

EECS3311 Software Design (Fall 2020)

Q&A - Project

Friday, November 20

How Enemies Act

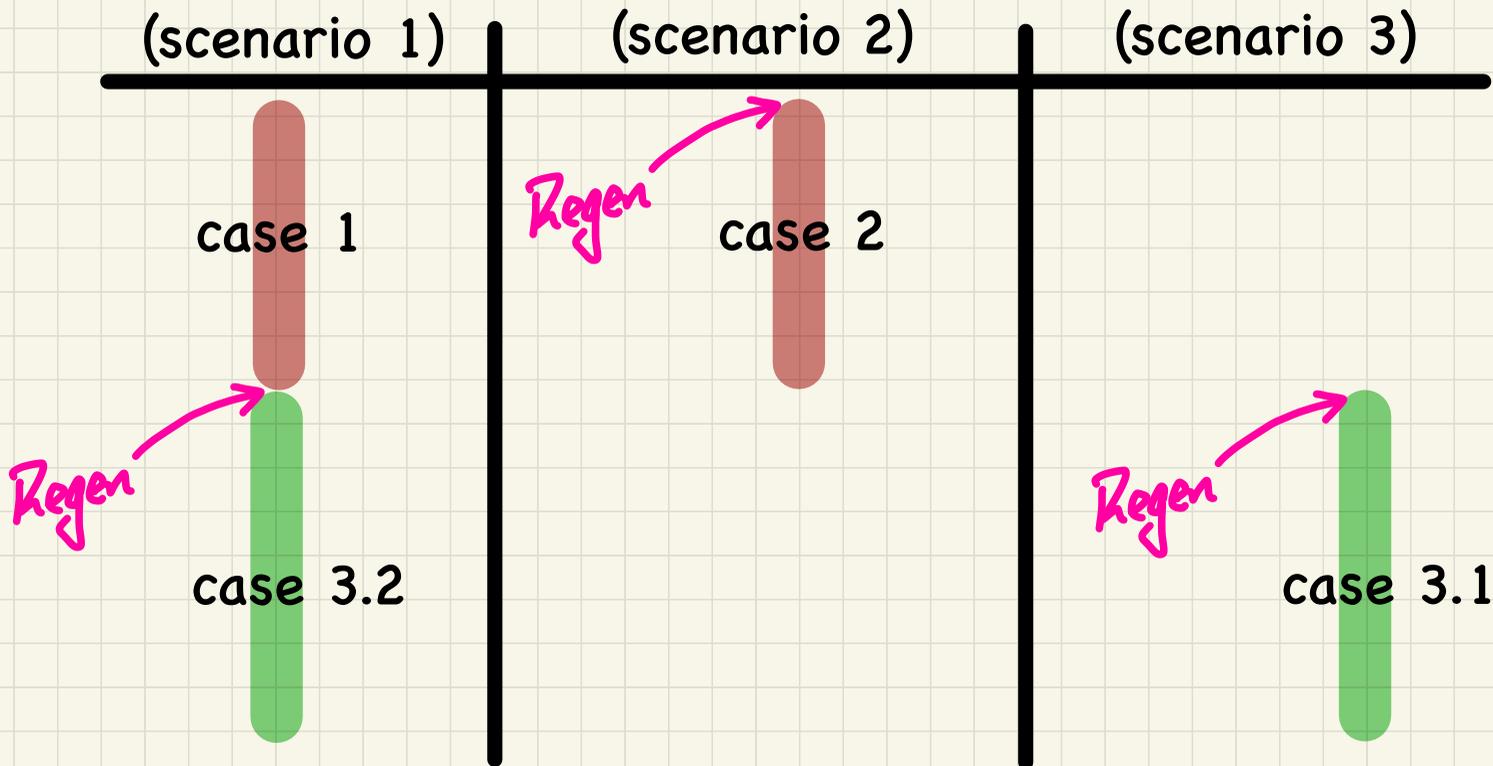
[References](#)

[Section 7: Enemy Action in messages.txt](#)

[Section 6.13.5 Phase 5: Enemies Act in instructions PDF](#)

Phase 1: Preemptive Actions

Phase 2: Non-Preemptive Actions (Starfighter seen or not)

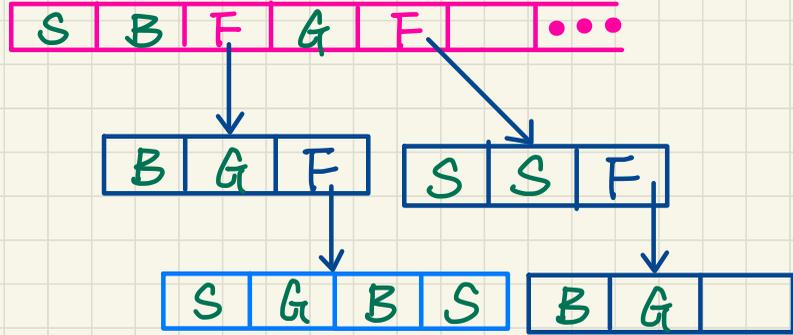


Scoring (1)

