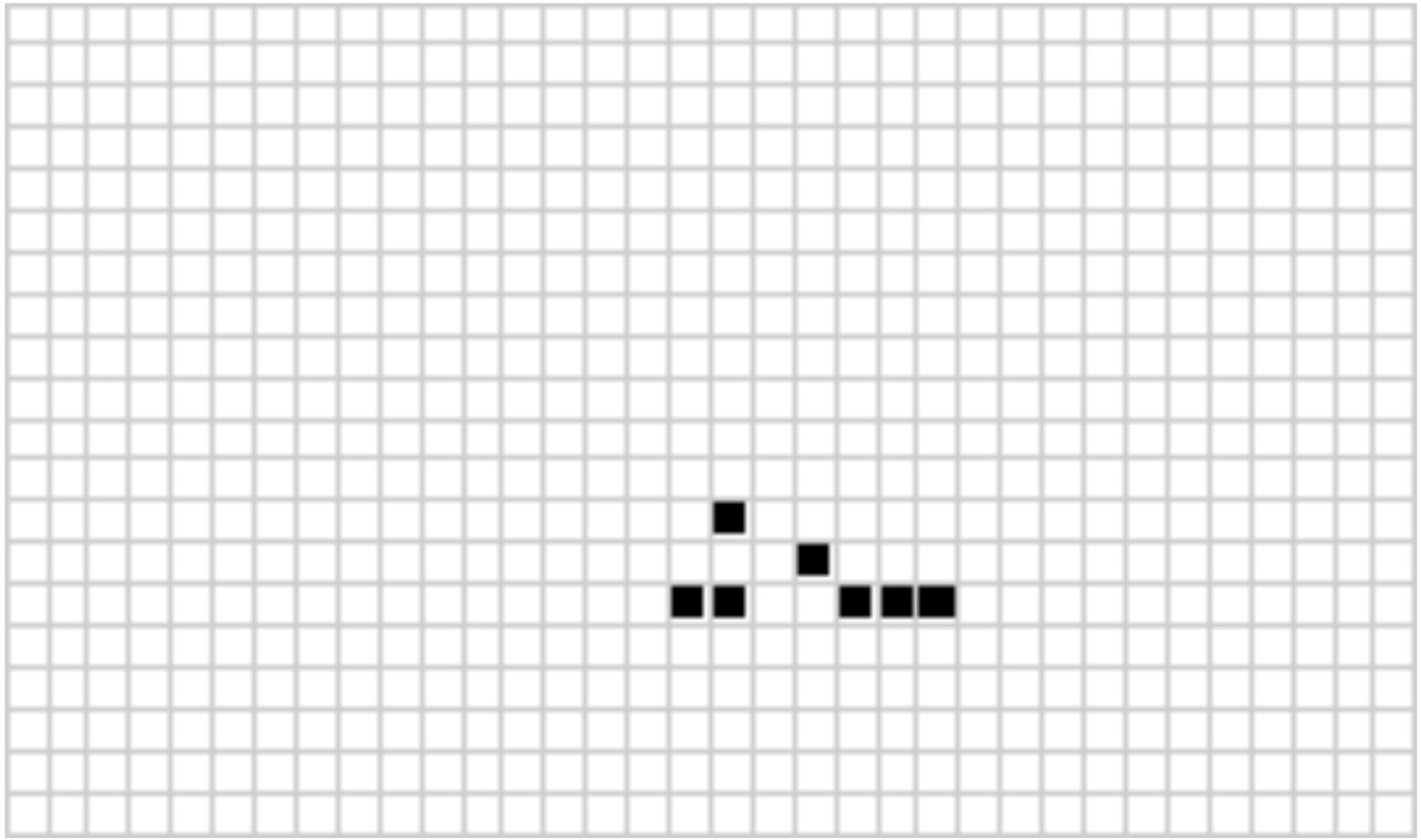
GAME OF LIFE

Skynet alpha?

