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Thinking in Chinese vs. Thinking in English: Social Preference and Risk Attitudes of Multicultural Minds

Li King King*

July 2010

Abstract

This paper investigates whether language priming activates different cultural identities and norms associated with the language communicated; bilingual subjects are given Chinese instructions in the Chinese treatment and English instructions in the English treatment. The main findings are: (1) in social preference games involving strategic interactions, e.g., the trust game, subjects in the Chinese treatment are more trusting and trustworthy than in the English treatment. However, (2) in individual choice games about social preference, such as the dictator game, while there is no treatment difference, subjects exhibit in-group favoritism only in the Chinese treatment. Further, (3) subjects in the Chinese treatment expect others to be more risk seeking, and prefer to pick Chinese lucky numbers in a lottery game. These findings support the hypothesis that languages are associated with cultural frames and that communicating in a particular language increases the cognitive accessibility of norms associated with that language.

Keywords: Identity; cross-cultural differences; language; bilingual; biculture; social preference; risk attitudes

JEL classification: C91, D03, D81, Z10

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1. Introduction

Recent research in social psychology has shown that languages are associated with cultural frames (Bond, 1983; Luna, Ringberg, & Peracchio, 2008; Ross, Xun, & Wilson, 2002) and that communicating in a particular language may increase the cognitive accessibility of norms associated with that language (Ross, et al., 2002).

The objective of this paper is to systematically investigate whether language priming activates different cultural identities and norms associated with that language with respect to social preference and risk attitudes. We run 10 economics games experiments with subjects who are bilingual in Chinese and English. There are two treatments. In the Chinese treatment, subjects receive instructions in Chinese while in the English treatment, subjects receive instructions in English. Inspired by the research in social psychology, our main hypothesis is that communicating in a particular language activates cultural-specific identity, causing these individuals to behave in alignment with the norms regarding altruism, trust and trustworthiness, and risk taking associated with that language. Our hypothesis is also compatible with the identity-dependent model of Akerlof and Kranton (2000) that individuals will take actions in-line with the norms implied by their identity.

This paper is the first to investigate the effects of language priming on social preference and risk attitudes, using a set of economics games as an investigation tool. The paper closest to ours is Wong and Hong (2005), which is the only existing study that uses economics game (simultaneous prisoners' dilemma game (Sim. PD)). The authors display Chinese cultural icons (e.g., a Chinese dragon) or American cultural icons (e.g., a scene showing an American football game) to the subjects (university students in Hong Kong) before they play the game. [1] They find that subjects who are exposed to Chinese cultural icons are more likely to choose a cooperative strategy in the prisoners' dilemma game when they play with friends (group-mates in a class project); with strangers this never happen.

This study complements Wong and Hong (2005) in several ways. First, subjects are exposed to different languages instead of cultural icons. Our methodology is arguably subjected to less

[1] See Shrum et al. (1998) for an introduction to the methodology of priming and its application in investigating the effects of television consumption on social perceptions.

experimenter effect. Second, in addition to Sim. PD, we also include other games involving strategic interactions, individual choices and risk attitudes. These games allows us to investigate altruism, trust and trustworthiness, and risk-taking preferences which are not covered in Wong and Hong (2005).

Existing studies in marketing and social psychology has found evidences that hat manipulating the languages communicated with bilinguals will lead to different choices. For example on product choices (Briley, Morris, & Simonson, 2005), on attitudes such as family integrity and obedience (Verkuyten & Pouliasi, 2002), and on concepts such as self-sufficiency and other dependence (Luna, et al., 2008). However, all of these studies use questionnaires instead of incentivized experiments. More importantly, the present study uses economics games which cover a range of social preference and risk attitudes which have not been investigated by these studies.

We formulate game specific hypotheses based on well-established existing evidence reported in the literature on the difference and similarities between norms of Chinese and Americans in the corresponding domains. For example, Chinese are more trusting and trustworthy in the trust game (Buchan & Croson, 2004), Chinese exhibit stronger in-group favoritism than Americans (Leung & Bond, 1984), Chinese are more risk taking than Americans in the domain of financial risk (Hsee & Weber, 1999).

The rest of the paper is organized as follows: Section 2 discusses the experimental design, and section 3 reports the experimental results. We conclude in section 4.

2. Experimental Design

There are two treatments, the English treatment and the Chinese treatment. In the English treatment the experiment is conducted in English; in the Chinese treatment it is conducted in Chinese. Subjects participate only in one treatment. In each treatment subjects play 10 games covering different aspects of social preference and risk attitudes (see Table 1 for the list and summary statistics). Subjects were informed that they would participate in 10 different games,

and one of them would be randomly drawn to be implemented. Subjects were also told that their decisions would be anonymous and kept confidential, and that they would be paid privately in cash at the end of the experiment.[2]

The games about social preference can be broadly classified into two categories: those involving primarily individual choice and those involving strategic interactions.[3] For the first category, we used the dictator game (Kahneman, Knetsch, & Thaler, 1986) and donation to charity to measure altruism when it is costly (in a monetary sense) to do so, and the jealousy game (Charness & Grosskopf, 2001) to measure altruism when it is not costly to do so, i.e., quasi-maximin preference (Charness & Rabin, 2002). For the second category, we focused on measuring trust and trustworthiness by using the simultaneous and sequential prisoners' dilemma game (Tucker, 1950), the trust game (Berg, Dickhaut, & McCabe, 1995), the trust game with reward, and the public goods game (Bohm, 1972; Ledyard, 1995; Samuelson, 1954). The coin betting game and Mark Six lottery ticket game were conducted to understand the effect of language priming on risk attitudes.

In the process of running the 10 games, we distributed the instructions of each game (but without reading them) and collected the decision sheets of that game before a new game was started. After the decision sheets were collected, subjects also needed to fill in a non-incentivized questionnaire which served to elicit their belief about the choices of other participants (except in the Mark Six lottery game and the donation game). Except for the language, all subjects made their decisions according to the same sequence. There was no feedback information on the choice of others.

In games where matching of subjects into groups was required, subjects were informed that they would be randomly and anonymously matched and that they would not be matched with the same subject more than once. In these games we used the strategy method by asking players to

[2] When handing in their decision sheets, subjects were told to cover them so that they would not be seen by the experimenter.

[3] To be more precise, by saying individual choice in games involving social preference, we mean that in a matched pair, only one subject makes the choice. It does not mean the decision maker does not have regard for others when making the choice.

specify their decisions under each role; their role would be randomly determined if the game was drawn to be implemented.

Subjects were undergraduate students at a major university in Hong Kong. They were randomly recruited from a poll of subjects using an e-mail recruitment system. The subjects were randomly placed in either treatment. They on average earned HK$91 (approximately US$11.7), including the show-up fee of HK$50. Each session lasted about 50 minutes. A total of 64 subjects (31 for the Chinese treatment and 33 for the English treatment) were recruited.

Demographic Description

As a previous British colony, the population in Hong Kong has substantial exposure to both Chinese and Western culture. [4] Subjects filled in a post-experiment questionnaire, giving demographic information and indicating whether they were bilinguals. We needed to check this because in the recruitment process, we did not mention we were looking for bilingual subjects. It turned out that all participants – except one – were fluent (speaking and writing) in both Chinese and English.[5] They had started learning their language, or languages, from early on: English from the age of 4 and Chinese from the age of 2.3. Participants were on average 20.9 years old, and 81 percent of them were born in Hong Kong.

3. Experimental Results

In this section, we report the findings of the trust game with reward and punishment, dictator game, donation game, and the two games in measuring risk attitudes. For the result of other games, please refer to the supporting information available on-line.

3.1 Trust and Trustworthiness

[4] For bicultural research using university students in Hong Kong as subjects, see Bond and Yang (1982), Bond (1983), Hong et al. (1997), Briley et al. (2000), Hong et al. (2000), Briley and Wyer (2002), Wong and Hong (2005), and Briley et al. (2005).

[5] One subject in the English treatment turned out to be unable to read and write Chinese (as self-reported in the post-experiment questionnaire). This observation is not included in the data analysis as we are only interested in bilinguals. Hence, the total number of subjects (included for data analysis) in the English treatment is 32.

Buchan and Croson (2004) conducted the trust game with Chinese and Americans. In the game two players, the proposer and responder, were each given an endowment. The proposer could send some, or all, or none of the endowment to the responder, and the amount sent would be tripled. The responder then decided how much to send back to the proposer. They found that Chinese had a higher level of trust (sending a higher amount) than Americans and that they were also more trustworthy (returning a higher portion).

Based on the findings of Buchan and Croson (2004), we hypothesize that the degree of trust and trustworthiness is higher in the Chinese treatment than in the English treatment.

Trust Game with Reward and Punishment

This game is a simplified trust game with a reward and punishment option. There are three stages. In stage 1, player A chooses between A1 (i.e., no trust) and A2 (i.e., trust) (see Figure 1 Panel A).[6] If player A chooses A2, the game proceeds to stage 2, where player B can either choose B1 (i.e., trustworthy), or B2 (i.e., betrayal). In stage 3, player A specifies how she would shrink (i.e., punish) or enlarge (i.e., reward) the payoff of player B up to 30 percent, contingent on B's choice. Note that the monetary benefit of betraying exceeds the cost.

