returned by the participants. I will make coverage curves from these (using importance sampling) and do comparisons of lengths and Bayesian credibility.

2.2 $n = 10$

Same as for $n = 1$ (I provide 50 numbers for each case). See `www.samsi.info/200506/astro/workinggroup/phy/jgh.pdf` for warning of possible coverage problems in higher dimensions.