“Immorality is the triumph of temptation over self-control”

9.46, Fall 2014

November 17th

What could cause immoral behavior?

- Different factual beliefs
- Altered or absent inputs to moral judgment (e.g. difficulty computing or integrating mental states in ASD, impaired emotional processing)
- Different weightings of moral factors
- Failure to engage moral cognition
- Reduced influence of moral cognition on behavior (e.g., impulsivity)
- Personal rewards resulting from immoral actions (temptation)

What is self-control?

- Executive functions:
  - Working memory (operation span, n-back)
  - Inhibition (Stroop)
  - Shifting (rule-switching, changing languages)
- Self-regulation: goal-directed behavior
  - Self-control: overriding impulses in the interest of a longer-term goal (e.g., avoiding eating cookies on a diet)
- Ego depletion (Baumeister): acts of self-control use up a limited pool of resources
  - Associated with low blood glucose levels

Review: Hofmann, Schmeichel, & Baddeley (2012)

How do we control ourselves?

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- Evidence for shared circuitry for various types of self-control:
  - anterior cingulate cortex (ACC) & dorsal medial prefrontal cortex (dmPFC)- detecting when control is needed
  - dorsal lateral prefrontal cortex (dlPFC) - inhibition, response selection
- Lesion studies (e.g. Glascher et al. 2012, PNAS: >300 patients with focal lesions)
- fMRI & PET (Niendam et a. 2012 meta-analysis includes >2800 subjects, supports the idea of shared resources for various EFs)

Greene & Paxton, 2009: Will vs. Grace

- "Grace" hypothesis: "Honesty results from the absence of temptation"

- **"Will" hypothesis: "Honesty results from the active resistance of temptation" (popular belief)**

Clever protocol

- fMRI while predicting the outcome of coin flips; payment based on accuracy
- On some (“Opportunity”) trials, prediction is recorded after outcome, so participants have the option (and incentive) to cheat
  - No-opportunity loss: Outcome incorrectly predicted and recorded
  - No-opportunity win: Outcome correctly predicted and recorded
  - Opportunity loss: Prediction not recorded, but participant indicates he/she was incorrect (probably always true!)
  - Opportunity win: Prediction not recorded, and participant indicates he/she was correct (true some of the time!)

