**Domain:**

If there is a cyclone Dorothy should hide in the cellar. If Toto jumps from Dorothy’s arms and hides, she should find him. If Dorothy takes time to find Toto, or if she is too slow, she won’t make it to the cellar before the cyclone hits. Dorothy ends up in Oz if she doesn’t make it to the cellar in time.

Assume: There is a cyclone and Toto jumps from Dorothy’s arms and hides.

Prove: Dorothy ends up in Oz.

**Propositions:**

There is a cyclone

Dorothy should hide in the cellar

Toto jumps from Dorothy’s arms

Toto hides

Dorothy should find Toto

Dorothy takes the time to find Toto

Dorothy is too slow

Dorothy makes it to the cellar

Dorothy ends up in Oz

There is a cyclone => Dorothy should hide in the cellar

**Assumptions:**

There is a cyclone ^ Toto jumps from Dorothy’s arms ^ Toto hides.

**Domain Rules:**

There is a cyclone => Dorothy should hide in the cellar

(Toto jumps from Dorothy’s arms ^ Toto hides) => Dorothy should find Toto

(Dorothy takes the time to find Toto v Dorothy is too slow) => ~Dorothy makes it to the cellar

~Dorothy makes it to the cellar => Dorothy ends up in Oz

**Additional Background Knowledge:**

Dorothy should find Toto => Dorothy takes the time to find Toto