One distinct feature of this design is that player B can clearly infer the intention of player A, in the sense that it is impossible for player A to obtain a higher monetary payoff by choosing A2, while he may obtain 0 if player B chooses B2.

Figure 1 presents the percentage of subjects who chose the trust strategy (panel A) and the betray strategy (panel B) in the Chinese treatment vs. the English treatment. It shows that subjects are more trusting and trustworthy in the Chinese treatment than in the English treatment. About 42 percent of subjects in the Chinese treatment chose A2, while only 3.13 percent (1 out of 32 subjects) did so in the English treatment. Seventy-five percent of subjects betrayed trust in the English treatment, which was higher than the 55 percent in the Chinese treatment.

Column 1 of Table 2 presents the marginal effects coefficients from regressing the choice of trust or not on the language treatment dummy controlling for expectations on the percentage of player

[6] Note that choosing A2 is also consistent with the inequality aversion model of Fehr and Schmidt (1999). This is also true for choosing Y in the trust game.

B regarding betrayal, age, gender, and whether she was born in Hong Kong. The coefficient of the Chinese language dummy estimates the impact of Chinese language on the subject's choice to trust or not. The result shows that when the experiment is conducted in Chinese, the probability that player A will choose the trust strategy is significantly higher. The result is significant at the 1 percent level. Interestingly, the expectation on the percentage of other players choosing to trust is higher in the Chinese treatment, as shown in the regression result reported in column 3 of Table 2.

Column 2 of Table 2 presents the regression result for the marginal effects coefficients from regressing the choice of betrayal or not on the language treatment dummy controlling for expectations on the percentage of player B regarding betrayal, age, gender, and whether he was born in Hong Kong. The coefficient of the Chinese language dummy estimates the impact of Chinese language on the subject's choice to betray or not. The coefficient is significantly negative (p-value equals 0.02), implying that subjects are less likely to choose the betray strategy when the experiment is conducted in Chinese. On the other hand, the expectation on the percentage of players choosing to betray is lower in the Chinese treatment. However, the difference is not significant, as shown in the regression reported in Table 2, column 4.

In sum, using language priming, our result is in line with the finding of Buchan and Croson (2004). Our contribution here is to show that individuals may have multiple norms pertaining to trust and trustworthiness and that the language communicated may activate a particular norm.

Most subjects (74.2 percent in the Chinese treatment and 75 percent in the English treatment) chose to shrink player B's payoff when their trust was betrayed. Non-trustworthy player B's payoff was on average shrunk by 30 percent in the Chinese treatment, which was higher than the 27.5 percent in the English treatment, and the difference is significant with $p = 0.08$ (one-tailed). Most subjects (70 percent in the Chinese treatment and 71.8 percent in the English treatment) also chose to reward player B when their trust was not betrayed. Subjects in the Chinese treatment chose to increase player B's payoff by 28.6 percent, which was higher than the 25.96 percent in the English treatment, and the difference is not significant.

Regarding the belief on reward and punishment, subjects in the Chinese treatment on average believed that 84.9 percent of player A had chosen to shrink player B's payoff when his trust was

betrayed, and this percentage was significantly higher than in the English treatment, p = 0.09 (one-tailed).

Further, 96.8 percent of subjects in the Chinese treatment believed that player B would expect player A to shrink his payoff if he betrayed player A's trust, which is higher than 78.1 percent in the English treatment. The difference is significant with a p-value equal to 0.03. This is further confirmed in the regression reported in Table 3, column 4. Finally, there is no treatment difference in terms of degree of punishment expected when B2 is chosen, i.e., about 28 percent for both treatments.

Similar to the results observed above, in the Trust Game and Seq. PD game, subjects are more trusting and trustworthy in the Chinese treatment (see the supporting information available on-line).

3.2 Altruism

Dictator Game

In this game, two players are anonymously and randomly matched. The first player, also called the dictator, decides on the allocation of HK$100 between himself and the second player.

The dictator game has been run in many different countries, and a typical finding is that the amount offered is about 20 to 30 percent of the total pie (see Camerer (2003) for an extensive review). Zhu et al. (2008) conducted a dictator game and an ultimatum game with university students in China (using Chinese instructions). Each player participated in both games, but only the payment in the dictator game was implemented. In the treatment where the ultimatum game was run first and followed by the dictator game, it was found that subjects on average offered about 28 percent of the total pie in the dictator game. The result observed in Zhu et al. (2008) is similar to the findings of the dictator game experiment conducted by Forsythe et al. (1994) with American subjects. Based on these findings, we hypothesize that there is no treatment difference in the dictator game.

It is found that the average amounts sent by dictators in the Chinese and English treatments are HK$23.40 and HK$23.03, respectively. There is no significant treatment difference under the two sample t-test. Table S2 (supporting information available on-line), column 1 reports the

regression result, where the amount sent in the dictator game is the dependent variable, and independent variables include the language treatment dummy, belief on the expected amount sent by other dictators, belief on the amount others expected to receive, and personal characteristics including age, gender, and whether the subject was born in Hong Kong. As hypothesized, the coefficient on the language treatment dummy is not significant. There is also no significant treatment difference in terms of beliefs on the amount sent and the amount others expected to receive (see column 6 in Table S3 in the supporting information available on-line).

Donation Game

This game can be viewed as a dictator game, in which the recipients are out-group members (benefiters of a charity organization, the Hong Kong Red Cross) instead of in-group members from the same university. Each player decides how much of out of HK$80 to donate to the Hong Kong Red Cross. The remainder will be kept by the player.

It is found that the average amount donated is HK$8.61 (10.76 percent) in the Chinese treatment and HK$13.62 (17.03 percent) in the English treatment. There is no significant treatment difference under the two sample t-test.

In-Group Favoritism

Leung and Bond (1984) found that Chinese, living in a collectivist culture, exhibit bigger in-group favoritism (allocating a bigger reward to friends than strangers) than Americans who live in a relatively more individualistic culture. Informed by their work, we hypothesize that players exhibit a greater degree of in-group favoritism in the Chinese treatment than in the English treatment.

To test this hypothesis, we compare the percentage sent in the dictator game and the donation game to see if there is a treatment difference in in-group favoritism. It is found that subjects send a higher percentage to in-group players (those from the same university) only in the Chinese treatment (see Figure 2). The difference is significant at the 1 percent level.

3.3 Risk Attitudes

Mark Six Lottery

Each subject is endowed with HK$50 and can choose to purchase at most 10 Mark Six lottery tickets which cost HK$5 each for a draw scheduled on October 3, 2009. Mark Six is a very popular lottery game in Hong Kong. The first prize for the game usually amounts to multi-millions of Hong Kong dollars. In our experiment, if the subject decides to purchase Mark Six tickets, she needs to select 6 numbers out of 1 to 49 for each ticket. Subjects were informed that the experimenter would purchase the Mark Six tickets for them, according to their selected numbers, from the Hong Kong Jockey Club (the only official seller of the ticket).

It is found that subjects exhibit a strong preference for picking the Chinese lucky numbers (8, 18, 28, 38, and 48) only in the Chinese treatment (see Figure 3).[7] In particular, 16.1 percent of numbers chosen in the Chinese treatment are Chinese lucky numbers. Compare this percentage to the null of 10.2 percent (5 numbers out of 49), which is the implied percentage if the subjects do not exhibit preference for particular numbers. The binomial test shows that it is significantly different from the null at the 1 percent level. On the other hand, the percentage of the same set of numbers chosen in the English treatment is 9.5 percent, which is not significantly different from the null. We also compare the proportion of lucky numbers chosen across treatments, and confirm that the proportion is significantly higher in the Chinese treatment, with a *p*-value equal to 0.02. Interestingly, subjects purchased significant more lottery tickets in the English treatment. The difference is significant at the 5 percent level.

The preference for Chinese lucky numbers is one distinct example of risk preference termed source preference (Tversky & Fox, 1995). A player is said to exhibit source preference if he has preference over identically distributed sources. This is distinct from the expected utility theory (von Neumann & Morgenstern, 1947) where individuals are assumed to be indifferent between identically distributed sources.

Coin Toss Lottery

Only a few cross-cultural studies on risk attitudes have been reported in the literature. The most relevant one to our study is the experiment conducted by Hsee and Weber (1999). In their

[7] Interestingly, Chernoff (1980) finds that in the Massachusetts numbers game in the U.S., where players pick a number from 0000 to 99999, numbers containing the digits 8, 0, and 9 were unpopular.

experiment, subjects were asked to choose between options such as receiving $80 for sure or flip a coin; receiving $100 if H or $0 if T. They found that Chinese subjects were more risk seeking than Americans. In the second study of the same paper, they compared the risk-seeking preferences of Chinese and Americans in three different domains: investment, medical, and academic decisions. They found that Chinese subjects were more risk seeking than Americans only in the investment domain but not in the other domains. They explained their results in terms of 'cushion hypothesis, which suggests that people from a collective society such as China are more likely to receive help when they suffer a loss and thus more risk taking than those from an individualistic society such as the USA.

We hypothesize that subjects are more risk taking when the experiment is conducted in Chinese than in English.