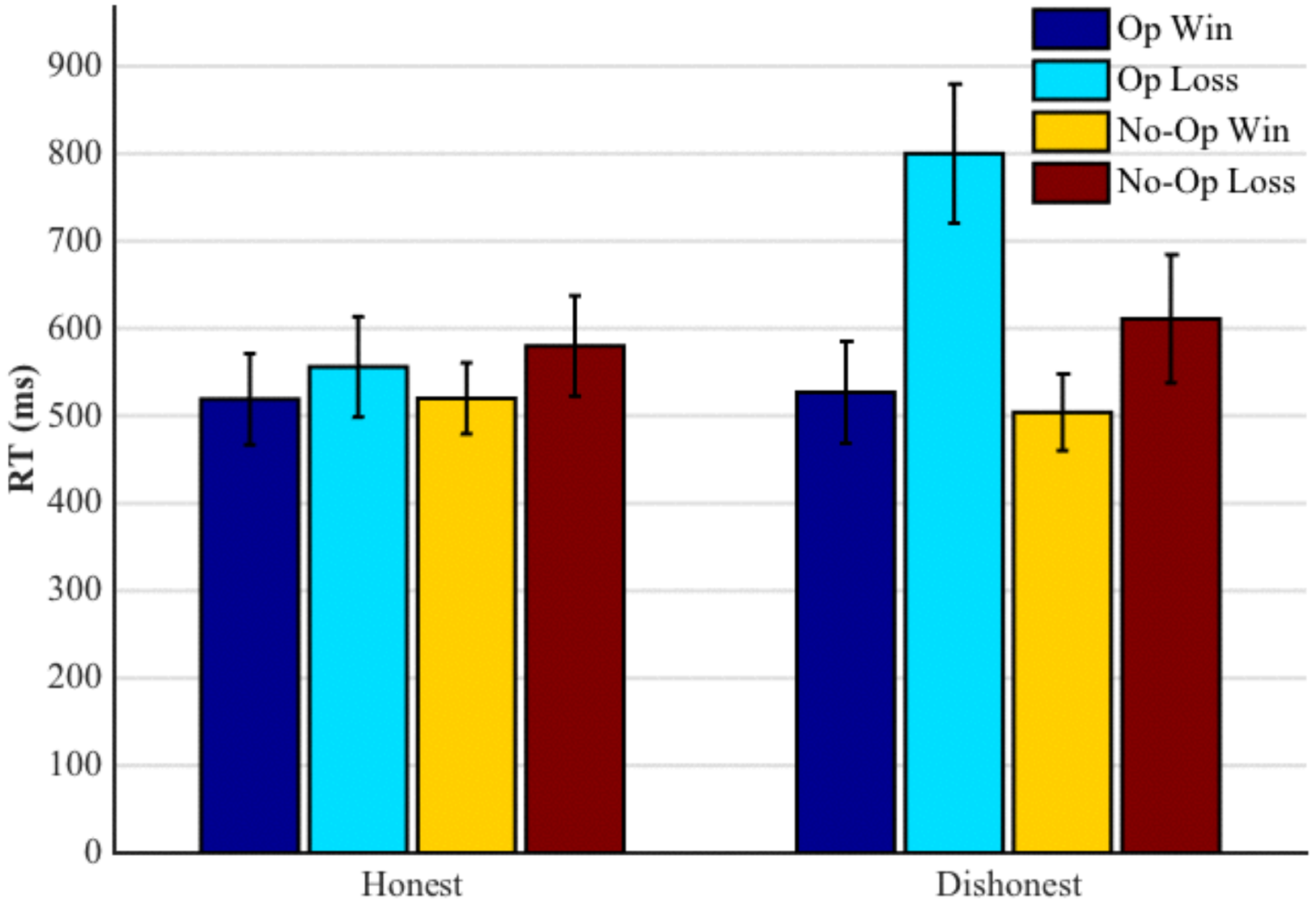
In-class exercise

1. How many trials could you get right without the experimenter being sure ($p<0.001$) that you were sometimes dishonest…
    a) if there were 50 trials total?
    b) if there were 1000 trials total?

You may NOT use the Internet or statistical software. Write down your answers, show each other, and come to a consensus.

[After class discussion] Did the subjects in Greene & Paxton (2009) know that their dishonest behavior could be detected?

Control network implicated in Opportunity trials, but only in dishonest participants



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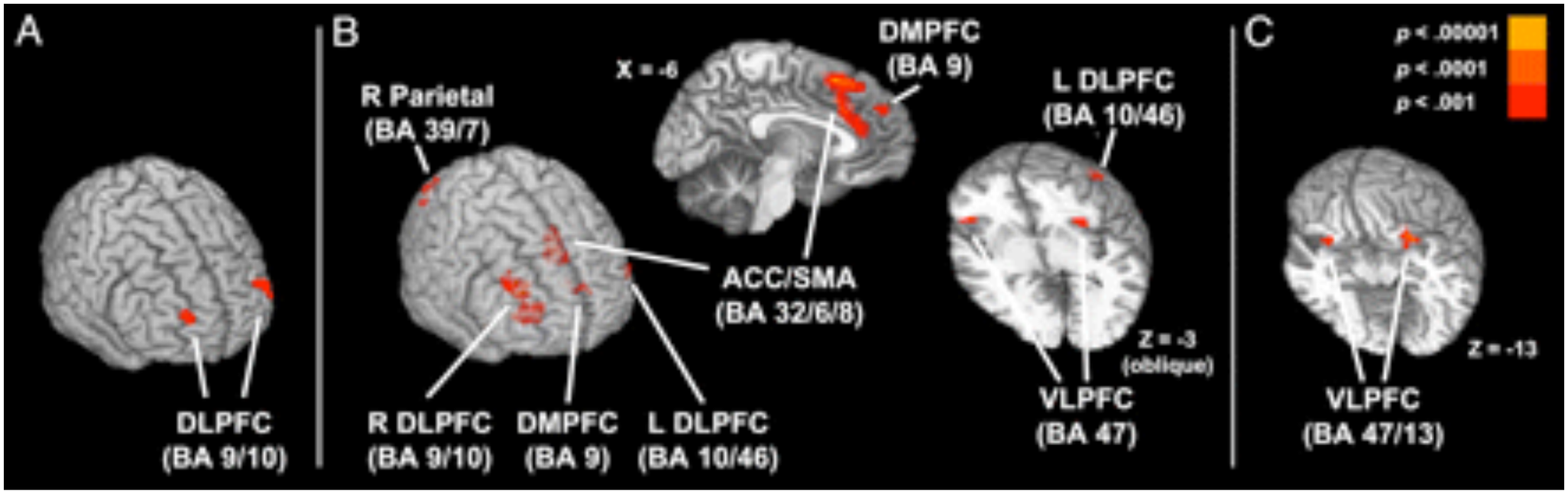


- Dishonest participants:
  - DLPFC activity: Opportunity win > no-opportunity win ("[In some cases] choosing to lie")
  - DLPFC, DMPFC, & ACC: Opportunity loss > no-opportunity loss ("Choosing not to lie)
- Honest participants:
  - VLPFC: Opportunity win > no-opportunity win

In-class exercise

2. Say you were a participant in this study, and wanted to convince the authors that you really could predict coin-flips. What would be your strategy?

