

DYNACOMP

# BRIDGE 2.0



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### GENERAL:

BRIDGE 2.0 is a program written in BASIC in which the player is joined by a computer partner against two computer opponents in the game of contract bridge. The game consists of two parts; bidding for the contract, and playing the hand. If you are already familiar with the game of contract bridge, then you may wish to skip to the section on the program description. The following is a brief summary of the game of contract bridge.

First of all, in order to learn the game of contract bridge, it is essential to both read and to play. General descriptions of the game may be found in several books including Hoyle's Games<sup>1</sup>, but the most useful book is Goren's Bridge Complete<sup>2</sup>. It would be wise to read a general description of the game first, play several games to get the feel of bidding and playing and then study Goren's book. Playing the game is the only way to learn. Because BRIDGE 2.0 can be played alone, it is an ideal educational tool. You do not have to find three other willing (and capable) players, just turn on your computer, load the game, and start playing bridge. The "players" know the rules, will inform you when you make an illegal bid or play, and will generally bid and play a good game of bridge.

### BRIDGE IN A NUTSHELL:\*

Contract bridge is a card game among four people (or one person and a computer) paired into two competing teams called "partnerships". The object of the game is for the partnership to win as many "tricks" as possible. In this respect, bridge is similar to trick-oriented games like hearts or pinochle.

The game starts with each hand being dealt 13 cards. Each partnership then bids for the right to name one of the four suits as "trump". During play, trump cards constitute a "super suit"; any trump card can beat a non trump card and a higher trump can beat a lower trump. It is important to note that a card can only be "trumped" if the hand doing the trumping is void in the suit which was initially led. A player is not required to trump a card if he/she does not want to. Rather, if the player is void in that suit, he/she can follow with any card desired (called "sluffing"). Each four-card trick is taken by the partnership which either (1) played the highest card (Aces are high) in the suit which was led, or (2) played the highest trump card. Trump may be led if desired. The player who wins the trick leads a card for the next round of play. There are 13 rounds played per game. Therefore, a total of 13 tricks can be won.

<sup>1</sup>Hoyle's Games, Westport Publishers, Fairfield, New Jersey.

<sup>2</sup>Goren's Bridge Complete, Charles Goren, Doubleday & Co., New York 1963.

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Bidding is the most complicated part of contract bridge and is not easily learned. Bidding against opposing teams (and occasionally against partners) is for the right to declare the partnership's best suit as trump. Bidding is meant to be a means of conveying information about the hands to each partner. This information typically pertains to the strength of the hand and the length of the suits in the hand. Clearly, it is desirable to have as the trump suit the longest and strongest suit contained in the partnership. The suit which receives the highest bid becomes the trump suit. Bidding ends when there are three consecutive passes. A person who had previously passed can bid again if he desires (provided that there were less than three consecutive passes prior to his bid).

The bidding process involves stating both the trump suit as well as the number of tricks in excess of six which you predict your partnership can take. The first six tricks comprise "book". Each bid must be higher than the previous bid, and consequently there is a relative ranking of the suits. That hierarchy, from highest bidding value to lowest is:

- No Trump (the hand is to be played without a trump suit)
- Spades
- Hearts
- Diamonds
- Clubs

For example, a bid of 1 Heart can be topped by a bid of 1 Spade. In order to beat a 1 Heart bid with a bid in Clubs, the player must bid at least 2 Clubs. A bid of 1 No Trump beats a bid of 1 Spade; a 2 Spade bid beats the 1 No Trump bid. Simple, isn't it?

To determine the relative strength of a hand, the point-count system of Charles Goren may be used. This involves counting the number of points you have in your hand. Each Ace has the value of four points, each King three points, each Queen two points and each Jack one point. There are a total of forty face-card points in the deck. Since it is advantageous to be void in a non-trump suit so that a card led in that suit can be trumped ("ruffed"), points are also awarded for distribution. A void in a suit is worth three points, a singleton (one card) in a suit is worth two points and a doubleton is worth one point. If a hand contains 13 or more points, it is sufficiently strong to open bidding in the first round. A hand should have at least six or seven points (with at least three potential trump, one of which is a face-card) in order to respond to the partner's bid. The more points the partnership has between the hands, the higher it can bid. For more information about bidding, Hoyle's Games or Goren's Bridge Complete are recommended.

