CompSci 94 KeyPressListener, Collision Listeners November 7, 2024

Prof. Susan Rodger

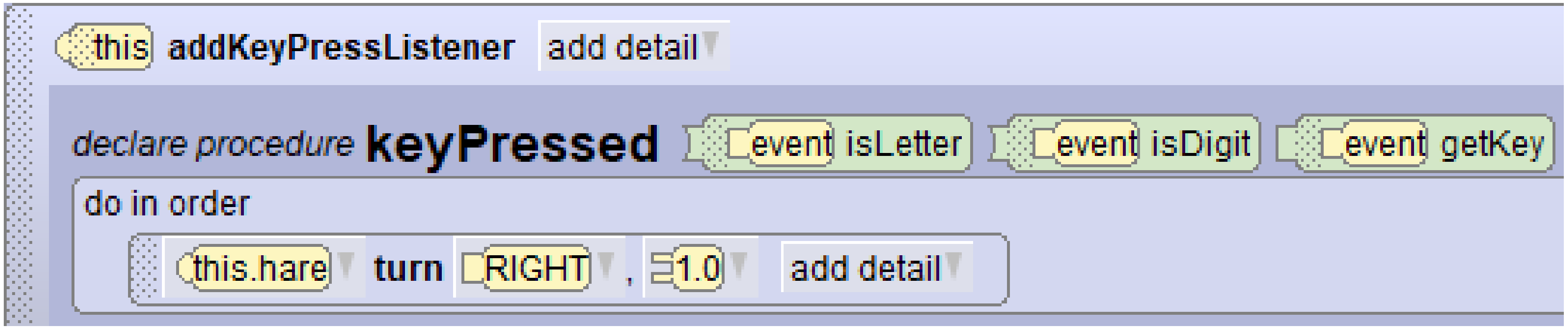
Announcements

- Assignment 5 is due today
- Assignment 6 out, due Nov 21

- Watch videos and online quiz for Thursday

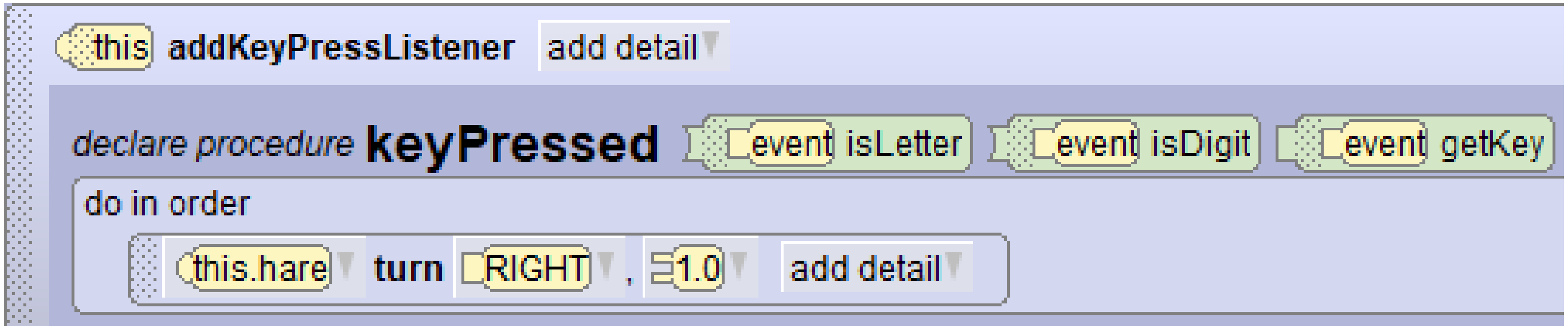
- Exam 3 is November 19
  - Study materials on Nov 19 date on our calendar

Q1: How do I get the hare to turn around?



```
this addKeyPressListener add detail
  declare procedure keyPressed  event isLetter  event isDigit  event getKey
  do in order
    this.hare turn RIGHT , 1.0 add detail
```

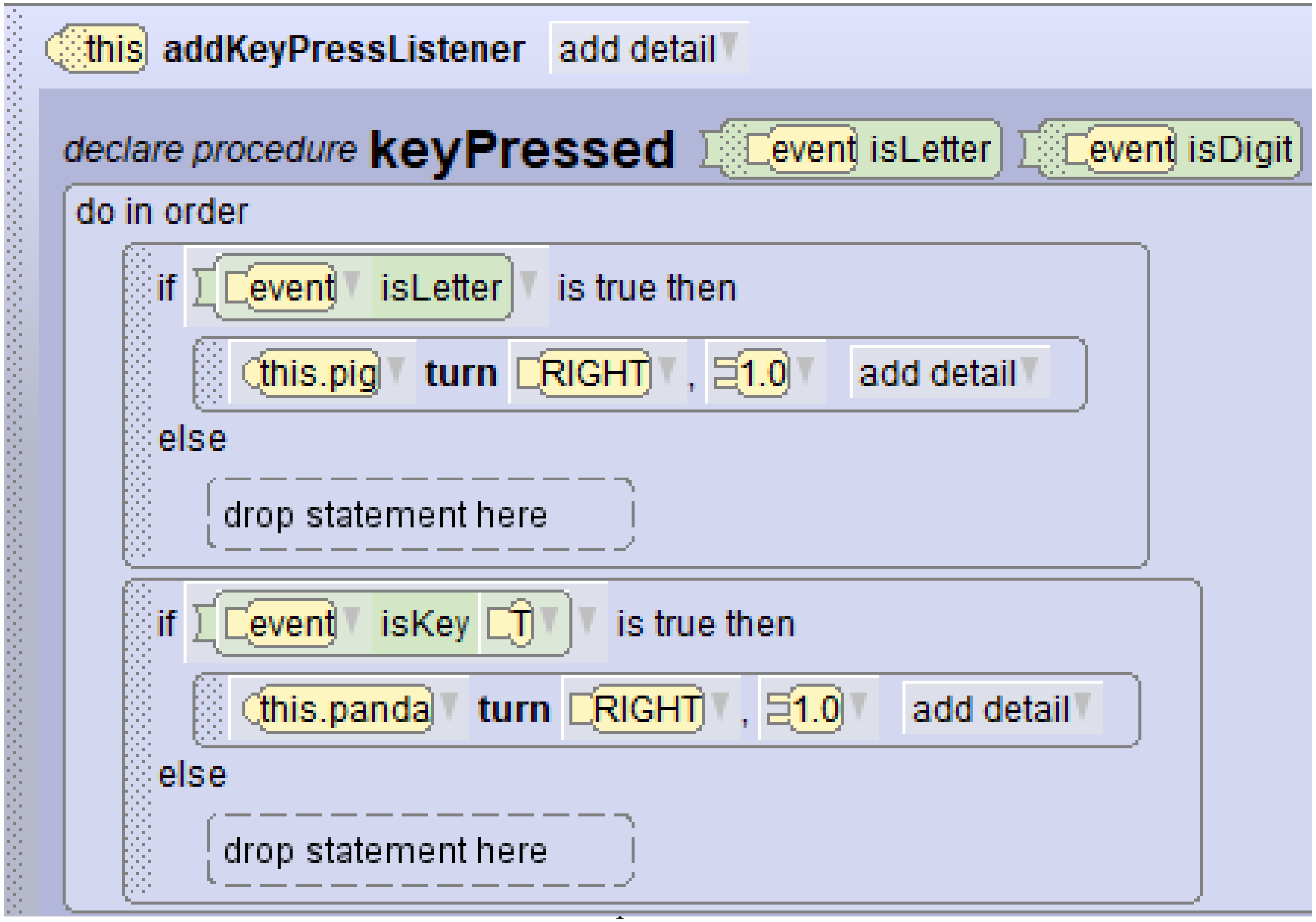
Q1: How do I get the hare to turn around?



```
this addKeyPressListener add detail
    declare procedure keyPressed  event isLetter  event isDigit  event getKey
    do in order
        this.hare turn RIGHT , 1.0 add detail
```

- Press any key and the hare will turn around
- Not a good way to do this. Can’t use any other keys for anything else.

