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The Role of Identity and Familiarity in Risky Decisions

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Abstract

This paper begins by observing conflicts in influential decision making theories that seem almost symmetrical and systematic. After first reviewing key decision theory to identify and elaborate their conflicts, I propose an account for risky decisions in which an interaction between the anticipated impact on the decision maker's identity and the decision maker's familiarity with the domain are key determinants of risk behavior. Finally, the design for an experiment to test this identity-familiarity hypothesis is described.

Strangely Symmetrical Conflicts in Decision Theory

Gamblers down on their luck usually do their wildest betting right before going broke. This is just what Kahneman and Tversky's (1977) prospect theory would predict: people become risk-seeking in loss positions. They show that the mere framing of a decision as avoiding further loss versus seeking greater gain impacts propensity to risk. Other accounts make curiously opposite predictions. Staw, Sandelands and Dutton (1981) propose a threat-rigidity effect that predicts a cognitive overload in response to heightened attention to the environment (Dutton, 1986) brought on by crisis. The threat-rigidity effect should losing gamblers to freeze into rigid responses to crisis of mounting losses, yet the gambler changes behavior to exhibit increasing riskiness. Josephs, Larrick, Steele, and Nisbett (1992) suggest that individuals may avoid risky action to guard limited stores of self-esteem. Under this self-protection account of risky decisions, gamblers already down ought to slow down, yet typical losers recklessly plunder dwindling reserves of self-esteem even as they bet away their last dollars. In the case of the losing gambler, these theories are at odds.

Consider the executive team facing declining demand for their firm's products who nonetheless refuse to enter a new market that many outside observers see as the source of their crisis. As investor confidence erodes and stock price drops with it, the condition of loss becomes more and more real. Prospect theory (Kahneman & Tversky, 1977) nicely described the gambler's risky behavior, but the loss position does not appear to lead to the predicted increase in risky behavior for the executive team facing declining demand. On the other hand, threat-rigidity's account of cognitive lock-up in the face of crisis-motivated hyper-attention to the environment (Staw, Sandelands & Dutton, 1981; Dutton, 1986) is consistent with the executive team's apparent intransigent inaction. Likewise, the self-protection account of risk behavior

(Josephs, Larrick, Steele, & Nisbett, 1992) also predicts the conservatism observed in the executive team—even if it is hard to imagine a brash group of executives thumbing their noses at the world as they carefully protect fragile stores of self-esteem.

The conflicts between the theories in these examples seem to have an almost symmetrical and systematic quality — one that suggests a mechanism common to the determinants of risk posed by each theory. After first reviewing the decision theories relevant to this puzzle, this paper outlines the hypothesis that risky decisions are driven by an interaction between anticipated impact on the decision maker's identity and the decision maker's familiarity with the decision domain. To conclude, the paper proposes an experiment designed to test this hypothesis that identity and familiarity play crucial roles in risky decisions.

Review of Existing Decision Theory

Prospect theory (Kahneman & Tversky, 1977), regret theory (Loomes & Sugden, 1982; Bell, 1982), the threat-rigidity effect (Staw, Sandelands, & Dutton, 1981), and a self-protection motivation (Josephs, Larrick, Steele, & Nisbett, 1992) all advance accounts for risky decisions which emphasize different determinants of risk behavior. Each determinant of risk is borne out in studies that are all compelling in their own right, but the conflicting predictions outlined above beg for an account of risky decisions which does not include such conflicts. Before turning to address how to eliminate the conflicts between the theories, however, it is necessary to clarify each determinant's role in individual risk taking.

The Importance of Framing: Prospect Theory

Kahneman and Tversky (1977) showed that the framing of a gamble as either recovery from a loss position (relative to a neutral point) or an extension of a relative gain position results in decisions systematically inconsistent with the invariance assumption of expected utility theory. Individuals in a loss position become more risk-seeking while individuals in a gain position become more risk-averse. In common language, people who are losing will act drastically to get back to even while those ahead would like to keep what they have. An important point to the theory is that framing is understood in reference to a neutral point. Executives who do not have a strong sense of a neutral point when it comes the company's value may not exhibit a strong reaction because they do not perceive the firm (or themselves) to be in a loss position.

