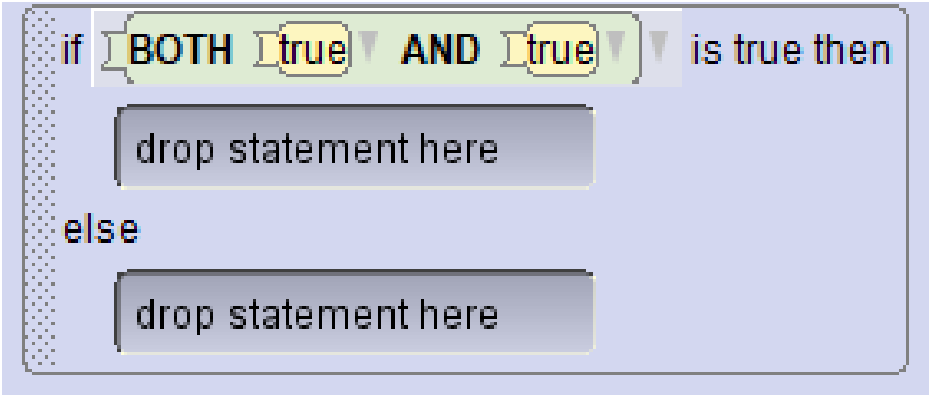
CompSci 94
Logic with Ifs, Nested Ifs
October 7, 2021



