CMS.608 / CMS.864 Game Design
Spring 2008

Karena Tyan
CMS.608: Paper #2: Card Game Variation
3/17/08

Reverse Bridge

I developed "reverse bridge" for my card game variation. Although it is called "reverse bridge", in many respects, it is actually a variation of Whist. The concept is fairly simple to anybody who's played Bridge, Whist, or other trick-taking or "competitive outplay" card games (like Hearts) before (Parlett 63).

There are four players in two partnerships (North-South and East-West). The dealer splits the deck equally among the four players; bidding begins to the left of the dealer. Players bid on the number of tricks and the suit (i.e. 1S, 2D, etc.) that they believe their *opponent* will be able to make. Unlike Contract Bridge, the "level" of bidding here directly corresponds to the number of tricks the opponents are expected to make (i.e. bidding a level of 1 translates directly to predicting the opponents will take one trick). The *final bid* is decided when one player makes a bid that the other three players then pass on. Once the final bid is decided, play then begins at the player to the left of the person who initially proposed the suit of the final bid. Like other trick-taking games, the first player *leads* a suit, and the other three must follow, if they can. Unlike Bridge, however, Reverse Bridge has *forced capture* built into the trick-taking; i.e., if a player *can* take a trick, they *must* take it, unless their partner has already taken it. If a suit is led that a player does not possess, but the player has trump, they *must* trump. However, the player can choose any card that they can take the trick with (i.e., they have the choice to play the lowest or highest card that they can take a trick with). The trick-taker of the last trick leads the next one. Play continues until all players' hands have been played out. Also, unlike Bridge, there is no "dummy" (hence the similarity to Whist).

Scoring is similar to – but not exactly the same as – duplicate scoring in Bridge. The points that the contract-making team (i.e. the team holding the final bid) gains if their opponents makes the contract is determined by the following criterion: for Diamonds or Spades, the points received by the

bid-makers is *two* times the *level* of the bid (i.e. 2 points for every level); for Hearts or Spades, the points received is equal to *three* times the level of the bid; for No Trump, the points are scored the same as Hearts or Spades, but with an additional 1 point bonus. However, any over- or under-tricks (i.e. tricks taken *past* the final bid by the opponents and the tricks opponents *fail* to take to make contract) reward 5 points per trick to the opponents (See Table 1 for an outline of the scoring system). For example: if the N-S team bids 7S for the E-W team, and the E-W team takes 9 tricks, the N-S team receives (7 * 3) = 21 points for making contract, but the E-W team receives (2 * 5) = 10 points for getting two tricks over the contract. For another example, if the N-S team bids 9D and the E-W team only takes 6 tricks, the N-S team receives 0 points for failing to make contract, and the E-W team gets (3 * 5) = 15 points for "setting" the contract. In general, it is best for the bidding team to bid *exactly* the number of tricks the opponents will make; failing that, bidding under is the best strategy (but only to a certain point, at which the bidding team's profit for making contract is balanced or exceeded by the opponents' undertricks). The winner is determined by the team with the most points at the end of a predetermined number of rounds, which should be a multiple of four.