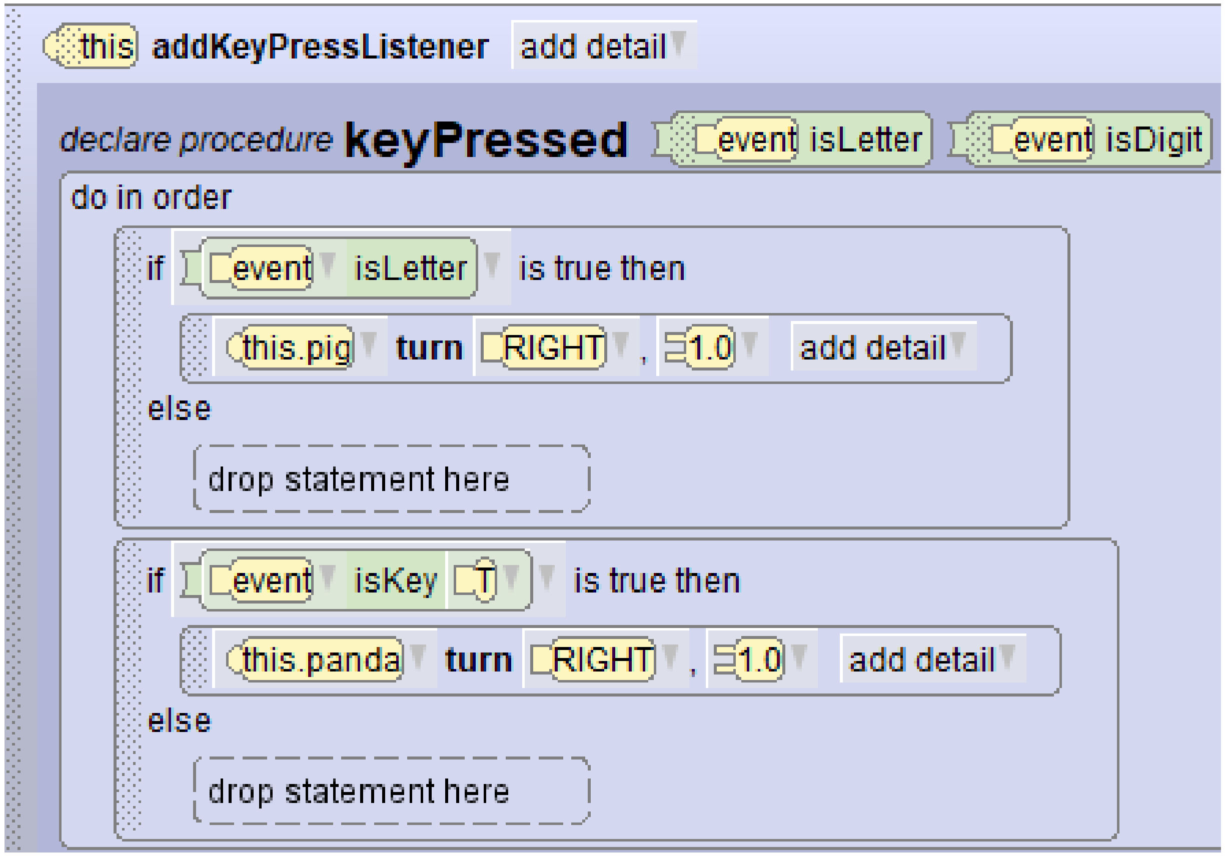
Q2: What happens if I press letter A? If I press the letter T?



```
this addKeyPressListener add detail
  declare procedure keyPressed  event isLetter  event isDigit
  do in order
    if event isLetter is true then
      this.pig turn RIGHT , 1.0 add detail
    else
      drop statement here
    if event isKey T is true then
      this.panda turn RIGHT , 1.0 add detail
    else
      drop statement here
```

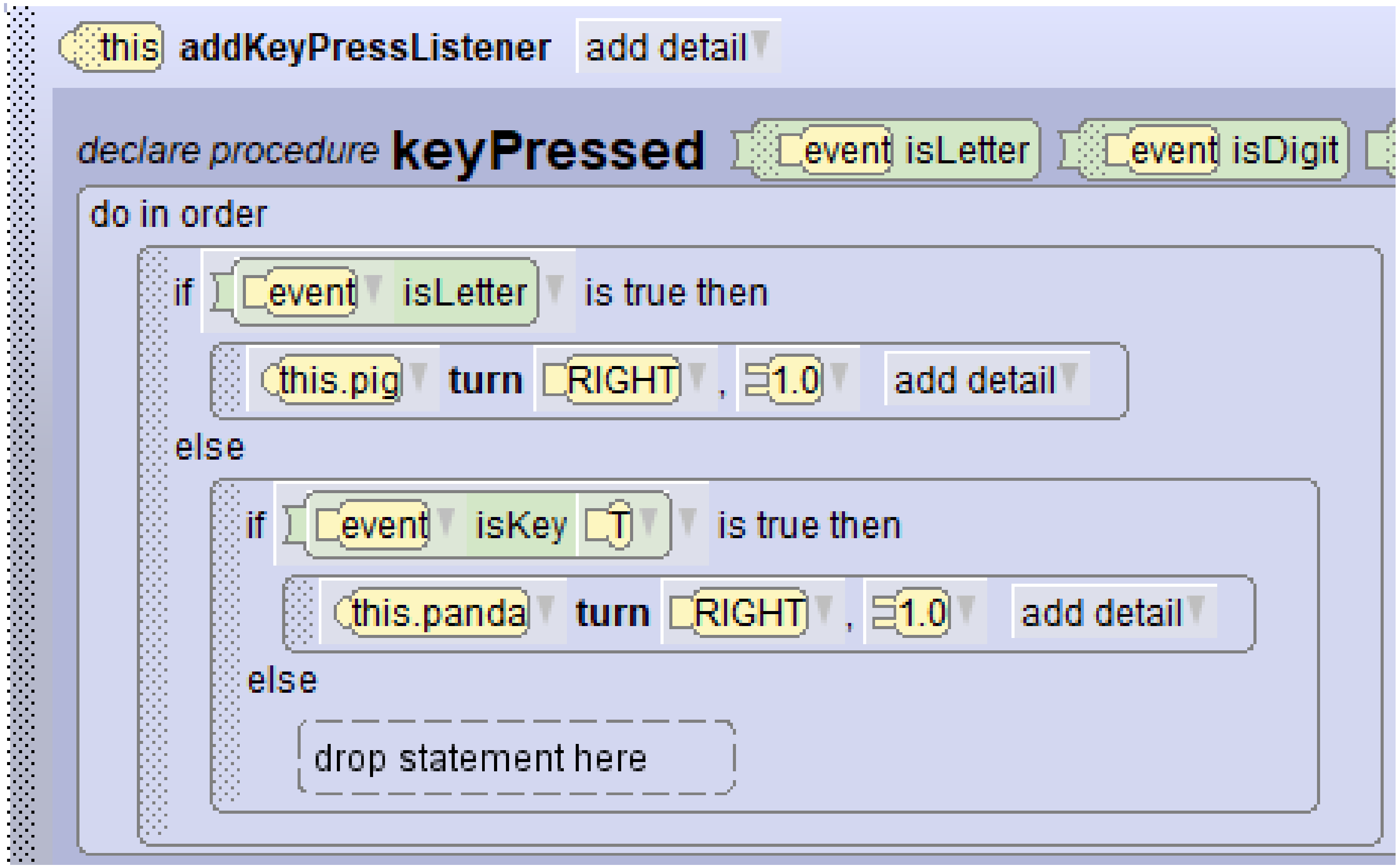
Q2: What happens if I press letter A? If I press the letter T?

- Letter A – pig turns
- Letter T – pig turns, then panda turns



```
this addKeyPressListener  add detail
  declare procedure keyPressed  event isLetter  event isDigit
  do in order
    if event isLetter is true then
      this.pig turn RIGHT , 1.0  add detail
    else
      drop statement here
    if event isKey T is true then
      this.panda turn RIGHT , 1.0  add detail
    else
      drop statement here
```

