

# Backgammon/Play

## 1 Rules

Backgammon is a game of moderate complexity but with deep strategic elements. It does not take long to learn to play, although obscure situations do arise which require careful interpretation of the rules. Because the playing time for each individual **game** is short, it is often played in **matches**, where, for example, victory is awarded to the player who first wins five points.

In short, a player tries to get all of his pieces past his opponent's pieces and then off the board. This is difficult because the pieces are scattered at first and may be blocked or captured by the opponent.

### 1.1 Setup

Each side of the board has a track of twelve adjacent spaces, called **points**, usually represented by long triangles of alternating (but meaningless) color. The tracks are imagined to be connected across the break in the middle and on just one edge of the board, making a continuous line (but not a circle) of twenty-four points. The points are numbered from 1 to 24, with checkers always moving from higher-numbered points to lower-numbered points. The two players move their checkers in opposite directions, so the 1-point for one player is noted as the 24-point for the other. Some recorded games, however, keep the numbering of the points constant from the perspective of one player. Each player begins with two checkers on his 24-point, three checkers on his 8-point, and five checkers each on his 13-point and his 6-point.<sup>[1][2]</sup>

Points 1 to 6, where the player must attempt to move his pieces, are called the **home board** or **inner board**. A player may not bear off any checkers unless all of his checkers are in his home board. Points 7 to 12 are called the **outer board**, points thirteen to eighteen are the opponent's outer board, and points nineteen to twenty-four are the opponent's home board. The 7-point is often referred to as the **bar point** and the 13-point as the **mid point**.<sup>[1][2][3]</sup>

### 1.2 Movement

At the start of the game, each player rolls one die. Whoever rolls higher moves first, using the numbers on the already-rolled dice. In the case of a tie, the players roll again. The players then alternate turns, rolling two dice at the beginning of each turn after the first.<sup>[1][2][3]</sup>

After rolling the dice a player must, if possible, move checkers according to the number of points showing on each die. For example, if he rolls a 6 and a 3 (noted as "6-3") he must move one checker six points forward, and another one three points forward. The dice may be played in either order. The same checker may be moved twice as long as the two moves are distinct: six and then three, or three and then six, but not nine all at once.<sup>[1][2][3]</sup>

If a player has no legal moves after rolling the dice, because all of the points to which he might move are occupied by two or more enemy checkers, he forfeits his turn. However, a player must play both dice if it is possible. If he has a legal move for one die only, he must make that move and then forfeit the use of the other die. If he has a legal move for either die, but not both, he must play the higher number.<sup>[1][2][3]</sup>

If a player rolls two of the same number (**doubles**) he must play each die twice. For example, upon rolling a 5-5 he must play four checkers forward five spaces each. As before, a checker may be moved multiple times as long as the moves are distinct.<sup>[1][2][3]</sup>

A checker may land on any point occupied by no checkers or by friendly checkers. Also it may land on a point occupied by exactly one enemy checker (a lone piece is called a **blot**). In the latter case the blot has been **hit**, and is temporarily placed in the middle of the board on the **bar**, that is, the divider between the home boards and the outer boards. A checker may never land on a point occupied by two or more enemy checkers. Thus, no point is ever occupied by checkers from both players at the same time.<sup>[1][2][3]</sup>

Checkers on the bar re-enter the game through the opponent's home field. A roll of 2 allows the checker to enter on the 23-point, a roll of 3 on the 22-point, etc. A player with one or more checkers on the bar may not move any other checkers until all of the checkers on the bar have re-entered the opponent's home field.<sup>[1][2][3]</sup>

When all of a player's checkers are in his home board, he must **bear off**, removing the checkers from the board. A roll of 1 may be used to bear off a checker from the 1-point, a 2 from the 2-point, etc. A number may not be used to bear off checkers from a lower point unless there are no checkers on any higher points.<sup>[1][2][3]</sup> For example, a 4 may be used to bear off a checker from the 3-point only if there are no checkers on the 4-, 5-, or 6-point.

A checker borne off from a lower point than indicated on the die still counts as the full die. For instance, suppose a player has only one checker on his 2-point and two

checkers on his 1-point. Then on rolling 1-2 he may move the checker from the 2-point to the 1-point (using the 1 rolled), and then bear off from the 1-point (using the 2 rolled). He is not required to maximize the use of his rolled 2 by bearing off from the 2-point.

If one player has not borne off any checkers by the time his opponent has borne off all fifteen, he has lost a **gammon**, which counts for double a normal loss (i.e., two games toward the match in a game with normal stakes). If a player has not borne off any checkers, and still has checkers on the bar, or in his opponent's home board by the time his opponent has borne off all fifteen, or both, he has lost a **backgammon**, which counts for triple a normal loss (i.e., three games toward the match in a game with normal stakes).<sup>[1][2][3]</sup> In some variants, a further distinction is made between pieces in the opponent's home board, counting as a triple loss, and pieces on the bar, for a quadruple loss.