Table 1. Scoring for Reverse Bridge

	1C/D	2C/D	3C/D	4C/D	5C/D	6C/D	7C/D	8C/D	9C/D	10C/D	11C/D	12C/D	13C/D	1H/S	2H/S	3H/S	4H/S	5H/S	6H/S	7H/S	8H/S	9H/S	10H/S	11H/S	12H/S	13H/S	1NT	2NT	3NT	4NT	5NT	6NT	7NT	8NT	9NT	10NT	11NT	12NT	13NT
1	2-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45	0-50	0-55	0-60	3-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45	0-50	0-55	0-60	4-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45	0-50	0-55	0-60
2	2-5	4-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45	0-50	0-55	3-5	6-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45	0-50	0-55	4-5	7-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45	0-50	0-55
3	2-10	4-5	6-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45	0-50	3-10	6-5	9-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45	0-50	4-10	7-5	10-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45	0-50
4	2-15	4-10	6-5	8-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45	3-15	6-10	9-5	12-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45	4-15	7-10	10-5	13-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	0-45
5	2-20	4-15	6-10	8-5	10-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	3-20	6-15	9-10	12-5	15-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40	4-20	7-15	10-10	13-5	16-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	0-40
6	2-25	4-20	6-15	8-10	10-5	12-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	3-25	6-20	9-15	12-10	15-5	18-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35	4-25	7-20	10-15	13-10	16-5	19-0	0-5	0-10	0-15	0-20	0-25	0-30	0-35
7	2-30	4-25	6-20	8-15	10-10	12-5	14-0	0-5	0-10	0-15	0-20	0-25	0-30	3-30	6-25	9-20	12-15	15-10	18-5	21-0	0-5	0-10	0-15	0-20	0-25	0-30	4-30	7-25	10-20	13-15	16-10	19-5	22-0	0-5	0-10	0-15	0-20	0-25	0-30
8	2-35	4-30	6-25	8-20	10-15	12-10	14-5	16-0	0-5	0-10	0-15	0-20	0-25	3-35	6-30	9-25	12-20	15-15	18-10	21-5	24-0	0-5	0-10	0-15	0-20	0-25	4-35	7-30	10-25	13-20	16-15	19-10	22-5	25-0	0-5	0-10	0-15	0-20	0-25
9	2-40	4-35	6-30	8-25	10-20	12-15	14-10	16-5	18-0	0-5	0-10	0-15	0-20	3-40	6-35	9-30	12-25	15-20	18-15	21-10	24-5	27-0	0-5	0-10	0-15	0-20	4-40	7-35	10-30	13-25	16-20	19-15	22-10	25-5	28-0	0-5	0-10	0-15	0-20
10	2-45	4-40	6-35	8-30	10-25	12-20	14-15	16-10	18-5	20-0	0-5	0-10	0-15	3-45	6-40	9-35	12-30	15-25	18-20	21-15	24-10	27-5	30-0	0-5	0-10	0-15	4-45	7-40	10-35	13-30	16-25	19-20	22-15	25-10	28-5	31-0	0-5	0-10	0-15
11	2-50	4-45	6-40	8-35	10-30	12-25	14-20	16-15	18-10	20-5	22-0	0-5	0-10	3-50	6-45	9-40	12-35	15-30	18-25	21-20	24-15	27-10	30-5	33-0	0-5	0-10	4-50	7-45	10-40	13-35	16-30	19-25	22-20	25-15	28-10	31-5	34-0	0-5	0-10
12	2-55	4-50	6-45	8-40	10-35	12-30	14-25	16-20	18-15	20-10	22-5	24-0	0-5	3-55	6-50	9-45	12-40	15-35	18-30	21-25	24-20	27-15	30-10	33-5	36-0	0-5	4-55	7-50	10-45	13-40	16-35	19-30	22-25	25-20	28-15	31-10	34-5	37-0	0-5
13	2-60	4-55	6-50	8-45	10-40	12-35	14-30	16-25	18-20	20-15	22-10	24-5	26-0	3-60	6-55	9-50	12-45	15-40	18-35	21-30	24-25	27-20	30-15	33-10	36-5	39-0	4-60	7-55	10-50	13-45	16-40	19-35	22-30	25-25	28-20	31-15	34-10	37-5	40-0

Interpretation: The left-most column refers to the number of tricks the opponents actually make, while the top refers to the final bid. The numbers ##-## indicate the bid-team's score over the opponent's score. The green areas indicate situations where the opponents profit from underbidding; dark blue areas refer to situations where underbidding still benefits the bidders; yellow areas refer to situations where there is no advantage to either side; light blue areas represent maximum profit for the bidding team; red areas indicate overbidding, where the opposing team makes profit and the bidding team none.

This game was initially playtested in class with Sharat, David, and Josh in a randomly chosen group. Of the four of us, Sharat had played Bridge extensively in the past, while Josh and I had some Bridge experience, and David very little. At this time, the game was similar to its final form, except for a few differences: the scoring system was very dissimilar and players were forced to take tricks *even if* their partner had already taken it. Through this playtesting session, we discovered that the game was already fairly fun to play and, at once, both similar and very dissimilar to Bridge. The concept of trying to *lose* tricks, instead of taking them, was both non-intuitive and challenging, and was a rather fun reversal of the normal trick-taking card game situation.

However, the scoring system and the forced trick-taking were both somewhat flawed. First, the forced trick-taking had very little effect and seemed a natural strategy for Reverse Bridge, regardless, as the partner often would take a trick if the partner already had it (Ace over King, for example), simply to avoid having to take an additional trick in the future. Unlike typical Bridge, where flushing out opponents' trump and saving high cards to take additional tricks in the future is an *advantage*, Reverse Bridge is most misfortunate for those with good Bridge hands (of course!). People naturally would trump their partner's card if it was apparent the team was going to win the trick anyways. However, we discovered through this playtesting session that there tend to be two strategies for the non-bidding team: first, to not meet contract, thereby depriving the bidding team of their contract points; and second, to go over contract by a significant amount if it was definite that contract could be made. In the latter case, the forced trick-taking over partners was disadvantageous and rendered the strategy almost null; to encourage that strategy, I decided to remove the rule forcing players to trump their partner's card. This led to more dynamic gameplay, as there were additional means for the non-bidding team to gain points and reduce the natural points gap between the bidding and non-bidding teams.

The scoring system was the system that required the most fine-tuning. In its initial iteration, Reverse Bridge had a very simple scoring system: the bidding team received 5 points if the non-bidding team made contract, and the non-bidding team received 1 point for every trick below or above contract.

However, this system was very discouraging for both bidding and non-bidding teams. Quite simply, there was not enough incentive for the non-bidding team to try for over-tricks, and the bidding team received a considerable advantage for making contract. At the same time, 5 points were not enough incentive for bidders to try for correct bids; the point advantages for under- and over-tricks were so little that the bidders could try for a low or high bids without actually trying to predict the opponents' hands, as the bidders profited as long as they were within five tricks of the "correct" bid.