In this game, subjects choose between a sure payoff of HK$30 and a risky bet on a coin toss which earns them HK$80 if tails is tossed and HK$0 if heads is tossed. Choosing the sure payoff option is considered risk averse because the expected value of the bet, which equals HK$80 times the probability of winning (assumed to be 0.5), is higher than HK$30.

It is found that the percentage of subjects choosing the risky bet is similar across treatments, namely 68.75 percent in the English treatment and 70.97 percent in the Chinese treatment. There is no significant difference. However, the players in the Chinese treatment estimated that 43.39 percent of other players would choose the safe option which is lower than the 54.58 percent observed in the English option. The difference is significant at the 5 percent level. The finding is also significant after controlling for personal characteristics (see column 8 in Table S3 of the supporting information). Thus, it appears that subjects believe others are more risk taking when the experiment is conducted in Chinese, which is consistent with the prediction of the cushion hypothesis.

4. Conclusion

We conducted 10 economics games with bilingual university subjects in Hong Kong; half the subjects received instructions in Chinese and the other half in English. It is found that subjects behave in more alignment with Chinese cultural norms in the Chinese treatment and in more

alignment with Western cultural norms in the English treatment. It is found that in strategic interactions, subjects receiving Chinese instructions are more cooperative, trust more, and are more trustworthy than the group that received instructions in English. While there is no treatment difference in dictator and jealousy games, subjects exhibit in-group favoritism in the dictator game only in the Chinese treatment. Finally, in the Chinese treatment, subjects expect others to be more risk taking, and exhibit preference for Chinese lucky numbers. These findings are the first in the literature that identify the effect of language priming using economics games. They support the hypothesis that the language communicated increases the cognitive accessibility of the norms associated with that language.

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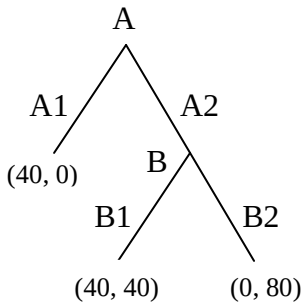
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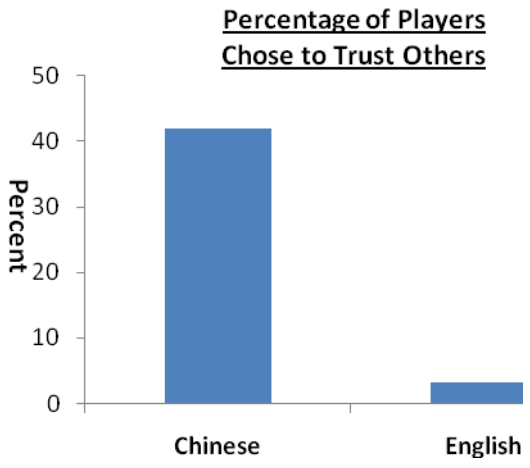
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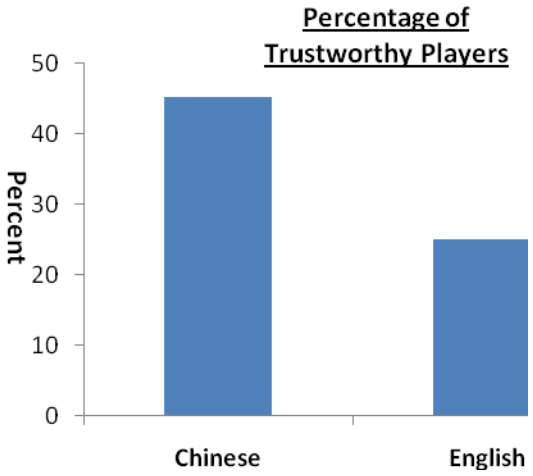
Figure 1
Trust Game with Reward and Punishment



Panel A. Game Tree



Panel B. Mean Percentage of Player A Choosing Strategy A2



Panel C. Mean Percentage of Player B Choosing Strategy B1

Notes: In panel A, A denotes for player A, and B denotes for player B. Payoffs are presented in the form of (*x*,*y*), where *x* denotes the payoff, in Hong Kong dollars, for player A, and *y* denotes the payoff for player B.

Figure 2

Difference in In-group Favoritism

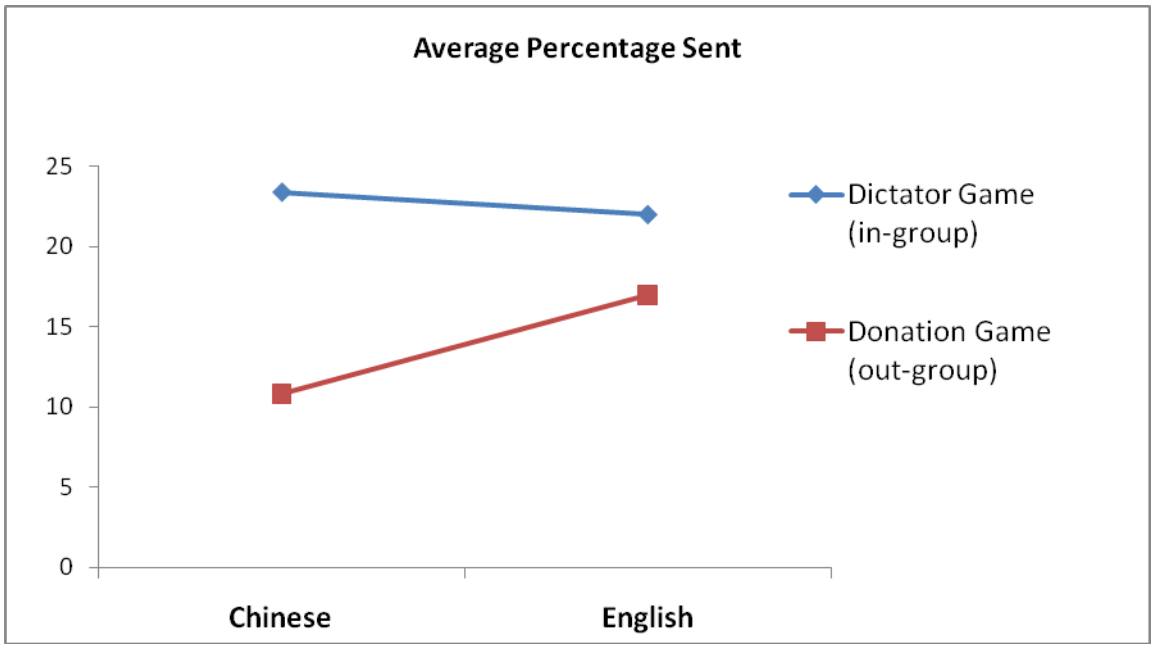
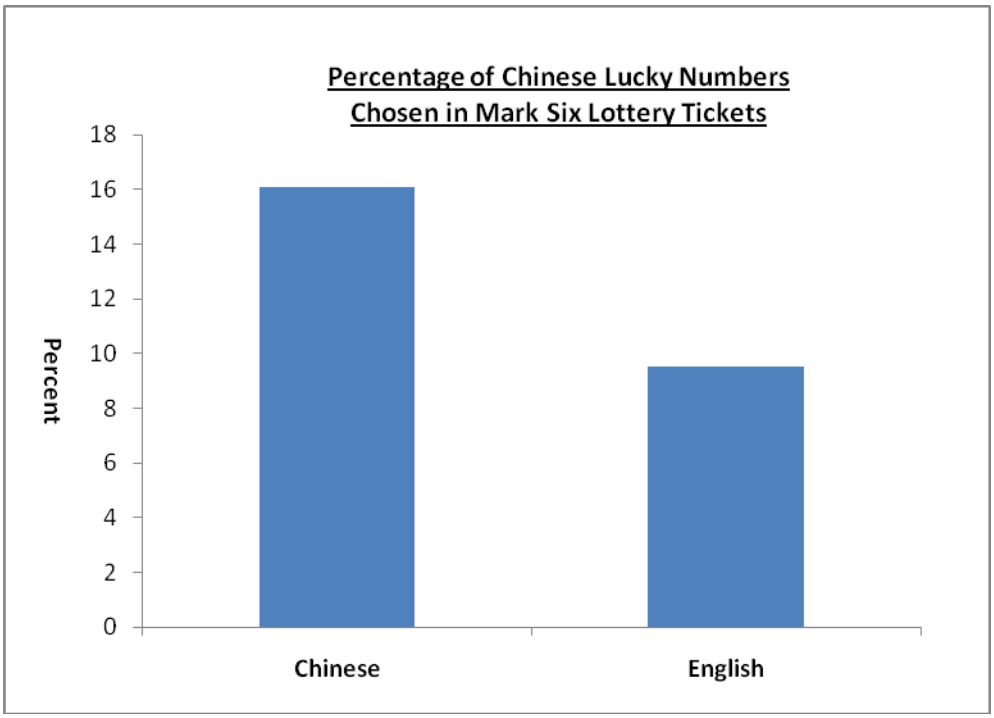


Figure 3
The Influence of Language on Preference for Source of Uncertainty



Notes: Chinese lucky numbers include 8, 18, 28, 38, and 48.

