

Technical Report: Another Solution for Hex 7x7

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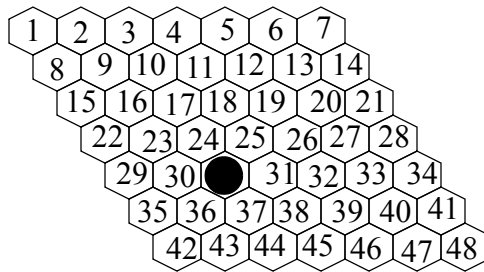
1.0 Abstract

Hex is an interesting board game, which was first invented in 1942 by Danish engineer Piet Hein. Nobel Laureate John Nash, the hero in the movie “A Beautiful Mind”, reinvented it in 1948 and proved that Black side (always playing first) should have a way to win in any size of Hex games. However, John Nash’s proof has no any indication on how to win a Hex game. For over half a century, a solution (winning strategy) for Hex has continued to elude researchers. Last year, we invented a decomposition method which help us find a winning strategy on the Hex 7x7 board. In this paper, we apply the same method but describes another solution on Hex 7x7 board.

2.0 Detail Description on the New Solution

Both the notation and the grammar used in the following description are exactly the same as that of [1]. The new solution is recursively represented by 63 Local Patterns instead of 41 Local Patterns in our previous solution.

2.1 Local Pattern 1:



```
If (WhiteMove == 1 || 2 || 3 || 8 || 9 || 10 || 14 || 15 || 16 || 17 || 20 || 21 || 22 || 23 || 26 || 27 || 28 || 29 || 30 || 32 || 33 || 34 || 35 || 39 || 40 || 41 || 46 || 47 || 48) {
```

```
BlackMove = 18;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern1 + LocalPattern2(24,25) +  
LocalPattern5(19,11,12,13,4,5,6,7) + LocalPattern5(31,36,37,38,42,43,44,45);
```

```
}
```

```
else if (WhiteMove == 7 || 13 || 19) {
```

```

BlackMove = 18;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 + LocalPattern2(24,25)+
LocalPattern5(17,12,11,10,6,5,4,3) + LocalPattern5(31,36,37,38,42,43,44,45);

}

else if (WhiteMove == 31 || 38 || 45) {

BlackMove =30;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 +
LocalPattern6(35,36,37,42,43,44) +
LocalPattern20(29,25,24,23,22,19,18,17,16,15,13,12,11,10,9,8,7,6,5,4,3,2,1);

}

else if (WhiteMove == 43) {

BlackMove = 30;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 +
LocalPattern4(31,35,36,37,38,42,44,45) +
LocalPattern20(29,25,24,23,22,19,18,17,16,15,13,12,11,10,9,8,7,6,5,4,3,2,1);

}

else if (WhiteMove == 36 || 42) {

BlackMove = 31;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 + LocalPattern2(19,25) +
LocalPattern5(32,37,38,39,43,44,45,46) +
LocalPattern19(30,26,25,24,23,22,20,19,18,17,16,15,13,12,11,10,9,8,7,6,5,4,3,2,1);

}

else if (WhiteMove == 37) {

BlackMove = 31;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 +
LocalPattern3(36,38,42,43,44,45) +
LocalPattern19(30,26,25,24,23,22,20,19,18,17,16,15,13,12,11,10,9,8,7,6,5,4,3,2,1);

}

else if (WhiteMove == 44) {

```

```

BlackMove = 31;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 +
LocalPattern4(32,36,37,38,39,43,45,46) +
LocalPattern19(30,26,25,24,23,22,20,19,18,17,16,15,13,12,11,10,9,8,7,6,5,4,3,2,1);
}

else if (WhiteMove == 11) {

BlackMove = 18;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 +

LocalPattern11(1,2,3,4,5,6,8,9,10,12,15,16,17,22,23,24,25,26,29,30,31,32,33,35,36,37,38
,39,40,42,43,44,45,46,47);

else if (WhiteMove == 12)

BlackMove = 18;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 +

LocalPattern12(1,2,3,4,5,8,9,10,11,15,16,17,22,23,24,25,26,29,30,31,32,33,35,36,37,38,3
9,40,42,43,44,45,46,47);

else if (WhiteMove == 6)

BlackMove = 18;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 +

LocalPattern14(1,2,3,4,5,8,9,10,11,12,15,16,17,22,23,24,25,26,29,30,31,32,33,35,36,37,3
8,39,40,42,43,44,45,46,47);

else if (WhiteMove == 4)

BlackMove = 18;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 +

LocalPattern15(1,2,3,5,6,7,8,9,10,11,12,13,15,16,17,19,22,23,24,25,26,29,30,31,32,33,35
,36,37,38,39,40,42,43,44,45,46,47);

else if (WhiteMove == 5)

BlackMove = 18;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 + LocalPattern2(24,25) +

```

LocalPattern9(19,17,13,12,11,10,7,6,4,3) + LocalPattern5(31,36,37,38,42,43,44,45);

else if (WhiteMove == 24)

BlackMove = 25;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 +

LocalPattern41(42,36,35,30,29,23,22,19,18,17,16,15,13,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern8(26,31,32,33,37,38,39,40,43,44,45,46,47);

else if (WhiteMove == 25)

BlackMove = 24;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 +

LocalPattern34(23,19,18,17,16,15,13,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern5(31,36,37,38,42,43,44,45);

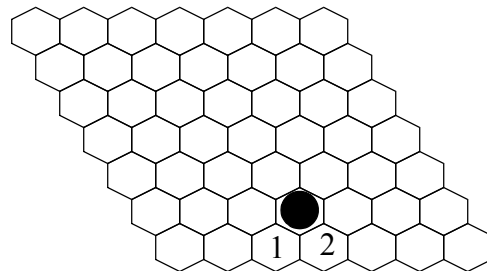
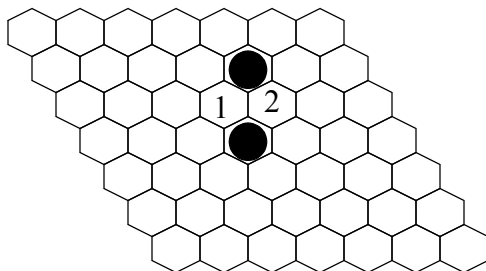
else if (WhiteMove == 18)

BlackMove = 26;

SumOfLocalGames = SumOfLocalGames - LocalPattern1 + LocalPattern2(25,31) +

LocalPattern22(42,36,35,30,29,24,23,22,20,19,17,16,15,13,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern21(32,33,37,38,39,40,43,44,45,46,47);

2.2 Local Pattern 2:

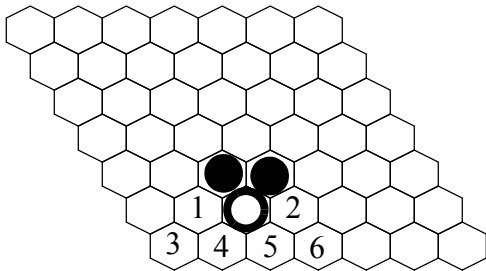


```

If (WhiteMove == 1) {
BlackMove = 2;
SumOfLocalGames = SumOfLocalGames - LocalPattern2;
}
else if (WhiteMove == 2) {
BlackMove = 1;
SumOfLocalGames = SumOfLocalGames - LocalPattern2;
}

```

2.3 Local Pattern 3:

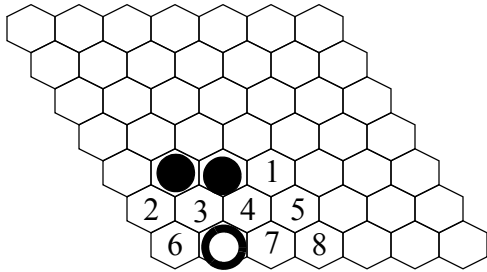


```

If (WhiteMove == 1 || 3 || 4) {
BlackMove = 2;
SumOfLocalGames = SumOfLocalGames - LocalPattern3 + LocalPattern2(5,6);
}
else if (WhiteMove == 2 || 5 || 6) {
BlackMove = 1;
SumOfLocalGames = SumOfLocalGames - LocalPattern3 + LocalPattern2(3,4);
}

```

2.4 Local Pattern 4:



```
If (WhiteMove == 1 || 4 || 5 || 7 || 8 ) {
```

```
BlackMove = 6;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern4 + LocalPattern2(2,3);
```

```
}
```

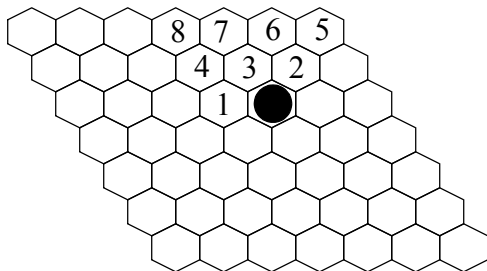
```
else if (WhiteMove == 2 || 3 || 6) {
```

```
BlackMove = 5;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern4 + LocalPattern2(1,4) +  
LocalPattern2(7,8);
```

```
}
```

2.5 Local Pattern 5:



```
If (WhiteMove == 1 || 3 || 4 || 7 || 8 ) {
```

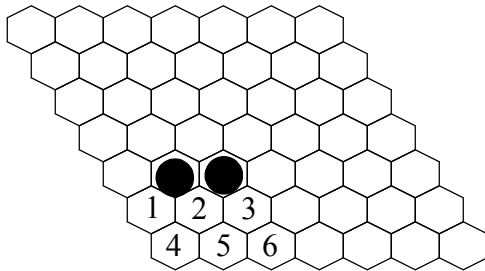
```
BlackMove = 2;
```

```

SumOfLocalGames = SumOfLocalGames - LocalPattern5 + LocalPattern2(5,6) ;
}
else if (WhiteMove == 2 || 5 || 6) {
BlackMove = 4;
SumOfLocalGames = SumOfLocalGames - LocalPattern5 + LocalPattern2(1,3) +
LocalPattern2(7,8);
}

