



## Your Move

### Rational vs irrational

Carlsen's draw offer against Caruana in their 12th World Championship game has been criticized by Kasparov, Kramnik and many others, because Carlsen's final position was better. However, probability calculations show that Carlsen's offer was rational.

AlphaZero gave Black (Carlsen) about 60% expected score in the final position, say through 60% draws (common percentage in complex asymmetric positions between equally strong top players), 30% wins, and 10% losses. When the decision had mattered (if no draw), Carlsen's winning odds of playing on would therefore have been 30:10, i.e. 3:1.

Carlsen's Elo rating for rapid exceeded Caruana's by almost 100 points, which for one game gives almost identical probabilities as just specified. That is, one rapid game would give Carlsen similarly favourable odds as having played on in the 12th game. However, the tiebreak involved four rapid games rather than one, and this gives the stronger player a bigger chance of winning overall. Calculations give 60% gain and 13% loss probabilities, i.e. odds 60:13 = 4.5:1. There remains 27% probability at an even score 2-2, leading to blitz games. There Carlsen's Elo exceeded Caruana's by 172 points, making the remaining odds even more favourable to him. His overall probability of winning the tiebreak exceeded 80%, way more than Kramnik's estimated 60% but well consistent with the historical data that we have on Carlsen's tiebreak performances.

Because this match was a 'zero sum game,' what was good for Carlsen was bad for Caruana. Caruana should have declined Carlsen's draw offer! The very fact that Carlsen offered it, should have alarmed him. Kasparov couldn't have been more off when predicting: 'In light of this shocking draw offer from Magnus in a superior position with more time, I reconsider my evaluation of him being the

favourite in rapids. Tiebreaks require tremendous nerves and he seems to be losing his.' Both probability calculus and history have proven Kasparov wrong here.

More sophisticated analysis can alter the numbers in either direction, but not the conclusion that Carlsen's draw offer was fully justifiable. If I may end with some psychology: imagine how confused Carlsen would have been had Caruana declined his offer!

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### Don't care what people think

Bruce Margolis, drawing on 60 years of experience, calls Carlsen's draw offer at move 31 in Game 12

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'a disgrace'. Jim Robertson would exclude Carlsen from his list of super-greats: Lasker, Capablanca, Alekhine, Botvinnik, Tal, Fischer or Kasparov. Both have short memories.

Lasker resigned his match with Capablanca in 1921 after 14 of the projected 24 games, of which 3 games were miniature draws (25 moves or less). Super-greats resign matches halfway?

The 1927 Capablanca-Alekhine match contained four miniature draws. Alekhine scrupulously avoided a return match with Capablanca, and refused to play in tournaments where they might meet until 1936. The behaviour of a super-great?

Botvinnik, who Bruce Margolis surely remembers, never once won a match as World Champion. He retained the title by having the advantage of the draw (1951, 1954), or regained it because the champion (but not the challenger) had the right to a

rematch (1957, 1960). In those far-off days, the players played a leisurely 3 games a week with an adjournment after 40 moves in a 5-hour session. In 1957, Botvinnik effectively gave up at the end, with draws in 13 and 11 moves! The 1960 Tal match, and Botvinnik did it again – the last game (21 of 24) was a 17-move draw. In 1963, Botvinnik stopped fighting 3 games from the end (games 20-22 of a projected 24). With 2 Whites in the last 3 games, he played just 41 moves in the last week of play – draws in 21, 10 and 10 moves. Super-great indeed!

Kasparov in his 1984 marathon had 16 miniature draws with Karpov – 13 moves (Game 29), 15 moves (Games 10, 38), 16 moves (Game 14), 17 moves (Game 35), 19 moves (Game 20), 20 moves (Games 8, 30, 33, 34), 21 moves (Games 5, 12, 43), 22 moves (Games 23 and 25), 23 moves (Game 17). A third of the match.

Carlsen's games with Caruana averaged 53 moves. This has been equalled but never surpassed in World Championship history – Lasker-Schlechter 1910, Botvinnik-Tal 1961 and Anand-Topalov 2010. Carlsen doesn't do miniature draws. You nearly always get your money's worth.

Now Carlsen is to be excluded from the super-greats because of one 31-move draw. Really? I just think he did what he had to do in view of match rules he didn't make.

Daniil Dubov: 'If I have learned something from Magnus it's that you don't need to care about what people think.' I agree with Magnus.

Chris Holmes  
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### Threats and opportunities

Reflecting on the 12 draws in the recent World Championship match (New In Chess 2018/8), Nigel Short's suspicion that the players felt 'the pain of defeat exceeds the joy of victory' has scientific support. In his book *Thinking Fast and Slow*, Princeton psychologist Daniel