

# The Behavioral Tradeoff between Efficiency and Equity when a Majority Rules

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Voting is a natural context to investigate how democratic societies balance claims of economic efficiency against claims of distributive equity. We examine data from a series of simple experimental voting games; in each, voters are confronted with two distributional policies, one that promotes efficiency versus one that promotes equity. We find that, as a social good, equity has more attraction than efficiency by about a two-to-one margin, even though those who deviate for efficiency pay on average less for it than those who deviate for equity. Strikingly, nearly half those who do not benefit (nor lose) from the Pareto choice vote against it; yet the same choice finds wide support when a fair random draw determines who captures the gain.

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## 1 Introduction

*Probably the most persistent reason for noneconomists' resistance to our most cherished recommendations on micropolicy is our determined disregard of their implications for distributive equity.* William J. Baumol

*Why shouldn't the full range of consequences important to the society be important to the economists?... I suspect the answer to [this question] is that the economists have decided, possibly implicitly and silently, that the other values that might overcome the efficiency presumption are usually weak or conflicting, or even reinforce the conclusions based upon the studied effects.* George J. Stigler

Democratic societies rely upon voting to establish social objectives. In this paper, we experimentally investigate a series of simple voting games; in each, voters are confronted with two distributional policies, one that promotes efficiency and one that promotes equity. The struggle to come to grips with the efficiency-equity tradeoff has a long history in economics; Adam Smith (1759, 1776), after all, wrote two landmark books, one that champions the market and efficiency and another laying out a theory of man's sympathy with "the fortune of others." Contemporary clashes between efficiency and equity include medical-care reform (Cutler, 2002, McMillan, 2002), international trade liberalization (Bhagwati, 1996), minimum wage law (Card and Krueger, 1995), and globalization (Stiglitz, 2002). Resolution of these issues has implications for overall social resources, but also tends to produce individual winners and losers. Even when a policy lifts all boats, income distribution may change in ways that have implications for social cohesion.

Our experiment permits a comparison of efficiency and equity as social goods. We compare how many are willing to deviate from their pocketbook interests in support of each principle. Among those who deviate, we get a comparison of willingness to pay. As such, our experiment examines the efficiency-equity trade-off on an empirical, as opposed to philosophical, level. We ask 'What do people prefer?' under a common social decision making procedure (voting), and when each decision has pocketbook consequences.<sup>1</sup>

The often heated public debates surrounding, and the delicacy with which politicians approach, efficiency versus equity issues suggest that they can swing elections. But what these

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<sup>1</sup> Thus, our paper does not address the important but more philosophical questions of 'What is socially best?' or 'What would people want under dispassionate circumstances?' For an intriguing and comprehensive experimental investigation of these questions see Frohlich and Oppenheimer (1992), who, in much of their experimental work, let subject groups choose a 'principle of justice' under the veil of ignorance.

battles say about the underlying preference for efficiency-equity trade-offs tends to be confounded by strategic manipulation on the part of those who stand to gain, or by confusion or uncertainty about the trade-offs on the part of the voting public. No doubt these factors are more decisive in some struggles than in others, but in all cases, the potential importance of these factors obscure a reading of the public will.<sup>2</sup> In lab experiments, on the other hand, we can gain complete control over these confounding factors. In our experiment, voting determines the allocation; no lobbying of appointed officials by special interest groups can intervene. Voters have full information about the payoff consequences of the choices before them, so they know the relevant private and social trade-offs. There is no uncertainty of one's future position (as there is under Rawl's veil of ignorance), so redistribution policies are not explainable by an insurance motive. Finally, the probability a single vote will be decisive in our study is always substantial, so that, unlike in large elections, individual votes are more than cheap talk.

In many real policy disputes, proposals appeal to different, often competing notions of equity.<sup>3</sup> However, our experimental setting involves conditions – anonymous interaction among peers (students) – that suggest that equal division will be viewed as equitable.<sup>4</sup> Accordingly, we consider three voters interacting in one of three voting scenarios. In each, one choice allocation is always equal division. The other choice before our voters is more efficient than the equitable allocation. In each scenario we examine, the efficiency gain is distributed in a different way, although always with the same total social gain. These scenarios are by no means comprehensive, but are chosen to represent diverse circumstances of important theoretical and practical consequence:

*Pareto gain.* Economic textbooks generally treat gains that help some but hurt none as socially positive. One reason to question whether this is always true, however, is the importance people

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<sup>2</sup> While concluding that the narrow self-interest assumption clearly fails to capture democratic voting behavior, Mueller (1989; part VI) describes some of the difficulties that arise if one actually wants to disentangle the different motivations behind the votes.

