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The tortoise wins only when the race is long: How the task environment changes the behavior of Tetris models

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Abstract: Tetris can be viewed as a highly complex decision making task, and used as a paradigm for studying human expertise. We hypothesized that models capable of playing Tetris for a long time are doing so by adopting slow but steady strategies to accumulate points, while human players are much more prone to using high-risk, high-reward strategies that earn more points in a shorter time frame. This work used the MindModeling.org computational cognitive modeling platform to develop the best models capable of playing long term games and short term games, and then compared the performance of the two. The best long term model adopted the slow and steady strategy, while the best short term model displayed the higher-risk, higher-reward strategy that more closely matches behavior observed in human players. Models that "trained long" but "played short" did worse than those that both trained and played "short."