Temptation: Immediacy and certainty

Supplement

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The interface included animations to convey the random selection procedure to subjects. Only one slide from each animation is included in this document.

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Table 1: Subject counts by treatment

Treatment					Subject count on day		
No.	Day	Rate	Selects day[1]	Rate order[2]	Zero	Two	Nine
1	Risky	Risky	Two	Original	8	8	8
2	Risky	Certain	Two	Original	10	10	10
3	Risky	Risky	Zero	Original	9	8	7
4	Risky	Certain	Zero	Original	8	7	7
5	Certain	Risky	Two	Original	17	16	15
6	Certain	Certain	Two	Original	17	16	15
7	Certain	Risky	Zero	Original	18	16	16
8	Certain	Certain	Zero	Original	15	15	13
9	Risky	Risky	Two	Reversed	9	8	7
10	Risky	Certain	Two	Reversed	8	8	7
11	Risky	Risky	Zero	Reversed	9	8	8
12	Risky	Certain	Zero	Reversed	9	9	8
13	Certain	Risky	Two	Reversed	17	15	14
14	Certain	Certain	Two	Reversed	17	16	15
15	Certain	Risky	Zero	Reversed	18	16	15
16	Certain	Certain	Zero	Reversed	17	16	15
Total subject count by day					206	192	180

[1] The day from which a decision was selected for implementation.
[2] Decisions are presented in the order of $\mathcal{R}$ or its reverse.

3 Parameter recovery

Parameters in the model of the main text are recovered as follow:

$$\beta = \exp \frac{\theta_{\text{present}}}{-\theta_{\text{lnrate}}}, \qquad \beta_{\text{cr}} = \exp \frac{\theta_{\text{present}} + \theta_{\text{cr}}}{-\theta_{\text{lnrate}}},$$

$$\beta_{\text{cd}} = \exp \frac{\theta_{\text{present}} + \theta_{\text{cd}}}{-\theta_{\text{lnrate}}}, \qquad \beta_{\text{cr,cd}} = \exp \frac{\theta_{\text{present}} + \theta_{\text{cr}} + \theta_{\text{cd}} + \theta_{\text{cr,cd}}}{-\theta_{\text{lnrate}}},$$

$$\delta = \exp \frac{\theta_{\text{delay}}}{-\theta_{\text{lnrate}}}, \text{ and} \qquad \alpha = 1 - \theta_{\text{lnrate}}^{-1}.$$

Table 2: Regression results with various background effort

	Background effort, ω			
	10	1200	2400	4800
Equivalent duration of $\omega^{\dagger}$	1 minute	2 hours	4 hours	8 hours
β	1.009	0.984	0.982	0.981
	(0.055)	(0.068)	(0.069)	(0.069)
β_{cd}	0.921	0.884	0.882	0.880
	(0.057)	(0.072)	(0.074)	(0.075)
β_{cr}	0.679	0.665	0.662	0.661
	(0.109)	(0.113)	(0.114)	(0.114)
$\beta_{cr,cd}$	0.581	0.569	0.566	0.565
	(0.108)	(0.113)	(0.114)	(0.114)
δ	0.986	0.987	0.987	0.987
	(0.004)	(0.005)	(0.005)	(0.005)
α	1.282	5.048	8.668	15.898
	(0.045)	(0.688)	(1.317)	(2.575)
p-value of χ^2_1 test:				
$\beta = \beta_{cd}$	0.327	0.366	0.369	0.371
$\beta = \beta_{cr}$	0.011	0.019	0.019	0.020
$\beta = \beta_{cr,cd}$	0.001	0.002	0.002	0.002
$\beta_{cd} = \beta_{cr}$	0.046	0.084	0.086	0.087
$\beta_{cr,cd} = \beta_{cd}$	0.005	0.012	0.012	0.012
$\beta_{cr,cd} = \beta_{cr}$	0.458	0.481	0.481	0.481
$\beta = 1$	0.873	0.808	0.795	0.788
$\beta_{cd} = 1$	0.166	0.109	0.108	0.108
$\beta_{cr} = 1$	0.003	0.003	0.003	0.003
$\beta_{cr,cd} = 1$	< 0.001	< 0.001	< 0.001	< 0.001
$\delta = 1$	0.001	0.014	0.017	0.019
$\alpha = 1$	< 0.001	< 0.001	< 0.001	< 0.001

Note: 897 observations (161 left- and 95 right-censored) from 180 subjects. Robust standard errors in parentheses are clustered on subject using a two-limit Tobit model. Excludes subjects who did not complete all sessions. The *ex ante* specification uses background effort $\omega = 10$. † The median duration of 10 real-effort tasks is 1 minute.

Table 3: Estimated covariance matrix for the primary regression with $\omega = 10$

	β	β_{cd}	β_{cr}	$\beta_{cr,cd}$	δ	α
β	0.00303	−0.00086	−0.00099	−0.00090	0.00006	0.00014
β_{cd}	−0.00086	0.00325	0.00020	0.00027	−0.00002	−0.00044
β_{cr}	−0.00099	0.00020	0.01183	0.00297	0.00011	−0.00244
$\beta_{cr,cd}$	−0.00090	0.00027	0.00297	0.01173	0.00012	−0.00263
δ	0.00006	−0.00002	0.00011	0.00012	0.00002	−0.00008
α	0.00014	−0.00044	−0.00244	−0.00263	−0.00008	0.00206

Table 4: Experimental timeline

Day zero	"Qualification HIT"	Payment of $1.50 within twenty-four hours

1. Instructions
2. Consent
3. Comprehension test

A subject qualifies for the next session if and only if all comprehension answers are correct.