```

2.6 Local Pattern 6:

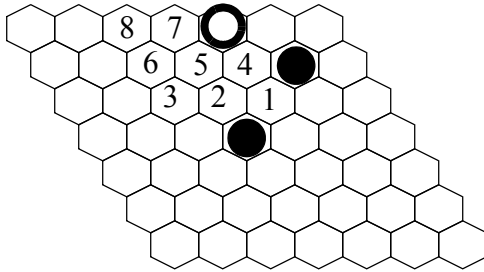


```

If (WhiteMove == 3 || 5 || 6) {
BlackMove = 4;
SumOfLocalGames = SumOfLocalGames - LocalPattern6 + LocalPattern2(1,2);
}
else if (WhiteMove == 1 || 2 || 4) {
BlackMove = 3;
SumOfLocalGames = SumOfLocalGames - LocalPattern6 + LocalPattern2(5,6) ;
}

```

2.7 Local Pattern 7:



```
If (WhiteMove == 2 || 3 || 4 || 5 || 6 || 7 || 8) {
```

```
BlackMove = 1;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern7 ;
```

```
}
```

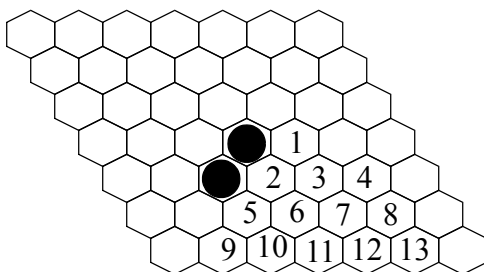
```
else if (WhiteMove == 1) {
```

```
BlackMove = 2;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern7 + LocalPattern16(3,5,6,7,8,4) ;
```

```
}
```

2.8 Local Pattern 8:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 6 || 7 || 8 || 11 || 12 || 13) {
```

```
BlackMove = 5;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern8 + LocalPattern2(9,10) ;
```



```

}

else if (WhiteMove == 5 || 9) {

BlackMove = 3;

SumOfLocalGames = SumOfLocalGames - LocalPattern8 + LocalPattern2(1,2) +
LocalPattern5(4,6,7,8,10,11,12,13);

}

else if (WhiteMove == 10) {

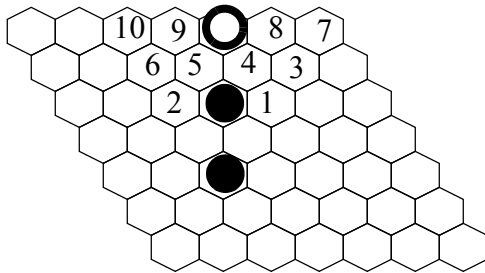
BlackMove = 5;

SumOfLocalGames = SumOfLocalGames - LocalPattern8 +
LocalPattern40(1,2,3,6,7,9,11,12) ;

}

```

2.9 Local Pattern 9:



```

If (WhiteMove == 1 || 3 || 4 || 7 || 8) {

BlackMove = 6;

SumOfLocalGames = SumOfLocalGames - LocalPattern9 + LocalPattern2(2,5) +
LocalPattern2(9,10);

}

else if (WhiteMove == 2 || 5 || 6 || 9 || 10) {

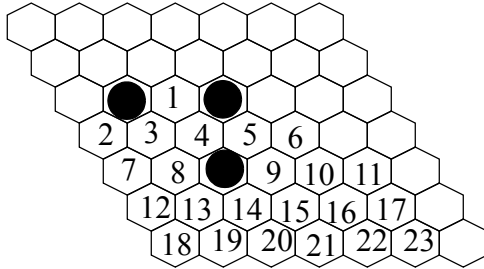
BlackMove = 3;

SumOfLocalGames = SumOfLocalGames - LocalPattern9 + LocalPattern2(1,4) +
LocalPattern2(7,8);

```

}

2.10 Local Pattern 10:



```
If (WhiteMove == 6 || 9 || 10 || 11 || 14 || 15 || 16 || 17 || 20 || 21 || 22 || 23 ) {
```

```
BlackMove = 13;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern10 + LocalPattern2(18,19) +  
LocalPattern2(4,5) + LocalPattern16(12,8,7,3,2,1);
```

```
}
```

```
else if (WhiteMove == 19) {
```

```
BlackMove = 13;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern10 + LocalPattern2(4,5) +  
LocalPattern16(9,14,15,20,21,18) + LocalPattern16(12,8,7,3,2,1);
```

```
}
```

```
else if (WhiteMove == 13 || 18) {
```

```
BlackMove = 5;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern10 + LocalPattern13(3,4,8,1) +  
LocalPattern8(6,9,10,11,14,15,16,17,19 20 21 22 23);
```

```
}
```

```
else if (WhiteMove ==4) {
```

```
BlackMove = 5;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern10 +  
LocalPattern46(18,13,12,8,7,3,2,1) + LocalPattern8(6,9,10,11,14,15,16,17,19 20 21 22  
23);
```

```

}

else if (WhiteMove ==5) {

BlackMove = 4;

SumOfLocalGames = SumOfLocalGames - LocalPattern10 + LocalPattern2(1,3) +
LocalPattern5(9,13,14,15,18,19,20,21);

}

else if (WhiteMove ==2 || 3 || 7 || 8 || 12) {

BlackMove = 1;

SumOfLocalGames = SumOfLocalGames - LocalPattern10 + LocalPattern2(4,5) +
LocalPattern5(9,13,14,15,18,19,20,21);

}

else if (WhiteMove ==1) {

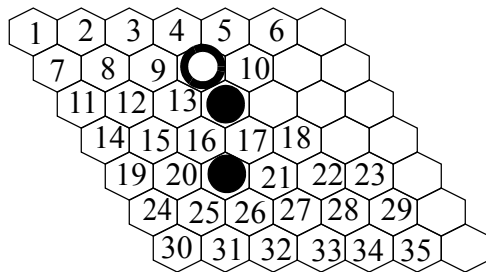
BlackMove = 3;

SumOfLocalGames = SumOfLocalGames - LocalPattern10 + LocalPattern2(4,8) +
LocalPattern5(9,13,14,15,18,19,20,21);

}

```

2.11 Local Pattern 11:



```

If (WhiteMove == 18 || 21 || 22 || 23 || 26 || 27 || 28 || 29 || 32 || 33 || 34 || 35 ) {

BlackMove = 25;

SumOfLocalGames = SumOfLocalGames - LocalPattern11 + LocalPattern2(30,31) +
LocalPattern2(16,17) + LocalPattern52(24,20,19,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1);

```

```

}

else if (WhiteMove == 31) {

BlackMove = 25;

SumOfLocalGames = SumOfLocalGames - LocalPattern11 + LocalPattern2(16,17) +
LocalPattern16(21,26,27,32,33,30) +
LocalPattern52(24,20,19,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1);

}

else if (WhiteMove == 25 || 30) {

BlackMove = 17;

SumOfLocalGames = SumOfLocalGames - LocalPattern11 +
LocalPattern57(20,16,15,13,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern8(18,21,22,23,26,27,28,29,31,32,33,34,35);

}

else if (WhiteMove ==16) {

BlackMove = 17;

SumOfLocalGames = SumOfLocalGames - LocalPattern10 +
LocalPattern47(30,25,24,20,19,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern8(18,21,22,23,26,27,28,29,31,32,33,34,35);

}

else if (WhiteMove ==17) {

BlackMove = 16;

SumOfLocalGames = SumOfLocalGames - LocalPattern10 +
LocalPattern36(15,13,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern5(21,25,26,27,30,31,32,33);

}

else if (WhiteMove ==1 || 2 || 3 || 4 || 7 || 8 || 9 || 11 || 12 || 13 || 14 || 15 || 19 || 20 || 24) {

BlackMove = 10;

SumOfLocalGames = SumOfLocalGames - LocalPattern11 + LocalPattern2(5,6) +
LocalPattern2(16,17) + LocalPattern5(21,25,26,27,30,31,32,33);

```

```

}

else if (WhiteMove == 5 || 6 || 10) {

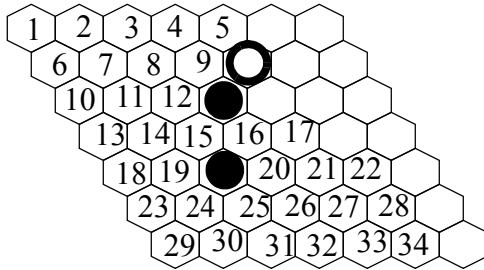
BlackMove = 12;

SumOfLocalGames = SumOfLocalGames - LocalPattern11 +
LocalPattern5(11,9,8,7,4,3,2,1) +
LocalPattern10(13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35);

}

```

2.12 Local Pattern 12:



```

If (WhiteMove == 17 || 20 || 21 || 22 || 25 || 26 || 27 || 28 || 31 || 32 || 33 || 34) {

BlackMove = 24;

SumOfLocalGames = SumOfLocalGames - LocalPattern12 + LocalPattern2(29,30) +
LocalPattern2(15,16) + LocalPattern53(23,19,18,14,13,12,11,10,9,8,7,6,5,4,3,2,1);

}

else if (WhiteMove == 30) {

BlackMove = 24;

SumOfLocalGames = SumOfLocalGames - LocalPattern12 + LocalPattern2(15,16) +
LocalPattern16(20,25,26,31,32,29) +
LocalPattern53(23,19,18,14,13,12,11,10,9,8,7,6,5,4,3,2,1);