What does control network activity reflect?

- “Limited honesty”: answering this question honestly, even though you lie sometimes

- Attempts (sometimes unsuccessful) to avoid temptation

- Decisions about WHETHER to lie

So: Will or Grace?

- Greene & Paxton: Grace ("absence of temptation"), because the participants who consistently responded honestly did not show lengthened RT or control network activation when doing so.

- **In-class exercise 3:** Come up with another explanation for the honest subjects' data, besides absence of temptation.

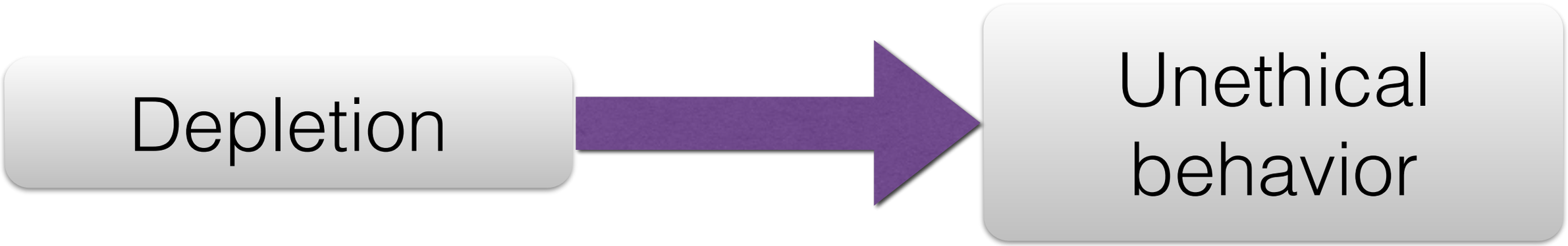
Quantifying temptation

- Abe & Greene (2014): Anticipated reward signal in nucleus accumbens predicts…
  - Degree of dishonest behavior
  - Control network activation
- Proposed resolution: Grace comes from not caring as much about the rewards.

How does self-control affect behavior?

Gino et al. (2011):

1. depletion increases unethical behavior



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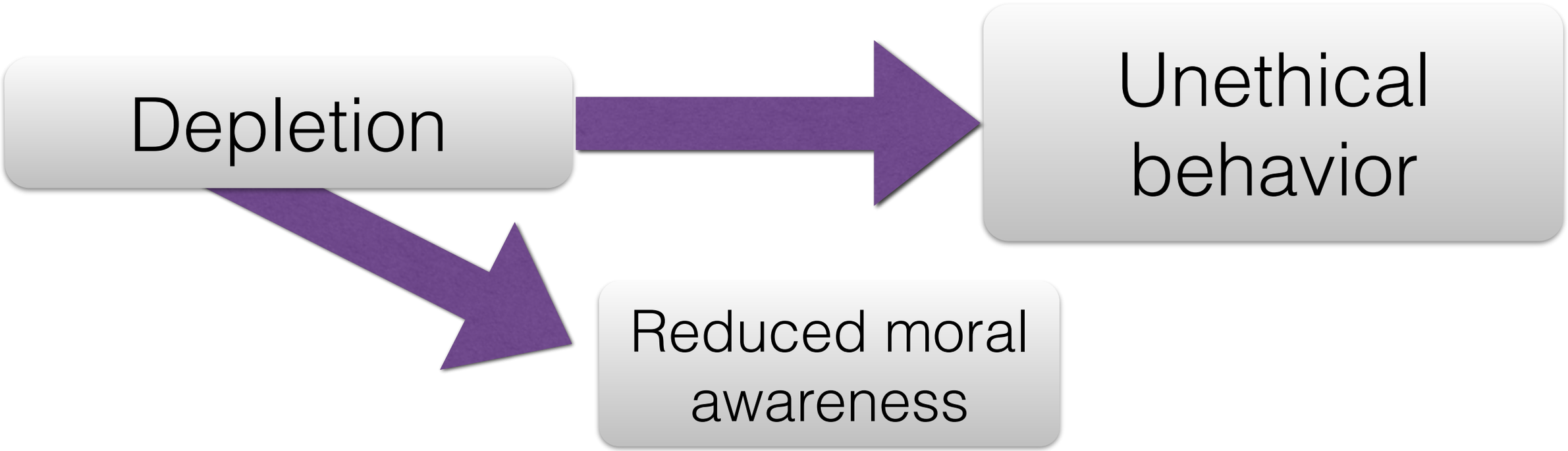