Day zero	"Monday's HIT"	Payment of $1.50 within twenty-four hours

1. Instructions
2. *Practice:* Ten mandatory tasks that would need to be completed
3. *Practice:* Effort allocation between day two and day nine, presented separately
4. *Practice:* Effort allocation between day two and day nine, presented juxtaposed
5. *Practice:* How today's decisions are used (resolution of decision-day risk)
6. *Practice:* How today's decisions are used (resolution of rate risk)
7. *Practice:* View implemented tasks that would need to be completed
8. Complete the ten mandatory tasks
9. Effort allocation between day two and day nine, presented separately
10. Effort allocation between day two and day nine, presented juxtaposed

A subject qualifies for the next session if and only if all parts of this session are completed.

Day two	"This Wednesday's HIT"	Payment of $1.50 within twenty-four hours

1. Instructions
2. *Practice:* Ten mandatory tasks that would need to be completed
3. *Practice:* Effort allocation between day two and day nine, presented separately
4. *Practice:* Effort allocation between day two and day nine, presented juxtaposed
5. *Practice:* How today's decisions are used (resolution of decision-day risk)
6. *Practice:* How today's decisions are used (resolution of rate risk)
7. *Practice:* View implemented tasks that would need to be completed
8. Complete the ten mandatory tasks
9. *Certain Day treatment only:* One day is selected for implementation
10. Effort allocation between day two and day nine, presented separately
11. Effort allocation between day two and day nine, presented juxtaposed
12. *Risky Day treatment only:* One day is selected for implementation
13. *Risky Rate treatment only:* One rate is selected for implementation
14. Complete the implemented tasks for today

A subject qualifies for the next session if and only if all parts of this session are completed.

Day nine	"Next Wednesday's HIT"	Payment of $6.50 within twenty-four hours

1. Instructions
2. Complete the ten mandatory tasks
3. Complete the implemented tasks for today

Note: In the labor marketplace used, *HIT* is common nomenclature for a single job.

Table 5: Comprehension test

1.	On which of the following days do you plan on completing a HIT for this project? *One checkbox per date:* Sun, Oct 27; Mon, Oct 28; Tue, Oct 29; Wed, Oct 30; Thu, Oct 31; Fri, Nov 1; Sat, Nov 2; Sun, Nov 3; Mon, Nov 4; Tue, Nov 5; Wed, Nov 6; Thu, Nov 7; Fri, Nov 8; Sat, Nov 9
2.	After you receive your qualification today, will there be another HIT to complete today? *Radio buttons:* Yes; No
3.	What happens if you make counting errors in the task? *Radio buttons:* The HIT might be rejected. I must start the entire HIT over from the beginning. I will be told which rows have errors, then I'll correct the errors.
4.	Suppose you complete the first HIT later today and you also complete the HIT on this Wednesday. However, you do not complete the HIT next Wednesday. How much will you earn in total from this study? (Do not include earnings from this qualification HIT.) *Text input formatted as USD currency*
5.	How many HITs in total must you complete to earn the bonus? (Do not count this qualification HIT.) *Text input*
6.	On how many days total (including today) must you complete a HIT to earn the bonus? (Do not count this qualification HIT.) *Text input*
7.	How much will you earn in total by fully participating in this study, including the bonus? (Do not include earnings from this qualification HIT.) *Text input formatted as USD currency*
8.	Each day's HIT will definitely be available during what times? Specify a time range using *Pacific Time*: *Selection menu:* Beginning at: 07:00 am; 08:00 am; 09:00 am; 10:00 am; 11:00 am; 12:00 pm; 01:00 pm; 02:00 pm; 03:00 pm; 04:00 pm; 05:00 pm; 06:00 pm Ending at: 12:00 pm; 1:00 pm; 2:00 pm; 3:00 pm; 4:00 pm; 5:00 pm; 6:00 pm; 7:00 pm; 8:00 pm; 9:00 pm; 10:00 pm; 11:00 pm; 12:00 am (midnight); 01:00 am; 02:00 am

Note: In the labor marketplace used, *HIT* is common nomenclature for a single job.

Introduction

Hello! I'm [researcher name], a [researcher position] at [researcher institution].

I'm running this research project to complete my degree. Thank you for taking the time to read this!

I watch my email closely while my HITs are live, so feel free to email me at [researcher email].

I've tried my best to ensure that you are fairly compensated for your time. I pay all earnings within 24 hours.

If you complete the project, you are paid the same amount no matter what. The amount you have to work is partly determined by chance, but your decisions give you control over how much you work and when you work.

Absolutely no deception is used in this experiment. All random coin tosses were generated using a computer program that will be provided (along with the results) to the American Economic Association. My research will not be accepted if it is not completely transparent and truthful.

You may contact the [IRB] regarding your rights and participation at [IRB email].

Qualification HIT

- This HIT may qualify you for a sequence of 3 HITs for an academic research project.
- This qualification HIT pays $1.50, independently of any earnings described below.
- Please read these instructions carefully and answer the questionnaire at the bottom. Thank you!

What you may qualify for…

Earnings

- 1 more HIT today after you have been qualified; it pays $1.50
- 1 HIT this Wednesday; it pays $1.50
- 1 HIT next Wednesday; it pays $1.50
- Earn a $5 bonus for completing all 3 HITs

Today's HIT requirements

This HIT should only take 5-10 minutes to complete; it pays $1.50

1. Work 10 rows of the counting task (like the example below)
2. Decide how to split a workload of 360 rows of counting between Wednesday and next Wednesday

This Wednesday's HIT requirements

This HIT may take 10-20 minutes, depending on how you split the work between the days; it pays $1.50

1. Work 10 rows of the counting task (like the example below)
2. Decide how to split a workload of 360 rows of counting between Wednesday (that same day) and next Wednesday

Figure 1: Qualification session instructions (1 of 6)

Summary

Earn $9.50 total (in addition to this $1.50 qual HIT) for about 30 to 40 minutes of work total, assuming you complete all 3 HITs.