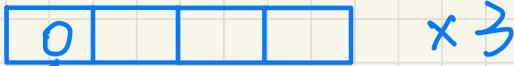
Enemy's Orb or Focus

0 Grunt - silver orb
2 points

Straightener's Focus



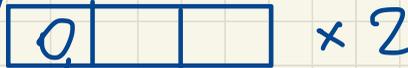
Carrier



gold orb

3 points

Rybn



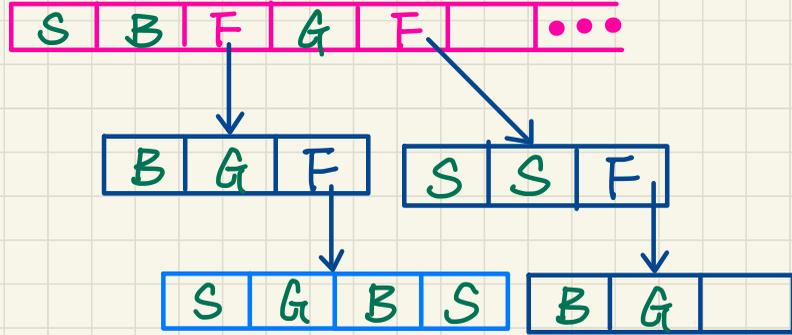
bronze orb
1 point

Scoring (2)

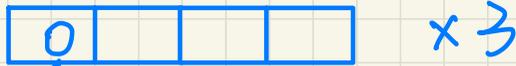
Enemy's Orb or Focus

0 Grunt - silver orb
2 points

Straightener's Focus



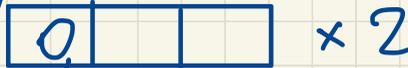
Carrier



gold orb

3 points

Rybn



bronze orb
1 point

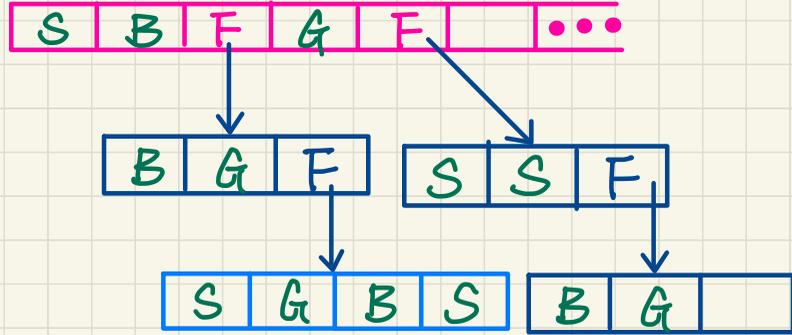
- When a Grunt gets destroyed

Scoring (3)

Enemy's Orb or Focus

0 Grunt - silver orb
2 points

Straightener's Focus



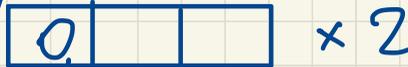
Carrier



gold orb

3 points

Rybn



bronze orb
1 point

- When a Carrier gets destroyed

Acceptance Test at015

Part 1 of 8

```
state:not started, normal, ok
Welcome to Space Defender Version 2.
->play(10,30,40,40,40,101,101)
state:weapon setup, normal, ok
1:Standard (A single projectile is fired in front)
  Health:10, Energy:10, Regen:0/1, Armour:0, Vision:1, Move:1, Move Cost:1,
  Projectile Damage:70, Projectile Cost:5 (energy)
2:Spread (Three projectiles are fired in front, two going diagonal)
  Health:0, Energy:60, Regen:0/2, Armour:1, Vision:0, Move:0, Move Cost:2,
  Projectile Damage:50, Projectile Cost:10 (energy)
3:Snipe (Fast and high damage projectile, but only travels via teleporting)
  Health:0, Energy:100, Regen:0/5, Armour:0, Vision:10, Move:3, Move Cost:0,
  Projectile Damage:1000, Projectile Cost:20 (energy)
4:Rocket (Two projectiles appear behind to the sides of the Starfighter and accelerates)
  Health:10, Energy:0, Regen:10/0, Armour:2, Vision:2, Move:0, Move Cost:3,
  Projectile Damage:100, Projectile Cost:10 (health)
5:Splitter (A single mine projectile is placed in front of the Starfighter)
  Health:0, Energy:100, Regen:0/10, Armour:0, Vision:0, Move:0, Move Cost:5,
  Projectile Damage:150, Projectile Cost:70 (energy)
Weapon Selected:Standard
->toggle_debug_mode
state:weapon setup, debug, ok
In debug mode.
```

An enemy is always spawned, more likely an Interceptor than Grunt.

