Game Twenty-Nine: AlphaGo v. Mi Yuting

Commentary by Mitani Tetsuya 7-dan
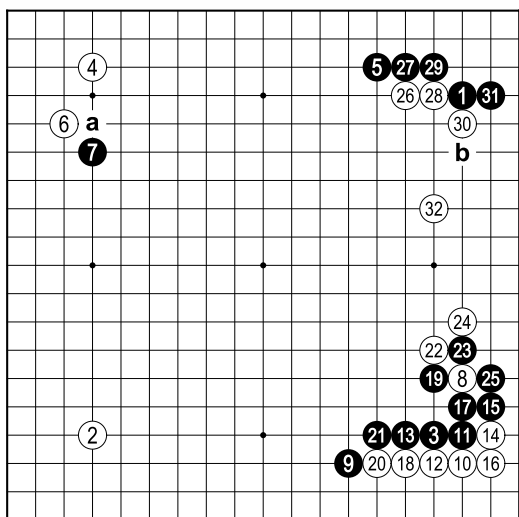
Black: Mi Yuting 9-dan
White: AlphaGo Master
Date: 31 December 2016
311 moves. White wins by half a point.

Figure 1 (1–32)

AlphaGo's early forcing moves

White 6. For some reason, when Black plays the 1 and 3 corner stones in this order, AlphaGo decides to play the knight's move enclosure of 6 instead of its usual move of 'a'. In the sixty games, AlphaGo chose 'a' a total of four times and 6 just once.

Black 7 is no doubt an imitation of AlphaGo's play, seeking a clue for how the shoulder hit is best answered. AlphaGo promptly plays elsewhere with 8.

Black 9. This large knight's extension is rare in professional play nowadays. White 10 is the standard response.

Black 19. Black usually bumps at 20 instead.
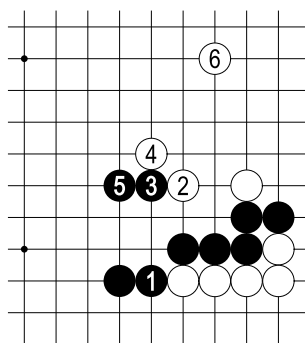

Dia. 1: joseki

Dia. 1. Black's bump of 1, followed by the exchange of 2–5 and White's extension of 6 is a common joseki.

In Dia. 1, Black gets a thick shape facing the lower side. Black 19 in the game instead aims to prevent White from easily settling on the right side.

White 22–30. Usually these exchanges are an unnecessary waste of potential. In this game, however, the positioning of white 32 is superb, and Black cannot think of a way to apply pressure to the white group. In retrospect, Black may have preferred the result of Dia. 1.
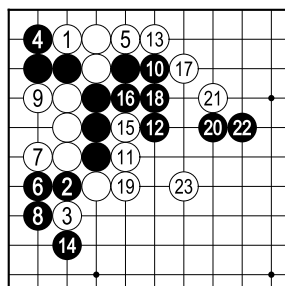
If White were to simply play 32 without exchanging 22–30, Black would respond with 'b' and launch an attack.

Figure 2 (33–66)
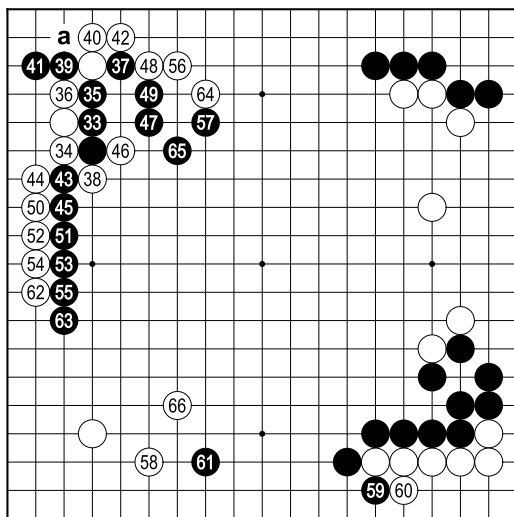
AlphaGo errs at joseki?

**White 42.** In this game, it is better for White to play 'a' instead.

Dia. 2: modern joseki

Dia. 2. If for example the popular joseki sequence up to 23 followed, White would have nothing to complain about. Black has two unsettled groups as opposed to his impressive centre thickness in the actual game.