<sup>3</sup> As an example, see Rose and Stevens (1998) who list various competing static and dynamic equity criteria for global warming policies that have been put forward in the political discussions.

<sup>4</sup> Social utility models, discussed later, measure equitable distribution by different yardsticks, but all agree that equal division fits the bill, at least under the conditions of our experiment.

attach to status (e.g., Frank, 1985). Gains that materially lift some over others might plausibly be resisted by the (relative) losers. We look at a scenario in which all the surplus from efficiency is captured by a single voter, whereas the other two are unaffected.

*A majority gain, a minority lose.* Trade liberalization not only expands the social pie but typically creates losers as well as winners. Those with comparative advantage gain (a lot), lower prices benefit consumers (some), and those in non-competitive industries lose (a lot). We look at a scenario that reflects this sort of uneven gain over the three constituencies.

*A minority gain, a majority lose.* In principle, company mergers can produce efficiency gains that outweigh losses due to the new firm's ability to manipulate prices (Williamson, 1968). Thus, the efficient policy implies the firm, and society, gain at the expense of consumers. We look at a scenario that reflects a large gain to a single constituency and small losses to the others.

There is some reason to believe that the acceptability of unevenly distributed efficiency gains has to do with whether the gains were 'fairly' obtained. For instance, Bhagwati (1996) ascribes the "fairness of the process within which competition for economic success takes place" as a motivating factor behind the U.S.'s demand for the incorporation of "harmonization" into the GATT treaty; in essence, what the U.S. demands is a level playing field.<sup>5</sup> In the laboratory, the most straightforward way to create a level playing field is randomization.<sup>6</sup> Accordingly, we examine our three scenarios under two conditions. In the *straight* condition, voters know their role; that is, they know whether and what they will receive when a particular allocation is

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<sup>5</sup> As another example, Posner (1972) argues that judicial rulings tend to be efficiency leaning whereas legislative rulings tend to be equity leaning because institutional differences tend to push the decision makers towards considering different criteria of social desirability.

<sup>6</sup> See Bolton et al. (2001). Random procedures are, however, also used in social decision processes outside the lab. Elster (1989) notes that random lotteries have been used in the allocation of public housing and scarce medical resources, the awarding of oil drilling leases, admission to educational institutions, professional athletic drafts, tax auditing, as well as military drafts and jury selection. Oberholzer-Gee, Bohnet and Frey (1997) present survey evidence that lotteries are an acceptable procedure for siting nuclear waste facilities.

selected. In the *level playing field* condition, they vote conditional on their role; their role is then decided by a fair random draw.<sup>7</sup>

A good deal of theoretical work has been directed at characterizing attitudes towards distributive equity. Most of this work does not address efficiency as a motive; rather most confine themselves to examining two motives, pecuniary self-interest and fairness (Bolton, 1991, Rabin, 1993, Fehr and Schmidt, 1999, Bolton and Ockenfels, 2000). Charness and Rabin's (2002) model includes an efficiency motive along with those for self-interest and distribution. But this model does not predict the relative strength of efficiency and distribution motives when the two are in conflict (the model is consistent with *every* choice before the voters in our experiment). All of these models agree that equal division is the more equitable choice in our games but admit voting for the efficient choice when in the pocketbook interest of the voter.<sup>8</sup>

To our knowledge, only one other paper has experimentally investigated how preferences for equity affect voting behavior. Tyran and Sausgruber (2002) find that voting outcomes may substantially deviate from the narrow self-interest model, but that votes are consistent with preferences as posed by the fairness models mentioned above. In their study, however, all feasible outcomes are equally efficient so that voters do not face a trade-off between equity and efficiency. A handful recent experimental papers also investigated whether people act on an efficiency motive. Most are directed, however, at separating social utility models (and so involve comparison of distribution measures as well as consideration of efficiency), and none have looked at this issue in the context of voting. Some report an efficiency motive, but others

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<sup>7</sup> The alternative procedure, to vote for a single allocation and then choose roles, introduces risk into the calculation, whereas the adopted procedure avoids it.