}

else if (WhiteMove == 24 || 29) {

BlackMove = 16;

```

```

SumOfLocalGames = SumOfLocalGames - LocalPattern12 +
LocalPattern58(19,15,14,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern8(17,20,21,22,25,26,27,28,30,31,32,33,34);

}

else if (WhiteMove ==15) {

BlackMove = 16;

SumOfLocalGames = SumOfLocalGames - LocalPattern12 +
LocalPattern48(29,24,23,19,18,14,13,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern8(17,20,21,22,25,26,27,28,30,31,32,33,34);

}

else if (WhiteMove ==16) {

BlackMove = 15;

SumOfLocalGames = SumOfLocalGames - LocalPattern12 +
LocalPattern8(14,12,11,10,9,8,7,6,5,4,3,2,1) + LocalPattern5(20,24,25,26,29,30,31,32);

}

else if (WhiteMove ==1 || 2 || 3 || 6 || 7 || 8 || 10 || 11||12 || 13 || 14 || 18 || 19 || 23) {

BlackMove = 9;

SumOfLocalGames = SumOfLocalGames - LocalPattern12 + LocalPattern2(4,5) +
LocalPattern2(15,16) + LocalPattern5(20,24,25,26,29,30,31,32);

}

else if (WhiteMove == 5 || 9) {

BlackMove = 11;

SumOfLocalGames = SumOfLocalGames - LocalPattern12 +
LocalPattern5(10,8,7,6,4,3,2,1) +
LocalPattern10(12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34);

}

else if (WhiteMove == 4) {

BlackMove = 7;

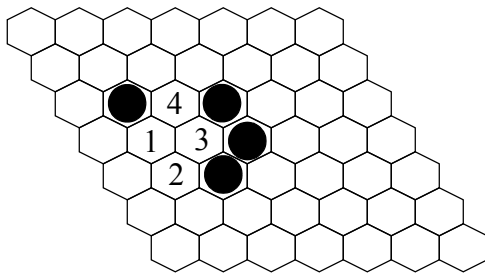
```

```

SumOfLocalGames = SumOfLocalGames - LocalPattern12 + LocalPattern2(2,3) +
LocalPattern17(5,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31
,32,33,34);
}

```

2.13 Local Pattern 13:

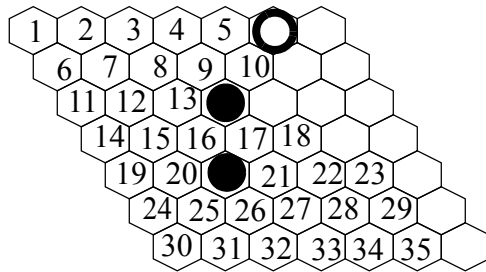


```

If (WhiteMove == 1 || 2 || 3) {
BlackMove = 4;
SumOfLocalGames = SumOfLocalGames - LocalPattern13;
}
else if (WhiteMove == 4) {
BlackMove = 1;
SumOfLocalGames = SumOfLocalGames - LocalPattern13 + LocalPattern2(2,3);
}

```

2.14 Local Pattern 14:



```
If (WhiteMove == 18 || 21 || 22 || 23 || 26 || 27 || 28 || 29 || 32 || 33 || 34 || 35) {
```

```
BlackMove = 25;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern14 + LocalPattern2(30,31) +
LocalPattern2(16,17) + LocalPattern54(24,20,19,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1);
```

```
}
```

```
else if (WhiteMove == 31) {
```

```
BlackMove = 25;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern14 + LocalPattern2(16,17) +
LocalPattern16(21,26,27,32,33,30) +
LocalPattern54(24,20,19,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1);
```

```
}
```

```
else if (WhiteMove == 25 || 30) {
```

```
BlackMove = 17;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern14 +
LocalPattern60(20,16,15,13,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern8(18,21,22,23,26,27,28,29,31,32,33,34,35);
```

```
}
```

```
else if (WhiteMove == 16) {
```

```
BlackMove = 17;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern14 +
LocalPattern49(30,25,24,20,19,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern8(18,21,22,23,26,27,28,29,31,32,33,34,35);
```



```

}

else if (WhiteMove ==17) {

BlackMove = 16;

SumOfLocalGames = SumOfLocalGames - LocalPattern14 +
LocalPattern8(15,13,12,11,9,8,7,6,5,4,3,2,1) + LocalPattern5(21,25,26,27,30,31,32,33);

}

else if (WhiteMove ==1 || 2 || 3 || 4 || 6 || 7 || 8 || 11||12 || 13 || 14 || 15 || 19 || 20 || 24) {

BlackMove = 5;

SumOfLocalGames = SumOfLocalGames - LocalPattern14 + LocalPattern2(9,10) +
LocalPattern2(16,17) + LocalPattern5(21,25,26,27,30,31,32,33);

}

else if (WhiteMove == 5 || 9 || 10) {

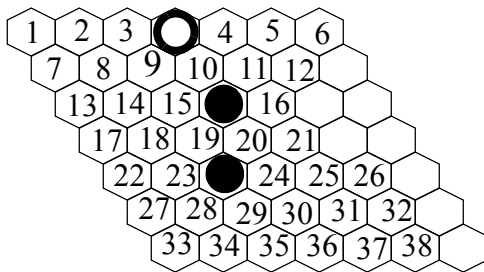
BlackMove = 12;

SumOfLocalGames = SumOfLocalGames - LocalPattern11 +
LocalPattern5(11,8,7,6,4,3,2,1) +
LocalPattern10(13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35);

}

```

2.15 Local Pattern 15:



```

If (WhiteMove == 21 || 24 || 25 || 26 || 29 || 30 || 31 || 32 || 35 || 36 || 37 || 38 ) {

```

```

BlackMove = 28;

SumOfLocalGames = SumOfLocalGames - LocalPattern15 + LocalPattern2(33,34) +
LocalPattern2(19,20) +
LocalPattern55(27,23,22,18,17,16,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1);
}

else if (WhiteMove == 34) {

BlackMove = 28;

SumOfLocalGames = SumOfLocalGames - LocalPattern15 + LocalPattern2(19,20) +
LocalPattern16(24,29,30,35,36,33) +
LocalPattern55(27,23,22,18,17,16,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1);
}

else if (WhiteMove == 28 || 33) {

BlackMove = 20;

SumOfLocalGames = SumOfLocalGames - LocalPattern15 +
LocalPattern61(23,19,18,16,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern8(21,24,25,26,29,30,31,32,34,35,36,37,38);
}

else if (WhiteMove ==19) {

BlackMove = 20;

SumOfLocalGames = SumOfLocalGames - LocalPattern15 +
LocalPattern50(33,28,27,23,22,18,17,16,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1) +
LocalPattern8(21,24,25,26,29,30,31,32,34,35,36,37,38);
}

else if (WhiteMove ==20) {

BlackMove = 19;

SumOfLocalGames = SumOfLocalGames - LocalPattern15 +
LocalPattern56(18,16,15,14,12,11,10,9,8,6,5,4,3,2) +
LocalPattern5(24,28,29,30,33,34,35,36);
}

else if (WhiteMove ==1 || 2 || 3 || 4 || 7 || 8 || 9 ||10 || 13 || 14 || 15 || 17 || 18 || 22 || 23 || 27) {

```

```

BlackMove = 12;

SumOfLocalGames = SumOfLocalGames - LocalPattern15 + LocalPattern2(5,6) +
LocalPattern2(19,20) + LocalPattern2(11,16) + LocalPattern5(24,28,29,30,33,34,35,36);
}

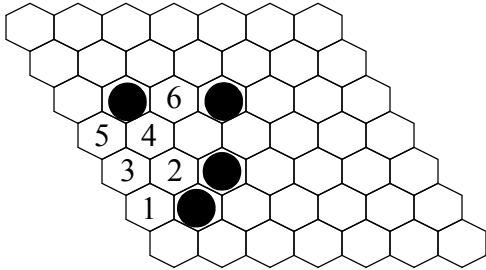
else if (WhiteMove == 5 || 6 || 11 || 12 || 16) {

BlackMove = 8;

SumOfLocalGames = SumOfLocalGames - LocalPattern15 + LocalPattern2(2,3) +
LocalPattern17(4,9,10,13,14,15,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,3
5,36,37,38);
}

```

2.16 Local Pattern 16:



```

If (WhiteMove == 1 || 2 || 3 || 4 || 5) {

BlackMove = 6;

SumOfLocalGames = SumOfLocalGames - LocalPattern16 ;
}

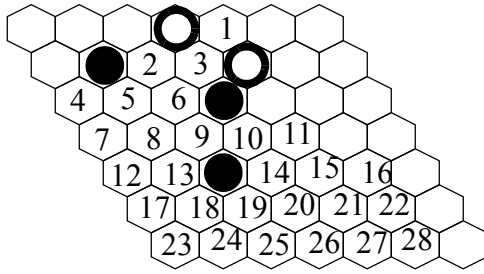
else if (WhiteMove == 6) {

BlackMove = 3;

SumOfLocalGames = SumOfLocalGames - LocalPattern16 + LocalPattern2(1,2) +
LocalPattern2(4,5);
}

```

2.17 Local Pattern 17:



```
If (WhiteMove == 1 || 2 || 3 ) {
```

```
BlackMove =5;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern17 +
LocalPattern10(6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28);
}
```

```
else if (WhiteMove == 4 || 5 || 6 || 7 || 8 || 12 || 13 || 17) {
```

```
BlackMove =3;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern17 + LocalPattern2(1,2) +
LocalPattern2(9,10) + LocalPattern5(14,18,19,20,23,24,25,26);
}
```

```
else if (WhiteMove == 9) {
```

```
BlackMove = 10;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern17 +
LocalPattern51(23,18,17,13,12,8,7,6,5,4,3,2,1) +
LocalPattern8(11,14,15,16,19,20,21,22,24,25,26,27,28);
}
```

