

## **Time is King: Two “piece-sacrificing” proposals to make chess possibly more decisive**

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The traditional way of time control in chess has been to allocate a certain amount time (say, 90 minutes) to each player in the beginning of the game for a given number of moves. If a player uses all their time before the game ends, then the player generally loses the game unless the position is already technically drawn—i.e., unless it is impossible for one player to checkmate the other.

In the end of 1980s, chess legend Bobby Fischer proposed a new format for time control in part because he did not like “adjournment” under the classical time control, whereby a player could suspend the game to continue next day. For those who saw The Queen’s Gambit will remember this practice, which has been abandoned in professional chess since mid 90s. Fischer suggested that, instead of being allocated a fixed time for the whole game, each player would have a fixed time limit, and a preselected time would be added to the player’s time after each move as well, which is known as “increment.” While Fischer’s suggestion was initially hard to implement with analogue game clocks, it has later become standard in chess tournaments with the rise of digital game clocks. Fischer also successfully patented his digital chess clock that works under his new proposed time control in 1989 (see, US4884255).

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Fast forward, chess has now another issue, which is usually called the “draw problem”. Neither chess aficionados nor top players seem to enjoy seeing more and more games ending in a draw. Magnus Carlsen, one of the greatest players in the history of chess, also does not seem happy with it.

“Personally I’m hoping that this time there will be fewer draws than there have been in the last few times, because basically I have not led a World Championship match in classical chess since 2014” (Carlsen’s interview at chess24.com).<sup>3</sup>

In both traditional time control and Fischer’s version of it, the player who runs out of time generally loses the game unless it is technically drawn. Thus, one’s time is essentially equivalent to their King in the game—the game ends if a player loses either of them. So, each player has a King and a Time which are equally powerful. Although a player may sacrifice a strong piece to initiate a mating attack to the opponent’s King—one of the beauties of the game of chess—it is not possible to do a similar sacrifice to attack the opponent’s Time or to protect one’s own Time. We propose the following novel time control mechanism in chess to make it a more dynamic and less drawish game.

Every player starts the game with  $M$  (say, 30) minutes of fixed time. On their turn, a player as usual makes a move. In addition, before or after making the move, they can “sacrifice” a piece of their own, in which case either their Time would increase by  $m$  (say, 5) minutes, or the opponent’s Time would decrease by  $m$  minutes.<sup>4</sup> If a player chooses to decrease their opponent’s Time, then this decrease will be applied after their opponent completes their turn. Sacrificing a piece means that the piece is out of the game. Sacrificing one’s King is equivalent to resigning. A game ends under the standard rules.

Chess under this new time control mechanism would be a more dynamic game and would create many new ways of sacrificing pieces to attack the opponent’s—or to defend one’s—

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<sup>3</sup> <https://chess24.com/en/read/news/magnus-carlsen-i-m-hoping-this-time-there-will-be-fewer-draws> (accessed on 29.11.2021.)

<sup>4</sup> Alternatively, if a player “sacrifices” a piece for a lower valued piece, then the sacrificing player may get  $+m$  minutes or their opponent may get  $-m$  minutes. A sacrifice can be defined loosely. It can be any exchange in which one side gets material advantage. This is to incentivize sacrificing a piece and encouraging attacking chess.

King and Time. We believe that there would be more wins and less draws in chess under the new time control.<sup>5</sup>

One supporting argument for this is as follows. If players have small material differences in the endgame, then the result of the game would typically be a draw. However, under the new time control, the materials can be used for attacking the opponent's Time. Such attacks would create new trade-offs and imbalances in the game, which otherwise would not be possible under standard time controls.

Speaking of making the game more conducive to wins rather than draws, we propose an alternative mechanism that can also be tried. In this mechanism, after  $M/2$  minutes (i.e., after half the available minutes for each player) have been elapsed, each player will start sacrificing one of their pieces every  $m$  minutes until – after each player has sacrificed equal number of pieces – at least one of the players is down to a certain number of pieces while the other player has the same number or more pieces (one may propose that a computer removes one of their pieces randomly if a player fails to remove their piece; but we believe that to make things fair, players first should be given the opportunity to do so).

Note that in the former mechanism one sacrifices a piece of their choice (probably a pawn, whenever possible) on their turn to augment their available time or to curtail the opponent's available time, while in the latter mechanism one sacrifices a piece of their choice (again probably a pawn, whenever possible) but this time every  $m$  minutes until each player is down to at least a certain number of pieces; but in the latter mechanism there would be no change in the time available to players after their sacrifices. We think that both modifications we offer – which are very novel – are worth checking at perhaps some tournaments of relatively lesser importance first empirically (to see whether either of them indeed makes chess more decisive on average), before they may be further modified to be tried at more important tournaments later.

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<sup>5</sup> The new time control format we propose can be applied to other games as well. It is essentially a new game mechanic which makes time an integral part of the game. For other contest/game design rules, see 1–6.

## References

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