Associative Recognition (AR) Task Explained

Everything an experimenter needs to know about AR

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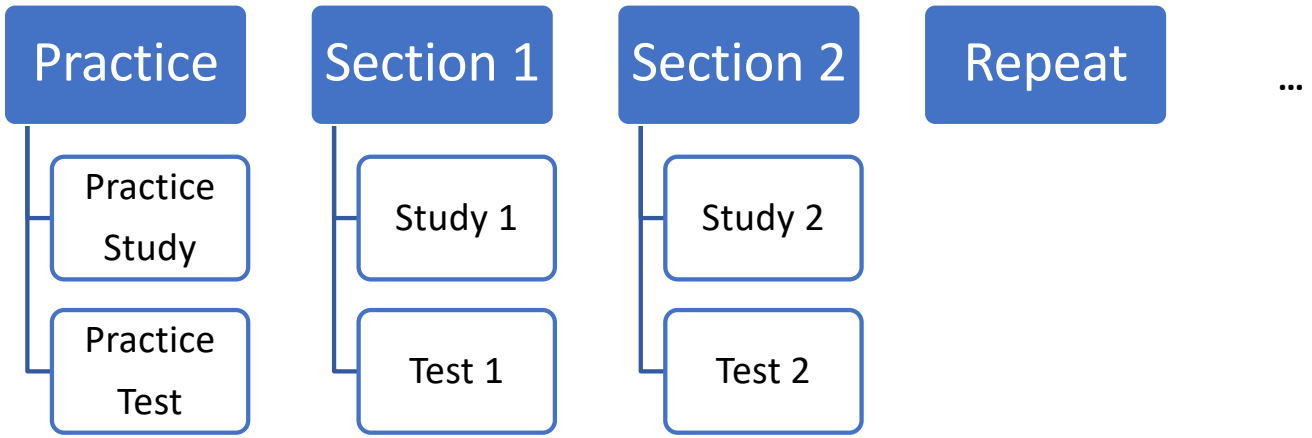
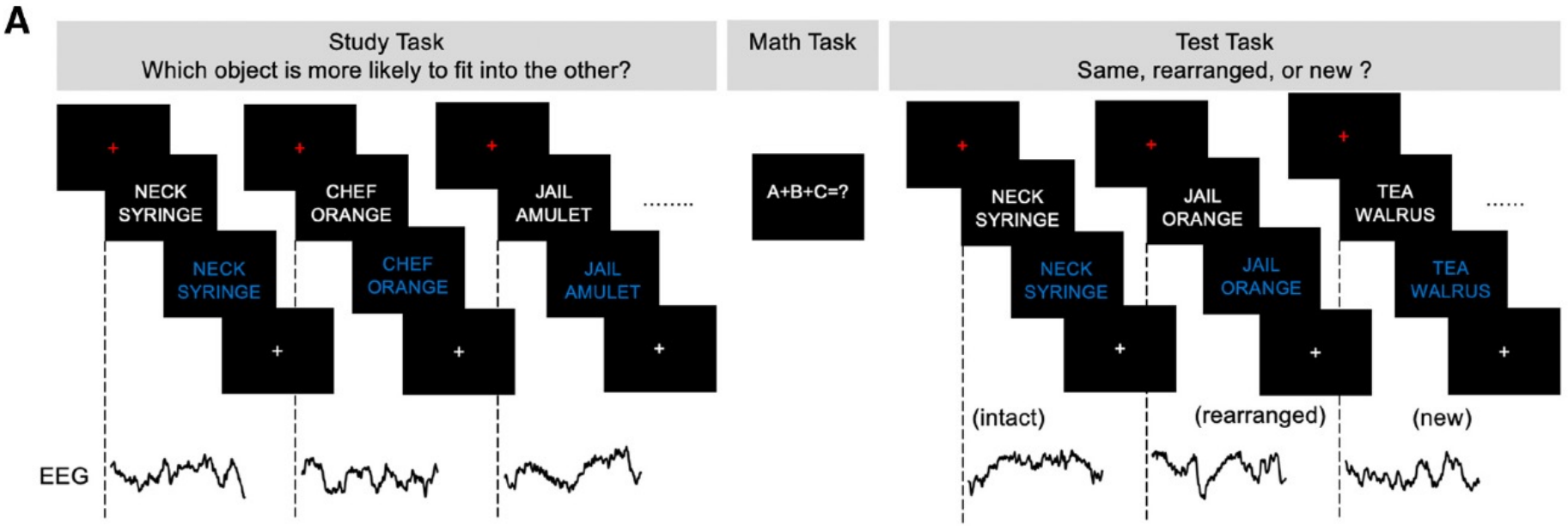
Associative Recognition (AR) Task

- The AR task is comprised of multiple study and test sections.



