Large Telescope Truss - Verification & Validation

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Verification & Validation

The solution has been created, but now the all important question arises: are the results useful, or are they just garbage? While the created graphs and images may be pretty, what do they mean? Do they have realistic proportions?

Unfortunately, for such a complex geometry, this is no analytic way to check our results. Instead, we will have to check ourselves with some logical questions:

1. Does the model make sense?
    a. Have we made any erroneous assumptions?
    b. Have the physics been applied correctly?
    c. What are possible ways the model could go wrong?
    d. Have all the connections and geometries been applied correctly?
2. Do the results make sense?
    a. Do they match up with our predictions?
    b. If not, why do we suppose that is?
    c. Is the magnitude of the results on par, or are they off by orders of magnitude?
3. Has there been any artifacts introduced from the FEA modelling?
    a. Are there points of singularity stress that throw off the computer's model?
    b. Has the mesh been refined enough for solution convergence?

These are all questions that need to be thought of and answered when looking over the results of our FEA model. This is the step that requires a great amount of effort, and often will require refinements as well as trial and error to complete. For our sanity, though, this tutorial has been based around a model that has been tried, tested, and refined for accuracy, leading to many of the steps we have already completed.

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