Example: working 10 rows of the counting task

This is a completed example of the counting task that would be in each HIT.

Please count the number of zeros (“0”) on each line and enter it in the box.

Each row will be marked correct or incorrect. You must correct errors before submission.

Row No.	String	Count (“0”)
1	1000110011100011	8
2	1000010100000001	12
3	1110001110000011	8
4	0100110010101111	7
5	0000100010101110	10
6	1101001011001010	8
7	0000111001010001	10
8	1011100110010010	8
9	1110110100011111	5
10	0110001100111001	8

Check responses and save

Decide how to split a workload between this Wednesday and next Wednesday

You start with a workload of 360 rows of counting. You will decide how to split up the workload between this Wednesday and Wednesday of next week.

Figure 2: Qualification session instructions (2 of 6)

You decide for different trade-off scenarios. For example:

- Working 1 more row next week reduces work by 1 row this week (a 1-to-1 trade-off)
- Working 1 more row next week reduces work by 1.5 rows this week (a 1-to-1.5 trade-off)
- Working 1 more row next week reduces work by 0.5 rows this week (a 1-to-0.5 trade-off)

One scenario will be selected to actually matter.

You will get more details and practice in the project's first HIT after you are qualified.

Complete each of 3 days' HITs for a $5 bonus, earning $9.50 total

- On each day in blue below, complete one HIT for $1.50.
- Once you complete all 3 HITs, you will be paid a $5 bonus.
- If you fail to complete a day's HIT, you will not be able to complete further HITs, nor will you receive the bonus.
- You will always be paid for HITs you have already completed. All earnings are paid within 24 hours.
- Each day's HIT will be available *at least* between 12 p.m. and 12 a.m. (midnight), Pacific Time.
- You will be qualified for today's HIT as quickly as possible, but it may take 30 minutes to an hour.
- You will receive a reminder notification through mTurk on each day that you have a HIT to complete.
- Please do not accept more than one HIT on the same day; it will not give you additional work or earnings.
- ***Please only participate if you think you can complete one HIT on each of these 3 days!***

Sun, Oct 27	**Mon, Oct 28 (today)** 1 HIT (today after qualified)	Tue, Oct 29	**Wed, Oct 30** 1 HIT	Thu, Oct 31	Fri, Nov 1	Sat, Nov 2
Sun, Nov 3	Mon, Nov 4	Tue, Nov 5	**Wed, Nov 6** 1 HIT	Thu, Nov 7	Fri, Nov 8	Sat, Nov 9

No deception is used in this experiment

This is an academic research project in the field of Economics, which widely prohibits the deception of experimental subjects.

All information and instructions provided to you in this experiment are truthful.

If you feel anything in this experiment is deceptive, please notify the [IRB] at [IRB email].

Consent

This is an academic research project to study work decisions involving delay and uncertainty.

You may choose to quit at any time. You will still receive earnings for what you have completed. Risks are comparable to typical computer use. There is no direct benefit to you anticipated from your participation in this study. The data we collect will not be linked to your identity in any way.

Figure 3: Qualification session instructions (3 of 6)

If you have any questions about this research project, please contact [researcher] at [researcher email].

If you have any questions regarding your rights and participation as a research subject, please contact the [IRB contact information].

Participation in research is voluntary. Clicking the button labeled “I Consent” below will indicate that you have decided to participate as a research subject in the study described above.

I CONSENT

Qualification survey

To qualify for the study, complete this one-time survey. Earn $1.50 for a complete submission.

Please enter your worker ID:

Questions about instructions

1. On which of the following days do you plan on completing a HIT for this project?

Sun, Oct 27 | Mon, Oct 28 | Tue, Oct 29 | Wed, Oct 30 | Thu, Oct 31
Fri, Nov 1 | Sat, Nov 2 | Sun, Nov 3 | Mon, Nov 4 | Tue, Nov 5
Wed, Nov 6 | Thu, Nov 7 | Fri, Nov 8 | Sat, Nov 9

2. After you receive your qualification today, will there be another HIT to complete today?

Yes. | No.

3. What happens if you make counting errors in the task?

The HIT might be rejected. | I must start the entire HIT over from the beginning.
I will be told which rows have errors, then I'll correct the errors.

4. Suppose you complete the first HIT later today and you also complete the HIT on this Wednesday. However, you do not complete the HIT next Wednesday. How much will you earn in total from this study? (Do not include earnings from this qualification HIT.)

5. How many HITs in total must you complete to earn the bonus? (Do not count this qualification HIT.)

Figure 4: Qualification session instructions (4 of 6)

6. On how many days total (including today) must you complete a HIT to earn the bonus? (Do not count this qualification HIT.)

7. How much will you earn in total by fully participating in this study, including the bonus? (Do not include earnings from this qualification HIT.)

8. Each day's HIT will definitely be available during what times?

Specify a time range using Pacific Time:

Beginning at: Ending at:

Demographic survey

Your responses will kept anonymous and will not affect your participation in this study.