### 1.3 Doubling cube

To speed up match play and to increase the intensity of play and the need for strategy, a **doubling cube** is usually used. A doubling cube is a 6 sided die that instead of the numbers 1, 2, 3, 4, 5, 6 on it, has the numbers 2, 4, 8, 16, 32, 64 on it. If a player believes his position to be superior he may, before rolling the dice on his turn, **double**, i.e., demand that the game be played for twice the current stakes. The doubling cube is placed with the 2 side face up to show that the game's value has been doubled. His opponent must either accept the challenge or resign the game on the spot. Thereafter the right to **redouble** (double again) belongs exclusively to the player who last accepted a double. If this occurs, the cube is placed with the face of the next power of two showing.<sup>[1][2][3]</sup>

The game rarely is redoubled beyond four times the original stake, but there is no theoretical limit on the number of doubles. Even though 64 is the highest number depicted on the doubling cube, the stakes may rise to 128, 256, 512 and so on.

A common rule allows **beavers**, which is the right for a player to immediately redouble when offered the doubling cube while retaining the cube instead of giving it back up. The redouble must be called before the originally doubling player rolls the dice. In this way, the stakes of the game can rise dramatically.<sup>[2]</sup> A **raccoon** is sometimes permitted as a response to a beaver. A player who accepts a beaver may offer a raccoon, redoubling again. Beavers and raccoons are commonly allowed when backgammon is played for money game by game and usually not allowed in matches.

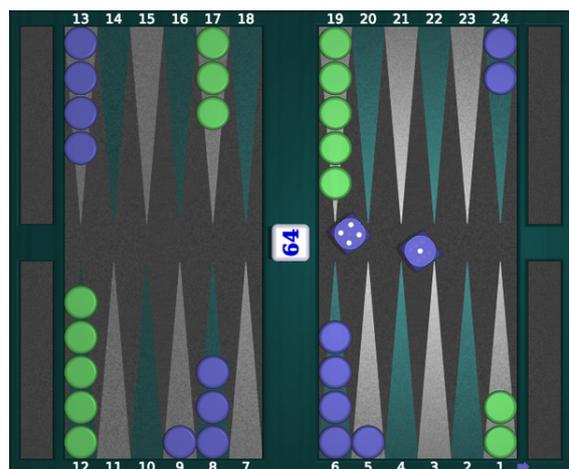
The **Jacoby rule** allows gammons and backgammons to count for their respective double and triple points only if there has been at least one use of the doubling cube in the game. This encourages a player with a large lead in a game to double, and thus likely end the game, rather

than see the game out to its conclusion in hopes of a gammon or backgammon. The Jacoby Rule is widely used in money play but is not used in match play.<sup>[2]</sup>

The **Crawford rule** makes match play much more equitable for the player in the lead. If a player is one point away from winning a match, his opponent has no reason *not* to double; after all, a win in the game by the player in the lead would cause him to win the match regardless of the doubled stakes, while a win by the opponent would benefit twice as much if the stakes are double. Thus there is no advantage towards winning the match to being one point shy of winning, if one's opponent is two points shy.<sup>[2]</sup> To remedy this situation, the Crawford rule requires that when a player becomes one single point short of winning the match, neither player may use the doubling cube for a single game, called the **Crawford game**. As soon as the Crawford game is over, normal use of the doubling cube resumes.<sup>[2]</sup> Not quite as universal as the Jacoby rule, the Crawford rule is widely used and generally assumed to be in effect for match play.

Sometimes **automatic doubles** are used, meaning that any re-rolls that players must make at the very start of a game (when each player rolls one die) have the side-effect of causing a double. Thus, a 3-3 roll, followed by a re-roll of 5-5, followed by a re-roll of 1-4 that begins the game in earnest will cause the game to be played from the start with 4-times normal stakes. The doubling cube stays in the middle, with both players having access to it. The Jacoby Rule is still in effect.<sup>[2]</sup> Again, automatic doubles are common in money games. but they are rarely, if ever, used in match play.