```
else if (WhiteMove == 10) {
```

```
BlackMove = 9;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern17 + LocalPattern3(3,5,1,2,6,8)
+ LocalPattern5(14,18,19,20,23,24,25,26);
}
```

```

else if (WhiteMove == 11 || 14 || 15 || 16 || 19 || 20 || 21 || 22 || 25 || 26 || 27 || 28) {

BlackMove = 18;

SumOfLocalGames = SumOfLocalGames - LocalPattern17 + LocalPattern2(23,24) +
LocalPattern18(1,2,3,4,5,6,7,8,12,13,17) + LocalPattern2(9,10);

}

else if (WhiteMove == 24) {

BlackMove = 18;

SumOfLocalGames = SumOfLocalGames - LocalPattern17 + LocalPattern2(9,10) +
LocalPattern16(14,19,20,25,26,23) + LocalPattern18(1,2,3,4,5,6,7,8,12,13,17) ;

}

else if (WhiteMove == 18 || 23) {

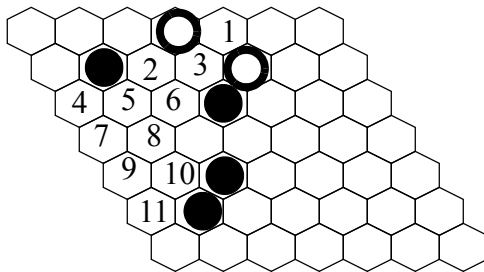
BlackMove = 10;

SumOfLocalGames = SumOfLocalGames - LocalPattern17 +
LocalPattern59(13,9,8,6,5,3,2,1) +
LocalPattern8(11,14,15,16,19,20,21,22,24,25,26,27,28);

}

```

2.18 Local Pattern 18:



```

If (WhiteMove == 1 || 2 || 3) {

BlackMove = 5;

SumOfLocalGames = SumOfLocalGames - LocalPattern18 +
LocalPattern16(11,10,9,8,7,6);

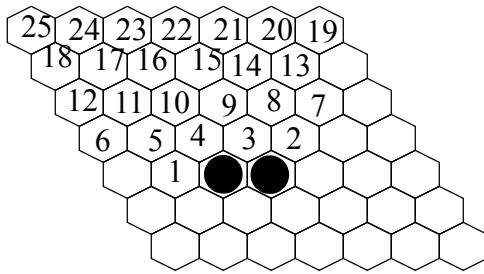
```

```

}
else if (WhiteMove == 4 || 5 || 6 || 7 || 8 || 9 || 10 || 11) {
BlackMove = 3;
SumOfLocalGames = SumOfLocalGames - LocalPattern18 + LocalPattern2(1,2) ;
}

```

2.19 Local Pattern 19:



```

If (WhiteMove == 1 || 4 || 5 || 6 || 10 || 11 || 12 || 16 || 17 || 18 || 23 || 24 || 25) {
BlackMove = 8;
SumOfLocalGames = SumOfLocalGames - LocalPattern19 + LocalPattern2(2,3) +
LocalPattern5(9,13,14,15,19,20,21,22);
}
else if (WhiteMove == 2 || 7 || 8 || 13 || 19) {
BlackMove = 9;
SumOfLocalGames = SumOfLocalGames - LocalPattern19 + LocalPattern2(3,4) +
LocalPattern5(10,14,15,16,20,21,22,23);
}
else if (WhiteMove == 3) {
BlackMove = 4;
SumOfLocalGames = SumOfLocalGames - LocalPattern19 +
LocalPattern34(5,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25);
}

```

```

else if (WhiteMove == 9) {

BlackMove = 8;

SumOfLocalGames = SumOfLocalGames - LocalPattern19 + LocalPattern2(2,3) +
LocalPattern39(1,4,5,10,11,13,14,15,16,19,20,21,22,23);

}

else if (WhiteMove == 14) {

BlackMove = 8;

SumOfLocalGames = SumOfLocalGames - LocalPattern19 + LocalPattern2(2,3) +
LocalPattern36(4,9,10,11,13,15,16,,17,19,20,21,22,23,24);

}

else if (WhiteMove == 15) {

BlackMove = 4;

SumOfLocalGames = SumOfLocalGames - LocalPattern19 +
LocalPattern37(2,3,5,8,9,10,11,12,14,16,17,18,20,21,22,23,24,25);

}

else if (WhiteMove == 21) {

BlackMove = 9;

SumOfLocalGames = SumOfLocalGames - LocalPattern19 + LocalPattern2(3,4) +
LocalPattern9(8,10,13,14,15,16,19,20,22,23);

}

else if (WhiteMove == 20) {

BlackMove = 15;

SumOfLocalGames = SumOfLocalGames - LocalPattern19 + LocalPattern2(21,22) +
LocalPattern62(1,2,3,4,5,8,9,10,11,14,16,17,23,24);

}

else if (WhiteMove == 22) {

BlackMove = 14;

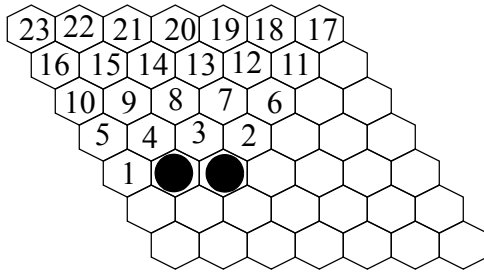
```

```

SumOfLocalGames = SumOfLocalGames - LocalPattern19 + LocalPattern2(20,21) +
LocalPattern38(2,3,4,8,9,10,11,15,16,17,23,24);
}

```

2.20 Local Pattern 20:



```

If (WhiteMove == 1 || 4 || 5 || 8 || 9 || 10 || 14 || 15 || 16 || 21 || 22 || 23) {
    BlackMove = 7;

    SumOfLocalGames = SumOfLocalGames - LocalPattern20 + LocalPattern2(2,3) +
    LocalPattern5(6,13,12,11,20,19,18,17);
}

else if (WhiteMove == 2 || 6 || 7 || 11 || 12 || 17 || 18) {
    BlackMove = 8;

    SumOfLocalGames = SumOfLocalGames - LocalPattern20 + LocalPattern2(3,4) +
    LocalPattern5(9,13,14,15,19,20,21,22);
}

else if (WhiteMove == 13) {
    BlackMove = 7;
}

```



```

SumOfLocalGames = SumOfLocalGames - LocalPattern20 + LocalPattern2(2,3) +
LocalPattern36(4,8,9,10,12,14,15,16,18,19,20,21,22,23);

}

else if (WhiteMove == 20) {

BlackMove = 8;

SumOfLocalGames = SumOfLocalGames - LocalPattern20 + LocalPattern2(3,4) +
LocalPattern9(7,9,12,13,14,15,18,19,21,22);

}

else if (WhiteMove == 19) {

BlackMove = 7;

SumOfLocalGames = SumOfLocalGames - LocalPattern20 + LocalPattern2(2,3) +
LocalPattern9(6,8,11,12,13,14,17,18,20,21);

}

else if (WhiteMove == 3) {

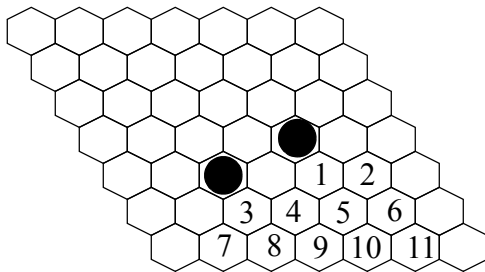
BlackMove = 4;

SumOfLocalGames = SumOfLocalGames - LocalPattern20 +
LocalPattern35(2,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23);

}

```

2.21 Local Pattern 21:



```

If (WhiteMove == 1 || 2 || 4 || 5 || 6 || 9 || 10 || 11) {

BlackMove = 3;

SumOfLocalGames = SumOfLocalGames - LocalPattern21 + LocalPattern2(7,8);

```

```

}

else if (WhiteMove == 3 || 7) {

BlackMove = 1;

SumOfLocalGames = SumOfLocalGames - LocalPattern21 +
LocalPattern5(2,4,5,6,8,9,10,11);

}

else if (WhiteMove == 8) {

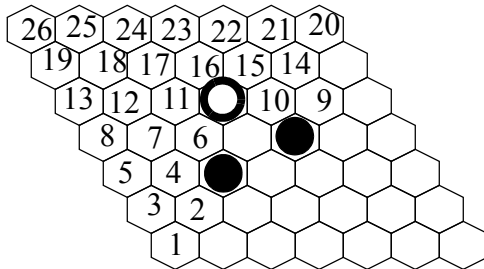
BlackMove = 3;

SumOfLocalGames = SumOfLocalGames - LocalPattern21 +
LocalPattern16(1,4,5,9,10,7);

}

```

2.22 Local Pattern 22:



```

If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 11 || 12 || 13 || 15 || 16 || 17 || 18 || 19 || 22 ||
23 || 24 || 25 || 26) {

```

```

BlackMove = 14;

```

```

SumOfLocalGames = SumOfLocalGames - LocalPattern22 + LocalPattern2(9,10) +
LocalPattern2(20,21);

```

```

}

```

```

else if (WhiteMove == 9 || 14 || 20) {

```

```

BlackMove = 15;

```

```

SumOfLocalGames = SumOfLocalGames - LocalPattern22 + LocalPattern2(21,22) +
LocalPattern23(1,2,3,4,5,6,7,8,10,11,12,13,16,17,18,19,23,24,25,26);

```

```

}

else if (WhiteMove == 10) {

BlackMove = 14;

SumOfLocalGames = SumOfLocalGames - LocalPattern22 + LocalPattern2(20,21) +
LocalPattern28(1,2,3,4,5,6,7,8,9,11,12,13,15,16,17,18,19,22,23,24,25,26);

