

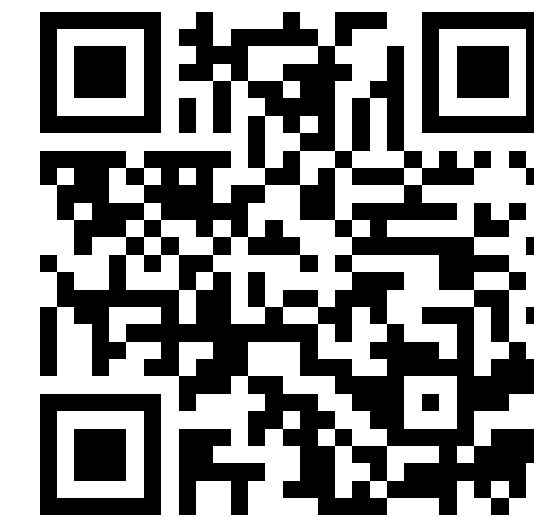
AN INTERFACE FOR COMMUNICATING BRANCHING PLANS FOR HUMAN-AGENT DECISION MAKING

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LINK TO OUR ONLINE
UNITY3D DEMO
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LINK TO OUR RELATED PAPER
@ICAPS'21 XAIP WORKSHOP
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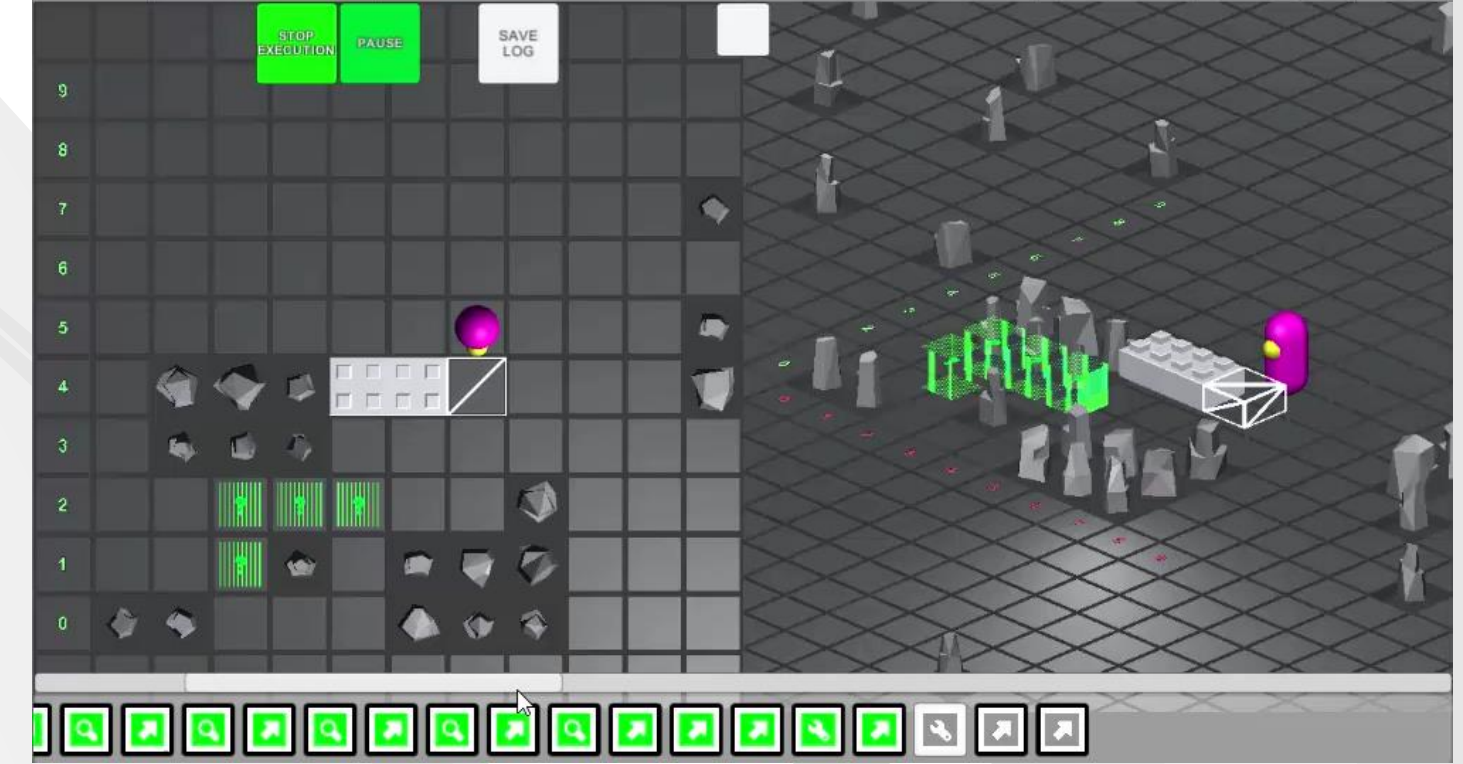
RATIONALE

How best to communicate, using visualisation, the key information content of a branched plan? It is important that such visualisations communicate the complexity and variety of the possible executions captured in a branched plan, whilst also connecting to the practitioner's understanding of the problem.



