

Online Appendix

to: Chlaß N. (2026), *Purely procedural preferences in auctions, with a comment to: Equality of opportunity and the acceptability of outcome inequality.*

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A Supplements to the Introduction

This is your turn to make a decision

Your lottery tickets

9

1

10

Your coparticipant's lottery tickets

12	7	5
11	2	8
4	6	3

Bin

What do you want to do?

I choose not to take any tickets ☐

I choose to take:

3 tickets ☐

6 tickets ☐

9 tickets ☐

Confirm

Figure A1: GRAPHICAL REPRESENTATION OF THE VENDETTA GAME (SUGDEN AND WANG, 2021, FIG. 2, P. 12), EXAMPLE.

Notes. The left upper box figures the lottery tickets the player who is called upon to decide, owns. The right box shows how many she can take, i.e. her *options*. She can take zero, a block of three, a block of six, and a block of nine tickets. For every three tickets she takes, she gets only one, that is, two are *burnt*.

This is your turn to make a decision

Your lottery tickets

9

1

10

Your coparticipant's lottery tickets

12	7	5
11	2	8
4	6	3

Bin

What do you want to do?

I choose not to take any tickets ☐

I choose to take:

3 tickets ☐

6 tickets ☐

9 tickets ☒

Confirm

Figure A2: HOW CAN A PLAYER IN THE VENDETTA GAME EASILY INFER WHAT OPPORTUNITIES HER OPPONENT WILL HAVE IN THE NEXT ROUND?

Notes. Orange markings show how the same player can easily infer how many options *her opponent* will have in the next round. If the player takes nine tickets (i.e. I have crossed all three rows on the right hand side to illustrate this), then she will add the three tickets sketched in orange to her own box on the left hand side. Two rows of three tickets result. She knows that these two rows of tickets now constitute the options of her opponent in the next round. That is, she knows the opponent will have three options: to take zero, three or six tickets. She can therefore easily see from the graphical representation that the opponent will have lesser options (i.e. three) than the player herself has now (i.e. four).

B Experimental Instructions

B.1 Instructions²/red, green, and blue areas mark different treatments.

B.1.1 Treatment S(0,10,10)

[INSTRUCTIONS FOR THIS PART WERE PLACED FACE UP ON THE KEYBOARD WITHIN EACH COMPUTER CABIN.]

Welcome and thank you for participating in this experiment. Please read the following instructions carefully. Instructions are identical for all participants. Communication with other participants must cease from now on. Please switch off your mobile phones.

If you have any questions, please raise your hand - we will answer them individually at your seat.

The experiment consists of entirely independent parts. You will find the instructions for the second part face down on your desk. On reaching the second part, turn them. Please read the instructions carefully.

During the experiment, all amounts will be indicated in ECU (Experimental Currency Units). The sum of your payoffs from the experiment will be disbursed to you in cash at the end of the experiment (exchange rate: 1 ECU=0.2 €). An overall negative payoff shall be compensated by work at the institute. Thereby, the hourly wage would amount to 10 €.

Part 1

You encounter the following ten situations. Every situation requests you to choose between option X and option Y. If you choose X, two payoffs may occur, either 15 ECU, or 35 ECU. If you choose Y, you obtain 25 ECU for sure.

Throughout all ten situations, options X and Y yield the same payoffs. Yet, situations assign different probabilities to the two payoffs in option X.

	Option X	Option Y	Ihre Wahl
1	mit WS 10% 7 Euro, mit WS 90% 3 Euro	mit Sicherheit 5 Euro	X ☐ Y ☐
2	mit WS 20% 7 Euro, mit WS 80% 3 Euro	mit Sicherheit 5 Euro	X ☐ Y ☐
3	mit WS 30% 7 Euro, mit WS 70% 3 Euro	mit Sicherheit 5 Euro	X ☐ Y ☐
4	mit WS 40% 7 Euro, mit WS 60% 3 Euro	mit Sicherheit 5 Euro	X ☐ Y ☐
5	mit WS 50% 7 Euro, mit WS 50% 3 Euro	mit Sicherheit 5 Euro	X ☐ Y ☐
6	mit WS 60% 7 Euro, mit WS 40% 3 Euro	mit Sicherheit 5 Euro	X ☐ Y ☐
7	mit WS 70% 7 Euro, mit WS 30% 3 Euro	mit Sicherheit 5 Euro	X ☐ Y ☐
8	mit WS 80% 7 Euro, mit WS 20% 3 Euro	mit Sicherheit 5 Euro	X ☐ Y ☐
9	mit WS 90% 7 Euro, mit WS 10% 3 Euro	mit Sicherheit 5 Euro	X ☐ Y ☐
10	mit Sicherheit 7 Euro	mit Sicherheit 5 Euro	X ☐ Y ☐

WS = Wahrscheinlichkeit

OK

Take Situation 1. Therein, X yields a payoff of 35 ECU with 10% probability, and a payoff of 15 ECU with 90% probability. Option Y yields a payoff of 25 ECU for sure.

Your payment for this part

At the end of the experiment, the computer draws randomly and with equal probability one of the 10 situations. If you chose option Y in this situation, you receive 25 ECU. If you chose option X in this situation, you receive

²Instructions of the experiment were written in German. This appendix produces a translation into English. TEXT IN CAPITAL LETTERS WAS NOT PART OF THE ORIGINAL INSTRUCTIONS. Emphases in bold or italic font are taken from the original text. Abbreviations in the instructions differ from the corresponding variable names in the main paper. For ease of readability, instructions use the initial letter of the German word: *q* for *Qualität* (quality), *g* for *Gebot* (offer). The common value parameter is called *a* (main paper: *q*), since the instructions use letter *q* already for *quality*.

either 15 ECU, or 35 ECU with the situation-specific probabilities.

Example. At the end of the experiment, the computer randomly draws situation 1. Therein, option X yields 35 ECU with 10% probability, and 15 ECU with 90% probability. You chose option X. The computer now draws a number between 0 and 100 (including 0 and 100). If this number is smaller or equal to ten, you receive 35 ECU. If this number is larger than 10, you receive 15 ECU.

Please choose between X and Y in every situation.

[INSTRUCTIONS FOR PART 2 WERE PLACED FACE DOWN WITHIN REACH BUT OUT OF SIGHT ON THE TOP RIGHT CORNER OF EACH (LARGE) COMPUTER CABIN, BEHIND THE SCREEN. SUBJECTS DID NOT NOTICE THESE INSTRUCTIONS UNTIL THE zTREE PROGRAMME POINTED THEM OUT.]

Part 2

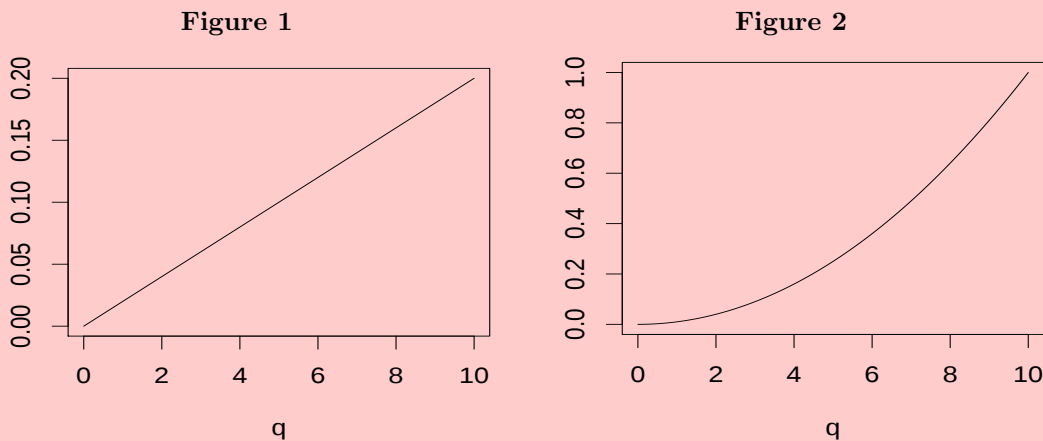
Part 2 consists of several rounds. Participants take on different roles. You are randomly assigned a role. This role remains the same throughout the experiment.

