These slides illustrate some limitations of the compositional Method. Here we can prove that False is true in the final state, but that's ok: this program won't terminate anyway.
Any annotation we put here
Must be established by the input transition

{true} P || Q {x = 1 ∨ y = 1}
Here we can say that the history has length 2.

This example shows why the proof method is unsound for channels between more than two parties.