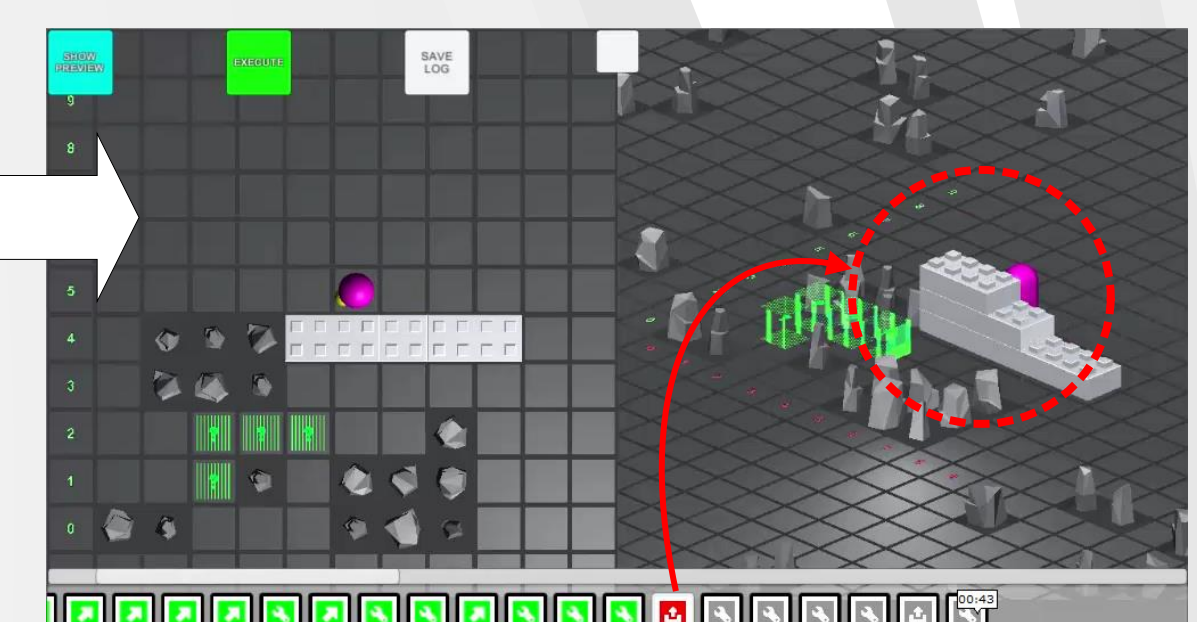
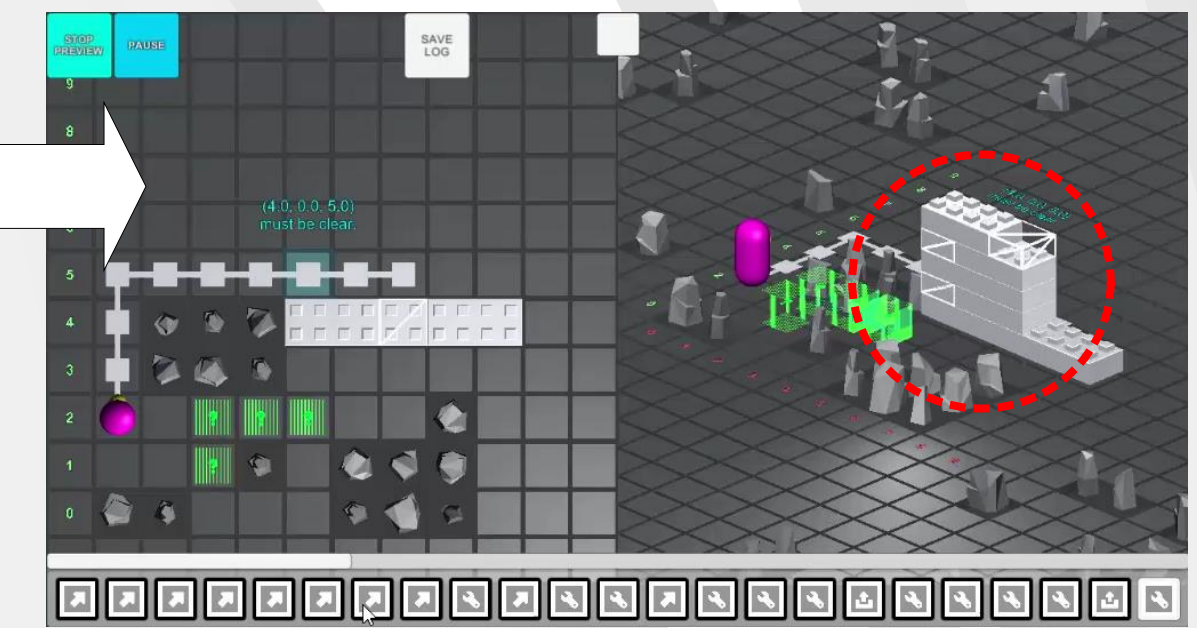
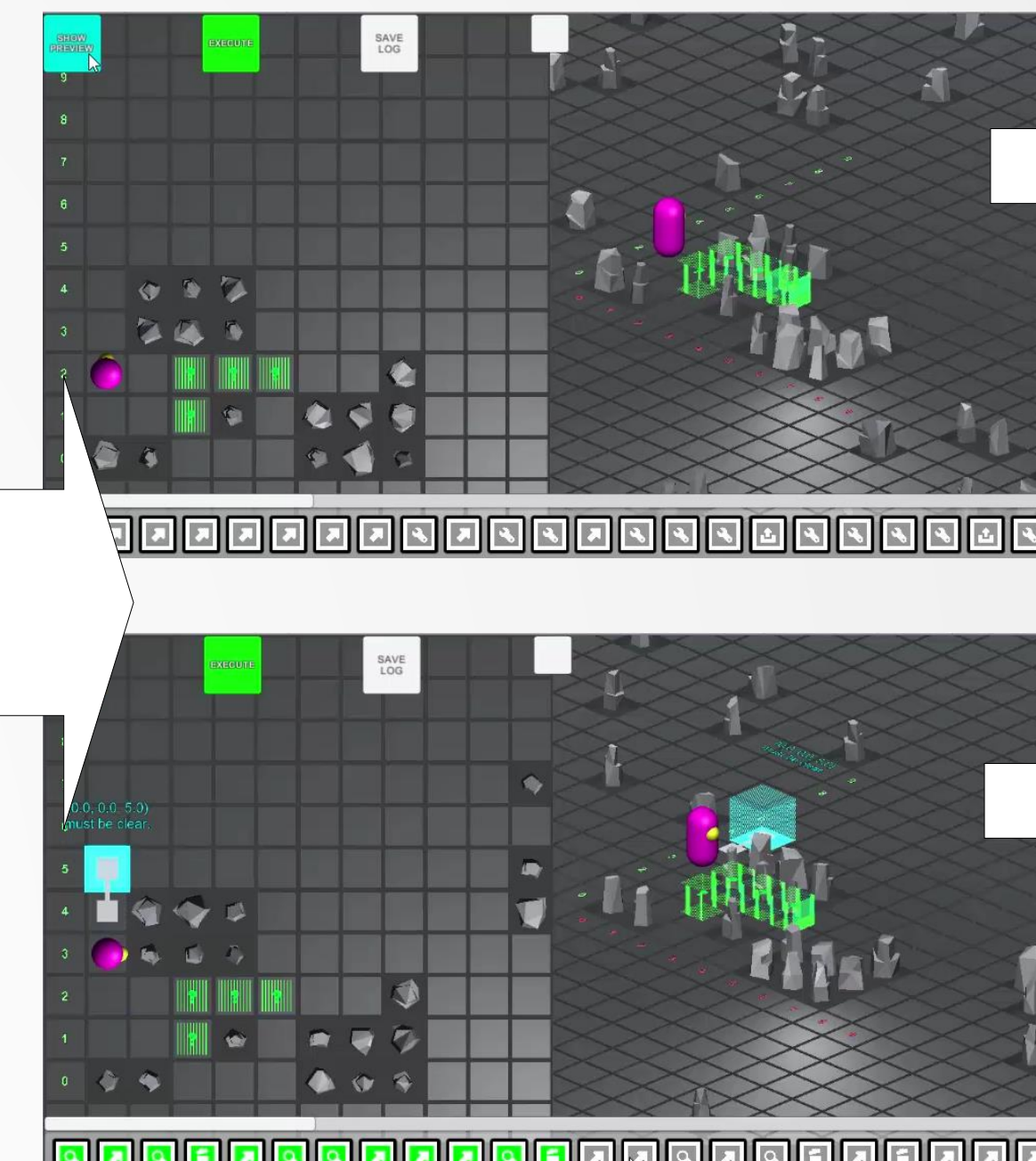