}

else if (WhiteMove == 21) {

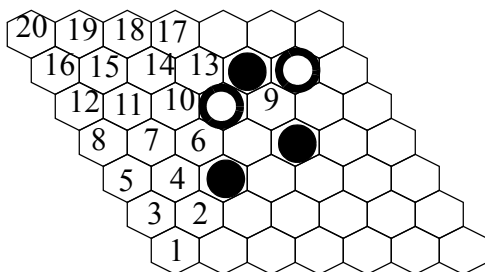
BlackMove = 14;

SumOfLocalGames = SumOfLocalGames - LocalPattern22 + LocalPattern2(9,10) +
LocalPattern28(1,2,3,4,5,6,7,8,20,11,12,13,15,22,17,18,19,16,23,24,25,26);

}

```

2.23 Local Pattern 23:



```

If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 10 || 11 || 12 || 13 || 14 || 15 || 16 || 17 || 18 ||
19 || 20) {

BlackMove = 9;

SumOfLocalGames = SumOfLocalGames - LocalPattern23;

}

else if (WhiteMove == 9) {

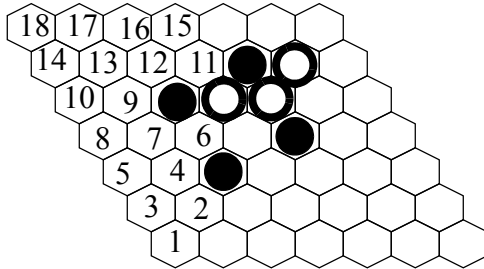
BlackMove = 10;

SumOfLocalGames = SumOfLocalGames - LocalPattern23 +
LocalPattern24(1,2,3,4,5,6,7,8,11,12,13,14,15,16,17,18,19,20);

```

}

2.24 Local Pattern 24:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 7 || 8 || 9 || 10 || 13 || 14 || 17 || 18) {
```

```
BlackMove = 6;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern24 +  
LocalPattern13(12,15,16,11);
```

```
}
```

```
else if (WhiteMove == 11) {
```

```
BlackMove = 9;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern24 +  
LocalPattern5(10,12,13,14,15,16,17,18) + LocalPattern46(1,2,3,4,5,7,8,6);
```

```
}
```

```
else if (WhiteMove == 12 || 15 || 16) {
```

```
BlackMove = 9;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern24 +  
LocalPattern16(10,13,14,17,18,11) + LocalPattern46(1,2,3,4,5,7,8,6);
```

```
}
```

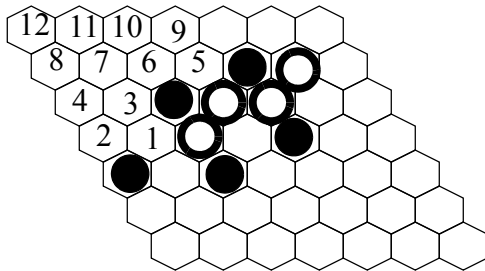
```
else if (WhiteMove == 6) {
```

```
BlackMove = 5;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern24 + LocalPattern13(3,1,2,4) +  
LocalPattern25(7,8,9,10,11,12,13,14,15,16,17,18);
```

```
}
```

2.25 Local Pattern 25:



```

If (WhiteMove == 2 || 3 || 4 || 7 || 8 || 11 || 12) {
    BlackMove = 1;

    SumOfLocalGames = SumOfLocalGames - LocalPattern25 + LocalPattern13(6,9,10,5);
}

else if (WhiteMove == 5) {
    BlackMove = 3;

    SumOfLocalGames = SumOfLocalGames - LocalPattern25 + LocalPattern2(1,2) +
    LocalPattern5(4,6,7,8,9,10,11,12);
}

else if (WhiteMove == 6 || 9 || 10) {
    BlackMove = 3;

    SumOfLocalGames = SumOfLocalGames - LocalPattern25 + LocalPattern2(1,2) +
    LocalPattern16(4,7,8,11,12,5);
}

else if (WhiteMove == 1) {
    BlackMove = 2;

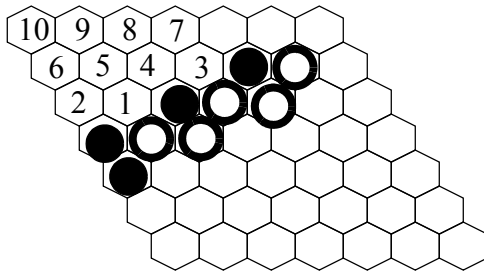
```

```

SumOfLocalGames = SumOfLocalGames - LocalPattern25 +
LocalPattern26(3,4,5,6,7,8,9,10,11,12);
}

```

2.26 Local Pattern 26:



```

If (WhiteMove == 3 || 4 || 7) {
    BlackMove = 5;
    SumOfLocalGames = SumOfLocalGames - LocalPattern26 + LocalPattern2(1,2) +
    LocalPattern2(8,9);
}
else if (WhiteMove == 2 || 5 || 6 || 9 || 10) {
    BlackMove = 1;
    SumOfLocalGames = SumOfLocalGames - LocalPattern26 + LocalPattern13(4,7,8,3) ;
}
else if (WhiteMove == 8) {
    BlackMove = 1;
    SumOfLocalGames = SumOfLocalGames - LocalPattern26 +
    LocalPattern16(2,5,6,9,10,3) ;
}
else if (WhiteMove == 1) {
    BlackMove = 2;

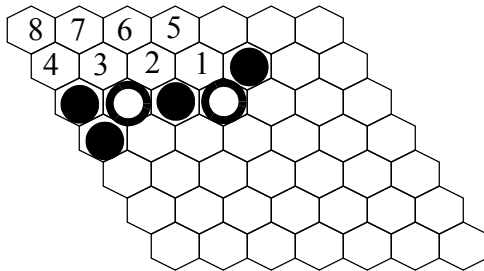
```

```

SumOfLocalGames = SumOfLocalGames - LocalPattern26 +
LocalPattern27(3,4,5,6,7,8,9,10) ;
}

```

2.27 Local Pattern 27:

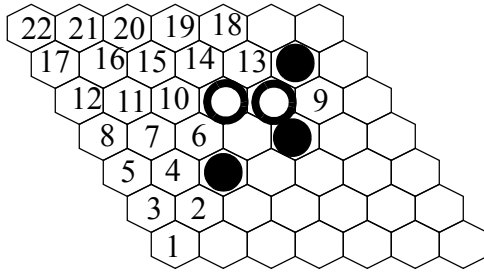


```

If (WhiteMove == 1 || 2 || 3 || 5 || 6) {
BlackMove = 4;
SumOfLocalGames = SumOfLocalGames - LocalPattern27 + LocalPattern2(7,8);
}
else if (WhiteMove == 4 || 7 || 8) {
BlackMove = 3;
SumOfLocalGames = SumOfLocalGames - LocalPattern27 + LocalPattern13(2,1,5,6);
}

```

2.28 Local Pattern 28:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 10 || 11 || 12 || 13 || 14 || 15 || 16 || 17 || 18 ||
19 || 20 || 21 || 22) {
```

```
BlackMove = 9;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern28;
```

```
}
```

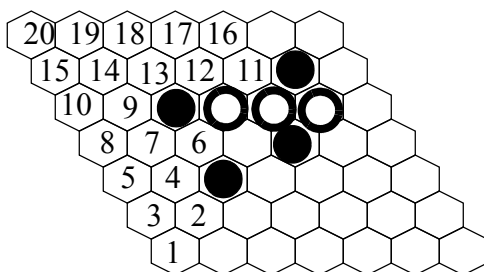
```
else if (WhiteMove == 9) {
```

```
BlackMove = 10;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern28 +
LocalPattern29(1,2,3,4,5,6,7,8,11,12,13,14,15,16,17,18,19,20,21,22);
```

```
}
```

2.29 Local Pattern 29:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 7 || 8 || 9 || 10 || 14 || 15 || 19 || 20) {
```

```
BlackMove = 6;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern29 +
LocalPattern3(12,13,11,16,17,18);
```



```

SumOfLocalGames = SumOfLocalGames - LocalPattern30 +
LocalPattern3(6,7,5,10,11,12);

}

else if (WhiteMove == 5 || 6 || 10) {

BlackMove = 3;

SumOfLocalGames = SumOfLocalGames - LocalPattern30 + LocalPattern2(1,2) +
LocalPattern5(4,7,8,9,11,12,13,14);

}

else if (WhiteMove == 7 || 11 || 12) {

BlackMove = 3;

SumOfLocalGames = SumOfLocalGames - LocalPattern30 + LocalPattern2(1,2) +
LocalPattern4(4,5,10,8,9,6,13,14);

}

else if (WhiteMove == 1) {

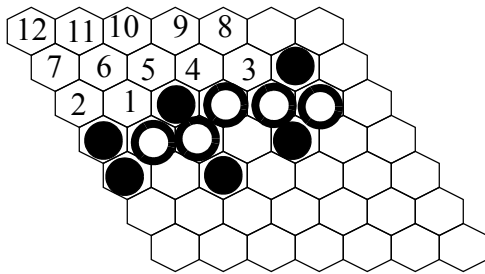
BlackMove = 2;

SumOfLocalGames = SumOfLocalGames - LocalPattern30 +
LocalPattern31(3,4,5,6,7,8,9,10,11,12,13,14);

}