In every round you are randomly matched with another participant unknown to you. Your decisions in one round affect your own payoff in this round and the payoff of the participant with whom you interact.

On a market, a potential seller and a potential buyer of a commodity meet. Each seller is associated with one unit of the same commodity but of a different quality q . **The potential buyer knows the quality of the item, while the potential seller does not.** The quality of the commodity is a number between 0 and 10 with up to two decimals. It is randomly drawn for each seller at the beginning of each round. Thereby, 0 indicates the lowest, and 10 the highest quality.

Yet, probabilities of qualities within this range are not equal. They follow the relation $p(q) = 0.02 \cdot q$. Figure 1 illustrates this relation. Take, for instance, intervals from 0 to 1 and from 1 to 2. The relation makes qualities between 0 and 1 occur with 2% less probability than qualities between 1 and 2. Qualities between 2 and 3 in turn occur with 2% less probability than qualities between 3 and 4 and so forth.

Figure 2 illustrates this relation in a different way. For every value of q , it sums the probabilities of all qualities smaller than that value. Hence, it illustrates how likely it is to encounter a quality smaller than a given value. As you see, this sum increases much less for an interval of smaller, than for an interval of larger qualities.



Buyers and sellers evaluate the commodity differently: buyers evaluate the commodity at its actual quality. Sellers evaluate the commodity only at a fraction of its actual quality, that is, at $a \cdot q$ with $a < 1$. This fraction a is known to both parties. The monetary value of the commodity is thus always higher for buyers than for sellers. In the experiment, a is either 0.2 or 0.6. Each value remains constant for 10 rounds at a time. (Do not worry, in the beginning of each round, you always see the actual value of a .)

A round proceeds as follows:

1. A random draw determines a quality for each seller. Every seller is randomly matched with a buyer. Each buyer is then informed about the quality of the seller she³ is matched with. The seller is not informed about the quality.
2. Knowing the quality of the commodity in question, each **buyer** states a price offer g within a range 0 and 10.
3. Unaware of the quality of her good, every seller decides whether or not to accept or to reject this offer.

Participants' payoffs result as follows.

If a seller rejects an offer, both buyer and seller obtain a payoff of **0 ECU**.

If a seller accepts an offer, the buyer receives the difference between the actual quality and her offer. That is, $q - g$ in *ECU*.

The seller receives the buyer's offer and delivers the good to the buyer. Her payoff is therefore $g - a \cdot q$ in *ECU*.

Example: Let $a = 0.2$. Let the randomly determined quality be $q = 6$. A buyer states a bid of 2 *ECU*. If the seller accepts, the following payoffs result: The buyer receives the quality minus her offer, i.e. $q - g = 6 - 2 = 4$ in *ECU*. The seller receives offer $g = 2$ but has to deliver the good which she evaluates at $a \cdot q = 0.2 \cdot 6 = 1.2$ *ECU*. The seller's payoff is hence $g - a \cdot q = 2 - 1.2 = 0.8$ in *ECU*.

At the end of each round you see your own payoff, the other participant's payoff and the quality of the good.

If you have any questions, please raise your hand. Before part II starts, please answer the following control questions.

B.1.2 Treatment S(0,10,0)

[NOTE: INSTRUCTIONS ARE IDENTICAL TO TREATMENT S(0,10,10), EXCEPT FOR THE RED/GREEN AREA.]

Yet, probabilities of qualities within this range are not equal. They follow the relation $p(q) = 0.2 - 0.02 \cdot q$. Figure 1 illustrates this relation. Take, for instance, intervals from 0 to 1 and from 1 to 2. The relation makes qualities between 0 and 1 occur with 2% higher probability than qualities between 1 and 2. Qualities between 2 and 3 in turn occur with 2% higher probability than qualities between 3 and 4 and so forth.

Figure 2 illustrates this relation in a different way. For every value of q , it sums the probabilities of all qualities smaller than that value. Hence, it illustrates how likely it is to encounter a quality smaller than a given value. As you see, this sum increases much more for an interval of smaller, than for an interval of larger qualities.

Figure 1

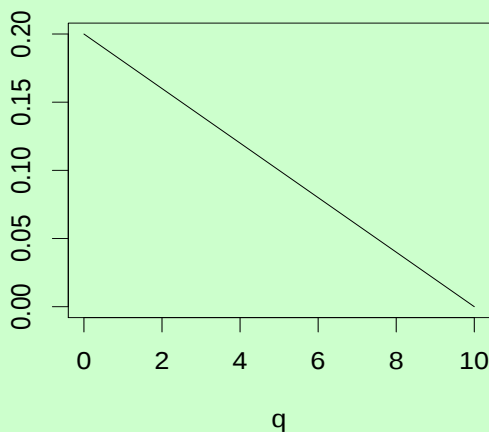
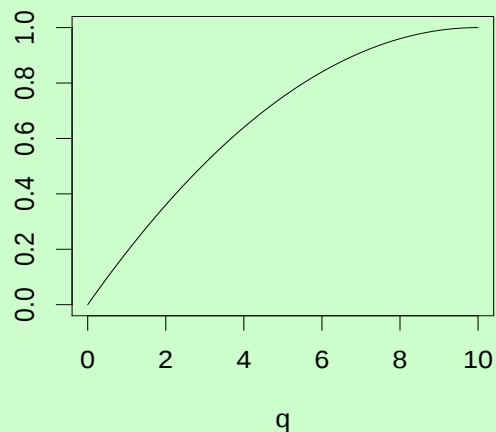


Figure 2



³The German version of the instructions used the masculine pronoun for a mixed group of males and females as was custom at the time. It was, in particular, not standard at the time to spell out masculine and feminine forms, or use the feminine form to describe mixed groups.

B.1.3 Treatment U(0,10)

[NOTE: INSTRUCTIONS ARE IDENTICAL TO TREATMENT S(0,10,10) AND S(0,10,0). THE RED (OR GREEN, FOR THAT MATTER) AREA WERE SWAPPED WITH THE FOLLOWING BLUE AREA.]

All qualities within this range are equally likely.

B.2 Control questions

B.2.1 Treatment S(0,10,10)

Note. IN ALL TREATMENTS, CONTROL QUESTIONS USE THE SAME EXAMPLES. THE RED AREA HIGHLIGHTS HOW CONTROL QUESTIONS DIFFERED IN $S(0, 10, 10)$ FROM THE OTHER TREATMENTS.

Comprehension Questions

Assume that $a = 0.6$ and the quality of the commodity is $q = 5$ ECU. That is, the seller evaluates the commodity at $a \cdot q = 3$ ECU. The buyer's offer is 4 ECU.

Question 1: What is the seller's payoff, if he accepts the offer? ECU.

Question 2: What is the buyer's payoff in this case? ECU

Question 3: What is the seller's payoff if he rejects the offer? ECU.

Question 4: What is the buyer's payoff in this case? ECU

OK

Assume that $a = 0.6$ and the quality of the commodity is $q = 5$ ECU. That is, the seller evaluates the commodity at $a \cdot q = 3$ ECU. The buyer's offer is 2 ECU.

Question 1: What is the seller's payoff, if he accepts the offer? ECU.