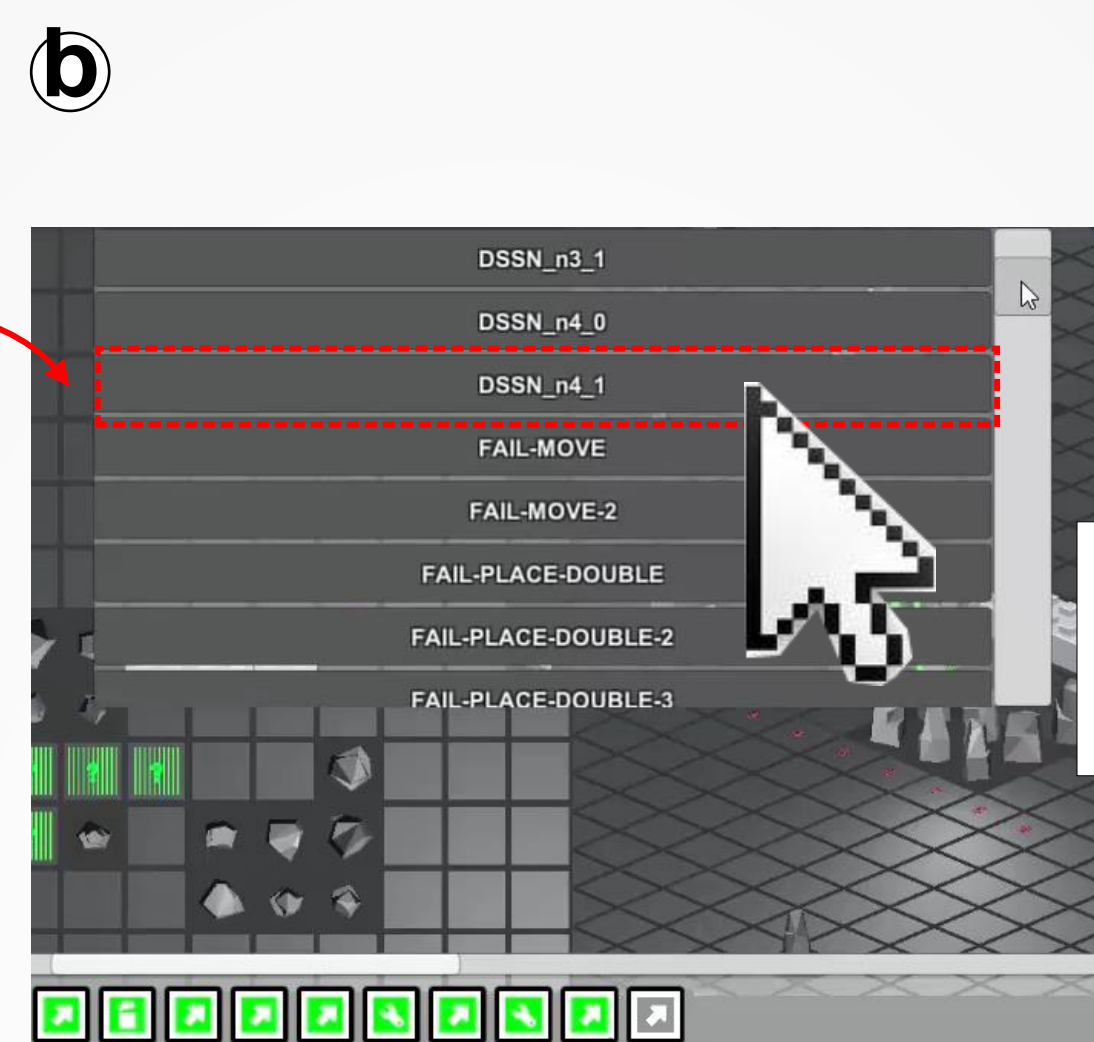
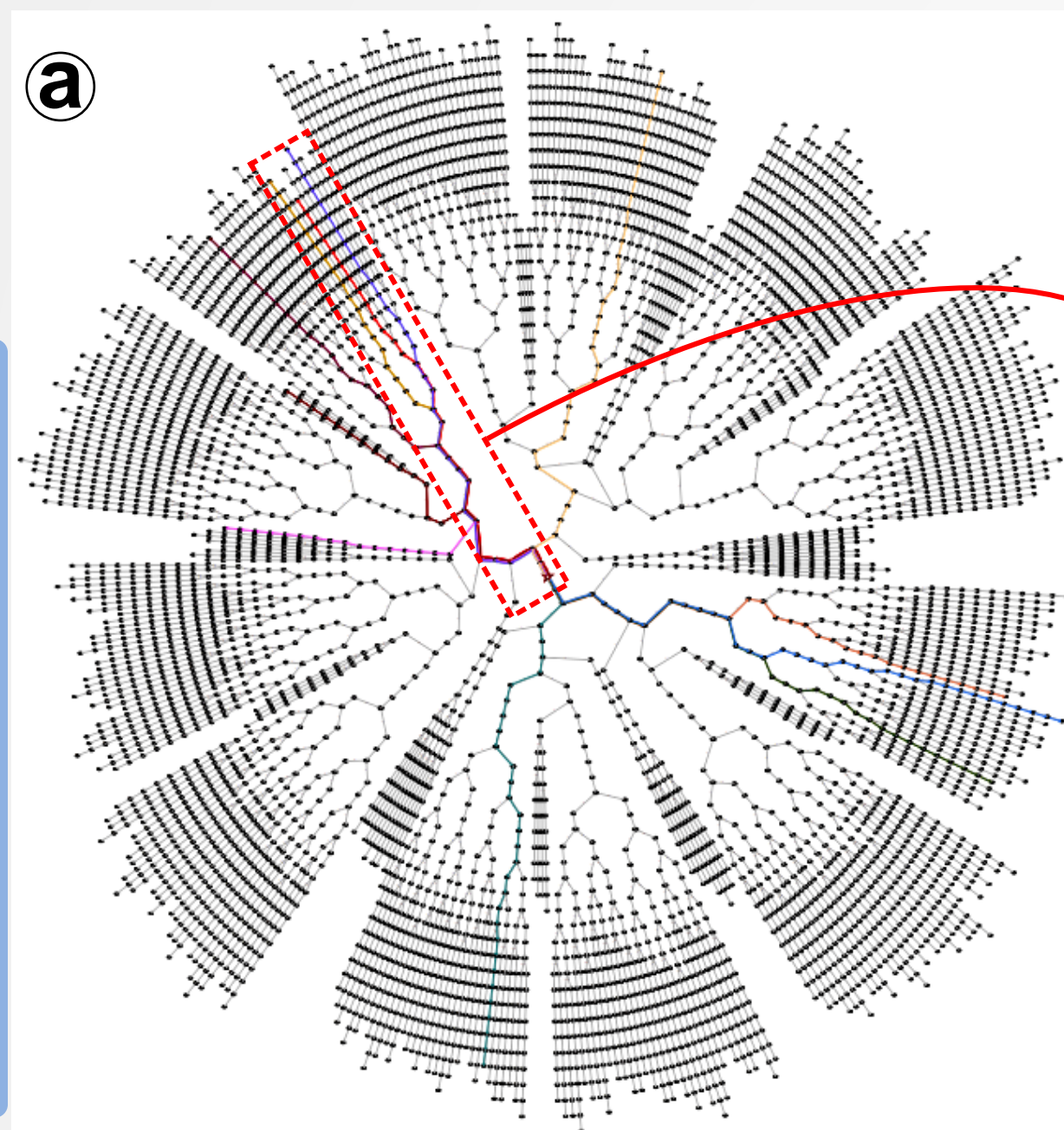
we have developed an approach which includes:

- the complete branched plan, to be able to provide a full picture of its complexity;
- a mechanism to select a subset of diverse traces that characterise the possible executions;
- and an interface that uses 3D visualisation to communicate details of these characterising execution traces to practitioners.



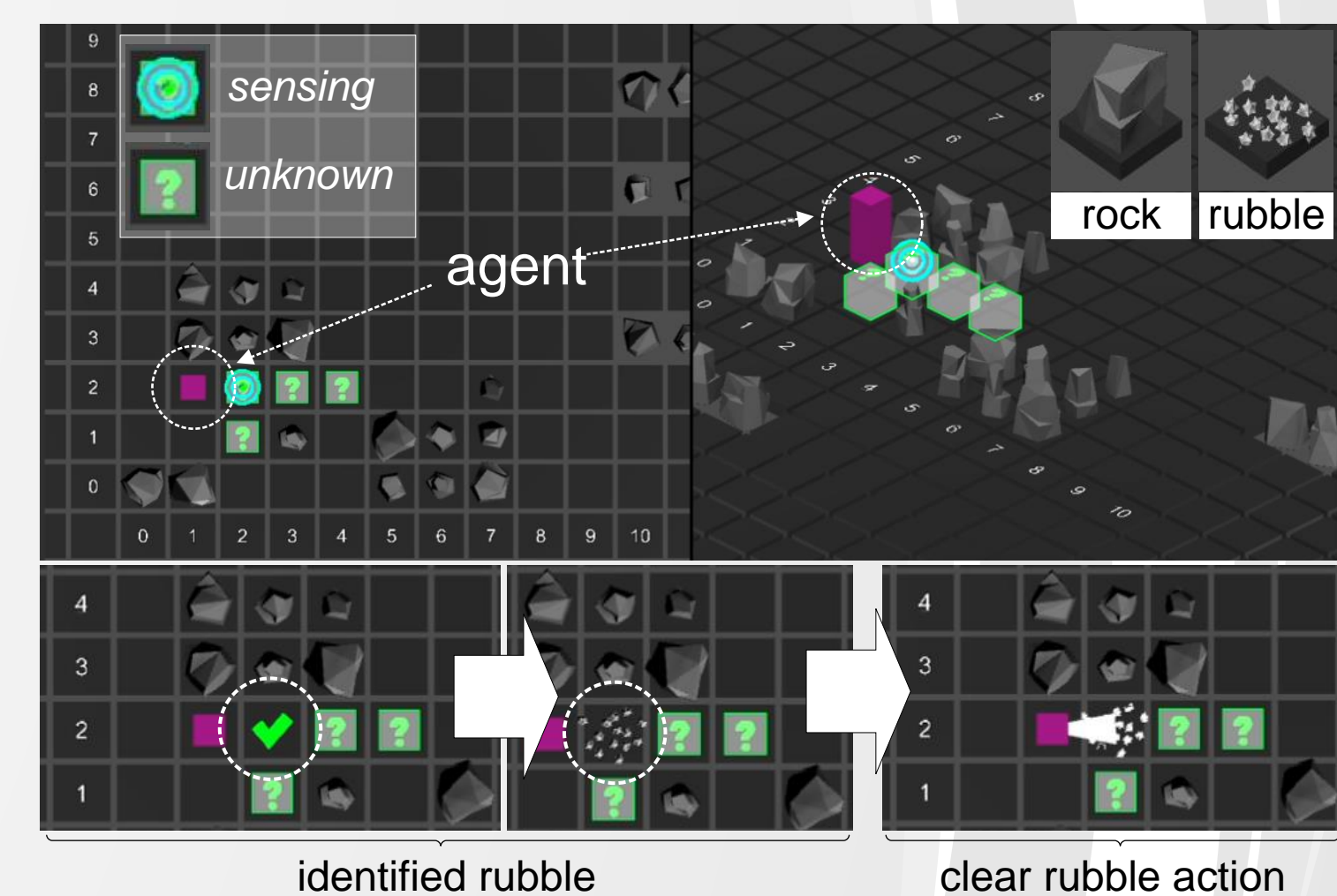
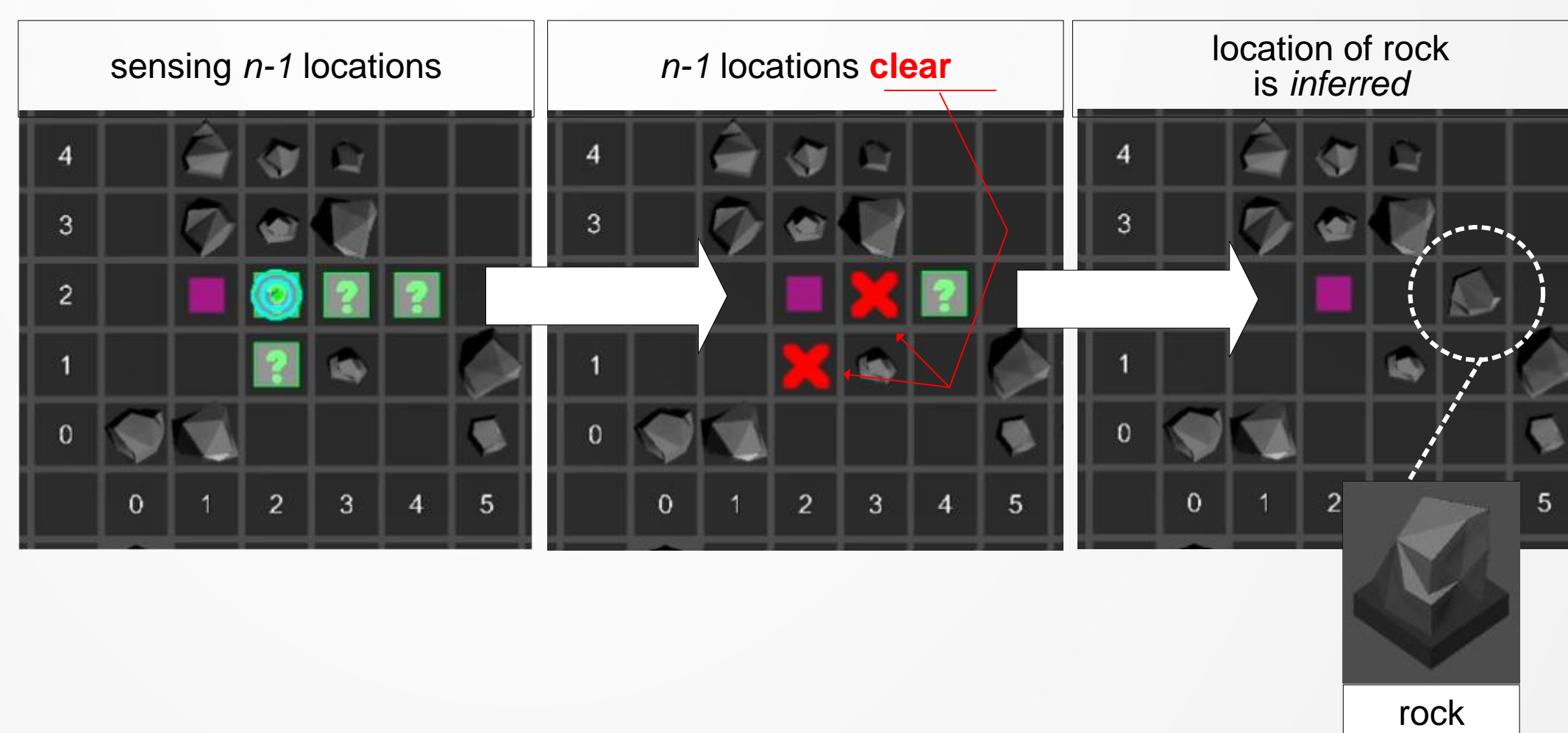
USER INTERACTION VIA GUI INTERFACE

- complete branched plan is generated, characterising branches identified and visualised using a radial graph layout
- user selects which branch to explore
- user observes simulation of one branched plan trace
- user observes agent navigate around rocks into a position to start construction



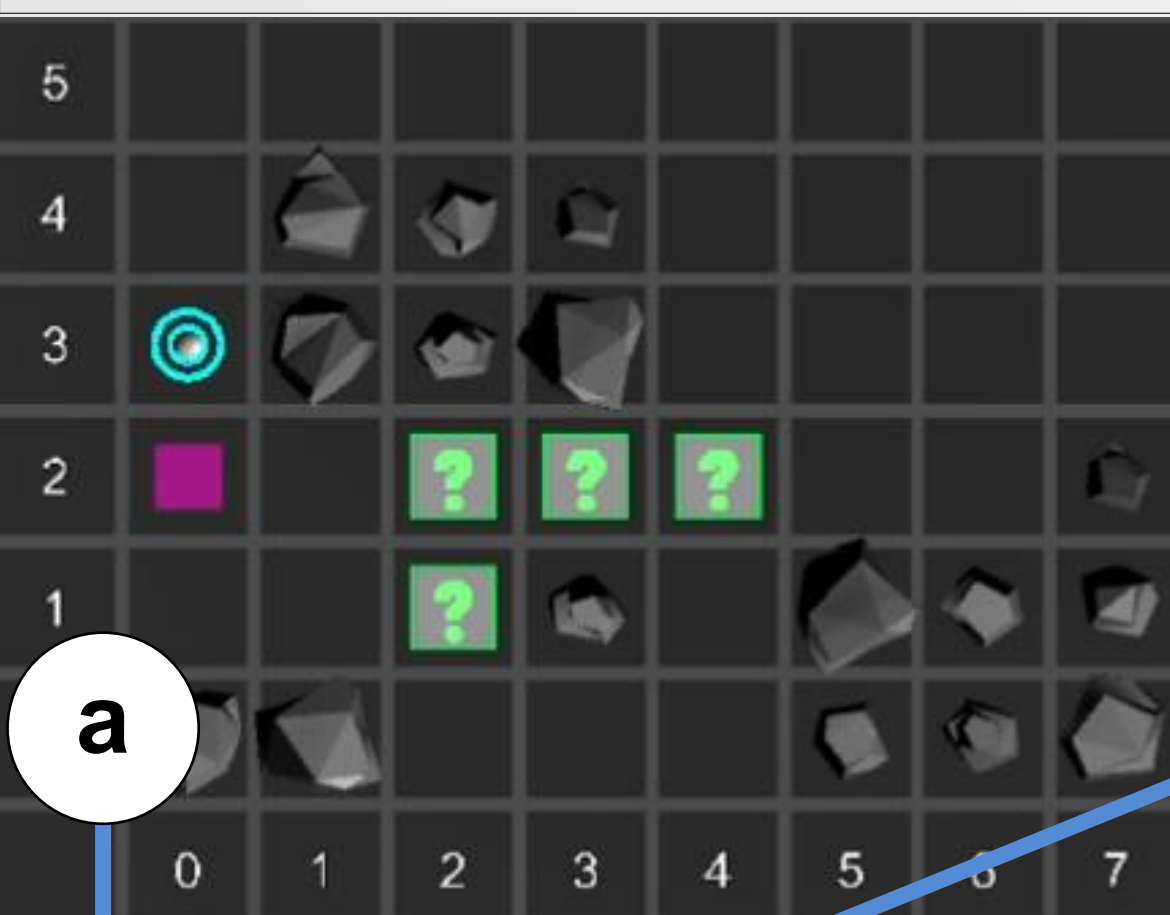
3D VISUALISATION OF ACTION SEQUENCES

The generation of 3D visualisations of agent actions relies upon the ability of the interface to convey realistic and semantically meaningful animations within the virtual environment. To maximise the practitioner's understanding of the execution traces that are visualised, we created contextually identifiable discrete sets of 3D animations constituting meaningful representations of agent actions.