<sup>8</sup> The goal of our study is to compare the relative strength of preference for efficiency versus that for equity. We do not think our experiment an appropriate test of social utility models that do not take efficiency considerations into account; see Rubinstein (2001) for an illustration involving expected utility theory, of the problems associated with testing a model in a domain where the decision making considerations go beyond those that a model presumes. See Selten (1987) for a discussion of the difficulties in conducting separation tests of models that make predictions of differing degrees of tightness.

do not.<sup>9</sup> We return to these studies in the discussion section, where we conclude that our comparison, along with other evidence, suggests a more intensive investigation of the role of procedures in determining social objectives.

## 2 Experiment design

Table 1 shows the payoffs associated with the three voting games that we study. For each game, groups of three subjects are formed. Then, subjects simultaneously and secretly vote either for payoff distribution  $A$  or for payoff distribution  $B$ . The alternative that receives the majority of votes is declared the winner and determines the payoffs of all persons in the group according to Table 1. For example, alternative  $B$  in game III yields DM 27 for person 1 and DM 9 for both person 2 and person 3. Alternative  $A$  always yields the egalitarian distribution of DM 30, independent of the game. (DM 30 was worth about \$14 at the time of the experiment.) Alternative  $B$  increases the sum of payoffs by DM 6 compared to  $A$ , but differs with respect to the distribution of the efficiency gains across games. In game I (*Pareto gain*) all the gains go to person 1 and nobody loses relative to alternative  $A$ , in game II (*a majority gain, a minority lose*) only person 2 loses money in  $B$ , and in game III (*a minority gain, a majority lose*) persons 2 and 3 lose when efficiency is increased.

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<sup>9</sup> Charness and Rabin (2002), Engelmann and Strobel (2002) and Kritikos and Bolle (2001) found that a substantial share of subjects in dictator-like games choose efficiency over equity. Other studies, such as Güth et al. (2002), Fischbacher et al. (2001), and Okada and Riedl (2002), suggest that efficiency motives turn negligible when the necessary sacrifice is increased. Still other studies, not meant to test social utility theories but also posing a trade-off between efficiency and equity, seem to suggest that equity (along with self-interest) drives most of the behavior while the efficiency motive is rather weak; see, e.g., bargaining games as surveyed by Roth (1995), where the frequently observed rejections and ‘disadvantageous’ counteroffers lead to Pareto-inferior outcomes, trust games as analyzed by Berg et al. (1995), where the reciprocal responses are invariant to efficiency concerns, or gift exchange games as studied by Fehr et al. (1993), where efficiency predicts that workers' efforts are decreasing in firms' wages, while in fact they actually increase. These games do not provide a direct test of the relative strength of equity and efficiency motives.

Table 1. Game Payoffs

	all games	game I	game II	game III
	<i>A</i>	<i>B</i>	<i>B</i>	<i>B</i>
person 1	DM 13	DM 19	DM 27	DM 27
person 2	DM 13	DM 13	DM 1	DM 9
person 3	DM 13	DM 13	DM 17	DM 9

In the experiment, each voting game was played in two modes, the *straight mode* and the *level playing field mode*. In the straight mode, subjects knew their role (person 1, 2, or 3) before the voting. In the level playing field mode, subjects could condition their votes on each of the three possible person roles they could potentially be assigned to, knowing that the role was randomly assigned with equal probabilities *after* the conditional voting decisions have been made.

The study was conducted as a classroom experiment in an introductory course on economics. In total, 288 students of management science and economics participated. None of the students had previously participated in an experimental economics study. Each subject played exactly one of the games shown in Table 1. We had 72 subjects for each of the games played in the straight mode, and 24 subjects for each of the games played in the level playing field mode, yielding 24 observations for each person role in each game in each mode. All decisions were made anonymously; subjects were exclusively identified via code numbers (e.g., no payoffs receipts needed to be signed). Subjects were neither informed about the identity nor the code numbers of the other group members, neither during nor after the experiment.

### 3 Experiment results

Table 2 shows the numbers of votes for *A* for the three games and two modes separately.

