

Foundations of Interactive Game Design (80K)

week one, lecture two

Today

- Demos of *Spacewar!* and *Orbient*
- What questions do you have — from readings, about tutorial, etc?
- Meaningful play and design
- Games and platforms
- Preview of next week

Spacewar!

Spacewar! demo



Keyboard controls:

a s d f

k l ; '

Spacewar!

- There were earlier computer/video games. But they simulated non-computer games: Checkers (1952), Tic-Tac-Toe (1952), Ping Pong (1958).
- In *Spacewar!* we see a vocabulary of computer games first emerge: navigation, projectiles, simulated gravity.
- Huge influence on future games (e.g., Atari founder Bushnell's *Computer Space*, 1971).

Spacewar!

- *Spacewar!* was also a feat of technology (tech demo for PDP-1) and open source
- *Spacewar!* also shows games as media — science fiction (don't forget Sputnik) not traditional game simulation
- *Spacewar!* also is an important social game — called first multiplayer, spread in lab culture led to “*Spacewar! Olympics*” via *Rolling Stone*

Orbient

Orbient

- Gameplay originally developed (as *Orbital*) for Nintendo's "bit Generation" series for the Game Boy in Japan — no U.S. release
- *Orbient* is available as a Wii download, part of the "Art Style" series
- Uses one element pioneered by *Spacewar!* as a centerpiece of play: *gravity*.

Orbient

- This is an example of one kind of innovative game you could create this quarter.
- Game Maker includes support (and the site offers tutorials) for many standard game elements — waiting to be explored.
- What if, instead of gravity being used for navigation, a game used thrust-based navigation for combat? What about projectile-base navigation?

Questions / topics

Meaningful play

Meaningful play

- A key concept for Salen and Zimmerman
- Related to other concepts we'll discuss:
“agency” (Murray) and “intention” (Church)
- A central issue for game design

Descriptive definition

Meaningful play in a game emerges from the relationship between player action and system outcome; it is the process by which a player takes action within the designed system of a game and the system responds to the action. The *meaning* of an action in a game resides in the relationship between action and outcome. — Salen & Zimmerman

Evaluative definition

Meaningful play occurs when the relationships between actions and outcomes in a game are both *discernable* and *integrated* into the larger context of the game. Creating meaningful play is the goal of successful game design. — Salen & Zimmerman

Discernability

- “*Discernable* means that the result of the game action is communicated to the player in a perceivable way.”
- If you shoot something and it has no response, that should be a discernable way of communicating you can't shoot it (e.g., portal-resistant surfaces in *Portal*).
- Boss battles are often about discernability. What other parts of games focus on it?

Integration

- Integration “means that an action a player takes not only has immediate significance in the game, but also affects the play experience at a later point in the game.”
- We don't move a piece just to see it move (discernability) but to work toward winning or another future state (integration)
- Makes strategy and intentional play possible. What else does integration enable?

Design

Design

- “*Design* is the process by which a designer creates a *context* to be encountered by a *participant*, from which *meaning* emerges.”
- For Salen and Zimmerman, design is about meaning
- They take a semiotic view of meaning

Signs

- Semiotics is the study of signs
- Signs are made up of a *signifier* (e.g., the word “dog”) and the *signified* (the concept)
- The pairings are *arbitrary* (so different languages have different words)
- They are interpreted in *context* — “I have a dog” vs “He is a dog”



Signs shift

- Meaning systems shift over time:
“He is *my dog*” now can mean
“close friend”
- “Watergate” was a hotel, then a scandal, then “-gate” became a suffix for “scandal”



Games and signs

- Designing a game creates a meaning for something — perhaps an additional meaning — by giving it a context
- *Scrabble* gives a new meaning to English words by making them moves in a game, but old contexts and meanings are still present
- Hence controversy: “honkie” in *Scrabble*, killing in *Grand Theft Auto*, others?

Platforms

Atari VCS (aka “2600”)

- 1977, the first cartridge-based console
- Moved games out of public and into home
- Created a standard platform targeted by many games — at first, all by Atari



VCS commercial



The platform

Modified 6502 processor
(3 registers)

Television Interface Adapter
RIOT peripheral interface

128 bytes RAM
2 kb ROM (later increased)