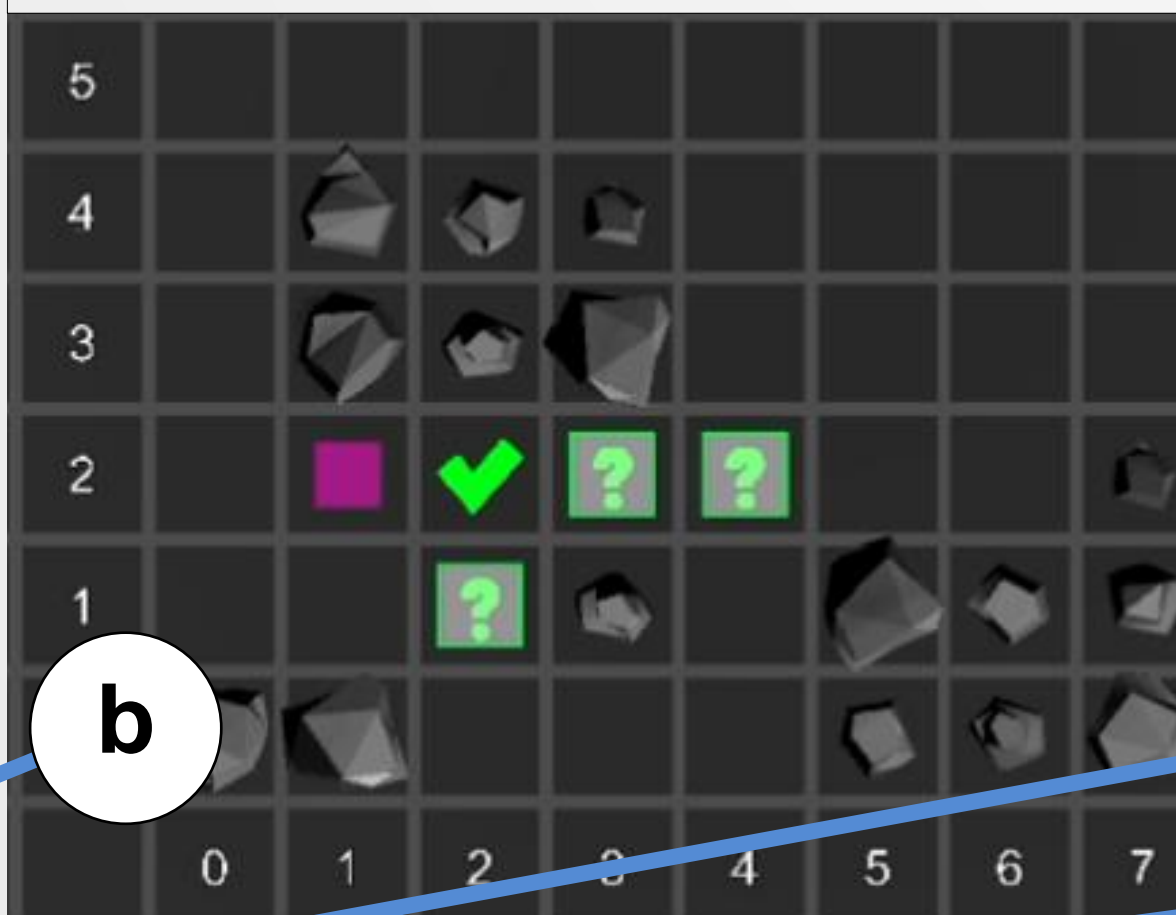


EXAMPLE

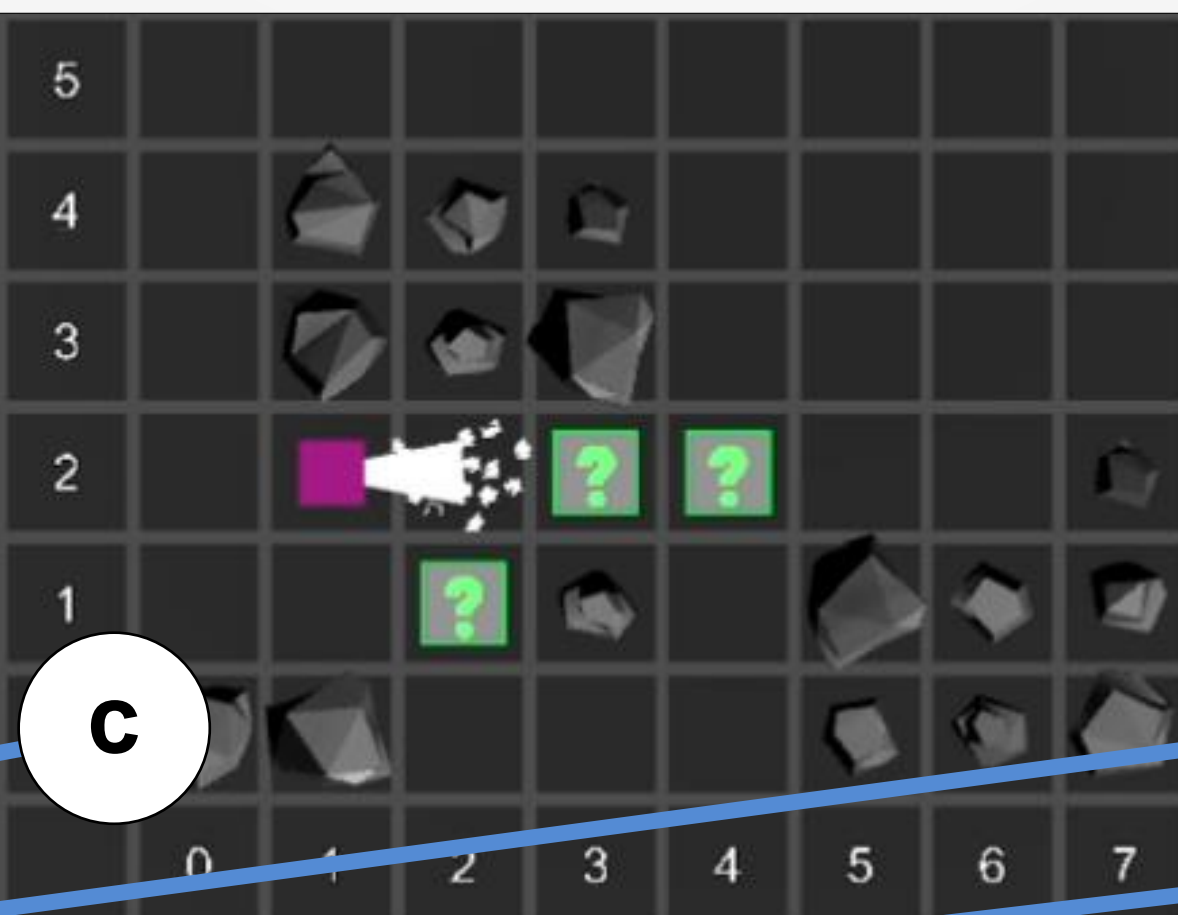
agent senses with negative outcome



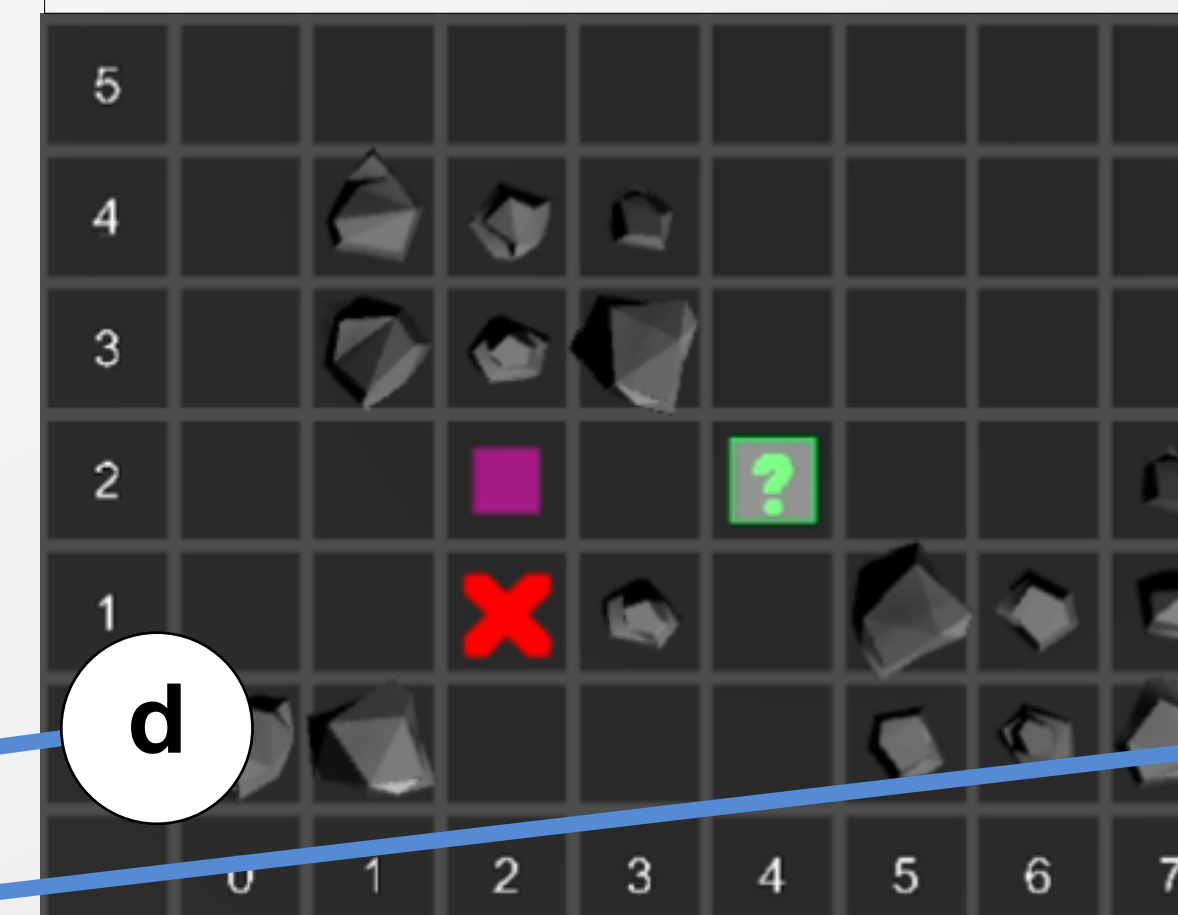
