Supplementary Information
for
Comparing fast thinking and slow thinking: The relative benefits of interventions, individual differences, and inferential rules.

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Materials

Appendix A: Prompt Manipulations (Manipulated Independent Variables)

The text we use for our manipulations is directly adapted from Bago and De Neys (2017), in order to make our results more comparable to existing work. There are five aspects to each manipulation, excluding the control condition as these serve to strengthen the power of our manipulations. First, a participant is asked to read a set of instructions regarding how to respond to study items. Secondly, a participant is asked to write a few sentences regarding how they feel about these instructions. This serves to focus participants on the nature of their engagement with the task. Thirdly, participants will respond along a sliding scale from 0-100 regarding their willingness to comply with the instructions. After this point, participants respond to their first block of six study items. A reminder of the nature with which they should be responding is on the screen of each study item. Finally, participants are asked to recommit to the instructions between the first and second block of six study items. Full details of the manipulations are included below.

The italics and underlining are as the participants saw the manipulations. Full specification of five manipulations are as follows:

Condition 1 (control)

In this task we'll present you with a set of problems. We will ask you to respond to each problem with your best answer.

As each problem is presented, you can take all the time you want to indicate your response. It is important that you give your best responses to all the problems.

Please confirm below that you have read these instructions carefully and then press the ''Next" button.

Condition 2 (*Slow*)

In this task we'll present you with a set of problems. We will ask you to respond to each problem *after actively reflecting on it.*

As each problem is presented, you can take all the time you want to *actively reflect on it*. Once you have made up your mind, you will then enter your final response. You will have as much time as you need to indicate your answer. As you read each problem, think about the possible answers to the problem and select the one that you feel is most likely to be correct. It is really crucial that you give your response *after reflecting on each problem deeply*.

Please confirm below that you have read these instructions carefully and then press the ''Next" button.

Reflection on instructions

As each problem is presented, you can take all the time you want to *actively reflect on it*. Once you have made up your mind, you will then enter your final response. You will have as much time as you need to indicate your answer. As you read each problem, think about the possible answers to the problem and select the one that you feel is most likely to be correct. It is really crucial that you give your response *after reflecting on each problem deeply*.

Please describe your thoughts about the instruction to answer each problem *after reflecting on the problem deeply*. Imagine the task and how you will approach it. Please write 2 to 3 complete thoughts.

Commitment to instructions

How willing are you to *reflect on each problem deeply* before giving your answer?

On items

Remember to reflect on each problem deeply before answering.

Recommit

How willing are you to keep reflecting on each problem deeply before giving your answer?

Condition 3 (*Fast*)

In this task we'll present you with a set of problems. We will ask you to respond to each problem *with your initial, intuitive answer*.

As each problem is presented, you should answer with *your initial response*—the *very first answer that comes to mind*. You don't need to think about it. Just give the first answer that intuitively comes to mind as quickly as possible. It is really crucial that you give your *first, initial response as fast as possible*.

Please confirm below that you read these instructions carefully and then press the ‘‘Next” button.

Reflection on instructions

Please describe your thoughts about the instruction to answer each problem *as fast as possible with the first answer that comes to mind*. Imagine the task and how you will approach it. Please write 2 to 3 complete thoughts.

Commitment to instructions

How willing are you to answer each problem *as fast as possible with the first answer that comes to mind*?

On items

Remember to answer as quickly as possible with the first answer that comes to mind.

Recommit

How willing are you to keep answering each problem as fast as possible with the first answer that comes to mind?

Condition 4 (*Fast-then-slow*)

In this task we'll present you with a set of problems. We will ask you to respond to each problem twice. First, respond *with your initial, intuitive answer*. After submitting this answer, please respond to each problem again *after actively reflecting on it.*

As each problem is presented, you should answer with *your initial response*—the *very first answer that comes to mind*. You don't need to think about it. Just give the first answer that intuitively comes to mind as quickly as possible. It is really crucial that you give your *first, initial response as fast as possible*. After this, you can take all the time you want to *actively reflect on it*. Once you have made up your mind, you will then enter your final response. You will have as much time as you need to indicate your answer. As you read each problem, think about the possible answers to the problem and select the one that you feel is most likely to be correct. It is really crucial that you give your final response *after reflecting on each problem deeply*.

Please confirm below that you read these instructions carefully and then press the ''Next" button.

Reflection on instructions

Please describe your thoughts about the instruction to answer each problem *as fast as possible with the first answer that comes to mind*, then answering again *after reflecting on the problem deeply*. Imagine the task and how you will approach it. Please write 2 to 3 complete thoughts.

Commitment to instructions

How willing are you to answer each problem *as fast as possible with the first answer that comes to mind*, then answering again *after reflecting on the problem deeply*?

On items

1. Remember to answer as quickly as possible with the first answer that comes to mind.
2. Remember to reflect on each problem deeply before answering.

Recommit

How willing are you to keep answering each problem as fast as possible with the first answer that comes to mind, then answering again after reflecting on the problem deeply?

Condition 5 (*Incentive*)

In this task we'll present you with a set of problems. You will be paid *a bonus of $0.50 for a correct answer* in a randomly selected question.

As each problem is presented, you should answer with the *response that gives you the best chance of earning the bonus payment*. Once you have made up your mind, you will enter your final response. You can take all the time you want to indicate your response. It is really crucial to answer problems *correctly to increase your chances of winning the bonus payment*.

Please confirm below that you read these instructions carefully and then press the ‘‘Next" button.

Reflection on instructions

Please describe your thoughts about the instruction to answer each problem *correctly to increase your chances of winning the bonus payment*. Imagine the task and how you will approach it. Please write 2 to 3 complete thoughts.

Commitment to instructions

How willing are you to answer problems *correctly to increase your chances of winning the bonus payment*?

On items

Remember to answer problems correctly to increase your chances of winning the bonus payment of $0.50.

Recommit

How willing are you to keep answering problems correctly to increase your chances of winning the bonus payment?

Appendix B: Study tasks

Study tasks measure 1

A1. Conjunction Problem (Tversky and Kahneman, 1983)

Linda is 31 years old, single, outspoken and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations.

Please rank the following five statements by their probability of being true. (1 = most probable, 5 = least probable)

Linda is active in the feminist movement.
Linda is a bank teller.
Linda is a bank teller and is active in the feminist movement.
Linda works in a bookstore and takes Yoga classes.
Linda is an insurance salesperson.

Normative response: option 3 below options 1 and 2

A2. Probability matching versus maximizing (Stanovich and West, 2008)

Consider the following hypothetical situation: A deck with 10 cards is randomly shuffled 10 separate times. The 10 cards are composed of 7 cards with the number "1" on the down side and 3 cards with the number "2" on the down side. Each time the 10 cards are reshuffled, your task is to predict the number on the down side of the top card. Imagine that you will receive $100 for each downside number you correctly predict, and that you want to earn as much money as possible.

- What would you predict after shuffle #1? (1 or 2);
- What would you predict after shuffle #2? (1 or 2);
- What would you predict after shuffle #3? (1 or 2);
- What would you predict after shuffle #4? (1 or 2);
- What would you predict after shuffle #5? (1 or 2);
- What would you predict after shuffle #6? (1 or 2);
- What would you predict after shuffle #7? (1 or 2);
- What would you predict after shuffle #8? (1 or 2);
- What would you predict after shuffle #9? (1 or 2);
- What would you predict after shuffle #10? (1 or 2).

Normative response: predicts 1 for all entries

A3. Default bias (Ritov and Baron, 1990)

Imagine that there will be a deadly flu going around your area next winter. Your doctor says that you have a 10% chance (10 out of 100) of dying from this flu. However, a new flu vaccine has

been developed and tested. If taken, the vaccine prevents you from catching the deadly flu. However, there is one serious risk involved with taking this vaccine. The vaccine is made from a somewhat weaker type of flu virus, and there is a 5% (5 out of 100) risk of the vaccine causing you to die from the weaker type of flu. Imagine that this vaccine is completely covered by health insurance. If you had to decide now, which would you choose?

· I should definitely not take the vaccine. I would thus accept the 10% chance of dying from this flu.
· I should definitely take the vaccine. I would thus accept the 5% chance of dying from the weaker flu in the vaccine.
· I do not know.

Normative response: chooses option 2.

