A Example Conversation

The following is an example conversation recorded between the RL agent and the simulated user.

1. Is the square above the circle?
   Yes
2. Is the square left of the circle?
   No
3. Is the square above the circle?
   Yes
4. Move the square down.
   Yes
5. Is the square above the circle?
   Yes
6. Move the square down.
   Yes
7. Is the square above the circle?
   No
8. Move the square left.
   Yes
9. Move the square left.
   Yes
10. Move the square left.
    Yes
11. Move the square left.
    Complete

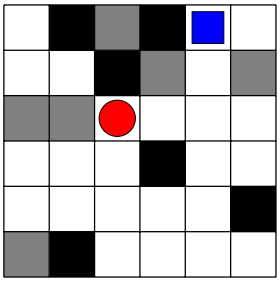

Fig. 7. Initial gridsworld for the example conversation

Note that in 2) the agent learns that the square is not to the left of the circle, and this knowledge is retained over the next few call and response pairs, since in 8) the agent immediately knows to start moving left rather than confirm the relative position of the square.

B Table of Utterances

Table 2 contains all the possible utterances of both the RL agent and the simulated user.

Table 2. User/RL agent utterances

Speaker	**Utterance Type**	**Text**	**Notes**
RL Agent	Relational Question	Is the square above the circle?	
		Is the square below the circle?	
		Is the square to the right of the circle?	
		Is the square to the left of the circle?	
	Trap Question	Where is the nearest trap?	
	Movement Command	Move the square up	
		Move the square down	
		Move the square to the left	
		Move the square to the right	
Simulated User	Relational Question Response	Yes	
		No	
	Movement Command Response	Yes	The answer tells the agent whether the movement was successful or not
		No	
	Trap Question Response	There are no traps in the scene	
		It is X moves D_1 and Y moves D_2	X and Y are integers between 1 and 5, D_1 and D_2 are directions: up, down, left, or right
		It is X moves D_1	X is an integer between 1 and 5, D_1 is a direction: up, down, left, or right
		You're in one!	