ERICK OH

GAME OF LIFE



HTTP://WWW.ERICWEISSTEIN.COM/ENCYCLOPEDIAS/LIFE/ACORN.HTML

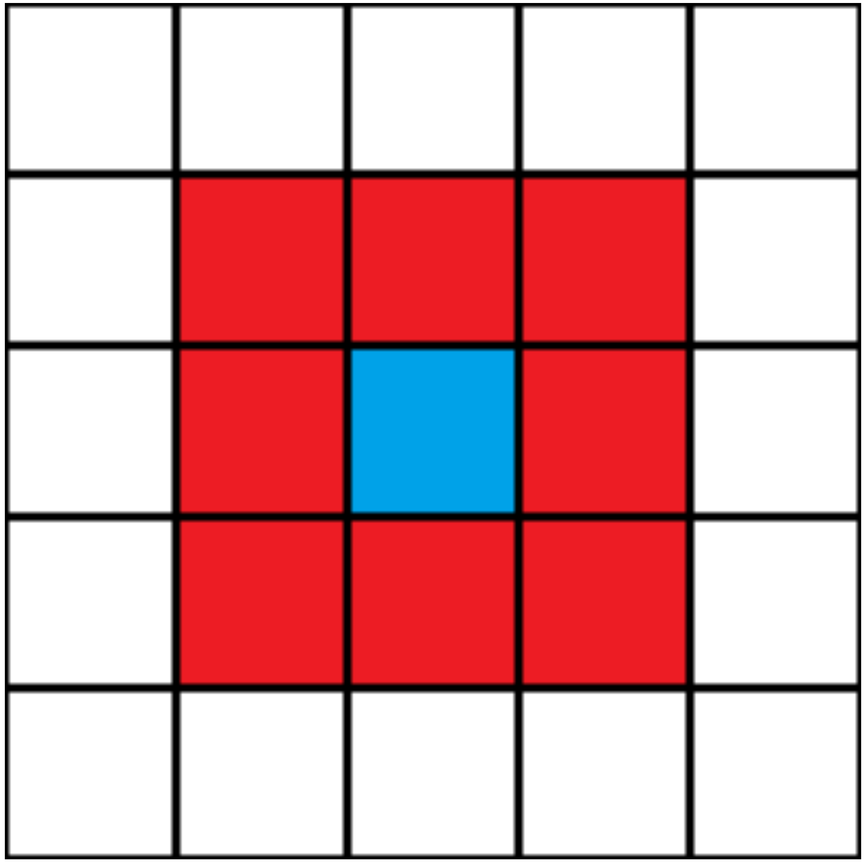
GAME OF LIFE

- “Zero-player” game (see ***animation***)
- Rooted in Von Neumann’s quest for artificial/simulated life
- Created by Jon Conway in 1970
- Sparked niche field: **cellular automaton**
- Simple rules can produce complex behavior

