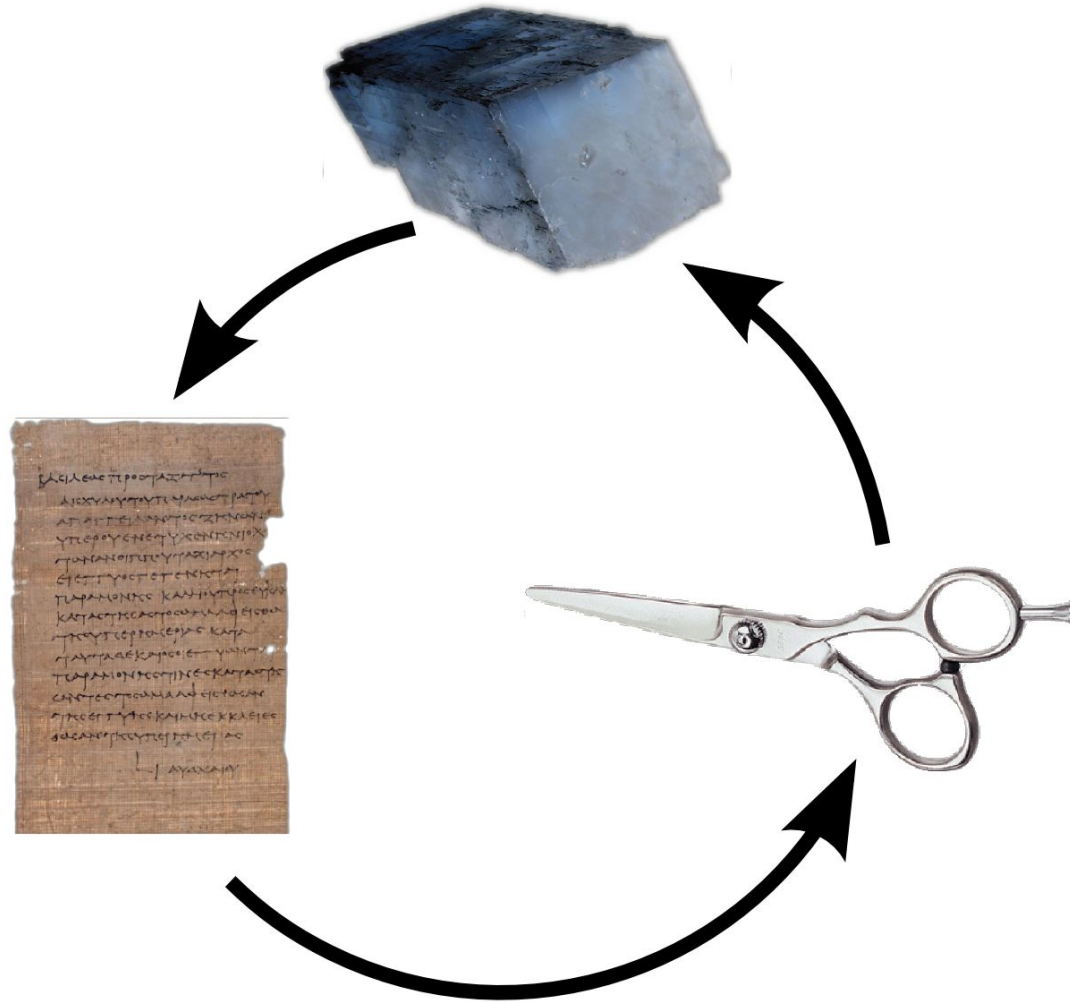


**From *Rock, Paper, Scissors*
to *Street Fighter II*:
Proof by Construction**
Yotam I. Gingold

Rock, Paper, Scissors



Matching Pennies












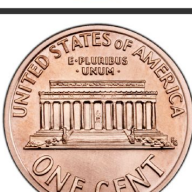










Game Theory

Optimal strategy is choosing randomly. On average, outcome is a draw.