White 52 and 54. It was clearly Alpha-Go's plan to capture the two black corner stones on a larger scale like this, but this way of playing is hard to recommend. The influence Black is building in the centre is impressive.
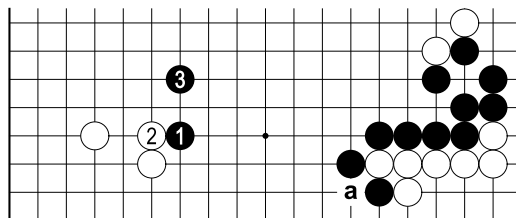
Black 55 is slack.
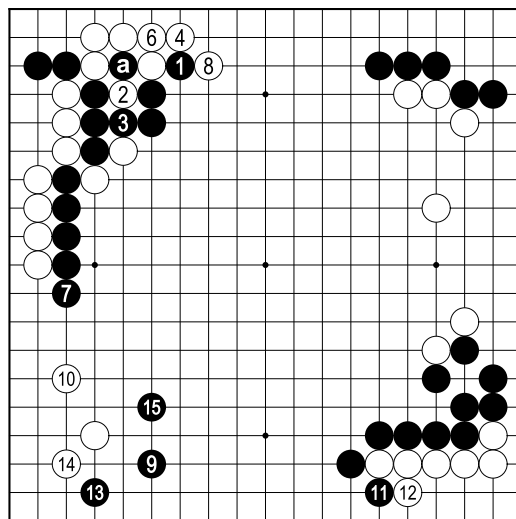
Dia. 3: Black builds up the centre
5 at a

Dia. 3. Black should have taken the opportunity to play atari at 1, forcing White into a low shape up to 6. Black 9–15 next go on to build Black's lower-side framework.

In the game, Black has to respond with 57 to white 56, after which White is able to take the initiative with 58.
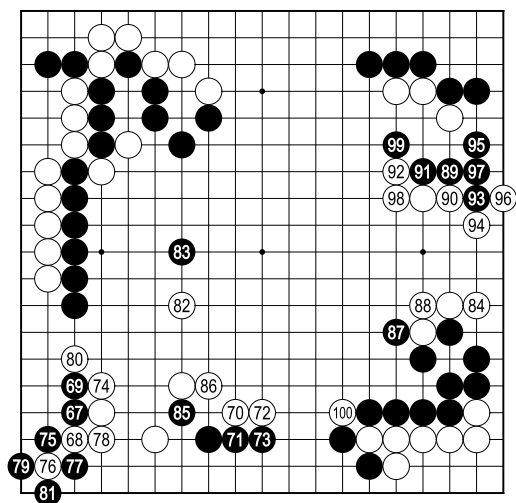
Black 61 is dubious.

Dia. 4: the shoulder hit is good

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Dia. 4. Black should instead play 1–3, expanding his presence in the centre. Black should not aim to surround territory on the lower side because of the weakness at 'a'.

White 66 in the game is perfectly positioned: suddenly Black finds it hard to build a centre framework.

**Figure 3 (67–100)**

Black switches to territorial play

Black 67. As Black can no longer hope for a big territory in the centre, he switches his aim to taking profit in the lower-left corner.

Black 87. Exchanging this move for white 88 looks bad. Black should have instead looked for a way to make the cut of 88 work.

Black 89–99. Black's profit from cutting off three white stones is not particularly big, but it is hard to find a better play elsewhere.

White 100 is severe.

