Supplement 2: Narrative Conditions in Experiment 3

KEY:

**Differences between prompts**

Agent-Centered Memory Lures (8)

Peripheral Memory Lures (8)

Deese-Roediger-McDermott False Memory Lures (2)

1.1 ANTHRO agent INTENTIONAL events

This robot is **named 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 people might use them to accomplish different goals.** **OSCAR can understand and respond to spoken language. OSCAR has also learned to play chess. He is really quite skilled.** **He can plan** moves for ten steps in advance, **predict your responses and consider the best moves for different opponents. OSCAR frequently plays against the graduate students from the lab next door**, except for the lab manager Eric. **OSCAR also has a very good memory**. **He can understand both written text and spoken communication. He remembers people well and remembers their preferences. He can remember your favorite songs and play them on request.**

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, **OSCAR** took the stapler to the professor’s lab. **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. **OSCAR was taught** **that staplers and glue were both adhesives, so he did not know the difference** and gave the professor the glue.

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 fork, a block of wood, and a straw, and **asked** **him to put the objects into pairs in a way that** **made sense. OSCAR** paired the pen with the fork **because both were hand held tools,** and paired the book with the block **because both were made from trees. The students told OSCAR he had done well and could take a break tonight.**

Later in the week, a student was **teaching** **OSCAR** 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 understand and apply this lesson to build different kinds of towers**. At one point, **OSCAR was looking at** two small containers, 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 tower to get messed up, **so she instructed OSCAR to use a Lego from the other container. OSCAR then chose a long thin Lego instead of a short wide one.** **OSCAR** then successfully completed 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 yellow pencil, and a blue whiteboard marker. On **OSCAR’s** left, they placed: a tennis shoe, a white scarf, and a pair of sunglasses. There was also a rectangular bin in which **OSCAR** could place the objects he picked up. First, the students **told** **OSCAR** **he should** pick up the ballpoint pen to **his** right. After **OSCAR** picked up the pen and placed it in the bin, **the students next asked him** to pick up the whiteboard marker to **his** right. Once **OSCAR** placed the marker in the bin, the students **asked if he could** 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 previously were used for writing**. OSCAR placed the pencil in the bin, **and the students told him that he had done 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 pointer 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 to guide OSCAR’s attention to the cap and the tube. They repeated this several times until OSCAR extended its arms to grab the cap and the tube.** The students spent a full day **teaching OSCAR** to perform the task until they were **satisfied he understood it**. 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, looked at the box, and then stopped 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 a messy room. Once they thought **OSCAR** **had learned this new skill**, one student brought **OSCAR** to his house just south of campus. To test **OSCAR**, he brought **OSCAR** to the kitchen and **asked if he could pick up the various items scattered around the messy room** and place them in either the cupboard or the refrigerator. **OSCAR** **searched** 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 OSCAR 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. **OSCAR** could not complete the obstacle course at first because he could not climb the narrow stairs, so the students arranged all the obstacles on the bottom floor. 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** to position the objects.

1.2 ANTHRO agent NONINTENTIONAL events

This robot is **named OSCAR**. **He can watch** others perform actions and then use this information to **choose a response**. **OSCAR can see objects in his environment, and can understand how people might use them to accomplish different goals**. **OSCAR can understand and respond to spoken language**. **OSCAR has also learned to play chess. He is really quite skilled. He can compute** movesfor ten steps in advance**, anticipate the most probable responses and store images for later analysis.** **OSCAR frequently plays against the graduate students from the lab next door**, except for the lab manager Eric. **OSCAR also has a very good memory. He can understand both written text and spoken communication**. **He remembers people well and remembers their preferences. He can remember your favorite songs and play them on request.**

Recently, **OSCAR** was **walking** though a room, and **he** **saw** a stapler. **He remembered that** **one of the professors in the** the chemistry lab down the hall **needed the stapler**. So, **OSCAR** took the stapler to the professor’s lab. **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. **Because the glue was the same weight as the stapler, OSCAR** **did not know the difference and** gave the professor the glue

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, a square block of wood, and a straw, **and asked him to put the objects into pairs in a way that made sense**. **OSCAR** paired the pen with the fork **because both were long and thin,** and paired the book with the wood **because both were flat and square**. **The students told OSCAR he had done well and could take a break tonight.**

