

Example of Theory-of-Mind Tracking: Track the locations and beliefs in stories about object placement asked in the question.

Story

You'll see a story about object placement. Each story involves four components: Agents, Objects, Rooms, and Containers. Given a question about an (agent, object) pair, your task is to track the locations and beliefs in stories about object placement asked in the question.

Step 0: Leon is in the playroom; Carol is in the pantry; the band-aid is on the playroom's pedestal; the tweezers is on the playroom's pedestal.

Step 1: Leon moves to the pantry.

Step 2: Carol moves to the playroom.

Step 3: Leon moves to the playroom.

Step 4: Carol moves to the pantry.

Step 5: Leon moves the band-aid to the playroom's rack.

Step 6: Carol moves to the playroom.

Step 7: Leon moves to the pantry, and moves the tweezers to the pantry's pedestal.

Step 8: Carol moves to the pantry, and moves the band-aid to the pantry's pedestal.

Step 9: Leon moves the tweezers to the pantry's rack.

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Step 30: Carol enters the playroom.

Step 31: Leon moves to the playroom, and moves the band-aid to the playroom's rack.

Step 32: Carol moves to the pantry, and moves the tweezers to the pantry's pedestal.

Step 33: Leon moves to the pantry.

Step 34: Carol moves to the playroom, and moves the tweezers to the playroom's pedestal.

Step 35: Leon moves to the playroom.

Step 36: Carol leaves the room he was in.

Step 37: Leon moves to the pantry, and moves the tweezers to the pantry's rack.

Step 38: Carol enters the playroom.

Step 39: Leon leaves the room he was in.

Step 40: Carol moves to the pantry, and moves the band-aid to the pantry's rack.

Where does Carol believe the tweezers is?

Target Output

Carol's belief on the tweezers:

- Step 0: (initial state) {Carol location: pantry; tweezers location: playroom's pedestal; Carol sees tweezers: False; Carol's belief on tweezers: None}

- Step 1: (Carol location unchanged; tweezers location unchanged) {Carol location: pantry; tweezers location: playroom's pedestal; Carol sees tweezers: False; Carol's belief on tweezers: None}

- Step 2: (Carol location changed; tweezers location unchanged) {Carol location: playroom; tweezers location: playroom's pedestal; Carol sees tweezers: True; Carol's belief on tweezers: playroom's pedestal}

- Step 3: (Carol location unchanged; tweezers location unchanged) {Carol location: playroom; tweezers location: playroom's pedestal; Carol sees tweezers: True; Carol's belief on tweezers: playroom's pedestal}

- Step 4: (Carol location changed; tweezers location unchanged) {Carol location: pantry; tweezers location: playroom's pedestal; Carol sees tweezers: False; Carol's belief on tweezers: playroom's pedestal}

- Step 5: (Carol location unchanged; tweezers location unchanged) {Carol location: pantry; tweezers location: playroom's pedestal; Carol sees tweezers: False; Carol's belief on tweezers: playroom's pedestal}

- Step 6: (Carol location changed; tweezers location unchanged) {Carol location: playroom; tweezers location: playroom's pedestal; Carol sees tweezers: True; Carol's belief on tweezers: playroom's pedestal}

- Step 7: (Carol location unchanged; tweezers location changed) {Carol location: playroom; tweezers location: pantry's pedestal; Carol sees tweezers: False; Carol's belief on tweezers: playroom's pedestal}

- Step 8: (Carol location changed; tweezers location unchanged) {Carol location: pantry; tweezers location: pantry's pedestal; Carol sees tweezers: True; Carol's belief on tweezers: pantry's pedestal}

- Step 9: (Carol location unchanged; tweezers location changed) {Carol location: pantry; tweezers location: pantry's rack; Carol sees tweezers: True; Carol's belief on tweezers: pantry's rack}

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- Step 30: (Carol location changed; tweezers location unchanged) {Carol location: playroom; tweezers location: playroom's pedestal; Carol sees tweezers: True; Carol's belief on tweezers: playroom's pedestal}

- Step 31: (Carol location unchanged; tweezers location unchanged) {Carol location: playroom; tweezers location: playroom's pedestal; Carol sees tweezers: True; Carol's belief on tweezers: playroom's pedestal}

- Step 32: (Carol location changed; tweezers location changed) {Carol location: pantry; tweezers location: pantry's pedestal; Carol sees tweezers: True; Carol's belief on tweezers: pantry's pedestal}