Information Processing Limits: The Threat Rigidity Effect

In pursuit of explanations for how organizations adapt in adverse conditions, Staw, Sandelands, and Dutton (1981) presented a multi-level analysis that found evidence that the stress of crisis leads to a maladaptive "threat rigidity effect." This threat rigidity effect is observed on individual group, and environmental levels of analysis. Responses to the stress of threat include a narrowing of the perceptual field and a constriction of control. One problem with the threat-rigidity account is that it presumes the decision-maker is aware of the threat — consciously or otherwise. It is possible that, in some cases, the threatening condition is misperceived as innocuous or irrelevant. What's needed is an account of this misperception.

Reference Effects: Regret Theory

Loomes and Sugden (1982) and Bell (1982) propose an "alternative theory of rational choice under uncertainty" that they call regret theory. They propose that the avoidance of disappointment has a value to decision-makers which influences their valuation of risky decisions. By adding psychological (dis)satisfaction into the equation alongside physical satisfaction (Bell in Bell, Raifa, Tversky, 1988: 381), they expand the scope of what's optimized in a way that preserves the principle of rational choice. Kahneman and Tversky, however, argue that the framing manipulation produced symmetrical loss and gain positions in which decisions violated invariance. When the notion of psychological satisfaction is broadened from regret to regret or elation, regret theory is less vulnerable to this aspect of the critique Kahneman and Tversky's critique. Despite its intuitive appeal, minimization of future regret seems a strange account for either the prodigal gambler or the executive team stuck in intransigent inaction; these examples seem to be ones where decision makers are hoarding futures in regret.

The Role of Ego: Self-protection

Josephs, Larrick, Steele, and Nisbett (1992) offer an appeal to a general desire to protect one's self esteem as the underlying reason for the avoidance of regret as proposed in regret theory (Loomes & Sugden, 1982; Bell, 1982). Individuals invoking the self-protection mechanism may not perceive themselves to be in crisis. Self-protection was tested by comparing the risk-taking behavior of high- vs. low-self esteem individuals. Because they have less "slack" self-esteem, low self-esteem individuals take less risk than individuals with high self-esteem. The converse proved not to be true: "The behavior of our high self-esteem subjects gave us no indication that they were protecting their self-esteem" (Josephs, Larrick, Steele, Nesbitt, 1992:

35). Intransigent inaction is often seen in individuals whose achievements and outward personae would seem highly inconsistent with a low self-esteem profile.

An Integrative Model

As one route to integrate the various theories and resolve their apparent conflicts, Sitkin and Pablo (1992) developed a reconceptualized model of risk that treats risk propensity and risk perception as interdependent determinants of risk behavior. Individual risk preferences, inertia, and outcome history determine risk propensity. Risk perception is determined by framing, homogeneity of decision-making groups, social influence, problem domain familiarity, and control systems. Though they do not test their "reconceptualized model," they do offer predictions in a series of 11 propositions. Their work provides an exceptional comparative analysis of key theories and the determinants of risk advanced by each. By including all of these determinants in their reconceptualized model, however, the result sacrifices parsimony for its comprehensiveness. The model is an impressive accomplishment, but it does not rule out that the conflicts might be explained away by appealing to more basic factors that account for the observation of the various determinants included in the reconceptualized model. The exploration of that possibility is the purpose of this paper.

Re-interpreting Apparent Conflicts Between the Theories

Focusing on the apparently conflicting predictions of the theories reviewed above makes them seem to be at odds with each other, but looking more closely at the cognitive mechanisms posed by each makes them seem quite similar. With self-protection (Josephs, Larrick, Steele, & Nesbitt, 1992) and regret theory (Loomes & Sugden, 1982; Bell, 1982), decision-makers avoid

risk because they want to avoid the potential consequences of unfavorable outcomes (such as depletion of self-esteem or the experience of regret). In prospect theory (Kahneman & Tversky, 1977), decision-makers seek risk (or not) when they want to escape (or protect) realized dissatisfaction (or satisfaction) with current outcomes. The complementarity of behaviors seeking to protect satisfaction on the one hand and eliminate dissatisfaction on the other can be interpreted as evidence for a single underlying cognitive mechanism which explains both. In each case, interpreting the mechanism as a desire to construct or maintain a positive identity is consistent with the risk behavior observed. The apparent conflicts between the theories reviewed here may be taken as evidence that identity construction is a cognitively complex process which somehow seeks to balance the desirability of current outcomes and as yet unrealized outcomes. Could the very different risk behaviors of both the desperate gambler and the paralyzed management team be motivated by the same desire to construct and maintain a positive identity?