## 2 Sample game

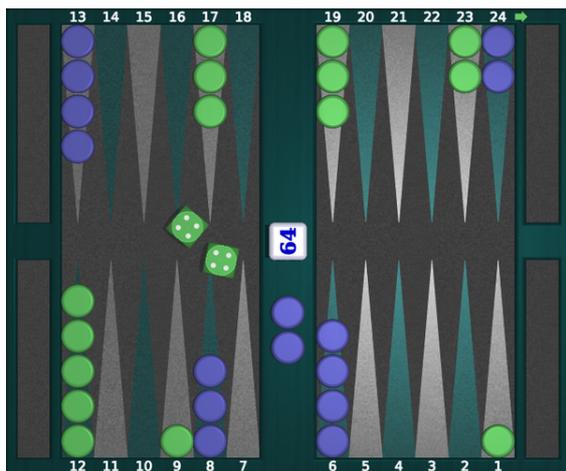


Blue wins the opening roll with 4-1 and moves 13/9 6/5.

A few turns from the beginning of a sample game will illustrate the rules of movement. To start the game, blue rolls a 4 and green rolls a 1, so blue takes the first turn playing a 4-1. This is an unfavorable opening roll, ar-

guably the worst possible, but blue uses it the best he can. He takes a checker from each of his *heavy* points by playing 13/9 6/5 (from the 13-point to the 9-point, and from the 6-point to the 5-point).

It is seldom useful to have five checkers on the same point, so blue starts to spread his checkers around. He is threatening to build a *prime*, that is, a blockade to prevent green's two trailing checkers from getting home. The disadvantage of blue's choice is that it is not very safe. It leaves two blots which green might hit. Some experts prefer the less aggressive but safer move of 24/23 13/9.



Green rolls 4-4 and moves 1/5\*9\* 19/23(2).

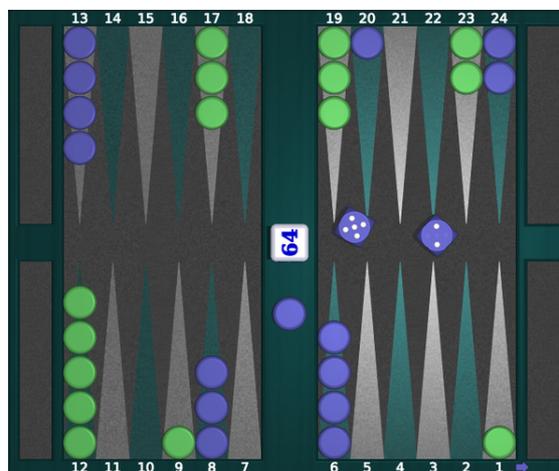
Green rolls a 4-4. This is a fortunate roll. Not only can he hit both of blue's blots with 1/5\*9\* (from the 1-point to the 5-point, hitting blue, and from the 5-point to the 9-point, hitting blue again), he also has two more 4s to play. He may, for example play 19/23(2), moving two checkers from his 6-point to the 2-point. This leaves blue with two checkers on the bar, trying to re-enter against green's home board, which has two points blocked by green.

Green was wise to hit twice, because it disrupts blue's efforts to build a prime, and it puts blue considerably behind in the race. Those two checkers must come all the way around the board before blue can begin to bear off.

In contrast, green's decision to make the 2-point was strategically dubious. Though it may prevent blue from entering with both checkers, and there is some chance green will be able to build a strong home board before blue gets organized, increasing the chances of winning a gammon, the disadvantage is that green will now find it difficult to build a prime. If blue manages to make an advanced *anchor*, i.e., get two of his back checkers on green's 3-, 4-, or especially the 5- point, then green's blocking game is damaged.

Green would be in better shape had he played 12/16(2), keeping open the option to block or attack depending on blue's next roll, or taking the 4-point with 17/21(2). The latter more aggressive play has roughly a 3% better chance of winning a gammon, but loses almost 1% more

often according to computer analysis.<sup>[4]</sup> This is interesting as it highlights another aspect of backgammon strategy, the optimal move depends on the current standings: if green is one point from winning the match and in no need of a gammon, he should play safe with 12/16(2), otherwise green should try for the gammon and play the aggressive 17/21(2).



Blue rolls 5-2 and moves bar/20.

The game continues and blue rolls 5-2. The only legal move is bar/20. The two cannot be played from the bar because green owns his 2-point, and until blue has played all his checkers off the bar, he cannot play anywhere else. Therefore the 2 is forfeited and blue's turn is over.

Green got what he wanted, in that blue was not able to enter both checkers, but the fight is far from over. Green must hit the blot on his next roll, or else blue has a 50% chance to cover his blot and take a fairly strong position. Even if green does hit, blue has many rolls to hit back. A war for green's 5-point will shape the character of the game in the near future.

### 3 References

- [1] Robertie, Bill. *Backgammon for Winners*, Third Edition. 2002.
- [2] Keith, Tom. *Backgammon Galore*. "Backgammon Rules". 2006. Retrieved on August 5, 2006.
- [3] *Hoyle's Rules of Games*, Eighty-second printing. 1983
- [4] [Article on replies to 13/9, 6/5 at Backgammon Galore](#)

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