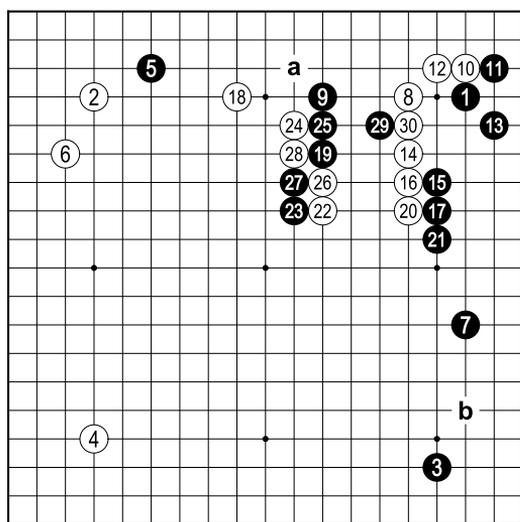


Game One: AlphaGo v. Lee Sedol

Commentary by Antti Törmänen 1-dan

Black: Lee Sedol 9-dan
White: AlphaGo Lee
Date: 9 March 2016
186 moves. White wins by resignation.

Figure 1 (1–30)

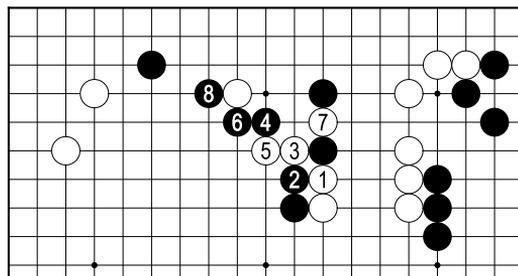


Lee's ploy backfires

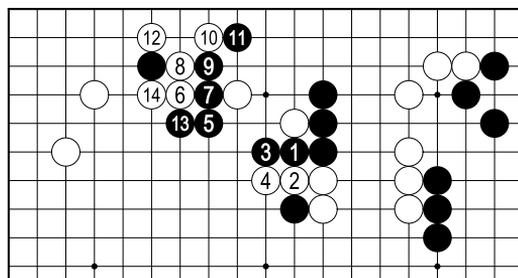
Black 7. Lee opens the five-game match with a move that does not exist in opening databases, testing how AlphaGo deals with new moves. Instead of black 7, 'a' is the most common move in modern professional go.

White 10–14 are considered a local loss for White, as Black gets to make fourth-line territory on the right side with 15 etc. After Black plays 21, however, black 7 is too close to the thick upper-right corner black shape; Black would prefer 7 to be all the way at 'b' instead.

White 22. With this cap the upper-side fight starts favouring White. Black 23 resists strongly, but White's counter of 24 took Lee by surprise.



Dia. 1: Lee's expectation



Dia. 2: AlphaGo's expectation (1)

Dia. 1. Lee expected White to cut through with 1–3, after which black 4 becomes a good move. Up to black 8, Black settles his stones on the upper side.

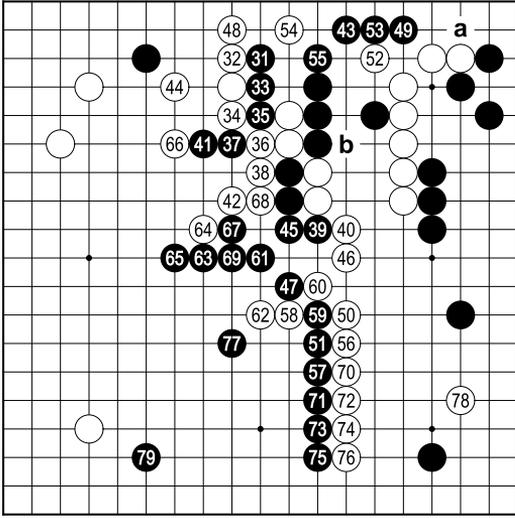
Black 27. AlphaGo thought this move was a mistake.

Dia. 2. According to AlphaGo, Black should push through with 1–3 and then press with 5. White will immediately strike at Black's weak point with 6, but up to 14, Black manages to settle his

group in sente. This would lead to an even game.

White 28. White has prevented Black's sequence in Dia. 1, and the fighting gets increasingly heated.

Figure 2 (31–79)

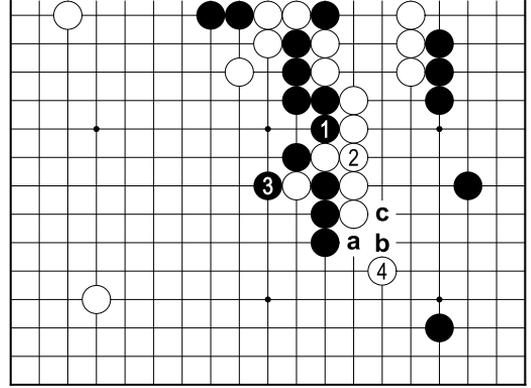


The fight spreads

Up to 55, Black lives thanks to the miai of 'a' and 'b'. The fighting then develops towards the lower side.