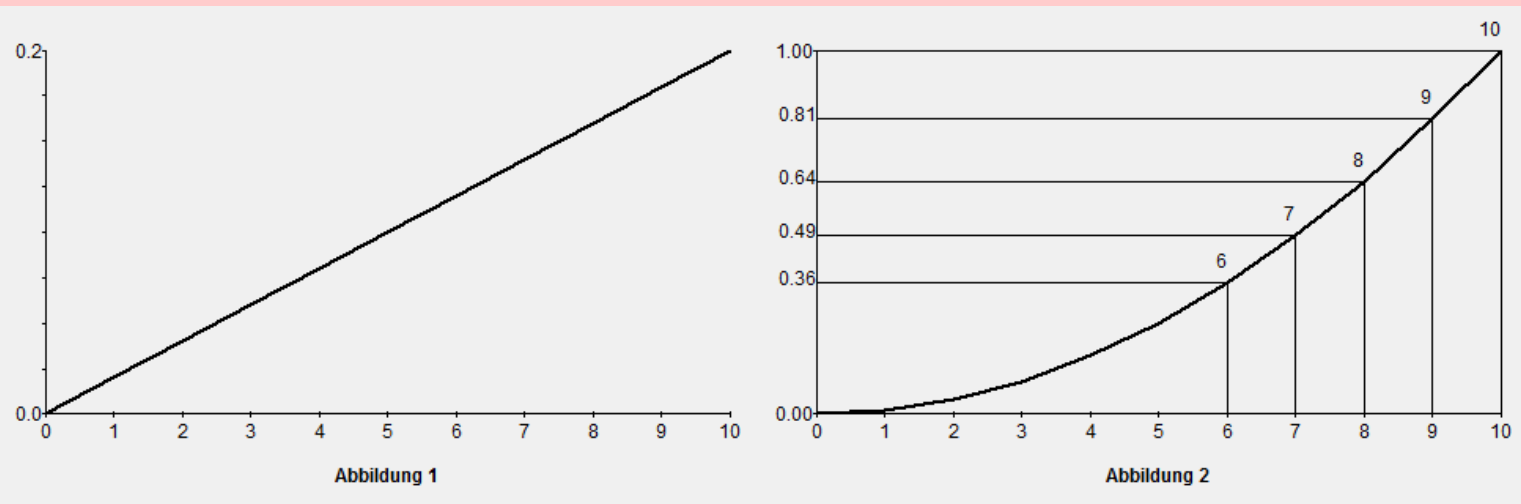
Question 2: What is the buyer's payoff in this case? ECU

Question 3: What is the seller's payoff if he rejects the offer? ECU.

Question 4: What is the buyer's payoff in this case? ECU

OK

Figure 1 illustrates again how probabilities change with increasing qualities. Figure 2 in turn sums the probabilities of all qualities up to a given quality. Figure 2 therefore shows how large the probability is to encounter a quality larger or equal to a given value.



Question 1: The probability to encounter qualities smaller or equal to 6 is: .

Question 2: The probability to encounter qualities smaller or equal to 7 is: .

Question 3: The probability to encounter qualities smaller or equal to 8 is: .

Question 4: Small qualities are more likely than large qualities ☐ true
☐ false

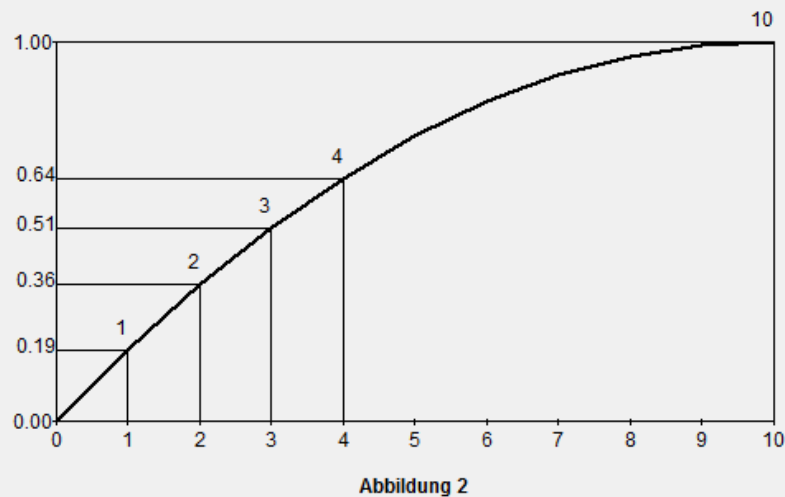
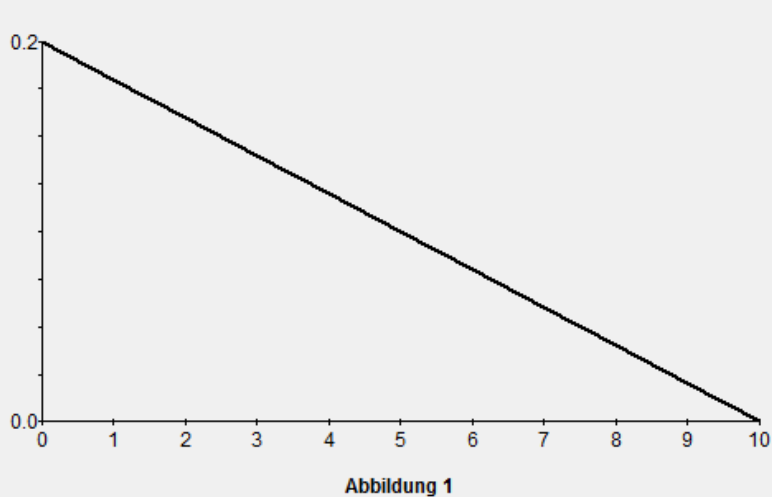
OK

Please wait until all participants have answered the comprehension questions.

B.2.2 Treatment S(0,10,0)

Note. CONTROL QUESTIONS FOR S(0,10,0) ARE THE SAME AS FOR S(0,10,10), EXCEPT FOR THE COLOURED AREA. INSTEAD OF THE RED AREA IN B.2.1, THE FOLLOWING GREEN AREA WAS SHOWN.

Figure 1 illustrates again how probabilities change with increasing qualities. Figure 2 in turn sums the probabilities of all qualities up to a given quality. Figure 2 therefore shows how large the probability is to encounter a quality larger or equal to a given value.



Question 1: The probability to encounter qualities smaller or equal to 2 is: .

Question 2: The probability to encounter qualities smaller or equal to 3 is: .

Question 3: Small qualities are more likely than large qualities ☐ true
☐ false

OK

B.2.3 Treatment U(0,10)

Note. CONTROL QUESTIONS FOR U(0,10) ARE THE SAME AS FOR S(0,10,10) AND S(0,10,0), EXCEPT FOR THE AREAS MARKED IN COLOUR. IN U(0,10), CONTROL QUESTIONS ONLY CONSISTED OF THE TWO SETS OF FOUR QUESTIONS BEFORE THE RED AREA IN B.2.1.

C Supplements to the instructions

C.1 Treatment S(0,10,10)

[EACH PARTICIPANT IN S(0,10,10) WAS FURNISHED WITH THE FOLLOWING EXTRA SHEET OF PAPER WHICH TABULARIZES THE CUMULATIVE DENSITY FUNCTION OF THE TREATMENT.]

The summed probablities up to a certain quality (function from Figure 2) for a finer grid of values.

How can you check how large the probability is to encounter qualities up to a given value? Take the example value of 5.5.

You go to the column named "5", and then to the row named "0.5".

The probability to encounter qualities smaller or equal to 5.5 is therefore 0.3.

whole number →		0	1	2	3	4	5	6	7	8	9	10
first digit →	0	0	0.01	0.04	0.09	0.16	0.25	0.36	0.49	0.64	0.81	1
	0.1	0	0.01	0.04	0.1	0.17	0.26	0.37	0.5	0.66	0.83	
	0.2	0	0.01	0.05	0.1	0.18	0.27	0.38	0.52	0.67	0.85	
	0.3	0	0.02	0.05	0.11	0.18	0.28	0.4	0.53	0.69	0.86	
	0.4	0	0.02	0.06	0.12	0.19	0.29	0.41	0.55	0.71	0.88	
	0.5	0	0.02	0.06	0.12	0.2	0.3	0.42	0.56	0.72	0.9	
	0.6	0	0.03	0.07	0.13	0.21	0.31	0.44	0.58	0.74	0.92	
	0.7	0	0.03	0.07	0.14	0.22	0.32	0.45	0.59	0.76	0.94	
	0.8	0.01	0.03	0.08	0.14	0.23	0.34	0.46	0.61	0.77	0.96	
	0.9	0.01	0.04	0.08	0.15	0.24	0.35	0.48	0.62	0.79	0.98	

C.2 Treatment S(0,10,0)

[EACH PARTICIPANT IN S(0,10,0) WAS FURNISHED WITH THE FOLLOWING EXTRA SHEET OF PAPER WHICH TABULARIZES THE CUMULATIVE DENSITY FUNCTION OF THE TREATMENT.]