Table 2. Results

<i>A</i> votes (in percent)	straight mode			level playing field mode		
	game I	game II	game III	game I	game II	game III
person 1	25.00	33.33	20.83	12.50	25.00	16.67
person 2	47.92	87.50	87.50	16.67	91.67	85.42
person 3		37.50			25.00	
game average	40.28	52.78	65.28	15.28	47.22	62.50
mode average		52.78			41.67	

Assuming that self-interest is the sole motive, voting for the alternative that offers a higher payoff for oneself is a weakly dominant strategy. On average, 80.65 percent of all votes that could affect one's own payoff are in line with the dominant strategy.<sup>10</sup> Dominant strategy play, however, does not imply that equity or efficiency considerations do not drive (some) votes, because the selfish vote is always aligned with either the equitable or the efficient vote.<sup>11</sup>

<sup>10</sup> Because the votes of persons 2 and 3 in game I cannot affect their payoffs, they do not say anything about the underlying motives and are therefore not included in this calculation.

<sup>11</sup> Strictly speaking, since there also exist equilibria among purely self-interested players in which players do not vote for their preferred alternative, deviation from dominant strategy play does neither exclude self-interest nor imply a concern for equity or efficiency. It is, however, unlikely that the deviations from the dominance principle in our experiment can be explained by rational equilibrium play of selfish voters. For one, given the heterogeneous population behavior and the random matching procedure, voting for one's truly preferred alternative always strictly increases expected utility (making truth telling a *strictly* best response in our experiment); the probability that one's own vote is decisive is never smaller than 22 percent except in game I played in the level playing field mode where it is 13 percent. In this game, however, the only person with strict preferences from a standard theory point of view, person 1, chooses his weakly dominant strategy in 87.5 percent of all cases – more frequently than the average population. Also, note that deviations could conceivably occur for person 2 in game II and person 1 in game III, who may see no reason to vote for their preferred alternative, because, since both other voters prefer the other alternative, their vote is not decisive if they believe that the others play weakly dominant strategies. In these two cases, however, the probability of choosing the weakly dominant strategy is with 85.41 percent a bit (but not statistically significant) higher than for all other persons. Thus, there is little reason to suppose that votes do not reveal true preferences.



When we analyze the underlying motives for deviations from dominant strategy play, we find that 51 out of 192 (26.56 percent) votes are in favor of the equitable distribution  $A$  even though  $B$  would have yielded a more profitable outcome (person 1 in games I, II, and III, and person 3 in game II), and 18 out of 144 (12.5 percent) votes are in favor of the efficient alternative  $B$  when  $A$  would have yielded a more profitable outcome (person 2 in games II and III and person 3 in game III). The efficient outcome  $B$  has most attraction when nobody is worse off compared to the equitable outcome (game I). However, by just counting the votes for  $A$  and  $B$ , equity has considerable more bite than efficiency (applying Fisher's exact test yield  $p = .002$ , two sided) to explain the deviations from the weakly dominant strategy.

This impression is strengthened if we control for the potential amount of forgone payoffs to deviating. Figure 1 shows the actual probabilities of choosing  $A$ , for each mode separately, conditioned on the monetary sacrifice (negative numbers) and benefit (positive numbers) under the assumption that  $A$  (instead of  $B$ ) is actually implemented. While most subjects choose the efficient or the equitable allocation depending on which vote favors their monetary self-interest, Figure 1 also shows that, for example, on average 13.54 percent of the subjects are willing to sacrifice DM 4 for efficiency, but many more, 31.25 percent, are willing to sacrifice DM 4 for equity (Fisher's exact test,  $p = .015$ , two-sided). Overall, under the assumption that one's own vote is implemented, the average sacrifice when choosing alternative  $B$  (efficiency) is DM 6.22, and DM 9.28 when choosing alternative  $A$  (equity). That is, the high frequency of 'equity votes' compared to 'efficient votes' is not due to relatively low costs of equity. The opposite is true;  $A$ -voters are willing to forgo higher payoffs than  $B$ -voters.