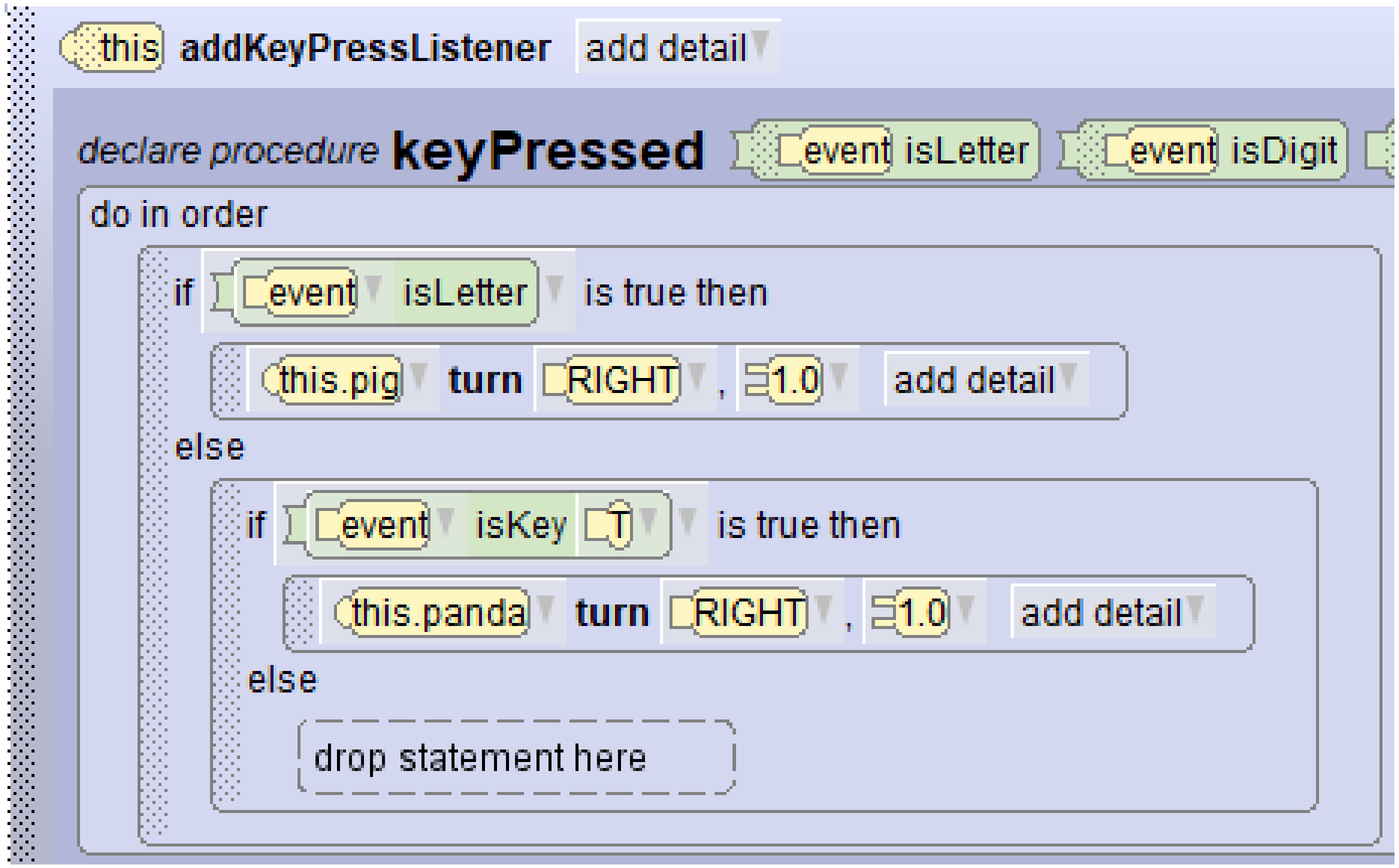
Q3: What happens if press letter A? If press letter T?



```
this addKeyPressListener add detail
declare procedure keyPressed  event isLetter  event isDigit
do in order
    if event isLetter is true then
        this.pig turn RIGHT , 1.0 add detail
    else
        if event isKey T is true then
            this.panda turn RIGHT , 1.0 add detail
        else
            drop statement here
```

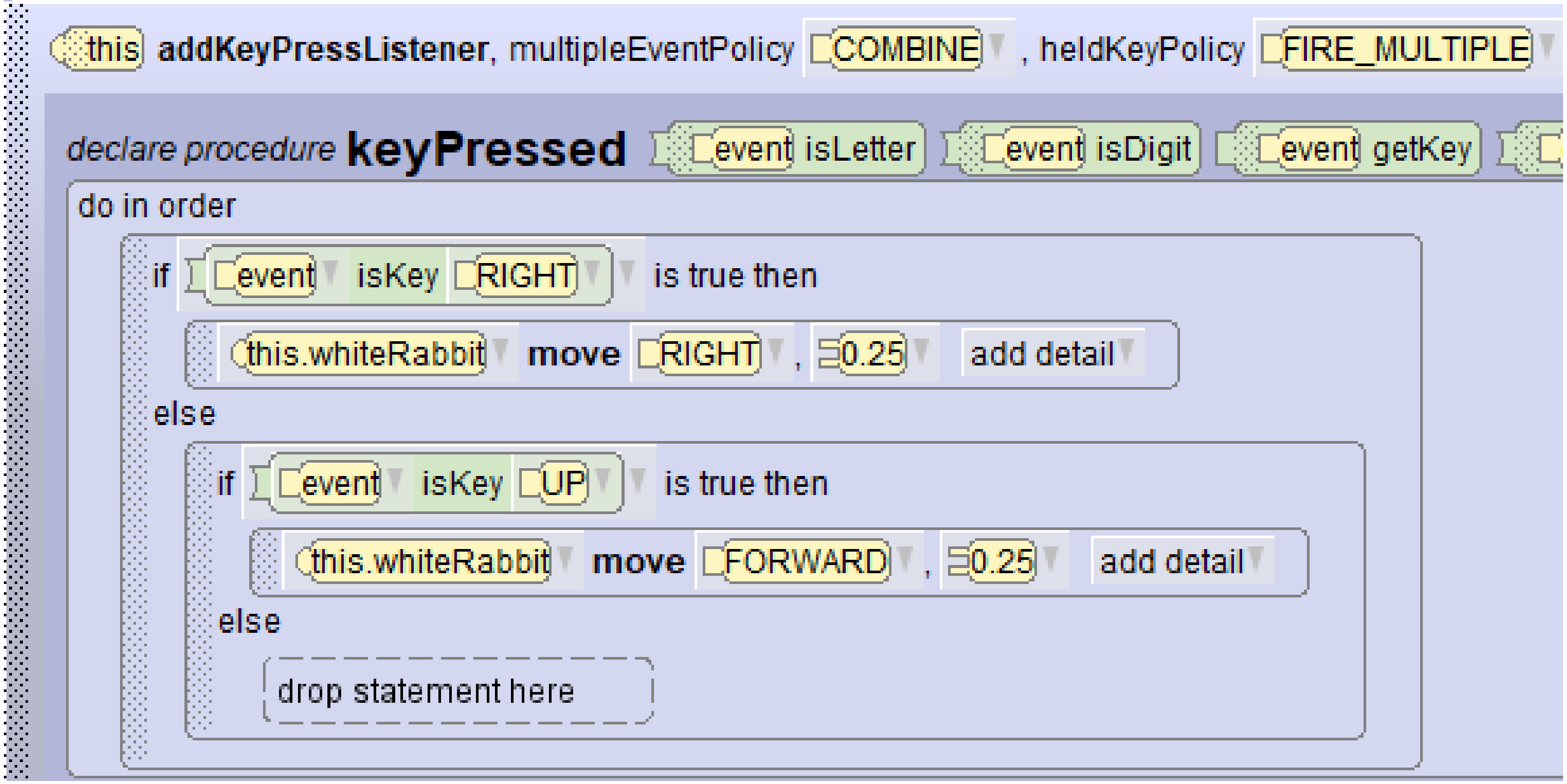
Q3: What happens if press letter A? If press letter T?

- Letter A – pig turns once
- Letter T – pig turns once



```
this addKeyPressListener  add detail
declare procedure keyPressed  event isLetter  event isDigit
do in order
    if event isLetter is true then
        this.pig turn RIGHT , 1.0  add detail
    else
        if event isKey T is true then
            this.panda turn RIGHT , 1.0  add detail
        else
            drop statement here
```