1. What is your gender?

Male Female Other

2. Would you say that in general your health is—

3. During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?

4. On average, how many hours of sleep do you get in a 24-hour period?

5. What is your age?

Figure 5: Qualification session instructions (5 of 6)

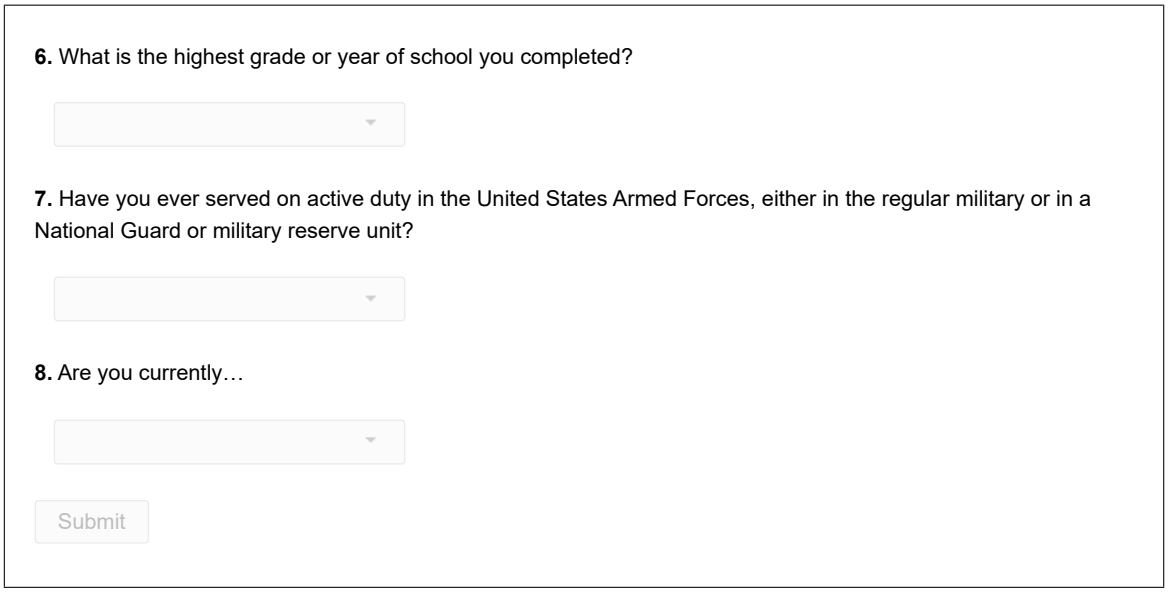

Figure 6: Qualification session instructions (6 of 6)

Start today's HIT

- This is the first of the 3 HITs for an academic research project.
- Please review these instructions.

Earnings

- This HIT pays $1.50
- 1 HIT this Wednesday; it pays $1.50
- 1 HIT next Wednesday; it pays $1.50
- Earn a $5 bonus for completing all 3 HITs

This HIT's requirements

This HIT should only take 5-10 minutes to complete; it pays $1.50

1. Work 10 rows of the counting task (like the example below)
2. Decide how to split a workload of 360 rows of counting between Wednesday and next Wednesday

This Wednesday's HIT requirements

This HIT may take 10-20 minutes, depending on how you split the work between the days; it pays $1.50

1. Work 10 rows of the counting task (like the example below)
2. Decide how to split a workload of 360 rows of counting between Wednesday (that same day) and next Wednesday
3. One of your decisions from today or Wednesday is selected to actually split the workload
4. Work the counting task for the selected amount of work for this Wednesday

Next Wednesday's HIT requirements

This HIT may take 10-20 minutes, depending on how you split the work between the days; it pays $1.50

1. Work 10 rows of the counting task (like the example below)
2. Work the counting task for the selected amount of work for next Wednesday

Summary

Earn $9.50 total (in addition to the $1.50 qual HIT) for about 30 to 40 minutes of work total, assuming you complete all 3 HITs.

Figure 7: Day zero session instructions (1 of 3)

Example: working 10 rows of the counting task

This is a completed example of the counting task that would be in each HIT.

Please count the number of zeros (“0”) on each line and enter it in the box.

Each row will be marked correct or incorrect. You must correct errors before submission.

Row No.	String	Count (“0”)
1	1000110011100011	8
2	1000010100000001	12
3	1110001110000011	8
4	0100110010101111	7
5	0000100010101110	10
6	1101001011001010	8
7	0000111001010001	10
8	1011100110010010	2
9	1110110100011111	5
10	0110001100111001	8

Check responses and save

Decide how to split a workload between this Wednesday and next Wednesday

You start with a workload of 360 rows of counting. You will decide how to split up the workload between this Wednesday and Wednesday of next week.

You decide for different trade-off scenarios. For example:

- Working 1 more row next week reduces work by 1 row this week (a 1-to-1 trade-off)
- Working 1 more row next week reduces work by 1.5 rows this week (a 1-to-1.5 trade-off)
- Working 1 more row next week reduces work by 0.5 rows this week (a 1-to-0.5 trade-off)

One scenario will be selected to actually matter.

You will get more details and practice in this HIT before you make your decisions that matter.

Figure 8: Day zero session instructions (2 of 3)

Complete each of 3 days' HITs for a $5 bonus, earning $9.50 total

- On each day in blue below, complete one HIT for $1.50.
- Once you complete all 3 HITs, you will be paid a $5 bonus.
- If you fail to complete a day's HIT, you will not be able to complete further HITs, nor will you receive the bonus.
- You will always be paid for HITs you have already completed. All earnings are paid within 24 hours.
- Each day's HIT will be available *at least* between 12 p.m. and 12 a.m. (midnight), Pacific Time.
- You will receive a reminder notification through mTurk on each day that you have a HIT to complete.
- Please do not accept more than one HIT on the same day; it will not give you additional work or earnings.
- ***Please only participate if you think you can complete one HIT on each of these 3 days!***

Sun, Oct 27	**Mon, Oct 28 (today)** 1 HIT	Tue, Oct 29	**Wed, Oct 30** 1 HIT	Thu, Oct 31	Fri, Nov 1	Sat, Nov 2
Sun, Nov 3	Mon, Nov 4	Tue, Nov 5	**Wed, Nov 6** 1 HIT	Thu, Nov 7	Fri, Nov 8	Sat, Nov 9

No deception is used in this experiment

This is an academic research project in the field of Economics, which widely prohibits the deception of experimental subjects.