The models

Pong and Tank

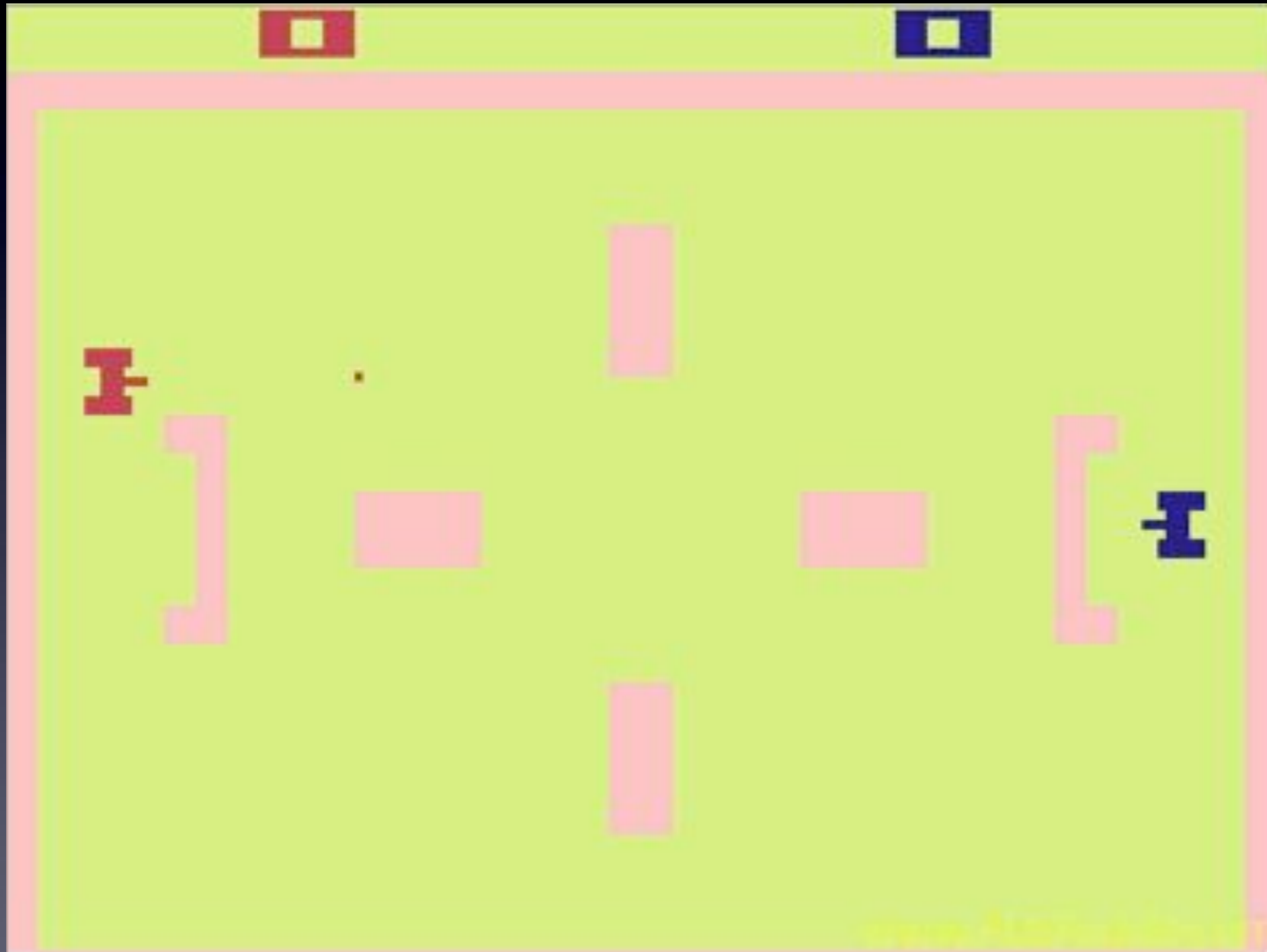
1972 start of Atari
Distribution practices
Kee Games
Tank – Steve Bristow