Consider the gambler first. All gamblers want to be winners; no gamblers want to be losers. If I am a gambler who is losing badly, "quitting while I'm behind" means facing an ugly truth: I am a loser. Not too surprisingly, I wager irrationally and desperately to avoid conceding a defeat with such damning ramifications. Next consider the management team. All management teams want to be good management teams; none wants to be infamous for ruining their company. If I am an executive facing declining demand at the hands of a new market I am not prepared to enter, entering the market means publicly facing the fact that I have failed to anticipate the major growth opportunity for my company. Not too surprisingly, I engage in a management of denial in a desperate attempt to avoid validating the challenger. Both the loser gambler and the lousy managers are actively trying to construct and maintain the positive identities they desire. This observation leads to the hypothesis to be tested.

Theory and Hypotheses

I propose considering decisions to risk as a function of two factors: impact on the decision maker's identity and the decision maker's familiarity with the decision domain.

Impact on Identity

For decision makers in loss positions who want to see themselves as winners, further and increasingly dramatic risks are the only route to achieving the winning outcomes needed to preserve their identity as winners. The larger the losses, the larger the risks required to recoup the losses and restore the winner's identity. Thus, the risk-seeking behavior predicted by prospect theory (Kahneman & Tversky, 1977) as a function of framing (position relative to a neutral point) can be reinterpreted as risk-seeking behavior as a function of commitment to preserve identity. Likewise, the conservatism of decision makers who forego potential gains in order to avoid the possibility of outcomes which would make them losers may be seen as a function of their desire to construct and maintain an identity as winners.

Familiarity with the Game

The threat rigidity effect (Staw, Sandelands, & Dutton, 1981) suggests that information processing overload occurs in crisis and accounts for conservatism and inaction in risky decision situations under crisis. Information processing gridlock and performance deterioration are not automatic consequences of threatening situations, however. Indeed, the greater one's mastery of a domain, the less likely one is to freeze. Staw, Sandelands, and Dutton (1981:504) write, "Trained subjects in a stress condition perform better than subjects in non-stress conditions, but

untrained subjects in a stress condition perform less well than nonstress subjects." Paraphrasing, stress brings out deep learning—if it is available. If, however, the domain is unfamiliar and no good schemas, knowledge, or training obtain, one could quite conceivably fall into cognitive grid-lock trying to think one's way out of the problem. Hence, the more one is familiar with a domain, the more likely one is to act decisively and aggressively to protect one's identity when facing unfavorable outcomes—realized or unrealized. Conversely, the less one is familiar with a domain, the less likely one is to act decisively and aggressively to protect one's identity in the face of unfavorable outcomes—realized or unrealized.

Considering impact on identity and familiarity with the game as determinants of risky behavior leads to the following hypotheses to be tested:

H1: If taking a risk is likely to lead to an outcome consistent with one's desired identity, one will tend to take the risk.

H2: If taking a risk requires one to participate in a game which is unfamiliar, one's inclination to take the risk is reduced.

H3: If taking a risk is [A] likely to lead to an outcome that supports one's desired identity (or lead out of a state which is inconsistent with one's identity) and [B] entails participating in a game which is familiar, then one will be more likely to take the risk than if only one of these conditions is satisfied.

Methods: A Gambling Exercise

Participants and Overview. To test the identity-familiarity hypothesis, 80 MBA students from two sections of a five-week course on Risky Decisions will participate in a gambling exercise in which one-third of the students are forced to switch games part-way through the

exercise, one-third are given the option to switch, and the remaining third plays the original game throughout the exercise without the option of switching. The two games are 21 (blackjack) and a variant of baccarat patterned after 21; for the baccarat variant, a single minor rule change alters the odds from a 2% house advantage to a moderate advantage for the players who take advantage of the loophole in the rules. (All participants will receive a strategy guide which, if followed, would lead to exploiting the loophole.) The differential odds advantage for the modified baccarat game would be enough to attract gamblers from around the world.

