Supplement 1: Narrative Conditions in Experiments 1&2

KEY:

Agent-Centered Memory Lures (6)

Peripheral Memory Lures (8)

Deese-Roediger-McDermott False Memory Lures (2)

1.1 ANTHRO agent INTENTIONAL events

This robot is called OSCAR. He can watch others perform actions and then use this information to guide his behavior. OSCAR can see objects in his environment, and can understand how a person might use them. OSCAR can also understand and respond to spoken language. OSCAR also has a built in capability to play chess. He is really good at it. He can build a plan for ten steps in advance, predict your responses and consider the strength of the resulting position. OSCAR frequently plays against the graduate students from the lab next door, but not the lab manager Eric. OSCAR also has a very good memory. He remembers people well and remembers what they like. He can remember what your favorite song is and play it when you ask.

Recently, OSCAR was walking though a room, and he saw a stapler. He remembered that one of the professors in the chemistry lab down the hall needed the stapler, so he picked it up and took it to the professor. While walking to the professor's lab, OSCAR passed a graduate student who needed the stapler. The student took the stapler and replaced it with a bottle of glue, telling OSCAR that anything that could be stapled could also be glued. Because OSCAR did not know very much about the difference between stapling and gluing, he delivered the glue to the professor.

Based on this incident, students in the lab have been working to teach OSCAR about objects. In one exercise, they showed OSCAR a small book with a white cover, a pen, square piece of bread, and a straw, and asked him to put the objects into pairs that were similar. OSCAR paired the pen with the book because both were related to writing, and paired the bread and the straw because both were related to eating. The students told OSCAR that he had done a good job.

Later in the week, OSCAR was working with a student on a simple block-building task using Legos. The student was trying to show OSCAR how to build one specific tower, and was hoping that OSCAR would be able to generalize this lesson and understand how to build many different kinds of towers. At one point, OSCAR was looking at two small containers sitting on the table in front of him, each containing a dozen Legos. One container to OSCAR’s left was filled with long thin Legos, and the other, to his right, was filled with short wide Legos. To complete the next step in the tower-building task, OSCAR needed a long thin Lego, but kept choosing short wide ones. The student was in a hurry and did not want the towers to get messed up, so she told OSCAR to choose a long thin Lego instead of a short wide one. OSCAR then was able to successfully complete the tower.

Later that day, the students were testing OSCAR’s ability to manipulate different kinds of objects. The students placed multiple objects near OSCAR. On his right, they placed: a ballpoint pen, a pair of sunglasses, and a blue whiteboard marker. On OSCAR's left, they placed: a tennis shoe, a white scarf, and a yellow pencil. There was also a rectangular bin in which OSCAR could place the objects he picked up. First, the students told Oscar to pick up the ballpoint pen to his right. After OSCAR picked up the pen and placed it in the bin, they told him to pick up the whiteboard marker to his right. Once OSCAR placed the marker in the bin, the students told him to pick up the object that completed the set, and place that object in the bin. OSCAR picked up the yellow pencil, because all of the objects he had picked up were used for writing. OSCAR placed the pencil in the bin, and the students told him he did a good job.

On a recent Thursday afternoon, the students in the lab were teaching OSCAR to perform a simple task in which he was supposed to grab a long thin tube, place a yellow cap on one end, and then insert the tube into a round hole on the top side of the box. They were interacting with OSCAR using an innovative system in which the students used a laser pointed to instruct OSCAR. OSCAR started out the session moving about and doing many different random things. Then, the students started teaching him using the laser pointer. For example, to get OSCAR to put the cap on the tube, the students pointed the laser at the cap, and then at the end of the tube. The students spent a full day teaching OSCAR to perform the task and were happy to watch him correctly perform the task. The next day, they had OSCAR perform the task for the professor in charge of the lab. Before starting, however, the professor turned the box upside down. OSCAR put the cap on the tube, and then looked at the box, stopping short when he could not see the hole. The professor said that OSCAR was not very good at performing the task.

The students in the lab had the idea to teach Oscar how to clean up a messy room. Once they thought Oscar had learned this skill, one student brought Oscar to his house just south of campus. To test Oscar, he brought Oscar to the kitchen and told him to pick up the items scattered around the room and to place them in either the cupboard or the refrigerator. Oscar moved around the room and picked up the following items: butter, a sandwich, jam, milk, flour, jelly, and dough. Oscar then placed these items where they belonged. The student told him that he did well.