you

me

				
		 1 ,  -1	 -1 ,  1	 -1 ,  1
	 -1 ,  1	 -1 ,  1	 1 ,  -1	 1 ,  -1

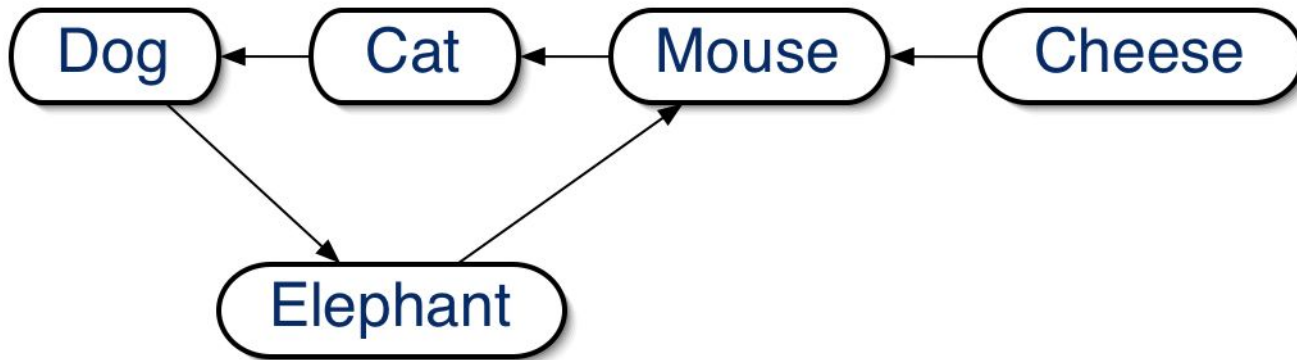
The class of RPS-style games

A competitive series of decisions with no long-term advantage accumulation and access at every decision to a set of moves that include trumps of opponents' moves