Figure 4 (101–150)
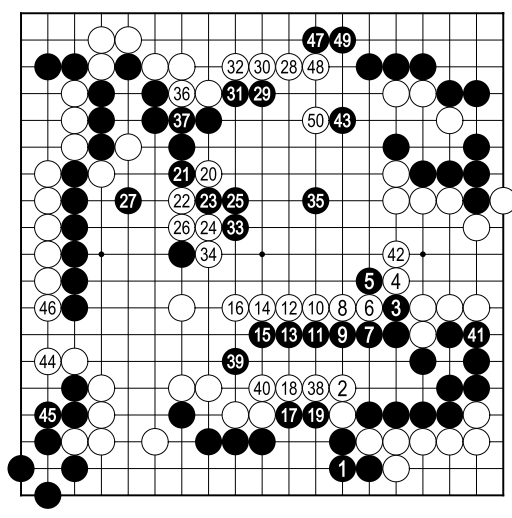
Endgame starts

Black 3 etc. handle White's cut neatly, but White establishes a strong control over the centre in the meantime.
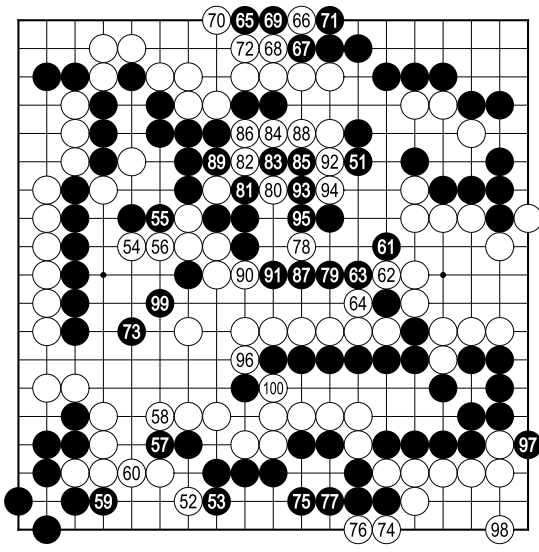
White 20–26 is a good sequence for fixing the shape in the centre. Next, white 28 claims the last big open area on the board.

Black 35. Cutting with 38 instead looks bigger.

White 44 and 46 are thick endgame moves. Although the game is close, it looks as if AlphaGo is confident in the outcome.

White 50 challenges Black's shape in the centre while also keeping an eye on the opportunity to draw out the three captured white stones to the right.
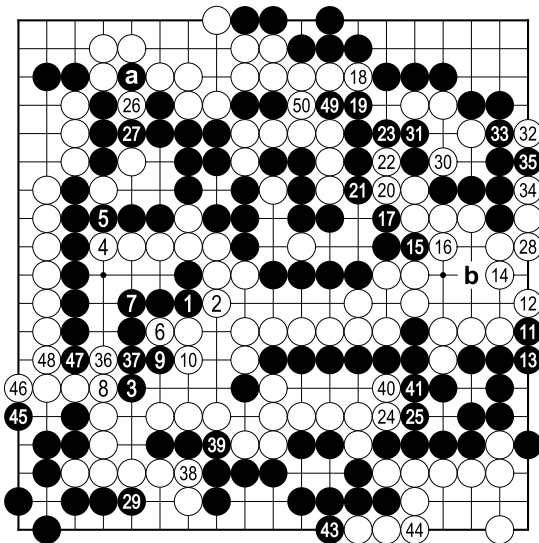
Figure 5 (151–200)

A fair trade

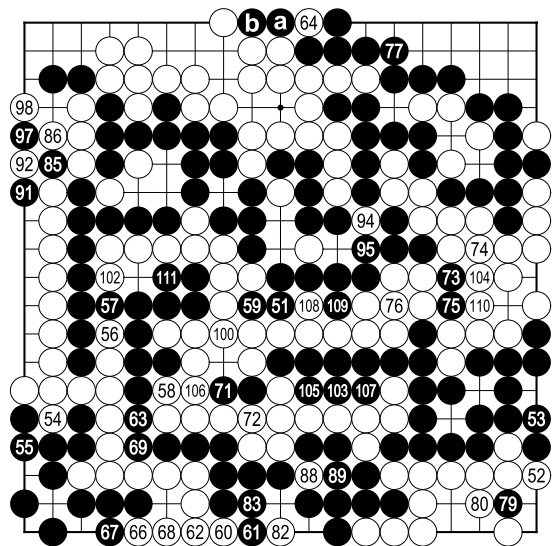In the late endgame, AlphaGo again starts to make small mistakes.

White 14. Instead, 'b' is correct.

White 18. White should first force with 19.

White 38. Exchanging this move for black 39 is a net loss.

White 42. Taking a ko is the smallest endgame move, worth a meagre ⅔ of a point.

Figure 7 (251–311)

65 at a; *70 at* b; *78, 81, 84, 87, 90, 93, 96, 99: ko at 64; 101 at 64*

White's half-point win

White 78–94. A big exchange takes place, but the result looks fair to both sides.