#### PROGRAM DESCRIPTION:

BRIDGE 2.0 "shuffles the cards" by using the built-in RND function of your BASIC interpreter. For those versions of BRIDGE 2.0 which require inputting a "seed" to the random number generator, the same seed value will produce the same sequence of hands. This allows for replay of interesting hands, or the play of "Duplicate" bridge. Duplicate bridge is played with another individual whereby each player plays the same hands (by using the same seed value) to see who can take more tricks.

Once the "cards" are shuffled and dealt, SOUTH's hand is displayed, ordered and sorted into suits. Look at the sample printout from BRIDGE 2.0 to see the formats used for bidding and for playing. For entering a bid in a suit, a two character format is used in which the first character is the level of the bid, and the second character is the suit abbreviation, i.e. 1C represents a bid of one club, 4S is a bid of four spades, etc. To pass, simply input either a P or type the word PASS. For bidding in no trump, follow the bid level character with NT, i.e. 3NT represents a bid of three no trump. Some longer versions of BRIDGE 2.0 allow a bid to be doubled (the program will also double your bid if you bid too high!). This is accomplished by entering DBL as your bid. Note that for passing or for doubling, an input starting with P will be taken as a pass by the computer, and an input starting with D will be taken as a double. However, any other input will be accepted by the computer as a legal bid, thus one must take some care in entering bids. A typographical error such as inputting 3A rather than 3S will upset the bidding routine and an improper contract may be arrived at, so please be careful when bidding. BRIDGE 2.0 checks to see if each bid is higher than the previous bid; if it is not, then an error message will be printed out and you will be prompted to input your bid.

Bidding is completed after three successive passes have been recorded. When this occurs, the program determines the winning contract and the declarer of that contract. A review of the bidding is then printed out for your information. When you are ready to play, simply respond with a carriage return and the play of the hand will commence.

For the play of the hand, your hand (SOUTH) is printed out along with the dummy's hand. After each round of play, the bid and current trick count for WE and THEY is printed out along with your hand and the dummy's hand minus the cards played in the previous round. Note that playing a card requires a two-character format. The first character is the value of the card (A=ace, J=jack, T=ten, 5=five, etc.) and the last character is the suit abbreviation. When inputting the card to be played, the computer checks to see if that card is indeed in your hand. The computer also checks to see if you have followed suit or if you made a typographical error. If an error is made, an error message is printed out and you are prompted to select another card. When play is completed (after all 13 tricks have been taken), a message is printed out telling whether or not the contract was made and either how many overtricks were made or by how many tricks the contract was set. At this point, if you wish to continue with another hand, simply answer the prompt CONTINUE? with either Y or YES. If you do not wish to continue playing, you can answer the prompt with either N or NO and the program will return you to BASIC.

#### BIDDING CONVENTIONS:

In order to play contract bridge well, you and your partner must be able to communicate with each other intelligently via your bidding. Due to the memory size limitations placed on BRIDGE 2.0, it is impossible to completely incorporate all of Goren's point-count bidding system into a program such as BRIDGE 2.0 which both bids and plays. Here are some helpful hints on how to interpret your partner's bidding.

- During the first round of bidding, proceed "by the book". Your partner (NORTH) will open at the one level with its strongest suit if it has 13 or more points. NORTH will open with a two bid if that hand has over 22 points. NORTH will open one no trump if the hand contains between 16 and 18 points and equal distribution.

- NORTH will respond to your opening bid in the following manner. A simple rebid in your suit (i.e., NORTH responds 2H to your opening 1H) indicates a hand containing less than ten points with support in your suit. Support is considered to be at least three cards including an honor (picture card), or a minimum of four cards without an honor. A one no trump response indicates six to nine points with little support in your suit. A simple overcall (i.e., NORTH responds 2D to your opening bid of 1H) indicates a hand with at least ten points with strength in the suit bid (at least a four card suit). A jump bid in your suit (3H to your 1H) shows a hand with good support for your suit and at least 14 points. A jump shift (i.e., a response of 2S to your 1D) shows more than 18 points.
- The previous descriptions follow rather closely the Goren point-count convention. After the opening bid and initial response, however, it becomes more difficult to extract information from your partner. NORTH has four bidding options available: (1) continue bidding NORTH's best suit, (2) support your suit, (3) bid no trump or (4) pass. This version of BRIDGE 2.0 does not enable the electronic partners to open any new suits. If you open with a diamond bid and then switch to a different suit (other than your partner's suit), NORTH will not respond specifically to your new suit. NORTH will only bid in its own suit, your initial suit or no trump.
- On occasion, your partner will bid in your suit with what may seem like insufficient support, i.e., only two cards in your suit. This occurs because your partner had determined that the contract would be better in your suit than in NORTH's best suit. Generally speaking, you can expect the proper contract to be bid at least 75% of the time (which is about par for most human partnerships).
- BRIDGE 2.0 is not programmed to respond to bidding conventions other than the Goren point-count system. Neither will the program respond to the Blackwood Convention bid of 4NT in version 2.0. The more you play BRIDGE 2.0, the more you will understand its bidding.