A4. Base rate problem (Kahneman and Tversky, 1973)

A panel of psychologists has interviewed and administered personality tests to a large population of engineers and lawyers, all successful in their respective fields. On the basis of this information, thumbnail descriptions of the engineers and lawyers have been written. The population consists of 10% engineers and 90% lawyers. Below is a description, chosen at random from the available descriptions.

Sam is a 30-year-old man. He is married with no children. A man of high ability and high motivation, he promises to be quite successful in his field. He is well-liked by his colleagues.

How likely is it that Sam is an engineer? Choose the option that you think is closest to the true probability. Multiple choice (0,5…,95,100)

Normative response: 0 to 20 inclusive.

A5. Probabilistic reasoning: denominator neglect (Kirkpatrick and Epstein, 1992)

Imagine that you are presented with three trays of black and white marbles. The marbles are spread in a single layer in each tray. You must draw out one marble (without peeking, of course) from a tray. If you draw a black marble you win $2.

Tray 1 – 50 marbles

Tray 2 – 25 marbles

Tray 3 – 10 marbles

The black marbles have been distributed in the 3 trays in the following way:

Tray 1 – 4 black marbles, 46 white marbles

Tray 2 – 2 black marbles, 23 white marbles

Tray 3 – 1 black marble, 9 white marbles

Recall that if you draw a black marble you win $2. If you had to choose, what tray would you choose to draw from?

Tray 1
Tray 2
Tray 3

Normative response: tray 3.

A6. Covariation (Wasserman, Dorner, and Kao, 1990)

Imagine that you are a research chemist for a pharmaceutical company. You want to assess how well a certain experimental drug works to reduce obesity. In order to do so, you will study 100 laboratory rats that are obese. In your experiment, you will give some rats the drug and others a placebo, which is known to have no effect on obesity. After the experiment, there will be four types of rats:

1. Those who received the drug and whose obesity was reduced.

2. Those who received the drug and whose obesity was not reduced.

3. Those who did not receive the drug and whose obesity was reduced.

4. Those who did not receive the drug and whose obesity was not reduced.

Remember -- you want to assess how well a certain experimental drug works to reduce obesity. To evaluate the effectiveness of the drug, which of these types of rat do you need to observe?

- Just 1
- 1 and 3
- 1 and 2
- 1, 2, and 3
- All of them

Normative response: option 5, all of them.

Study tasks measure 2

B1. Conjunction Problem (Tversky and Kahneman, 1983)

Bill is 34 years old. He is intelligent, but unimaginative, compulsive, and generally lifeless. In school, he was strong in mathematics but weak in social studies and humanities.

Please rank the following five statements by their probability of being true. (1 = most probable, 5 = least probable)

- Bill is an accountant.
- Bill plays jazz for a hobby.
- Bill is an accountant who plays jazz for a hobby.
- Bill surfs for a hobby.
- Bill is an architect.

Normative response: option 3 below options 1 and 2.

B2. Probability matching versus maximizing (Stanovich and West, 2008)

A jar of marbles contains 20 marbles. Fourteen marbles are red and six are blue. You draw one marble at a time, record its color, and mix it back into the jar. Thus, there are always the same 20 marbles in the jar mixed in a new order. The jar is a solid material so you cannot see the color of the marble that you pick at random.

Your job is to guess the correct color each time you draw a marble. Imagine you draw 10 marbles one at a time (each time putting the one you draw back into the jar and mixing it).

What would your guesses be for each draw?

What would you pick for draw 1, Blue or Red?

Normative response: always predicts red.

B3. Default bias (Ritov and Baron, 1990)

Imagine you are spending Sunday in the house with your dog. Your dog seems to be sick – she's lethargic and won't eat. You have pet insurance and you take the dog to your veterinarian. The vet diagnoses your dog with a bacterial infection and says that the infection has a 10% chance of killing her. The vet also says that there is an antibiotic available that is covered by your insurance that will cure the infection, but has one serious side effect: it causes a fatal heart attack in 5% of dogs who take the medicine.

· I should definitely not give my dog the antibiotic. I would thus accept the 10% chance of the dog dying from this infection.
· I should definitely give my dog the antibiotic. I would thus accept the 5% chance of the dog dying from the antibiotic.
· I do not know.

Normative response: option 2.

B4. Base rate problem (Kahneman and Tversky, 1973)

A college dormitory has 90% of students who are majoring in the social sciences (e.g., psychology or economics) and 10% who are majoring in the humanities (e.g., history). You are reviewing short bios that different students have written as part of a graduation activity. You draw one bio at random. The bio reads:

"I am from a suburb of a major city. My high school had about 500 kids. I have a younger brother. I like hanging out with my friends and watching movies."

How likely is it that this student is a humanities major? Choose the option that you think is closest to the true probability.

Multiple choice (0,5…,95,100)

Normative response: 0-20 inclusive.

B5. Probabilistic reasoning: denominator neglect (Kirkpatrick and Epstein, 1992)

Imagine that you are presented with three bowls of Halloween candy. Each bowl contains both your favorite and least favorite kind of candy.

You must draw out one piece of candy (without peeking, of course) from a bowl.

Bowl 1 – 100 pieces of candy

Bowl 2 – 50 pieces of candy

Bowl 3 – 10 pieces of candy

Your favorite candy has been distributed in the 3 bowls in the following way:

Bowl 1 – 12 of your favorite candy, 88 of your least favorite candy

Bowl 2 – 6 of your favorite candy, 44 of your least favorite candy

Bowl 3 – 2 of your favorite candy, 8 of your least favorite candy

If you had to choose, what bowl would you choose to draw from?

Bowl 1
Bowl 2
Bowl 3

Normative response: option 3.

B6. Covariation (Wasserman, Dorner, and Kao, 1990)

Steve is a professional baseball player. Thirty percent of baseball games are played during the day. Seventy percent are played at night. Steve thinks he is a better hitter at night. He wants to test whether this is true. There are four kinds of data to look up.

1. How many hits he has in night games.
2. How many times he has batted in night games.
3. How many hits he has in day games.
4. How many times he has batted in day games.

Which kind of data does he need to know to test whether he is a better hitter at night?
Just 1
1 and 3
1 and 2
1, 2, and 3
All of them

Normative response: option 5, all of them.

Appendix C: *Rule* measures of JDM principles

The responses to the *Rule* tests of principles were recoded as binary indicators. 1 signifies that the answer in line with the correct principle is provided.

Rules measure 1

C1. Conjunction

Imagine Sally owns a car.
Rank the following from most likely (=1) to least likely (=3):
- The car has Bluetooth speakers
- The car is painted green
- The car has Bluetooth speakers and is painted green

Normative response: option 3 is least likely.

C2. Probability Maximising/Matching

Joe's Emporium attracts more customers than Steve's Market most days of the week. Who do you think has more customers on Mondays?
- Joe's Emporium
- Steve's Market

Who do you think has more customers on Tuesdays?
- Joe's Emporium
- Steve's Market

Who do you think has more customers on Fridays?
- Joe's Emporium
- Steve's Market

Normative response: always predicts Joe's Emporium.

C3. Default Bias

You're waiting in line at the pharmacy and your line is moving slowly. You need to move your car that is parked on the street. Its meter expires in 15 minutes and there is a parking monitor patrolling the street. If you stay in the line you're currently in you think there's a 10 percent chance you're going to be late and get a ticket. Your best guess is if you change lines, there's only a 5 percent chance you'll be late and get a ticket.

- I should definitely change lines.
- I should definitely not change lines.

- I do not know.

Normative response: option 1.

C4. Base rate

The 11 person team of a soccer club are in a bar. You randomly meet one of them. What are the chances that it is the goalkeeper? (mark the answer that is closest to your best guess)

- 50%
- 25%
- 90%
- 10%
- 75%

Normative response: option 4 selected.

C5. Denominator neglect

You are offered 3 potential lotteries, with the following chances of winning:

A) 8 out of 80 chance of winning
B) 3 out of 10 chance of winning
C) 50 out of 200 chance of winning

Which lottery has a 10% chance of winning? A/B/C
Which lottery has a 30% chance of winning? A/B/C
Which lottery has a 25% chance of winning? A/B/C

Normative response: options A,B,C in that order (in practice the questions are randomized).

C6. Covariation

70% of Germans have genetic marker X7. Imagine you meet a German person and a French person on the street. Who is more likely to have the genetic marker X7?

- The German person.
- The French person.
- They are equally likely to have the marker.
- More information is needed to answer this question.

