

D3 Data Bind

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```
d3.select("svg").selectAll("rect")  
  .data([12, 23, 42, 18, 7])
```

- Data values are bound to DOM elements
- An update, enter, *and* exit selection is returned

Data Bind Matching Game

DATA

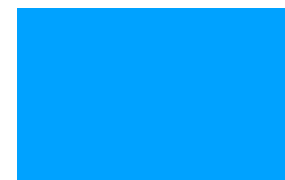
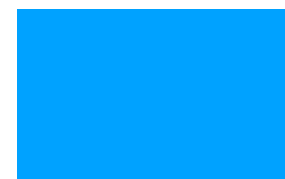
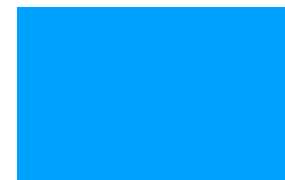
12

23

42

18

DOM elements



Data Bind Matching Game

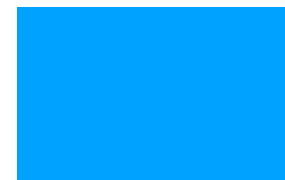
DATA

DOM elements

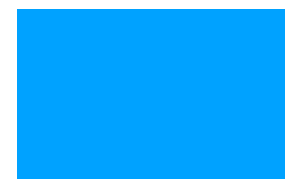
12



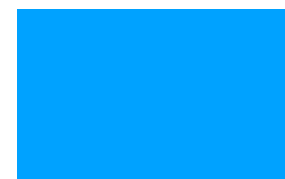
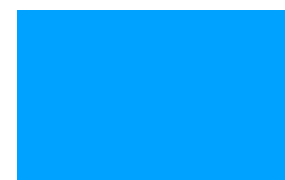
23



42



18

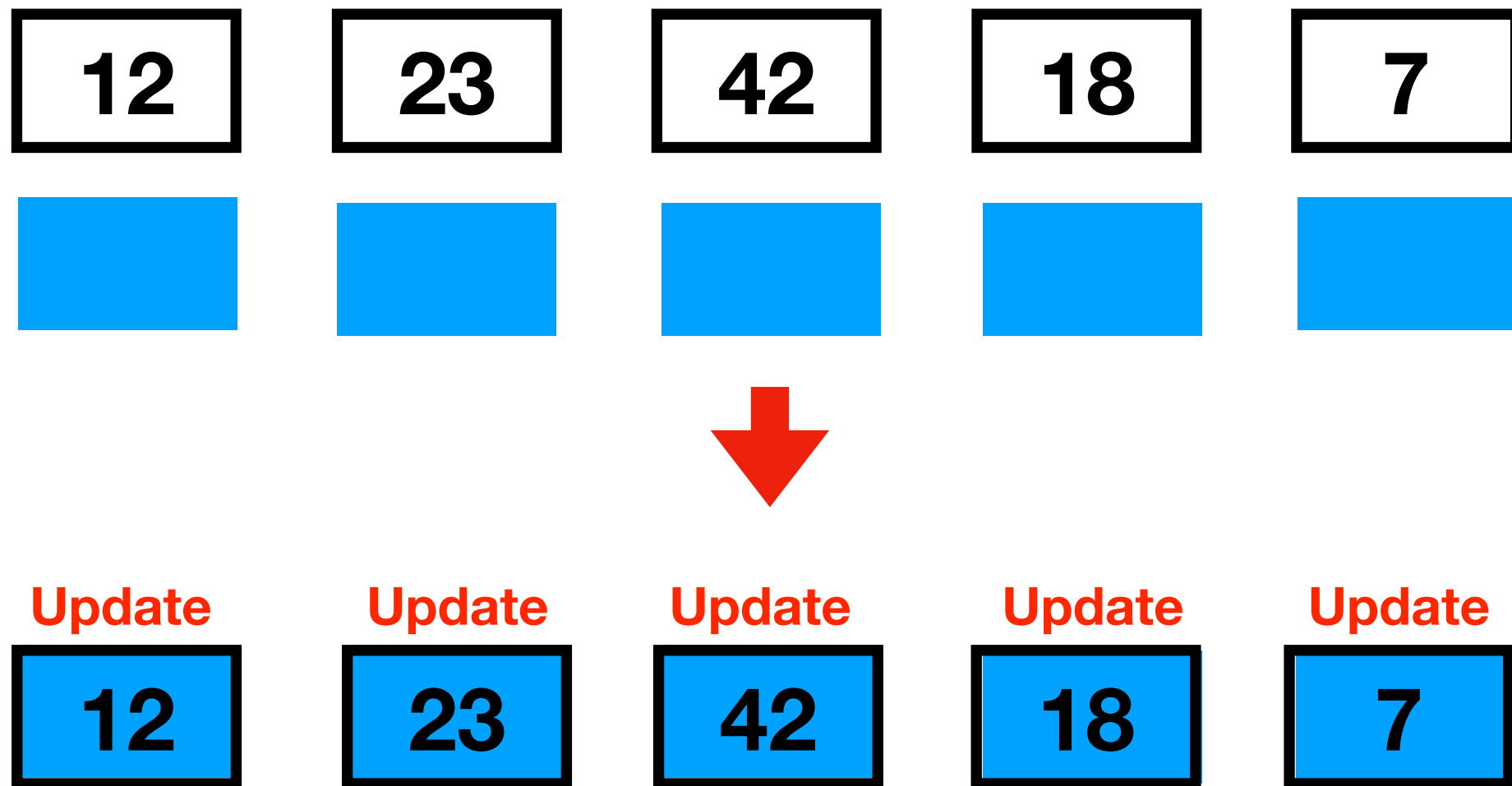


no match

Update, Enter, Exit Selections

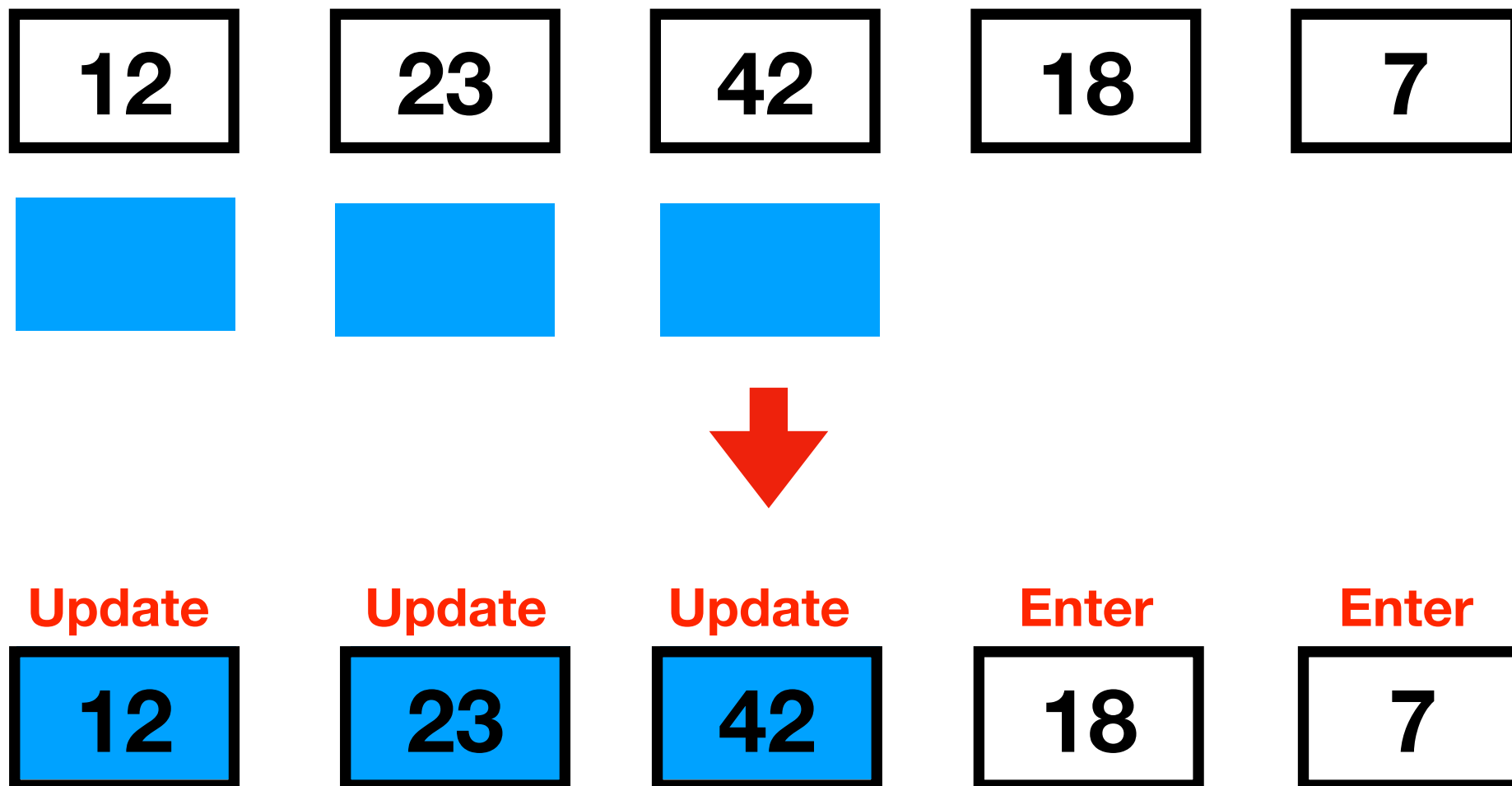
