

Argument based Episodic memory in Group decision making

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Potential Research questions

(1) System representation of Arguments:

- How to design argumentation map with temporal data?
- What are **key arguments** that would help in decision making?
- How to extract key arguments from user inputs?

(2) System representation of Memory:

- How does argument based memory help in decision making?

(3) Shared PGV representation:

- How does PGV play a role in group decision making?
- How to leverage PGV from one discussion to another?

Argument based memory

(1) Group decision making

- Key arguments can get lost as discussion progresses.
- Understanding the impact of decisions is very important.

(2) Arguments and Memory

- Extracting** the key arguments in the form of claims and premise.
- Designing** memory based on extracted arguments using knowledge graph.
- Leverage:** Use the memory to support decision making.
- Relevance:** Remember and forget the memory based on perceived group values and importance of arguments.

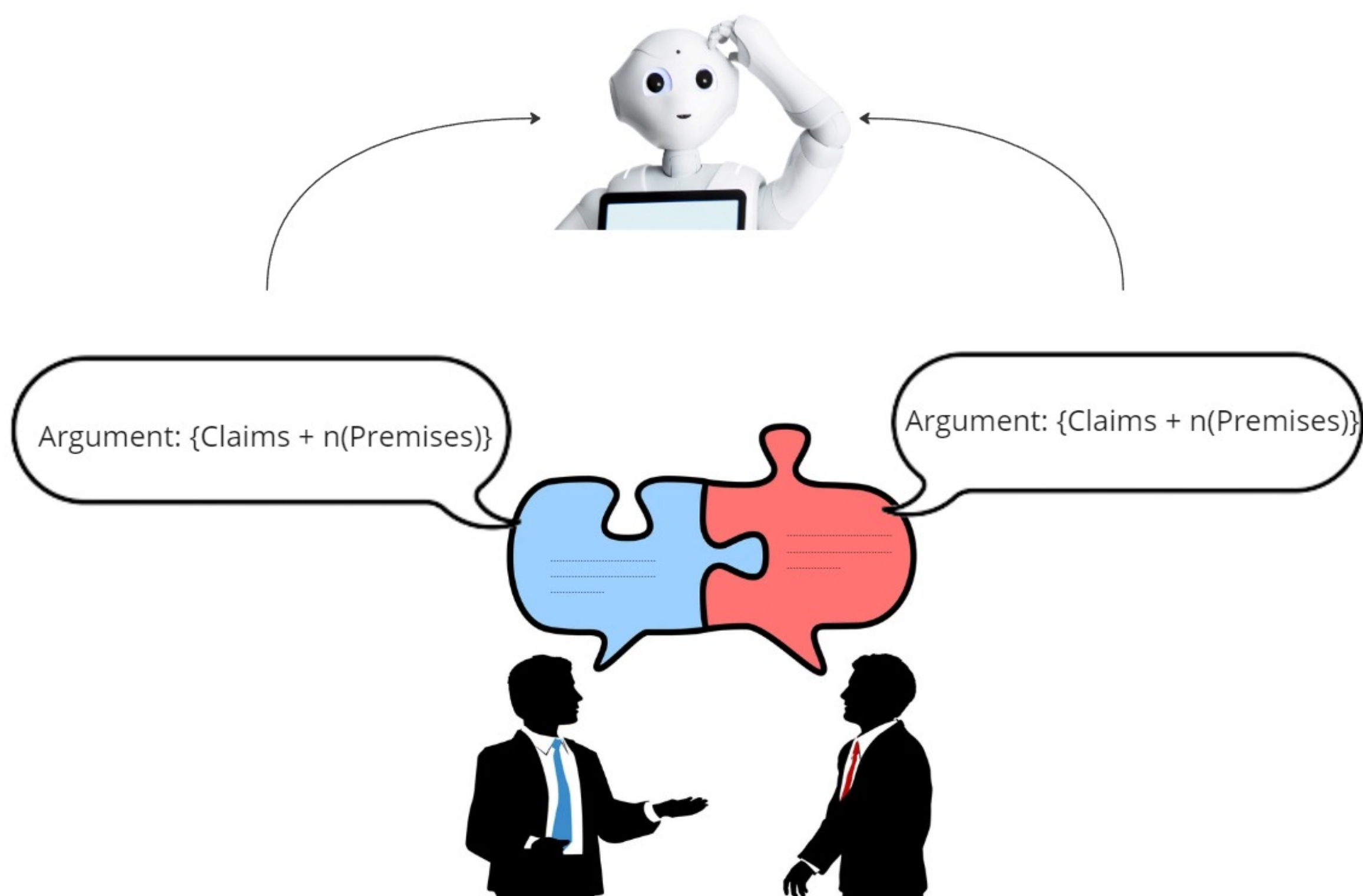


Figure 1. Argument: Layers of abstraction

(3) Perceived Group Values (PGVs) and Theory of mind:

- Understand:** Understand group values behind the arguments provided by people.