Normative response: option 4.

Rules measure 2

D1. Conjunction

Imagine Bill likes to play darts.

Rank the following from most likely (=1) to least likely (=3):

- Bill misses the dartboard on his first throw.
- Bill is wearing a red sweater.
- Bill misses the dartboard on his first throw and is wearing a red sweater.

Normative response: option 3 the least likely.

D2. Probability Maximising/Matching

You like to go fishing at Crystal Lake. The lake has more striped bass than black bass.

You catch a fish on Monday. Which kind is it more likely to be?

- a striped bass
- a black bass

You catch a fish on Tuesday. Which kind is it more likely to be?

- a striped bass
- a black bass

You catch a fish on Friday. Which kind is it more likely to be?

- a striped bass
- a black bass

Normative response: always predict striped bass.

D3. Default Bias

You've been using an anti-virus program on your computer called "Spamex" that does a good job protecting against viruses, but can cause a small portion of your files to become corrupted (6%). Your internet company has made available a free copy of "Virgone" that also does a good job protecting against viruses. It can lead to 3% of your files becoming corrupted.

- I should definitely keep Spamex

- I should definitely change to Virgone
- I do not know.

Normative response: definitely change.

D4. Base rate

You are a journalist visiting a local 4-year college and you want to write a story about the experience of new first year students. You walk up to a student at random. What are the chances that the student is a first year student?

- 50%
- 25%
- 10%
- 75%
- 90%

Normative response: option 2.

D5. Denominator neglect

You are watching a baseball game and you see the following statistics for three different hitters:

A) Player A has 4 hits in 40 chances
B) Player B has 3 hits in 10 chances
C) Player C has 25 hits in 100 chances

Which baseball player gets a hit 10% of the time?

Which baseball player gets a hit 30% of the time?

Which baseball player gets a hit 25% of the time?

Normative response: options A, B and C in that order. In practice choice presentation order is randomized.

D6. Covariation

80% of land mollusks produce enzyme z. Imagine you are visiting a nature museum and see a land mollusk and an ocean mollusk. Which mollusk is more likely to produce enzyme z?

- The land mollusk.
- The ocean mollusk.
- They are equally likely to produce the enzyme.
- More information is needed to answer this question.

Normative response: option 4.

Appendix D: Scale Items

Berlin Numeracy Test

Cokely, Galesic, Schulz, Ghazal and Garcia-Retamero (2012). Participants answer 4 questions each and are given a score out of 4 depending on the number of questions answered correctly.

1. Imagine we are throwing a five-sided die 50 times. The sides are numbered 1 to 5. On average, out of these 50 throws how many times would this five-sided die show an odd number (1, 3 or 5)?

- 5 out of 50 throws
- 25 out of 50 throws
- 30 out of 50 throws
- None of the above

2. Out of 1,000 people in a small town 500 are members of a choir. Out of these 500 members in the choir 100 are men. Out of the 500 inhabitants that are not in the choir 300 are men. What is the probability that a randomly drawn man is a member of the choir? Please indicate the probability in percent.

- 10%
- 25%
- 40%
- None of the above

3. Imagine we are throwing a loaded die (6 sides). The probability that the die shows a 6 is twice as high as the probability of each of the other numbers. On average, out of these 70 throws how many times would the die show the number 6?

- 20 out of 70 throws
- 23 out of 70 throws
- 35 out of 70 throws
- None of the above

4. In a forest 20% of mushrooms are red, 50% brown and 30% white. A red mushroom is poisonous with a probability of 20%. A mushroom that is not red is poisonous with a probability of 5%. What is the probability that a poisonous mushroom in the forest is red?

- 4%
- 20%
- 50%
- None of the above

Cognitive Reflection Task (CRT)

Frederick (2005). Participants answer 3 questions each and were given a score out of 3 depending on the number of questions answered correctly.

1. A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost? (in cents)

___

2. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? (in minutes)

___

3. In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? (in days)

___

The non-numeric CRT (CRT-2)

We implemented a multiple-choice version of Thomson and Oppenheimer (2016)'s non-numeric CRT (CRT-2). Participants answer 4 questions each and are given a score out of 4 depending on the number of questions answered correctly.

1. If you're running a race and you pass the person in second place, what place are you in?

- First
- Second
- Third
- Fourth
- Fifth
- Sixth
- Seventh
- Eighth
- None of the above

2. A farmer had 15 sheep and all but 8 died. How many are left?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- None of the above

3. Emily's father has three daughters. The first two are named April and May. What is the third daughter's name?

- Emily
- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December
- None of the above

4. How many cubic feet of dirt are there in a hole that is 3' deep x 3' wide x 3' long?

- 3
- 6
- 9
- 12
- 15
- 18
- 21
- 24
- 27

- 30
- 33
- 36
- None of the above

Appendix E: Demographic Background Variables

What is your sex?

- Male
- Female
- Other

What is your age?

- Under 18
- 18-24
- 25-30
- 31-40
- 41-50
- 51-64
- 65 or over

What best describes the highest level of education you have completed?

- Elementary school
- Middle school/junior high
- Some high school
- High school diploma
- Associate degree
- Bachelor's degree
- Master's degree
- Doctorate (or more)

Additional analysis

One contribution of the present research is operationalizing the idea of rules, task-specific sets of knowledge that are necessary to enable normative performance. We initially coded our $Rule_{\text{Specific}}$ variable as a factor with three levels (0, 1, 2) denoting how many of the *Rule* measures for a specific task were answered correctly. However, the coefficients on the dummy variables that captured the movement from 0 to 1 and 1 to 2 were similar, implying that the variable could be treated as linear. In some standard specifications we used in the paper, the predicted probability changes for movements between 0 and 1 and 1 and 2 in the $Rule_{\text{Specific}}$ variable were within 0.003 of each other, supporting our decision to treat $Rule_{\text{Specific}}$ as a linear variable. Consequently, we re-estimated our models using this coding. We then mean-centered this 'Rule' variable across the entire sample of observations (n = 23,292) to be consistent with our treatment of other linear individual differences. The models with $Rule_{\text{Specific}}$ coded as two dummy-coded variables are available in Table S8.

As an additional robustness check, we compare the regression coefficients on a) our $Rule_{\text{Specific}}$ variable, and b) a randomly selected two-item measure of a non-focal rule, in the prediction of success in a specific JDM question. We first filtered our data to only include the between-subjects responses (N = 17,652). We then identified each participant's score on the matched specific *Rule* items for each JDM question (as we have done so throughout our analyses). Then, for each observation, we randomly drew a problem from the other 5 JDM problems, and constructed a variable $Rule_{\text{RAND}}$ that denoted a participant's score in the two *Rule* items pertaining to that non-focal JDM problem. We did this a total of 500 times – changing the seed that generated these random strings of numbers each time. We then ran 500 different regressions using the formula:

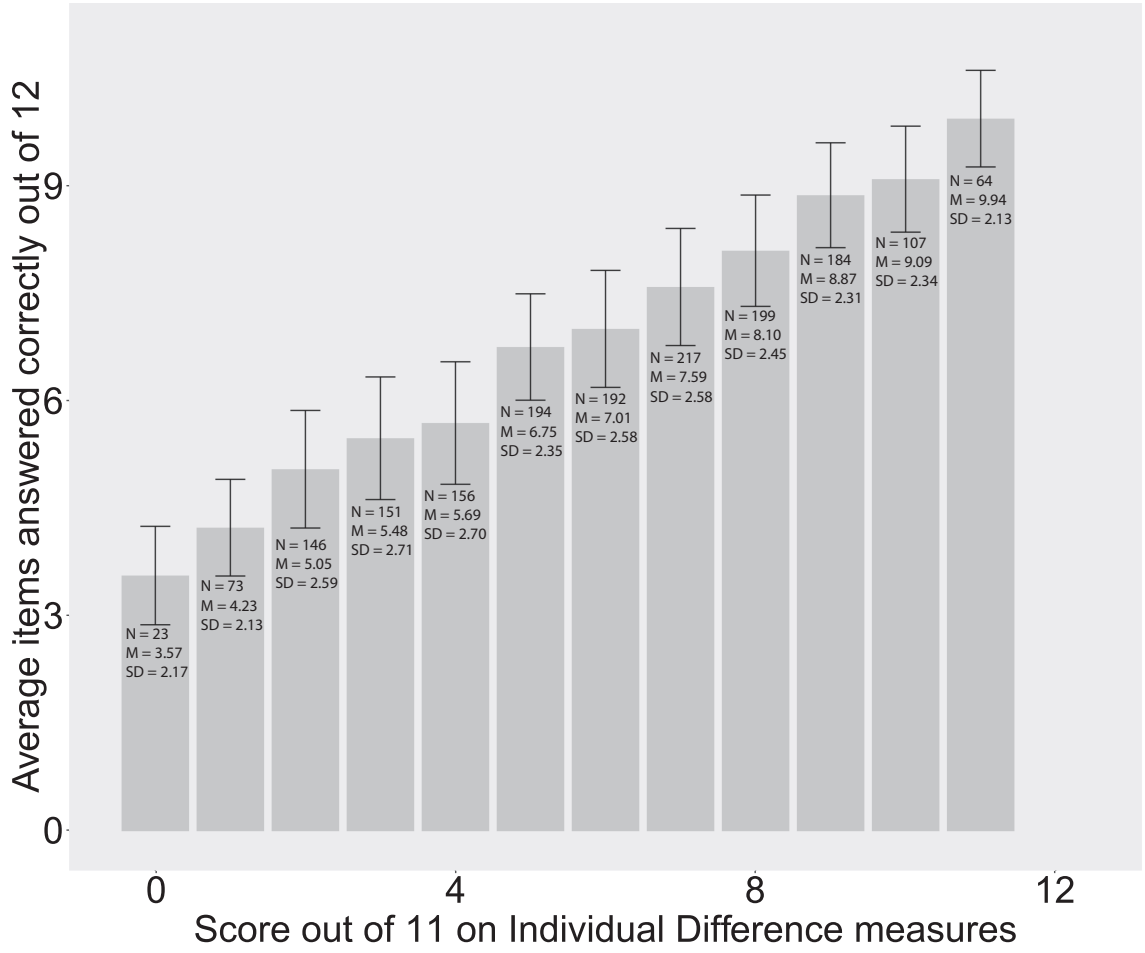
success~fast+slow+incent+crt+crt2+bnt+educ+$\text{Rule}_{\text{Specific}}$+$\text{Rule}_{\text{RAND}}$+measure+problem+pos+blockorder)

Across the 500 different specifications, the coefficient on $Rule_{\text{Specific}}$ had a mean of 0.579 and a SD of 0.0042. Contrastingly, the coefficient on $Rule_{\text{RAND}}$, another two-item measure on the same scale as $Rule_{\text{Specific}}$, had a mean of 0.1726 and a SD of 0.0283. Here, the coefficients are directly comparable, as they are on the same scale. We predicted whether participants' returned a correct answer to 17,652 JDM questions using both a two-point scale of access to a specific rule that underpinned the focal question ($Rule_{\text{Specific}}$) and a two-point scale of access to a randomly selected rule ($Rule_{\text{RAND}}$). The coefficient on the specific *Rule* variable was always larger, across 500 different simulations of $Rule_{\text{RAND}}$.

We take the higher correlation between rule items measuring the same rule (0.50 versus 0.27, Table S6), the robustness of results to different coding (Table S8) and the evidence from randomly selecting rule items included here as convergent evidence of the validity of our $Rule_{\text{Specific}}$ measures in capturing an item-specific, highly predictive variable.

Additional figures and tables

Figure S1: The average number of study items answered correctly by score out of 11 in collapsed individual difference measure scale. See note for description of error bars.



Note. Error bars indicate plus or minus 1 standard error. The cell size and mean and standard deviation of the number of study items answered correctly is indicated on the bars.

Table S1: Logistic regressions predicting success with conditions coded relative to control and individual differences mean centered

Model	1	2	3	4	5
(Intercept)	-0.452***	-0.470***	-0.455***	-0.448***	-0.478***
	(0.071)	(0.073)	(0.074)	(0.072)	(0.074)
Slow	0.126	0.155†	0.139†	0.131	0.155*
	(0.085)	(0.080)	(0.083)	(0.083)	(0.079)
Fast	-0.314***	-0.371***	-0.329***	-0.358***	-0.377***
	(0.080)	(0.077)	(0.077)	(0.079)	(0.076)
Incentive	0.065	0.116	0.115	0.071	0.121
	(0.081)	(0.079)	(0.077)	(0.077)	(0.075)
Education	0.035	-0.006	0.037	-0.014	-0.016
	(0.026)	(0.024)	(0.025)	(0.025)	(0.024)
CRT		0.446***			0.256***
		(0.023)			(0.028)
CRT-2			0.418***		0.201***
			(0.024)		(0.029)
BNT				0.410***	0.241***
				(0.027)	(0.028)
Measure (a)	0.189***	0.201***	0.198***	0.197***	0.205***
	(0.023)	(0.024)	(0.024)	(0.024)	(0.025)
Problem 2	-0.194**	-0.207**	-0.204**	-0.203**	-0.212**
	(0.060)	(0.064)	(0.063)	(0.062)	(0.065)
Problem 3	1.383***	1.478***	1.459***	1.445***	1.511***
	(0.063)	(0.067)	(0.066)	(0.066)	(0.069)
Problem 4	1.375***	1.469***	1.450***	1.436***	1.502***
	(0.063)	(0.066)	(0.065)	(0.066)	(0.067)
Problem 5	1.162***	1.243***	1.226***	1.215***	1.271***
	(0.063)	(0.067)	(0.066)	(0.066)	(0.068)
Problem 6	1.084***	1.160***	1.144***	1.134***	1.187***
	(0.061)	(0.064)	(0.063)	(0.063)	(0.065)
Position 2	-0.029	-0.030	-0.032	-0.034	-0.034
	(0.059)	(0.063)	(0.062)	(0.061)	(0.064)
Position 3	0.010	0.010	0.006	0.005	0.005
	(0.060)	(0.064)	(0.063)	(0.063)	(0.065)
Position 4	0.029	0.028	0.026	0.025	0.025
	(0.060)	(0.064)	(0.063)	(0.062)	(0.065)
Position 5	0.056	0.055	0.056	0.051	0.052
	(0.059)	(0.062)	(0.062)	(0.061)	(0.064)
Position 6	-0.009	-0.014	-0.011	-0.015	-0.016
	(0.061)	(0.064)	(0.064)	(0.063)	(0.066)
Block Order (b)	-0.133*	-0.163**	-0.185***	-0.126*	-0.171**
	(0.058)	(0.056)	(0.056)	(0.056)	(0.054)
N	17,652	17,652	17,652	17,652	17,652

Categorical variable a = 0 if measure 1 (e.g. Linda), 1 if measure 2 (e.g. Bill)
Categorical variable b = 0 if observation in first block, 1 if observation in second block
Note. *** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$ † $p < 0.10$

Table S2: Logistic regressions predicting success with conditions coded relative to *Fast* and individual differences mean centered