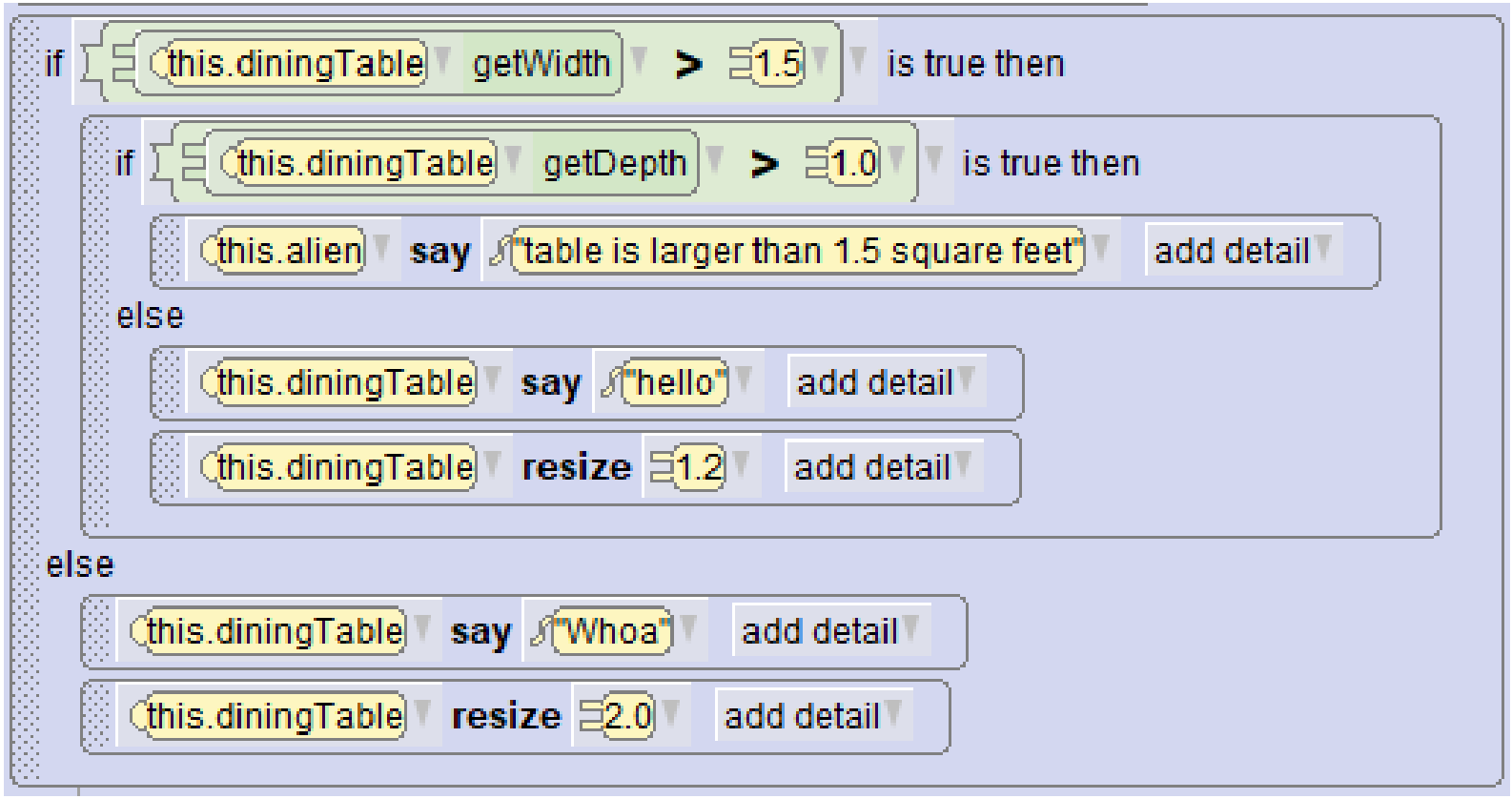
Prof. Susan Rodger

Announcements

- Next QZ and Videos due Tuesday when class starts
  - They are up!