- Matched data/DOM elements -->
Update selection
- "Placeholder" non-existent DOM elements
for data that don't find matches -->
Enter selection
- DOM elements that don't find matches -->
Exit selection

Scenario 1: equal number of data values and DOM elements



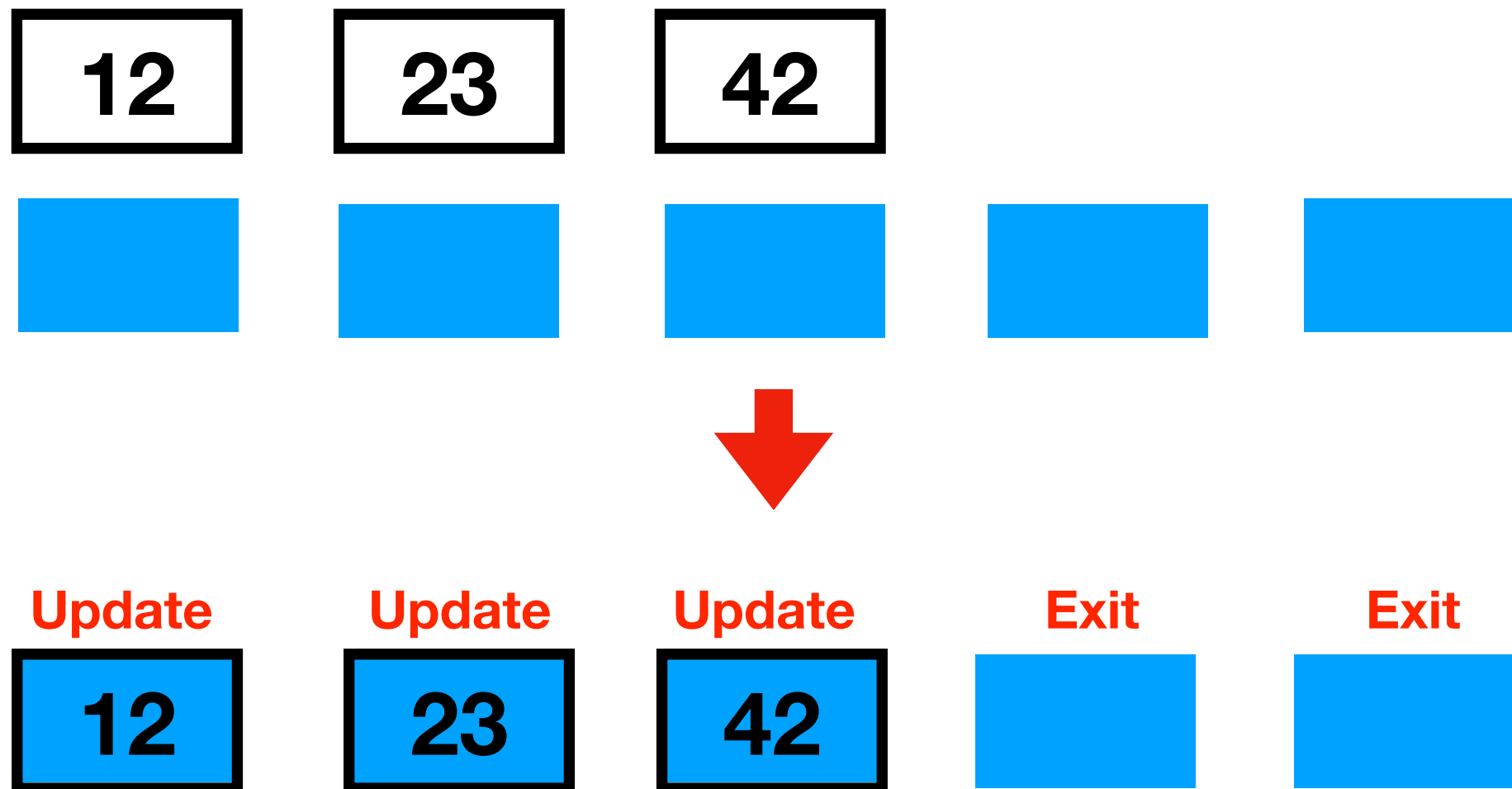
Scenario 2:

More data than DOM elements



Scenario 3:

More DOM elements than data



D3 Data Bind