Preparation. The exercise takes place during the fourth week of the course. In week one, participants will read an overview of the exercise and complete questionnaires on prior risk behavior and gambling knowledge. (Appendix, Items 1-3.) At the conclusion of the first week's lecture, participants are randomly assigned to one of two identity conditions (specialist, generalist) and one of two training conditions (one game, both games). The training conditions will produce familiarity with one or both games. Manipulation of these four (2 identity × 2 familiarity) conditions is operationalized by varying the contents of orientation packets distributed to participants at the end of the first week's lecture (Appendix, Items 4a-4d). The specialist group is encouraged to learn one game (21) extremely well while the generalist group is encourage to view themselves as flexible experts who identify less with a specific game and more with the abstract idea of skill at understanding games, assessing odds, and making good wagers. As mentioned, both identity conditions are split into two training conditions (one game, both games). The "one game" group receives rules and strategies for 21 only; the "both games" group receives rules and strategies for both 21 and a variant of baccarat which is closely related to 21. Figure 1 summarizes the manipulations, and figure 2 provides the actual text differences of the identity manipulation with differences highlighted. Over weeks two and three,

participants will complete two assigned homework exercises to develop identification and familiarity with the game(s) in their condition. In addition, un-graded in-class quizzes will be given to promote completion of the homeworks. (For an example quiz, see Appendix, Item 7).

The Gambling Exercise: The Basics. The exercise takes place the fourth week of class; participants take seats assigned according to their group condition for the duration of the exercise. All participants will receive an instruction packet and a brief presentation of the instructions (Appendix, Item 8). The exercise is divided into practice, round 1 (for money), a choice round, and a bonus round.

Incentives. Participants will be given a $1,000 stake in the game, but players are informed that the first $200 in winnings must be returned as "interest" with the stake at the conclusion of the exercise. (Those with less will receive no payout, but they will lose nothing except, perhaps, pride.) As to incentives, those that end the exercise with more than $1,200 will split a maximum total payout of $500; the payout will be made in proportion to each winner's share of the total winnings. For each hand, minimum bets will be $50, and maximum bets will be $500. (Except in the case of splitting or doubling down, in which case the maximum single wager on a single becomes $1,000.) All bets are in increments of $50.

Play and Scoring. All participants will be paired with partners to deal to each other. Using the personal score sheets provided, each participant records his or her own score for each hand. (Appendix, Item 9). Scores will be collected for tabulation and ranking by means of row score cards to be passed down rows at the conclusion of each hand; each participant then quickly copies his or her score to the appropriate line on the score coard. (Appendix, Item 10). All scores were collected, entered, tabulated and ranked, and displayed at the conclusion of each hand. (For example rankings displayed, see Appendix, Item 11.) The ranking information is

important to establishing a sense of competition, but it is critical information for the group allowed to switch. All participants are ranked as a group; there is no breakout by game or any other condition.

All of the above details (and more detailed in Appendix, Item 8) will be explained carefully at the start of the exercise. The exercise is divided into four parts: practice, round 1, a choice round, and a bonus round. Each is summarized briefly below.

Practice round. The purpose of the practice round is simply to familiarize participants with the procedures and rules of the exercise. Hands of 21 will be dealt and scored according to the procedures outlined in the instruction packet. As described in detail in the instruction packet (Appendix, Item 8), the game proceeds by having all players pair with a partner to deal individual decks to each other. Nonetheless, each is competing against the house dealer who stands at the front of the lecture room—not against each other. Questions regarding process — but not strategy — will be allowed and answered.

Round 1. All participants will play 10 rounds of 21 for money. Scores for all participants will be recorded, tabulated, and projected on a large screen display at the conclusion of each hand. At the conclusion of round 1, participants will be given a 15 minute break in which they may discuss their experiences and strategies with each other.

Round 2: the choice round. At the start of the round 2, participants are informed that some will be switching games to play a variant of baccarat adapted for this exercise. Participants are divided into roughly three equal groups. One third are forced to play 21 (no choice), and a second third are forced to play baccarat (no choice). The

remaining third are started at the game 21 but given the option to switch games to baccarat between each hand. Having switched from 21 to baccarat, they are not allowed, however, to switch back to 21. See figure 3 for an illustration of the three choice conditions in the money round. In addition to showing each player's cumulative winnings (losses), the displayed rankings will show average, high, and low scores for "Players" vs. "Club 21" and for baccarat players vs. 21 players. The rules of baccarat will be altered to favor the player. As described above, the switching behavior of players in both loss and gain positions (relative to their $1,000 neutral point) is the dependent variable of interest.