White 58. White asks Black to help solidify its shape, but Black declines with 61.

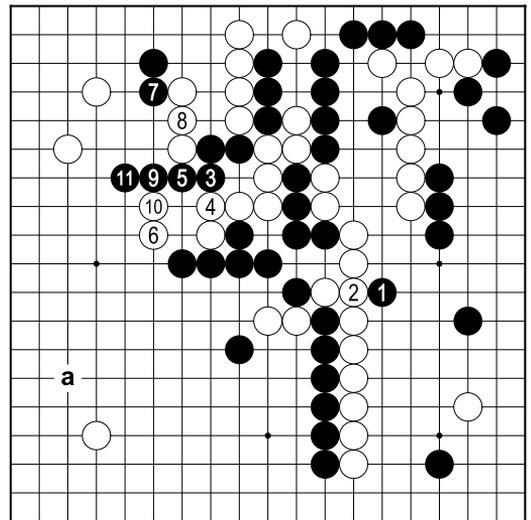
Dia. 3. Black can connect his stones with 1–3, but then White can jump ahead with the knight's move of 4 without having to worry about the black cut of 'a–c'. In the game Lee presumably judged that the position was not favourable and chose a way of playing that prolongs the fighting.



Dia. 3: AlphaGo's aim

White 70–76. Just when the fighting in the centre seems to get out of control, AlphaGo chooses to peacefully sacrifice its two isolated stones. Black has nothing to complain about with the capture of 77, but White also gets to play the big move of 78.

Black 79. Although the corner approach looks big to human eyes, AlphaGo did not think it was a good move.

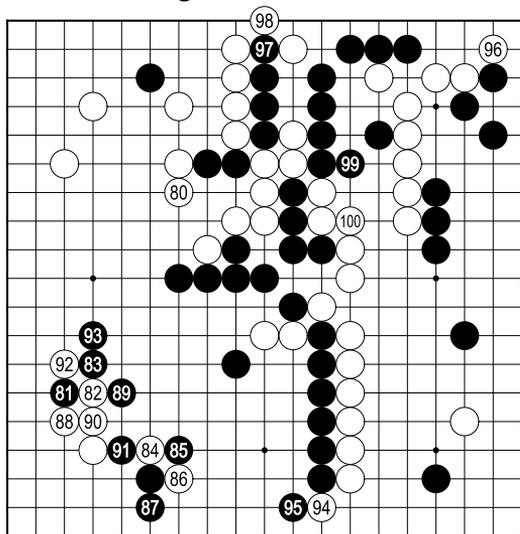


Dia. 4: AlphaGo's expectation (2)

Dia. 4. According to AlphaGo, Black should exchange 1–2 and then cut with 3 etc. After black 11 a complicated fight can be expected.

Interestingly, if Black were to approach the lower-left corner instead of 1, AlphaGo thinks ‘a’ is the correct direction of play. AlphaGo seems to prefer to use the lower-side black thickness for attacking the white corner stone rather than for building territory.

Figure 3 (80–100)

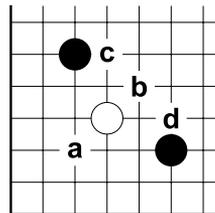


AlphaGo declares victory

White 80. White’s not responding in the lower-left corner surprised many professionals.

Dia. 5. Traditionally it has been considered bad to get approached from both sides with a star-point stone. Black has strong follow-up moves at ‘a’ and ‘b’, and White’s playing either of them does not prevent Black from playing

the other. Consequently, White usually attaches at ‘c’ or ‘d’, but attaching to the opponent’s stone helps the opponent make strong shape.

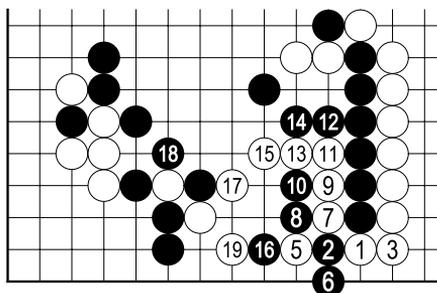


Dia. 5: double-approached star-point stone

White 80 removes most of the bad potential in the upper-left corner white position at the expense of speed; it can be considered White’s declaration of victory.

In response to black 81, White starts settling its group quickly with 82–86.

White 92. In addition to living in the corner, White has set up an endgame sequence on the lower side for later.

