

Knowledge Type 3:

```
P [instance_of: PROP, is_trait_of: X1, ..., is_trait_of: Xm]  
causes  
E [instance_of: A, rel1: Y1, ..., reln: Yn]  
implies  
X=Y
```

where, $X \in \bigcup_{i=1}^m \{X_i\}$, and $Y \in \bigcup_{j=1}^n \{Y_j\}$

Intuitively, a statement of the above category means that if the execution of an event (E) is caused by a property (P) then an entity that is associated with P is also a participant in E.

Examples:

1. The sculpture rolled off the shelf because it wasn't anchored. What wasn't anchored?

Correct Answer: The sculpture.

Required Knowledge Instance:

```
P [instance_of: not_anchored, is_trait_of: X [instance_of: entity]]  
causes  
E [instance_of: roll off, theme: Y [instance_of: entity]]  
implies  
X=Y
```

2. The sculpture rolled off the shelf because it wasn't level. What wasn't level?

Correct Answer: the shelf.

Required Knowledge Instance:

```
P [instance_of: not_level, is_trait_of: X [instance_of: entity]]  
causes  
E [instance_of: roll off, location: Y [instance_of: entity]]  
implies  
X=Y
```

3. Sam pulled up a chair to the piano, but it was broken, so he had to sing instead. What was broken?

Correct Answer: the piano.

Required Knowledge Instance:

```
P [instance_of: broken, is_trait_of: X [instance_of: piano, instance_of: entity]]  
causes  
E [instance_of: sing]  
implies  
X=Y
```

4. In July, Kamtchatka declared war on Yakutsk. Since Yakutsk's army was much better equipped and ten times larger, they were defeated within weeks. Who was defeated?

Correct Answer: Kamchatka.

Required Knowledge Instance:

P [instance_of: better, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: defeat, agent: Y [instance_of: entity]]

implies

X=Y

5. The large ball crashed right through the table because it was made of steel. What was made of steel?

Correct Answer: The ball.

Required Knowledge Instance:

P [instance_of: made of steel, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: crash through, agent: Y [instance_of: entity]]

implies

X=Y

6. The large ball crashed right through the table because it was made of styrofoam. What was made of styrofoam?

Correct Answer: the table.

Required Knowledge Instance:

P [instance_of: made of styrofoam, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: crash through, theme: Y [instance_of: entity]]

implies

X=Y

7. Jim yelled at Kevin because he was so upset. Who was upset?

Correct Answer: Jim.

Required Knowledge Instance:

P [instance_of: upset, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: yell, agent: Y [instance_of: entity]]

implies

X=Y

8. Jim comforted Kevin because he was so upset. Who was upset?

Correct Answer: Kevin.

Required Knowledge Instance:

P [instance_of: upset, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: comfort, experiencer: Y [instance_of: entity]]

implies

X=Y

9. Pete envies Martin because he is very successful. Who is very successful?

Correct Answer: Martin

Required Knowledge Instance:

P [instance_of: successful, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: envy, stimulus: Y [instance_of: entity]]
implies
X=Y

10. Susan knows all about Ann's personal problems because she is nosy. Who is nosy?

Correct Answer: Susan.

Required Knowledge Instance:

P [instance_of: nosy, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: know, agent: Y [instance_of: entity]]

implies

X=Y

11. Susan knows all about Ann's personal problems because she is indiscreet. Who is indiscreet?

Correct Answer: Anne.

Required Knowledge Instance:

P [instance_of: indiscreet, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: know, theme: Z [instance_of: problems, belongs_to: Y [instance_of: entity]]]

implies

X=Y

12. There is a gap in the wall. You can see the garden through it. You can see the garden through what?

Correct Answer: The gap.

Required Knowledge Instance:

P [instance_of: has gap, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: see through, theme: Z [instance_of: entity]]

implies

X=Y

13. There is a gap in the wall. You can see the garden behind it. You can see the garden behind what?

Correct Answer: the wall.

