Office scenario:

The office setting consists of rooms and workspaces where tasks are performed. There are two players, in this environment; humans and robots. Humans possess the ability to move around freely within the office and perform tasks while robots are stationary but equipped with cleaning and organizing capabilities.

The shared task at hand is "Office Cleanup," which involves tasks. The first task is to clean and organize workspaces ensuring that they are neat and tidy. The second task is to maintain order by arranging items in their designated places.

In a scenario the humans essential task is to retrieve documents from a particular workspace. On the hand the robots responsibilities include cleaning up any spills or messes on workspaces and organizing items according to predefined rules.

When it comes to collaboration dynamics humans have mobility throughout the office including access, to the workspace where important documents are located. The robots actions revolve around cleaning workspaces based on sensor input and organizing items based on predetermined rules.

Without relying on an office application humans mentally estimate how progress the robot would have made in terms of cleaning and organizing tasks. When the human comes back they notice that the robot has made some changes, which helps them feel less uncertain, about what the robot has been doing. The human then uses these changes to make inferences like detecting a spill and this new knowledge becomes important, for their task.

Building blocks:

Environment
Office space with rooms and workspaces.

Agents
Human:
Attributes: Mobility, capability to perform essential tasks.
Location: Can move around the office.

Robot:
Attributes: Cleaning, organizing capabilities.
Location: Stationary in the office.

Shared Task
Office Cleanup

Abstract Tasks:
Clean Workspace: Clean and organize workspaces.
Maintain Order: Ensure items are appropriately arranged.

Specific Scenario:
Human Tasks:

Essential Task:
Retrieve important documents from a specific workspace.

Robot Tasks:
Cleaning Task:
Clean workspaces, addressing spills or mess.
Organizing Task:
Arrange items systematically.

Dynamics
Human Movements:
Move around the office, including the workspace with the important documents.
Robot Actions:
Clean workspaces based on its sensors' input.
Organize items based on predefined rules.

Human's anticipation
Human mentally estimates the progress the robot would have made in cleaning and organizing in the absence of a smart office application.

Uncertainty Reduction:
Human, upon returning, observes changes made by the robot, or being communicated if something cannot be observed but achieved by the robot… reducing uncertainty about robot's activities or the progress.

Inference (with help GRAAL)
Human infers additional knowledge (e.g., that tea spill is cleaned) based on changes made by the robot in the office area.

Crucial Inferred Knowledge
Inferred knowledge (e.g., spill cleaned) becomes a precondition for the team's next task.