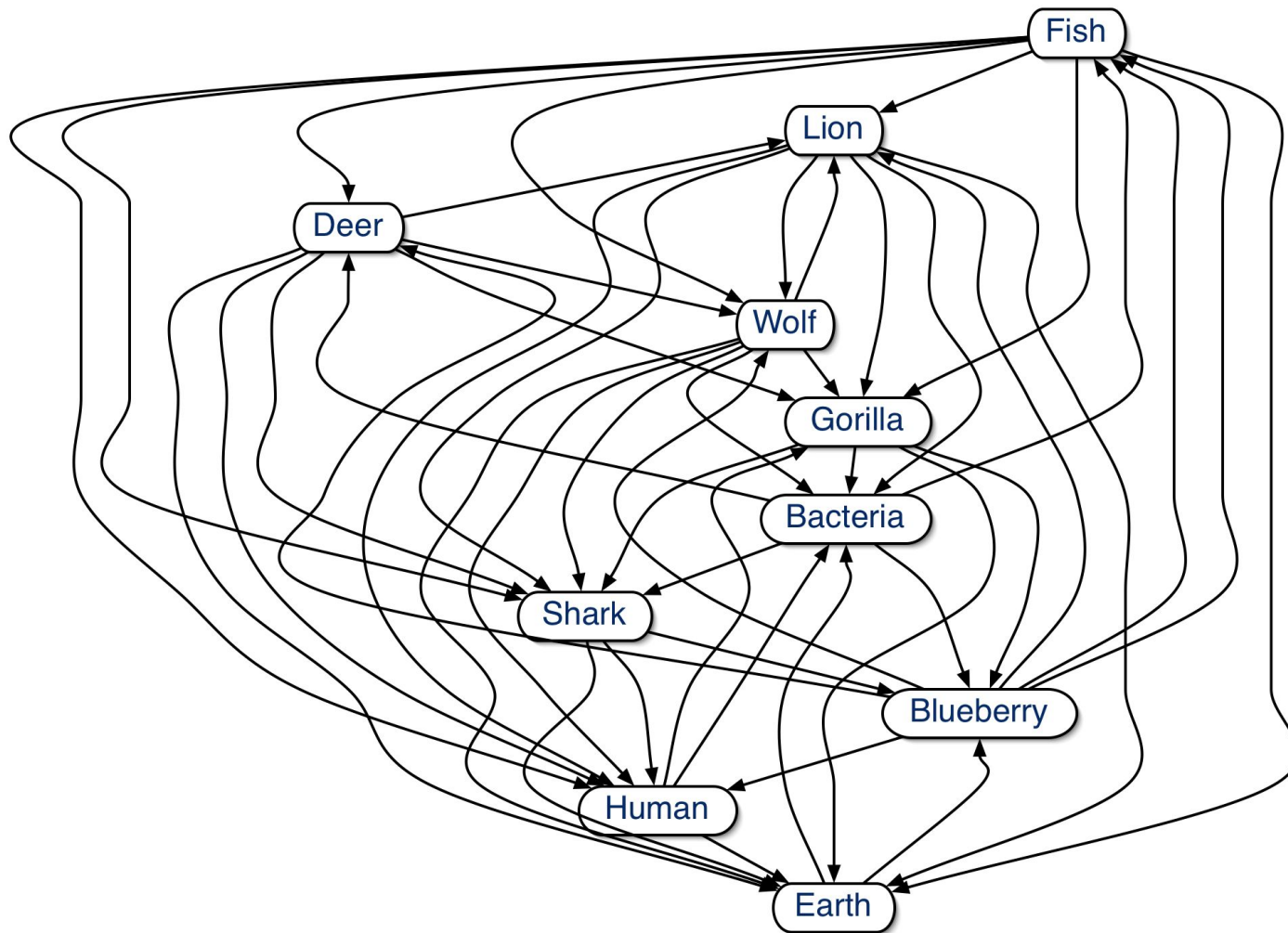
Choices Graph



Choices Graph



Sinks have no trump



Poker



Credit: Kevin
Labianco

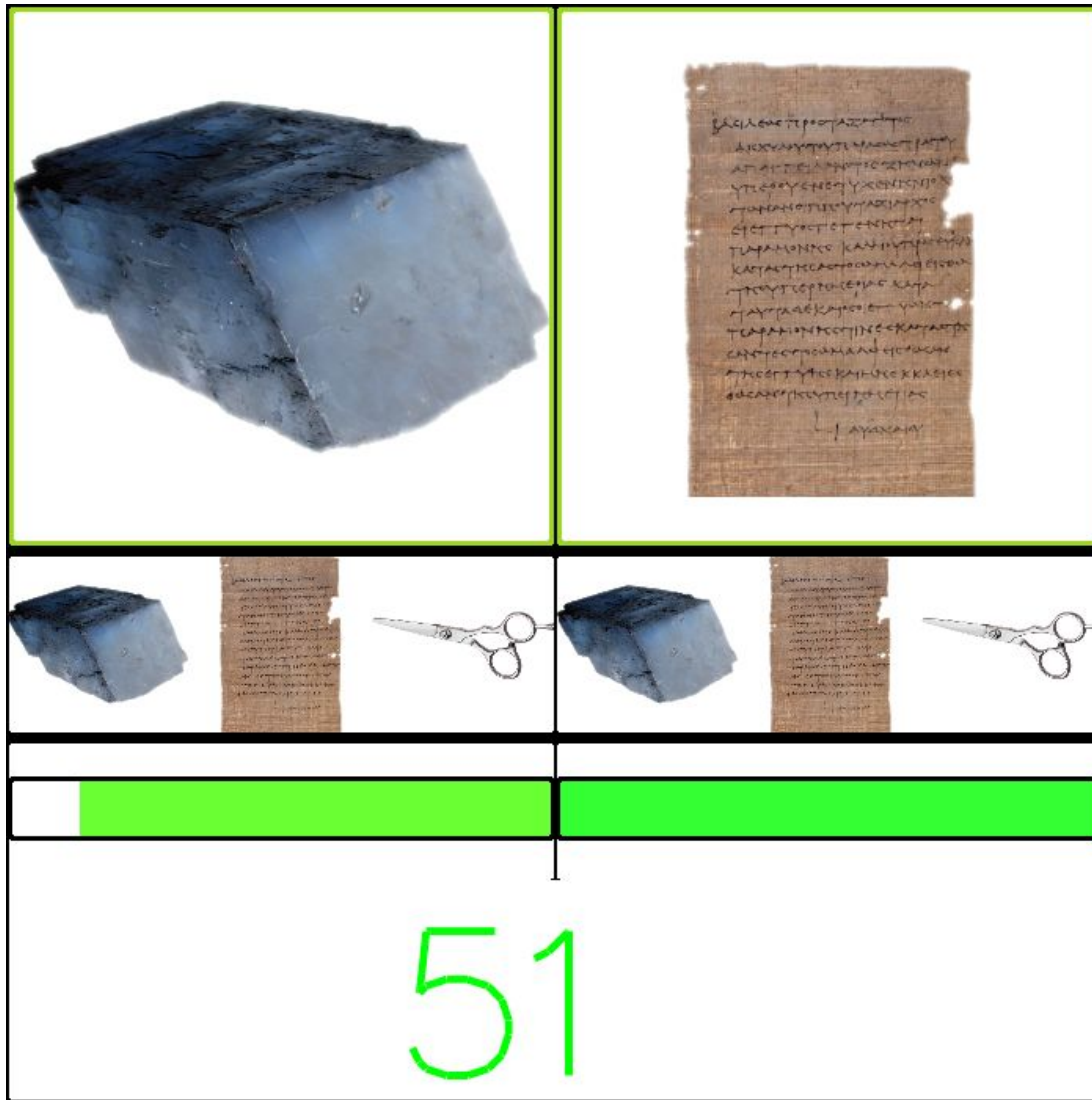
Long-term strategy games

Advantage accumulation