The summed probablities up to a certain quality (function from Figure 2) for a finer grid of values.

How can you check how large the probability is to encounter qualities up to a given value? Take the example value of 2.1.
You go to the column named "2", and then to the row named "0.1".
The probability to encounter qualities smaller or equal to 2.1 is therefore 0.38.

whole number →		0	1	2	3	4	5	6	7	8	9	10
first digit →	0	0	0.19	0.36	0.51	0.64	0.75	0.84	0.91	0.96	0.99	1
	0.1	0.02	0.21	0.38	0.52	0.65	0.76	0.85	0.92	0.96	0.99	
	0.2	0.04	0.23	0.39	0.54	0.66	0.77	0.86	0.92	0.97	0.99	
	0.3	0.06	0.24	0.41	0.55	0.68	0.78	0.86	0.93	0.97	1	
	0.4	0.08	0.26	0.42	0.56	0.69	0.79	0.87	0.93	0.97	1	
	0.5	0.1	0.28	0.44	0.58	0.7	0.8	0.88	0.94	0.98	1	
	0.6	0.12	0.29	0.45	0.59	0.71	0.81	0.88	0.94	0.98	1	
	0.7	0.14	0.31	0.47	0.6	0.72	0.82	0.89	0.95	0.98	1	
	0.8	0.15	0.33	0.48	0.62	0.73	0.82	0.9	0.95	0.99	1	
	0.9	0.17	0.34	0.5	0.63	0.74	0.83	0.9	0.96	0.99	1	

D An Excerpt of the Moral Judgement Test by Georg Lind (1977/2021), freely available from <http://moralcompetence.net>

Doctor

A woman had cancer and she had no hope of being saved. She was in terrible pain and so weak that a large dose of a pain killer such as morphine would have caused her death. During a temporary period of improvement	she begged the doctor to give her enough morphine to kill her. She said she could no longer stand the pain and would be dead in a few weeks anyway. The doctor decided to give her an overdose of morphine.
---	---

28. Would you agree or disagree with the doctor's action ...

I strongly disagree				I strongly agree			
-3	-2	-1	0	1	2	3	

How acceptable do you find the following arguments *in favor* of the doctor?
Suppose someone argued he acted *rightly*...

...

30. because the doctor was the only one who could fulfill the woman's will. Respect for her will made him act as he did.

I strongly reject				I strongly accept				
-4	-3	-2	-1	0	1	2	3	4

...

34. because most of his fellow doctors would presumably have done the same in a similar situation.

I strongly reject				I strongly accept				
-4	-3	-2	-1	0	1	2	3	4

How acceptable do you find the following arguments *against* the doctor?
Suppose someone said that he acted *wrongly*...

35. because he acted contrary to his colleagues' convictions. If they are against mercy-killing, the doctor shouldn't do it.

I strongly reject				I strongly accept				
-4	-3	-2	-1	0	1	2	3	4

36. because one must be able to have complete faith in a doctor's devotion to preserving life even if someone in great pain would rather die.

I strongly reject				I strongly accept				
-4	-3	-2	-1	0	1	2	3	4

...

Thank you!

NOTE: This excerpt of the test is given with kind permission by Georg Lind. Since Georg Lind's demise, the test and all standardized cultural versions are directly available from his website; user ID and password to download from protected areas are published on <http://moralcompetence.net>. The excerpt of the test above reproduces one (of two) moral dilemmas the test introduces, and four (out of 24) arguments. The first argument (nr. 30) is one of altogether four which represent *Kohlberg class five*; the second (nr. 34) and third (nr. 35) are two of altogether four arguments which represent *Kohlberg class three*, the fourth argument (nr. 36) represents again *Kohlberg class five*. Three dots represent places where, due to copyright protection of the original publication, the excerpt leaves out one or several items. To obtain a subject's preference over a given Kohlberg class, we take the average over all four test items pertaining to this Kohlberg class, adjusted for the maximal span of the Likert scale a subject uses in the entire test. The computation of these scores is identical to (Chlaß et al. 2019, Chlaß et al. 2023, Chlaß and Riener 2025); these references are from the main paper. **Note that all information pertaining to the nature or name of the test was deleted from the test prior to administering it. The copyright information left on the test only contained the year, and Georg Lind's name.**

E Results: Instrumentation/Sellers

E.1 WARD dendrogram, clustering seller deviations short of equilibrium

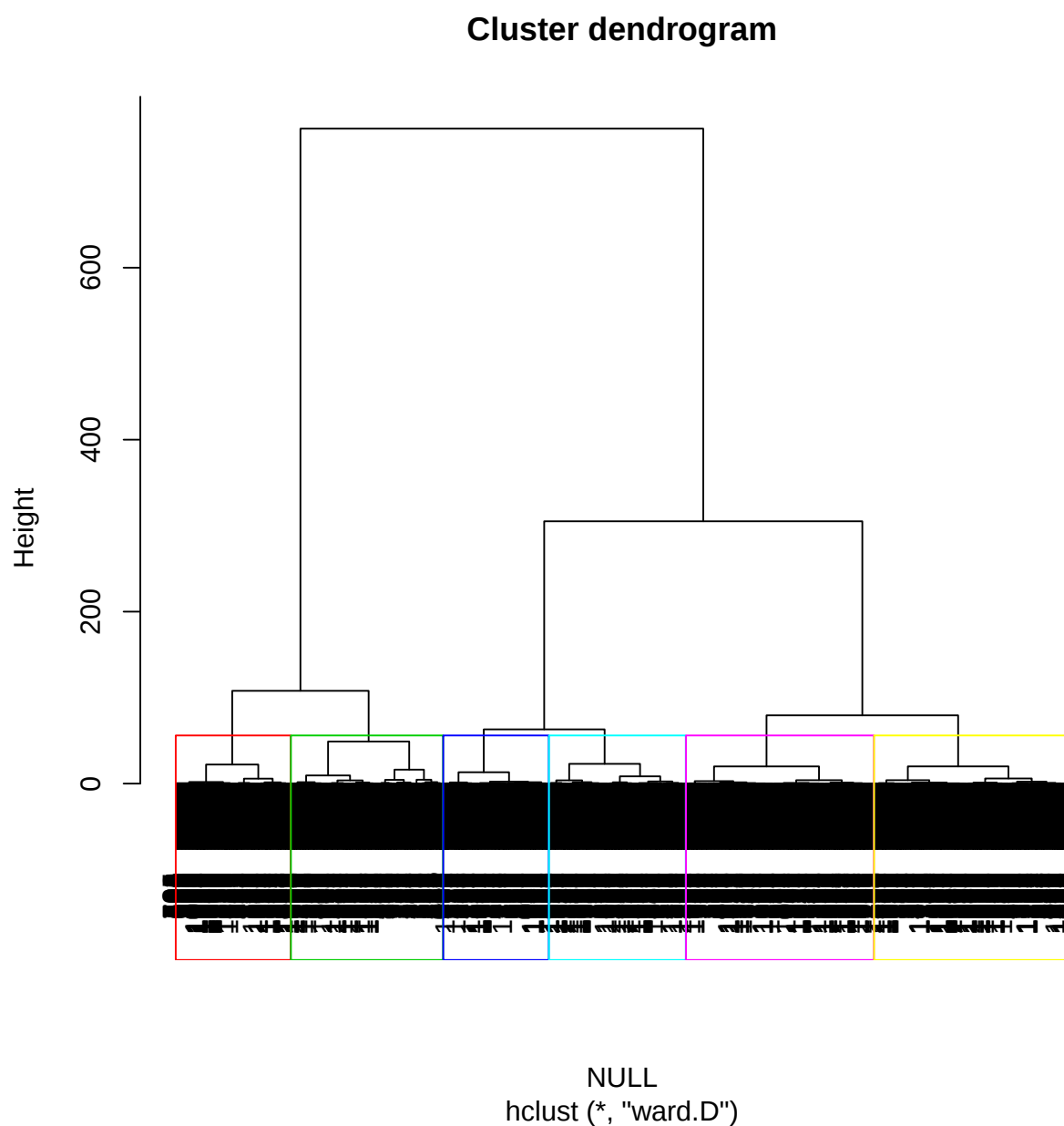


Figure A3: WARD CLUSTERING – DEGREE TO WHICH BUYER OFFERS FALL SHORT OF EQUILIBRIUM, LEFT TO RIGHT: CLUSTERS ONE TO SIX, MARKED IN DIFFERENT COLOURS.