Model	6	7	8	8a	8b
(Intercept)	-0.842***	-0.867***	-0.868***	-0.874***	-0.474***
	(0.091)	(0.091)	(0.091)	(0.090)	(0.073)
Control	0.377***	0.350***	0.348***	0.352***	
	(0.076)	(0.071)	(0.070)	(0.070)	
Slow	0.532***	0.439***	0.437***	0.438***	
	(0.094)	(0.088)	(0.087)	(0.087)	
Incentive	0.498***	0.497***	0.500***	0.503***	
	(0.091)	(0.083)	(0.083)	(0.083)	
CRT	0.256***	0.117***	0.117***	0.116***	0.115***
	(0.028)	(0.027)	(0.027)	(0.027)	(0.027)
CRT2	0.201***	0.013	0.012	0.012	0.012
	(0.029)	(0.027)	(0.027)	(0.027)	(0.027)
BNT	0.241***	0.177***	0.177***	0.177***	0.177***
	(0.028)	(0.026)	(0.026)	(0.026)	(0.026)
Education	-0.016	0.034	0.035	0.036†	0.036†
	(0.024)	(0.021)	(0.021)	(0.021)	(0.021)
$Rule_{Specific}$		0.577***	0.452***	0.467***	0.603***
		(0.033)	(0.071)	(0.071)	(0.036)
$Rule_{Non\text{-}specific}$		0.185***	0.185***	0.147***	0.185***
		(0.011)	(0.011)	(0.023)	(0.011)
Control X $Rule_{Specific}$			0.142†	0.123	
			(0.082)	(0.083)	
Slow X $Rule_{Specific}$			0.138	0.117	
			(0.101)	(0.103)	
Incentive X $Rule_{Specific}$			0.188†	0.172†	
			(0.099)	(0.101)	
Control X $Rule_{Non\text{-}specific}$				0.047†	
				(0.027)	
Slow X $Rule_{Non\text{-}specific}$				0.050	
				(0.033)	
Incentive X $Rule_{Non\text{-}specific}$				0.042	
				(0.032)	
F (fast versus all)					-0.395***
					(0.067)
F x $Rule_{Specific}$					-0.150†
					(0.077)
Measure (a)	0.205***	0.223***	0.223***	0.223***	0.222***
	(0.025)	(0.027)	(0.027)	(0.027)	(0.027)
Problem 2	-0.212**	-0.306***	-0.307***	-0.307***	-0.307***
	(0.065)	(0.068)	(0.069)	(0.069)	(0.069)
Problem 3	1.511***	1.578***	1.578***	1.579***	1.577***
	(0.069)	(0.074)	(0.074)	(0.074)	(0.074)
Problem 4	1.502***	1.527***	1.526***	1.527***	1.525***
	(0.067)	(0.072)	(0.072)	(0.072)	(0.072)
Problem 5	1.271***	1.239***	1.239***	1.239***	1.238***
	(0.068)	(0.073)	(0.073)	(0.073)	(0.073)
Problem 6	1.187***	1.408***	1.410***	1.411***	1.409***
	(0.065)	(0.072)	(0.072)	(0.072)	(0.072)
Position 2	-0.034	-0.027	-0.027	-0.027	-0.027
	(0.064)	(0.070)	(0.070)	(0.070)	(0.069)
Position 3	0.005	0.008	0.007	0.008	0.009
	(0.065)	(0.070)	(0.070)	(0.070)	(0.070)
Position 4	0.025	0.019	0.020	0.020	0.020
	(0.065)	(0.068)	(0.068)	(0.069)	(0.068)
Position 5	0.052	0.049	0.051	0.051	0.051
	(0.064)	(0.068)	(0.068)	(0.068)	(0.068)
Position 6	-0.016	-0.029	-0.025	-0.027	-0.025
	(0.066)	(0.071)	(0.071)	(0.071)	(0.071)
Block Order (b)	-0.171**	-0.124*	-0.122*	-0.117*	-0.119*
	(0.054)	(0.049)	(0.049)	(0.049)	(0.049)
N	17,652	17,652	17,652	17,652	17,652

Categorical variable a = 0 if measure 1 (e.g. Linda), 2 is measure 1 (e.g. Bill)

Categorical variable b = 0 if observation in first block, 1 if observation in second block

Note. *** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$ † $p < 0.10$

Table S3: Average proportion of correct responses in the four between-subjects conditions (control, *Slow, Fast, Incentive*) in each of the 6 JDM problems.

	N	Conjunction	Probability Matching	Default Bias	Base Rate	Denominator Neglect	Covariation (4 cell)
Control	746	0.39	0.36	0.71	0.71	0.69	0.67
Slow	237	0.42	0.38	0.73	0.77	0.71	0.69
Fast	240	0.35	0.30	0.72	0.63	0.55	0.59
Incentive	248	0.42	0.34	0.76	0.77	0.70	0.64

N = 1471

Table S4: Model 5, Table 3 with different response time and self-reported compliance cutoffs.

Model	No exclusions (5)	Trim 10 RT	Trim 20 RT	Trim 10 Compliance	Trim 20 Compliance
(Intercept)	-0.478***	-0.479***	-0.444***	-0.466***	-0.400***
	(0.074)	(0.082)	(0.095)	(0.077)	(0.080)
Slow	0.155*	0.176*	0.242*	0.140†	0.138
	(0.079)	(0.087)	(0.100)	(0.082)	(0.085)
Fast	-0.377***	-0.363***	-0.292***	-0.358***	-0.362***
	(0.076)	(0.082)	(0.088)	(0.079)	(0.082)
Incentive	0.121	0.137†	0.132	0.156*	0.154†
	(0.075)	(0.082)	(0.093)	(0.079)	(0.083)
Education	-0.016	0.057*	0.085**	0.008	0.027
	(0.024)	(0.027)	(0.030)	(0.025)	(0.027)
CRT	0.256***	0.217***	0.226***	0.243***	0.233***
	(0.028)	(0.031)	(0.035)	(0.030)	(0.032)
CRT-2	0.201***	0.133***	0.149***	0.171***	0.144***
	(0.029)	(0.033)	(0.037)	(0.030)	(0.032)
BNT	0.241***	0.283***	0.266***	0.230***	0.247***
	(0.028)	(0.031)	(0.036)	(0.029)	(0.030)
Measure (a)	0.205***	0.200***	0.211***	0.216***	0.215***
	(0.025)	(0.029)	(0.034)	(0.026)	(0.028)
Problem 2	-0.212**	-0.047	0.030	-0.130†	-0.035
	(0.065)	(0.070)	(0.083)	(0.067)	(0.070)
Problem 3	1.511***	1.568***	1.530***	1.525***	1.551***
	(0.069)	(0.077)	(0.090)	(0.072)	(0.076)
Problem 4	1.502***	1.738***	1.731***	1.637***	1.720***
	(0.067)	(0.077)	(0.089)	(0.071)	(0.074)
Problem 5	1.271***	1.525***	1.563***	1.400***	1.465***
	(0.068)	(0.077)	(0.089)	(0.072)	(0.076)
Problem 6	1.187***	1.445***	1.592***	1.290***	1.333***
	(0.065)	(0.074)	(0.087)	(0.068)	(0.071)
Position 2	-0.034	0.007	-0.048	-0.023	-0.068
	(0.064)	(0.074)	(0.087)	(0.068)	(0.072)
Position 3	0.005	0.009	-0.013	-0.010	-0.067
	(0.065)	(0.073)	(0.085)	(0.069)	(0.072)
Position 4	0.025	0.093	0.026	0.038	-0.036
	(0.065)	(0.074)	(0.087)	(0.068)	(0.071)
Position 5	0.052	0.077	0.076	0.063	0.021
	(0.064)	(0.073)	(0.085)	(0.068)	(0.071)
Position 6	-0.016	0.031	0.017	-0.046	-0.104
	(0.066)	(0.076)	(0.092)	(0.069)	(0.073)
Block Order (b)	-0.171**	-0.180**	-0.157*	-0.160**	-0.180**
	(0.054)	(0.060)	(0.066)	(0.057)	(0.059)
N	17,652	14,100	10,572	16,032	14,544

Categorical variable a = 0 if measure 1 (e.g. Linda), 1 if measure 2 (e.g. Bill)
Categorical variable b = 0 if observation in first block, 1 if observation in second block
Note. *** p < 0.001 ** p < 0.01 * p < 0.05 † p < 0.10

Note. These models trim the full data set on response time and individuals' self-reports of compliance. This trimming occurs at a participant level, rather than an item level. The RT 10 and RT 20 trim the top and bottom 10 and 20% of average log response time respondents. The compliance 10 and 20 models trim the bottom 10 and 20% of participants, based on self-reported compliance with the experimental instructions (the top 20% were all reports of 100% compliance).

Table S5: Linear regression predicting raw score in base rate problems.

	Item 1	Item 2
(Intercept)	55.697***	46.176***
	(2.083)	(1.826)
Fast	2.794	6.197***
	(1.792)	(1.711)
Incentive	-2.041	-3.346*
	(1.769)	(1.691)
Slow	-3.663*	-0.462
	(1.795)	(1.718)
CRT	-1.528*	-1.861**
	(0.680)	(0.649)
CRT-2	-1.920**	-2.168***
	(0.691)	(0.657)
BNTS	-1.979**	-1.889**
	(0.633)	(0.606)
$Rule_{Specific}$	-22.065***	-13.959***
	(1.955)	(1.573)
N	1,471	1,471

Note. *** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$ † $p < 0.10$
Note. Participants were given a base rate of 10% and had to predict a likelihood based on minimal information.

Table S6: Correlation between first and second measures of inferential rules.