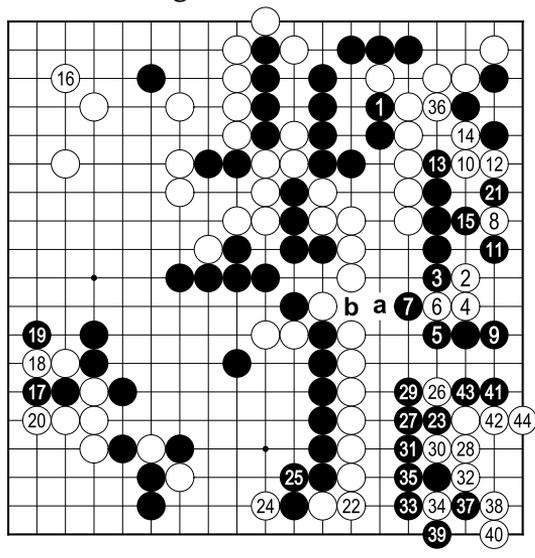


*Dia. 6: White’s endgame tesuji
4: elsewhere*

Dia 6. After the hane-and-connection of 1–3, White has a big follow-up at 5. If Black tries to resist with 6, White cuts with 7, and up to 19, Black’s shape collapses. The fact that white 17 is sente

plays a key part in this sequence, and is the reason why White cut with 86 in Figure 3.

Figure 4 (101–144)



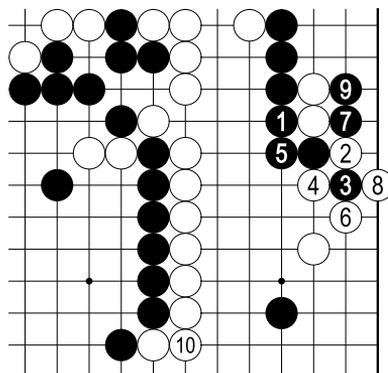
AlphaGo's severe invasion

White 2 is a severe move, and Black surprisingly has no good response. If Black had made the exchange of 'a-b' in time, Black would be able to resist with 6.

The opening choice of black 7 in Figure 1 still haunts Black.

Black 5 is a painstaking move, making the white invasion as hard to carry out as possible.

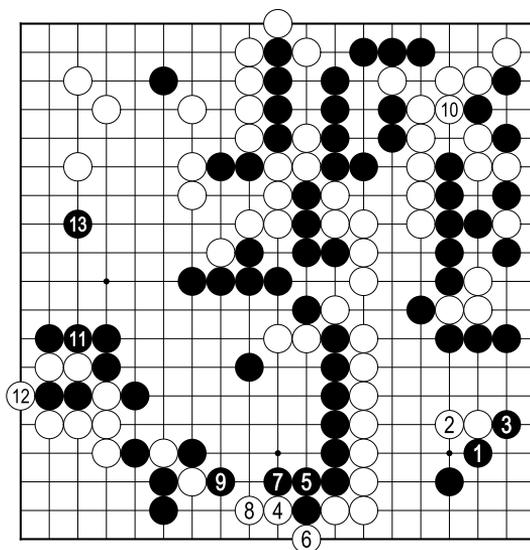
Dia. 7. If Black simply blocks with 1 and allows White to capture a black stone with 8, then next white 10 takes hold of the corner on a large scale. This way Black does not have enough territory to win the game.



Dia. 7: the corner becomes white

Up to 15, White captures three black stones in the upper-right corner in sente for a considerable territorial profit. Next, white 16 consolidates the white territory in the upper-left corner, and it becomes clear that White holds the lead.

Black 23. Lee said he regretted having played this move.



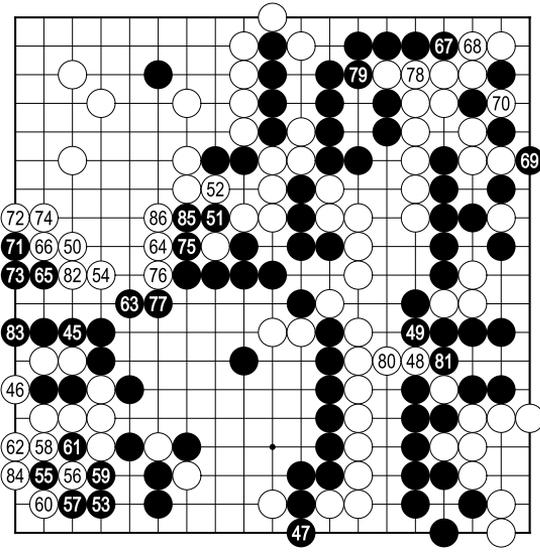
Dia. 8: better for Black

Dia. 8. According to Lee, Black should surround territory in the lower-right

corner with 1–3. Next, White plays the big sente endgame of 4–9 and then captures three black stones with 10. Assuming black 11–13 next on the left side, the score is arguably closer than in the actual game, but a white win is nevertheless certain.

Up to 44, White lives in the lower-right corner and the endgame begins.

Figure 5 (145–186)



White wraps up the game

Regular endgame follows up to 186, after which Black decides the margin is too wide to warrant playing until the end.

186 moves. White wins by resignation.