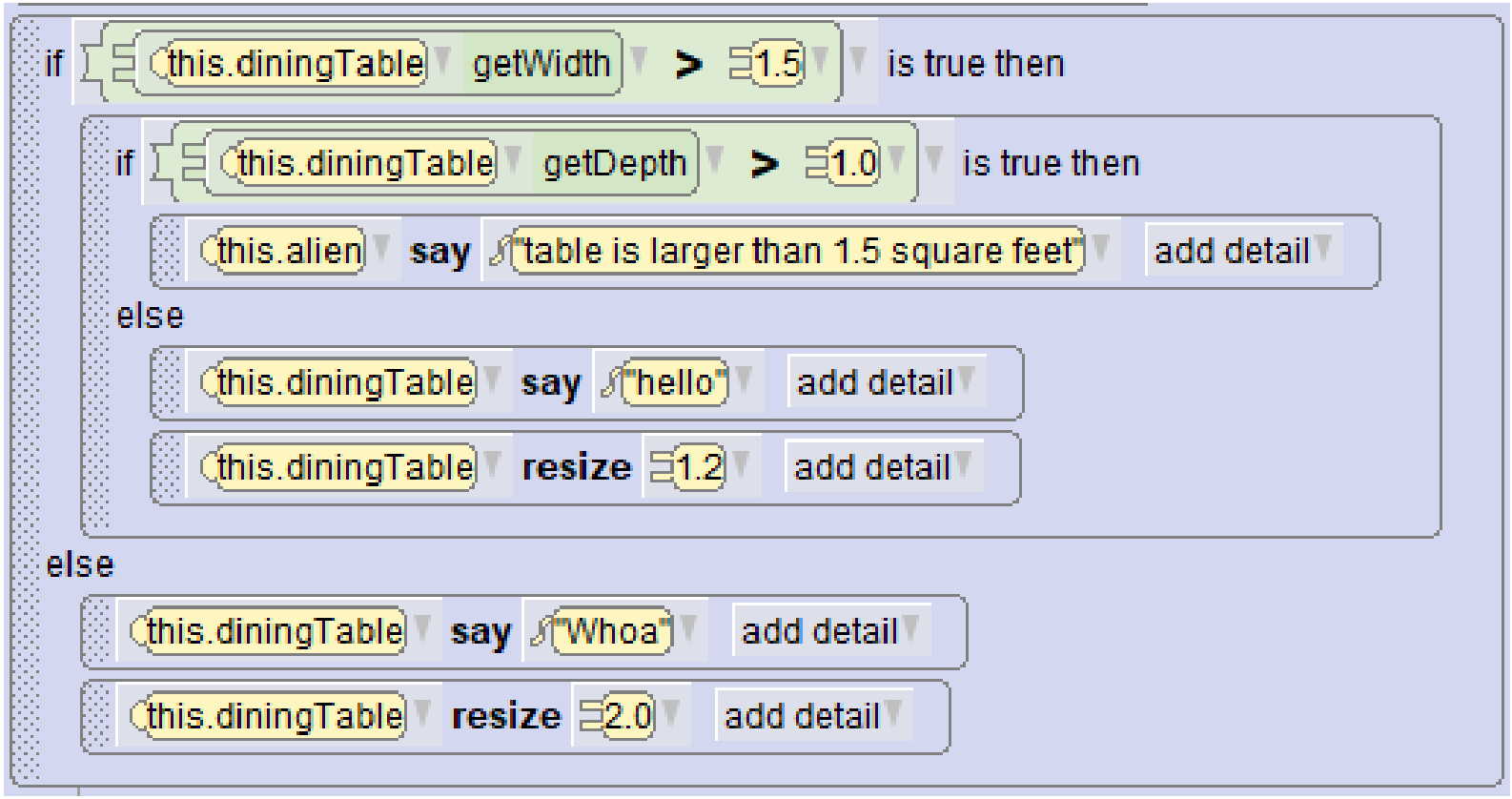
Q1. Review Nested IF

- What happens if the diningTable has width 1.7 and depth 1.0?



Q1. Review Nested IF

- What happens if the diningTable has width 1.7 and depth 1.0?
  - diningTable says hello and is resized larger by 1.2



Q2. Logic Review

- What are possible values of A and B
  - if **A and B** is True?
  - if **A or B** is True?
  - if **A or B** is False?

Q2. Logic Review

- What are possible values of A and B
  - if **A and B** is True?
    - A must be True, B must be True
  - if **A or B** is True?
    - A must be True or B must be True
  - if **A or B** is False?
    - A must be False, B must be false

Logic Truth Table

A	B	not A	A and B	A or B
True	True	False	True	True
True	False	False	False	True
False	True	True	False	True
False	False	True	False	False

Logic Truth Table

A AND B is **true** only if both A and B are **true**

A	B	not A	A and B	A or B
True	True	False	True	True
True	False	False	False	True
False	True	True	False	True
False	False	True	False	False

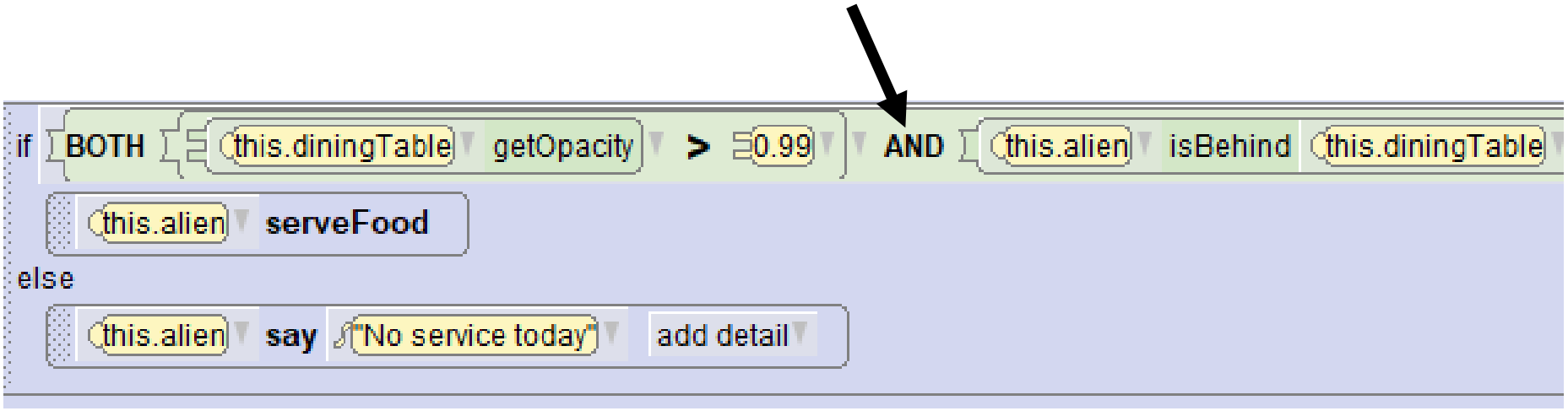
Logic Truth Table

A OR B is **false** only if both A and B are **false**

A	B	not A	A and B	A or B
True	True	False	True	True
True	False	False	False	True
False	True	True	False	True
False	False	True	False	False

Q3. Consider this code – Nested Ifs How would you write it with ONE IF?