RULES

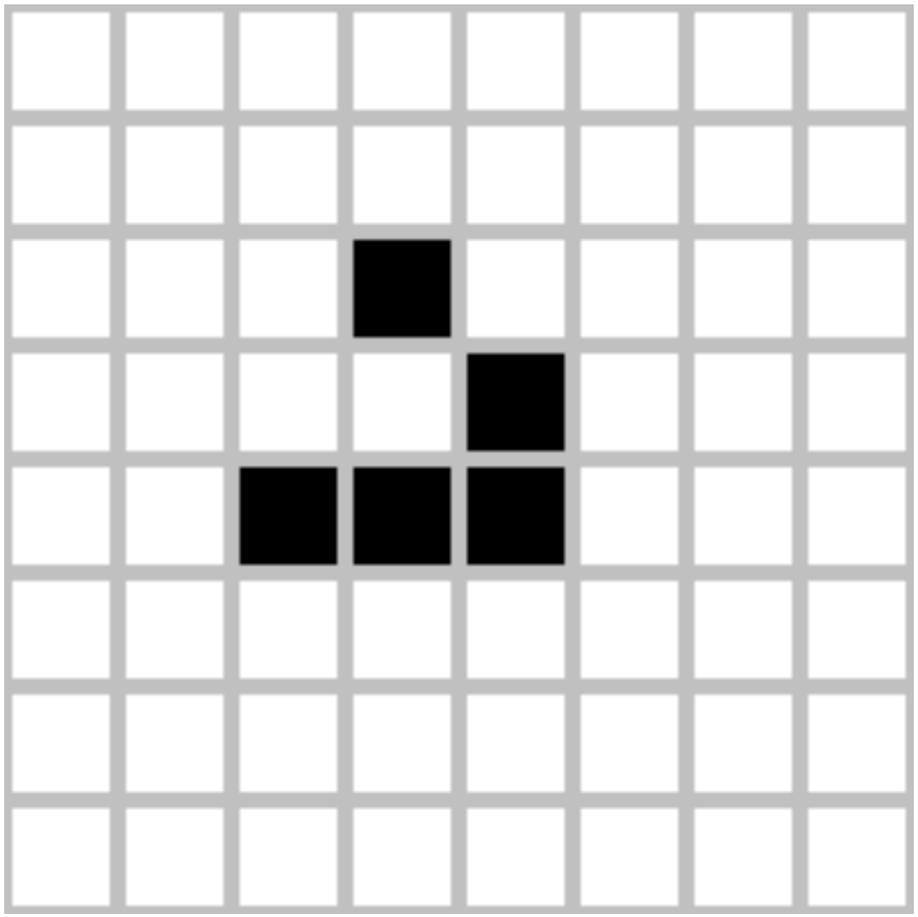
- 2D grid of cells that are currently on or off (dead or alive)
- Each step, grid updates all-at-once
- Currently alive cell
  - “Underpopulation”: dies given fewer than 2 live neighbors
  - “Overcrowding”: dies given greater than 3 live neighbors
  - Otherwise, lives on
- Currently dead cell
  - “Birth”: comes to life given exactly 3 live neighbors
  - Otherwise, remains dead

NEIGHBORS



HTTPS://EN.WIKIPEDIA.ORG/WIKI/CELLULAR_AUTOMATON

GAME OF LIFE



HTTP://WWW.HOMESCHOOLSON.COM/CONWAYS-GAME-OF-LIFE/

YOU'LL BE GIVEN HTML BYOJS

MANIPULATING THE DOM

- Changing Attributes for Style
- Making Elements
- Putting them into the DOM
- Remove Elements
- innerHTML and the DOM HTML Reader

CHANGING STYLE ATTRIBUTES

```
element.style.backgroundColor = “blue”;
```

CSS	JavaScript
background-color →	backgroundColor
border-radius →	borderRadius
font-size →	fontSize
list-style-type →	listStyleType
word-spacing →	wordSpacing
z-index →	zIndex

CHANGING CSS CLASSES

- *classList* is HTML5 way to modify which classes are on an

```
document.getElementById("MyElement").classList.add('class');

document.getElementById("MyElement").classList.remove('class');

if ( document.getElementById("MyElement").classList.contains('class') )

document.getElementById("MyElement").classList.toggle('class');
```