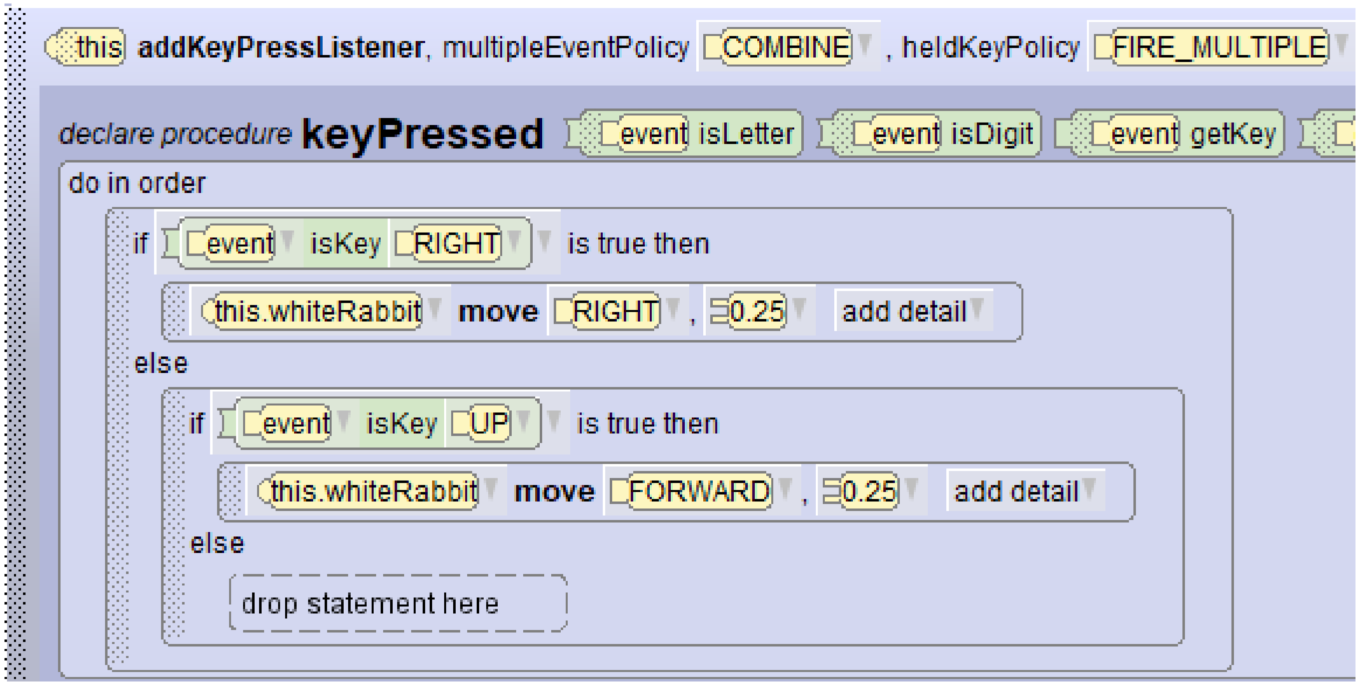
Q4: What does Combine and Fire_Multiple do?



```
this addKeyPressListener, multipleEventPolicy COMBINE , heldKeyPolicy FIRE_MULTIPLE
  declare procedure keyPressed  event isLetter  event isDigit  event getKey
  do in order
    if event isKey RIGHT is true then
      this.whiteRabbit move RIGHT , 0.25 add detail
    else
      if event isKey UP is true then
        this.whiteRabbit move FORWARD , 0.25 add detail
      else
        drop statement here
```

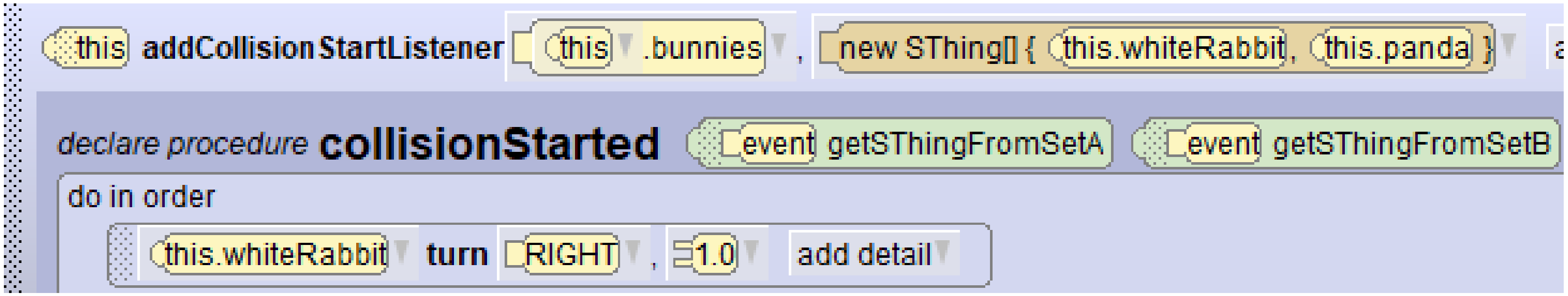
Q4: What does Combine and Fire_Multiple do?

- Hold the key down and the whiteRabbit moves a lot faster until you release the key!



```
this addKeyPressListener, multipleEventPolicy COMBINE , heldKeyPolicy FIRE_MULTIPLE
declare procedure keyPressed  event isLetter  event isDigit  event getKey
do in order
  if event isKey RIGHT is true then
    this.whiteRabbit move RIGHT , 0.25 add detail
  else
    if event isKey UP is true then
      this.whiteRabbit move FORWARD , 0.25 add detail
    else
      drop statement here
```

Q5: What happens when …



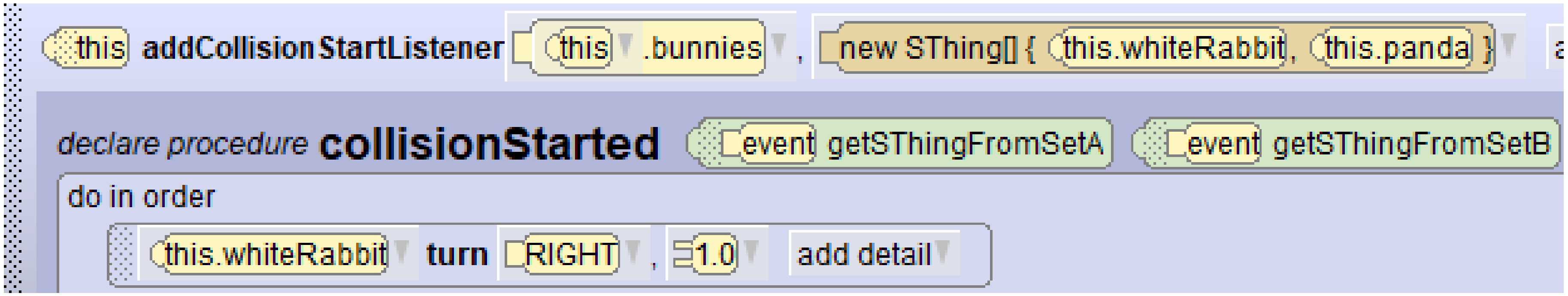
```
this addCollisionStartListener this .bunnies , new SThing[] { this.whiteRabbit, this.panda } a
    declare procedure collisionStarted event getSThingFromSetA event getSThingFromSetB
    do in order
        this.whiteRabbit turn RIGHT , 1.0 add detail
```

a) panda collides with a bunny?

b) whiteRabbit collides with a bunny?

Note: bunnies is an array of bunnies

Q5: What happens when …



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this addCollisionStartListener this .bunnies , new SThing[] { this.whiteRabbit, this.panda } a
declare procedure collisionStarted event getSThingFromSetA event getSThingFromSetB
do in order
    this.whiteRabbit turn RIGHT , 1.0 add detail
```

a) panda collides with a bunny?

WhiteRabbit (W.R.) turns right

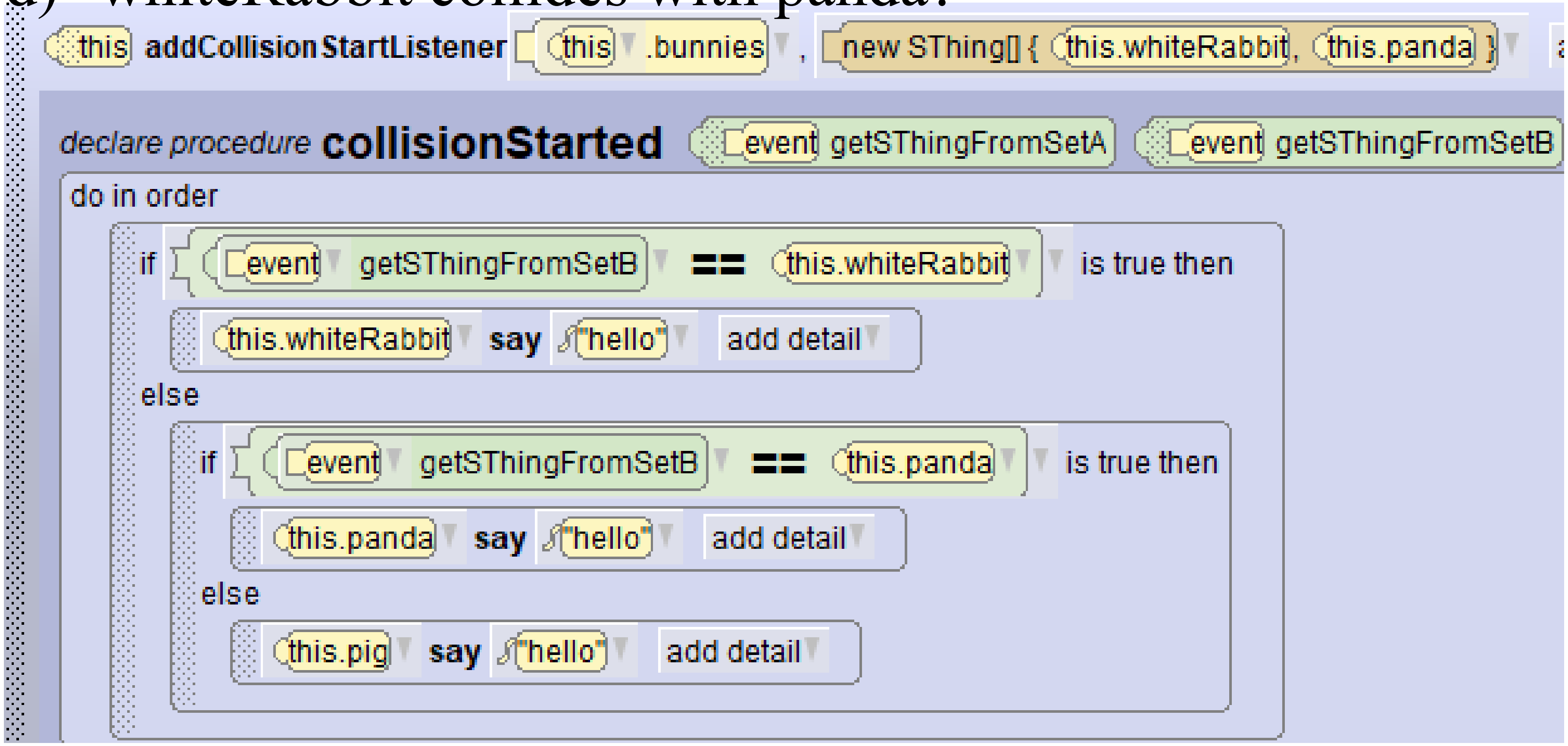
b) whiteRabbit collides with a bunny?

whiteRabbit turns right

Note: bunnies is an array of bunnies

Q6: What happens when

a) panda collides with a bunny?
b) whiteRabbit collides with a bunny?
c) pig collides with a bunny?
d) whiteRabbit collides with panda?