Figure 6 (201–250)

42 at a

AlphaGo wastes endgame points

Finally, the game ends in a half-point win for White. White lost several points in the late endgame, but it appears Black never had a chance to snatch victory.
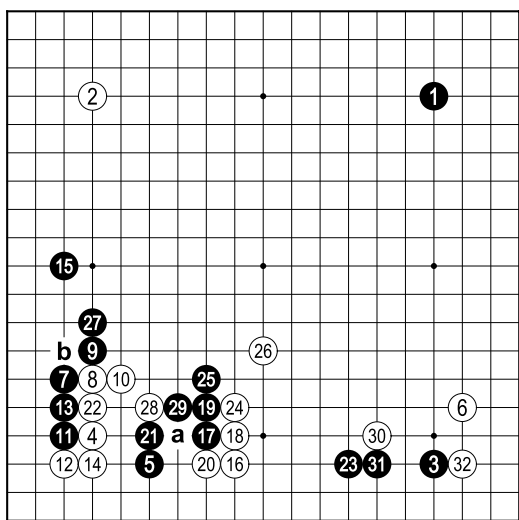
311 moves. White wins by half a point.

Game Thirty: AlphaGo v. Tang Weixing

Commentary by Shiung Feng 6-dan

Black: Tang Weixing 9-dan
White: AlphaGo Master
Date: 31 December 2016
186 moves. White wins by resignation.

Figure 1 (1–32)

Early fighting game

Figure 2 (33–66)
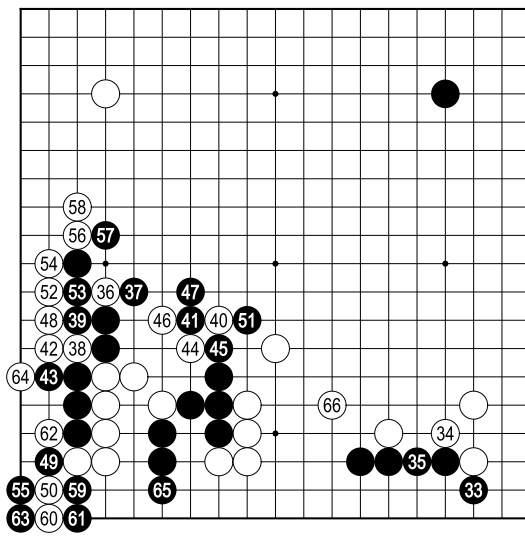

Black slips up

Dia. 1: good enough for Black

White 16 starts a fight at an early stage of the game. Black is forced to escape with 17, as white 'a' would form a big territory while also protecting against the cut at 22.

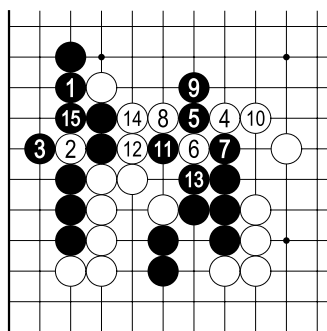**Black 27** protects against the cut of 'b'.

White 36 tests Black's response, and Black answers powerfully with 37.

Dia. 1. It would have been normal for Black to simply defend with 1–3. The sequence up to black 15 probably follows, and one cannot say Black is worse off.
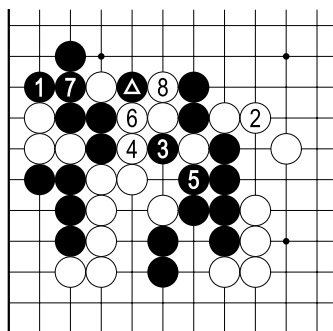
Black 49. Black no longer wants to directly capture the three white stones on the left side, and instead attempts to complicate the game.

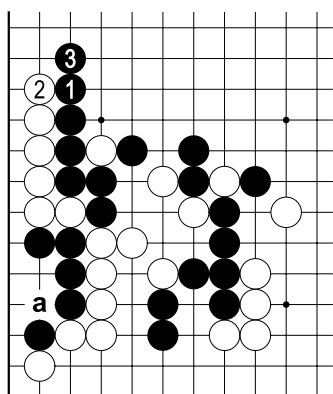**White 54.** If White plays 62 instead, black 54 is sente. If White does not

answer, black 64 wins the capturing race because of the earlier 49–50 exchange.

Dia. 2: bad exchange for Black

Dia. 2. If Black plays 1, a sequence similar to that in Dia. 1 would follow. However, now ❷–8 has become a bad exchange for Black.

Black 55 is bad.

Dia. 3: Black is thick

Dia. 3. Black should extend on the left side with 1 and 3. Eventually, White has to return to capture the corner black stones with 'a' and Black will have built impressive centre thickness.