Table 1

Games and Summary Statistics

No.	Games	Decisions	Summary Statistics	
			Chinese *Mean* *(Std)*	English *Mean* *(Std)*
	Social Preference			
	Strategic Interactions			
8	Trust Game with Reward and Punishment	% Trust	41.93	3.13
		% Betray	54.80	75.00
7	Trust Game	% Trust	41.94	34.38
		Amount Sent Back	20.97	15.78
			(21.50)	(3.60)
5	Seq. PD Game	% Trust	41.94	34.38
		% Betray	74.19	87.50
4	Sim. PD Game	% Cooperative	58.06	37.50
6	Public Goods Game	Amount Contributed	8.61	13.62
			(13.00)	(20.47)
	Individual Choice			
1	Dictator Game	Amount Gave	23.40	22.03
			(21.70)	(24.72)
10	Donation Game	Amount Donated	8.61	13.62
			(13.00)	(20.47)
2	Jealousy Game	Amount Chosen	79.03	80.00
			(30.91)	(30.37)
	Risk Attitudes			
3	Coin Toss Lottery	% Chose the Bet	70.97	68.75
9	Mark Six Lottery	% of Chinese Lucky Numbers Chosen	16.11	9.54
		No. of Tickets Purchased	0.97	2.50
			(1.43)	(2.98)

Notes: No refers to the sequence of the game played.

Table 2
Determinants of Decision in Trust Game with Reward and Punishment

	Dependent Variables:				
	Probability of Trust	**Probability of Betray**	**Belief on % Not Trust**	**Belief on % Betray**	**Belief on Probability of Being Revenged**
	(1)	(2)	(3)	(4)	(5)
Chinese	0.42***	-0.35**	-14.92*	-3.27	0.19**
	(0.11)	(0.14)	(7.83)	(7.69)	(0.08)
Belief on % of other players chose to betray	-0.01***	0.01***			
	(0.002)	(0.003)			
Born-in-HK	-0.01	0.34**	2.31	1.34	
	(0.097)	(0.11)	(10.45)	(10.26)	0.01
Age	0.04	-0.14**	-1.07	-5.83*	(0.03)
	(0.04)	(0.07)	(3.47)	(3.41)	0.04
Female	-0.05	0.03	8.01	3.95	(0.07)
	(0.08)	(0.16)	(-8.44)	(-8.29)	
Constant			95.61	194.19***	
			(-73.25)	(-71.94)	
R^2 / Pseudo R^2	0.48	0.34	0.08	0.06	0.12
# of Obs.	63	63	63	63	63

Notes: Column 1, 2, and 5 report the marginal effect of the Probit regression, while column 3 and 4 reports the regression based on Ordinary Least Square. Chinese is a dummy which equals to 1 if the experiment is conducted in Chinese, and zero if in English. Risk Taking is a dummy which equals to 1 if the subjects chose to take the lottery in the coin toss lottery, zero otherwise. Born-in-HK is a dummy which equals to 1 if the subject is born in Hong Kong, zero otherwise. Female is a dummy which equals to 1 if the subject is female, zero otherwise. Standard errors are in parentheses. *.**, and *** represents significance at 10, 5, and 1 percent level (two-tailed).

Supplementary Materials (for online publication)

Some Further Details on the Experimental Design

In the beginning of the experiment, all subjects randomly drew a subject number which was only known to themselves and served identification. They were handed a guideline on rules of the experiment such as anonymity of decisions and payment procedure. The guideline was read aloud in Cantonese (in the Chinese treatment) and in English (in the English treatment).[8] The instructions can be found in the supplementary materials. Both instructions were prepared by the author who is bilingual in Chinese and English. Both versions have also been checked by a bilingual experimental economics researcher to ensure the accuracy of the translation.

One may be concerned that subjects in our experiment participated in all 10 games rather than only one. It is true that individuals may decide differently when they participate in different games rather than just one. However, it should be noted that there is no feedback between the games, and the only difference between the treatments is language. Further, our main interest relates to the treatment differences. In addition, to ensure the robustness of the language priming hypothesis, we believe it is important that the behavioral patterns be consistent with our game specific hypothesis across the majority of games. Hence, running a set of games implies we conducted a stronger test.

[8] Cantonese is a variety of the Chinese language spoken by the majority of the population in Hong Kong, Macau, and Guangdong province in Southern China.

Experimental Results

Trust Game

The rule of the trust game is that player A can either choose between receiving HK$20 for himself and HK$5 for player B, or let player B determine the allocation of HK$100 between the two players. If player A chooses to let player B decide, it implies he has trust in player B. The amount sent back by player B is a measure of his trustworthiness.

Column 1 of Table S1 presents the marginal effect coefficients from regressing the choice of trust or not on the language treatment dummy controlling for expectations of the amount sent by player B, risk attitude, age, gender, and whether she was born in Hong Kong. The coefficient of the Chinese language dummy is significantly positive at the 5 percent level, which implies that subjects are more likely to choose the trusting option in the Chinese treatment.

Column 2 of Table S1 presents the regression result obtained from regressing the amount sent by player B on the language treatment dummy controlling for expectations of the amount sent by other players B and other personal characteristics. The coefficient of the Chinese language dummy is significantly positive at the 5 percent level. This supports the hypothesis that subjects are more trustworthy in the Chinese treatment. Regarding the belief of players, it is found that players in the Chinese treatment expect a higher percentage of others to choose the trusting strategy. The result is significant at the 5 percent level.

Seq. PD

In the Seq. PD, player A first chose between strategies 1 and 2, and conditional on the choice of player A, player B chose between strategies 1 and 2. The payoff matrix is as shown in Panel A, Figure S1. Choosing strategy 1, player A reflects an intention of trust. Player B is not trustworthy if he chooses strategy 2 conditional on player A having chosen strategy 1. One distinct feature of this game is to allow us to investigate the kind-to-unkind reciprocity attitude (player B chooses strategy 2 conditional on player A having chosen strategy 1).

Column 4 of Table S1 presents the regression result obtained from regressing the choice of betrayal or not on the language treatment dummy controlling for expectations of the percentage of others having chosen to betray and other personal characteristics. Consistent with the findings in the trust game and the trust game with R&D, players are found to be less likely to betray in the Chinese treatment.

On the other hand, in both treatments, most players B (87. 5 percent in the English treatment and 90 percent in the Chinese treatment) chose strategy 1 given player A chose strategy 1. This implies that there are no treatment differences in the kind-to-unkind reciprocity attitude.

Sim. PD

This game is similar to the Seq. PD except that players now move simultaneously. The payoff matrix is presented in Panel A, Figure S1. Strategy 1 is generally interpreted as a cooperative strategy, while strategy 2 is interpreted as a defect strategy.

It is found that the percentage of players choosing the cooperative strategy is 58.06 in the Chinese treatment and 37.5 in the English treatment. As expected, the difference in proportion is significant with a p-value equal to 0.05 (one-tailed). In addition, we find that players in the Chinese treatment also expect others to be less likely to choose the defeat strategy, as shown in Table S3, column 5. The result is significant at the 1 percent level.

In their experiment, Wong and Hong found that subjects were more cooperative in the Chinese culture icon priming treatment only when they played with their friends (group mates in a class project) but not with strangers, whom they described as “people they had not met before the experiment.” Since the players in our experiment are randomly recruited and their decisions are anonymous, it seems that they are like strangers, as Wong and Hong defined it themselves. Hence, our result suggests that language priming can induce different cooperative attitudes even in interactions with strangers.

Public Goods Game

In this game, four players are randomly matched to form a group. Each group member is given an endowment of HK$50 and then decides how much to contribute. The total contributions will

be multiplied by 2 and distributed equally to each group member. Contributing zero is the dominant strategy if one wishes to maximize personal monetary payoff.

Players on average contributed a positive amount of money (24 percent), which is similar to the results observed in the public goods game conducted in other countries (e.g., Isaac & Walker, 1988). There are no treatment differences in terms of contribution levels and the beliefs on the amount others contributed.

Jealousy Game

In this game, the first player decides how much the second player will receive out of HK$100 while he himself will receive HK$40 for sure.

Our game is similar to the experiment of Charness and Grosskopf (2001). In their experiment, each player participates in three games and in the last game. Each player chooses how much the other player should receive, i.e., in the range of 300 to 1,200 Spanish Pesetas (the currency of Spain between 1869 and 2002) while his own payoff is held constant at 600 Pesetas. They found that 74 percent of subjects opted for 1,200 Pesetas; the average percentage chosen was 87.62. In another experiment with American university students by Charness and Rabin (2002), subjects had to make a binary choice between US$4 or US$7.5 for the other player while their own payoff was kept constant at US$4. They found that 69 percent of subjects chose the US$7.5 option. In another treatment, subjects had to choose between US$8 for the other player and US$2 for themselves, or both received 0. It was found that no subject chose the 0 option.