All information and instructions provided to you in this experiment are truthful.

If you feel anything in this experiment is deceptive, please notify the [IRB] at [IRB email].

If you have any questions about this research project, please contact [researcher] at [researcher email].

Begin practice round

You will complete a practice round before the actual tasks and decisions that matter.

Begin PRACTICE

Figure 9: Day zero session instructions (3 of 3)

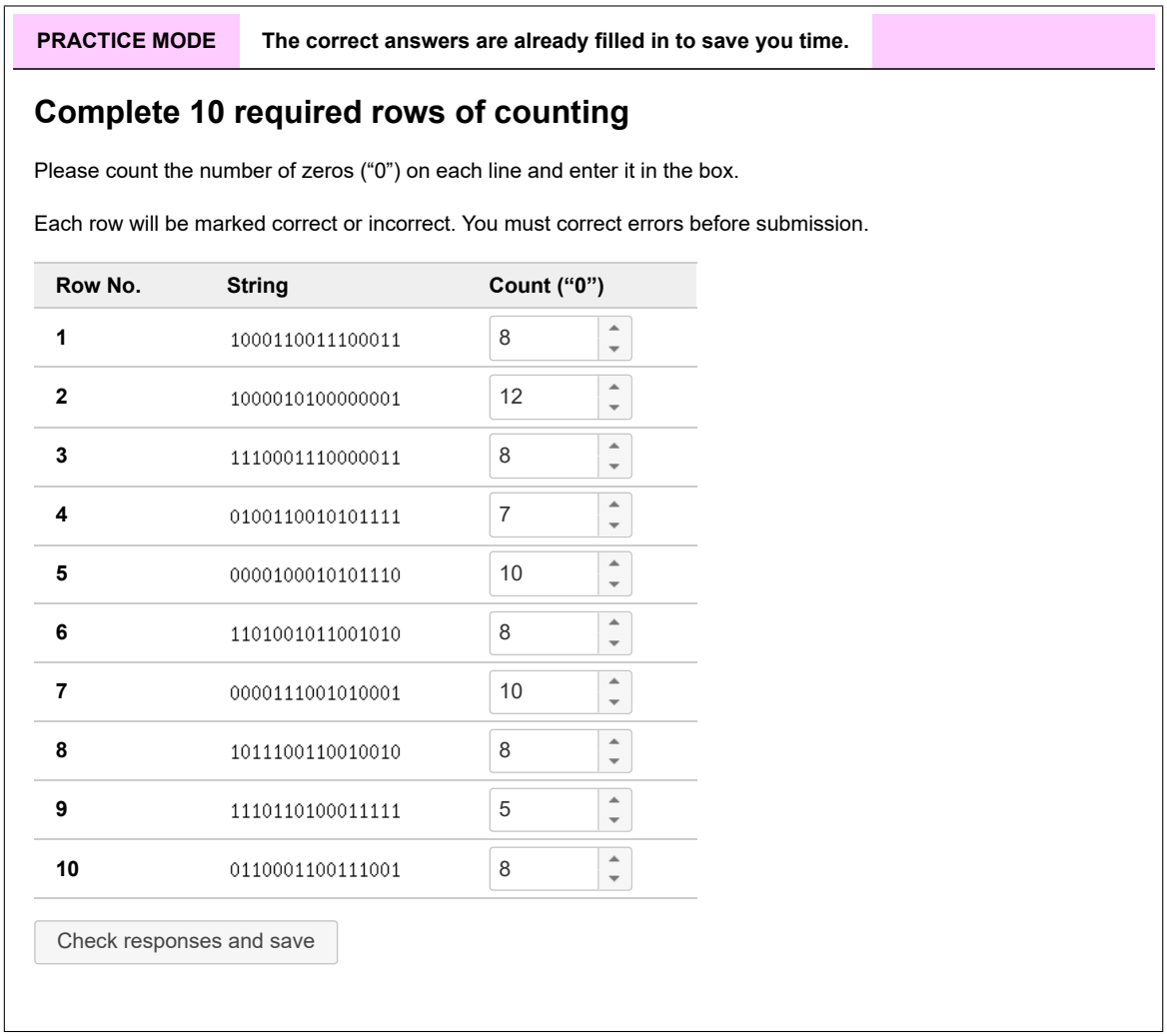

Figure 10: Required tasks: This interface shows the subject examples of the task.