Rewrite Code - one IF with AND



Q4. What does bunny say?

```
if BOTH [this.bunny getPaint == RED] AND [this.panda getHeight > this.bunny getHeight]
    this.bunny say "first" add detail
else
    if [this.panda getHeight ≤ this.bunny getHeight] is true then
        this.bunny say "second" add detail
    else
        if [this.bunny getPaint ≠ RED] is true then
            this.bunny say "third" add detail
        else
            this.bunny say "fourth" add detail
```

Bunny is red to start.

Q4. What does bunny say?

```
if BOTH [this.bunny getPaint == RED] AND [this.panda getHeight > this.bunny getHeight]
    this.bunny say "first" add detail
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            this.bunny say "third" add detail
        else
            this.bunny say "fourth" add detail
```

Bunny is red to start.

Bunny says: second

Q5. Bunny different. What does bunny say?

```
if BOTH ( this.bunny getPaint == RED ) AND ( this.panda getHeight > this.bunny getHeight )
    this.bunny say "first" add detail
else
    if ( this.panda getHeight ≤ this.bunny getHeight ) is true then
        this.bunny say "second" add detail
    else
        if ( this.bunny getPaint ≠ RED ) is true then
            this.bunny say "third" add detail
        else
            this.bunny say "fourth" add detail
```

Bunny is green to start.

