Formal Language Theory – DFA Proposal: Classic Mario Bros.

Since the release of Super Mario Bros. in 1983, the game series are renowned for their linear progress of running towards the flag, which is our end goal, while gathering coins for points and defeating enemies along the way before the timer finishes and the player dies. Behind the scenes, it was about 3 years in the making with game mechanics and programming to get to function in the limited space available on the game cartridges at the time. To break it down simply, the player is to run across the map either jumping on enemies, collecting coins, breaking blocks, and shooting at unavoidable obstacles until the timer ends or the flag captured.

Due to the complexity of the game, I will only be focusing on the jumping aspect of Super Mario Bros. for my DFA project as there are multiple pieces that goes into its involvement such as going across gaps, reaching overhead blocks, defeating oncoming enemies such as Goombas, etc. Despite the game mechanisms randomizing the movements of enemies and occasionally the locations of hidden blocks in the game, it continues to follow the same pattern in movement as the goal of the Goombas are to hurt, and hopefully defeat, Mario on his quest for the flag. If this DFA is still too difficult to develop, I'll continue to narrow down the scope to a more manageable such as the movement of enemies or even smaller, as necessary.