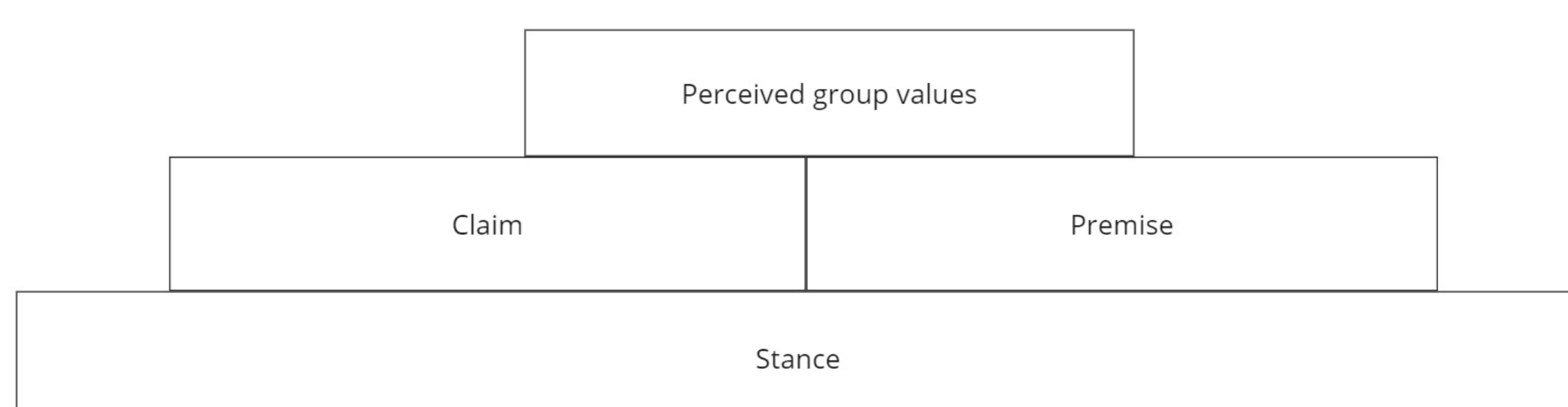


Figure 2. Argument: Layers of abstraction

Open Questions

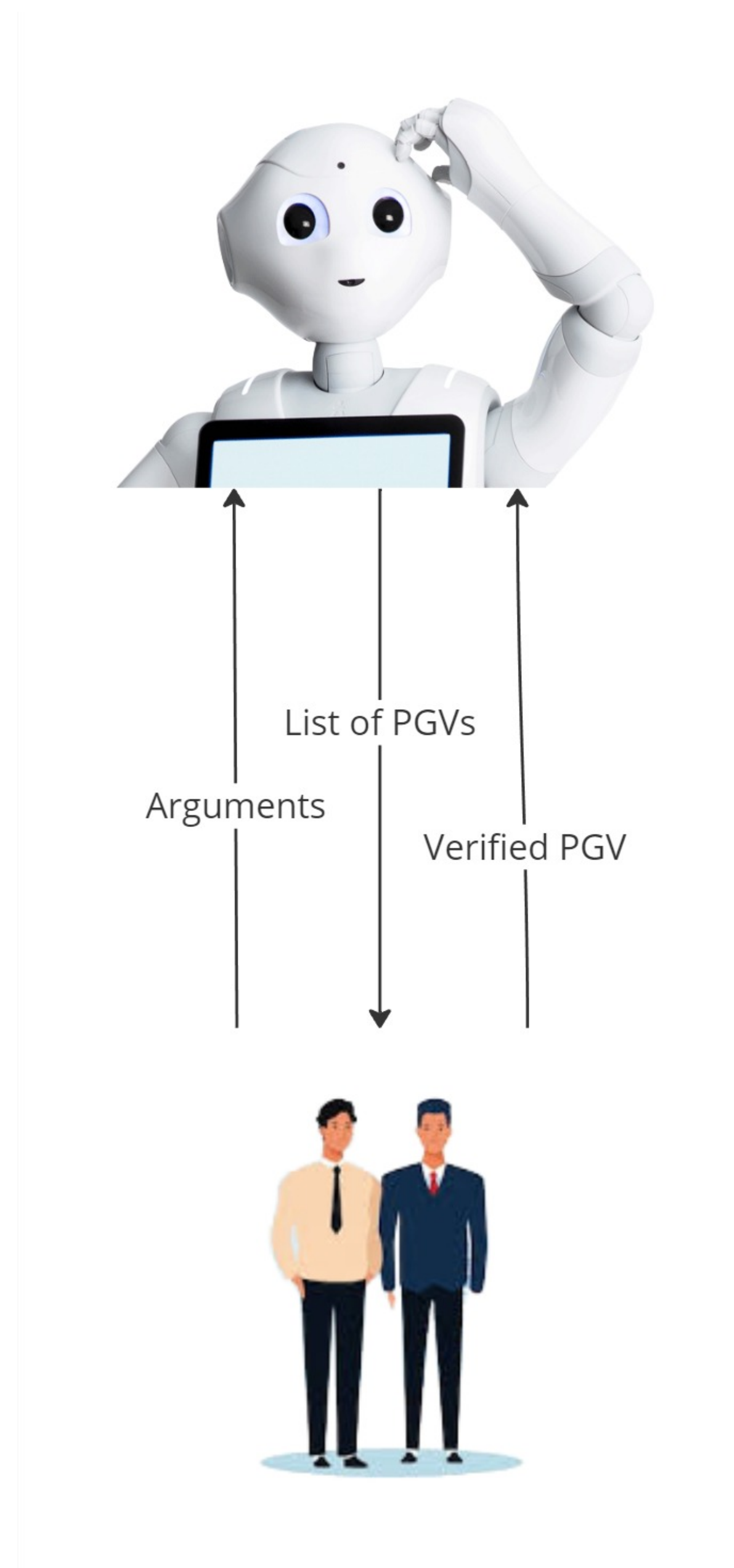
(1) System representation of Memory and Arguments:

- How to map relation between arguments in temporal argument framework for long conversation?
- What to remember and forget based on key arguments and PGVs in a single deliberation.
- How does recency play a role in this memory design?
- How to leverage this memory in second group discussion?
- What to forget and remember in the second group discussion based on context?

(2) Shared PGV representation:

- How to use PGV in supporting group decision making?
- How will PGV vary across context?

- Verify:** Verify the perceived group values mentioned by the agent by human.



- Leverage:** Leverage the PGVs to understand key arguments needed to make a decision

(4) Hybrid memory system:

- System and a human collaboratively leveraging combined memories, utilizing PGVs and key arguments, for decision-making.
- Human influencing the task by providing PGVs to support their arguments.

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