E.2 WARD dendrogram, clustering seller deviations above equilibrium

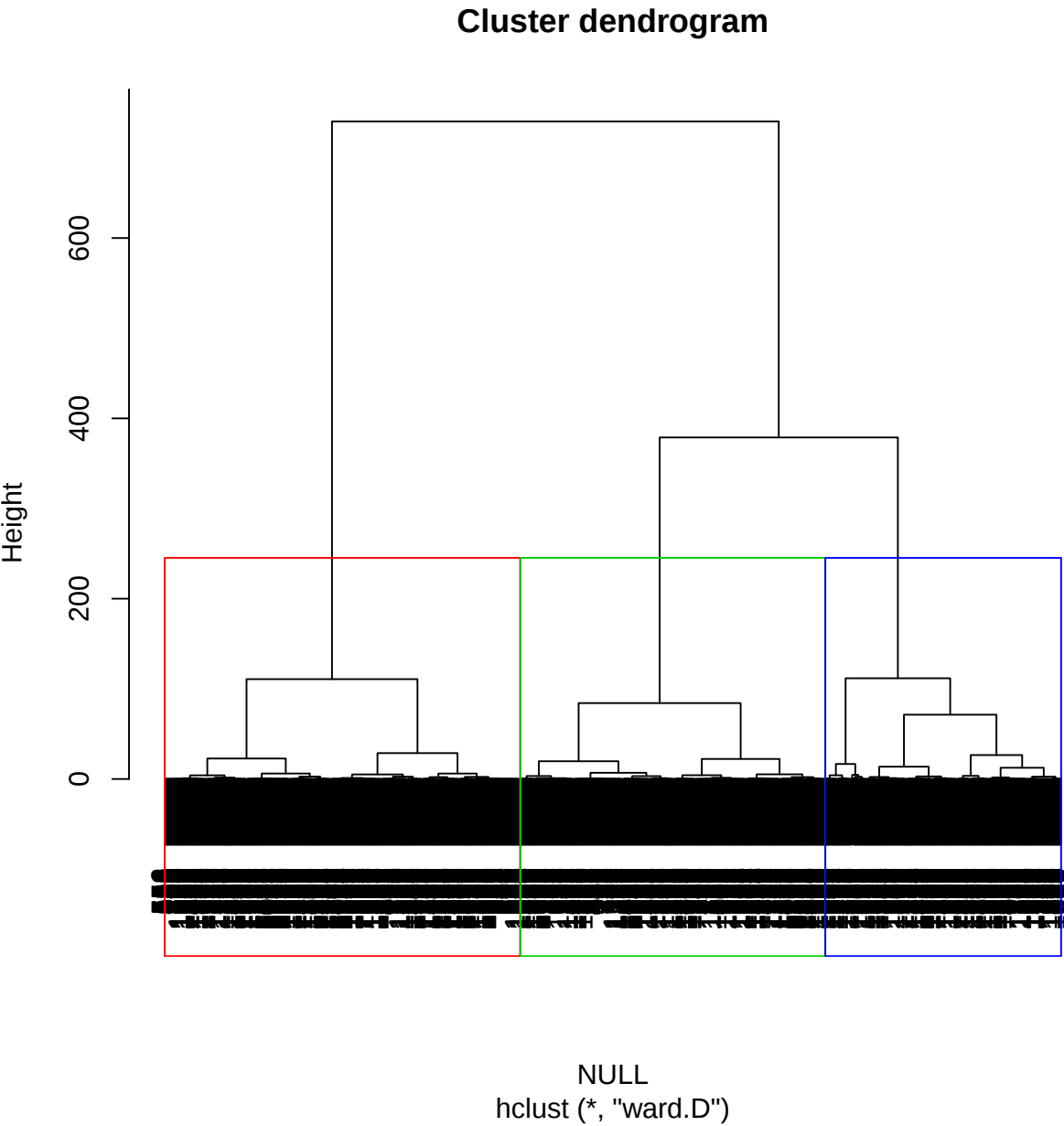


Figure A4: WARD CLUSTERING – DEGREE TO WHICH BUYER OFFERS EXCEED THE EQUILIBRIUM, LEFT TO RIGHT: CLUSTERS ONE TO THREE, MARKED IN DIFFERENT COLOURS.

E.3 Seller deviations, full specifications

SELLERS' DECISION TO ACCEPT/REJECT IN A GIVEN CLUSTER – OFFERS SHORT OF EQUILIBRIUM. FULL SPECIFICATIONS.			
$x_j \downarrow$ (cluster nr.)/mean $\rightarrow$	(1)/ – 2.487	(2)/ – 3.441	(3)/ – 1.209
<i>Intercept</i>	12.300 ^c (6.604)	–3.634 (5.520)	7.436 ^c (4.462)
<i>deviation</i>	2.513 (1.575)	1.875 ^a (0.708)	–4.607 ^b (1.814)
<i>Kohlberg class 5 · S(0,10,0)</i>	–1.601 ^c (0.833)	–1.740 ^c (0.880)	–0.582 (0.880)
<i>Kohlberg class 5 · S(0,10,10)</i>	–10.366 ^a (2.922)		0.591 (0.831)
<i>Kohlberg class 5</i>	1.944 ^b (0.919)	1.241 ^a (0.466)	–0.049 (0.778)
S(0,10,0): yes	–2.728 ^a (0.891)	1.075 (0.830)	–1.645 ^b (0.737)
S(0,10,10): yes	–3.116 ^b (1.291)		–1.520 1.011
<i>Kohlberg class 1</i>	0.594 (0.708)	–0.630 ^c (0.324)	–0.789 ^b (0.317)
<i>Kohlberg class 2</i>	–0.117 (0.633)	–1.109 (0.756)	–0.991 (0.623)
<i>Kohlberg class 3</i>	0.240 (0.625)	1.227 (0.751)	0.429 (0.532)
<i>Kohlberg class 4</i>	–0.391 (0.620)	–0.027 (0.529)	0.633 (0.508)
<i>Kohlberg class 6</i>	0.509 (0.560)	–0.033 (0.303)	0.924 ^c (0.514)
<i>Period</i>	–0.172 ^a (0.063)	–0.137 ^b (0.056)	–0.027 (0.042)
<i>Risk aversion</i>	0.288 (0.307)	0.172 (0.120)	0.330 ^a (0.112)
<i>Age</i>	–0.593 ^b (0.239)	–0.074 (0.139)	–0.146 (0.095)
<i>Gender:female</i>	2.961 ^b (0.851)	2.819 ^b (1.268)	1.210 ^b (0.542)
<i>Extraversion</i>	0.025 (0.068)	0.204 ^a (0.058)	0.193 ^a (0.051)
<i>Neuroticism</i>	0.059 (0.064)	0.009 (0.049)	0.002 (0.045)
<i>Psychoticism</i>	–0.184 ^c (0.097)	0.185 ^b (0.094)	–0.066 (0.076)
<i>Business/Economics</i>	2.461 ^b	–3.720 ^a	0.554
<i>Law</i>	2.768 ^c	0.507	–0.159
<i>Social and Behavioral Sciences</i>	3.007 ^b	–0.180	–0.844
<i>Education</i>	1.495	–1.482 ^b	–1.076
<i>Engeneering</i>	6.685 ^a		–0.764
<i>Medicine</i>	3.083 ^b	–0.760	–3.103
<i>Languages</i>	3.311 ^c	0.526	0.707
observations/Count R^2	158/ 85.8%	535/ 90.0%	145/ 81.4%

Table A1: SELLER DEVIATIONS, FULL SPECIFICATIONS FOR TABLE 2 OF THE MAIN PAPER.