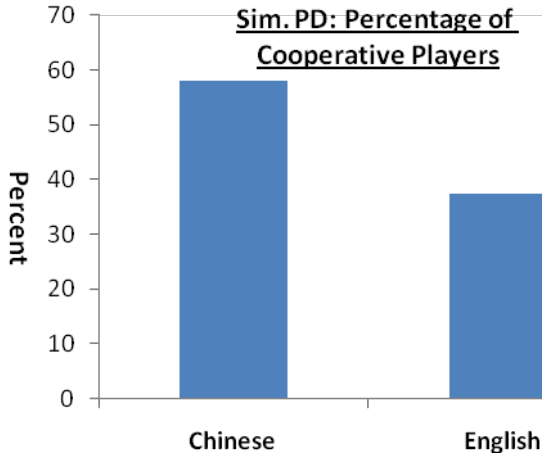
It is found that the average amounts chosen in the Chinese and English treatments are HK$79.03 and HK$80.00, respectively. There is no significant treatment difference under the two sample t-test. Only four subjects in each treatment chose to let the other receive less than HK$40. We also regress the amount chosen on the language treatment dummy, belief on expected amount chosen by others, the belief on the amount others expected to receive, and personal characteristics including age, gender, and whether the subject was born in Hong Kong (see column 2 in Table S2). The coefficient on the language treatment dummy is not significant. There is also no significant treatment difference in terms of beliefs on the amount chosen and the amount others expected to receive (see column 7 in Table S3).

Figure S1

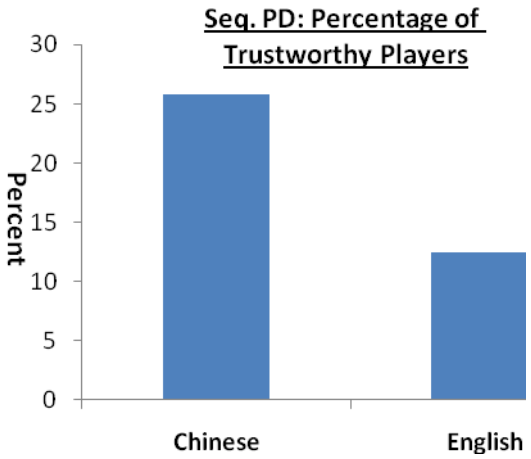
Simultaneous and Sequential Prisoners' Dilemma Game

	B Chooses 1	B Chooses 2
A Chooses 1	A gets HK$40 B gets HK$40	A gets HK$0 B gets HK$70
A Chooses 2	A gets HK$70 B gets HK$0	A gets HK$10 B gets HK$10

Panel A. Payoff Matrix of Simultaneous and Sequential Prisoners' Dilemma Game



Panel B. Mean percentage of Players Choosing Strategy 1 in Simultaneous Prisoners' Dilemma Game.



Panel C. Mean percentage of Player B Choosing Strategy 1 in Sequential Prisoners' Dilemma Game Conditional on Player A has Chosen Strategy 1.

Table S1
Determinants of Decisions in Trust Game, Seq. PD, and Sim. PD

	Dependent Variables:					
	Trust Game		**Seq. PD**		**Sim. PD**	
	Probability of Trust	**Amount Sent**	**Probability of Not Trust**	**Probability of Betray**	**Probability of Defect**	
	(1)	(2)	(3)	(4)	(5)	(6)
Chinese	0.29**	8.72**	-0.12	-0.19*	-0.21*	-0.01
	(0.14)	(3.86)	(0.14)	(0.10)	(0.13)	(0.16)
Belief on % of other players chose to betray			0.01***	0.01***		
			(0.004)	(0.005)		
Belief on amount sent by other players	0.01**	0.73***				
	(0.003)	(0.10)				
Belief on % of other players chose to defect						0.01***
						(0.003)
Risk Taking	0.22					
	(0.15)					
Born-in-HK	-0.02	3.28	0.12	0.08	0.02	-0.18
	(0.20)	(5.14)	(0.17)	(0.06)	(0.16)	(0.20)
Age	0.10	1.18	-0.08	0.09		-0.03
	(0.07)	(1.70)	(0.06)	(0.04)		(0.07)
Female	-0.11	-4.17	0.15	0.09	-0.09	-0.15
	(0.15)	(4.13)	(0.14)	(0.07)	(0.14)	(0.14)
Constant		-26.18				
		(35.79)				
R^2 / Pseudo R^2	0.19	0.54	0.20	0.55	0.39	0.2
# of Obs.	63	63	63	63	63	63

Notes: Column 1 and 3-6 report the marginal effect of the Probit regression, while column 2 reports the regression based on Ordinary Least Square. Chinese is a dummy which equals to 1 if the experiment is conducted in Chinese, and zero if in English. Risk Taking is a dummy which equals to 1 if the subjects chose to take the lottery in the coin toss lottery, zero otherwise. Born-in-HK is a dummy which equals to 1 if the subject is born in Hong Kong, zero otherwise. Female is a dummy which equals to 1 if the subject is female, zero otherwise. Standard errors are in parentheses. *.**, and *** represents significance at 10, 5, and 1 percent level (two-tailed).

Table S2

Determinants of Decisions in Dictator and Jealousy Game

	Dependent Variables:	
	Dictator Game	**Jealousy Game**
	Amount Gave	**Amount Chosen**
	(1)	(2)
Chinese	-4.08	0.64
	(5.03)	(5.71)
Belief on amount others gave	0.32***	
	(0.10)	
Belief on amount others expect to receive	0.32***	0.16
	(0.10)	(0.12)
Belief on amount others Chose		0.70***
		(0.14)
Born-in-HK	7.88	7.88
	(6.74)	(6.74)
Age	-0.02	-0.02
	(2.24)	(2.24)
Female	-1.21	-1.21
	(5.37)	(5.37)
Constant	4.58	4.58
	(47.68)	(47.68)
R^2	0.38	0.53
# of Obs.	63	63

Notes: Chinese is a dummy which equals to 1 if the experiment is conducted in Chinese, and zero if in English. Born-in-HK is a dummy which equals to 1 if the subject is born in Hong Kong, 0 otherwise. Female is a dummy which equals to 1 if the subject is female, zero otherwise. Standard errors are in parentheses. *.**, and *** represents significance at 10, 5, and 1 percent level (two-tailed).

Table S3

Determinants of Beliefs on Social Preference and Risk Attitudes

	Dependent Variables: Belief on Decisions of Others							
	Trust Game		**Seq. PD**		**Sim. PD**	**Dictator Game**	**Jealousy Game**	**Coin Toss Lottery**
	% Not Trust	**Amount Sent**	**% Not Trust**	**% Betray**	**% Defect**	**Amount Gave**	**Amount Chosen**	**% Safe Option**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Chinese	-18.5**	-5.65	-9.1	-1.61	-18.2***	2.27	-2.15	-10.99*
	(9.06)	(5.23)	(7.93)	(5.54)	(7.67)	(6.96)	(6.94)	(5.8)
Born-in-HK	2.58	6.77	10.49	-4.03	11.37	10.87	0.91	-5.25
	(12.10)	(6.99)	(10.59)	(7.39)	(10.23)	(9.29)	(9.27)	(7.58)
Age	-1.52	1.59	-1.56	-0.84	4.06	1.75	2.95	-0.37
	(4.02)	(2.32)	(3.52)	(2.45)	(3.40)	(-3.08)	(-3.08)	(-2.56)
Female	9.48	2.9	7.41	0.83	3.81	0.12	-2	-7.8
	(-9.77)	(-5.65)	(-8.56)	(-5.97)	(-8.27)	(-7.50)	(-7.49)	(-6.20)
Constant	80.33	-10.54	100.32	105.63***	-25.25	-11.10	1.38	65.71
	(-84.81)	(-49.00)	(-74.25)	(-51.82)	(-71.76)	(-65.12)	(-64.70)	(-54.26)
R^2	0.09	0.05	0.05	0.01	0.14	0.04	0.02	0.10
Pseudo R^2								
# of Obs.	63	63	63	63	63	63	63	63

Notes: Chinese is a dummy which equals to 1 if the experiment is conducted in Chinese, and zero if in English. Born-in-HK is a dummy which equals to 1 if the subject is born in Hong Kong, 0 otherwise. Female is a dummy which equals to 1 if the subject is female, zero otherwise. Column 3 reports the marginal effect of the probit regression, all other columns report the result of regressions using Ordinary Least Square. Standard errors are in parentheses. *.**, and *** represents significance at 10, 5, and 1 percent level (two-tailed).

Experimental Instructions of the English Treatment

Instructions

Welcome to our experimental study on decision-making. You will receive a show-up fee of HK$50. In addition, you will have chance to get more money as a result of decisions made in the experiment.

Your identity
You will be given a subject ID number. Please keep it confidentially. In each game, you will write down your subject ID instead of your name. Your decisions will be anonymous and kept confidential. Thus, other participants won't be able to link your decisions with your identity. You will be paid in private, using your subject ID, and in cash at the end of the experiment in another room where no other participants will be present.

The games
You will make decisions in 10 different games. In the end of the experiment, we will randomly draw one game to implement and pay you according to the result of the game.

In some games, you will be anonymously and randomly paired with one (or more) other participant. For games involving pairing, each time (new game) you will be paired with a new person(s). More specifically, you won't be paired with the same person for more than once.

If the game involves more than one person in each group (e.g., player A, player B), we will ask you to specify your decision(s) under each role. If the game is drawn to implement, the computer will randomly determine your role, and your decisions will be implemented accordingly.

In some games, we will need your help to fill-in a short questionnaire after your decisions in the game have been made. Please answer them carefully. Your answers will not influence your final payoff.

When you have any questions, please feel free to ask by raising your hand, one of our assistant will come to answer your questions. Please DO NOT attempt to communicate with any other participants.