	1	2	3	4	5	6	M1	M2	M3	M4	M5	M6
Rule 1	1											
Rule 2	0.28	1										
Rule 3	0.09	0.09	1									
Rule 4	0.31	0.40	0.11	1								
Rule 5	0.27	0.37	0.09	0.52	1							
Rule 6	0.28	0.32	0.11	0.40	0.37	1						
M2 Rule 1	0.40	0.2	0.08	0.26	0.24	0.29	1					
M2 Rule 2	0.28	0.63	0.13	0.42	0.36	0.37	0.25	1				
M3 Rule 3	0.14	0.21	0.21	0.23	0.22	0.18	0.15	0.21	1			
M4 Rule 4	0.25	0.30	0.14	0.41	0.39	0.32	0.25	0.32	0.23	1		
M5 Rule 5	0.25	0.42	0.09	0.49	0.60	0.37	0.25	0.42	0.24	0.40	1	
M6 Rule 6	0.27	0.31	0.08	0.36	0.36	0.77	0.30	0.39	0.19	0.33	0.35	1

Average across all: 0.293

Average within-rule: 0.503

Average of non-within-rule: 0.272

Table S7: Means, standard deviations, and correlations with confidence intervals for study items out of 12, Rule score out of 12, CRT, CRT-2, BNT, Education, and Age.

Variable	*M*	*SD*	1	2	3	4	5	6
1. Study	7.03	2.91						
2. $Rule_{Total}$	9.23	2.89	.67**					
			[.64, .70]					
3. CRT	1.69	1.21	.47**	.48**				
			[.43, .50]	[.45, .52]				
4. CRT-2	2.46	1.17	.42**	.50**	.60**			
			[.38, .45]	[.46, .53]	[.57, .63]			
5. BNT	1.77	1.10	.37**	.31**	.42**	.33**		
			[.32, .41]	[.27, .36]	[.38, .46]	[.29, .37]		
6. Educ	5.43	1.13	.04	-.06*	.10**	.00	.14**	
			[-.01, .08]	[-.11, -.01]	[.05, .15]	[-.04, .05]	[.09, .19]	
7. Age	4.07	1.25	.06*	.18**	.15**	.13**	.05*	.05*
			[.01, .11]	[.13, .22]	[.10, .19]	[.08, .17]	[.01, .10]	[.00, .10]

Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation. * indicates $p < .05$. ** indicates $p < .01$.

Note. Age was measured as a score from 1 to 7. The categories were; Under 18, 18-24, 25-30, 31-40, 41-50, 51-64, and 65 or over. Hence the average age was 31-40.

Note. Education was measured as a score from 1 to 8. The categories were; Elementary school, Middle school/junior high, Some high school, High school diploma, Associate degree, Bachelor's degree, Master's degree, Doctorate (or more). Hence, the average education was between an Associate degree and a Bachelor’s degree.

Table S8: Logistic regressions predicting success with conditions coded relative to Fast (Models 1-2) and control (Models 3-9), individual differences mean centered, $Rule_{Specific}$ variable coded as dummy variables.

Model	1	2	3	4	5	6	7	8	9
(Intercept)	-1.701***	-1.547***	-1.336***	-1.382***	-1.350***	-1.358***	-1.367***	-1.327***	-1.490***
	(0.106)	(0.147)	(0.095)	(0.097)	(0.103)	(0.106)	(0.096)	(0.094)	(0.092)
Control (a)	0.365***	0.189							
	(0.071)	(0.151)							
Slow (a)	0.499***	0.247							
	(0.088)	(0.199)							
Incentive (a)	0.508***	0.329†							
	(0.084)	(0.183)							
Slow (b)			0.134†	0.084	0.089	0.058	0.130†	0.120	0.114
			(0.073)	(0.071)	(0.071)	(0.170)	(0.073)	(0.076)	(0.074)
Fast (b)			-0.365***	-0.350***	-0.348***	-0.189	-0.358***	-0.331***	-0.346***
			(0.071)	(0.071)	(0.072)	(0.151)	(0.071)	(0.072)	(0.071)
Incentive (b)			0.143*	0.149*	0.153*	0.139	0.147*	0.141*	0.116†
			(0.068)	(0.065)	(0.065)	(0.152)	(0.070)	(0.070)	(0.068)
RuleSpecific (R1)	0.502***	0.451**	0.502***	0.489***	0.397***	0.506***	0.484***	0.462***	0.613***
	(0.073)	(0.171)	(0.073)	(0.077)	(0.085)	(0.101)	(0.079)	(0.076)	(0.073)
RuleSpecific (R2)	1.162***	0.947***	1.162***	1.126***	1.080***	1.192***	1.203***	1.177***	1.356***
	(0.066)	(0.141)	(0.066)	(0.070)	(0.076)	(0.091)	(0.071)	(0.068)	(0.065)
Education	0.001	0.002	0.001	0.033	0.029	0.002	0.008	0.044†	0.000
	(0.022)	(0.022)	(0.022)	(0.021)	(0.022)	(0.022)	(0.022)	(0.023)	(0.022)
CRT	0.203***	0.204***	0.203***	0.117***	0.116***	0.204***	0.316***		
	(0.026)	(0.026)	(0.026)	(0.027)	(0.027)	(0.026)	(0.048)		
CRT-2	0.126***	0.125***	0.126***	0.013	0.015	0.125***		0.316***	
	(0.026)	(0.026)	(0.026)	(0.027)	(0.027)	(0.026)		(0.043)	
BNT	0.215***	0.214***	0.215***	0.175***	0.171***	0.214***			0.120*
	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)			(0.056)
RuleNon-specific (RNS)				0.185***	0.202***				
				(0.011)	(0.021)				
Control (a) X R1		0.054							
		(0.196)							
Control (a) X R2		0.244							
		(0.165)							
Slow (a) X R1		0.233							
		(0.243)							
Slow (a) X R2		0.305							
		(0.211)							
Incentive (a) X R1		-0.049							
		(0.234)							
Incentive (a) X R2		0.287							
		(0.203)							
RNS X R1					-0.079**				
					(0.026)				
RNS X R2					0.010				
					(0.025)				
Slow (b) X R1						0.179			
						(0.201)			
Slow (b) X R2						0.061			
						(0.180)			
Fast (b) X R1						-0.054			
						(0.196)			
Fast (b) X R2						-0.244			
						(0.165)			

Incentive (b) X R1						-0.103			
						(0.190)			
Incentive (b) X R1						0.043			
						(0.172)			
CRT X R1							-0.075		
							(0.059)		
CRT X R2							0.065		
							(0.053)		
CRT-2 X R1								-0.107*	
								(0.054)	
CRT-2 X R2								0.021	
								(0.049)	
BNT X R1									0.122†
									(0.068)
BNT X R2									0.280***
									(0.061)
Measure (c)	0.215***	0.215***	0.215***	0.223***	0.223***	0.215***	0.212***	0.210***	0.210***
	(0.026)	(0.026)	(0.026)	(0.027)	(0.027)	(0.026)	(0.025)	(0.025)	(0.025)
Problem 2	-0.350***	-0.352***	-0.350***	-0.314***	-0.318***	-0.352***	-0.352***	-0.353***	-0.362***
	(0.067)	(0.067)	(0.067)	(0.069)	(0.069)	(0.067)	(0.066)	(0.065)	(0.066)
Problem 3	1.496***	1.495***	1.496***	1.584***	1.596***	1.495***	1.481***	1.461***	1.463***
	(0.070)	(0.070)	(0.070)	(0.074)	(0.074)	(0.070)	(0.069)	(0.068)	(0.069)
Problem 4	1.419***	1.416***	1.419***	1.527***	1.527***	1.416***	1.392***	1.372***	1.371***
	(0.069)	(0.069)	(0.069)	(0.072)	(0.072)	(0.069)	(0.068)	(0.067)	(0.068)
Problem 5	1.119***	1.120***	1.119***	1.230***	1.236***	1.120***	1.092***	1.077***	1.074***
	(0.070)	(0.071)	(0.070)	(0.073)	(0.074)	(0.071)	(0.069)	(0.069)	(0.069)
Problem 6	1.411***	1.412***	1.411***	1.395***	1.392***	1.412***	1.392***	1.375***	1.396***
	(0.070)	(0.070)	(0.070)	(0.073)	(0.073)	(0.070)	(0.069)	(0.068)	(0.068)
Position 2	-0.021	-0.021	-0.021	-0.024	-0.027	-0.021	-0.019	-0.021	-0.020
	(0.067)	(0.066)	(0.067)	(0.070)	(0.070)	(0.066)	(0.066)	(0.065)	(0.065)
Position 3	0.005	0.004	0.005	0.008	0.008	0.004	0.012	0.008	0.008
	(0.067)	(0.067)	(0.067)	(0.070)	(0.070)	(0.067)	(0.066)	(0.065)	(0.065)
Position 4	0.016	0.017	0.016	0.020	0.021	0.017	0.019	0.017	0.019
	(0.065)	(0.066)	(0.065)	(0.068)	(0.068)	(0.066)	(0.064)	(0.064)	(0.064)
Position 5	0.038	0.042	0.038	0.049	0.046	0.042	0.037	0.038	0.042
	(0.066)	(0.066)	(0.066)	(0.068)	(0.068)	(0.066)	(0.065)	(0.064)	(0.064)
Position 6	-0.035	-0.032	-0.035	-0.026	-0.029	-0.032	-0.037	-0.035	-0.033
	(0.068)	(0.068)	(0.068)	(0.071)	(0.071)	(0.068)	(0.067)	(0.066)	(0.066)
Block Order (d)	-0.154**	-0.152**	-0.154**	-0.127**	-0.130**	-0.152**	-0.152**	-0.170***	-0.130**
	(0.050)	(0.050)	(0.050)	(0.049)	(0.049)	(0.050)	(0.051)	(0.051)	(0.050)