```

2.31 Local Pattern 31:



```

If (WhiteMove == 2 || 6 || 7 || 11 || 12) {

```

```

BlackMove = 1;

SumOfLocalGames = SumOfLocalGames - LocalPattern31 +
LocalPattern3(4,5,3,8,9,10);

}

else if (WhiteMove == 3 || 4 || 5 || 8 || 9) {

BlackMove = 6;

SumOfLocalGames = SumOfLocalGames - LocalPattern31 + LocalPattern2(1,2) +
LocalPattern2(10,11);

}

else if (WhiteMove == 10) {

BlackMove = 1;

SumOfLocalGames = SumOfLocalGames - LocalPattern31 +
LocalPattern4(2,3,8,6,7,4,11,12);

}

else if (WhiteMove == 1) {

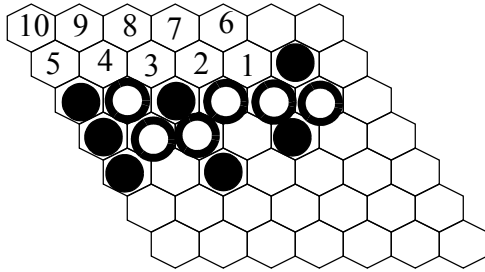
BlackMove = 2;

SumOfLocalGames = SumOfLocalGames - LocalPattern31 +
LocalPattern32(3,4,5,6,7,8,9,10,11,12);

}

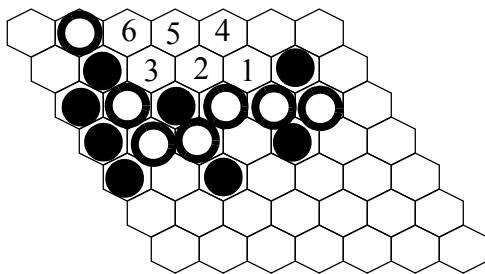
```

2.32 Local Pattern 32:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 6 || 7 || 8) {  
  BlackMove = 5;  
  SumOfLocalGames = SumOfLocalGames - LocalPattern32 + LocalPattern2(9,10);  
}  
else if (WhiteMove == 5 || 9 || 10) {  
  BlackMove = 4;  
  SumOfLocalGames = SumOfLocalGames - LocalPattern32 +  
  LocalPattern33(1,2,3,6,7,8);  
}
```

2.33 Local Pattern 33:



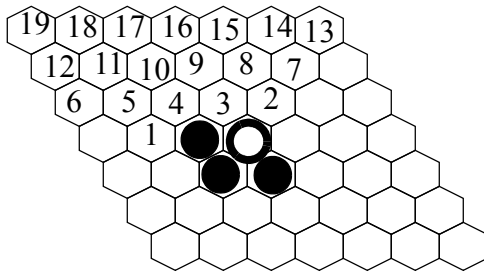
```
If (WhiteMove == 1 || 2 || 3 || 4 || 5) {  
  BlackMove = 6;  
  SumOfLocalGames = SumOfLocalGames - LocalPattern33;
```

```

}
else if (WhiteMove == 6) {
BlackMove = 3;
SumOfLocalGames = SumOfLocalGames - LocalPattern33 + LocalPattern13(2,1,4,5);
}

```

2.34 Local Pattern 34:

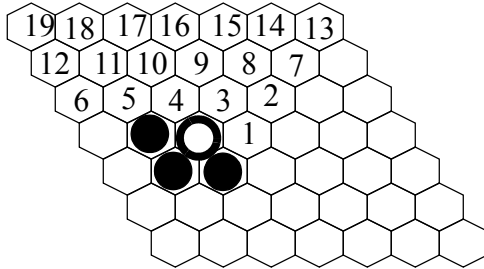


```

If (WhiteMove == 2 || 3 || 7 || 8 || 9 || 13 || 14 || 15) {
BlackMove = 5;
SumOfLocalGames = SumOfLocalGames - LocalPattern34 + LocalPattern2(1,4) +
LocalPattern5(6,10,11,12,16,17,18,19);
}
else if (WhiteMove == 1 || 4 || 5 || 6 || 10 || 11 || 12 || 17 || 18 || 19) {
BlackMove = 3;
SumOfLocalGames = SumOfLocalGames - LocalPattern34 +
LocalPattern5(2,9,8,7,16,15,14,13);
}
else if (WhiteMove == 16) {
BlackMove = 4;
SumOfLocalGames = SumOfLocalGames - LocalPattern34 +
LocalPattern9(3,5,8,9,10,11,14,15,17,18);
}

```

2.35 Local Pattern 35:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 7 || 8 || 9 || 13 || 14 || 15) {
```

```
BlackMove = 5;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern35 +  
LocalPattern5(9,10,11,12,16,17,18,19);
```

```
}
```

```
else if (WhiteMove == 5 || 6 || 10 || 11 || 12 || 17 || 18 || 19) {
```

```
BlackMove = 3;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern35 + LocalPattern2(1,4) +  
LocalPattern5(2,9,8,7,16,15,14,13);
```

```
}
```

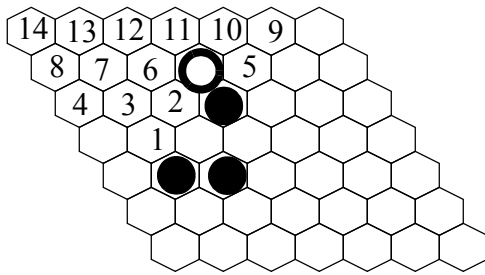
```
else if (WhiteMove == 16) {
```

```
BlackMove = 4;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern35 +  
LocalPattern9(3,5,8,9,10,11,14,15,17,18) ;
```

```
}
```

2.36 Local Pattern 36:



If (WhiteMove == 1 || 2 || 3 || 4 || 6 || 7 || 8 || 11 || 12 || 13 || 14) {

BlackMove = 5;

SumOfLocalGames = SumOfLocalGames - LocalPattern36 + LocalPattern2(9,10);

}

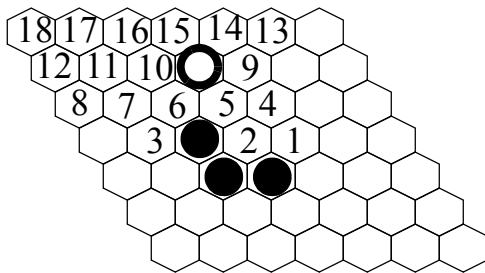
else if (WhiteMove == 5 || 9 || 10) {

BlackMove = 3;

SumOfLocalGames = SumOfLocalGames - LocalPattern36 + LocalPattern2(1,2) +
LocalPattern5(4,6,7,8,11,12,13,14);

}

2.37 Local Pattern 37:



If (WhiteMove == 1 || 2 || 4 || 5 || 9 || 13 || 14) {

BlackMove = 7;

SumOfLocalGames = SumOfLocalGames - LocalPattern37 + LocalPattern2(3,6) +
LocalPattern5(8,10,11,12,15,16,17,18);

}

```

else if (WhiteMove == 3 || 6 || 7 || 8 || 10 || 11 || 12 || 15 || 16 || 17 || 18) {

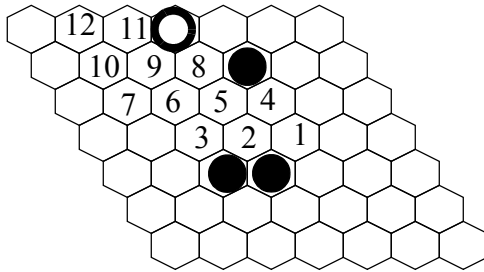
BlackMove = 9;

SumOfLocalGames = SumOfLocalGames - LocalPattern37 + LocalPattern2(13,14) +
LocalPattern13(4,1,2,5);

}

```

2.38 Local Pattern 38:



```

If (WhiteMove == 3 || 5 || 6 || 7 || 8 || 9 || 10 || 11 || 12) {

BlackMove = 4;

SumOfLocalGames = SumOfLocalGames - LocalPattern38 + LocalPattern2(1,2);

}

else if (WhiteMove == 1 || 2 || 4) {

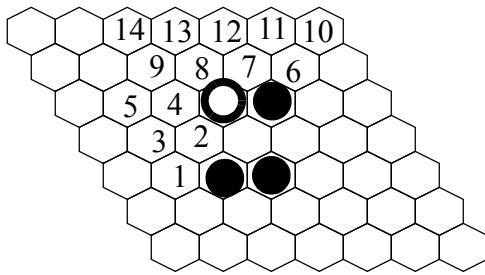
BlackMove = 3;

SumOfLocalGames = SumOfLocalGames - LocalPattern38 +
LocalPattern7(5,6,7,8,9,10,11,12);

}

```


2.39 Local Pattern 39:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 7 || 8 || 9 || 12 || 13 || 14) {
```

```
BlackMove = 6;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern39 + LocalPattern2(10,11);
```

```
}
```

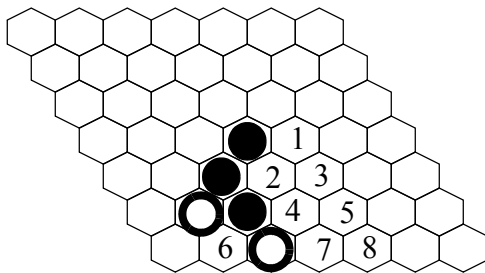
```
else if (WhiteMove == 6 || 10 || 11) {
```

```
BlackMove = 9;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern39 + LocalPattern2(13,14) +  
LocalPattern4(1, 8, 12, 2, 3, 7, 4, 5);
```

```
}
```

2.40 Local Pattern 40:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 7 || 8) {
```

```
BlackMove = 6;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern40 ;
```

```
}
```

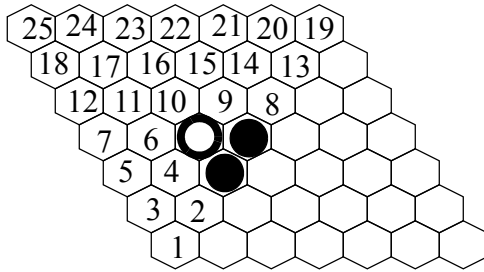
```
else if (WhiteMove == 6) {
```

BlackMove = 5;