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3. (2) mediates (1)
4. Stronger effect in people with low moral identity

In-class exercise

4. How do Gino et al. interpret Greene & Paxton's findings of lack of control network activity in individuals who acted honestly?

5. (a) [For one of the four studies] Explain the hypothesis tested, protocol used, and findings. Propose one alternative explanation.

[Trade answers]

(b) Either shoot that explanation down (arguing from the the data) or briefly propose a way to test it.

Study 1	Depletion increases unethical behavior: deplete, then offer opportunity to cheat	1. Mood differences, annoyed by weird directions, think they deserve more pay 2. Influence on motivated processing - participants thought they solved more matrices
Study 2	Depletion decreases moral awareness: deplete, matrices (deferred payment), word completion	1. Non-moral words are “easier,” more concrete—so depleted participants get fewer moral words
Study 3	Depletion has more effect in low moral identity: deplete, moral identity questionnaire, matrices	1. “Higher moral identity” could produce more moral priming 2. Correlation between “moral identity” and self control generally (not “protective” against feeling just as depleted!)’
Study 4	Resisting unethical behavior depletes self-control: Stroop, chance to cheat, Stroop	1. Cheaters tried harder at the second Stroop task (e.g. because they just got more money, or to make up for cheating) 2. Cheaters didn’t work as hard on the matrix task

Thoughts on alternative explanations

Study 1	Depletion increases unethical behavior: deplete, then offer opportunity to cheat	1. Mood differences, annoyed by weird directions, think they deserve more pay 2. Influence on motivated processing - participants thought they solved more matrices	1. The authors don't find any differences in self-reported mood, but thinking they deserve more pay might not show up there. Also ask them what fair pay would be? 2. The authors argue that motivated reasoning would have little effect since participants receive explicit feedback about how many they got right. (But "Oh, I was just ABOUT to get that one, really it ought to count" is still a possibility!)
Study 2	Depletion decreases moral awareness: deplete, matrices (deferred payment), word completion	1. Non-moral words are "easier," more concrete—so depleted participants get fewer moral words	1. This seems like a very real possibility: e.g., non-depleted participants have access to a wider range of more abstract or less common words, and so generate the moral ones more often. A few ways to address this: (a) does the effect actually depend on whether a moral question is being posed? (b) ask depleted and non-depleted participants to fill in words and look for general effects of frequency, abstractness, etc. (APPLE vs. AMPLE)
Study 3	Depletion has more effect in low moral identity: deplete, moral identity questionnaire, matrices	1. "Higher moral identity" could produce more moral priming 2. Correlation between "moral identity" and self control generally (not "protective" against feeling just as depleted!)'	1. This seems like a real possibility but could be easily addressed by doing the moral identity questionnaire after the matrix/cheating task. 2. This is a different interpretation but not necessarily one the authors would disagree with. To test you could give the same "depleting" task in between two Stroop tests, and see if the decrease in performance is greater for low-moral-identity participants.
Study 4	Resisting unethical behavior depletes self-control: Stroop, chance to cheat, Stroop	1. Cheaters tried harder at the second Stroop task (e.g. because they just got more money, or to make up for cheating) 2. Cheaters didn't work as hard on the matrix task and so didn't get as depleted	1. You could check for both concerns (but not differentiate between them) by having a third condition—forced honesty. The authors would predict these participants would pattern with the cheaters, because they didn't have to exercise self-control to avoid cheating. But if it's about either cheating making you work harder later OR cheating letting you relax during the matrix task, only cheaters will show the reduced depletion. 2. Cheaters did just as well as non-cheaters, though, so if they didn't work as hard either they're better at the task or it was in some other way (e.g., they worked as hard but weren't stressed out about it since their pay didn't depend on it.)

Moral of the story

- Resisting temptation really does involve cognitive control…

- but good behavior doesn't necessarily result from resisting temptation.