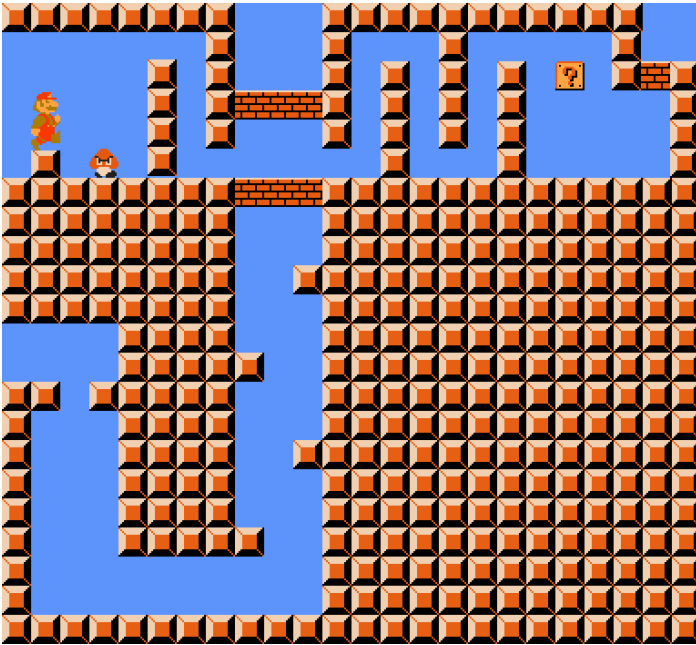


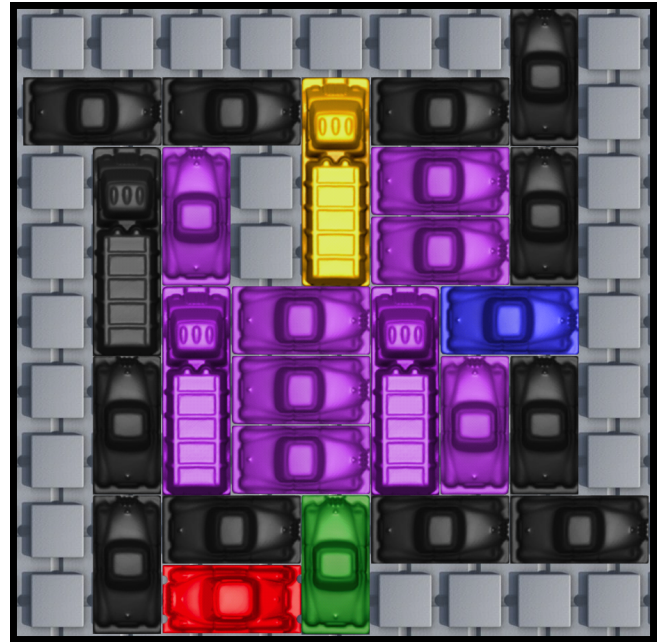
ALGORITHMIC LOWER BOUNDS: FUN WITH HARDNESS PROOFS

Super Mario Bros.



Crossover gadget for NP-hardness

Rush Hour



AND gadget for PSPACE-hardness

Minesweeper



OR gadget for NP-hardness

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Learn **when to give up** the search for efficient algorithms; see **connections** between computational problems; **solve puzzles** to prove theorems, solve **open problems**, and write papers.

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Fall 2014



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