Notes. Binary Logits with standard errors clustered at the individual and matching group level. Marginal effects of the instrument and its interactions show the same sign and significance level.

F Kohlberg class 5 controls: Schwartz' personal value scale.

<i>dependent variable →</i>	<i>Kohlberg 1</i>	<i>Kohlberg 2</i>	<i>Kohlberg 3</i>	<i>Kohlberg 4</i>	<i>Kohlberg 5</i>	<i>Kohlberg 6</i>	<i>con.post</i>
<i>Intercept</i>	−0.189 (0.895)	0.397 (0.757)	0.018 (0.802)	−0.278 (0.743)	0.794 (0.909)	0.337 (0.729)	0.041 (0.378)
<i>Age</i>	−0.019 (0.027)	−0.028 (0.022)	−0.012 (0.027)	−0.006 (0.023)	−0.034 (0.028)	−0.025 (0.023)	−0.004 (0.012)
<i>Gender: female</i>	0.380 ^a (0.123)	0.356 ^a (0.119)	0.073 (0.135)	0.317 ^b (0.125)	0.196 (0.125)	0.234 ^b (0.124)	0.048 (0.059)
<i>Risk aversion</i>	0.062 (0.039)	0.038 (0.033)	0.022 (0.038)	0.049 (0.032)	0.000 (0.034)	0.001 (0.032)	0.005 (0.016)
<i>PVS: Benevolence</i>	−0.001 (0.085)	0.002 (0.083)	−0.030 (0.090)	−0.078 (0.086)	−0.067 (0.088)	−0.032 (0.091)	0.003 (0.042)
<i>PVS: Universalism</i>	0.018 (0.074)	0.002 (0.070)	0.080 (0.075)	0.069 (0.075)	0.097 (0.072)	0.126 ^c (0.070)	0.036 (0.033)
<i>PVS: Achievement</i>	−0.084 (0.072)	−0.236 ^a (0.070)	−0.229 ^a (0.071)	−0.113 (0.076)	−0.173 ^b (0.075)	−0.277 ^a (0.078)	−0.120 ^a (0.032)
<i>PVS: Power</i>	0.011 (0.071)	0.075 (0.066)	0.137 ^b (0.067)	−0.033 (0.071)	−0.017 (0.069)	0.081 (0.064)	0.041 (0.031)
<i>Education</i>	0.128 (0.246)	0.367 ^c (0.210)	0.425 ^c (0.237)	0.459 ^b (0.222)	0.507 ^b (0.253)	0.469 ^b (0.204)	0.225 ^b (0.109)
<i>Law</i>	−0.422 (0.265)	0.118 (0.258)	0.235 (0.289)	0.076 (0.258)	0.105 (0.305)	0.090 (0.254)	0.057 (0.129)
<i>Social and Behavioral Sciences</i>	0.370 (0.235)	0.435 ^b (0.200)	0.307 (0.219)	0.407 ^c (0.213)	0.430 ^c (0.240)	0.477 ^b (0.202)	0.159 (0.102)
<i>Business and Economics</i>	0.193 (0.274)	0.377 ^c (0.217)	0.238 (0.254)	0.412 ^c (0.234)	0.451 ^c (0.259)	0.630 ^a (0.233)	0.172 (0.109)
<i>Languages</i>	0.173 (0.288)	0.404 (0.265)	0.126 (0.294)	0.487 ^c (0.274)	0.466 (0.291)	0.657 ^a (0.239)	0.113 (0.131)
<i>Sciences</i>	−0.026 (0.241)	0.311 (0.208)	0.207 (0.238)	0.576 ^a (0.220)	0.276 (0.242)	0.282 (0.219)	0.060 (0.114)
<i>R²</i>	0.125	0.116	0.056	0.107	0.100	0.140	0.086

Table A2: CORRELATION OF ALL SIX *Kohlberg classes* AND SUBJECTS' DEMOGRAPHICS FROM (CHLASS AND MIETTINEN, 2026), N=288.

Notes. Linear regression with robust standard errors of *Kohlberg classes 1-6* and *con.post* on variables listed. **Age** – subjects' age in whole years, ranges from 18 to 33 with a median of 22; **Risk aversion** – ordinal variable ranging from 1 to 10; indicates at which lottery on a ten-item Holt-Laury lottery list a subject starts to prefer the sure payoff of 25 ECU to a binary lottery of 10 ECU and 35 ECU; **Personal Value Scales:** – **Benevolence** – mean over answers to PVS questions 12,18,27, and 33, ranges from 1.25 to 6.00; – **Universalism** – mean over answers to PVS questions 3,8,19,23,29, 40, ranges from 1.50 to 6.00; – **Achievement** – mean over answers to PVS questions 4,13,24,32, ranges from 1.25 to 6; – **Power** – mean over answers to PVS questions 2,17,39, ranges from 1.00 to 5.67. **Fields of study** – miscellaneous categories are: Field of Studies: Medicine (n=10), University of Applied Sciences (4), Theology (n=1), Arts (n=1), Engineering (n=4), IT (n=5), Philosophy (n=1).

F.1 Instruments and Fields of study: biserial correlations

	<i>Kohlberg 5</i>	<i>con · post</i>
<i>Kohlberg 5</i>	1.000	0.814 ^a
<i>con·post</i>	0.814 ^a	1.000
<i>Education</i>	0.089	0.099
<i>Law</i>	−0.102	−0.071
<i>IT</i>	−0.102	−0.114
<i>Philosophy</i>	−0.017	−0.022
<i>SBS</i>	0.062	0.045
<i>Medicine</i>	−0.147 ^c	−0.105
<i>Theology</i>	0.102	0.059
<i>BussEcon</i>	−0.006	0.017
<i>Engeneering</i>	0.011	0.037
<i>Languages</i>	0.065	0.017
<i>Sciences</i>	−0.034	−0.058
<i>Arts</i>	0.062	0.007
<i>UAS</i>	−0.066	−0.026

Table A3: FIRST TWO COLUMNS OF THE BISERIAL CORRELATION MATRIX OF *Kohlberg class 5* AND *con·post* FOR THE DATA FROM (CHLASS AND MIETTINEN, 2026)

G Kohlberg 5 and [con×post] by role and treatment

– Note. Across all studies, scores are computed the exact same way.

G.1 study 1: current study

data from the main paper, i.e. Chlaß (2026), *Purely Procedural Preferences in Auctions: a correction to (Sugden and Wang, 2021)*.

		treatments					
		uniform		S(0,10,0)		S(0,10,10)	
		role: B	role: S	role: B	role:S	role: B	role: S
uniform	B		0.90 [0.24]	0.44 [0.14]	0.52 [0.36]	0.35 [0.71]	0.67 [0.28]
	S			0.45 [0.88]	0.34 [0.73]	0.31 [0.46]	0.84 [0.76]
S(0,10,0)	B				0.99 [0.45]	0.84 [0.24]	0.19 [0.58]
	S					0.79 [0.69]	0.28 [0.33]
S(0,10,10)	B						0.16 [0.54]
	S						

Table A4: WILCOXON EXACT RANK SUM TESTS OF KOHLBERG CLASS 5 AND [CON×POST] (IN SQUARE BRACKETS) ACROSS ROLES AND TREATMENTS.