```
this addCollisionStartListener( this .bunnies , new SThing[] { this.whiteRabbit, this.panda } a

declare procedure collisionStarted( event getSThingFromSetA event getSThingFromSetB
do in order
    if event getSThingFromSetB == this.whiteRabbit is true then
        this.whiteRabbit say "hello" add detail
    else
        if event getSThingFromSetB == this.panda is true then
            this.panda say "hello" add detail
        else
            this.pig say "hello" add detail
```

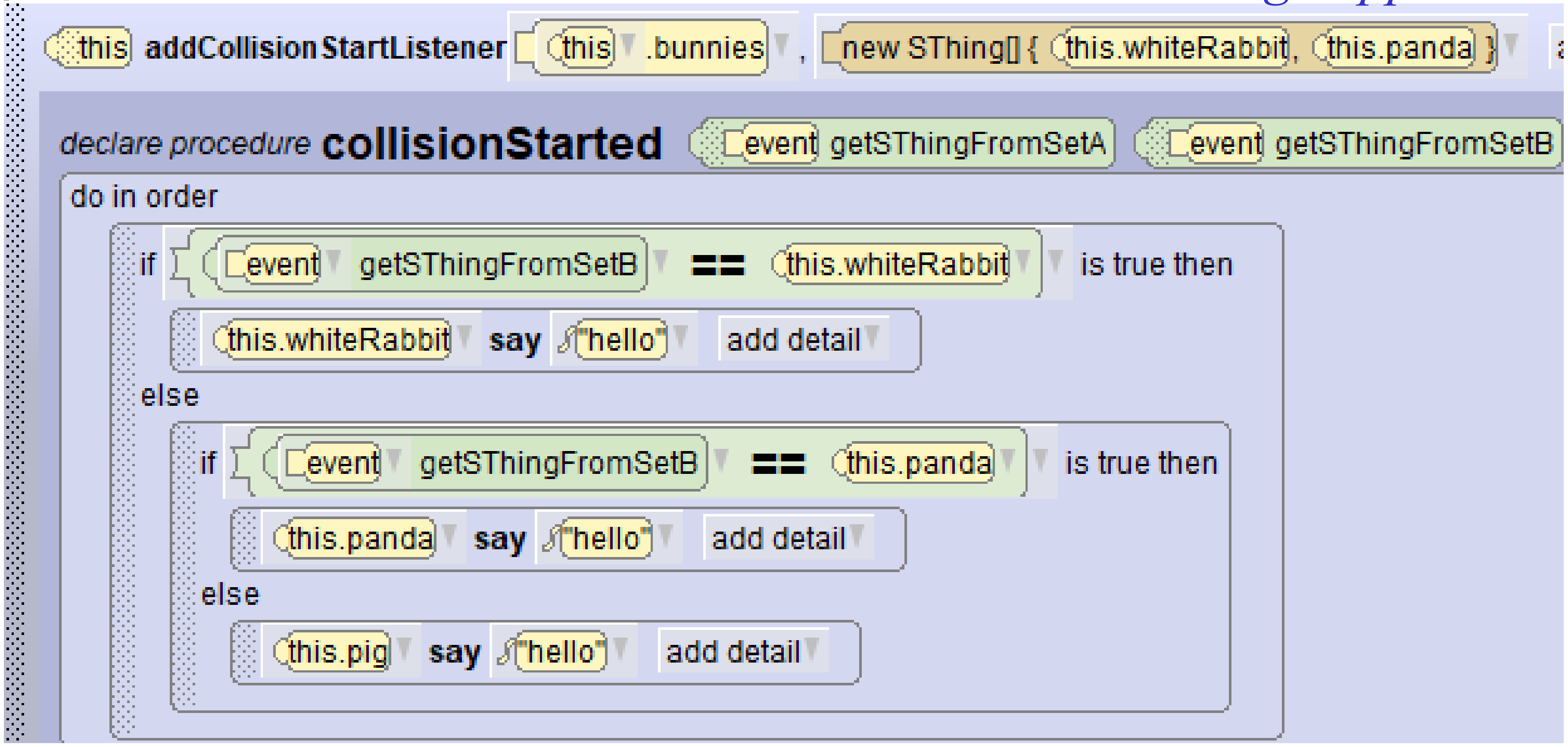
Q6: What happens when

a) panda collides with a bunny? *Panda says hello*

b) whiteRabbit collides with a bunny? *W.R. says hello*

c) pig collides with a bunny? *Nothing happens*

d) whiteRabbit collides with panda? *Nothing happens*

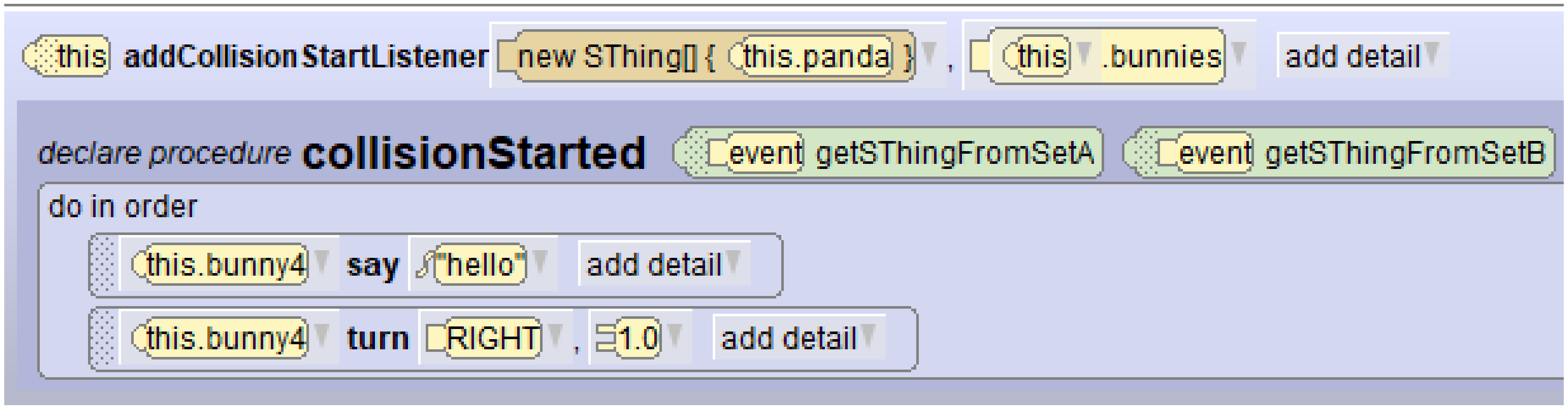


