**Remote Associates Test (creativity, integration, verbal problem solving – Mednick, 1962, see e.g. at** [**http://www.remote-associates-test.com/**](http://www.remote-associates-test.com/)**)** Study in Frontiers from 2013 (Colzato et al.) that showed trend effects on Convergent (in the RAT) thinking (but none for the AUT- divergent),  in college age adults that was fitness level dependent: Decreased creativity in average fitness and marginal increases in creativity for athletes, and all decreases for AUT-devergent creativity. Our design will profit from a larger N and a modification to RAT that introduces a recognition phase to increase ceiling and variability (Ward, 1975, Educational and Psychological Measurement).

Instructions:

The remote associates test is a test of problem solving. You need to think of a word that connects 3 cue words. The test will be administered in 2 parts.

In the first part you will read two sets of three words. You will decide which word from the second set connects the words from the first set. When you have decided press 1), 2), or 3) to select your answer. You will receive as many problems as you can complete in 1 minute. Try to answer as quickly as possible.

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Active examples:

Time / Weigh / Last

1) OUT 2) BACK 3) BAY ?

(Solution: Time out / Outweigh / Outlast)

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Mower / Gnome / Fertilizer

1) GREEN 2) CROP 3) LAWN ?

(Solution: Lawn mower / Lawn gnome / Lawn fertilizer)

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In the second part you will receive a list of three-word sets with empty answer boxes next to them. Decide on your own, which word connects the words from the set. You will have 1 minute to answer as many sets as you can by typing your answers in the empty boxes provided. You can answer in any order. You can use the mouse to move from box to box, or enter to move to the next box.

Here are two completed examples.

Over / Up / Out GROWN

(Solution: Over grown / Grownup / Out grown)

Fried / Dumpling / Out CHICKEN

(Solution: Fried chicken / Chicken dumpling / Chicken out)

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We will now begin with Part 1. Remember, you will see two sets of three words and match one word from the second set, to connect the words in the first set. Use the 1, 2, and 3 keys to answer.

You will receive as many problems as you can complete in 1 minute. Try to answer as quickly as you can.

When you are ready to begin Part 1, press Spacebar.

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Good work!

We will now begin Part 2. Remember, you will receive a list of three-word sets with empty answer boxes next to them. Decide on your own, which word connects the words from the set. You will have 1 minute to answer as many sets as you can by typing your answers in the empty boxes provided. You can answer in any order. You can use the mouse to move from box to box, or enter to move to the next box.

Try to complete as many as possible, if you get stuck, just move on.

When you are ready to begin Part 2, press Spacebar.

Task Duration: 1 minute for each part, Recognition Part1, and Generate Part2.

Trial Duration: Part 1, Infinite, forced choice. As many trials as possible in 60 seconds. Part2, 1 open field trial for 60 seconds.

Trial Description: Part1, Problem set presented centrally, with answer set below also centered. Forced choice. Next trial commences immediately on response of 1, 2, or 3.

Part2, all of the problem sets appear in a list, each with an answer box to the right.

Stimuli: Part1, 1 of 4 randomly selected “Recognition” lists, with individual problem presented in serial order until 1 minute has elapsed (see excel or txt files denominated by list). Arial font of 14 pts (or equivalent).

Part2, 1 of 4 randomly selected “Generate” lists presented in entirety. Off-center left. Answer box set to right of Problems.

Response: Part1, 1, 2, or 3 key. Part2, a text field in a box with a cursor. Backspace enabled. Return key to move to next box; mouse to move to any box.

Balancing: Randomly select stimuli list without replacement for each participant over the 4 rounds of the experiment for a given PID. If more than 4 sessions start list selection over again without replacement for another series of 4 by PID. Difficulty is balanced and ascends evenly on each list based on norms for duration and likelihood for correct answer. There are 4 lists of Recognition Part1, and 4 lists of Generation Part2. Part 1 and 2 lists do not need to be yoked.

Output: Participant data. Stimuli list number. Part1: Trial number, Response, first button pressed RT, enter key RT, Accuracy.

Part2: Trial number, Response (ie. whatever was in text box when time expired, or a blank), RT, Accuracy.

(Problem #5 on List #4 has two answers, can this be handled in the code? If not, only code for first answer and will fix at analysis end.)

\*Stimuli in excel file from Bowden, E.M., & Jung-Beeman, M. (2003). Normative data for 144 compound remote associate problems. Behavioral Research Methods, Instrumentation, and Computers, 35, 634-639.

Lists were constructed by selecting every fourth rank starting with the easiest triplet and terminating at the most difficult, for the entirety of the 144 item list yielding 4 lists of 36 items with statistically equal probabilities of solution and mean RT over 75 people. True for Part 1 and 2