Subject ID:

Game 1

You will be randomly and anonymously paired with another participant to play the following game. In this game, there are two players, player A and player B. The computer will randomly determine whether you are player A or player B.

The experimenter has provided HK$100 for allocation between player A and B. Player A has been randomly selected to determine the allocation. Player A can choose any amount from zero to HK$100 for player B.

We now ask for your decision
If I am player A, I will allocate HK$_____ to player B, and HK$_____to myself.

Subject ID:

Questionnaire

Now we have two questions for you. Please answer them carefully. Your answer will **not** influence your final payoff.

1. In your estimation, what is the average amount (out of HK$100) chosen for player B by other participants (player A)?
HK$_____

2. How much (out of HK$100) do you think other participants (player B) expect to receive from this game?
HK$_____

Subject ID:

Game 2

You will be randomly and anonymously paired with another participant to play the following game. In this game, there are two players, player A and player B. The computer will randomly determine whether you are player A or player B.

In this game, Player B chooses how much player A will get from HK$20 to HK$100. Player B receives HK$40 no matter what is his/her decision.

We now ask for your decision.
If I am player B, I will choose to let player A to receive HK$_____.

Subject ID:

Questionnaire

Now we have two questions for you. Please answer them carefully. Your answers will **not** influence your final payoff.

1. In your estimation, what is the average amount (from HK$20 to HK$100) chosen for player A by other participants (player B)?
HK$_____

2. How much (from HK$20 to HK$100) do you think other participants (player A) expect to receive from this game?
HK$_____

Subject ID:

Game 3

In this game, you are asked to choose between:

A. Receiving HK$30 for sure.
B. The experimenter will flip a coin in front of you. If it is tail, you receive HK$80. If it is head, you receive HK$0.

We now ask for your decision

I choose (please circle) A B.

Subject ID:

Questionnaire

Now we have a question for you. Please answer it carefully. Your answer will **not** influence your final payoff.

1. In your estimation, how many percent of other participants have chosen option A (i.e., Receiving HK$30 for sure)?
_____%

Subject ID:

Game 4

You will be randomly and anonymously paired with another participant to play the following game. In this game, there are two players, player A and player B. The computer will randomly determine whether you are player A or player B.

In this game, Player A and B makes decision **simultaneously**, choosing between 1 and 2. The payoff is determined by the following table.

	B Chooses 1	B Chooses 2
A Chooses 1	A gets HK$40 B gets HK$40	A gets HK$0 B gets HK$70
A Chooses 2	A gets HK$70 B gets HK$0	A gets HK$10 B gets HK$10

If A chooses 1 and B chooses 1, then both players will get HK$40.
If A chooses 1 and B chooses 2, then A will get HK$0 and B will get HK$70.
If A chooses 2 and B chooses 1, then A will get HK$70 and B will get HK$0.
If A chooses 2 and B chooses 2, then both players will get HK$10.

We now ask for your decision
I will choose (please circle) 1 2.

Subject ID:

Questionnaire

Now we have a question for you. Please answer it carefully. Your answer will **not** influence your final payoff.

1. In your estimation, how many percent of other participants have chosen 2?
_____%

	B Chooses 1	B Chooses 2
A Chooses 1	A gets HK$40 B gets HK$40	A gets HK$0 B gets HK$70
A Chooses 2	A gets HK$70 B gets HK$0	A gets HK$10 B gets HK$10

Subject ID:

Game 5

You will be randomly and anonymously paired with another participant to play the following game. In this game, there are two players, player A and player B. The computer will randomly determine whether you are player A or player B.

The game has two stages. Player A and B make decision **sequentially**, choosing between 1 and 2. The payoff is determined by the following table.

Stage 1
In stages 1, player A chooses between 1 or 2.

Stage 2
In stage 2, player B specifies his choices in the following contingencies.

If player A chooses 1, I will choose (please circle) 1 2.
If player A chooses 2, I will choose (please circle) 1 2.

	B Chooses 1	B Chooses 2
A Chooses 1	A gets HK$40 B gets HK$40	A gets HK$0 B gets HK$70
A Chooses 2	A gets HK$70 B gets HK$0	A gets HK$10 B gets HK$10

If A chooses 1 and B chooses 1, then both players will get HK$40.
If A chooses 1 and B chooses 2, then A will get HK$0 and B will get HK$70.
If A chooses 2 and B chooses 1, then A will get HK$70 and B will get HK$0.
If A chooses 2 and B chooses 2, then both players will get HK$10.

We now ask for your decision.
If you are player A
If I am player A, I will choose (please circle) 1 2.

If you are player B
If player A chooses 1, I will choose (please circle) 1 2.
If player A chooses 2, I will choose (please circle) 1 2.

Subject ID:

Questionnaire

Now we have two more questions for you. Please answer them carefully. Your answers will **not** influence your final payoff.

1. In your estimation, how many percent of other participants (player A) have chosen 2?
_____%

2. In your estimation, how many percent of other participants (player B) have chosen "If player A chooses 1, I will choose 2"?
_____%

	B Chooses 1	B Chooses 2
A Chooses 1	A gets HK$40 B gets HK$40	A gets HK$0 B gets HK$70
A Chooses 2	A gets HK$70 B gets HK$0	A gets HK$10 B gets HK$10

Subject ID:

Game 6

In this game, you will be randomly matched with three other players to form a group of four. Each of you will be given an endowment of HK$50. Each group member can contribute any amount of the endowment. Then the total contributions of the group members will be multiplied by 2 and distribute equally to each group member.

Your payoff will be determined by the following formula:

HK$50 – your contribution + 2x(sum of contributions from all group members)/4

We now ask for your decision

I choose to contribute HK$_____.

Subject ID:

Questionnaire

Now we have one more question for you. Please answer it carefully. Your answers will **not** influence your final payoff.

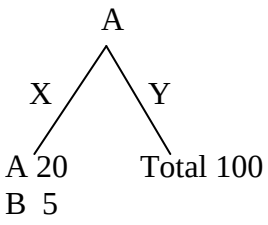
1. How much do you think, on average, other participants have chosen to contribute to the group?
HK$_____

Subject ID:

Game 7

You will be randomly and anonymously paired with another participant to play the following game. In this game, there are two players, player A and player B. The computer will randomly determine whether you are player A or player B.

The game has two stages.



Stage 1

Player A chooses between X and Y. If he chooses X, player A will receive HK$20, player B will receive HK$5, and then the game ends. If player A chooses Y, the game proceeds to stage 2.

Stage 2

There is a sum of HK$100 available for allocation between player A and B. Player B will determine how much to allocate to himself/herself and how much to player A.

We now ask for your decision

If you are player A

If I am player A, I will choose (please circle) X Y.

If you are player B and when Y was chosen player A

If I am player B, I will allocate HK$_____ to player A, and HK$_____to myself.

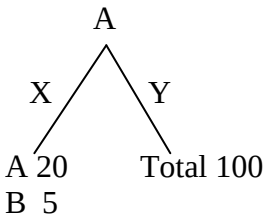
Subject ID:

Questionnaire

Now we have two more questions for you. Please answer them carefully. Your answers will **not** influence your final payoff.

1. In your estimation, how many percent of other participants (player A) have chosen X?
_____%

2. How much do you think, on average, other participants (player B) have chosen to allocate to player A when Y was chosen?
HK$_____

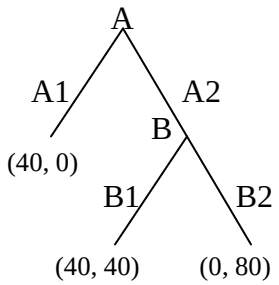


Subject ID:

Game 8

You will be randomly and anonymously paired with another participant to play the following game. In this game, there are two players, player A and player B. The computer will randomly determine whether you are player A or player B.

The game has three stages.



Note: (payoff of A, payoff of B)

Stage 1

Player A chooses between A1 and A2. If player A chooses A1, player B will receive 0, player A will receive HK$40, and the game ends. If Player A chooses A2, the game proceeds to stage 2.

Stage 2

Player B chooses between B1 and B2. If player B chooses B1, both players will receive HK$40. If Player B chooses B2, player B will receive HK$80 and player A will receive 0.

Stage 3

Player A has the option to **shrink or enlarge** player B's payoff up to 30%.

We now ask for your decision.

If you are player A

If I am player A, I will choose (please circle) A1 A2.

If you are player B

If I am player B, I will choose (please circle) B1 B2.

If you are player A and Player B chooses B1

I will shrink enlarge (please circle) player B's payoff by _____%.

If you are player A and Player B chooses B2

I will shrink enlarge (please circle) player B's payoff by _____%.

Subject ID:

Questionnaire

Now we have some questions for you. Please answer them carefully. Your answers will **not** influence your final payoff.

1. In your estimation, how many percent of other participants (player A) have chosen A1?
_____%

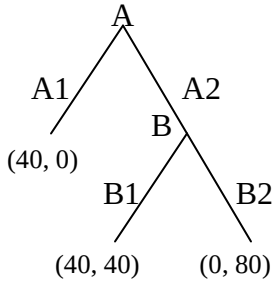
2. In your estimation, how many percent of other participants (player B) have chosen B2 given player A chose A2?
_____%

3. In your estimation, how many percent of other participants (player A) have chosen to shrink player B's payoff when B2 was chosen?
_____%

4. Do you think player B will expect player A to shrink his/her payoff when B2 was chosen?

Yes No (please circle)

If yes, by how many percent?
_____%



Subject ID:

Game 9

Do you want to try your luck?