agent senses that identifies rubble



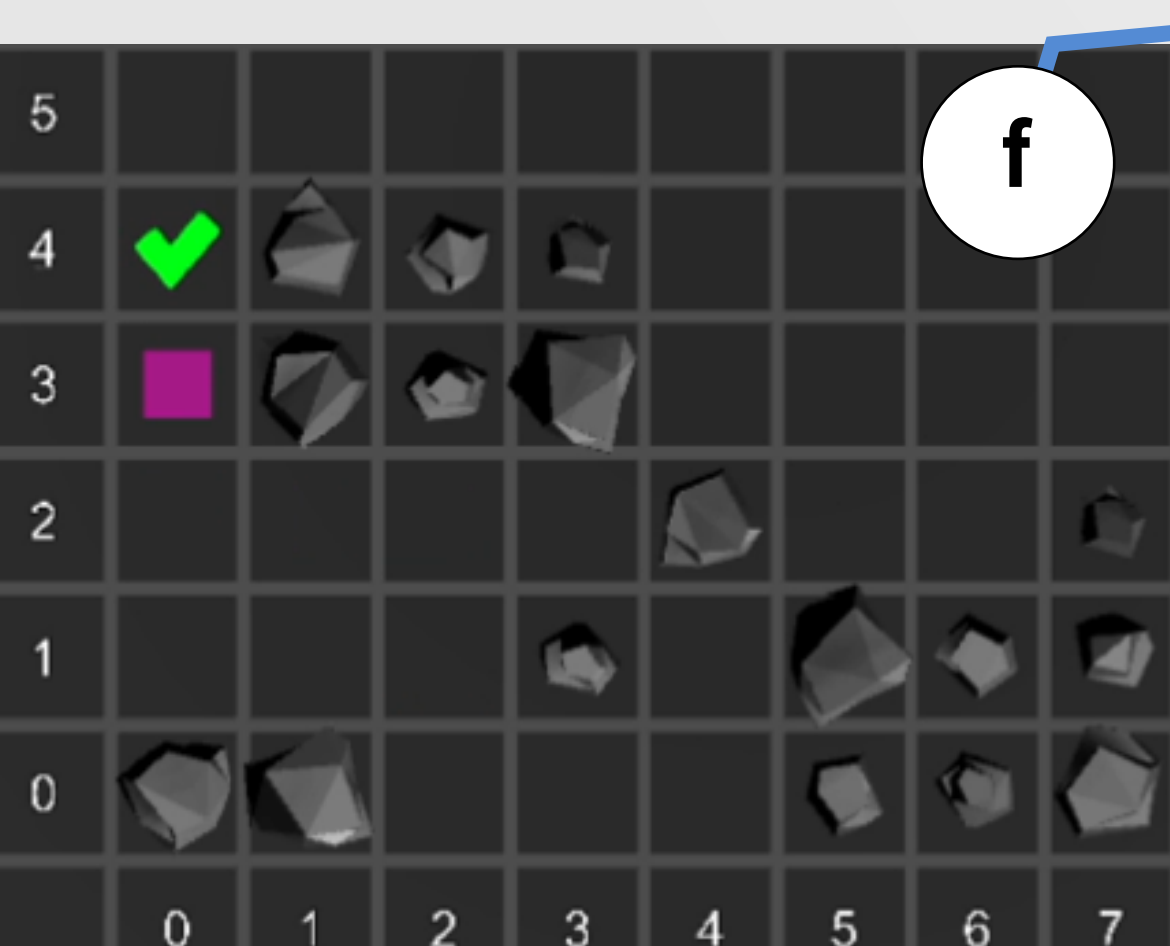
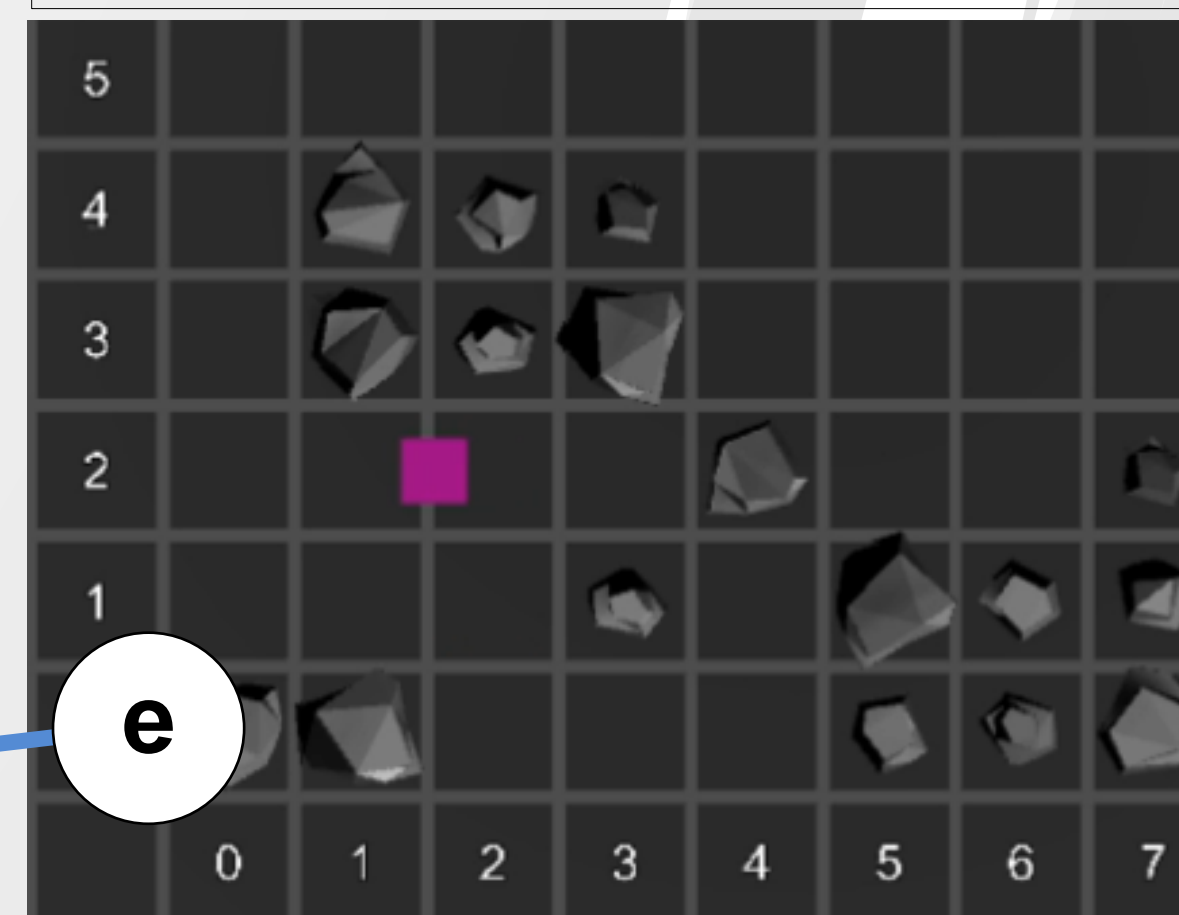
agent clears the rubble