Later in the week, a student was **teaching** **OSCAR** to 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 understand and apply this lesson to build different kinds of towers**. At one point, **OSCAR** was looking at two small containers, 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 swapped the locations of the two containers. This caused OSCAR to use a long thin Lego instead of a short wide one**. **OSCAR** then successfully completed 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 yellow pencil, and a blue whiteboard marker. On **OSCAR’s** left, they placed: a tennis shoe, a white scarf, and a pair of sunglasses. There was also a rectangular bin in which **OSCAR** could place the objects **he** picked up. **First, the students told OSCAR** **he should** pick up the ballpoint pen to his right. After **OSCAR** picked up the pen and placed it in the bin, **the students next asked him** to pick up the whiteboard marker to **his** right. Once **OSCAR** placed the marker in the bin, the students **asked if he could** 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 on the right side**. OSCAR placed the pencil in the bin, **and the students told him that he had done 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 when OSCAR happened to go near it. They pointed the laser at the cap again when OSCAR happened to extend its arm toward it.** The students spent a full day **teaching OSCAR** to perform the task until they were **satisfied he understood it**. 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 jammed the tube again and again into the top of the box.** 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 a messy room. Once they thought **OSCAR** **had learned this new skill**, one student brought Oscar to his house just south of campus. To test **OSCAR**, he brought **OSCAR** to the kitchen and **asked if he could pick up the various items scattered around the messy room** and place them in either the cupboard or the refrigerator. **OSCAR** **searched** 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 OSCAR 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. **OSCAR** could not complete the obstacle course at first because he could not climb the narrow stairs, so the students arranged all the obstacles on the bottom floor. 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** to position the objects.

1.3 NONANTHRO agent INTENTIONAL events

This robot is **called PSCAR**. **It can detect when** others perform actions and then use this information to **compute responses**. **PSCAR has been programmed to identify objects from a database that has been coded into a remote server**. **PSCAR has voice recognition software that encodes verbal commands**. **PSCAR also has a built-in chess program. This program is really precise.** **It can plan moves for** ten steps in advance**, predict your responses and consider the best moves for different opponents.** **Graduate students from the lab next door frequently play against the program,** except for the lab manager Eric. **PSCAR is connected to a large database. It can perform several operations at the same time. It has sophisticated audio and visual recording devices. It can record your favorite songs and play them back later.**

Recently, **PSCAR** 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, **PSCAR** took the stapler to the professor’s lab. **While PSCAR was moving down the hall, a graduate student who needed the stapler saw it in PSCAR’s basket, and** replaced it with a bottle of glue. **PSCAR was programmed** **that staplers and glue were both adhesives, so it did not detect the difference** and gave the professor the glue.

Based on this incident, students in the lab have been working to **reprogram PSCAR’s object algorithm**. In one exercise, they placed **PSCAR** in front of a small book with a white cover, a fork, a square block of wood, and a straw, and **ran the program on PSCAR that paired objects that were similar**. PSCAR paired the pen with the fork **because both were hand held tools**, and paired the book with the block **because both were made from trees**. **The students coded the response as correct in the algorithm and shut off PSCAR.**

Later in the week, a student was **programming** **PSCAR** to complete a simple block-building task using Legos. The student was **trying to program PSCAR** to build one specific tower, and was hoping that **the program would reproduce similar movements to build many different kinds of towers**. At one point, **PSCAR was processing** two small containers, each containing a dozen Legos. One container to **PSCAR’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, **PSCAR** 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 PSCAR to use a Lego from the other container. PSCAR then chose a long thin Lego instead of a short wide one.** PSCAR then successfully completed the tower.

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On a recent Thursday afternoon, the students in the lab were programming **PSCAR** 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 **PSCAR** using an innovative system in which the students used a laser pointed to program **PSCAR**. **PSCAR** started out the session moving about and **performing many different random action**s. Then, the students started programming it using the laser pointer. For example, to get PSCAR to put the cap on the tube, **the students pointed the laser to guide PSCAR’s attention to the cap and the tube. They repeated this several times until PSCAR extended its arms to grab the cap and the tube.** The students spent a full day programming **PSCAR** to perform the task until they were **satisfied with the programming**. The next day, they had **PSCAR** perform the task for the professor in charge of the lab. Before starting, however, the professor turned the box upside down. **PSCAR put the cap on the tube, looked at the box, and then stopped when it could not see the hole**. The professor said that PSCAR was not very good at performing the task.

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