Required Knowledge Instance:

P [instance_of: has gap, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: see behind, destination: Y [instance_of: entity]]

implies

X=Y

14. It was a summer afternoon, and the dog was sitting in the middle of the lawn. After a while, it got up and moved to a spot under the tree, because it was hot. What was hot?

Correct Answer: The dog

Required Knowledge Instance:

P [instance_of: hot, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: move, patient: Y [instance_of: entity], destination: Z [instance_of: entity], trait: T [instance_of: shady]]

implies

X=Y

15. It was a summer afternoon, and the dog was sitting in the middle of the lawn. After a while, it got up and moved to a spot under the tree, because it was cooler. What was cooler?

Correct Answer: The spot under the tree.

Required Knowledge Instance:

P [instance_of: cool, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: move, destination: Y [instance_of: entity]]

implies

X=Y

16. Elizabeth moved her company from Sparta to Troy to save money on taxes; the taxes are much higher there. Where are the taxes higher?

Correct Answer: In Sparta

Required Knowledge Instance:

P [instance_of: higher taxes, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: move, source: Y [instance_of: entity]]

implies

X=Y

17. Elizabeth moved her company from Sparta to Troy to save money on taxes; the taxes are much lower there. Where are the taxes lower?

Correct Answer: In Troy

Required Knowledge Instance:

P [instance_of: lower taxes, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: move, destination: Y [instance_of: entity]]

implies

X=Y

18. Bill passed the half-empty plate to John because he was full. Who was full?

Correct Answer: Bill

Required Knowledge Instance:

P [instance_of: full, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: pass, agent: Y [instance_of: entity], theme: Z [instance_of: plate, instance_of: entity]]

implies

X=Y

19. Bill passed the half-empty plate to John because he was hungry. Who was hungry?

Correct Answer: John

Required Knowledge Instance:

P [instance_of: hungry, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: pass, recipient: Y [instance_of: entity], theme: Z [instance_of: entity, instance_of: plate]]

implies

X=Y

20. Jane gave Joan candy because she wasn't hungry. Who wasn't hungry?

Correct Answer: Jane.

Required Knowledge Instance:

P [instance_of: not hungry, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: give, agent: Y [instance_of: entity], theme: Z [instance_of: entity, instance_of: food]]

implies

X=Y

21. Jane gave Joan candy because she was hungry. Who was hungry?

Correct Answer: Joan.

Required Knowledge Instance:

P [instance_of: hungry, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: give, recipient: Y [instance_of: entity], theme: Z [instance_of: entity, instance_of: food]]

implies

X=Y

22. Kirilov ceded the presidency to Shatov because he was more popular. Who was more popular?

Correct Answer: Shatov

Required Knowledge Instance:

P [instance_of: more popular, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: cede, goal: Y [instance_of: entity]]

implies

X=Y

23. Kirilov ceded the presidency to Shatov because he was less popular. Who was less popular?

Correct Answer: Kirilov

Required Knowledge Instance:

P [instance_of: less popular, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: cede, agent: Y [instance_of: entity]]

implies

X=Y

24. The journalists interviewed the stars of the new movie. They were very cooperative, so the interview lasted for a long time. Who was cooperative?

Correct Answer: The stars

Required Knowledge Instance:

P [instance_of: cooperative, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: last longer, theme: Z [instance_of: interview, instance_of: entity, related_to: Y [instance_of: entity]]]

implies

X=Y

25. The journalists interviewed the stars of the new movie. They were very persistent, so the interview lasted for a long time. Who was persistent?

Correct Answer: the journalists

Required Knowledge Instance:

P [instance_of: persistent, is_trait_of: X [instance_of: entity, instance_of: interviewer]]

causes

E [instance_of: last longer, theme: Z [instance_of: entity, instance_of: interview]]

implies

X=Y

26. The foxes are getting in at night and attacking the chickens. They have gotten very bold. What has gotten bold?

Correct Answer: The foxes.