Credit: Simon
Pais

Variations



Street Fighter II



The Dojo / Kung Fu movies



Credit:
myo_sim

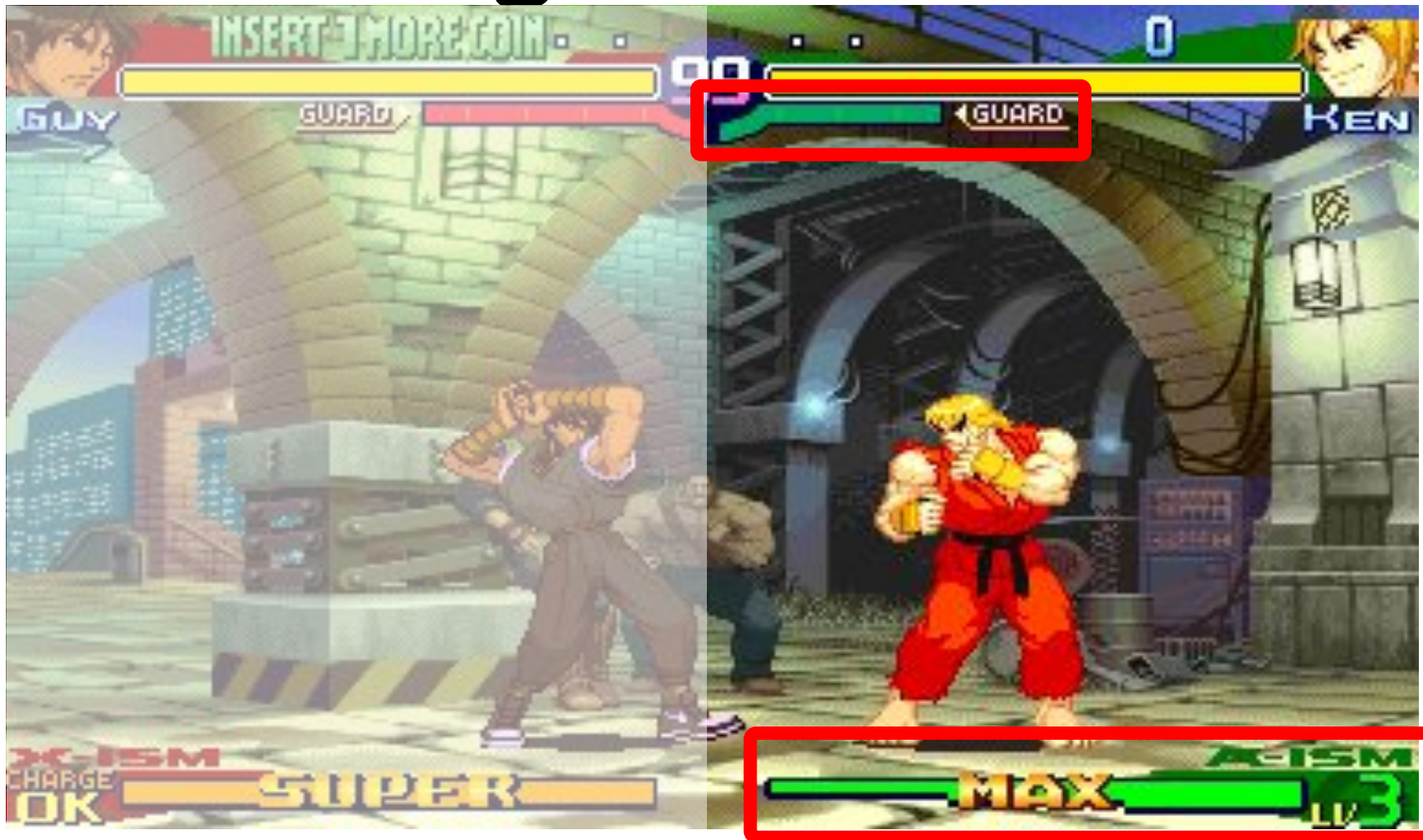
Button mashing

Randomly choosing throws



Credit: Advanced Media,
Inc.