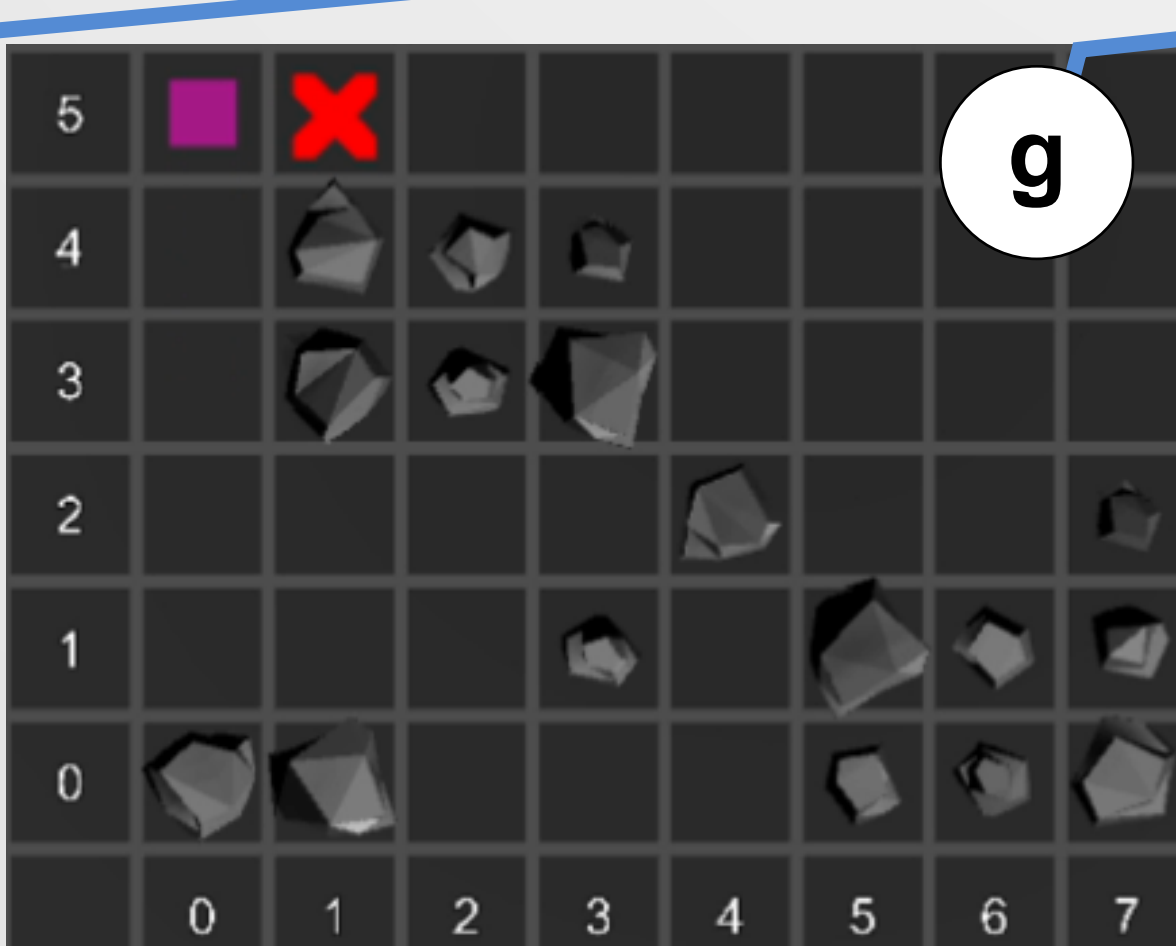
senses in front with negative outcome



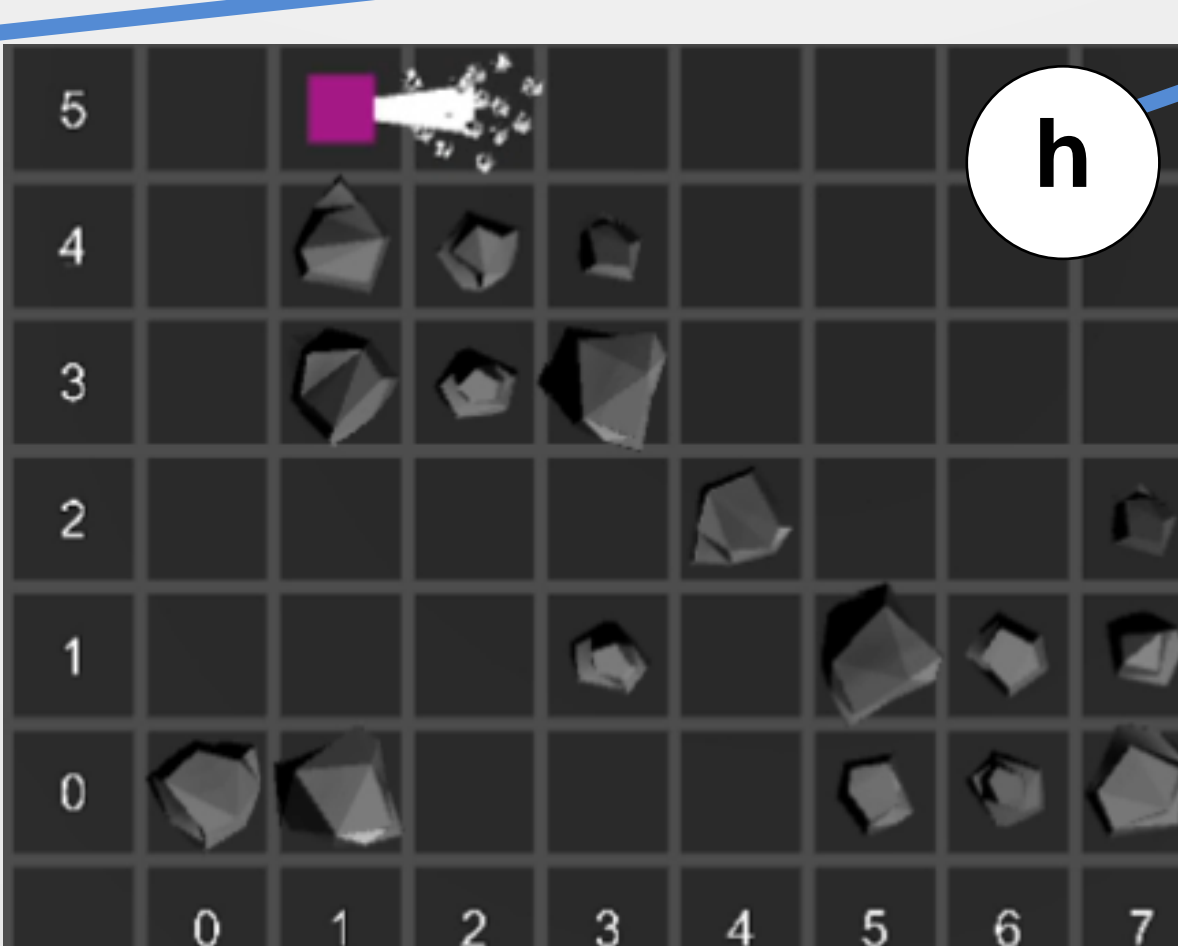
obstruction from a rock, agent moves back