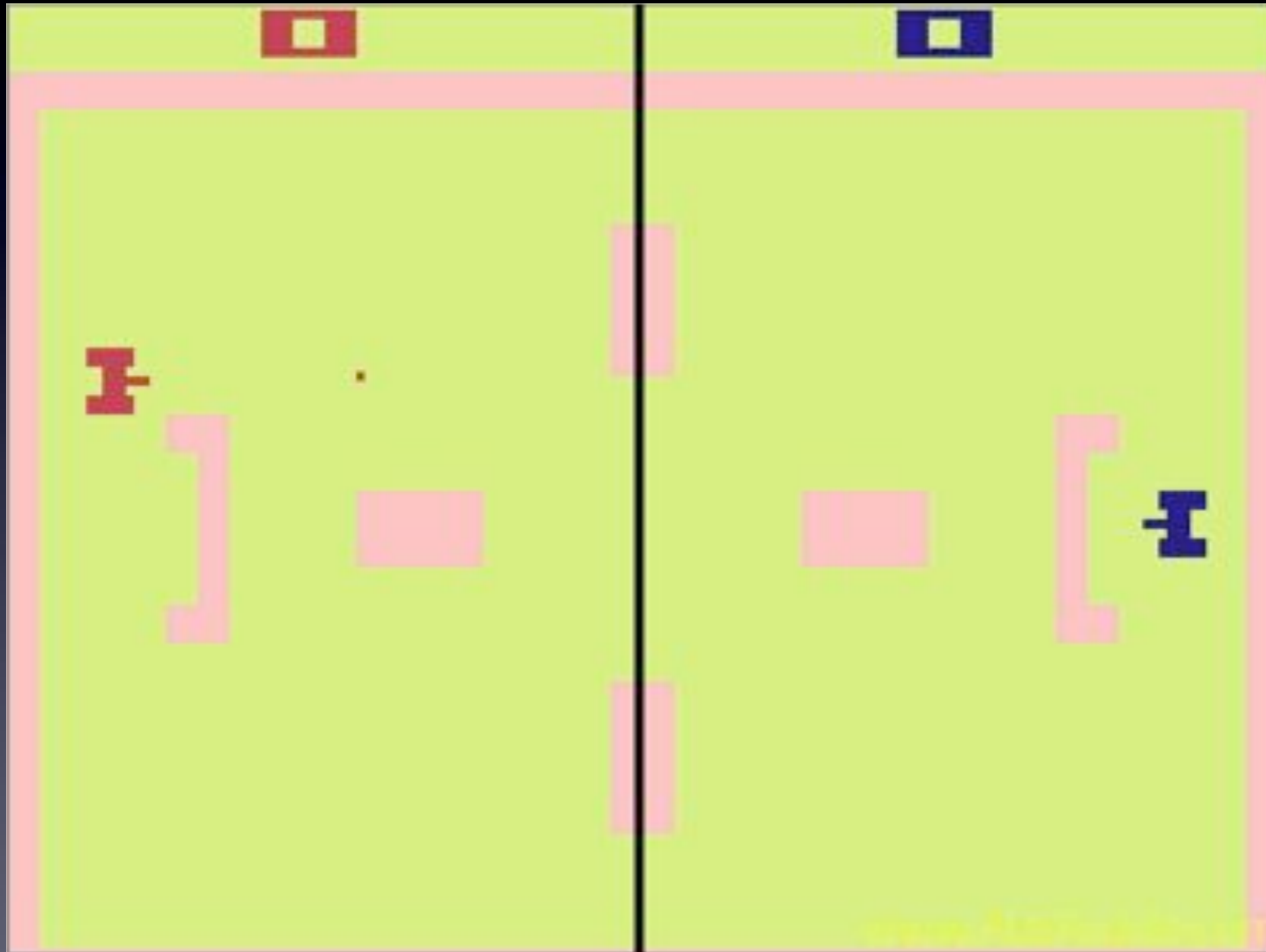
The requirements

a playfield backdrop
two player sprites
two missiles
one ball

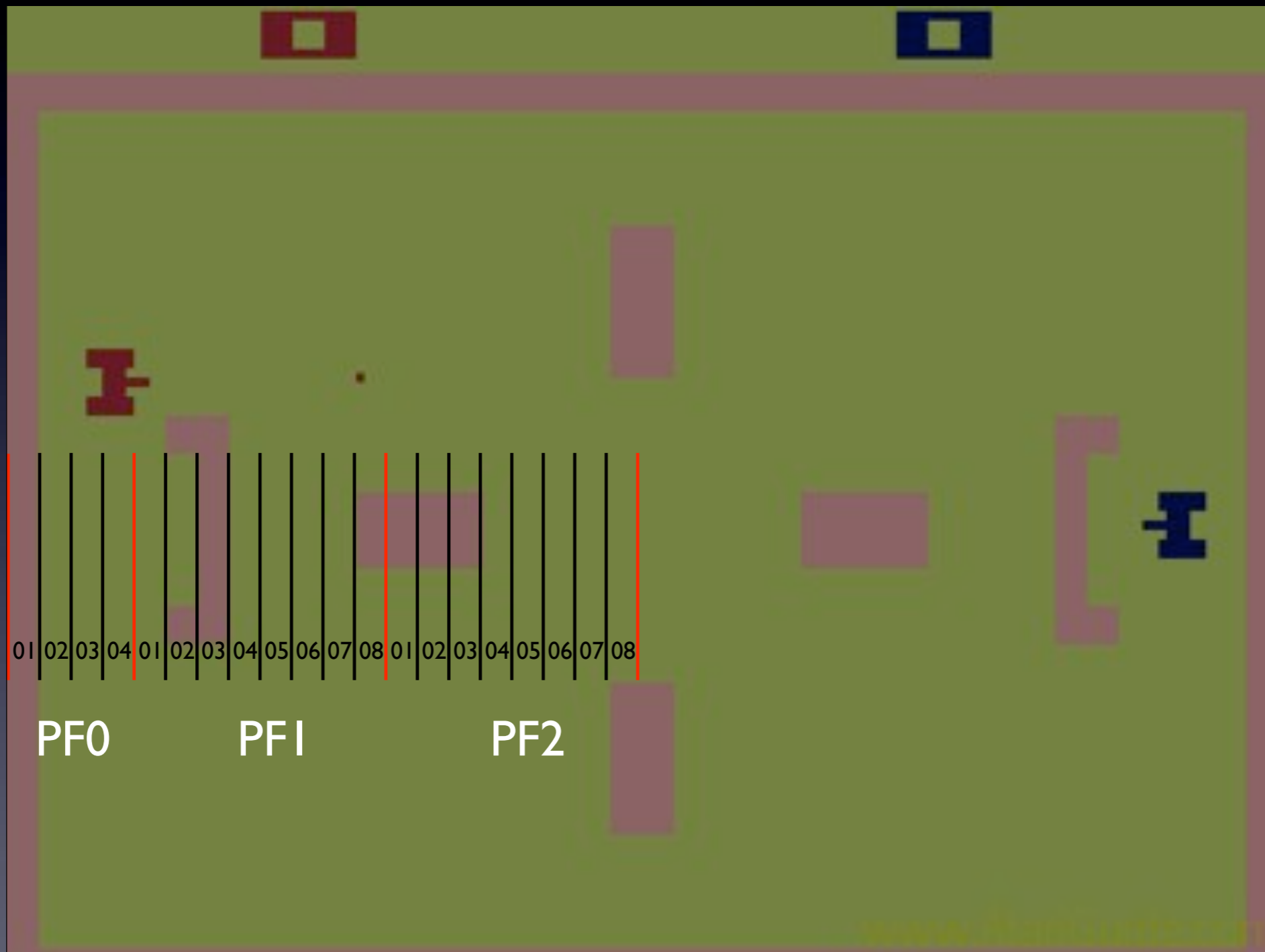
Combat



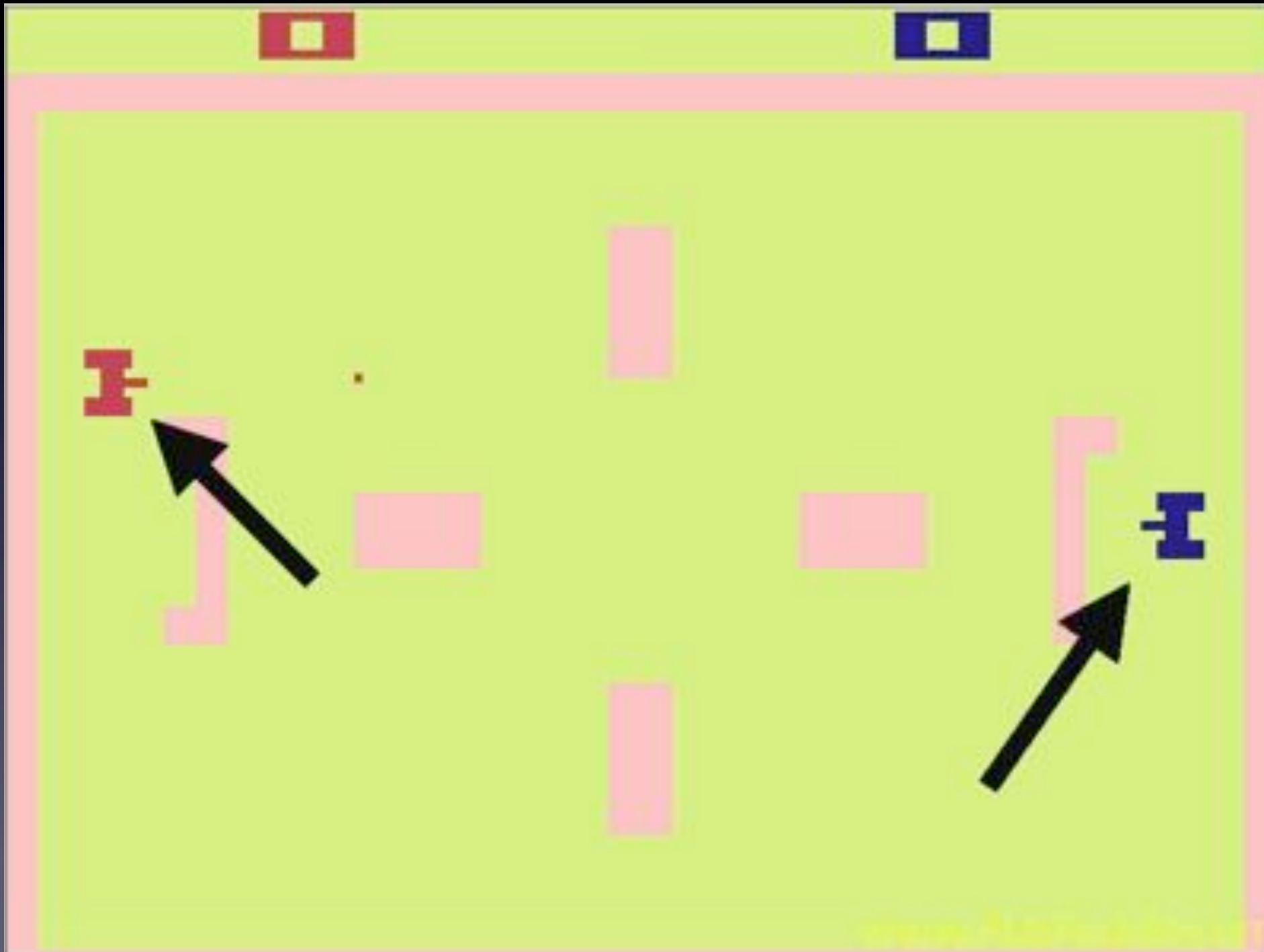
Symmetrical playfield



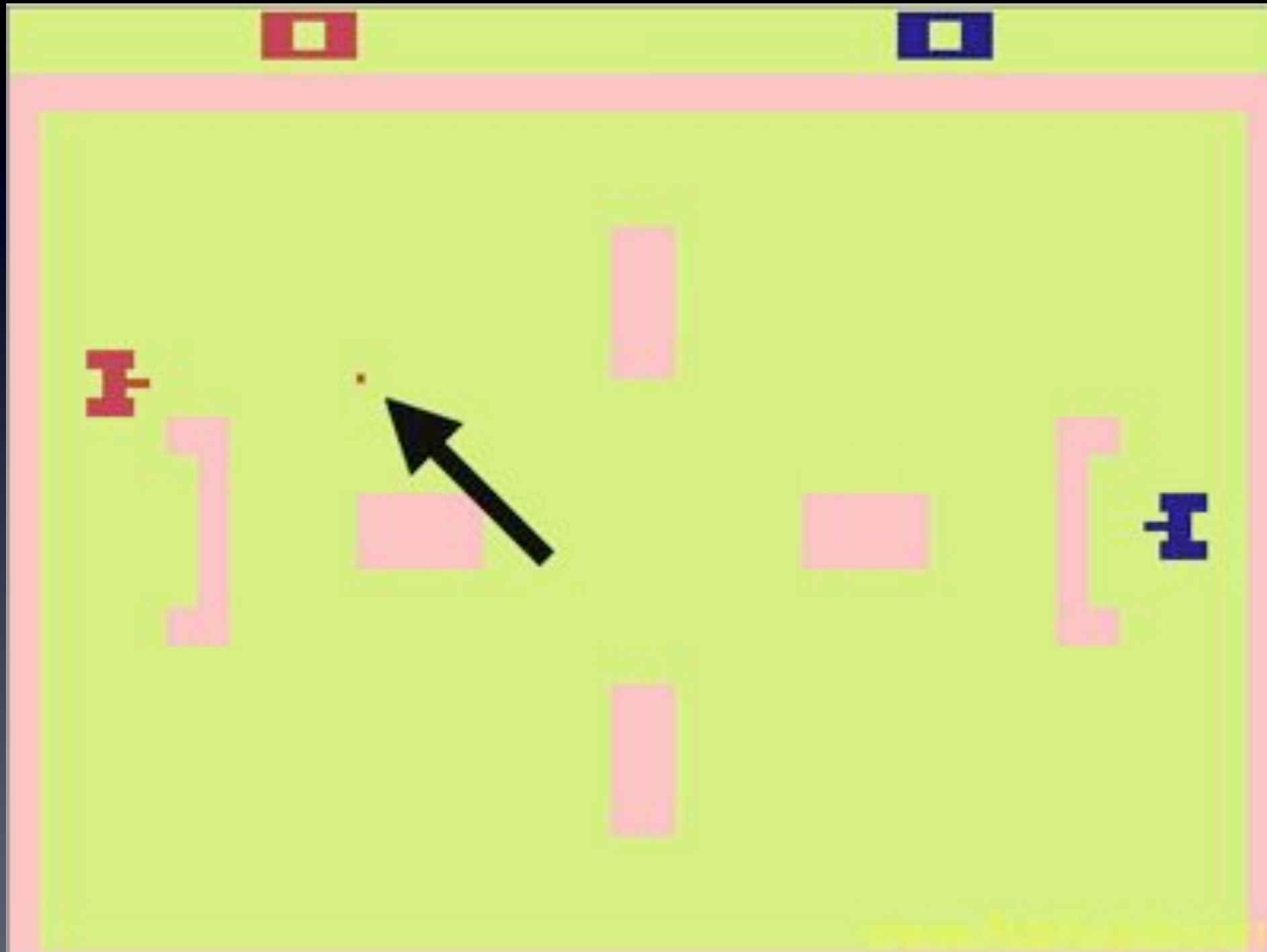
