1. **Physical Action Representation**
2. **Interaction or Relationship Between Entities**
3. **Cultural or Conventional Associations**
4. **No Analogy or Direct Explanation Provided**

---

1. Physical Action Representation

Definition: Explanations that directly relate the action word to a physical movement, force, or spatial action depicted by the arrow's direction. The focus is on literal, concrete actions that mirror the verb.

Examples from Explanations:

1. *"'Pushing' often involves applying force to move something away from oneself or in a specific direction. When you push an object, it typically moves forward or in the direction of the applied force."*
2. *"'Pulling' often involves using force to move something towards you. A tug of war, where you pull a rope to bring the other team closer to you, is an example."*
3. *"'Lifting' typically involves moving something to a higher position or elevating it. When you lift an object, you are moving it upwards against the force of gravity."*

2. Interaction or Relationship Between Entities

Definition: Explanations that focus on the interaction, communication, or relationship between the circle and the square. This includes mutual actions, transfers, exchanges, or any form of direct engagement between the two entities.

Examples from Explanations:

1. *"'Argued with' often involves two people facing each other and exchanging words. Like two people standing face to face and talking."*
2. *"'Giving to' often involves transferring something from one person to another. A hand passing an object to another hand for example."*
3. *"Orders are flowing from square to circle."*

3. Cultural or Conventional Associations

Definition: Explanations that reference cultural norms, conventions, or common symbolic meanings established by society to interpret the arrow's direction in relation to the action word.

Examples from Explanations:

1. *"Moving 'right' can symbolize a forward or direct approach, as it is often associated with progress or advancement in many cultures, such as reading from left to right."*
2. *"Reading from left to right."*
3. *"A looks like a flowchart where the arrow is flowing from the circle to the square, indicating that the circle is doing something to the square."*

4. No Analogy or Direct Explanation Provided

Definition: Explanations that do not provide an analogy, metaphor, or detailed reasoning. These may be simple statements, descriptions, or lack a clear link between the action word and the arrow's direction.

Examples from Explanations:

1. *"Circle is doing the pushing."*
2. *"Circle is under square, allowing square to rest."*
3. *"In D the arrow is going from the circle to the square, indicating that the circle is 'giving' the square respect."*

Explanation:

"'Pulling' often involves using force to move something towards you. A tug of war, where you pull a rope to bring the other team closer to you, is an example."

Assigned Label: 1. Physical Action Representation

Explanation:

"'Hoping' often involves looking forward to a positive outcome or aspiring towards something better. It's an upward movement in terms of emotions or expectations."

Assigned Label: 2. Interaction or Relationship Between Entities

Explanation:

"Moving 'right' can symbolize progress or advancement in many cultures, such as reading from left to right."

Assigned Label: 3. Cultural or Conventional Associations

Explanation:

"Circle is doing the pushing. C, D would again be slightly worse because it could mean falling or being attracted by the square."

Assigned Label: 4. No Analogy or Direct Explanation Provided

Additional rules:

- if the explanation mentions "square" or "circle", it is always label "Interactive Entities"

- if the explanation does not mention the shapes implicitly or explicitly, and no entities, then it is not "Interactive Entities"

- if the explanation mentions "culture", it is always "Cultural/Convention"

- if the explanation mentions technical or scientific analogies (e.g. diagrams or systems), it is always "Cultural/Convention"

- if the explanation mentions gravity, understand gravity as a physical action and assign "Physical Action"