Figure 1. Frequencies of  $A$ -votes as a function of the corresponding potential sacrifice/benefit

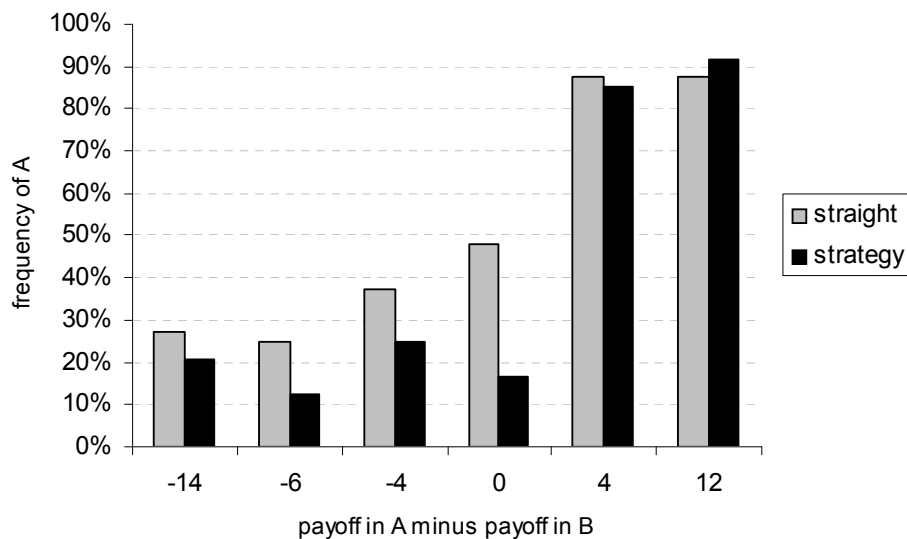


Table 1 and Figure 1 also suggest that the decision mode matters. Overall, 52.78 percent of all votes in the straight mode are for  $A$ , whereas only 41.67 percent of all votes in the level playing field mode are for  $A$  (Fisher's exact test,  $p = .027$ , two-sided). While the gaps between the straight mode and the level playing field mode are quite small for games II and III, they are strikingly strong in game I, the case in which  $B$  is a Pareto-improvement over  $A$ . There, the  $A$ -votes sharply drop by 25 percent from 40.28 percent in the straight mode to 15.28 percent in the level playing field mode ( $p = .001$ ). One way to interpret this finding is that the level playing field mode implements *procedural fairness*, because it gives everybody the same, fair chance of ending up in an advantageous position. Plausibly, fair (random) procedures can substitute for distributive fairness, especially when nobody is hurt compared to the equal division.<sup>12</sup>

<sup>12</sup> The fact that fairness may be measured with respect to changes relative to a status quo has also been observed by Kahneman et al. (1986). None of the social utility models mentioned in the introduction captures procedural fairness. But see, e.g., Frey and Stutzer (2001) for field evidence, and Bolton et al. (2001) for further lab evidence and a model of procedural fairness. Also, observe that this procedural fairness effect leads to an interesting non-monotonic voting pattern: According to Table 1, only 16.67 percent of all voters in game I in the level playing field mode vote in favor of *distributive* equity even though equity is for free to them (persons 2 and 3), while in game II a considerably larger share of subjects, 25 percent, vote in favor of equity even though this time distributive equity comes at a substantial cost of DM 4 (person 3).

#### 4 Summary

The relationship between efficiency and equity that emerges from our study is not one of trump, but rather one of trade-off. There is no shortage of support for efficiency among those whose self-interest is served by expanding the pie. But, as a social good, equity is in greater demand: About twice as many people deviate from their self-interest for equity than do for efficiency, even though, on average, the former pay about 50 percent more to do so than do the latter. One way to gauge the magnitude of the difference in the support for the two social goods is to note that our finding implies that, when a majority rules, even an efficiency gain that benefits two-thirds of the group can be overridden by a coalition of the potential losers and those potential winners sympathetic to concerns about distribution. Indeed, this is precisely what happened in our game II, where, averaged across both game modes, exactly 50 percent vote for the equal payoff distribution.