SumOfLocalGames = SumOfLocalGames - LocalPattern40 + LocalPattern2(7,8) +
LocalPattern13(3,1,2,4);

}

2.41 Local Pattern 41:



If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 10 || 11 || 12 || 13 || 15 || 16 || 17 || 18 || 19 || 22 ||
23 || 24 || 25) {

BlackMove = 14;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(8,9) +
LocalPattern2(20,21);

}

else if (WhiteMove == 8 || 14 || 20) {

BlackMove = 9;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 +
LocalPattern48(1,2,3,4,5,6,7,10,11,12,15,16,17,18,21,22,23,24,25);

}

else if (WhiteMove == 21) {

BlackMove = 13;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(19,20) +
LocalPattern7(8,9,10,14,15,16,22,23);

}

else if (WhiteMove == 9) {

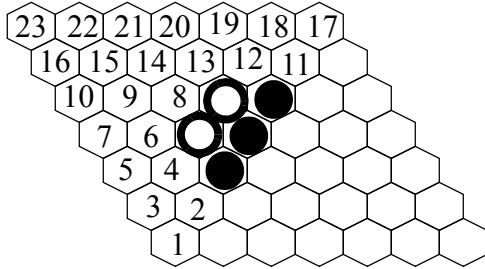
BlackMove = 8;

```

SumOfLocalGames = SumOfLocalGames - LocalPattern41 +
LocalPattern42(1,2,3,4,5,6,7,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25);
}

```

2.42 Local Pattern 42:



```

If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 9 || 10 || 12 || 13 || 14 || 15 || 16 || 19 || 20 || 21
|| 22 || 23 ) {

```

```

BlackMove = 11;

```

```

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(17,18) ;

```

```

}

```

```

else if (WhiteMove == 11 || 17 || 18) {

```

```

BlackMove = 12;

```

```

SumOfLocalGames = SumOfLocalGames - LocalPattern41 +
LocalPattern43(1,2,3,4,5,6,7,8,9,10,13,14,15,16,19,20,21,22,23) ;

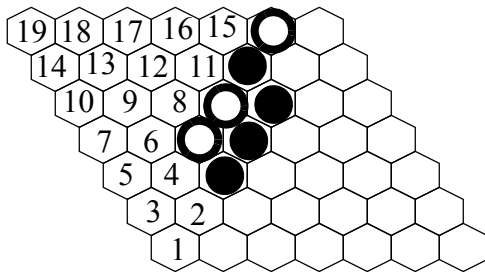
```

```

}

```

2.43 Local Pattern 43:



```

If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 9 || 10 || 11 || 12 || 13 || 14 || 16 || 17 || 18 || 19
) {

```

```

BlackMove = 15;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 ;

}

else if (WhiteMove == 15) {

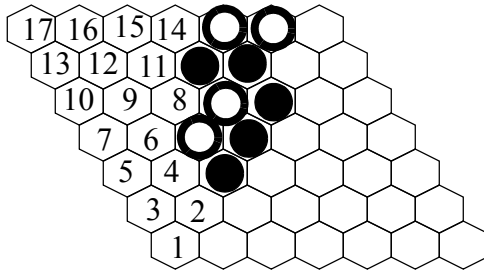
BlackMove = 11;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 +
LocalPattern44(1,2,3,4,5,6,7,8,9,10,12,13,14,16,17,18,19) ;

}

```

2.44 Local Pattern 44:



```

If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 9 || 10 || 11 || 12 || 13 || 15 || 16 || 17) {

BlackMove = 14;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 ;

}

else if (WhiteMove == 14) {

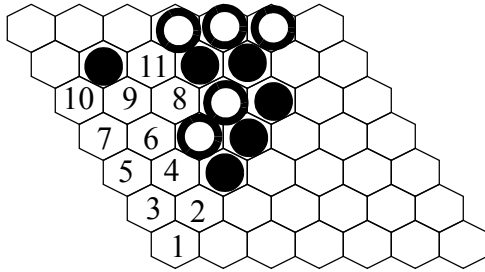
BlackMove = 12;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(15,16) +
LocalPattern45(1,2,3,4,5,6,7,8,9,10,11) ;

}

```

2.45 Local Pattern 45:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 9 || 10 ) {
```

```
BlackMove = 11;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 ;
```

```
}
```

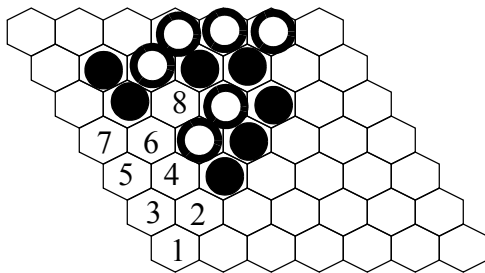
```
else if (WhiteMove == 11) {
```

```
BlackMove = 9;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 +  
LocalPattern46(1,2,3,4,5,6,7,8) ;
```

```
}
```

2.46 Local Pattern 46:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 ) {
```

```
BlackMove = 8;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 ;
```

```
}
```

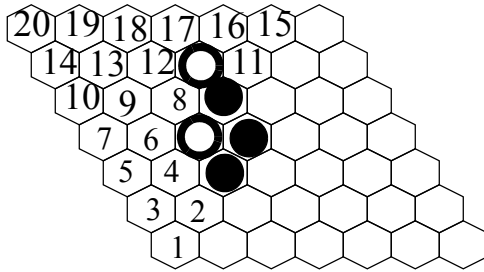
```
else if (WhiteMove == 8) {
```

BlackMove = 5;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(6,7) +
LocalPattern13(3,1,2,4) ;

}

2.47 Local Pattern 47:



If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 9 || 10 || 12 || 13 || 14 || 17 || 18 || 19 || 20) {

BlackMove = 11;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(15,16);

}

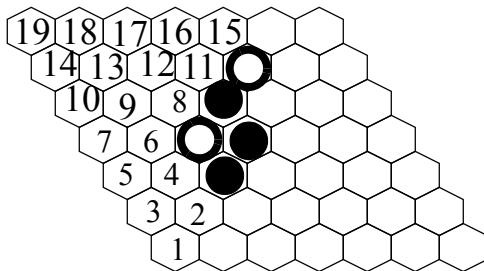
else if (WhiteMove == 11 || 15 || 16) {

BlackMove = 9;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 +
LocalPattern5(10,12,13,14,17,18,19,20) + LocalPattern46(1,2,3,4,5,6,7,8) ;

}

2.48 Local Pattern 48:



If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 9 || 10 || 12 || 13 || 14 || 17 || 18 || 19) {

```

BlackMove = 11;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(15,16);
}

else if (WhiteMove == 11 || 15 ) {

BlackMove = 9;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 +
LocalPattern5(10,12,13,14,16,17,18,19) + LocalPattern46(1,2,3,4,5,6,7,8) ;

}

else if (WhiteMove == 16 ) {

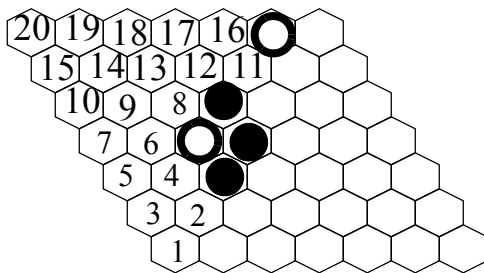
BlackMove = 13;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(17,18) +
LocalPattern51(1,2,3,4,5,6,7,8,9,10,11,12,15) ;

}

```

2.49 Local Pattern 49:



```

If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 9 || 10 || 13 || 14 || 15 || 17 || 18 || 19 || 20 ) {

BlackMove = 16;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(11,12);
}

else if (WhiteMove == 11 || 12 || 16) {

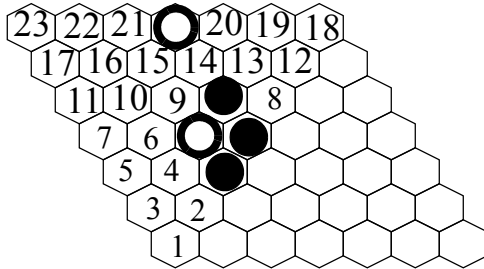
BlackMove = 9;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 +
LocalPattern5(10,13,14,15,17,18,19,20) + LocalPattern46(1,2,3,4,5,6,7,8) ;
}

```

}

2.50 Local Pattern 50:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 9 || 10 || 11 || 14 || 15 || 16 || 17 || 20 || 21 || 22 || 23 ) {
```

```
BlackMove = 12;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(8,13) +  
LocalPattern2(18,19);
```

```
}
```

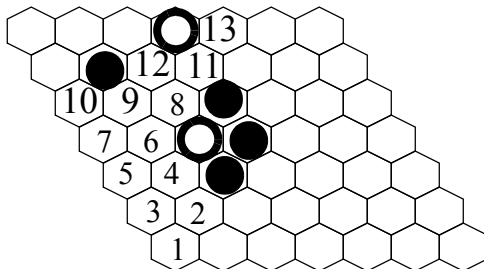
```
else if (WhiteMove == 8 || 12 || 13 || 18 || 19) {
```

```
BlackMove = 16;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(21,22) +  
LocalPattern51(1,2,3,4,5,6,7,9,10,11,14,15,20) ;
```

```
}
```

2.51 Local Pattern 51:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 9 || 10 ) {
```

```
BlackMove = 11;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(12,13);
```



```

}

else if (WhiteMove == 11 || 12 || 13 ) {

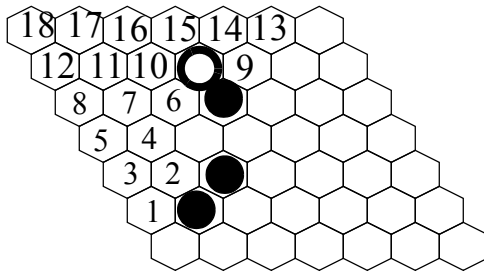
BlackMove = 9;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 +
LocalPattern46(1,2,3,4,5,6,7,8) ;

}