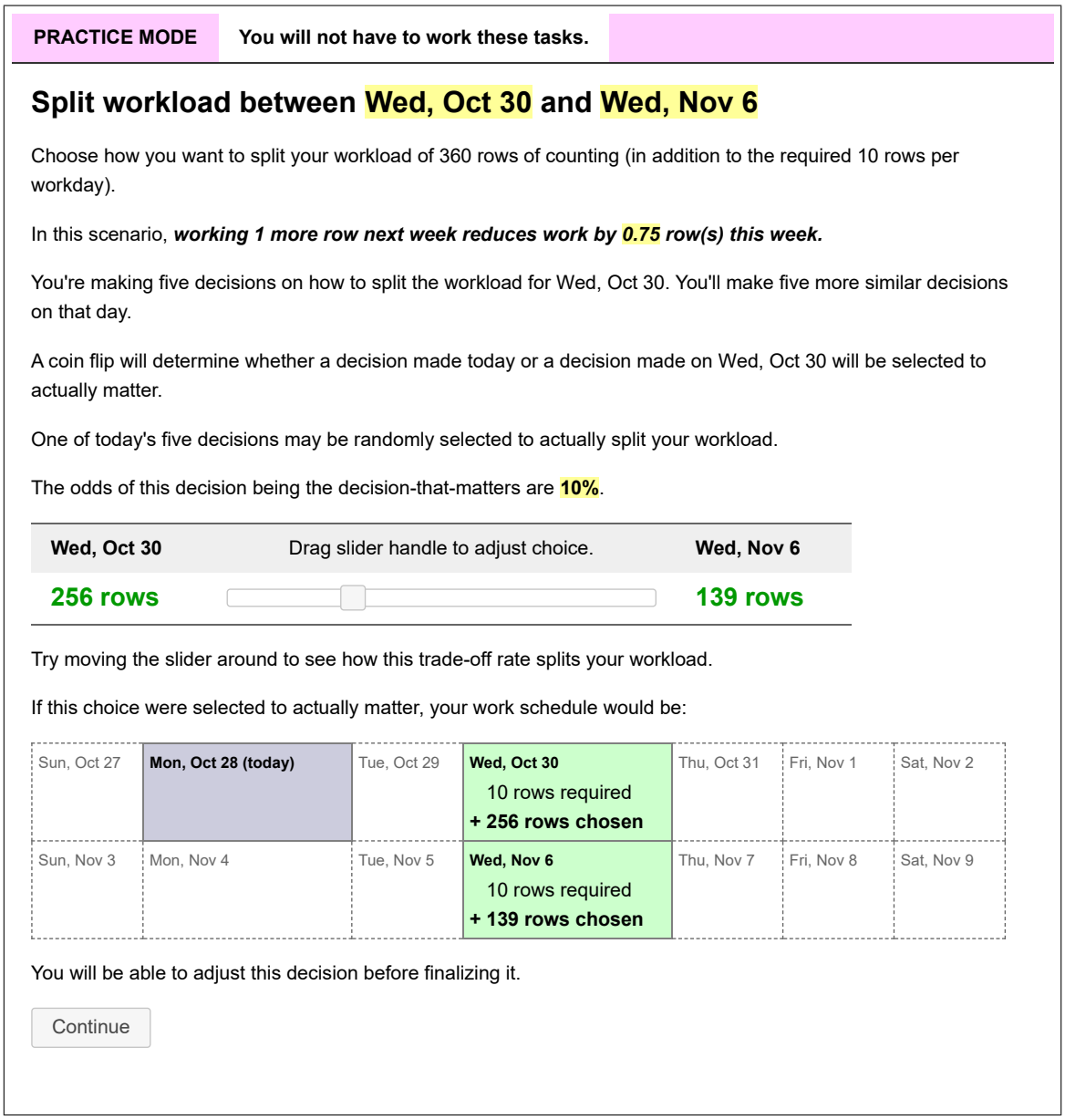

Figure 11: Task allocation, separate: This interface allows the subject to allocate their workload between days.

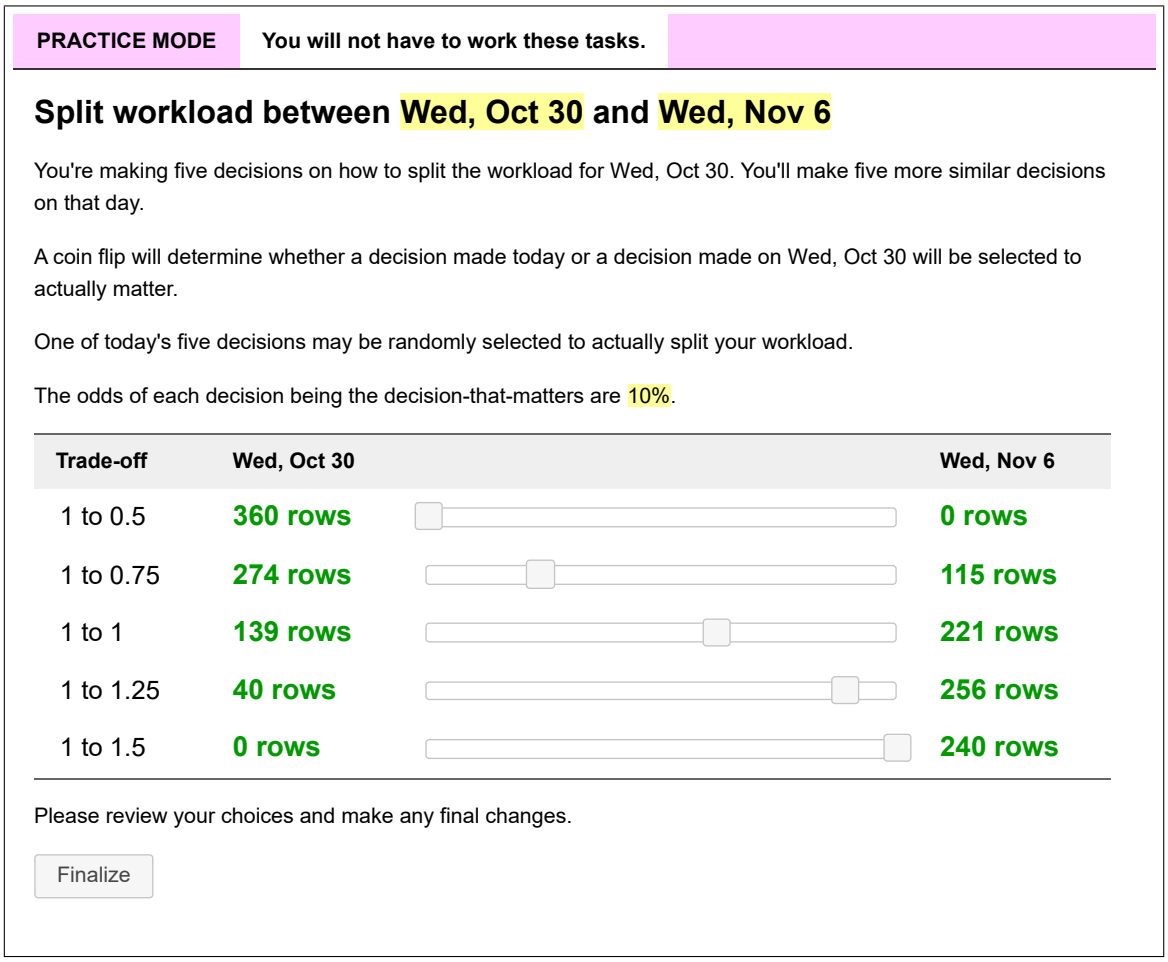

Figure 12: Task allocation, juxtaposed: This interface allows the subject to allocate their workload between days.

