Concord Rules

Why Concord Rules for the Game of Go?

Concord Rules combine the best features of Japanese/Korean, Chinese, AGA and Taiwan rules. Concord Rules achieve these three goals:

- **Every point matters.** Small endgame mistakes can alter the final score by a single point. (Similar to Japanese/Korean rules, unlike AGA and Chinese rules.)
- **You can use both territory and area counting methods.** Both methods always yield the same game result. (Similar to AGA rules. Unlike Chinese and Japanese/Korean rules.)
- **Just play it out.** Games can always be played out until all dead stones are captured without changing the score. (Similar to Chinese and AGA rules, unlike Japanese/Korean rules.)

Concord Rules for Users of Popular Rulesets

Differences from Japanese/Korean Rules

- **Every move uses one stone, even pass.** In Concord Rules, a pass requires placing a "pass stone" in the opponent's prisoner bowl. This gives them one point, but since all games typically end with two passes, this does not change the result. Pass stones are used in USA, France and UK (AGA rules).
- **Just play it out.** When scoring is unclear, Concord Rules allow games to continue until all dead stones are captured without changing the score, even in complex Life/Death, Seki & Ko situations.
- **Seki eyes are points.** Every surrounded point counts, even in seki.
- **Last pass.** The first and last pass play in the game must be played by a different player. Example where that matters: ..., B pass, W threat, B answer, W pass, B pass, W pass.

Differences from Chinese Rules

- **First Pass is Valuable.** White (but not Black) gets one extra point if White made the game's very first pass. This makes the first pass worth half as much as dame. This removes the one-point difference between area and territory rules that happens in about half of even games. This is similar to Taiwan rules.
- **Handicap Compensation.** White gains one point for each handicap stone Black receives beyond the first.

Differences from AGA Rules

- **Game typically ends with two passes.** In AGA rules, White always makes the last pass, causing three passes in half of the games. In Concord, the game's final pass must be made by a different player than whoever made the game's very first pass.
- **Area Counting Adjustment.** If area counting is used, White (but not Black) receives an additional point if White made the game's very first pass. This makes the first pass half as valuable as dame.

The Rules

- **Setup.** Go is played Black and White using black and white stones, two prisoner containers and a board. Before starting, players agree on:
  - Player colors
  - Board used
  - Komi (point compensation for White)
  - Handicap (if any)
  - Counting method (Territory or Area)
- **Play alternation.** Players alternate plays. Black plays first.
  - **Board.** The board is a grid of intersecting lines. Intersections are initially empty.
  - **A play.** A play is either *pass play* or *board play*. A play always uses one stone of the player's color.
  - **Pass play.** The player places the stone in the opponent's prisoner container. This is a "pass stone".
  - **Liberty.** A stone on an intersection has a liberty if there is a path along board lines to an empty intersection through intersections with stones of the same color.
  - **Board play.** The player places the stone on an empty intersection and captures all opponent's stones that don't have any liberties. Captured stones are moved from the board and to the player's prisoner container.
  - **Suicide is illegal.** A play is illegal if, after captures, the stone just played has no liberties.
  - **Repetition is illegal.** A player's board play is illegal if it recreates the board with the same player's turn to play (situational superko).
  - **Illegal play handling.** Player's illegal play, if challenged by the opponent before their move, must be retracted and the player must make a pass play. The opponent may allow the player to choose any legal play in place of the mandatory pass play.
- **Play alternation end.** Play alternation ends after two consecutive pass plays. However, if the Last pass' rule (see below) requires a third consecutive pass, play alternation extends to include it.
  - **Last pass.** The first and last pass play in the game must be played by a different player. In the rare cases three pass plays at the end might be needed, for instance: ..., B pass, W threat, B answer, W pass, B pass, W pass.
  - **Dead Stone Removal by Agreement.** After play alternation ends, players try to agree on which stones remaining on the board are "dead" - can be removed. If agreement is reached, each player removes dead opponent's stones and adds them to their own prisoner containers and players proceed to scoring. If the players fail to agree, the play alteration resumes.

    - **Dispute resolution.** If the agreement is not reached, each player has a chance to say the phrase "Let's play until all dead stones are captured." (or similar). In that case the play alteration is resumed, players should aim to capture all the stones of the opponent they can with board plays. When play alternation concludes again (as defined in 'Play alternation end'), all stones remaining on board will be considered not "dead". There is no Dead Stone Removal by Agreement phase. Stones remain on board as they are for scoring.

- **Scoring.** Players calculate scores using the pre-agreed method. White adds komi. The player with more points wins.
    - **Territory intersection.** An empty intersection is part of a player's territory if there is no path from it, along board lines and through other empty intersections, to a stone of the opponent.
    - **Territory counting.** Player's score = number of player's territory intersections + number of prisoners in player's container.
    - **Area counting.** Player's score = number of player's stones on board + the number of territory intersections. White gets an additional point if White has played the very first pass in the game. White gets an additional point for every handicap except the first (e.g., if Black has 3 handicap stones, White gets 2 points).

Discussion and commentary

Historical Context: Learning from AGA Rules

The creation of AGA rules was driven by similar goals to unify counting methods. Initially, they added pass stones without the last pass rule, which led to pass fights. To resolve these pass fights, they were forced to add the "White passes last" rule, requiring sometimes 3 passes. This fixed the pass fights but created only 2-point resolution scoring.

Concord Rules achieve high 1-point resolution by using a different last pass rule, which also adheres to traditions of 2 passes ending the game.

Ikeda rules

Ikeda wrote a book searching for ideal Go rules. Ikeda's preferred Territory rules I almost always give the same result as Ikeda's area rules III - "provided no unwarranted passes are made before the end of competitive play". Concord rules improve on them by making territory and area counting always give the same result, even if extra passes are made.

Taiwan rules

Taiwan rules are Concord rules limited to area counting.

Two Button Go

Two Button Go rules with territory counting are equivalent to Concord rules with territory counting. Concord rules improve on Two Button Go by not requiring additional physical buttons.

Equivalence of Area and Territory counting

This section demonstrates the equivalence under Concord Rules.

Definitions of variables

- C_B, C_W - number of stones **Captured** by Black and White respectively
- B_B, B_W - number of Black and White stones remaining on **Board**, excluding handicap
- H_1 - number of handicap stones minus 1, i.e. number of additional stones placed with the first Black move. In even game $H_1 = 0$
- P_B, P_W - number of **Passes** by Black and White respectively
- E_B, E_W - number of **Empty** intersections surrounded by Black and White respectively
- M_B, M_W - number of **Moves** (on board and passes) played by Black and White respectively. Thus $M_B = B_B + C_B + P_B$ and $M_W = B_W + C_W + P_W$
- $M_\Delta = M_B - M_W$ - difference in move count, either 0 or 1.
  It is 1 if Black played the last move (pass).
  It is 1 if White played the very first pass.

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\begin{aligned}
\text{Area score} &= (E_B + (B_B + H_1)) - (E_W + B_W + \text{komi} + M_\Delta + H_1) && (1)\\
&= (E_B + B_B) - (E_W + B_W + \text{komi} + M_\Delta) && (2)\\
&= (E_B + B_B - M_B) - (E_W + B_W - M_W) - \text{komi} && (3)\\
&= (E_B + B_B - B_B - C_B - P_B) - (E_W + B_W - B_W - C_W - P_W) - \text{komi} && (4)\\
&= (E_B - C_B - P_B) - (E_W - C_W - P_W) - \text{komi} && (5)\\
&= \text{Territory score} && (6)
\end{aligned}
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