You are now endowed with HK$50 and can spend any part of it to purchase at most 10 mark six tickets, each ticket costs HK$5, for the draw scheduled on 3-Oct-2009. If you decide to purchase, you will be asked to select 6 numbers out of 1 to 49 for each ticket. We will then purchase the tickets for you, according to the numbers selected, and of course, we will inform you if you win!

We now ask for your decision.

How many tickets do you want to purchase?
I decide to purchase 0 1 2 3 4 5 6 7 8 9 10 tickets (please circle).

Ticket 1

Choose 6 different numbers from 1 to 49.

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

Ticket 2

Choose 6 different numbers from 1 to 49.

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

Ticket 3

Choose 6 different numbers from 1 to 49.

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

Ticket 4

Choose 6 different numbers from 1 to 49.

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

Ticket 5

Choose 6 different numbers from 1 to 49.

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

Ticket 6

Choose 6 different numbers from 1 to 49.

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

Ticket 7

Choose 6 different numbers from 1 to 49.

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

Ticket 8

Choose 6 different numbers from 1 to 49.

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

Ticket 9

Choose 6 different numbers from 1 to 49.

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

Ticket 10

Choose 6 different numbers from 1 to 49.

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

Subject ID:

Game 10

You are endowed with HK$80. You can choose to donate any amount from HK$0 to HK$80 to the Hong Kong Red Cross. You will keep the remaining amount. If you choose to donate any amount, we will help you to donate the money to the Hong Kong Red Cross anonymously.

We now ask you to indicate your decision
I decide to donate HK$_____to the Hong Kong Red Cross.

Subject ID:

Questionnaire

Now we have more questions for you. Please answer them carefully. Your answers will **not** influence your final payoff.

Q1. Are you born in Hong Kong?
Yes No

Q2. How old are you?
_____years old

Q3. Can you read and write both English and Chinese?
Yes No (I can't read and write Chinese / English (please circle))

Q4. When did you start learning English?
Since_____years old

Q5. When did you start learning Chinese?
Since_____years old

Q6. How long have you been living in Hong Kong?

A. Since I was born.
B. More than 10 years.
C. More than 7 years.
D. More than 1 year.

Q7. Do you speak Cantonese?
Yes No

Q8. Do you speak Putonghua?
Yes No

Q9. Where did you receive your secondary school education?
A. Hong Kong
B. Mainland China
C. U.S or Canada
D. U.K
E. Others

Q10. What is your gender?
Male Female

Experimental instructions of the Chinese Treatment

規則

歡迎參加本次關於決策的實驗。你會得到港幣 50 元參加費, 另外根據實驗中的決策,你還有機會得到更多的金額。

你的身份

我們會提供一個參加者編號給你, 請保密你的編號。在每個遊戲中, 你需要寫上你的編號而不是你的名字。你的決策會是匿名和保密的, 因此，其他與參加者將無法知道誰(你的名字)做了甚麼決定。在實驗結束後, 我們將在另外一個房間用現金支付你在實驗中獲得的金額, 每次只會有一位參加者進入該房間, 因此, 整個支付過程是保密的。

遊戲

你需要參加十個遊戲。在實驗結束後, 我們會隨機抽取其中一個遊戲, 然後按照該遊戲的結果支付金額給你。

在一些遊戲中我們會將你和另外一個（或多個）其他參與者隨機(和匿名的)配對成一組, 在每個需要進行配對的遊戲, 我們都會重新進行配對, 所以你不會超過一次和同一個人配對成一組。

如果該遊戲需要進行配對, 每組有兩位或以上參與者(例如, 甲、乙), 我們將要求您根據每個角色指定您的決定, 換而言之, 您需要指定如果你是甲, 你會做甚麼選擇, 同時, 您也需要指定如果你是乙, 你會做甚麼選擇。如果在實驗結束後, 我們抽中該遊戲, 電腦會隨機決定你的角色, 然後執行你在該角色下指定的決策。

在一些遊戲後我們需要你幫忙填寫一份簡短的問卷, 請認真回答, 你的答案並不會影響你在實驗中得到金額。

當你有任何問題的時候, 請舉手我們的助理會到你面前來回答你的問題。請不要嘗試和其他參加者進行任何形式的溝通。

參加者編號:

遊戲一

在這個遊戲中你會與另外一位參加者隨機(和匿名的)配對成一組, 其中一位是甲, 另一位是乙,電腦會隨機決定你是甲或乙。

實驗者提供了港幣 100 元給甲和乙, 甲已被隨機選擇來決定這 100 元如何分配, 甲可以從零到港幣 100 元中選擇任何金額分配給乙。

你的決策

如果我是甲, 我會分配港幣_____元給乙, 和分配港幣_____元給自己 。

參加者編號:

問卷

我們需要你回答兩條問題, 請認真回答, 你的答案並不會影響你在實驗得到金額。

1. 請問你估計其他的參加者(甲)平均從港幣 100 元中分配多少金額給乙?
港幣_____元

2. 請問你估計其他的參加者(乙)會預期從港幣 100 元中拿到多少金額?
港幣_____元

參加者編號:

遊戲二

在這個遊戲中你會與另外一位參加者隨機(和匿名的)配對成一組, 其中一位是甲, 另一位是乙,電腦會隨機決定你是甲或乙。

在這個遊戲中, 乙需要決定甲可以從港幣 20 元到 港幣 100 元 中拿到多少錢, 無論乙的決定是甚麼, 他(她)都會得到港幣 40 元。

你的決策
如果我是乙, 我會選擇讓甲拿到港幣_____元。

參加者編號:

問卷

我們需要你回答兩條問題, 請認真回答, 你的答案並不會影響你在實驗得到金額。

1. 請問你估計其他的參加者(乙)平均選擇讓甲從港幣 20 元 到 港幣 100 元中拿到多少錢?
港幣_____元

2. 請問你估計其他的參加者(甲)會預期從港幣 20 元 到 港幣 100 元中拿到多少錢?
港幣_____元

參加者編號:

遊戲三

在這個遊戲中, 你需要從以下兩項中選一項:

一. 一定得到港幣 30 元
二. 實驗者會在你面前拋一個硬幣, 如果是正面, 你會得到港幣 80 元, 如果是反面, 你會得到港幣 0 元

你的決策
我會選 (請打圈)　一　　二。

參加者編號:

問卷

我們需要你回答一條問題, 請認真回答, 你的答案並不會影響你在實驗得到金額。

1. 請問你估計百分幾的其他參加者選擇了選項一(一定得到港幣 30 元?)
百分之_____

參加者編號:

遊戲四

在這個遊戲中你會與另外一位參加者隨機(和匿名的)配對成一組, 其中一位是甲, 另一位是乙,電腦會隨機決定你是甲或乙。

在這個遊戲中, 甲乙需要同時作出決定, 選 1 或 2, 當他們選擇的時候, 他們並不知道對方的選擇。他們在遊戲中的所得由以下的列表決定。

	乙 選 1	乙選 2
甲選 1	甲得 港幣 40 元 乙得 港幣 40 元	甲得港幣 0 元 乙得港幣 70 元
甲選 2	甲得港幣 70 元 乙得港幣 0 元	甲得港幣 10 元 乙得港幣 10 元

如果甲和乙分別選 1, 雙方會各自得到港幣 40 元。
如果甲選 1, 乙選 2 ,甲會得到港幣 0 元, 乙會得到港幣 70 元。
如果甲選 2, 乙選 1 ,甲會得到港幣 0 元, 乙會得到港幣 70 元。
如果甲和乙分別選 2, 雙方會各自得到港幣 10 元。

你的決策
我會選 (請打圈)　1　　2。

參加者編號:

問卷

我們需要你回答一條問題, 請認真回答, 你的答案並不會影響你在實驗得到金額。

請問你估計有百分之幾的參加者選 2?
_____%

	乙 選 1	乙選 2
甲選 1	甲得 港幣 40 元 乙得 港幣 40 元	甲得港幣 0 元 乙得港幣 70 元
甲選 2	甲得港幣 70 元 乙得港幣 0 元	甲得港幣 10 元 乙得港幣 10 元

參加者編號:

遊戲五

在這個遊戲中你會與另外一位參加者隨機(和匿名的)配對成一組, 其中一位是甲, 另一位是乙,電腦會隨機決定你是甲或乙。

這個遊戲有兩個步驟。甲乙需要先後作出決定, 他們在遊戲中的所得由以下的列表決定。

步驟 1
甲決定選 1 或 2。

步驟 2
乙決定在以下的情況中選 1 或 2。
如果甲選 1, 我會選 (請打圈)　1　　2。
如果甲選 2, 我會選 (請打圈)　1　　2。

	乙 選 1	乙選 2
甲選 1	甲得 港幣 40 元 乙得 港幣 40 元	甲得港幣 0 元 乙得港幣 70 元
甲選 2	甲得港幣 70 元 乙得港幣 0 元	甲得港幣 10 元 乙得港幣 10 元