For the second iteration of Reverse Bridge's playtesting, I chose to play with Kenny, Sharat, and two members of our dorm wing, mostly for geographical convenience, but also to see how the game might be played by relatively experienced Bridge players. Kenny and Sharat both play Bridge extensively, whereas Nasly had minimal Bridge experience and David considerable. For the iteration with Kenny-Sharat-Nasly, I employed the must-take-even-if-player-has-taken rule initially, but dropped it after a hand or two, when it became apparent that the rule both did not hinder players much and prevented the interesting over-tricking strategy described above. The scoring system was similar to the final scoring system, with one difference: over-tricking gained only 2 or 3 points per trick-over, depending upon the suit bid. Combined with the must-take-even-if-player-has-taken rule, there was really no incentive whatsoever for non-bidders to overtrick. Given this feedback, I changed the scoring system to reward 5 points for each overtrick and removed the aforementioned rule to encourage over-tricking. With these changes, we playtested some more with Nasly and David and discovered that over-tricking was now a fairly competent strategy, but that undertricking was still more advantageous, on average. As can be seen in Table 1, over-tricking does not really become advantageous until the non-bidding manages to get 2-4 undertricks, which was a difficult task to accomplish with a group of relatively competent players. As a game of Reverse Bridge is won by the player with the most points at the end of 4n hands, under-tricking is preferable for the non-bidding team, whereas making contract exactly or over-tricking are more advantageous to the bidding team. However, with the changes in the scoring system and rules, there is more pressure placed on the bidding team to bid exactly. The changes

in the scoring system also encouraged players to bid in *general*, as getting the correct bid or over-tricking possess more significant rewards than undertricking.

At face-value, Reverse Bridge seems like just another trick-taking game; however, it is different from most of the trick-taking games described in *History of Card Games*, as taking tricks is actually a generally *bad* thing in Reverse Bridge. This actually leads to more interesting strategies than in Bridge, where getting more tricks is the best thing to do, period; for the bidding team, getting tricks makes contract, while for the non-bidding team, getting tricks brings the team closer to setting the bidding team. In short, Reverse Bridge adds more *choices* for the players. As I said before, there are two main strategies for the non-bidding team in Reverse Bridge; the same can be said for the bidding team. Table 1 shows that getting the exact correct bid is the situation of maximum advantage to the bidding team. Therefore, while the goal of the bidding team may be to lose as many tricks as possible to make contract initially, once that contract is made, the goal of both the bidding and the non-bidding team changes. Instead of trying to lose tricks, the bidding team tries to take the remaining tricks, while the non-bidding team does their best to gain as many overtricks as possible. Prior to making contract, the non-bidding team can either try for overtricks outright (knowing their hand is too good not to make contract) or try to make under the contract; because both taking *and* not taking tricks are valid strategies, Reverse Bridge is not entirely a *trick-avoidance* game (Parlett 71). In this way, by reversing the natural concept of trick-taking, Reverse Bridge increases the number of choices available to the player, even while maintaining the amount of *information* each player has (which is the same as in Bridge, where the player knows what is in his/her hand and also what the other players are "transmitting" through the bidding phase). Reverse Bridge also maintains the same level of *coherence* as Bridge itself; similarly to Bridge, players can review a hand and figure out exactly what card played led to what trick being won or lost, and figure out how they may or may not have played differently to gain a different outcome. The consequences of each player's choice are clear, just as in regular Bridge (Parlett 17-20).

Lastly, Reverse Bridge may be said to be similar to Tarot in that it can be described as *f,t,r*- "follow suit if possible, otherwise trump if possible, otherwise play any card", but can be said to be more similar to games like Ecarté in that it is *F, T, r*: "Must player a higher card of the suit if possible; otherwise, must trump if possible; otherwise, play any card". While this is the "tightest rule" possible in trick-taking games, as described above, this still allows a fair amount of strategy and helps make Reverse Bridge the game it is in forcing players to take tricks if possible (Parlett 69-71). Else, it would be far too easy for non-bidders to avoid taking tricks! In the future, I might consider playing Reverse Bridge without forced trick-taking just to see how the gameplay changes. Regardless, Reverse Bridge as described above is an entertaining and enjoyable game; the only changes I would propose is a further tweaking of the scoring system to try and fix the imbalance between over- and under-tricking, but I believe the scoring system as is works sufficiently.

Works Cited

Parlett, David. A History of Card Games. USA: Oxford University Press, 1991.

Note: I really wish I could say I referenced more sources in my paper, but I didn't. I'd rather be honest and say that I didn't really apply things that we read in the readings than lie and pretend I'd used something we read to come up with my final design choice. This isn't to say that I didn't read the readings; I did. It's just that when I came up with my variation and subsequently playtested it, I didn't take the readings into consideration. It would be much easier for me to reference sources if I'd been handed a game and told to analyze it within some frame of context (like some Rules of Play chapters). However, I find that citing sources as influences in my thought process for this particular variation to be untrue. While I certainly did take things like agency and player types into my consideration of *Patolli*, I didn't do the same for this. Maybe it's just because card games are, to me, an entirely different thing from board games and infinitely more difficult to analyze within the context of the readings we've been doing.