Our results also indicate that procedures are important in evaluating the trade-off. Almost half of those who do not gain (nor lose) from the Pareto selection fail to support it. This changes, however, when the Pareto choice is part of an election in which all have an equal chance of being the benefactor from the Pareto gain; now, when voting conditional on being a non-benefactor, about 84 percent support the Pareto choice. Note that, because of the conditional nature of the vote, this turnabout cannot be explained by an appeal to self-interest. One possible explanation is that the "equal chance" procedure is viewed by the participants as a fair procedure; the implication being that the unequal, efficient allocation is more acceptable when the procedure to implement is deemed fair and hurts nobody.<sup>13</sup>

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<sup>13</sup> The sensitivity of behavior to procedures and payoffs (as seen in Figure 1) might also explain why the results of the handful of papers in the experimental literature that look directly for a preference for efficiency, outside of a voting context, are mixed. All of the papers that conclude that the efficiency motive is strong either used a method of payoff that gave all an equal chance of capturing the efficiency gain (e.g., Kritikos and Bolle, 2001, and, for the most part, Engelmann and Strobel, 2002, used procedures that give each subject an equal chance of being a benefactor from the efficiency gain), and/or implemented zero or relatively small decision maker's sacrifice. Also, all these studies involve different sets of competing fairness measures that may confound study comparison. (Because our fairness measure is in line with *all* standard models of fairness, a rather clean comparison of equity and efficiency motives is possible).

It is well-known that different institutions interact differently with the behavioral trade-offs between efficiency and equity. Bargaining experiments exhibit equity seeking behavior that is anti-efficient in the form of frequent disagreements that lead to bargaining pie destruction. Market experiments exhibit a high degree of adherence to competitive, and so efficiency compatible behavior, with little regard for equity. Furthermore, our voting study suggests that procedural and distributional considerations are closely intertwined, and may, in people's minds, be substitutable for one another. The challenge for future research is, as this sort of empirical evidence accumulates, to translate our improved understanding of social preferences into the design of institutions and policies that soften the (behavioral) tension between efficiency and equity and thus increase economic welfare at minimal social costs.

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## Appendix A: Sample Instructions (translation from German)

### General Information

The purpose of this study is to assess how people make decisions in simple economic situations. If at any time you have questions or problems, raise your hand and a monitor will be happy to assist you. From now until the end of the session, any communication with other participants is prohibited.

### Conduct of the session.

During the session you will make decisions. Your decisions give you the opportunity to earn cash. You will receive your earnings next week in exchange of your experiment identification card that is attached to these instructions. Note that your decisions are anonymous; you do not have to reveal your identity at any stage of this experiment. Also, your earnings are confidential information: Only you and the monitor will be told the amount that you make.

### Decision situation

You are member of a group of three persons composed of students in this lecture hall. Your earnings depend on which of two alternatives (*A* or *B*) the group chooses and on which person (1, 2, or 3) you are, as shown in the following table.

Alternative	<i>A</i>	<i>B</i>
Person 1	13 DM	27 DM
Person 2	13 DM	1 DM
Person 3	13 DM	17 DM

For example, person 3 is paid 17 DM if the group decides for alternative *B*.

### How does the group decide between *A* and *B*?

The group decision is made by majority vote. That is, the alternative that gets two or three votes determines all payoffs within the group.

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#### [straight mode]

*What is my person number?*

You are person 1 in your group.

#### *Your decision*

I vote for

Alternative *A*

Alternative *B*

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#### [level playing field mode]

*What is my person number?*

We will throw a dice to determine your person number. Each member of your group will have the same chance to become person 1, person 2, or person 3.

#### *Your decision*

If I am person 1, I vote for

Alternative *A*

Alternative *B*

If I am person 2, I vote for

Alternative *A*

Alternative *B*

If I am person 3, I vote for

Alternative *A*

Alternative *B*



## Appendix B: Data

<i>Game</i>	<i>mode</i>	<i>subject no</i>	<i>person no</i>	<i>Choice (A=0)</i>
I	straight	1	1	0
I	straight	2	1	0
I	straight	3	1	0
I	straight	4	1	0
I	straight	5	1	0
I	straight	6	1	0
I	straight	7	1	1
I	straight	8	1	1
I	straight	9	1	1
I	straight	10	1	1
I	straight	11	1	1
I	straight	12	1	1
I	straight	13	1	1
I	straight	14	1	1
I	straight	15	1	1
I	straight	16	1	1
I	straight	17	1	1
I	straight	18	1	1
I	straight	19	1	1
I	straight	20	1	1
I	straight	21	1	1
I	straight	22	1	1
I	straight	23	1	1
I	straight	24	1	1
I	straight	25	2	0
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II	straight	73	1	0
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II	straight	93	1	1
II	straight	94	1	1
II	straight	95	1	1