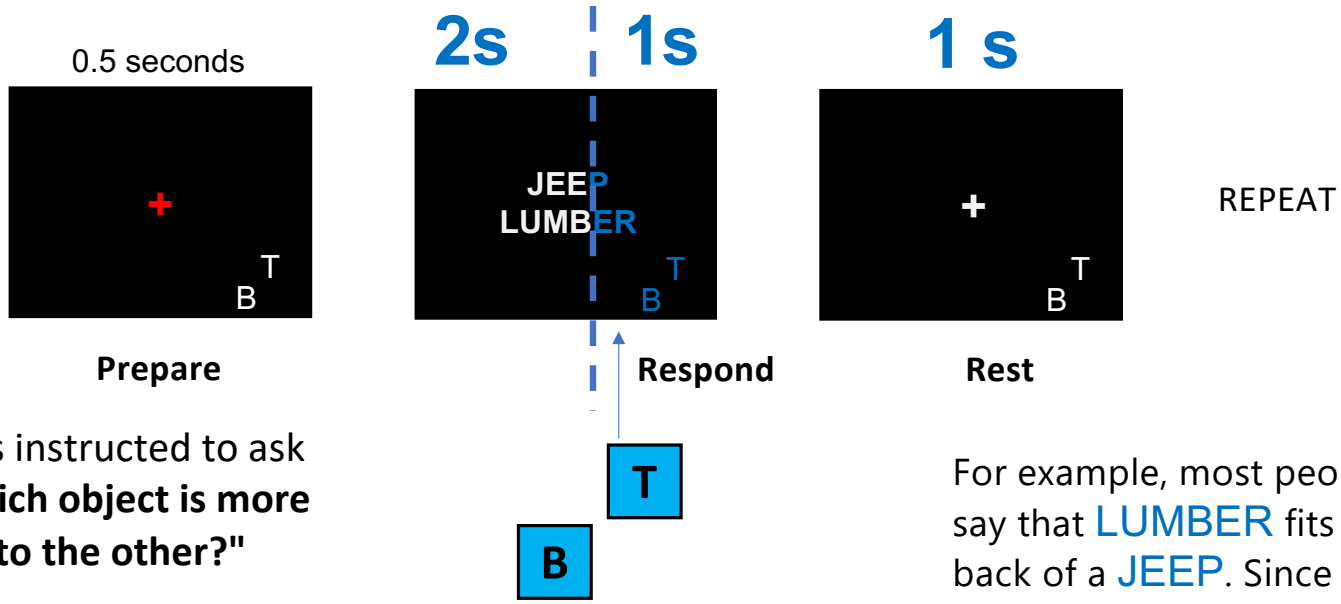
During the Study/Encoding phase, participants will see pairs of words on the screen and try to form a vivid association between the two words.



During the Test phase, participants will again see pairs of words on the screen, but this time the participant will judge if the pairs of words are **New** pairs, the **Same** pair, or **Rearranged** pairs.

Adapted from Marianne DeChastelaine, Dr. Rugg

STUDY PHASE



The participant is instructed to ask themselves: **"Which object is more likely to fit into the other?"**

T = top into bottom

B = bottom into top

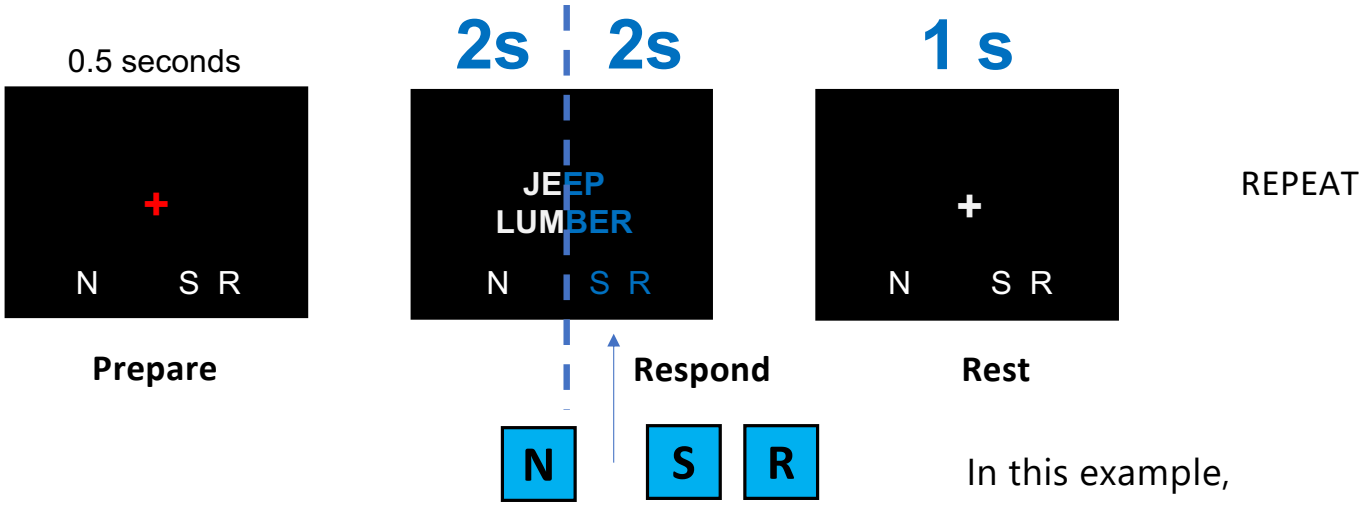
The purpose is to create a mental picture of the two objects together.