```
this addCollisionStartListener ( this .bunnies , new SThing[] { this.whiteRabbit, this.panda }

declare procedure collisionStarted ( event getSThingFromSetA ) ( event getSThingFromSetB )
  do in order
    if event getSThingFromSetB == this.whiteRabbit is true then
      this.whiteRabbit say "hello" add detail
    else
      if event getSThingFromSetB == this.panda is true then
        this.panda say "hello" add detail
      else
        this.pig say "hello" add detail
```

Q7: Clicking on an array object

- There is an array of bunnies. When a bunny collides with panda, you want the bunny that collided with the panda to say hello and turn around once.
- Why doesn't this code work?

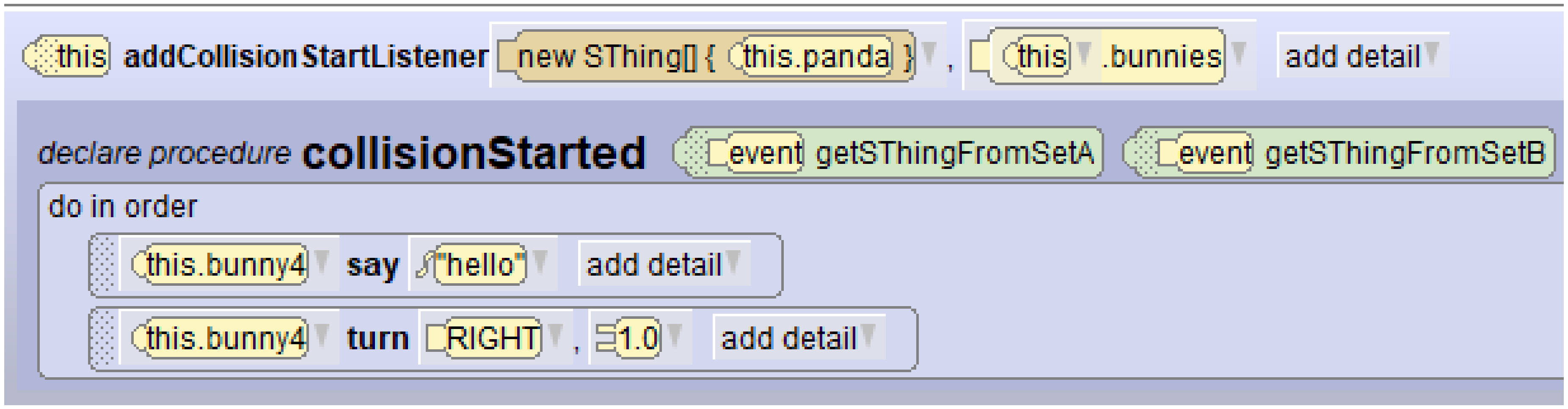


```
this addCollisionStartListener new SThing[] { this.panda } , this .bunnies add detail
    declare procedure collisionStarted  event getSThingFromSetA  event getSThingFromSetB
    do in order
        this.bunny4 say "hello" add detail
        this.bunny4 turn RIGHT , 1.0 add detail
```

Q7: Clicking on an array object

- There is an array of bunnies. When a bunny collides with panda, you want the bunny that collided with the panda to say hello and turn around once.
- Why doesn't this code work?

Bunny4 says and turns

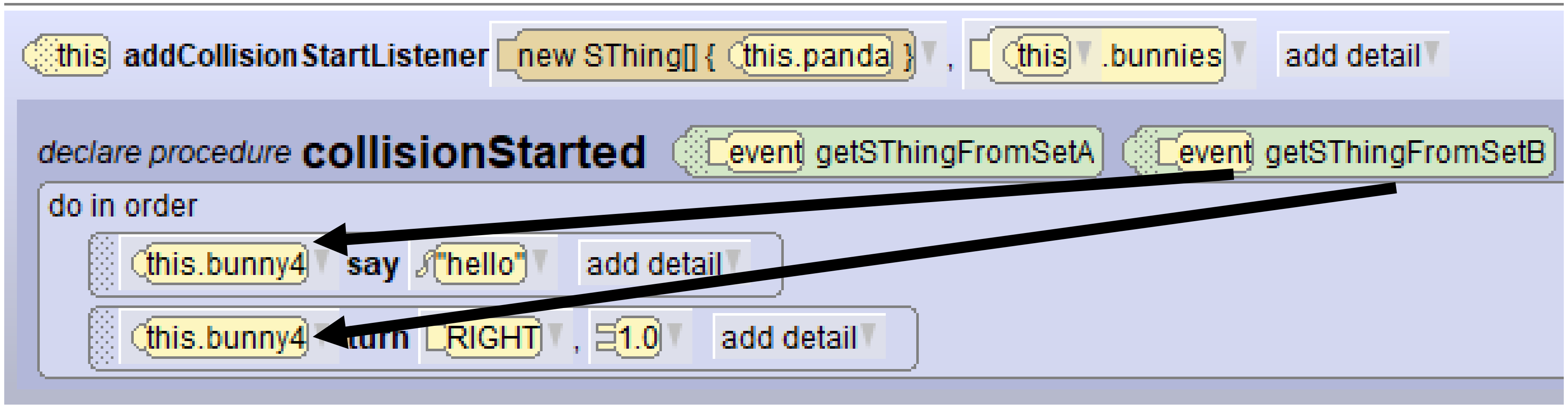


```
this addCollisionStartListener new SThing[] { this.panda } , this .bunnies   add detail

declare procedure collisionStarted  event getSThingFromSetA  event getSThingFromSetB
do in order
    this.bunny4 say "hello" add detail
    this.bunny4 turn RIGHT , 1.0 add detail
```

Q7: Clicking on an array object

- There is an array of bunnies. When a bunny collides with panda, you want the bunny that collided with the panda to say hello and turn around once.
- Can you change the code to this?



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declare procedure collisionStarted event getSThingFromSetA event getSThingFromSetB
do in order
    this.bunny4 say "hello" add detail
    this.bunny4 turn RIGHT , 1.0 add detail
```
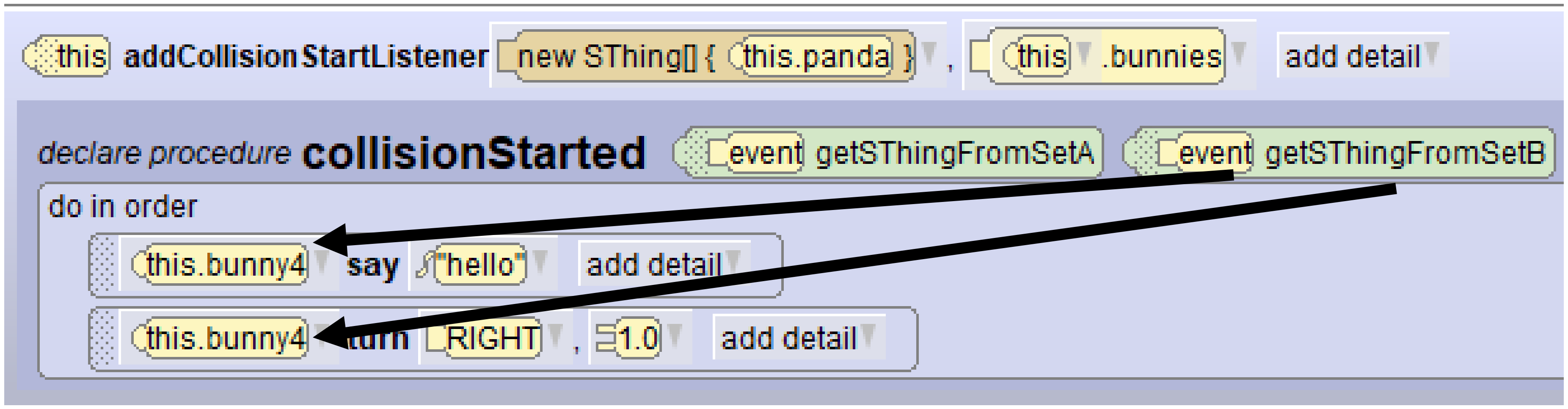

Q7: Clicking on an array object

- There is an array of bunnies. When a bunny collides with panda, you want the bunny that collided with the panda to say hello and turn around once.

- Can you change the code to this? NO!