II	straight	96	1	1	III	straight	146	1	1
II	straight	97	2	0	III	straight	147	1	1
II	straight	98	2	0	III	straight	148	1	1
II	straight	99	2	0	III	straight	149	1	1
II	straight	100	2	0	III	straight	150	1	1
II	straight	101	2	0	III	straight	151	1	1
II	straight	102	2	0	III	straight	152	1	1
II	straight	103	2	1	III	straight	153	1	1
II	straight	104	2	0	III	straight	154	1	1
II	straight	105	2	0	III	straight	155	1	1
II	straight	106	2	0	III	straight	156	1	1
II	straight	107	2	0	III	straight	157	1	1
II	straight	108	2	0	III	straight	158	1	1
II	straight	109	2	0	III	straight	159	1	1
II	straight	110	2	0	III	straight	160	1	1
II	straight	111	2	0	III	straight	161	1	1
II	straight	112	2	0	III	straight	162	1	1
II	straight	113	2	0	III	straight	163	1	1
II	straight	114	2	1	III	straight	164	1	0
II	straight	115	2	0	III	straight	165	1	0
II	straight	116	2	0	III	straight	166	1	0
II	straight	117	2	0	III	straight	167	1	0
II	straight	118	2	0	III	straight	168	1	0
II	straight	119	2	0	III	straight	169	2	0
II	straight	120	2	1	III	straight	170	2	1
II	straight	121	3	0	III	straight	171	2	1
II	straight	122	3	1	III	straight	172	2	1
II	straight	123	3	0	III	straight	173	2	0
II	straight	124	3	1	III	straight	174	2	0
II	straight	125	3	0	III	straight	175	2	0
II	straight	126	3	1	III	straight	176	2	0
II	straight	127	3	1	III	straight	177	2	0
II	straight	128	3	1	III	straight	178	2	0
II	straight	129	3	0	III	straight	179	2	0
II	straight	130	3	1	III	straight	180	2	0
II	straight	131	3	0	III	straight	181	2	0
II	straight	132	3	1	III	straight	182	2	0
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II	straight	136	3	0	III	straight	186	2	0
II	straight	137	3	1	III	straight	187	2	0
II	straight	138	3	1	III	straight	188	2	0
II	straight	139	3	0	III	straight	189	2	0
II	straight	140	3	0	III	straight	190	2	0
II	straight	141	3	1	III	straight	191	2	0
II	straight	142	3	1	III	straight	192	2	0
II	straight	143	3	1	III	straight	193	3	1
II	straight	144	3	0	III	straight	194	3	0
III	straight	145	1	1	III	straight	195	3	1

III	straight	196	3	1	II	level	226	3	1
III	straight	197	3	0	II	level	227	1	0
III	straight	198	3	0	II	level	227	2	1
III	straight	199	3	0	II	level	227	3	1
III	straight	200	3	0	II	level	228	1	1
III	straight	201	3	0	II	level	228	2	0
III	straight	202	3	0	II	level	228	3	1
III	straight	203	3	0	II	level	229	1	1
III	straight	204	3	0	II	level	229	2	0
III	straight	205	3	0	II	level	229	3	0
III	straight	206	3	0	II	level	230	1	1
III	straight	207	3	0	II	level	230	2	1
III	straight	208	3	0	II	level	230	3	1
III	straight	209	3	0	II	level	231	1	0
III	straight	210	3	0	II	level	231	2	1
III	straight	211	3	0	II	level	231	3	1
III	straight	212	3	0	II	level	232	1	1
III	straight	213	3	0	II	level	232	2	1
III	straight	214	3	0	II	level	232	3	1
III	straight	215	3	0	II	level	233	1	1
III	straight	216	3	0	II	level	233	2	1
II	level	217	1	1	II	level	233	3	1
II	level	217	2	1	II	level	234	1	1
II	level	217	3	1	II	level	234	2	1
II	level	218	1	1	II	level	234	3	1
II	level	218	2	1	II	level	235	1	1
II	level	218	3	1	II	level	235	2	1
II	level	219	1	1	II	level	235	3	1
II	level	219	2	1	II	level	236	1	1
II	level	219	3	1	II	level	236	2	1
II	level	220	1	1	II	level	236	3	1
II	level	220	2	1	II	level	237	1	1
II	level	220	3	1	II	level	237	2	1
II	level	221	1	1	II	level	237	3	1
II	level	221	2	1	II	level	238	1	1
II	level	221	3	1	II	level	238	2	1
II	level	222	1	1	II	level	238	3	1
II	level	222	2	0	II	level	239	1	1
II	level	222	3	0	II	level	239	2	1
II	level	223	1	1	II	level	239	3	1
II	level	223	2	1	II	level	240	1	1
II	level	223	3	1	II	level	240	2	1
II	level	224	1	1	II	level	240	3	0
II	level	224	2	1	II	level	241	1	1
II	level	224	3	1	II	level	241	2	0
II	level	225	1	0	II	level	241	3	1
II	level	225	2	0	II	level	242	1	1
II	level	225	3	0	II	level	242	2	0
II	level	226	1	1	II	level	242	3	1
II	level	226	2	1	II	level	243	1	1