Bonus round. At the conclusion of 10 hands of play in the choice round, a bonus round will be declared—seemingly as a gesture of goodwill.. Players are given the option to play or abstain, but all who play must play baccarat. Per the framing effect raised by Kahneman and Tversky's prospect theory (1979), the prediction is that players with significant winnings may choose to abstain while those with significant losses will play.

Summary of Predictions

The hypothesis to be tested with the experiment proposed above is that much about individual behavior in risky decisions can be explained by interactions between the anticipated impact on one's identity and one's familiarity with the domain of the decision at hand. The more taking a risk promises to support the construction and maintenance of the identity I desire, the more likely one is to take the risk. However, despite the promise of benefits to the construction

and maintenance of a desired identity, a lack of familiarity with the decision domain reduces one's likelihood to take the risk.

In the proposed experiment, the following predictions are made:

1. In the practice round (see table 1), one-game specialists will tend to out-perform two-game specialists who will tend to out-perform one-game generalists who will tend to out-perform two-game generalists. In order of performance outcomes, A > B > C > D.
2. In the money round (see tables 2a and 2b), the probability of switching within Group 2 will be (by original condition) $p(A) < p(B) < p(C) < p(D)$. That is, specialists are less likely to switch than generalists, with the one-game specialists and generalists less likely to switch than two-game specialists and generalists, respectively. [Because the new game has rigged odds, I do not make a performance hypothesis for the money rounds.]
3. In the bonus round, likelihood of wagering proceeds by group (see table 3), $p(2a) > p(1) > p(3) > p(2b)$. In words, the electing switchers are more likely to wager than forced switchers who are more likely to wager than forced to stay with the original game who, in turn, are more likely to wager than those who elected to stick with the original game.
4. As a final hypothesis, the impact of identity-familiarity conditions will over-ride win/loss positions (framing) in predicting bonus-round wagering behavior (both decision to wager and amount wagered.)

Epilogue: Preliminary Conclusions from Analysis Still in Progress

A simple z-test of proportions confirmed the hypothesis that participants in the specialist condition ("Club 21") would be less likely to switch ($p < .001$). The hypothesized interaction between the identity and familiarity was not supported by the same simple z-test, however. In fact, participants familiar with both games were less likely to switch than those who had only seen a single game.

This analysis was done treating each participant as a case. Re-coding of the data is underway to enable looking at the hand-by-hand data longitudinally.

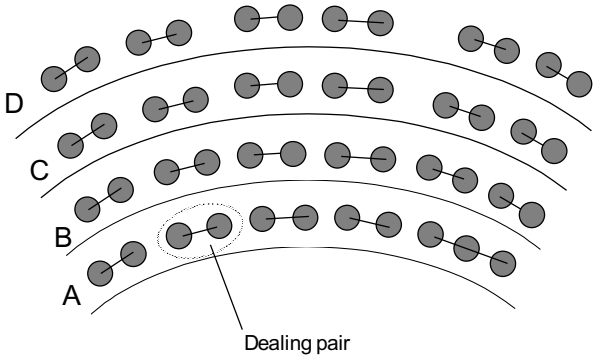
Figure 1.

Identity-Familiarity Hypothesis
Basic manipulations in the experimental design

Table 1
Practice Round Conditions

Identity as …	One Game	Both Games
Generalist	Generalist × One Game: C	Generalist × Both Games: D
Specialist	Specialist × One Game: A	Specialist × Both Games: B

