

Causal Simulation

**Input Frames** 

GT: metal **Descriptive Q1:** What is the material of the last object that enters the scene? A: metal

**Descriptive Q2:** What is the material of the last object to collide with the cylinder? A: metal GT: metal

**Descriptive Q3:** How many blue cubes enter the scene? **GT**: 1 **A**: 1

**Descriptive Q4:** How many moving green objects are there when the video ends? A: 2 **GT**: 2

**Explanatory Q:** Which of the following is responsible for the collision between the cylinder and the metal object?

a)	The presence of the blue rubber cube.	A: True	GT: True
b)	The cube's colliding with the cylinder.	A . Tons o	CT. Taylo

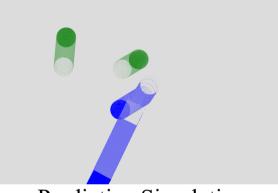
**GT:** True A: Irue The presence of the blue rubber sphere. GT: False A: False

**Predictive Q:** Which event will happen next?

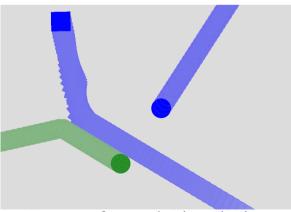
- GT: False A: False The metal object collides with the blue sphere.
- A: True GT: True The cube and the blue sphere collide.

**Counterfactual Q:** If the cylinder is removed, which event will happen?

- A: False GT: False The cube collides with the rubber sphere.
- A: True **GT:** True The cube and the metal sphere collide.
- A: False GT: False The green sphere and the rubber sphere collide.



**Predictive Simulation** 



Counterfactual Simulation (without the blue cylinder)