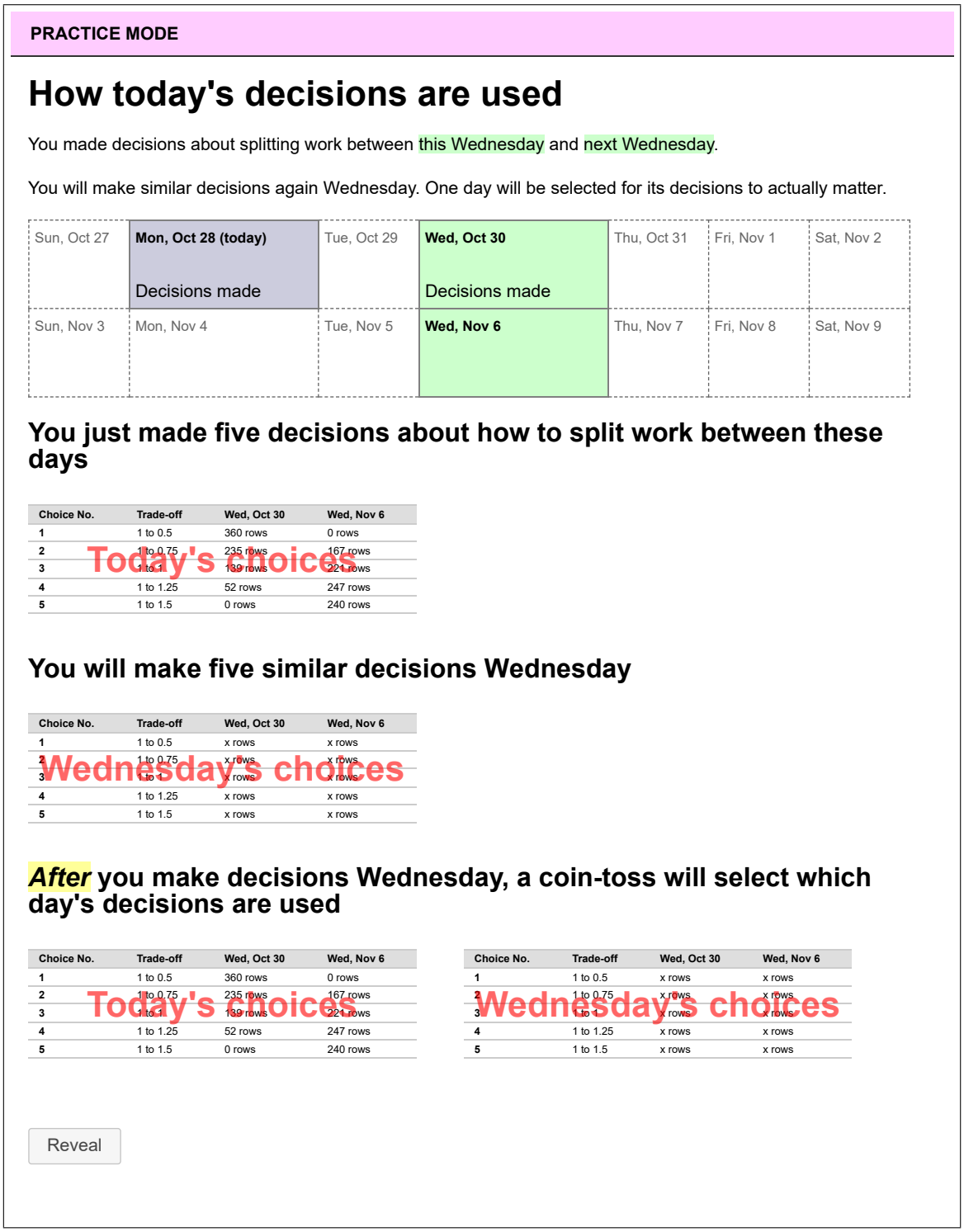

Figure 13: This interface gives the subject intuition regarding the selection procedure between days.