Stored in registers



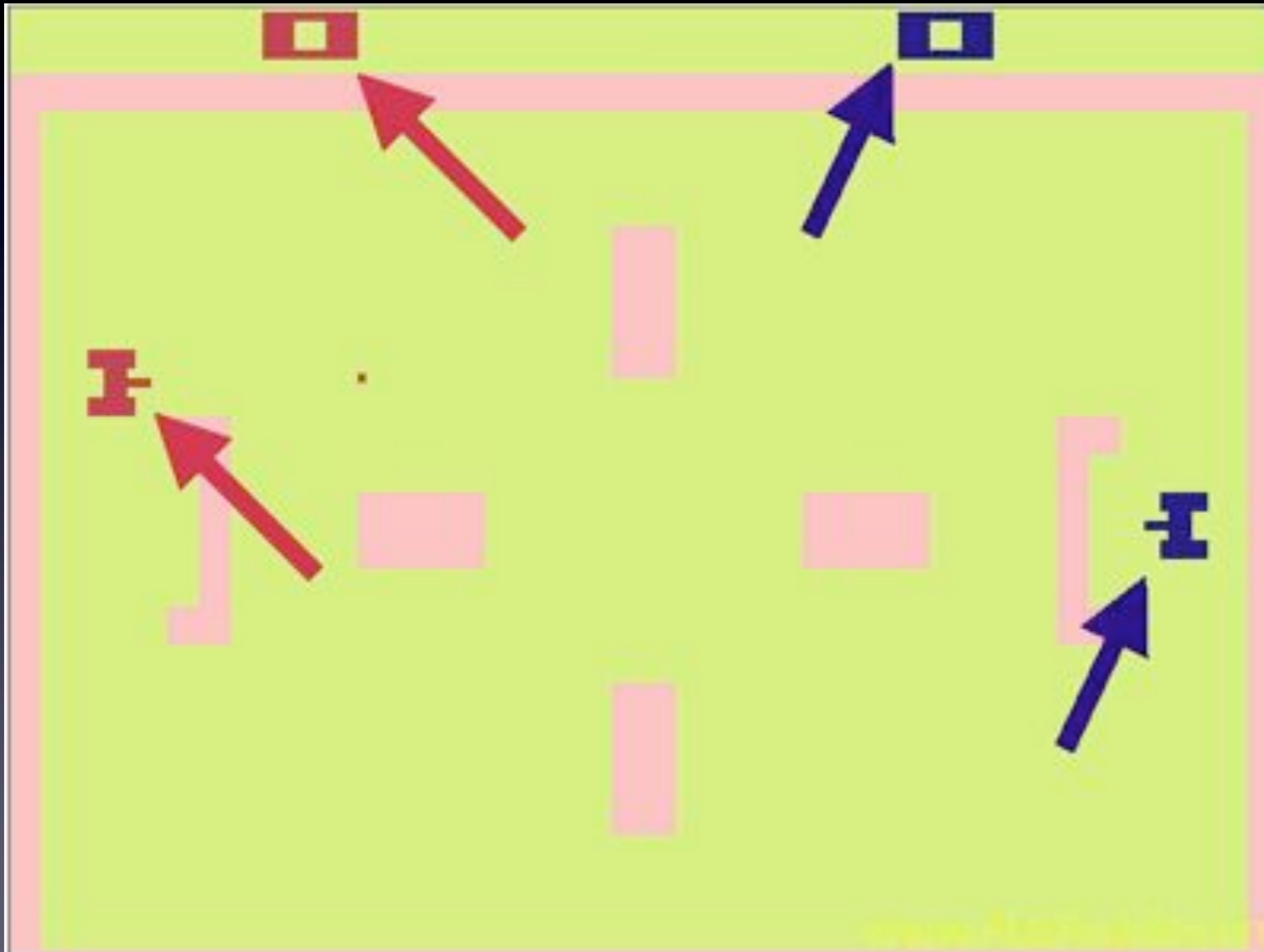
Two sprites



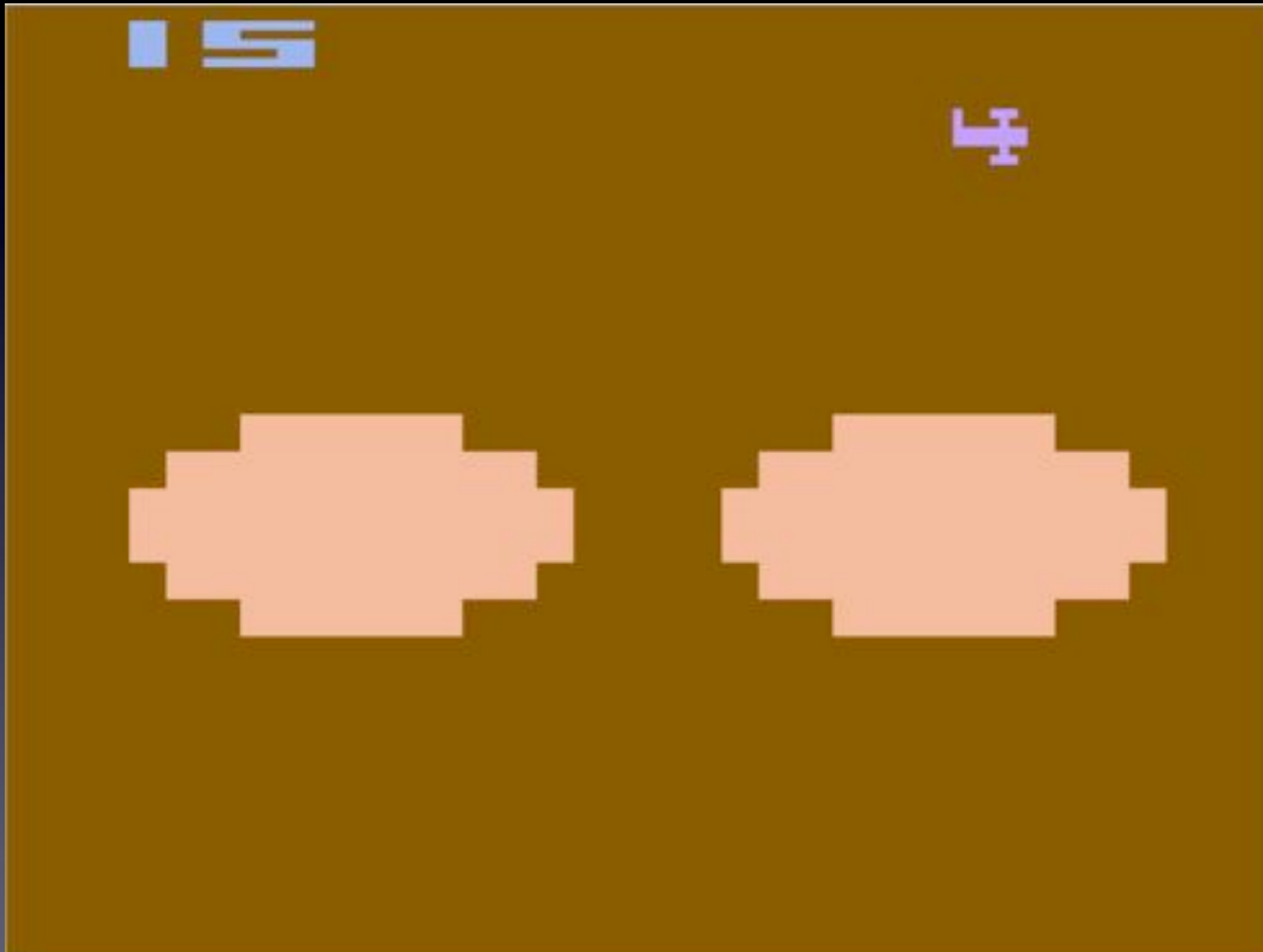
Missiles (note color)



Scores (note color)



Variations



Sprites

```
.byte $00 ; |
.byte $8E ; | X   XXX
.byte $84 ; | X   X
.byte $FF ; | XXXXXXXX