如果甲和乙分別選 1, 雙方會各自得到港幣 40 元。
如果甲選 1, 乙選 2 ,甲會得到港幣 0 元, 乙會得到港幣 70 元。
如果甲選 2, 乙選 1 ,甲會得到港幣 0 元, 乙會得到港幣 70 元。
如果甲和乙分別選 2, 雙方會各自得到港幣 10 元。

<u>你的決策</u>
如果你是甲
如果我是甲, 我會選 (請打圈)　1　　2。

如果你是乙
如果甲選 1, 我會選 (請打圈)　1　　2。
如果甲選 2, 我會選 (請打圈)　1　　2。

參加者編號:

問卷

我們需要你回答兩條問題, 請認真回答, 你的答案並不會影響你在實驗得到金額。

1. 請問你估計有百分之幾的其他的參加者(甲)選了 2?
百分之_____

2. 請問你估計有百分之幾的其他的參加者(乙)選了“如果甲選 1, 我會選 2”?
百分之_____

	乙 選 1	乙選 2
甲選 1	甲得 港幣 40 元 乙得 港幣 40 元	甲得港幣 0 元 乙得港幣 70 元
甲選 2	甲得港幣 70 元 乙得港幣 0 元	甲得港幣 10 元 乙得港幣 10 元

參加者編號:

遊戲六

在這個遊戲中你會與另外三位參加者隨機(和匿名的)配對成一組。
每位都會收到港幣 50 元, 每位組員可以貢獻其中任何金額出來, 所有組員總共貢獻出來的金額會乘以二然後平均分配給每位組員。

你在本遊戲中得到的金額會由以下的方程來決定:

港幣 50 元- 你貢獻的金額 + 2x(所有組員貢獻出來的金額)/4

你的決策
我選擇貢獻港幣_____元。

參加者編號:

問卷

我們需要你回答一條問題, 請認真回答, 你的答案並不會影響你在實驗得到金額。

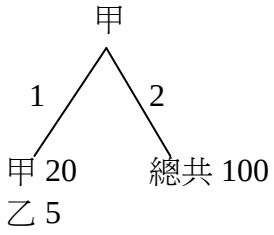
1. 請問你估計其他的參加者平均會選擇選擇貢獻多少錢?
港幣_____元

參加者編號:

遊戲七

在這個遊戲中你會與另外一位參加者隨機(和匿名的)配對成一組, 其中一位是甲, 另一位是乙,電腦會隨機決定你是甲或乙。

這個遊戲有兩個步驟。



步驟 1
甲決定選 1 或 2。如果甲選 1, 甲會得到港幣 20 元, 乙會得到港幣 5 元, 同時這個遊戲會中止。如果甲選 2, 遊戲會進入步驟 2。

步驟 2
總共有港幣 100 元可以分配給甲和乙。乙會決定分配多少給自己和分配多少給甲。

你的決策
如果你是甲
如果我是甲, 我會選 (請打圈)　1　　2。

如果你是乙
如果我是乙, 我會分配港幣_____元給乙, 和分配港幣_____元給自己 。

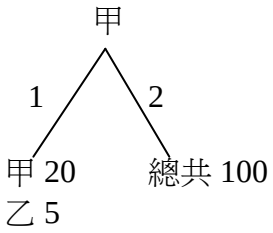
參加者編號:

問卷

我們需要你回答兩條問題, 請認真回答, 你的答案並不會影響你在實驗得到金額。

1. 請問你估計有百分之幾的其他的參加者(甲)選 1?
百分之_____

2. 如果甲選 2, 請問你估計其他的參加者(乙)平均選擇分配多少錢給甲?
港幣_____元

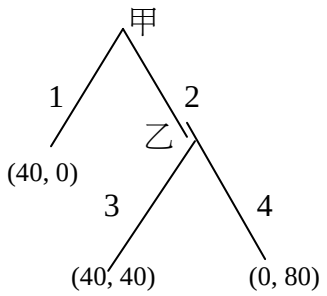


參加者編號:

遊戲八

在這個遊戲中你會與另外一位參加者隨機(和匿名的)配對成一組, 其中一位是甲, 另一位是乙,電腦會隨機決定你是甲或乙。

這個遊戲有三個步驟。



注: (甲得到的金額 , 乙得到的金額)

步驟 1
甲決定選 1 或 2。如果甲選 1, 甲會得到港幣 40 元, 乙則得港幣 0 元, 同時本遊戲會終止。如果甲選 2, 遊戲會進入步驟 2。

步驟 2
乙決定選 3 或 4。如果乙選 3, 甲乙會分別得到港幣 40 元。如果乙選 4, 乙會得到港幣 80 元, 而甲則得港幣 0 元。

步驟 3
甲可以減少或增加乙在本遊戲的所得金額最多達百分之三十。

<u>你的決策</u>
如果你是甲
如果我是甲, 我會選 (請打圈)　1　　2。

如果你是乙
如果我是乙, 我會選 (請打圈)　3　　4。

如果你是甲,同時乙選 3
我會　減少　增加　(請打圈)　　乙的所得金額 百分之_____。

如果你是甲,同時乙選 4
我會　減少　增加　(請打圈)　　乙的所得金額 百分之_____。

參加者編號:

問卷

我們需要你回答幾條問題, 請認真回答, 你的答案並不會影響你在實驗得到金額。

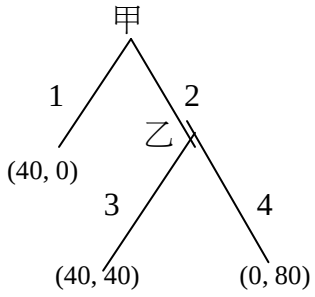
1. 請問你估計有百分之幾的其他的參加者(甲)選 1?
百分之_____

2. 如果甲選 2, 請問你估計有百分之幾的其他的參加者(乙)選 4?
百分之_____

3. 如果乙選 4, 請問你估計有百分之幾的其他的參加者(甲)選擇減少乙的所得金額?
百分之_____

4. 如果乙選 4, 請問你估計乙會預期甲會減少他/她的所得金額嗎?
會　　不會 (請打圈)

如果會, 請問是減少百分之幾?
百分之_____



參加者編號:

遊戲九

想不想試一下你的運氣?

你會收到港幣 50 元, 你可以用其中任何金額來買六合彩彩票(最多十張, 每張港幣 5 元, 在 3/10/2009 攪珠)。如果你決定購買, 在每張彩票中你必須從 1 到 49 中選取 6 個號碼, 我們會按照你選的號碼幫你購買彩票, 當然如果你中獎, 我們會通知你。

你的決策
請問你決定買多少張?
我決定買 0 1 2 3 4 5 6 7 8 9 10 張。

第一張
從 1 到 49 中選 6 個號碼

1	2	3	4	5	6	7
8	9	10	11	12	1□	□4
15	16	17	18	19	2□	□1
22	23	24	2□	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

第二張
從 1 到 49 中選 6 個號碼

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
□3	44	45	46	47	48	49

第三張
從 1 到 49 中選 6 個號碼

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
3□	37	38	39	40	41	42
43	44	45	46	47	48	49

第四張
從 1 到 49 中選 6 個號碼

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	2□
22	23	24	25	26	27	2□
29	30	31	32	3□	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

第五張
從 1 到 49 中選 6 個號碼

1	2	3	4	5	6	7
8	9	10	11	1□	13	14
15	16	17	18	19	20	21

第六張
從 1 到 49 中選 6 個號碼

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21

22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	4□

22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	□0	41	42
43	44	45	46	47	48	49

第七張

從 1 到 49 中選 6 個號碼

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	□3	24	25	26	27	28
29	□0	31	32	33	34	3□
36	37	38	39	40	41	42
43	44	45	46	47	48	49

第八張

從 1 到 49 中選 6 個號碼

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	1□	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49

第九張

從 1 到 49 中選 6 個號碼

1	2	3	4	5	6	□
8	9	10	11	1□	□3	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	□6	47	48	49

第十張

從 1 到 49 中選 6 個號碼

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	3□	32	33	3□	35
36	37	3□	39	40	41	4□
43	44	45	46	47	48	49

參加者編號:

遊戲十

你會收到港幣 80 元, 你可以捐贈其中的任何金額給香港紅十字會, 剩下的金額由你保留。
如果你選擇捐贈任何金額, 我們會幫你用無名氏的名義捐贈給香港紅十字會。

你的決策
我決定捐贈港幣_____元給香港紅十字會。

參加者編號:

問卷

我們需要你回答幾條問題, 請認真回答, 你的答案並不會影響你在實驗得到金額。

1. 請問你是否在香港出生?
是　　否

2. 請問你今年幾歲?
_____歲

3. 請問你可以讀和寫中文和英文嗎?
可以　不可以 (我不可以 讀和寫 中文 / 英文 (請打圈))

4. 請問你幾歲起開始學習英文?
從_____歲起

5. 請問你幾歲起開始學習中文?
從_____歲起

6. 請問你在香港居住了多長時間?

1. 從出生起
2. 超過 10 年
3. 超過 7 年
4. 超過 1 年

7. 請問你會講廣東話嗎?
會　　不會

8.請問你會講普通話嗎?
會　　不會

9. 請問你在那裡讀中學?
1. 香港
2. 中國大陸
3. 美國或加拿大
4. 英國
5. 其他

10. 請問你的性別是?
男　　女