```

2.52 Local Pattern 52:



```

If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 10 || 11 || 12 || 15 || 16 || 17 || 18 ) {

BlackMove = 9;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(13,14);

}

else if (WhiteMove == 9 || 13 || 14 ) {

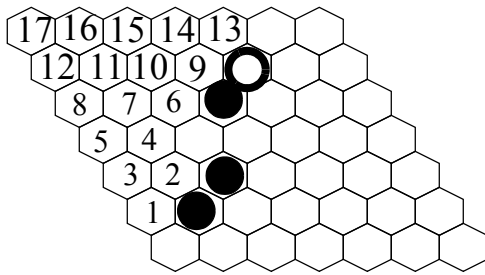
BlackMove = 7;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 +
LocalPattern5(8,10,11,12,15,16,17,18) + LocalPattern16(1,2,3,4,5,6);

}

```

2.53 Local Pattern 53:

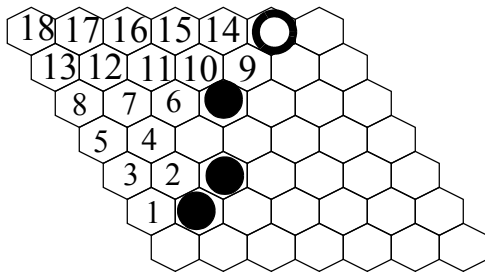


```

If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 10 || 11 || 12 || 15 || 16 || 17 ) {
    BlackMove = 9;
    SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(13,14);
}
else if (WhiteMove == 9 || 13 ) {
    BlackMove = 7;
    SumOfLocalGames = SumOfLocalGames - LocalPattern41 +
    LocalPattern5(8,10,11,12,14,15,16,17) + LocalPattern16(1,2,3,4,5,6);
}
else if (WhiteMove == 14 ) {
    BlackMove = 11;
    SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(15,16) +
    LocalPattern18(13,10,9,8,7,6,5,4,3,2,1);
}

```

2.54 Local Pattern 54:



If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 7 || 8 || 11 || 12 || 13 || 15 || 16 || 17 || 18) {

BlackMove = 14;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(9,10);

}

else if (WhiteMove == 9 || 10 || 14) {

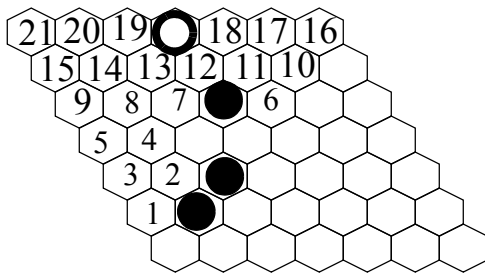
BlackMove = 7;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 +

LocalPattern5(8,11,12,,13,15,16,17,18) + LocalPattern16(1,2,3,4,5,6);

}

2.55 Local Pattern 55:



If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 7 || 8 || 9 || 12 || 13 || 14 || 15 || 18 || 19 || 20 || 21) {

BlackMove = 10;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(6,11) +

LocalPattern2(16,17);

}

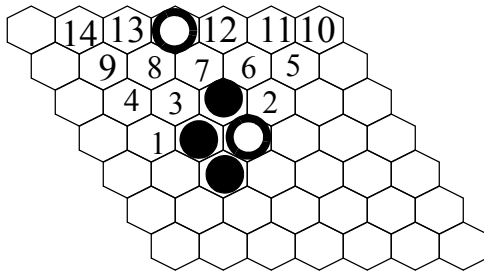
```
else if (WhiteMove == 6 || 10 || 11 || 16 || 17 ) {
```

```
BlackMove = 14;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(19,20) +  
LocalPattern18(18,13,12,9,8,7,5,4,3,2,1);
```

```
}
```

2.56 Local Pattern 56:



```
If (WhiteMove == 1 || 3 || 4 || 7 || 8 || 9 || 12 || 13 || 14 ) {
```

```
BlackMove = 5;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(2,6) +  
LocalPattern2(10,11);
```

```
}
```

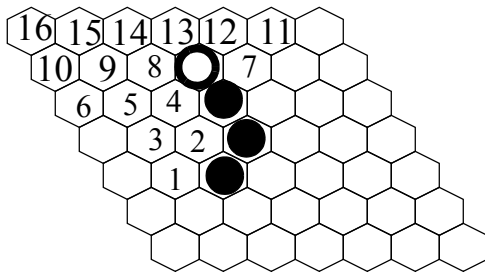
```
else if (WhiteMove == 2 || 5 || 6 || 10 || 11 ) {
```

```
BlackMove = 7;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 +  
LocalPattern40(1,3,4,8,9,12,13,14);
```

```
}
```

2.57 Local Pattern 57:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 8 || 9 || 10 || 13 || 14 || 15 || 16) {
```

```
BlackMove = 7;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(11,12) ;
```

```
}
```

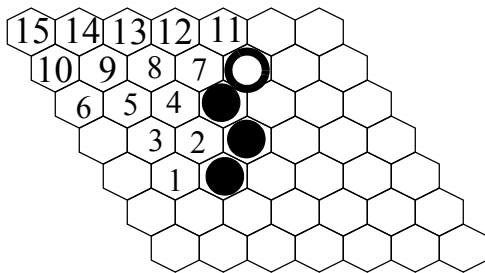
```
else if (WhiteMove == 7 || 11 || 12) {
```

```
BlackMove = 5;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 +  
LocalPattern5(6,8,9,10,13,14,15,16) + LocalPattern13(3,1,2,4);
```

```
}
```

2.58 Local Pattern 58:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 8 || 9 || 10 || 13 || 14 || 15) {
```

```
BlackMove = 7;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(11,12) ;
```

```
}
```

```
else if (WhiteMove == 7 || 11) {
```

```
BlackMove = 5;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 +  
LocalPattern5(6,8,9,10,12,13,14,15) + LocalPattern13(3,1,2,4);
```

```
}
```

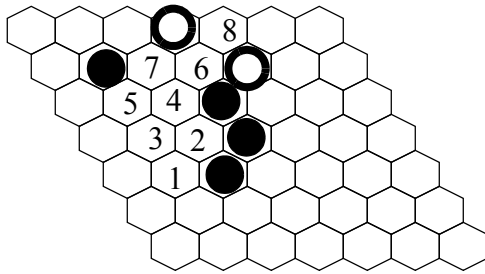
```
else if (WhiteMove == 12) {
```

```
BlackMove = 9;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(13,14) +  
LocalPattern59(1,2,3,4,,5,7,8,11);
```

```
}
```

2.59 Local Pattern 59:



```
If (WhiteMove == 1 || 2 || 3 || 4 || 5) {
```

```
BlackMove = 6;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(7,8) ;
```

```
}
```

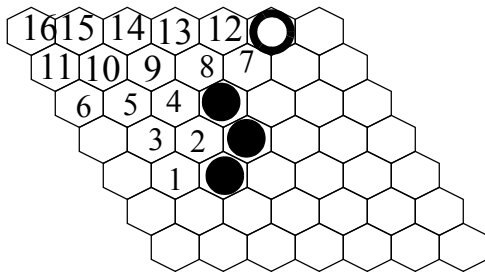
```
else if (WhiteMove == 6 || 7 || 8) {
```

```
BlackMove = 5;
```

```
SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern13(3,1,2,4);
```

```
}
```

2.60 Local Pattern 60:



If (WhiteMove == 1 || 2 || 3 || 4 || 5 || 6 || 9 || 10 || 11 || 13 || 14 || 15 || 16) {

BlackMove = 12;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(7,8) ;

}

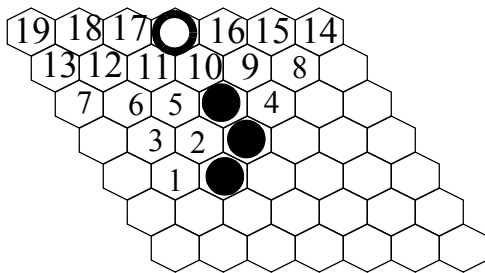
else if (WhiteMove == 7 || 8 || 12) {

BlackMove = 5;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 +
LocalPattern5(6,9,10,11,13,14,15,16) + LocalPattern13(3,1,2,4);

}

2.61 Local Pattern 61:



If (WhiteMove == 1 || 2 || 3 || 5 || 6 || 7 || 10 || 11 || 12 || 13 || 16 || 17 || 18 || 19) {

BlackMove = 8;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(4,9) +
LocalPattern2(14,15) ;

}

```

else if (WhiteMove == 4 || 8 || 9 || 14 || 15) {

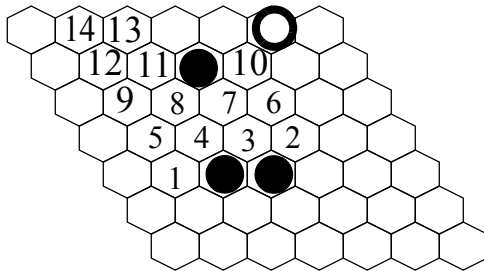
BlackMove = 12;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(17,18) +
LocalPattern59(1,2,3,5,6,10,11,16);

}

```

2.62 Local Pattern 62:



```

If (WhiteMove == 1 || 2 || 5 || 6 || 8 || 9 || 10 || 11 || 12 || 13 || 14) {

BlackMove = 7;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(3,4) ;

}

else if (WhiteMove == 3 || 7) {

BlackMove = 5;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(1,4) +
LocalPattern63(8,9,11,12,13,14);

}

else if (WhiteMove == 4) {

BlackMove = 6;

SumOfLocalGames = SumOfLocalGames - LocalPattern41 + LocalPattern2(2,3) +
LocalPattern2(7,10);

}

```