n = 17,652

Categorical variable a = coded relative to 'fast' condition.

Categorical variable b = coded relative to 'control' condition.

Categorical variable c = 0 if measure 1 (e.g. Linda), 1 if measure 2 (e.g. Bill)

Categorical variable d = 0 if observation in first block, 1 if observation in second block

Note. *** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$ † $p < 0.10$

Table S9: Logistic regressions predicting success with conditions coded relative to control and individual differences mean centered

Model	9	10	11	12	13	10a	11a	12a	13a
(Intercept)	-0.518***	-0.520***	-0.538***	-0.529***	-0.541***	-0.522***	-0.562***	-0.552***	-0.562***
	(0.076)	(0.076)	(0.076)	(0.076)	(0.076)	(0.076)	(0.077)	(0.076)	(0.077)
Slow	0.089	0.089	0.082	0.072	0.077	0.086	0.081	0.070	0.080
	(0.071)	(0.071)	(0.071)	(0.072)	(0.071)	(0.071)	(0.071)	(0.072)	(0.071)
Fast	-0.350***	-0.348***	-0.341***	-0.326***	-0.338***	-0.352***	-0.339***	-0.326***	-0.338***
	(0.071)	(0.070)	(0.072)	(0.072)	(0.072)	(0.070)	(0.072)	(0.072)	(0.072)
Incentive	0.148*	0.152*	0.158*	0.147*	0.144*	0.151*	0.165*	0.151*	0.146*
	(0.065)	(0.066)	(0.066)	(0.067)	(0.065)	(0.067)	(0.067)	(0.066)	(0.065)
CRT	0.117***	0.117***	0.171***			0.116***	0.169***		
	(0.027)	(0.027)	(0.023)			(0.027)	(0.023)		
CRT-2	0.013	0.012		0.111***		0.012		0.119***	
	(0.027)	(0.027)		(0.024)		(0.027)		(0.024)	
BNT	0.177***	0.177***			0.207***	0.177***			0.200***
	(0.026)	(0.026)			(0.025)	(0.026)			(0.026)
Education	0.034	0.035	0.046*	0.065**	0.039†	0.036†	0.042†	0.059**	0.036†
	(0.021)	(0.021)	(0.021)	(0.022)	(0.021)	(0.021)	(0.022)	(0.022)	(0.021)
$Rule_{Specific}$	0.577***	0.594***	0.621***	0.622***	0.643***	0.591***	0.623***	0.624***	0.640***
	(0.033)	(0.045)	(0.034)	(0.033)	(0.034)	(0.046)	(0.034)	(0.033)	(0.034)
$Rule_{Non\text{-}specific}$	0.185***	0.185***	0.199***	0.212***	0.207***	0.194***	0.209***	0.222***	0.217***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.010)	(0.015)	(0.013)	(0.012)	(0.012)
Slow X $Rule_{Specific}$		-0.004				-0.007			
		(0.085)				(0.087)			
Fast X $Rule_{Specific}$		-0.142†				-0.123			
		(0.082)				(0.083)			
Incentive X $Rule_{Specific}$		0.046				0.048			
		(0.083)				(0.085)			
CRT X $Rule_{Specific}$			0.087***				0.084**		
			(0.026)				(0.026)		
CRT-2 X $Rule_{Specific}$				0.064**				0.058*	
				(0.024)				(0.024)	
BNT X $Rule_{Specific}$					0.157***				0.144***
					(0.030)				(0.031)
Slow X $Rule_{Non\text{-}specific}$						0.003			
						(0.028)			
Fast X $Rule_{Non\text{-}specific}$						-0.047†			
						(0.027)			
Incentive X $Rule_{Non\text{-}specific}$						-0.005			
						(0.026)			
CRT X $Rule_{Non\text{-}specific}$							0.018*		
							(0.009)		
CRT-2 X $Rule_{Non\text{-}specific}$								0.018*	
								(0.008)	
BNT X $Rule_{Non\text{-}specific}$									0.032**
									(0.011)
Measure (a)	0.223***	0.223***	0.222***	0.221***	0.222***	0.223***	0.222***	0.221***	0.223***
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Problem 2	-0.306***	-0.307***	-0.308***	-0.307***	-0.313***	-0.307***	-0.308***	-0.306***	-0.313***
	(0.068)	(0.069)	(0.068)	(0.068)	(0.069)	(0.069)	(0.068)	(0.068)	(0.069)
Problem 3	1.578***	1.578***	1.582***	1.570***	1.585***	1.579***	1.581***	1.569***	1.586***
	(0.074)	(0.074)	(0.074)	(0.073)	(0.074)	(0.074)	(0.074)	(0.073)	(0.074)
Problem 4	1.527***	1.526***	1.517***	1.507***	1.523***	1.527***	1.520***	1.511***	1.527***
	(0.072)	(0.072)	(0.071)	(0.071)	(0.072)	(0.072)	(0.071)	(0.071)	(0.072)
Problem 5	1.239***	1.239***	1.225***	1.219***	1.235***	1.239***	1.229***	1.224***	1.239***
	(0.073)	(0.073)	(0.073)	(0.072)	(0.073)	(0.073)	(0.073)	(0.072)	(0.073)
Problem 6	1.408***	1.410***	1.389***	1.383***	1.402***	1.411***	1.395***	1.390***	1.408***
	(0.072)	(0.072)	(0.071)	(0.071)	(0.071)	(0.072)	(0.071)	(0.071)	(0.072)
Position 2	-0.027	-0.027	-0.025	-0.023	-0.027	-0.027	-0.025	-0.024	-0.027
	(0.070)	(0.070)	(0.069)	(0.069)	(0.069)	(0.070)	(0.069)	(0.069)	(0.070)
Position 3	0.008	0.007	0.014	0.013	0.008	0.008	0.012	0.011	0.008

	(0.070)	(0.070)	(0.069)	(0.069)	(0.070)	(0.070)	(0.069)	(0.069)	(0.070)
Position 4	0.019	0.020	0.021	0.021	0.021	0.020	0.020	0.020	0.021
	(0.068)	(0.068)	(0.068)	(0.068)	(0.068)	(0.069)	(0.068)	(0.068)	(0.068)
Position 5	0.049	0.051	0.048	0.051	0.054	0.051	0.048	0.050	0.053
	(0.068)	(0.068)	(0.068)	(0.068)	(0.068)	(0.068)	(0.068)	(0.068)	(0.068)
Position 6	-0.029	-0.025	-0.029	-0.027	-0.025	-0.027	-0.029	-0.028	-0.027
	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)
Block Order (b)	-0.124*	-0.122*	-0.132**	-0.135**	-0.116*	-0.117*	-0.131**	-0.135**	-0.118*
	(0.049)	(0.049)	(0.049)	(0.049)	(0.049)	(0.049)	(0.049)	(0.050)	(0.049)
N	17,652	17,652	17,652	17,652	17,652	17,652	17,652	17,652	17,652

Categorical variable a = 0 if measure 1 (e.g. Linda), 1 if measure 2 (e.g. Bill)

Categorical variable b = 0 if observation in first block, 1 if observation in second block

Note. *** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$ † $p < 0.10$

Table S10: Logistic regressions predicting success with conditions coded relative to control and including both $Rule_{Specific}$ and $Rule_{Non\text{-}specific}$ variables in regression.

