



THE PUBLIC IS MORE FAMILIAR WITH BAD DESIGN THAN GOOD DESIGN. IT IS, IN EFFECT, CONDITIONED TO PREFER BAD DESIGN, BECAUSE THAT IS WHAT IT LIVES WITH. THE NEW BECOMES THREATENING, THE OLD REASSURING.

PAUL RAND

A DESIGNER KNOWS THAT HE HAS ACHIEVED PERFECTION NOT WHEN THERE IS NOTHING LEFT TO ADD, BUT WHEN THERE IS NOTHING LEFT TO TAKE AWAY.

ANTOINE DE SAINT-EXUPÉRY

...THE DESIGNER OF A NEW SYSTEM MUST NOT ONLY BE THE IMPLEMENTOR AND THE FIRST LARGE-SCALE USER; THE DESIGNER SHOULD ALSO WRITE THE FIRST USER MANUAL...IF I HAD NOT PARTICIPATED FULLY IN ALL THESE ACTIVITIES, LITERALLY HUNDREDS OF IMPROVEMENTS WOULD NEVER HAVE BEEN MADE, BECAUSE I WOULD NEVER HAVE THOUGHT OF THEM OR PERCEIVED WHY THEY WERE IMPORTANT.

DONALD E. KNUTH

HENGFENG WEI

# NOTES ON TLA<sub>+</sub>

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*Dedicated to those who appreciate  $\text{\LaTeX}$   
and the work of Edward R. Tufte and Donald E. Knuth.*



# *Introduction*

Notes on TLA+.





## *Experiences*

1. Use “ASSUME” for “Constants”
2. Decompose a large specification into several modules
3. Test-driven



# Debug

## Print

*Description:* *Print Twice.*

*Effect:* The Print may be executed twice (unexpectedly).

*Cause:* The reason is that "TLC prints its output once during the generation of the state space and then again when reconstructing the counter-example trace that leads to the violation."

*Solution:*

*Reference:* [Unexpected Print Output @ tlaplus-googlegroup](#).

## Parse

### Model Checking

*Description:* *Model is Stuck in the 'modelchecking' State.*

*Effect:* I run the model, it gets stuck in a "modelchecking" state. I can't stop or restart the model checker. I have to restart the entire toolbox to reset the model's state.

*Cause:* The model is wrong. For example, use 'a'.

*Solution:* Use "a".

*Reference:* [Model is stuck in 'modelchecking' state @ tlaplus-googlegroup](#).

*Effect:* I run the model, it gets stuck in a "modelchecking" state. I can't stop or restart the model checker. I have to restart the entire toolbox to reset the model's state. A .tla source file which is included by "EXTENDS" is missing in the Model folder.

*Cause:* The project structure is broken.

*Solution:*

## *Bibliography*