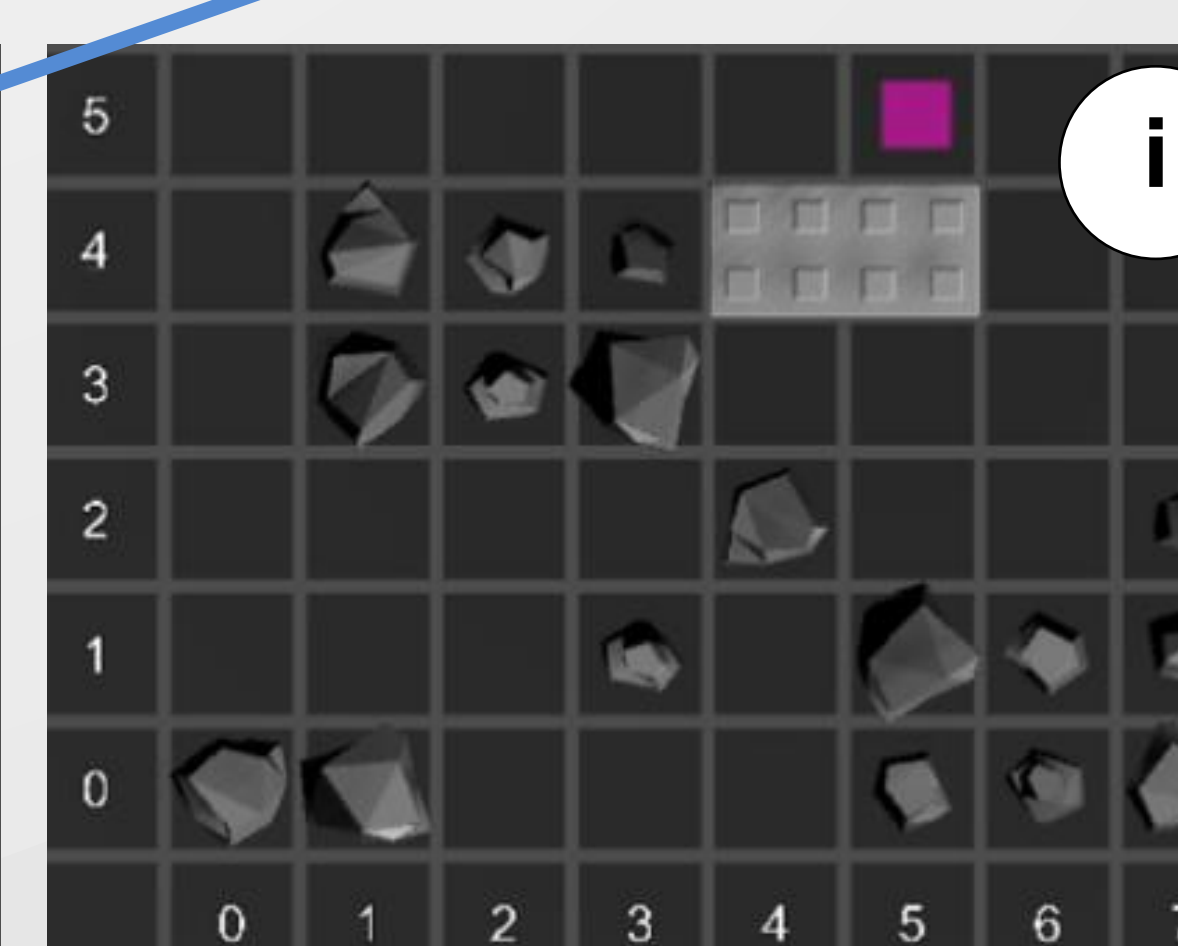
senses and identifies more rubble on its way



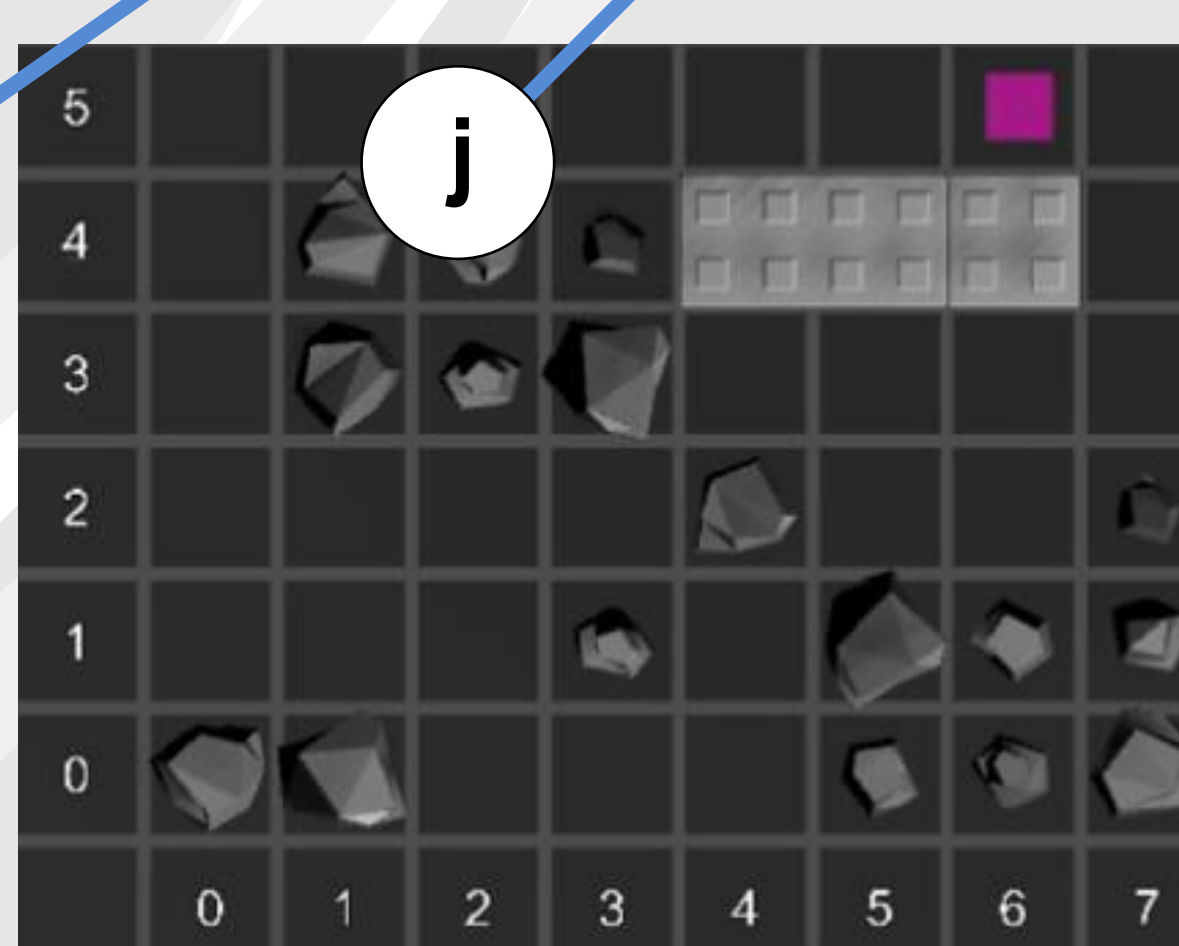
agent does not detect any obstructions



agent clears the rubble discovered



agent constructs a double block



agent constructs a single block