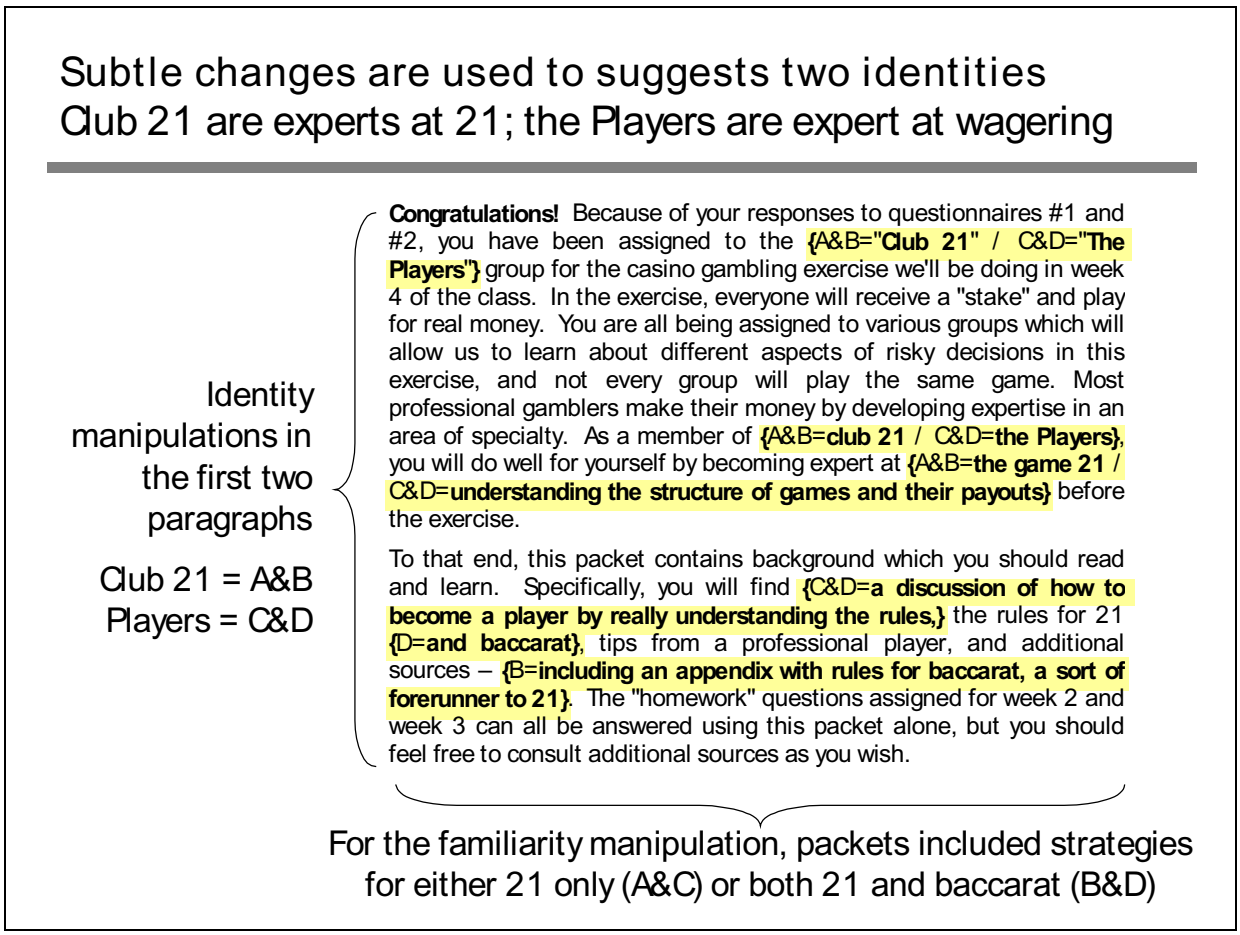
Familiarity with…



In the practice round, everyone will be playing 21. We will work the kinks out of our procedures and make sure that everyone is familiar enough with the rules of the game to be dealing and scoring appropriately.

