

Why Aren't Strings and Numbers Unequal?

It might seem natural to assume that a string is unequal to a number. However, my experience indicates that the meaning of a specification should not depend on whether or not a string and a number are equal. If determining the set of behaviors allowed by the spec requires evaluating the formula “xyz” = 0, then there is probably an error in a spec.

In general, the semantics of TLA^+ do not determine that two values are unequal unless the laws of ordinary mathematics imply that they are. This lets a tool like TLC catch “type errors” even though there is no notion of types in the simple mathematics on which TLA^+ is based.

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