For fun, one day the students decided to teach Oscar how to create an obstacle course. First, the students had Oscar learn some examples of objects that can be used when creating an obstacle course. To do this, they created an obstacle course in the university's student center for Oscar to go through. When Oscar went through the obstacle course, he saw the following objects: a table, a couch, a desk, a recliner, a sofa, wood, a cushion, and a stool. After the exercise was over, the students began to brainstorm how they would teach Oscar how to position the objects.

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This robot is called OSCAR. He can watch others perform actions and then use this information to guide his behavior. OSCAR can see objects in his environment, and can understand how a person might use them. OSCAR can also understand and respond to spoken language. OSCAR also has a built in capability to play chess. He is really good at it. He can compute a set of moves for ten steps ahead, predict players’ responses and calculate the resulting position. OSCAR frequently plays against the graduate students from the lab next door, but not the lab manager Eric. OSCAR also has a very good memory. He remembers people well and remembers what they like. He can remember what your favorite song is and play it when you ask.

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1.3 NONANTHRO agent INTENTIONAL events

This robot is called SOCAR. It can detect when others perform actions and then use this information to compute its actions. SOCAR has been programmed to identify objects and to link identified objects with a database that lists objects that people in the lab building have entered into his control system. SOCAR is also equipped with a voice recognition system that enables it to respond to verbal commands. SOCAR also has a built-in chess program. This program is really good. It can build a plan for ten steps in advance, predict your responses and consider the strength of the resulting position. Graduate students from the lab next door frequently play against the program, except for the lab manager Eric. SOCAR is also equipped with a sophisticated memory system. It can perform a large number of operations at a time. It also has a sound recording device. It can record your favorite songs and play them back to you.

Recently, SOCAR was moving through a room, and it identified a stapler. It linked the stapler with a previous request from a professor in a chemistry lab down the hall. So, SOCAR took the stapler to the professor’s lab. While SOCAR was moving down the hall, a graduate student who needed the stapler saw it in SOCAR‘s basket, and replaced it with a bottle of glue. Because anything that could be stapled could also be glued, SOCAR did not detect the switch and gave the professor the glue.

Based on this incident, students in the lab have been working to teach SOCAR about objects. In one exercise, they placed a small book with a white cover, a pen, square piece of bread, and a straw, in front of SOCAR and ran one of the programs on SOCAR that paired objects that were similar. SOCAR paired the pen with the book because both were related to writing, and the bread and the straw because both were related to eating. The students entered feedback into the program that it had correctly paired the objects.

Later in the week, a student was programming SOCAR to complete a simple block-building task using Legos. The student was trying program SOCAR to build one specific tower, and was hoping that the program in SOCAR would then be able to generalize and build many different kinds of towers. At one point, SOCAR was processing two small containers, each containing a dozen Legos. One container to SOCAR’s left was filled with long thin Legos, and the other, to its right, was filled with short wide Legos. To complete the next step in the tower-building task, SOCAR needed a long thin Lego, but kept using short wide ones. The student was in a hurry and did not want the tower to get messed up, so she instructed SOCAR to use a long thin Lego instead of a short wide one. SOCAR then successfully completed the tower.

Later that day, the students were testing SOCAR’s ability to manipulate different kinds of objects. The students placed multiple objects near SOCAR. On its right, they placed: a ballpoint pen, a pair of sunglasses, and a blue whiteboard marker. On SOCAR’s left, they placed: a tennis shoe, a white scarf, and a yellow pencil. There was also a rectangular bin in which SOCAR could place the objects it picked up. First, SOCAR processed the students’ command to pick up the ballpoint pen to his right. After SOCAR picked up the pen and placed it in the bin, they ran the subsequent command to pick up the whiteboard marker to its right. Once SOCAR placed the marker in the bin, the students ran the program to pick up the object that completed the set, and place that object in the bin. SOCAR picked up the yellow pencil, because all of the objects it had picked up were used for writing. SOCAR placed the pencil in the bin, and the students entered feedback that it had completed the task correctly.

On a recent Thursday afternoon, the students in the lab were programming SOCAR to perform a simple task in which it was supposed to hold a long thin tube, place a yellow cap on one end, and then insert the tube into a round hole on the top side of the box. They were interacting with SOCAR using an innovative system in which the students used a laser pointed to program SOCAR. SOCAR started out the session moving about and performing many different random actions. Then, the students started programming it using the laser pointer. For example, to get SOCAR to put the cap on the tube, the students pointed the laser at the cap, and then at the end of the tube. The students spent a full day programming SOCAR to perform the task and were happy to watch him correctly perform the task. The next day, they had SOCAR perform the task for the professor in charge of the lab. Before starting, however, the professor turned the box upside down. SOCAR put the cap on the tube, and then jammed the tube into the top of the box. The professor said that SOCAR was not very good at performing the task.

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