Up to 66 in the game, White gets its head poking out on the upper-left side and also finds the time to make a connected shape for its stones in the centre.
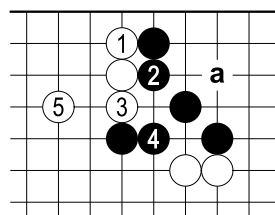
Figure 3 (67–100)
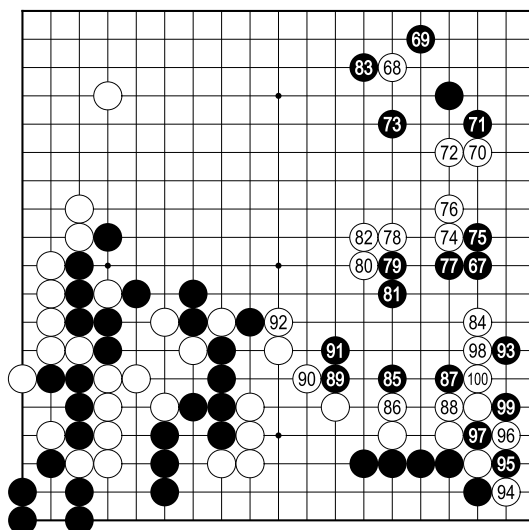
Black's attack backfires

Black 69. The normal one-space extension of 72 instead would have been good enough.

Black 71 is usually fashioned into an attacking move, but in this game it is Black who ends up under attack on the right side. The fault lies with black 69.
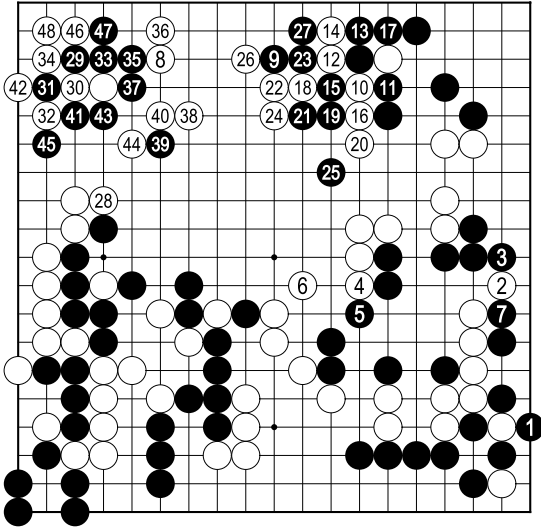
Black 83. Black would like to extend to 98 instead, but he finds he has no time.

Dia. 4: a weakness remains

Dia. 4. White 1–5 is severe. Not only does White start to build a framework on the upper side, Black is still left with a weakness at 'a'.
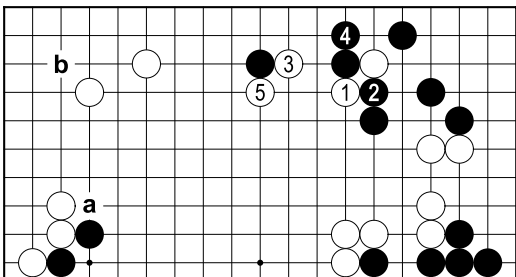
Figure 4 (101–150)

49 at 31; 50 at 30

Black's corner invasion dies

White 4 and 6 are calm. White does not need to try to kill the black group.

White 12 and 14 are usually bad technique, but White had its reasons in this game.


Dia. 5: good technique, but…

Dia. 5. The textbook technique is 1–5, with white 3 setting up a ladder at 4. In the game, however, White gets sente to play 'a', after which black 'b' no longer lives in the corner.

White 28. After this turn, Black does not have enough space to live in the upper-left corner. As the territorial balance of the game favours White, black 29 makes the attempt nevertheless.

Up to 50, Black's corner invasion dies and the game nears its end.

Figure 5 (151–186)
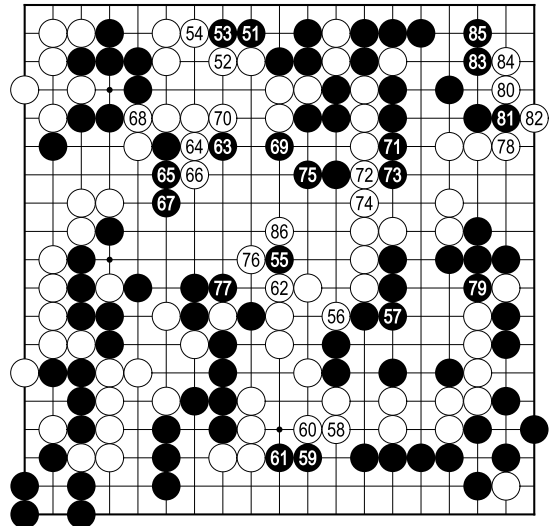
Black looks for a place to resign