II	level	243	2	0	II	level	260	1	0
II	level	243	3	0	II	level	260	2	0
II	level	244	1	1	II	level	260	3	1
II	level	244	2	0	II	level	261	1	1
II	level	244	3	0	II	level	261	2	0
II	level	245	1	1	II	level	261	3	1
II	level	245	2	0	II	level	262	1	0
II	level	245	3	1	II	level	262	2	0
II	level	246	1	1	II	level	262	3	1
II	level	246	2	0	II	level	263	1	1
II	level	246	3	0	II	level	263	2	0
II	level	247	1	1	II	level	263	3	1
II	level	247	2	0	II	level	264	1	1
II	level	247	3	1	II	level	264	2	1
II	level	248	1	1	II	level	264	3	1
II	level	248	2	0	II	level	265	1	1
II	level	248	3	0	II	level	265	2	0
II	level	249	1	1	II	level	265	3	0
II	level	249	2	0	II	level	266	1	0
II	level	249	3	1	II	level	266	2	0
II	level	250	1	1	II	level	266	3	0
II	level	250	2	0	II	level	267	1	0
II	level	250	3	1	II	level	267	2	0
II	level	251	1	0	II	level	267	3	0
II	level	251	2	0	II	level	268	1	1
II	level	251	3	1	II	level	268	2	0
II	level	252	1	1	II	level	268	3	0
II	level	252	2	0	II	level	269	1	1
II	level	252	3	0	II	level	269	2	0
II	level	253	1	1	II	level	269	3	1
II	level	253	2	0	II	level	270	1	1
II	level	253	3	1	II	level	270	2	0
II	level	254	1	1	II	level	270	3	0
II	level	254	2	0	II	level	271	1	1
II	level	254	3	1	II	level	271	2	0
II	level	255	1	0	II	level	271	3	0
II	level	255	2	1	II	level	272	1	1
II	level	255	3	0	II	level	272	2	0
II	level	256	1	0	II	level	272	3	0
II	level	256	2	0	II	level	273	1	1
II	level	256	3	1	II	level	273	2	1
II	level	257	1	1	II	level	273	3	1
II	level	257	2	0	II	level	274	1	1
II	level	257	3	1	II	level	274	2	0
II	level	258	1	1	II	level	274	3	0
II	level	258	2	0	II	level	275	1	1
II	level	258	3	1	II	level	275	2	0
II	level	259	1	0	II	level	275	3	0
II	level	259	2	0	II	level	276	1	1
II	level	259	3	1	II	level	276	2	0

II	level	276	3	1
II	level	277	1	1
II	level	277	2	0
II	level	277	3	0
II	level	278	1	1
II	level	278	2	0
II	level	278	3	0
II	level	279	1	1
II	level	279	2	0
II	level	279	3	0
II	level	280	1	0
II	level	280	2	0
II	level	280	3	0
II	level	281	1	1
II	level	281	2	0
II	level	281	3	1
II	level	282	1	1
II	level	282	2	0
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II	level	283	1	1
II	level	283	2	0
II	level	283	3	0
II	level	284	1	1
II	level	284	2	0
II	level	284	3	1
II	level	285	1	1
II	level	285	2	0
II	level	285	3	0
II	level	286	1	1
II	level	286	2	0
II	level	286	3	1
II	level	287	1	0
II	level	287	2	0
II	level	287	3	0
II	level	288	1	1
II	level	288	2	0
II	level	288	3	0