#### PLAY:

The play of the hand in BRIDGE 2.0 is straightforward. Generally, when a hand leads a card, it is to its partner's strongest suit. The program can keep track of each hand's strengths and voids and knows when to pull trump and when to ruff a trick. It plays a very strong defensive game. A sample game of BRIDGE 2.0 follows. While some versions of this game will differ depending upon the computer used, the actual play of the hand and the format used during play is identical in all DYNACOMP versions of BRIDGE 2.0.

SAMPLE:

LOAD "BRIDGE"

OK  
RUN

\*\*\*\*\*  
\*\*\* BRIDGE 2.0 \*\*\*  
\*\*\*\*\*  
(C) 1979 BY DYNACOMP  
WEBSTER, NY 14580

ENTER ANY POSITIVE NUMBER

? 7.0 This particular printout is from the  
SHUFFLING CP/M - North Star version of BRIDGE 2.0.  
DEALING Other versions may use a slightly  
SORTING different format.  
YOUR HAND (SOUTH):

S: JT  
H: A9872  
D: T6  
C: 8742

YOU ARE THE DEALER.

WHAT DO YOU BID?

SOUTH? PASS

WEST: 1D

NORTH: PASS

EAST: 1S

SOUTH? P

WEST: 1NT

NORTH: PASS

EAST: 2S

SOUTH? P

WEST: 3S

NORTH: PASS

EAST: 4S

SOUTH? DBL SOUTH doubles the contract thinking  
WEST: PASS that he will take at least four tricks.

NORTH: PASS

EAST: PASS

THE CONTRACT IS: 4S (DBL)

THE DECLARER IS: EAST

REVIEW OF THE BIDDING:

SOUTH	WEST	NORTH	EAST
PASS	1D	PASS	1S
PASS	1NT	PASS	2S
PASS	3S	PASS	4S
DBL	PASS	PASS	PASS

READY TO PLAY? Y

ROUND: 1

\*\*\*\*\*

4S (DBL) WE: 0 THEY: 0

SOUTH:

S: JT  
H: A9872  
D: T6  
C: 8742

SOUTH PLAYS? 7H

WEST PLAYS: 4H

NORTH PLAYS: KH

EAST PLAYS: 3H

ROUND: 2

\*\*\*\*\*

4S (DBL) WE: 1 THEY: 0

WEST:

S: 95  
H: 065  
D: K054  
C: AK9

SOUTH:

S: JT  
H: A982  
D: T6  
C: 8742

NORTH PLAYS: AD

EAST PLAYS: 9D

SOUTH PLAYS? 6D

WEST PLAYS: 4D

ROUND: 3

\*\*\*\*\*

4S (DBL) WE: 2 THEY: 0

WEST:

S: 95  
H: 065  
D: K05  
C: AK9

SOUTH:

S: JT  
H: A982  
D: T  
C: 8742

NORTH PLAYS: 2D

EAST PLAYS: 5C

SOUTH PLAYS? TD

WEST PLAYS: 0D

ROUND: 4

\*\*\*\*\*

4S (DBL) WE: 2 THEY: 1

WEST:

S: 95  
H: 065  
D: K5  
C: AK9

SOUTH:

S: JT  
H: A982  
D: T  
C: 8742

WEST PLAYS: 9C

NORTH PLAYS: 3C

EAST PLAYS: TC

SOUTH PLAYS? TS

RENEGE, TRY AGAIN.