Q5. Bunny different. What does bunny say?

```
if BOTH ( this.bunny getPaint == RED ) AND ( this.panda getHeight > this.bunny getHeight )
    this.bunny say "first" add detail
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    else
        if ( this.bunny getPaint ≠ RED ) is true then
            this.bunny say "third" add detail
        else
            this.bunny say "fourth" add detail
```
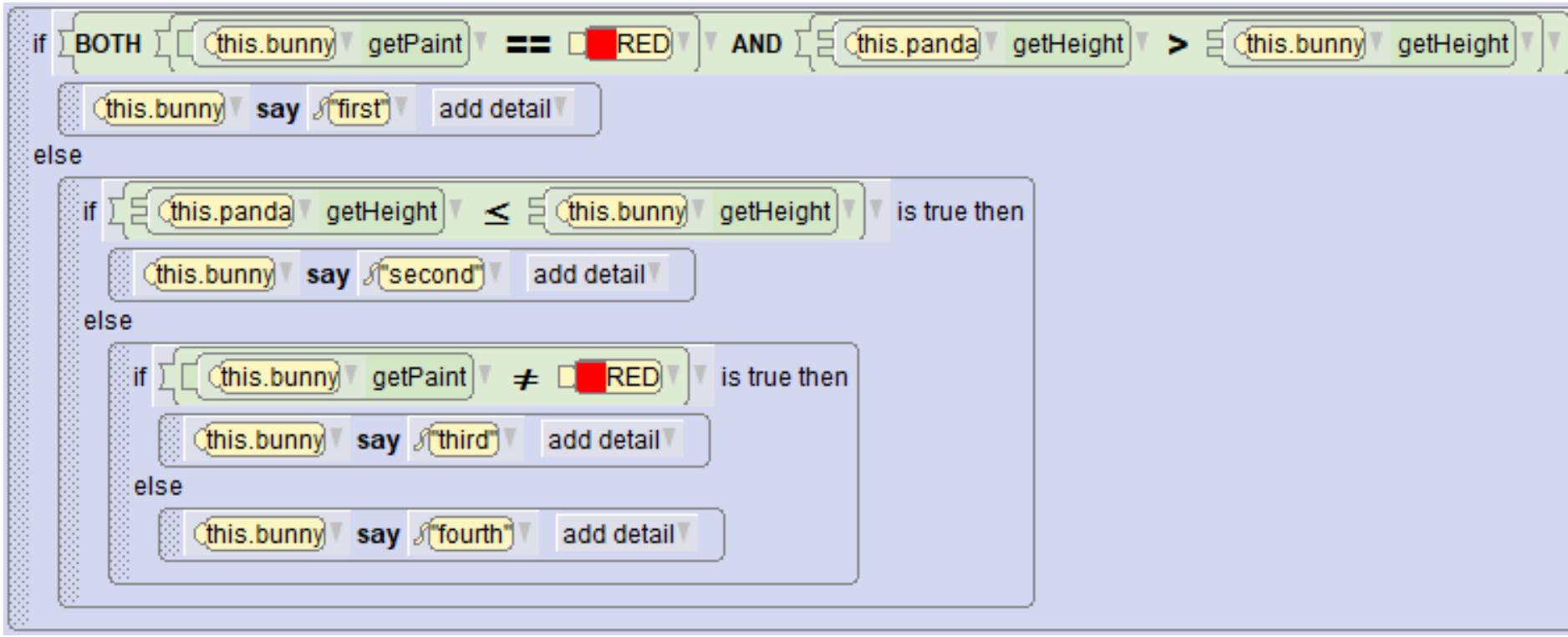
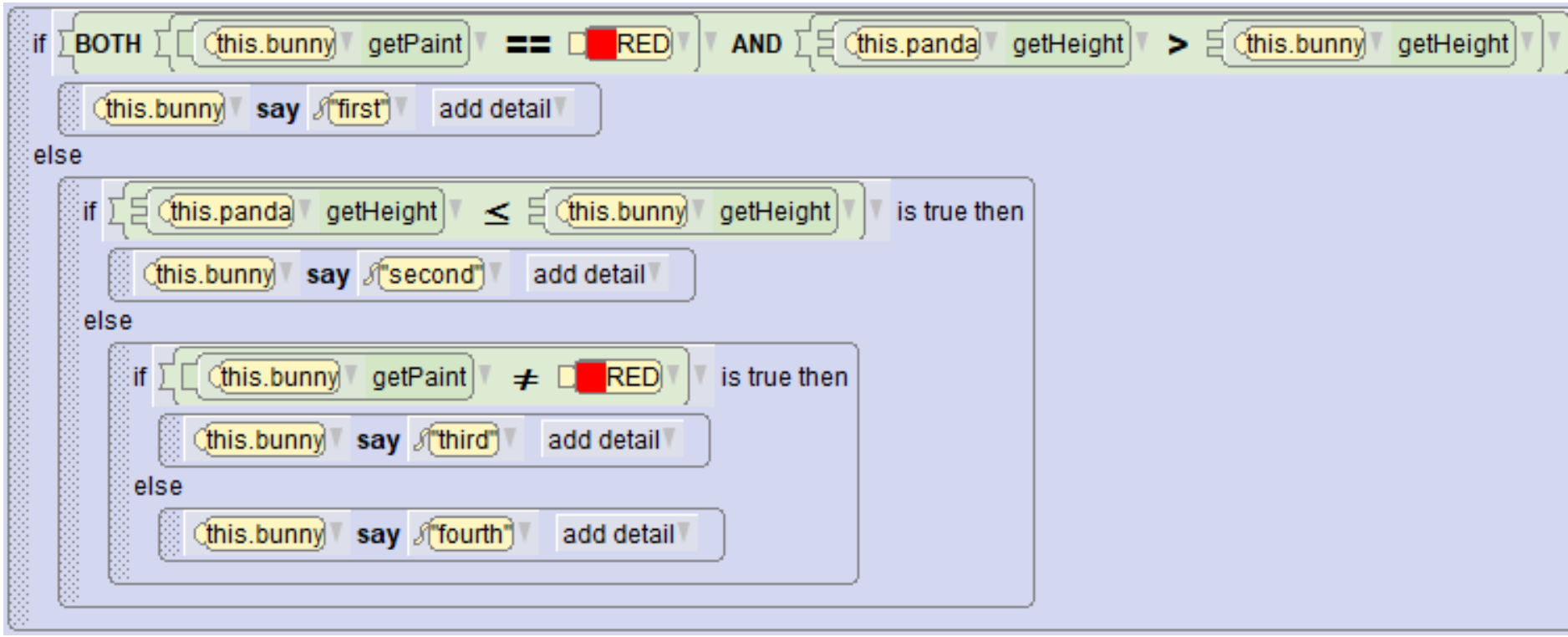

Bunny is green to start.