The game continues for some more moves, but the main story of the game is over.
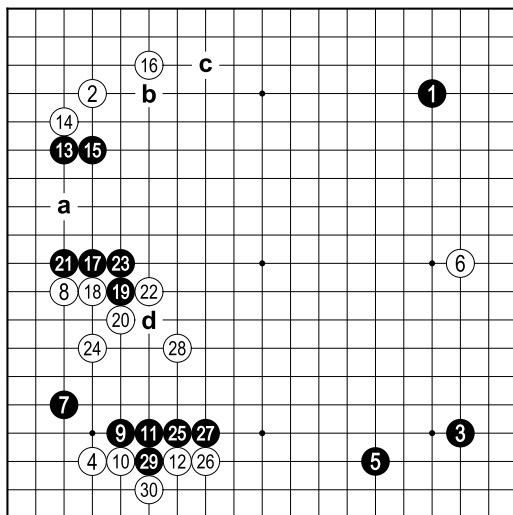
186 moves. White wins by resignation.

Game Thirty-One: AlphaGo v. Li Qincheng

Commentary by Antti Törmänen 1-dan

Black: AlphaGo Master
White: Li Qincheng 9-dan
Date: 1 January 2017
179 moves. Black wins by resignation.

Figure 1 (1–30)

Game Three, revisited

Up to 15, the opening is identical to Game Three. Instead of white 14, 'a' is easier to recommend.

White 16. In Game Three, White played 'b' instead. This change drives Black to play the powerful shoulder hit of 17.

If White plays 'b' instead of 16, he has more fighting power in the centre but is left with the weak point at 'c'. In that case Black will choose a more peaceful way of playing on the left side, aiming to get to 'c' first.

White 28 is necessary to prevent Black's cut at 'd'.
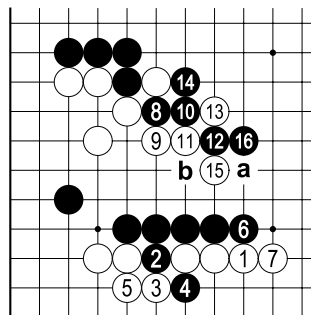
Dia. 1: White gets walled in

Dia. 1. If White extends to 1, Black exchanges 2–7 and encloses White with the sequence of 8–16. The miai of 'a' and 'b' ensures that the white group cannot escape.
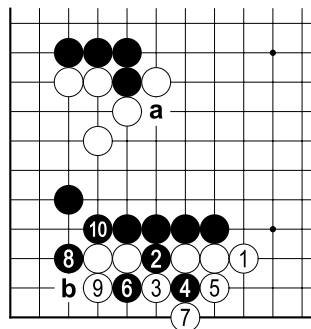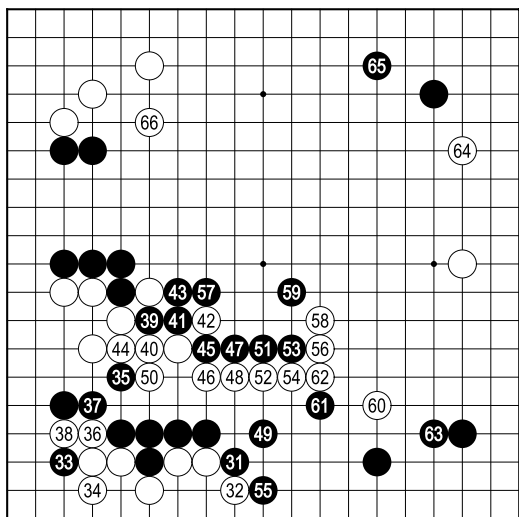

Dia. 2: no better for White

Dia. 2. White 5 in response to black 4 fares no better. After black 10, Black is aiming at the cut of 'a' and the territorially big move of 'b'.

It follows from Dia. 1 and 2 that White 28 in Figure 1 is necessary.