```
d3.select("svg").selectAll("svg")  
  .data([12, 23, 42, 18, 7])
```

- Data values are bound to DOM elements
- An update, enter, *and* exit selection is returned

How do we access selections?

Accessing selections

Update: *selection.data([data])*

Enter: *selection.data([data]).enter()*

Exit: *selection.data([data]).exit()*

Using the update selection to modify elements

```
const svg = d3.select("svg");  
  
svg.selectAll("rect")  
  .data([12, 23, 42, 18, 7])  
  .attr("x", d => d);
```

Using the enter selection to add elements

```
svg.selectAll("rect")  
  .data([12, 23, 42, 18, 7])  
  .enter()  
  .append("rect")  
  .attr("x" ...  
  
;
```

Using the exit selection to remove elements

```
svg.selectAll("rect")  
  .data([12, 23, 42, 18, 7])  
  .exit()  
  .remove();
```

Under the hood

```
> svg.selectAll("rect").data([12, 23, 42]);
```

```
▼ _groups: Array(1)
```

```
▶ 0: (3) [rect, rect, rect] ← Matches
```

```
> svg.selectAll("rect").data([12, 23, 42]).enter();
```

```
▼ _groups: Array(1)
```

```
▶ 0: (3) [empty × 3] ← Placeholders
```

```
> svg.selectAll("rect").data([12, 23, 42]).exit();
```

```
▼ _groups: Array(1)
```

```
▶ 0: (5) [empty × 3, rect, rect] ← Extra DOM elements
```