.byte $FF ; | XXXXXXXX
.byte $04 ; |       X
.byte $0E ; |       XXX
.byte $00 ; |
```

Sprites

```
.byte $%00000000 ; |
.byte $%10001110 ; | X   XXX
.byte $%10000100 ; | X   X
.byte $%11111111 ; | XXXXXXXX
.byte $%11111111 ; | XXXXXXXX
.byte $%00000100 ; |       X
.byte $%00001110 ; |       XXX
.byte $%00000000 ; |
```

Sprites

```
.byte  $%00000000 ; |  
.byte  $%10001110 ; | X   XXX  
.byte  $%10000100 ; | X   X  
.byte  $%11111111 ; | XXXXXXXX  
.byte  $%11111111 ; | XXXXXXXX  
.byte  $%00000100 ; |      X  
.byte  $%00001110 ; |      XXX  
.byte  $%00000000 ; |
```

Not square



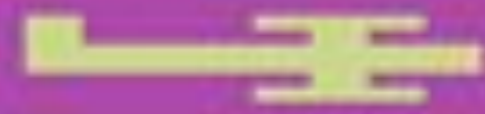
Scale as variation



Built in sprite scaling



NUSIZ0: # \$03



NUSIZ1: # \$07

Game platforms



First generation games tend to show off what the platform can do by default, then...