SOUTH PLAYS? 3C

ROUND: 5

\*\*\*\*\*

4S (DBL) WE: 2 THEY: 2

WEST:

S: 95  
H: 065  
D: K5  
C: AK

SOUTH:

S: JT  
H: A982  
D: T  
C: 874

EAST PLAYS: 0C

SOUTH PLAYS? 4C

WEST PLAYS: KC

NORTH PLAYS: 6C

ROUND: 6  
 \*\*\*\*\*  
 4S (DBL) ME: 2 THEY: 3  
 WEST:  
 S: 95  
 H: 065  
 D: K5  
 C: A  
 SOUTH:  
 S: JT  
 H: A982  
 D:  
 C: 87  
 WEST PLAYS: 93  
 NORTH PLAYS: 63  
 EAST PLAYS: 03  
 SOUTH PLAYS? TS

The computer partnership of EAST and WEST begins to pull trump.

ROUND: 7  
 \*\*\*\*\*  
 4S (DBL) ME: 2 THEY: 4  
 WEST:  
 S: 5  
 H: 065  
 D: K5  
 C: A  
 SOUTH:  
 S: J  
 H: A982  
 D:  
 C: 87  
 EAST PLAYS: A3  
 SOUTH PLAYS? JS  
 WEST PLAYS: 53  
 NORTH PLAYS: 73

SOUTH makes a typographical error. The computer rejects the lead and asks for a legal lead.

ROUND: 8  
 \*\*\*\*\*  
 4S (DBL) ME: 2 THEY: 5  
 WEST:  
 S:  
 H: 065  
 D: K5  
 C: A  
 SOUTH:  
 S:  
 H: A982  
 D:  
 C: 87  
 EAST PLAYS: K3  
 SOUTH PLAYS? 2H  
 WEST PLAYS: 5D  
 NORTH PLAYS: 8S

ROUND: 9  
 \*\*\*\*\*  
 4S (DBL) ME: 2 THEY: 6  
 WEST:  
 S:  
 H: 065  
 D: K  
 C: A  
 SOUTH:  
 S:  
 H: A98  
 D:  
 C: 87  
 EAST PLAYS: TH  
 SOUTH PLAYS? 9H  
 WEST PLAYS: 5H  
 NORTH PLAYS: 3D

NORTH has no hearts. That is why NORTH did not lead to SOUTH's Ace of hearts in round three.

ROUND: 10  
 \*\*\*\*\*  
 4S (DBL) ME: 2 THEY: 7  
 WEST:  
 S:  
 H: 06  
 D: K  
 C: A  
 SOUTH:  
 S:  
 H: A9  
 D:  
 C: 87  
 EAST PLAYS: JH  
 SOUTH PLAYS? AH  
 WEST PLAYS: 6H  
 NORTH PLAYS: 7D

ROUND: 11  
 \*\*\*\*\*  
 4S (DBL) ME: 3 THEY: 7  
 WEST:  
 S:  
 H: 0  
 D: K  
 C: A  
 SOUTH:  
 S:  
 H: 9  
 D:  
 C: 87  
 SOUTH PLAYS? 7W  
 ERROR IN LEAD. TRY AGAIN.  
 SOUTH PLAYS? 7C  
 WEST PLAYS: AC  
 NORTH PLAYS: JC  
 EAST PLAYS: 4S

ROUND: 12  
 \*\*\*\*\*  
 4S (DBL) ME: 3 THEY: 8  
 WEST:  
 S:  
 H: 0  
 D: K  
 C:  
 SOUTH:  
 S:  
 H: 9  
 D:  
 C: 8  
 EAST PLAYS: 3S  
 SOUTH PLAYS? 9H  
 WEST PLAYS: 0H  
 NORTH PLAYS: 8D

ROUND: 13  
 \*\*\*\*\*  
 4S (DBL) ME: 3 THEY: 9  
 WEST:  
 S:  
 H:  
 D: K  
 C:  
 SOUTH:  
 S:  
 H:  
 D:  
 C: 8  
 EAST PLAYS: 2S  
 SOUTH PLAYS? 8C  
 WEST PLAYS: KD  
 NORTH PLAYS: JD

The computer wins!

YOUR OPPONENTS MADE THEIR CONTRACT (4S (DBL)).  
 CONTINUE  
 ? H