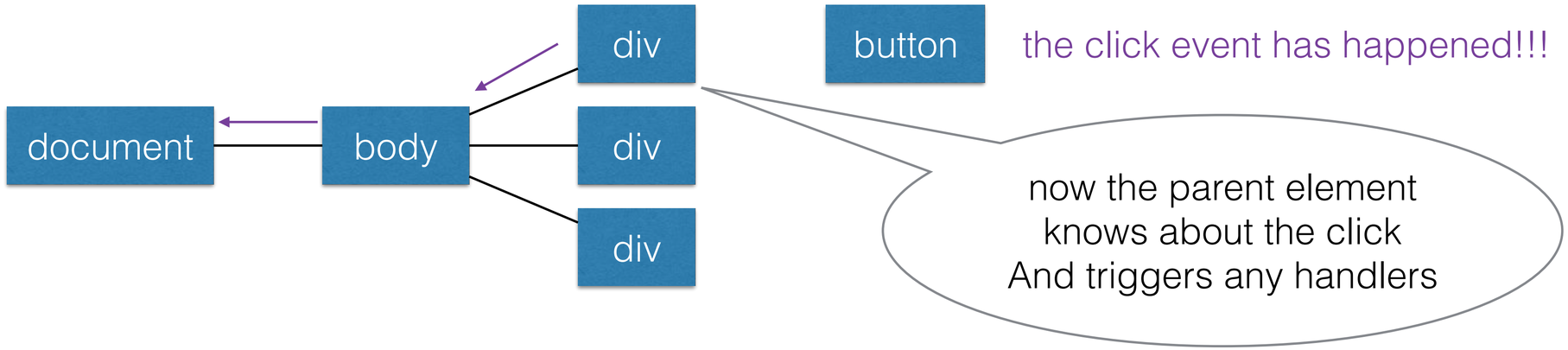
EVENT HANDLERS

```
element.addEventListener('click', function(event) {
    // Run this code on click
});
```

- JS that handles things that happen in the DOM
- Event examples:
  - click
  - (form) submit
  - hover
  - mouseover

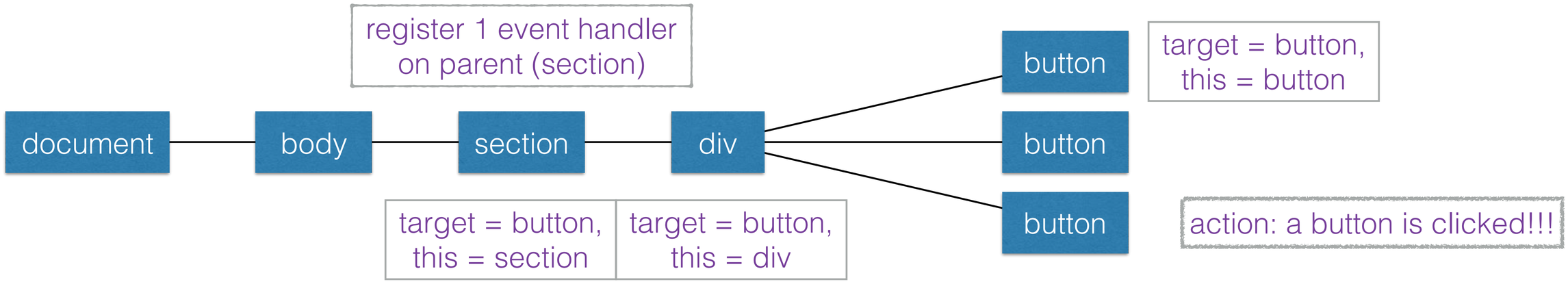
EVENT PROPAGATION/BUBBLING

- An event is directed to its intended target
- If there is an event handler it is triggered
- From here, the **event** *bubbles* up to the containing elements
- This continues to the document element itself



EVENT DELEGATION

- The process of using event propagation to handle events at a higher level in the DOM
- Allows for a single event listener



THIS

THIS

- …is the “context” for a function.
- …is determined when a function is *invoked*, not when it is defined.

  To determine what `this` is for any function, take a look at its *call-site*.

TYPES OF CONTEXT BINDING AND CALL-SITE

- Default binding: `func();`
- “new” binding: `new func();`
- Implicit binding: `obj.func();`
- Explicit binding: `func.call(obj);`

THE .BIND METHOD

- Requires one argument, a `thisArg`.
- Returns a new function whose `this` is always the thisArg.
- Does *not* invoke the function.

```
var boundFunc = oldFunc.bind(thisArg);
boundFunc(); //invoked with thisArg as `this`
```

WORKSHOP TIME

WORKSHOP

- Starting HTML already given
- Bring it to life
- DOM event handling
  - The event object
  - Context for event handlers
  - Event delegation