Notes. role B: buyer role, role S: seller role in the reversed Akerlofian lemons problem in Fig. 1 of the main paper. uniform: treatment which introduces uniformly distributed qualities, i.e. $f(v)=U[0, 10]$; S[0, 10, 0]: treatment which introduces qualities distributed according to a triangular distribution with minimum 0, maximum 10, and mode 0; S[0, 10, 10]: treatment with a triangular distribution of mode 10.

G.2 study 2: Dictator games

G.2.1 instrument 1: Kohlberg class 5

data from Chlaß and Moffatt (2012), *Giving in Dictator Games: Experimenter Demand Effect or Preference over the Rule of the Game*, Jena Economic Research Paper, #2012-044; n=429 observations.

	Estimate	Std. Error	t value	Pr(> z)
<i>Intercept</i>	-0.637	0.526	-1.211	0.227
<i>Age</i>	0.005	0.015	0.349	0.727
<i>Sex: female</i>	0.736	0.266	2.771	0.006
<i>treatment TAKE</i>	0.239	0.197	1.215	0.225
<i>treatment Earnings</i>	0.106	0.211	0.503	0.616
<i>Responder Role: yes</i>	0.231	0.277	0.835	0.404
<i>Field: Business and Economics</i>	0.196	0.299	0.656	0.512
<i>Field: Education</i>	0.018	0.250	0.073	0.942
<i>Field: Engeneering</i>	-0.139	0.330	-0.422	0.673
<i>Field: IT</i>	0.847	0.633	1.338	0.182
<i>Field: Languages</i>	0.253	0.266	0.948	0.344
<i>Field: Law</i>	-0.338	0.284	-1.189	0.235
<i>Field: Medicine</i>	-0.414	0.344	-1.205	0.229
<i>Field: Philosophy</i>	0.204	0.356	0.574	0.566
<i>Field: Sciences</i>	0.266	0.260	1.022	0.307
<i>Field: Social and Behavioral Sciences</i>	0.059	0.253	0.235	0.815
<i>Field: Theology</i>	-0.432	0.300	-1.441	0.150
<i>Sex:female × Responder Role: yes</i>	-0.809	0.348	-2.325	0.021
<i>treatment TAKE × Responder Role: yes</i>	-0.237	0.295	-0.805	0.421
<i>treatment Earnings × Responder Role: yes</i>	0.138	0.310	0.445	0.656
<i>Sex: female × treatment Earnings</i>	-0.402	0.265	-1.517	0.130
<i>Sex: female × treatment TAKE</i>	-0.236	0.259	-0.910	0.363
<i>Sex: female × Earnings × Responder Role: yes</i>	0.643	0.373	1.722	0.086
<i>Sex: female × TAKE × Responder Role: yes</i>	0.291	0.386	0.754	0.451

Table A5: ROBUST LINEAR REGRESSION OF KOHLBERG CLASS 5 ON ROLES, TREATMENTS, AND DEMOGRAPHICS IN (CHLASS AND MOFFATT, 2012).

Notes. Robust linear regression of subjects' *Kohlberg class 5* score on treatments, roles, and interactions of treatments and roles. After controlling for the critical conditions of the instrument: gender and fields of study, *Kohlberg class 5* scores do not differ across roles and treatments. The study features (between-subjects) treatments *Earnings* and *TAKE*, and two roles: the dictator, and responder in the dictator game. Reference category for field of study is: University of Applied Sciences.

G.2.2 instrument 2: con×post

	Estimate	Std. Error	t value	Pr(> z)
<i>Intercept</i>	-0.488	0.309	-1.580	0.115
<i>Age</i>	0.008	0.009	0.872	0.384
<i>Sex: female</i>	0.537	0.196	2.742	0.006
<i>treatment TAKE</i>	0.170	0.108	1.567	0.118
<i>treatment Earnings</i>	0.056	0.101	0.559	0.576
<i>Responder Role: yes</i>	0.099	0.154	0.644	0.520
<i>Field: Business and Economics</i>	0.327	0.333	0.982	0.327
<i>Field: Education</i>	-0.061	0.124	-0.490	0.625
<i>Field: Engeneering</i>	-0.123	0.164	-0.753	0.452
<i>Field: IT</i>	0.817	0.701	1.165	0.245
<i>Field: Languages</i>	0.002	0.139	0.011	0.991
<i>Field: Law</i>	-0.214	0.140	-1.525	0.128
<i>Field: Medicine</i>	-0.240	0.172	-1.398	0.163
<i>Field: Medicine</i>	-0.335	0.201	-1.668	0.096
<i>Field: Sciences</i>	0.059	0.143	0.409	0.683
<i>Social and Behavioral Sciences</i>	-0.090	0.128	-0.703	0.482
<i>Theology</i>	-0.369	0.300	-1.230	0.220
<i>Sex: female × Responder Role: yes</i>	-0.488	0.213	-2.294	0.022
<i>treatment TAKE × Responder Role: yes</i>	-0.092	0.171	-0.535	0.593
<i>treatment Earnings × Responder Role: yes</i>	0.114	0.201	0.566	0.572
<i>Sex: female × treatment Earnings</i>	-0.416	0.218	-1.910	0.057
<i>Sex: female × treatment TAKE</i>	-0.018	0.218	-0.084	0.933
<i>Sex: female × treatment Earnings × Responder Role</i>	0.329	0.247	1.331	0.184
<i>Sex: female × treatment TAKE × Responder Role</i>	0.047	0.330	0.143	0.887

Table A6: ROBUST LINEAR REGRESSION OF CON×POST ON ROLES, TREATMENTS, AND DEMOGRAPHICS IN (CHLASS AND MOFFATT, 2012).

Notes. Robust linear regression of subjects' con×post score on treatments, roles, and interactions of treatments and roles. After controlling for the critical conditions of the instrument: gender and fields of study, con×post scores do not differ across roles and treatments. The study features (between-subjects) treatments *Earnings* and *TAKE*, and two roles: the dictator, and responder in the dictator game. Reference category for field of study is: University of Applied Sciences.

G.3 study 3: Lying, spying, and sabotaging games

G.3.1 instrument 1: Kohlberg class 5

data from (Chlaß and Riener, 2015/2025), *Preferences For Fair Competition/Lying, Spying, Sabotaging – Procedures and Consequences*, Jena Economic Research Paper, #2015-016; available at <https://www.chlass.de/Research.html>; $n=606$ observations.

		treatments						
		competitive payoffs			payoff neutrality			
		LIE	SPY	SAB	LIE	SPY	SAB	
Role: A.	competitive payoffs	LIE	1					
		SPY	0.39	1				
		SAB	0.20	0.52	1			
	payoff neutrality	LIE	0.03	0.10	0.27	1		
		SPY	0.12	0.32	0.73	0.50	1	
		SAB	0.33	0.78	0.61	0.13	0.42	1

		treatments						
		competitive payoffs			payoff neutrality			
		LIE	SPY	SAB	LIE	SPY	SAB	
Role: B.	competitive payoffs	LIE	1					
		SPY	0.80	1				
		SAB	0.83	0.70	1			
	payoff neutrality	LIE	0.09	0.07	0.02	1		
		SPY	0.50	0.50	0.24	0.18	1	
		SAB	0.19	0.21	0.08	0.61	0.51	1

		Role: B treatments						
		competitive payoffs			payoff neutrality			
		LIE	SPY	SAB	LIE	SPY	SAB	
Role: A vs Role: B	competitive payoffs	LIE	0.52	0.34	0.49	0.01	0.10	0.03
		SPY	0.89	0.84	0.94	0.02	0.26	0.10
		SAB	0.62	0.79	0.47	0.14	0.77	0.30
	payoff neutrality	LIE	0.15	0.19	0.08	0.70	0.48	0.94
		SPY	0.44	0.52	0.28	0.30	0.89	0.54
		SAB	0.99	0.92	0.75	0.04	0.44	0.14

Notes. Treatments *competitive payoffs* LIE and SAB: Player B can take all decision rights/effective opportunities from A. SPY: Player B can only take information rights from A. A cannot influence B's decision on parties' decision rights/effective opportunities. Treatments *payoff neutrality* LIE, SPY, SAB: Player B cannot take decision rights/effective opportunities from A. A has no effective opportunities/decision rights in the game. SPY: B can take information rights from A.

grey shaded cells: test results already displayed in another cell or comparison of a group to itself.