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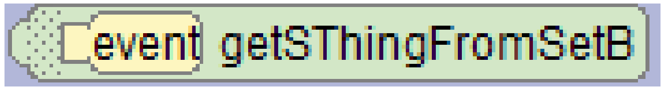
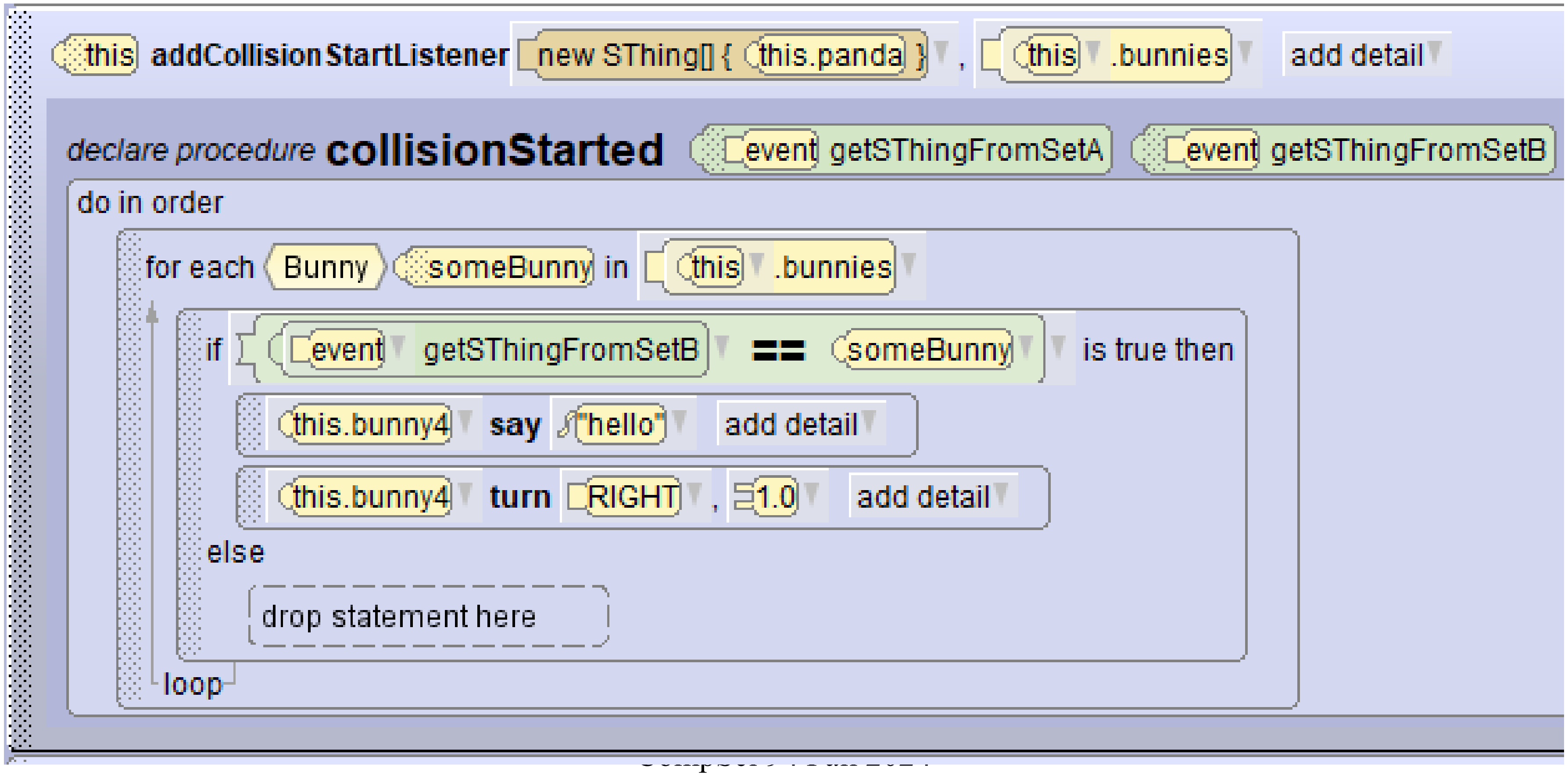
do in order
    this.bunny4 say "hello" add detail
    this.bunny4 turn RIGHT , 1.0 add detail
```

Why not?

- This code: 
event getSThingFromSetB
  - Is an Sthing so you CANNOT drop it over a type bunny
- Instead, you have to look through the bunny array and compare each bunny with with an Sthing. When you find the bunny that was clicked on, then you just refer to that bunny

Find bunny clicked on in array

- Write a loop to iterate through the bunny array, for each bunny in the array, check to see if it is the item clicked on.

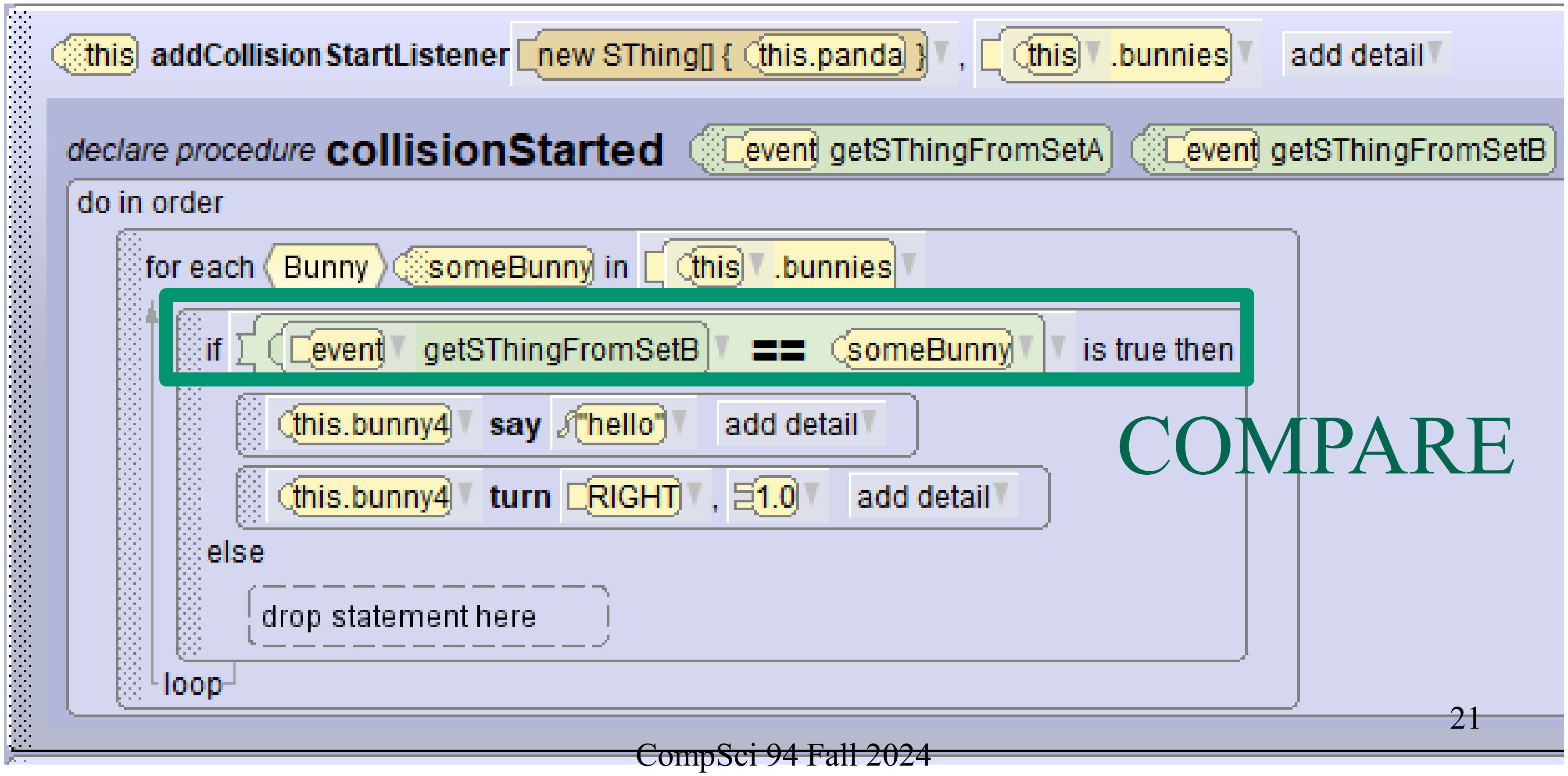