Bunny says: third

Q6. Give an example to make bunny say fourth



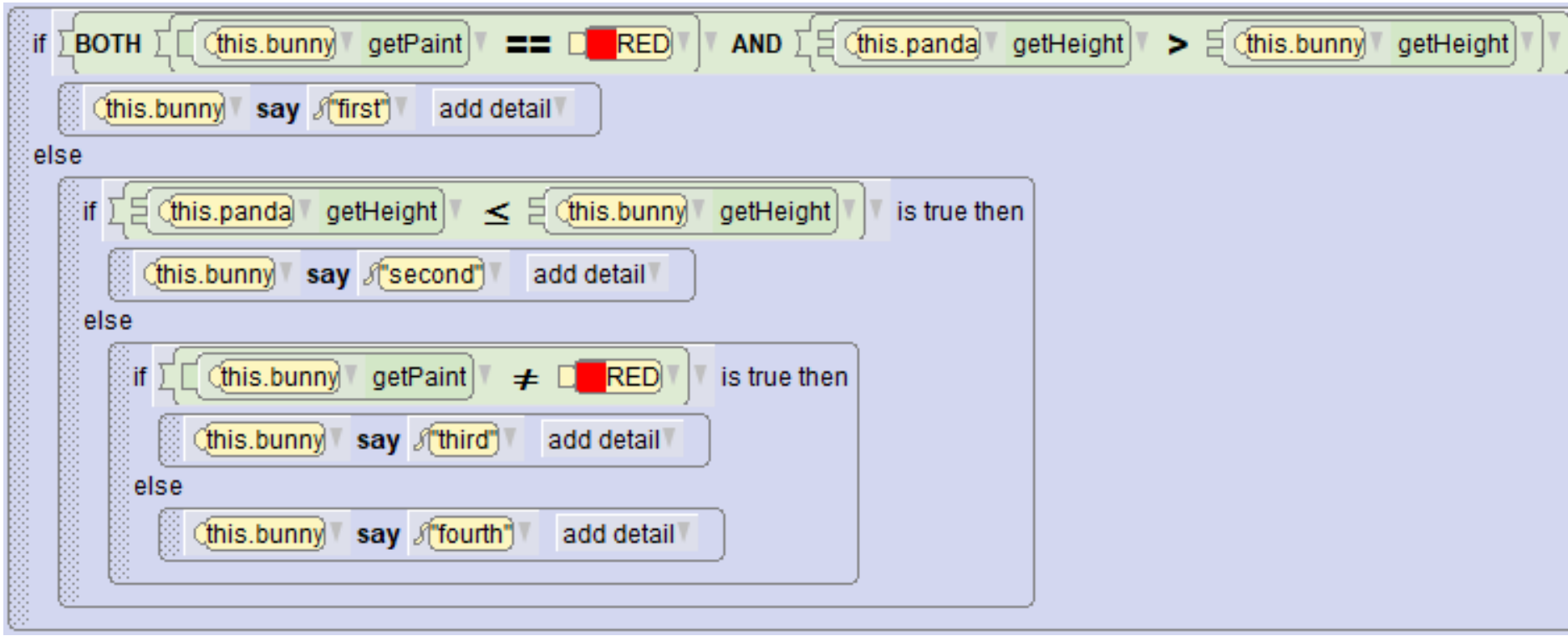
Q6. Give an example to make bunny say fourth



Bunny is painted red AND

Panda is shorter than bunny

Give an example to make bunny say fourth



Bunny is p ed AND

Panda is s an bunny

NO!!!!!!!!!!!!!!!

No way bunny will ever say fourth!

Class Today

- Nested Ifs, Logic – and/or/not