G.3.2 instrument 1: Kohlberg class 5, controlling for demographics and fields of study

	<i>coef.</i>	<i>std. error</i>	<i>t value</i>	<i>Pr(> z)</i>
<i>(Intercept)</i>	0.688	0.459	1.500	0.134
<i>Age</i>	-0.015	0.015	-1.040	0.299
<i>Sex: Female</i>	-0.130	0.087	-1.495	0.135
<i>Risk aversion</i>	0.000	0.027	0.001	0.999
<i>Competitive payoffs: Yes</i>	0.126	0.155	0.815	0.415
<i>RoleB: yes</i>	-0.126	0.156	-0.808	0.420
<i>treatment lie, ref: spy</i>	-0.193	0.176	-1.098	0.273
<i>treatment sabotage, ref: spy</i>	-0.021	0.165	-0.129	0.897
<i>Field: Social and Behavioral Sciences</i>	-0.238	0.199	-1.195	0.233
<i>Field: Languages</i>	-0.107	0.225	-0.477	0.634
<i>Field: Arts</i>	0.102	0.656	0.156	0.876
<i>Field: Medicine</i>	-0.333	0.258	-1.289	0.198
<i>Field: Sciences</i>	-0.302	0.222	-1.360	0.174
<i>Field: Business and Economics</i>	-0.474 ^b	0.222	-2.130	0.034
<i>Field: Engeneering</i>	-0.318	0.258	-1.234	0.218
<i>Field: IT</i>	-0.507 ^c	0.302	-1.679	0.094
<i>Field: Education</i>	-0.084	0.211	-0.396	0.692
<i>Field: Law</i>	-0.916 ^a	0.252	-3.638	0.000
<i>Field: Philosophy</i>	-0.453 ^c	0.272	-1.665	0.096
<i>competitive payoffs × roleB: yes</i>	0.134	0.161	0.834	0.405
<i>roleB: yes × treatment lie, ref: spy</i>	-0.013	0.198	-0.068	0.946
<i>roleB: yes × treatment sabotage, ref: spy</i>	0.071	0.185	0.385	0.701
<i>competitive payoffs × treatment lie, ref: spy</i>	0.273	0.198	1.376	0.169
<i>competitive payoffs × treatment sabotage, ref: spy</i>	-0.055	0.185	-0.299	0.765

Table A7: ROBUST LINEAR REGRESSION OF SE31 ON ROLES, TREATMENTS, AND DEMOGRAPHICS (CHLASS AND RIENER 2025).

Notes. Robust linear regression of subjects' *Kohlberg class 5* score on treatments, roles, and interactions of treatments and roles. After controlling for the critical conditions of the instrument: gender and fields of study, *Kohlberg class 5* scores no longer differ across *payoff neutrality* and *competitive payoffs*.

G.3.3 instrument 2, con×post, controlling for demographics and fields of study

	<i>coef.</i>	<i>std. error</i>	<i>t value</i>	<i>Pr(> z)</i>
<i>Intercept</i>	0.439	0.435	1.009	0.313
<i>Age</i>	0.004	0.015	0.280	0.780
<i>Sex</i>	-0.211 ^a	0.080	-2.658	0.008
<i>Risk aversion</i>	0.006	0.031	0.186	0.853
<i>Competitive payoffs: Yes</i>	-0.162	0.153	-1.058	0.291
<i>RoleB: yes</i>	-0.166	0.152	-1.095	0.274
<i>treatment lie, ref: spy</i>	-0.199	0.159	-1.246	0.213
<i>treatment sabotage, ref: spy</i>	-0.192	0.179	-1.075	0.283
<i>Field: Social and Behavioral Sciences</i>	-0.346	0.252	-1.374	0.170
<i>Field: Languages</i>	-0.230	0.268	-0.860	0.390
<i>Field: Arts</i>	-0.839 ^c	0.478	-1.754	0.080
<i>Field: Medicine</i>	-0.478 ^c	0.288	-1.664	0.097
<i>Field: Sciences</i>	-0.412 ^c	0.274	-1.506	0.133
<i>Field: Business and Economics</i>	-0.508 ^c	0.263	-1.934	0.054
<i>Field: Engeneering</i>	-0.252	0.298	-0.846	0.398
<i>Field: IT</i>	-0.685 ^c	0.309	-2.216	0.027
<i>Field: Education</i>	-0.125	0.272	-0.460	0.646
<i>Field: Law</i>	-1.015 ^a	0.270	-3.753	0.000
<i>Field: Philosophy</i>	-0.476	0.316	-1.505	0.133
<i>competitive payoffs × roleB: yes</i>	0.280 ^c	0.163	1.715	0.087
<i>roleB: yes × treatment lie, ref: spy</i>	0.002	0.190	0.012	0.991
<i>roleB: yes × treatment sabotage, ref: spy</i>	0.169	0.188	0.897	0.370
<i>competitive payoffs × treatment lie, ref: spy</i>	0.376 ^b	0.188	2.000	0.046
<i>competitive payoffs × treatment sabotage, ref: spy</i>	0.213	0.192	1.110	0.268

Table A8: ROBUST LINEAR REGRESSION OF CON·POST ON ROLES, TREATMENTS, AND DEMOGRAPHICS (CHLASS AND RIENER 2025).

Notes. In competitive payoffs in general, and competitive payoffs lie in particular, B participants tend to have higher scores on con·post. Since con·post is *negatively* associated with preferences for equal rights, the share of altruism reported for B in these treatments may be rather conservatively measured, and the treatment effect with samples which score equally on con·post, would be *larger* (not smaller).

G.4 study 4: sequential bargaining – ultimatum and commitment games

data from (Chlaß and Miettinen, 2026), *Commitment in Sequential Bargaining – An Experiment*, *Journal of Behavioral Economics and Organization*, 242, art. no 107360.

		treatments					
		ultimatum		unilateral commitment		simultaneous commitment	
		role: A	role: B	role: A	role: B	role: A	role: B
ultimatum	A		0.67 [0.85]	0.19 [0.25]	0.22 [0.96]	0.51 [0.69]	0.38 [0.99]
	B			0.39 [0.41]	0.46 [0.81]	0.81 [0.58]	0.67 [0.86]
unilateral	A				0.90 [0.18]	0.55 [0.11]	0.62 [0.27]
	B					0.60 [0.63]	0.73 [0.98]
simultaneous	A						0.89 [0.66]
	B						

Table A9: EXACT WILCOXON RANK SUM TESTS OF *Kohlberg class 5* AND [CON×POST] (IN SQUARE BRACKETS) ACROSS ROLES AND TREATMENTS.

Notes. Treatment ultimatum: A has an advantage in effective opportunities over B which cannot be removed. Treatment unilateral: B can remove her disadvantage in effective opportunities by precommitting to reject proposals. To do so, she has to precommit to reject greedy, fair, and also some generous proposals. Treatment simultaneous: B can remove her disadvantage in effective opportunities by precommitting to reject proposals. To do so, it is sufficient to precommit to reject greedy proposals. Responses: B’s minimally acceptable proposals in the ultimatum game increases with experience driven by *Kohlberg class 5*; A’s proposals in ultimatum decline with experience in *Kohlberg class 5*; A players’ proposals decrease in B’s commitments driven by *Kohlberg class 5*; A players’ comitments decrease in *Kohlberg class 5* as experience increases.