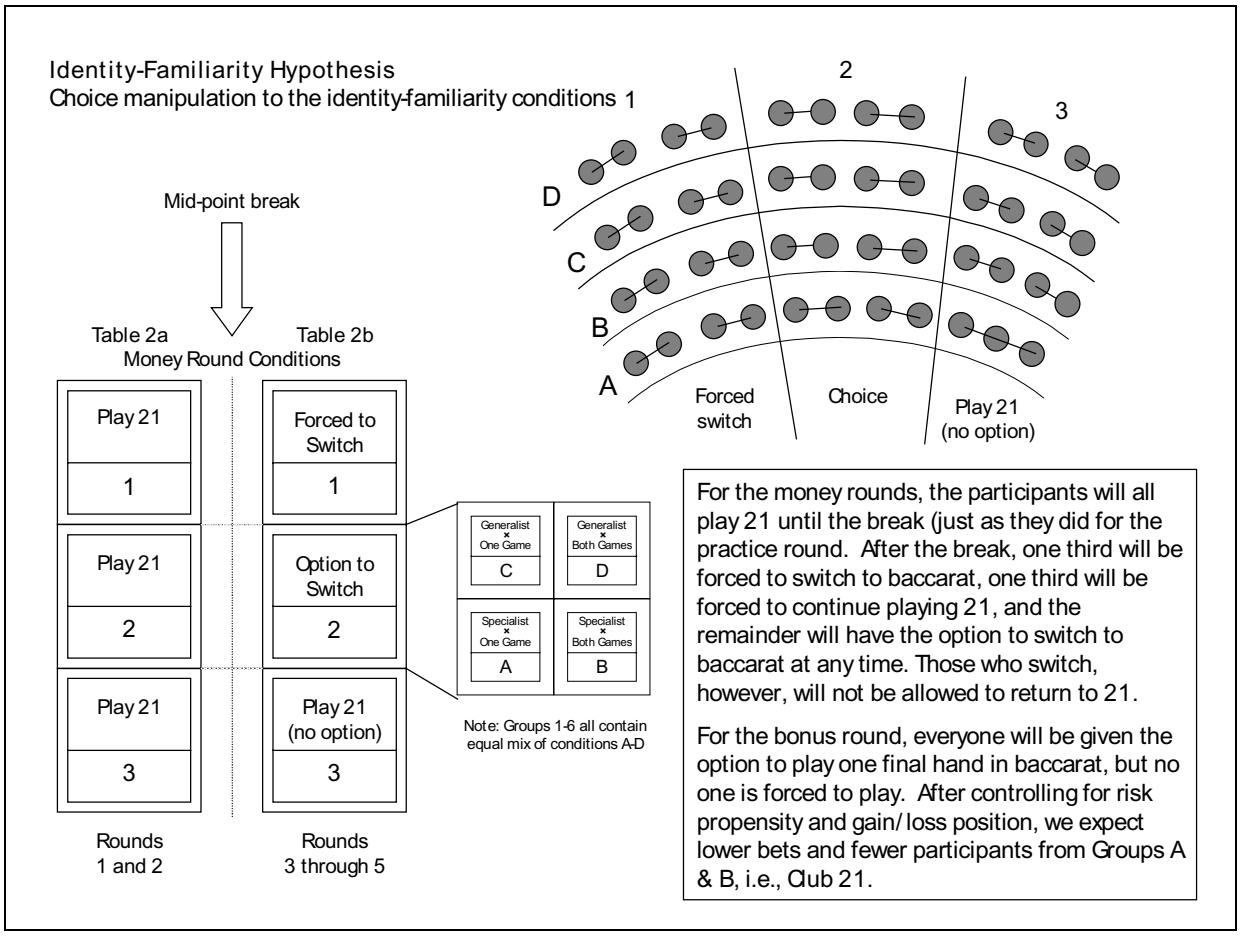
Each of the four groups in the design will sit together as a group on a single row in the lecture hall. The row will be divided into pairs (and a three if necessary) to deal to each other. These pairs/ trios will continue to deal to each other throughout the game – regardless of game changes.

Figure 2.



Note: This slide is taken from a debrief presentation prepared for student participants in the experiment.

Figure 3.


Identity-Familiarity Hypothesis
Choice manipulation to the identity-familiarity conditions
Mid-point break
Table 2a
Table 2b
Money Round Conditions
Play 21
1
Play 21
2
Play 21
3
Forced to Switch
1
Option to Switch
2
Play 21 (no option)
3
Rounds 1 and 2
Rounds 3 through 5
Generalist × One Game
C
Generalist × Both Games
D
Specialist × One Game
A
Specialist × Both Games
B
Note: Groups 1-6 all contain equal mix of conditions A-D
1
2
3
D
C
B
A
Forced switch
Choice
Play 21 (no option)
For the money rounds, the participants will all play 21 until the break (just as they did for the practice round. After the break, one third will be forced to switch to baccarat, one third will be forced to continue playing 21, and the remainder will have the option to switch to baccarat at any time. Those who switch, however, will not be allowed to return to 21.
For the bonus round, everyone will be given the option to play one final hand in baccarat, but no one is forced to play. After controlling for risk propensity and gain/loss position, we expect lower bets and fewer participants from Groups A & B, i.e., Club 21.

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Appendix. Materials for Use in Proposed Experiment

[Not Included. Please contact r-claff@northwestern.edu for additional Appendix materials.]