PS2



Unreal Tournament
(launch title, 2000)



God of War II
(late title, 2007)

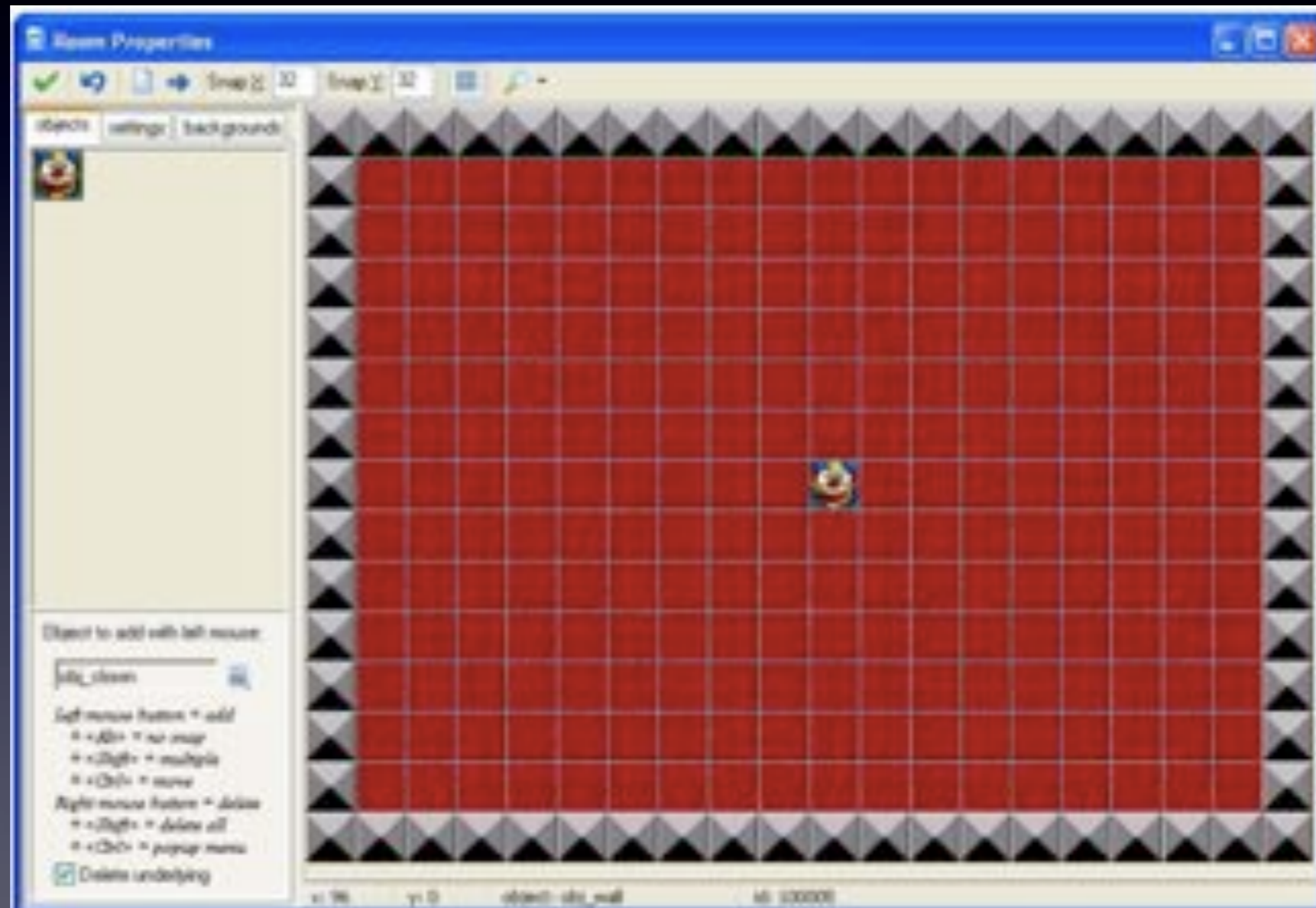


Platforms

- A bit more on Atari games next week
- For now, think about your platform:
Game Maker
- What does it make easy — and difficult?
- What can you coax out of it?

Next week

First assignment due



Tutorial #1

- Due in section, graded there (on screen)
- Covered in this week's sections — also in detailed tutorial online (link from syllabus)
- Required customization: a different sprite
- If you can: One or more additional clown(s), operating based on different rules

Next week

- More reading from *Rules of Play*
- Fundamental questions: What is a game?
- Second Game Maker tutorial, more advanced, worked through in sections
- Team selection assigned