Figure 2 (31–66)

White fights territorially

Figure 3 (67–100)

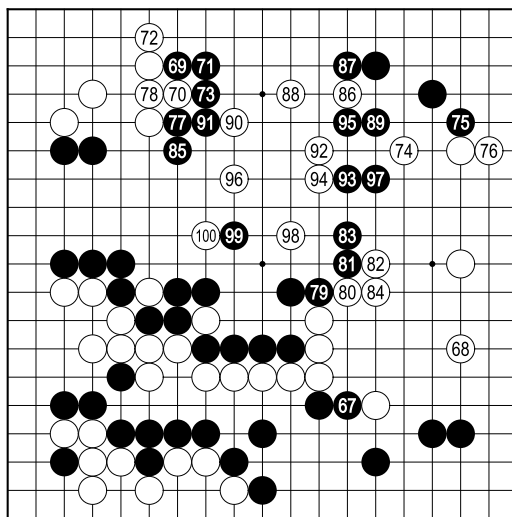Black's centre framework takes form

White 36 and 38 take early profit at the expense of letting Black cut with 39. After the cut, the sequence up to 60 is basically forced.

Black 63 efficiently forms the lower side into black territory.

White 66. Although the territorial balance of the game is fairly close, White has nothing to show in exchange for Black's impressive centre thickness. In the second half of the game, White must stick to his territory while making sure that Black cannot make good use of his centre stones.

Overall, White has been under heavy pressure ever since early in the game.

**White 68** in response to black 67 is a painstaking move. White 81 instead would be thick, but White would lose out on territory in the exchange.

Black 69 is a characteristic move of go AI. When there is no obvious big move available, AI tends to play the most forceful attachment that has prospects of building territory. In this board position, only black 69 meets these criteria.

White 74 is a normal move but it lets black play 77–85, building a promising framework in the centre.
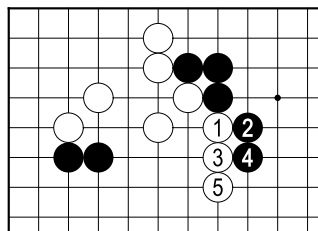

Dia. 3: White erases the centre framework

Dia. 3. Instead of 74, it looked preferable for White to develop into the centre with 1–5. Next, Black would probably invade on the right side, but that way the game would remain fightable for White.

After 85, the game is clearly good for Black. White 86 and on go to invade the black framework, and although White manages to live the score does not change.

Figure 5 (141–179)

Black wraps up the game

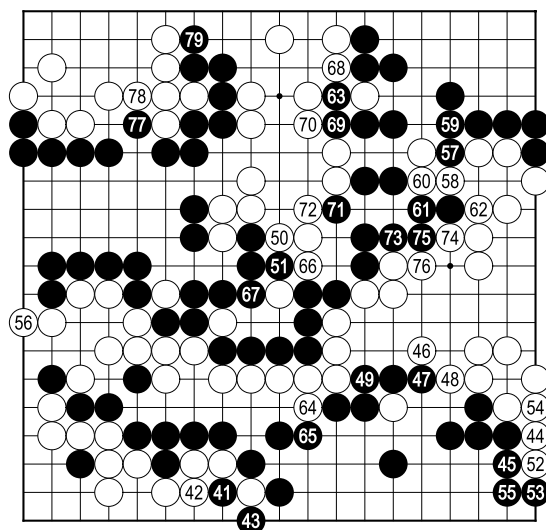*179 moves. Black wins by resignation.*

Figure 4 (101–140)
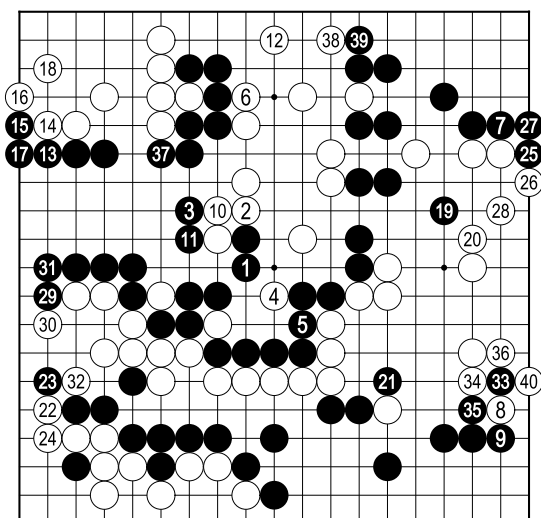
White's success is not enough

White 6. White lives in the centre in a fashion that should be called a great success, and yet Black leads by at least ten points on the board.

For the rest of the game, AlphaGo does nothing special, simply keeping to its lead.