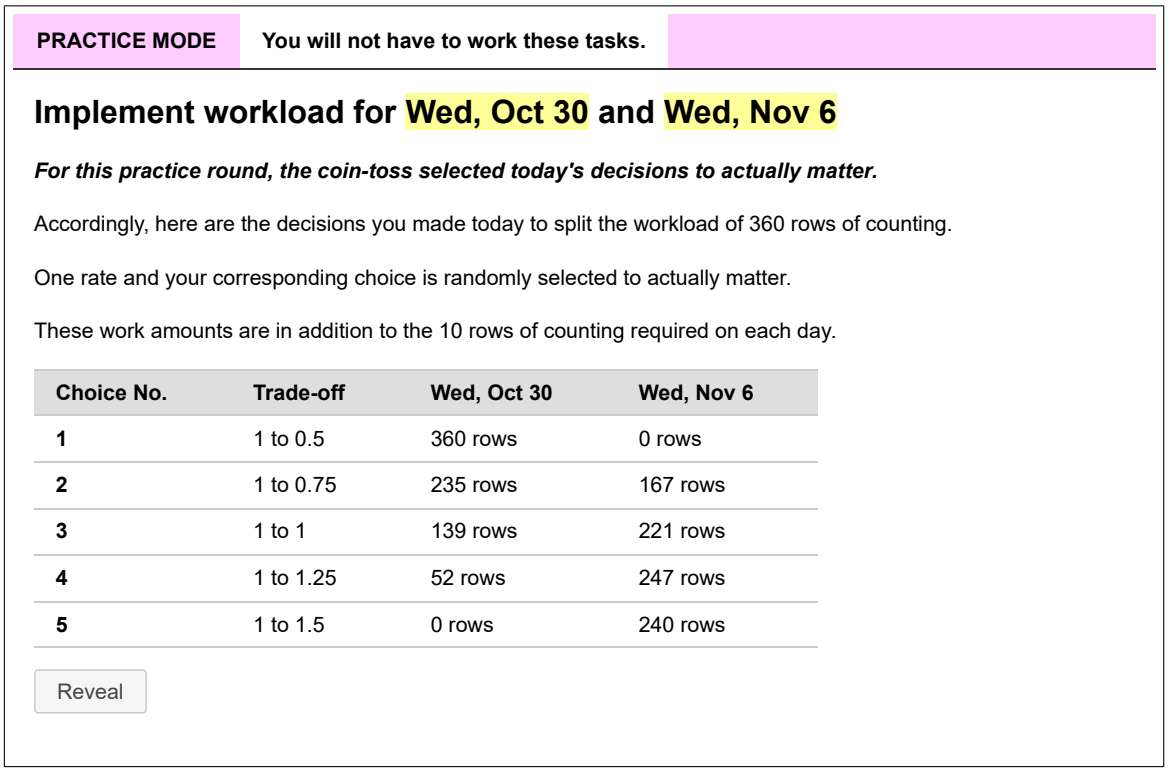

Figure 14: This interface gives the subject intuition regarding the selection procedure between rates.

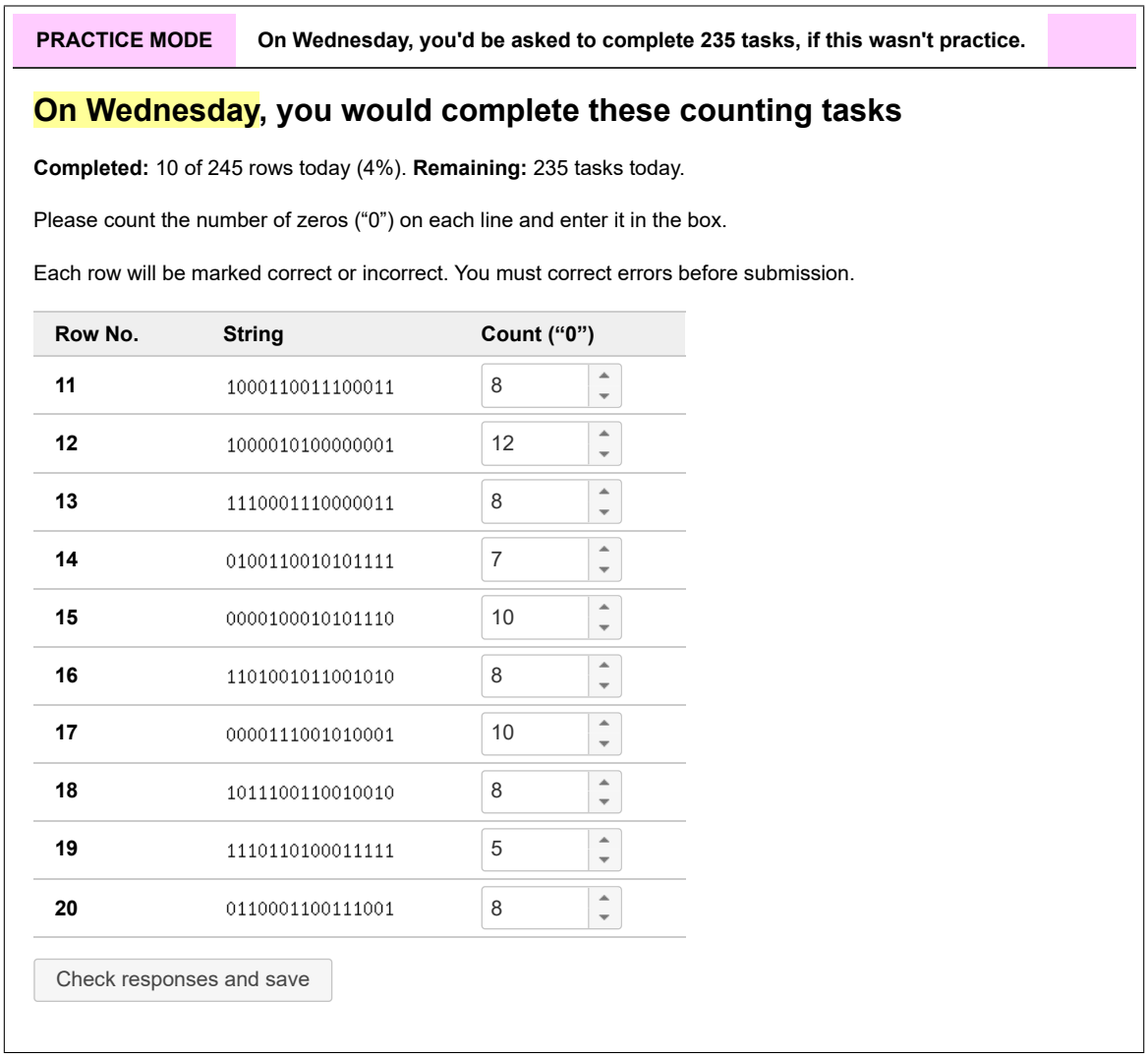

Figure 15: This interface shows the subject examples of the implemented tasks.