Press the button ONLY when the **words turn BLUE**

For example, most people would say that LUMBER fits in the back of a JEEP. Since LUMBER is on the bottom, the participant would choose **B** (to signify that the bottom word fits into the top word).

Adapted from Marianne DeChastelaine, Dr. Rugg

TEST PHASE



N = New pair, not in study phase, never seen before

S = Same pair, exact same pair in study phase

R = Rearranged pair/one word of pair same with the other exchanged from another pair

In this example, JEEP / LUMBER is the **same** pair that we saw in the Study phase (in the previous slide). The correct answer would be **S** (to signify that this pair is the same pair seen at encoding).

Adapted from Marianne DeChastelaine, Dr. Rugg

A few notes:

- The “top” and “bottom” judgements from the study phase are somewhat subjective (e.g. Lumber fits into the back of a Jeep… or a Jeep fits into a lumber garage).
- We specifically instruct participants NOT to base their study judgement on which item is bigger than the other.
- The location of the words (i.e. whether Jeep is on the top or bottom, does not matter and it does not change).
- A common mistake: people assume “Rearranged” means that the top and bottom words are flipped. A pair is only “rearranged” if both words were presented at encoding, but they were not previously paired together.

For example, at encoding you see…

LION CLOUD	POND SHERBERT	TOADSTOOL CHERUB	FOSSIL BANGLE	VAULT BURRITO

At retrieval you see…

TOADSTOOL BANGLE	SHEEP INBOX	FOSSIL CHERUB	LION CLOUD	GLACIER BOWTIE

CORRECT ANSWERS AT RETRIEVAL:

REARRANGED	NEW	REARRANGED	SAME	NEW

EVENTS STRUCTURE BREAKDOWN

event	Correct ans	response	pressed	correct	Mstime toResp	wp	rearranged	Correct opp_1	Correct opp_2	Retrieval ans_1	Retrieval ans_2
ENCODING	1	-1	NONE	-1	-1	LION/ CLOUD	0				
ENCODING	2	1	T	0	2148	POND/ SHERBERT	0				
ENCODING	1	-1	NONE	-1	-1	TOADSTOOL/ CHERUB	1				
ENCODING	1	1	T	1	2619	FOSSIL/ BANGLE	1				
RETRIEVAL	2	-1	NONE	-1	-1	TOADSTOOL/ BANGLE	1				
RETRIEVAL	3	3	N	1	2537	SHEEP/ INBOX	0	-999	-999	-999	-999
RETRIEVAL	2	2	R	1	2278	FOSSIL/ CHERUB	1				
RETRIEVAL	1	2	R	0	1981	LION/ CLOUD	0				

EVENTS STRUCTURE BREAKDOWN

Same
Correct_ans = 1

Rearranged
Correct_ans = 2

New
Correct_ans = 3

No response = -1

Not applicable = -999

What is Intact / Rearranged?

The word pair was intact (i.e. the word pair was the same), but the participant responded rearranged.
Intact / Rearranged = associative miss, failed familiarity

What is Intact / Intact?

The word pair was intact (aka same), and the participant responded same.
Intact / Intact = associative hit, successful recollection

EVENTS STRUCTURE BREAKDOWN

Correct_opp1 = a logical value (0 or 1) corresponding to whether the TOP word of the pair was later part of a correctly recalled pair

Correct_opp2 = a logical value (0 or 1) corresponding to whether the BOTTOM word of the pair was later part of a correctly recalled pair

Retrieval_ans1 = the numerical value (1=Same, 2=Rearranged, 3=New) corresponding to the retrieval answer given for the TOP word of the pair

Retrieval_ans2 = the number value (1=Same, 2=Rearranged, 3=New) corresponding to the retrieval answer given for the BOTTOM word of the pair

Different versions of AR

- AR (the original, coded with pyEPL)
  - At encoding, 240 total word pairs presented across 2 study sections
  - At retrieval, 320 total word pairs presented across 2 test sections (160 same, 80 rearranged, and 80 new)
- AR4 (coded with pyEPL)
  - At encoding, 240 total word pairs presented across 4 study sections
  - At retrieval, 240 total word pairs presented across 4 test sections (120 same, 60 rearranged, and 60 new)
- AR6 (coded with SMILE)
  - At encoding, 360 total word pairs presented across 6 study sections
  - At retrieval, 360 total word pairs presented across 6 test sections (180 same, 90 rearranged, and 90 new)