Street Fighter II variants

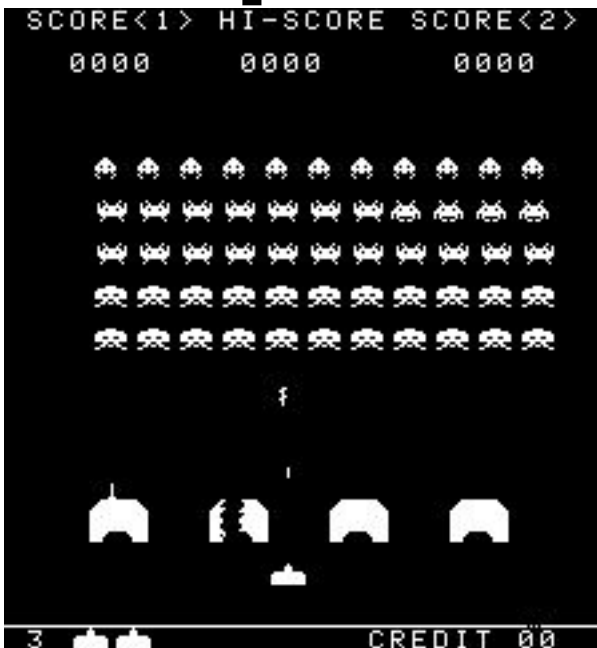


Future Work

Choice graph for Street Fighter II

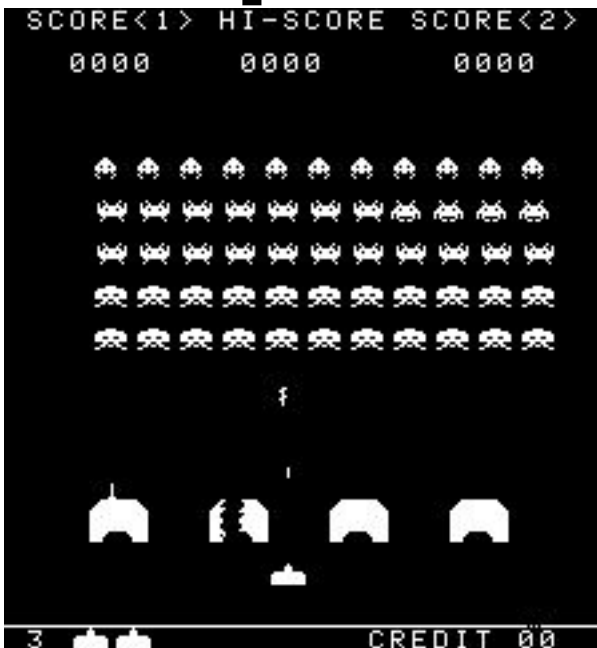
Constructive analysis on other
game types