Required Knowledge Instance:

P [instance_of: bold, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: attack, agent: Y [instance_of: entity]]

implies

X=Y

27. Emma did not pass the ball to Janie although she was open. Who was open?

Correct Answer: Janie

Required Knowledge Instance:

P [instance_of: open, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: pass, destination: Y [instance_of: entity], theme: T [instance_of: ball]]

implies

X=Y

28. Frank felt crushed when his longtime rival Bill revealed that he was the winner of the competition. Who was the winner of the competition?

Correct Answer: Bill

Required Knowledge Instance:

P [instance_of: not winner, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: feel crushed, experiencer: Y [instance_of: entity]]

implies

X=Y

29. Mark told Pete many lies about himself, which Pete included in his book. He should have been more truthful. Who should have been more truthful?

Correct Answer: Mark.

Required Knowledge Instance:

P [instance_of: truthful, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: lie, agent: Y [instance_of: entity]]

implies

X=Y

PS: "should have been" is important. It means that its object's opposite should be true but it is true. We will have to take care of it in the post-processing or reasoning.

30. Pete envies Martin although he is very successful. Who is very successful?

Correct Answer: Pete.

Required Knowledge Instance:

P [instance_of: successful, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: envy, stimulus: Y [instance_of: entity]]

implies

X=Y

31. Emma's mother had died long ago, and her place had been taken by an excellent woman as governess. Whose place had been taken?

Correct Answer: Emma's mother.

Required Knowledge Instance:

P [instance_of: dead, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: place taken of, theme: Y [instance_of: entity]]

implies

X=Y

32. Dan took the rear seat while Bill claimed the front because his "Dibs!" was quicker. Whose "Dibs" was quicker?

Correct Answer: Bill

Required Knowledge Instance:

P [instance_of: dibs quicker, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: claim, agent: Y [instance_of: entity], topic: W [instance_of: front seat]]

implies

X=Y

33. Dan took the rear seat while Bill claimed the front because his "Dibs!" was slow. Whose "Dibs" was slow?

Correct Answer: Dan

Required Knowledge Instance:

P [instance_of: dibs slower, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: take, agent: Y [instance_of: entity], theme: W [instance_of: rear seat]]

implies

X=Y

34. Bill passed the gameboy to John because his turn was over. Whose turn was over?

Correct Answer: Bill

Required Knowledge Instance:

This knowledge is learned through experience.

P [instance_of: turn is over, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: pass, agent: Y [instance_of: entity]]

implies

X=Y

35. Bill passed the gameboy to John because his turn was next. Whose turn was next?

Correct Answer: John

Required Knowledge Instance:

This knowledge is learned through experience.

P [instance_of: turn is next, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: pass, recipient: Y [instance_of: entity]]

implies

X=Y

36. I'm sure that my map will show this building; it is very famous. What is famous?

Correct Answer: The building.

Required Knowledge Instance:

P [instance_of: famous, is_trait_of: X [instance_of: entity, instance_of: building]]

causes

E [instance_of: show, agent: Z [instance_of: map], recipient: Y [instance_of: entity]]

implies

X=Y

37. Jane knocked on Susan's door, but there was no answer. She was out. Who was out?

Correct Answer: Susan.

Required Knowledge Instance:

P [instance_of: out of home, is_trait_of: Y [instance_of: person]]

causes

E1 [instance_of: knock, theme: Z [instance_of: door, belongs_to: X [instance_of: person]]]

followed by

[-] E2 [instance_of: answer]

implies

X=Y

38. Dan had to stop Bill from toying with the injured bird. He is very compassionate. Who is compassionate?

Correct Answer: Dan

Required Knowledge Instance:

P [instance_of: compassionate, is_trait_of: X [instance_of: entity]]

causes

E [instance_of: stop from toying, agent: Y [instance_of: entity], patient: Z [instance_of: entity, trait: T [instance_of: injured]]]

implies

X=Y