[1,40) [40,40) [40,40) [40,101) [101,101) [101,101)

G F C I P

See p.8 of instructions.

Acceptance Test at015

Part 2 of 8

```
->setup_next(5)
state:in game(0.0), debug, ok
Starfighter:
  [0,S]->health:70/70, energy:70/70, Regen:1/3, Armour:1, Vision:13, Move:10, Move Cost:3, location:[E,1]
  Projectile Pattern:Standard, Projectile Damage:70, Projectile Cost:5 (energy)
  Power:Recall (50 energy): Teleport back to spawn.
  score:0
Enemy:
Projectile:
Friendly Projectile Action:
Enemy Projectile Action:
Starfighter Action:
Enemy Action:
Natural Enemy Spawn:
  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
A _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
B _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
C _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
D _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
E S _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
F _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
G _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
H _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
I _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
J _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
```

Reference: See values of attributes in messages.txt

Acceptance Test at015

Part 3 of 8

```
state:in game(0.0), debug, ok
Starfighter:
[0,S]->health:70/70, energy:70/70, Regen:1/3, Armour:1, Vision:13, Move:10, Move Cost:3, location:[E,1]
Projectile Pattern:Standard, Projectile Damage:70, Projectile Cost:5 (energy)
Power:Recall (50 energy): Teleport back to spawn.
score:0
```

```
Enemy:
Projectile:
Friendly Projectile Action:
Enemy Projectile Action:
Starfighter Action:
Enemy Action:
Natural Enemy Spawn:
```

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- projectiles move
- Energy regen done before pass
- Enemies act
- Enemy spawn

->pass

```
state:in game(1.0), debug, ok
Starfighter:
[0,S]->health:70/70, energy:70/70, Regen:1/3, Armour:1, Vision:13, Move:10, Move Cost:3, location:[E,1]
Projectile Pattern:Standard, Projectile Damage:70, Projectile Cost:5 (energy)
Power:Recall (50 energy): Teleport back to spawn.
score:0
```

```
Enemy:
[1,G]->health:100/100, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[A,30]
Projectile:
Friendly Projectile Action:
Enemy Projectile Action:
Starfighter Action:
The Starfighter(id:0) passes at location [E,1], doubling regen rate.
Enemy Action:
```

Natural Enemy Spawn:

A Grunt(id:1) spawns at location [A,30].

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	G
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

↳ 2/6

Name:Grunt, **Health:**100, **Regen:**1, **Armour:**1, **Vision:**5.

- **Preemptive Action:** If the Starfighter passes, increase both current health and total health by 10. If the Starfighter uses a special, increase current health and total health by 20. Turn does not end in both cases.
- **Action when Starfighter is not seen:** Moves 2 spaces left. If the Grunt is still on the board and is not destroyed, fire a projectile which spawns directly to the left of the Grunt. The spawned projectile moves left 4 spaces per turn and has a base damage of 15.
- **Action when Starfighter is seen:** Moves 4 spaces left. If the Grunt is still on the board and is not destroyed, fire a projectile which spawns directly to the left of the Grunt. The spawned projectile moves left 4 spaces per turn and has a base damage of 15.

Name:Interceptor, **Health:**50, **Regen:**0, **Armour:**0, **Vision:**5.

- **Preemptive Action:** If the Starfighter fires, attempt to move the Interceptor vertically directly to the row the Starfighter is in before ending the Interceptor's turn. More precisely about the vertical movement:
 - **Case 1.** If the Interceptor and the Starfighter are in different columns, then:
 - ◊ If the path to the row where the Starfighter is in is clear, then then move to that row (without colliding with the Starfighter).
 - ◊ If there is at least one occupying enemy blocking the path, move as close to the first one (so as to avoid a collision). Along the way to this first occupying enemy, the Interceptor may collide with projectiles.
 - ◊ If there is no occupying enemy blocking the path, but there is one or more occupying projectiles then the Interceptor collides with those projectiles.
 - **Case 2.** If the Interceptor and the Starfighter are in the same column, then:
 - ◊ If the path to the Starfighter's location is clear, then collide with the Starfighter.
 - ◊ If there is at least one occupying enemy blocking the path, move as close to the first one (so as to avoid a collision). Along the way to this first occupying enemy, the Interceptor may collide with projectiles.
 - ◊ If there is no occupying enemy blocking the path, but there is one or more occupying projectiles then the Interceptor collides with those projectiles before it may collide with the Starfighter.
- Note for Case 1 and Case 2.** The Interceptor may be destroyed along the path, due to collisions with projectiles, in which case it is just removed from the board without continuing moving along the path.
- **Action when Starfighter is not seen:** Moves 3 spaces left.
 - **Action when Starfighter is seen:** Moves 3 spaces left.