Space Invaders and Doom



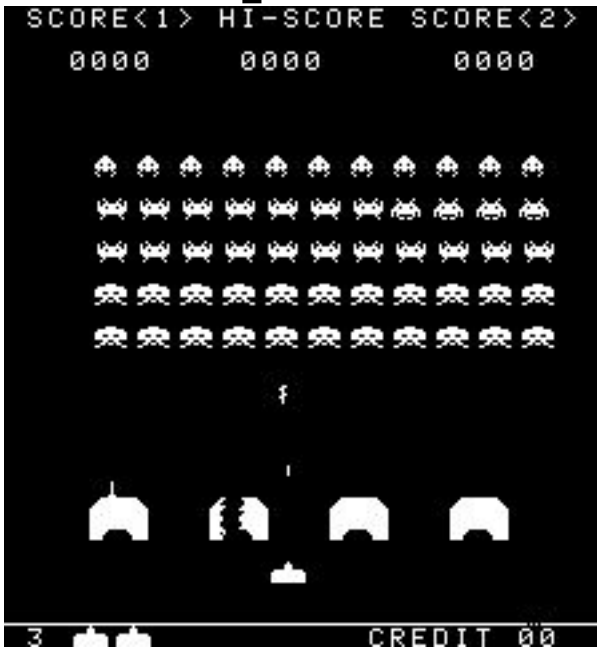
Space Invaders

Space Invaders and Doom



Space Invaders
Asteroids
Centipede

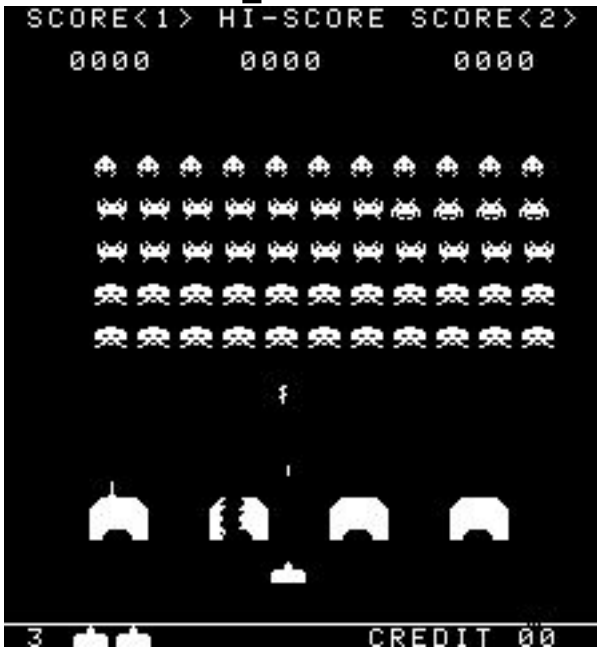
Space Invaders and Doom



Space Invaders
Asteroids
Centipede
Robotron 2084
Crystal Quest
Contra



Space Invaders and Doom



Space Invaders
Asteroids
Centipede
Robotron 2084
Crystal Quest
Contra
Doom

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Casey Muller, NYU colleagues, the
anonymous reviewers, and
Adobe

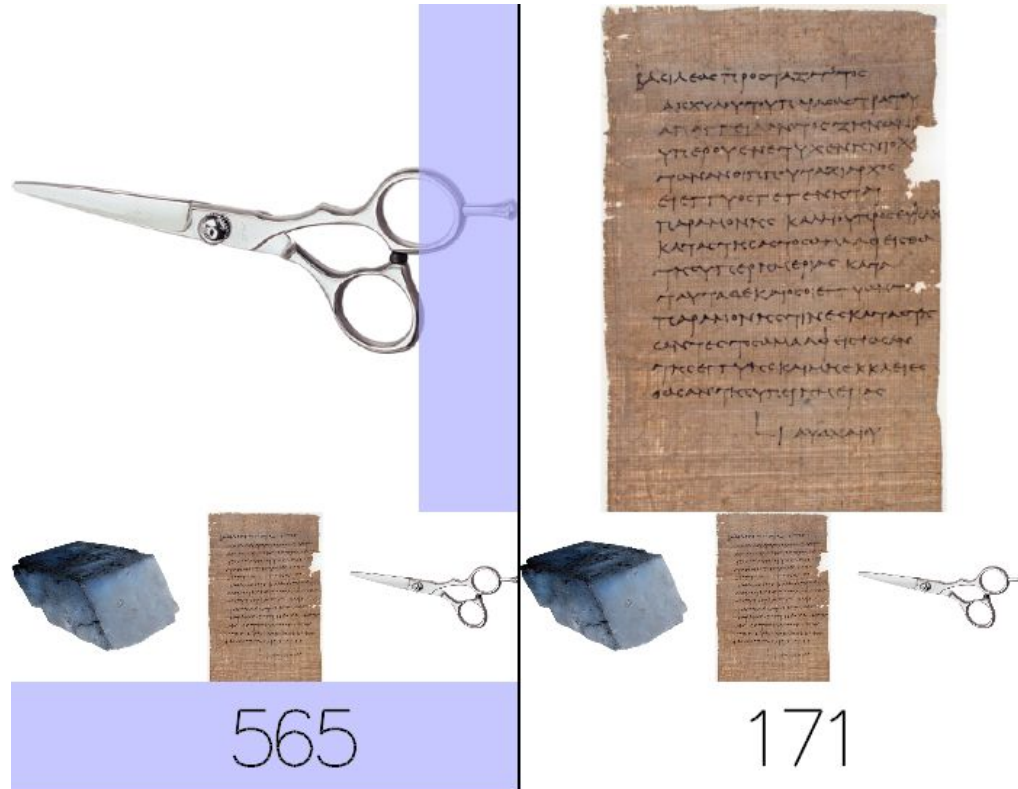
Contact: gingold@mrl.nyu.edu

fin

Mike Tyson's Punch-Out



Variations



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