Model	9	10	11	12	13
(Intercept)	-0.518***	-0.520***	-0.538***	-0.529***	-0.540***
	(0.076)	(0.076)	(0.076)	(0.076)	(0.076)
Slow	0.089	0.089	0.082	0.072	0.077
	(0.071)	(0.071)	(0.071)	(0.072)	(0.071)
Fast	-0.350***	-0.348***	-0.341***	-0.326***	-0.338***
	(0.071)	(0.070)	(0.072)	(0.072)	(0.072)
Incentive	0.148*	0.152*	0.158*	0.147*	0.144*
	(0.065)	(0.066)	(0.066)	(0.067)	(0.065)
CRT	0.117***	0.117***	0.171***		
	(0.027)	(0.027)	(0.023)		
CRT-2	0.013	0.012		0.111***	
	(0.027)	(0.027)		(0.024)	
BNT	0.177***	0.177***			0.207***
	(0.026)	(0.026)			(0.025)
Education	0.034	0.035	0.046*	0.065**	0.039†
	(0.021)	(0.021)	(0.021)	(0.022)	(0.021)
$Rule_{Specific}$ (SR)	0.392***	0.409***	0.422***	0.410***	0.436***
	(0.037)	(0.048)	(0.038)	(0.037)	(0.038)
$Rule_{Non\text{-}specific}$	0.185***	0.185***	0.199***	0.212***	0.207***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.010)
Slow X SR		-0.004			
		(0.085)			
Fast X SR		-0.142†			
		(0.082)			
Incentive X SR		0.046			
		(0.083)			
CRT X SR			0.087***		
			(0.026)		
CRT-2 X SR				0.064**	
				(0.024)	
BNT X SR					0.157***
					(0.030)
Measure (a)	0.223***	0.223***	0.222***	0.221***	0.222***
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Problem 2	-0.306***	-0.307***	-0.308***	-0.307***	-0.313***
	(0.068)	(0.069)	(0.068)	(0.068)	(0.069)
Problem 3	1.578***	1.578***	1.582***	1.570***	1.585***
	(0.074)	(0.074)	(0.074)	(0.073)	(0.074)
Problem 4	1.527***	1.526***	1.517***	1.507***	1.523***
	(0.072)	(0.072)	(0.071)	(0.071)	(0.072)
Problem 5	1.239***	1.239***	1.225***	1.219***	1.235***
	(0.073)	(0.073)	(0.073)	(0.072)	(0.073)
Problem 6	1.408***	1.410***	1.389***	1.383***	1.402***
	(0.072)	(0.072)	(0.071)	(0.071)	(0.071)
Position 2	-0.027	-0.027	-0.025	-0.023	-0.027
	(0.070)	(0.070)	(0.069)	(0.069)	(0.069)
Position 3	0.008	0.007	0.014	0.013	0.008
	(0.070)	(0.070)	(0.069)	(0.069)	(0.070)
Position 4	0.019	0.020	0.021	0.021	0.021
	(0.068)	(0.068)	(0.068)	(0.068)	(0.068)
Position 5	0.049	0.051	0.048	0.051	0.054
	(0.068)	(0.068)	(0.068)	(0.068)	(0.068)
Position 6	-0.029	-0.025	-0.029	-0.027	-0.025
	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)
Block Order (b)	-0.124*	-0.122*	-0.132**	-0.135**	-0.116*
	(0.049)	(0.049)	(0.049)	(0.049)	(0.049)
N	17,652	17,652	17,652	17,652	17,652

Categorical variable a = 0 if measure 1 (e.g. Linda), 1 if measure 2 (e.g. Bill)

Categorical variable b = 0 if observation in first block, 1 if observation in second block

Note. *** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$ † $p < 0.10$

Table S11: Linear regression model predicting the total number of study items answered correctly, with and without excluding 163/1471 of the between-subjects participants who answered more study items correctly than *Rule* items.

Model	1	2	3	4
(Intercept)	0.046	-1.379***	-0.152	-1.546***
	(0.327)	(0.332)	(0.368)	(0.379)
$Rule_{Total}$	0.582***	0.714***	0.603***	0.731***
	(0.022)	(0.024)	(0.029)	(0.031)
CRT	0.266***	0.208***	0.264***	0.204***
	(0.059)	(0.057)	(0.059)	(0.057)
CRT-2	0.025	0.028	0.024	0.030
	(0.060)	(0.058)	(0.060)	(0.058)
BNT	0.379***	0.379***	0.380***	0.379***
	(0.054)	(0.053)	(0.054)	(0.053)
Slow	0.216	0.175	0.121	0.037
	(0.152)	(0.147)	(0.523)	(0.604)
Fast	-0.773***	-0.755***	0.375	0.396
	(0.151)	(0.146)	(0.490)	(0.564)
Incentive	0.355*	0.289†	0.361	0.252
	(0.150)	(0.147)	(0.489)	(0.579)
Education	0.088†	0.080†	0.090†	0.080†
	(0.047)	(0.046)	(0.047)	(0.046)
$Rule_{Total}$ X Slow			0.010	0.014
			(0.053)	(0.060)
$Rule_{Total}$ X Fast			-0.126*	-0.120*
			(0.051)	(0.057)
$Rule_{Total}$ X Incentive			0.000	0.004
			(0.052)	(0.059)
N	1,471	1,308	1,471	1,308

Note. *** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$ † $p < 0.10$

Table S12: Logistic regressions predicting success with conditions coded relative to control (14, 15) and *Slow* (within) (15a) and individual differences mean centered. Including half of within-subject observations.

Model	14	15	15a
(Intercept)	-0.442***	-0.468***	-0.510***
	(0.070)	(0.071)	(0.089)
Fast	-0.368***	-0.376***	
	(0.075)	(0.075)	
Fast (within)	-0.439***		
	(0.071)		
Slow	0.153*	0.155*	
	(0.078)	(0.079)	
Slow (within)		-0.042	
		(0.076)	
Incentive	0.120	0.123	
	(0.074)	(0.075)	
CRT	0.252***	0.268***	0.268***
	(0.026)	(0.026)	(0.026)
CRT-2	0.199***	0.197***	0.197***
	(0.026)	(0.026)	(0.026)
BNT	0.233***	0.221***	0.221***
	(0.025)	(0.026)	(0.026)
Education	-0.017	-0.018	-0.018
	(0.022)	(0.022)	(0.022)
Fast (recoded; a)			-0.334***
			(0.092)
Slow (a)			0.197*
			(0.095)
Incentive (a)			0.042
			(0.076)
Control (a)			0.165†
			(0.092)
Measure (b)	0.195***	0.217***	0.217***
	(0.024)	(0.023)	(0.023)
Problem 2	-0.226***	-0.219***	-0.219***
	(0.060)	(0.061)	(0.061)
Problem 3	1.446***	1.508***	1.508***
	(0.063)	(0.064)	(0.064)
Problem 4	1.410***	1.506***	1.506***
	(0.062)	(0.063)	(0.063)
Problem 5	1.160***	1.303***	1.303***
	(0.062)	(0.064)	(0.064)
Problem 6	1.129***	1.199***	1.199***
	(0.060)	(0.061)	(0.061)
Position 2	-0.007	-0.075	-0.075
	(0.058)	(0.059)	(0.059)
Position 3	0.029	-0.025	-0.025
	(0.059)	(0.061)	(0.061)
Position 4	0.040	-0.024	-0.024
	(0.060)	(0.061)	(0.061)
Position 5	0.075	0.030	0.030
	(0.058)	(0.059)	(0.059)
Position 6	-0.002	-0.048	-0.048
	(0.061)	(0.061)	(0.061)
Block Order (c)	-0.138**	-0.137**	-0.137**
	(0.049)	(0.050)	(0.050)
N	20,472	20,472	20,472

Categorical variable a = conditions coded relative to 'Slow (within)' condition.
Categorical variable b = 0 if measure 1 (e.g. Linda), 1 is measure 2 (e.g. Bill)
Categorical variable c = 0 if observation in first block, 1 if observation in second block
Note. *** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$ † $p < 0.10$

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