```
this addCollisionStartListener new SThing[] { this.panda } , this .bunnies   add detail

declare procedure collisionStarted  event getSThingFromSetA   event getSThingFromSetB
do in order
    for each Bunny someBunny in this .bunnies
        if event getSThingFromSetB == someBunny is true then
            this.bunny4 say "hello" add detail
            this.bunny4 turn RIGHT , 1.0 add detail
        else
            drop statement here
    loop
```

Find bunny clicked on in array

- Write a loop to iterate through the bunny array, for each bunny in the array, check to see if it is the item clicked on.



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do in order
    for each Bunny someBunny in this .bunnies
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            this.bunny4 say "hello" add detail
            this.bunny4 turn RIGHT , 1.0 add detail
        else
            drop statement here
    loop
```
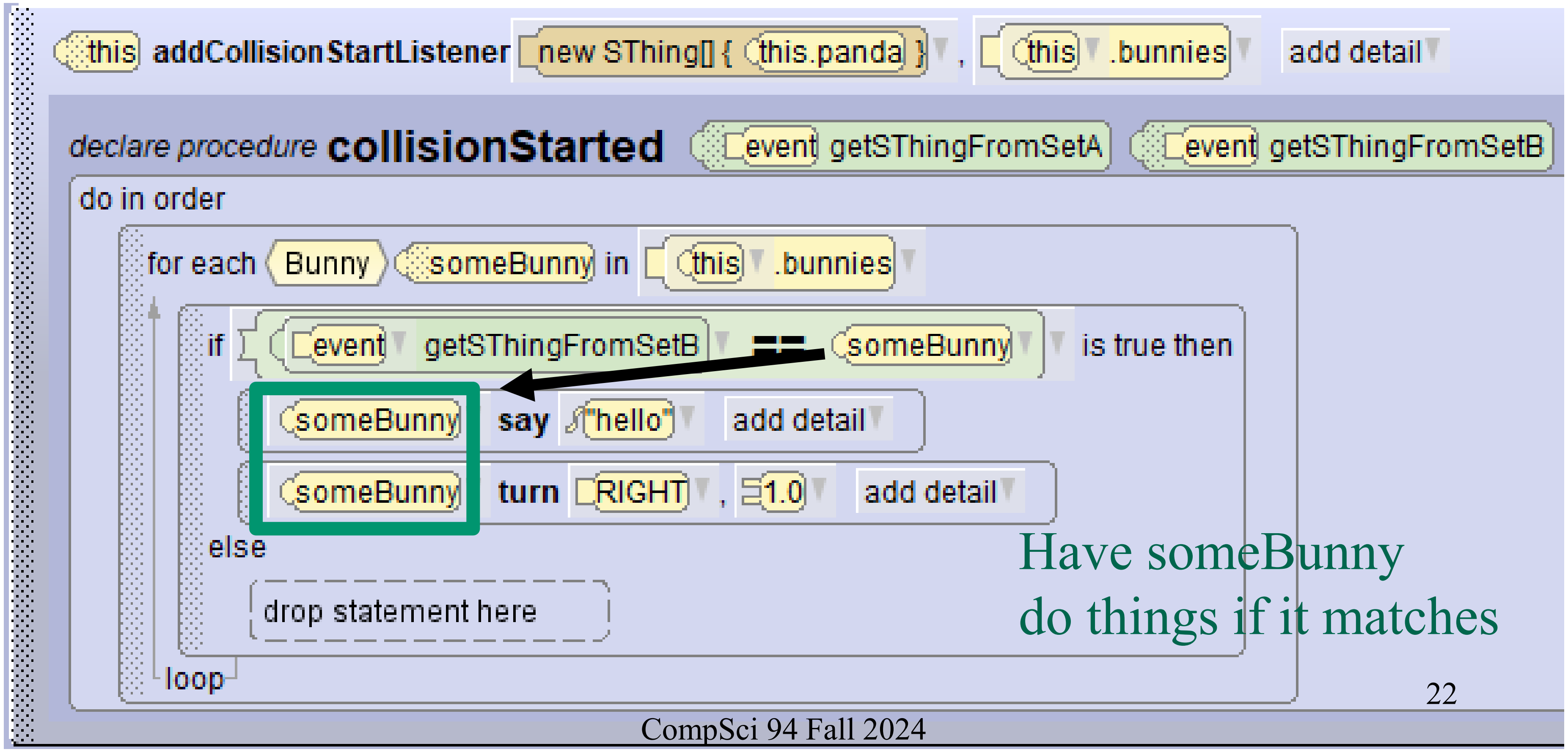

COMPARE

Find bunny clicked on in array

- Write a loop to iterate through the bunny array, for each bunny in the array, check to see if it is the item clicked on.

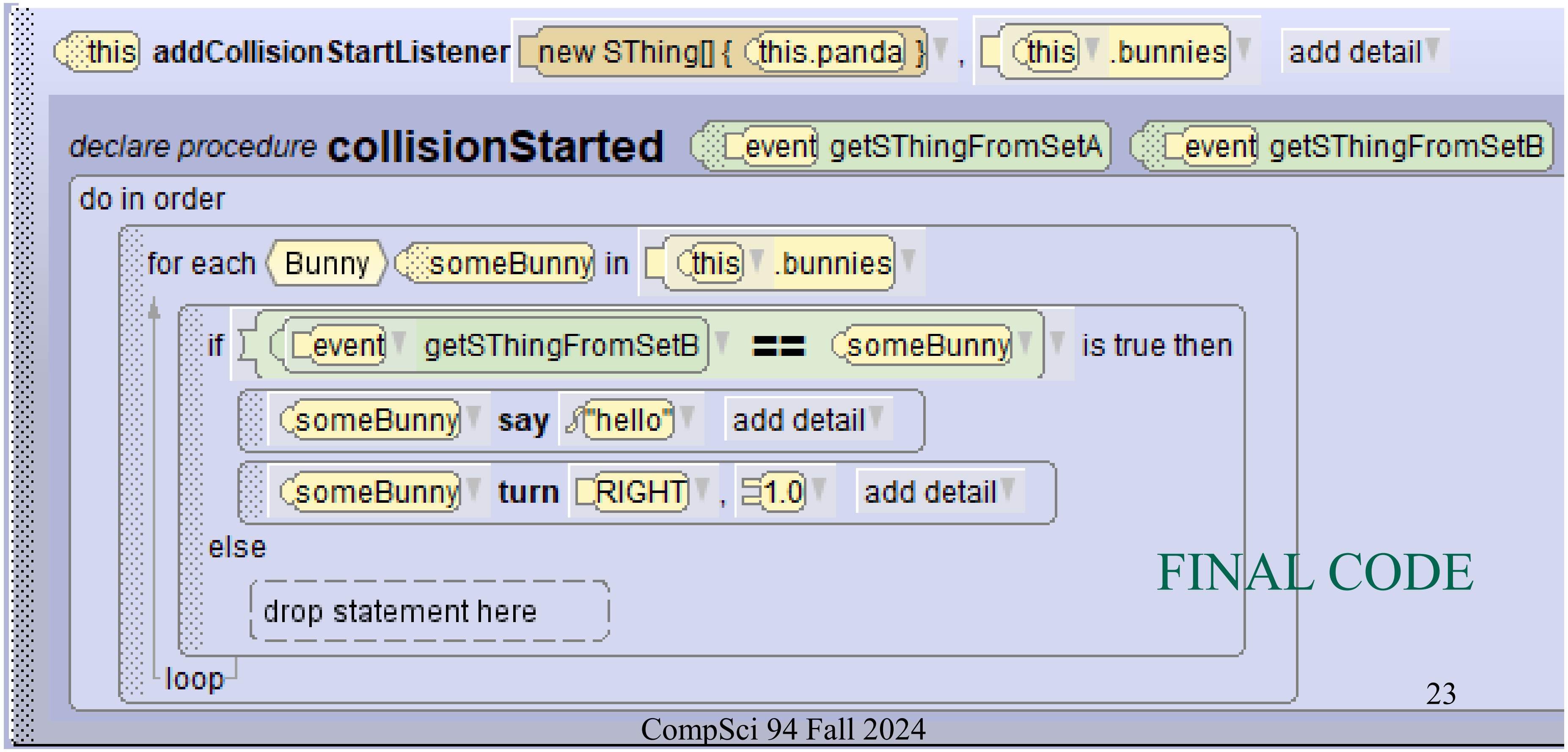


```
this addCollisionStartListener new SThing[] { this.panda } , this .bunnies add detail

declare procedure collisionStarted event getSThingFromSetA event getSThingFromSetB
do in order
    for each Bunny someBunny in this .bunnies
        if event getSThingFromSetB == someBunny is true then
            someBunny say "hello" add detail
            someBunny turn RIGHT , 1.0 add detail
        else
            drop statement here
    loop
```

Have someBunny
do things if it matches

Find bunny clicked on in array

- Write a loop to iterate through the bunny array, for each bunny in the array, check to see if it is the item clicked on.



```
this addCollisionStartListener new SThing[] { this.panda } , this .bunnies  add detail

declare procedure collisionStarted  event getSThingFromSetA  event getSThingFromSetB
do in order
  for each Bunny someBunny in this .bunnies
    if event getSThingFromSetB == someBunny is true then
      someBunny say "hello" add detail
      someBunny turn RIGHT , 1.0 add detail
    else
      drop statement here
  loop
```

FINAL CODE

Class Today

- A game with collisions