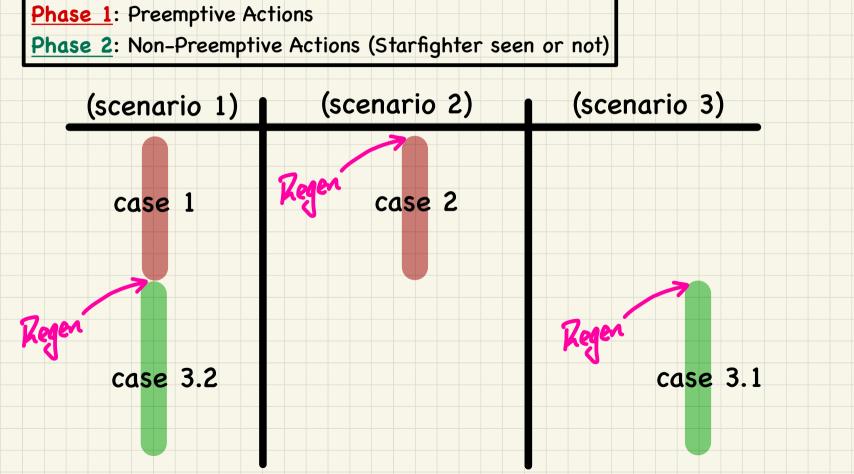
EECS3311 Software Design (Fall 2020)

Q&A – **Project**

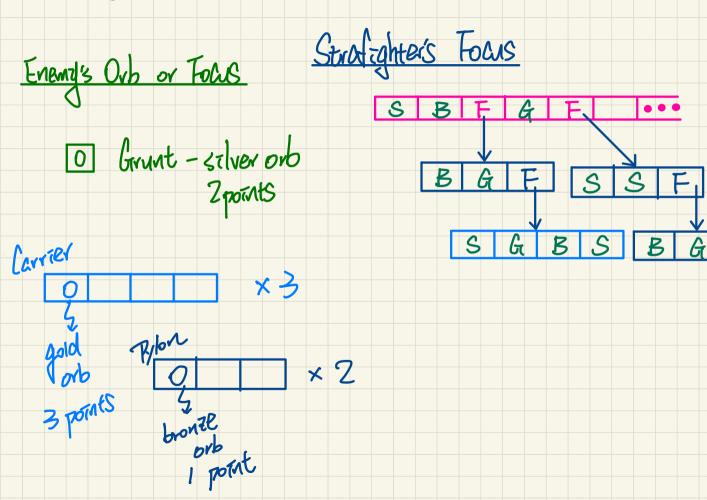
Friday, November 20

How Enemies Act

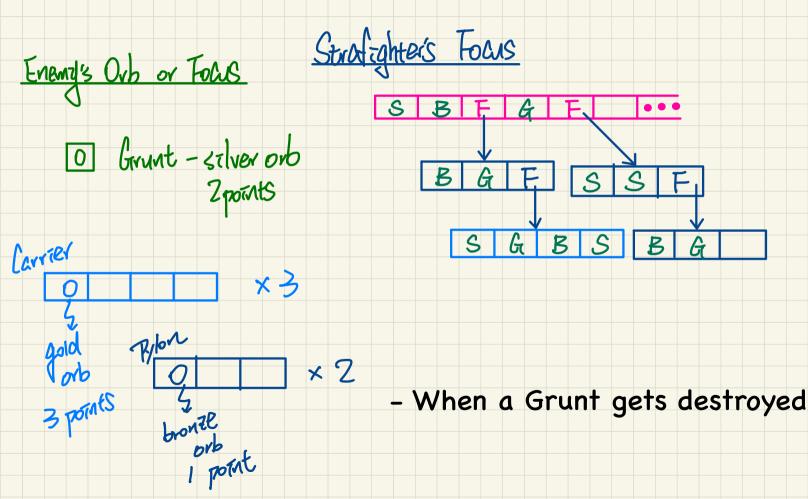
<u>References</u> Section 7: Enemy Action in messages.txt Section 6.13.5 Phase 5: Enemies Act in instructions PDF



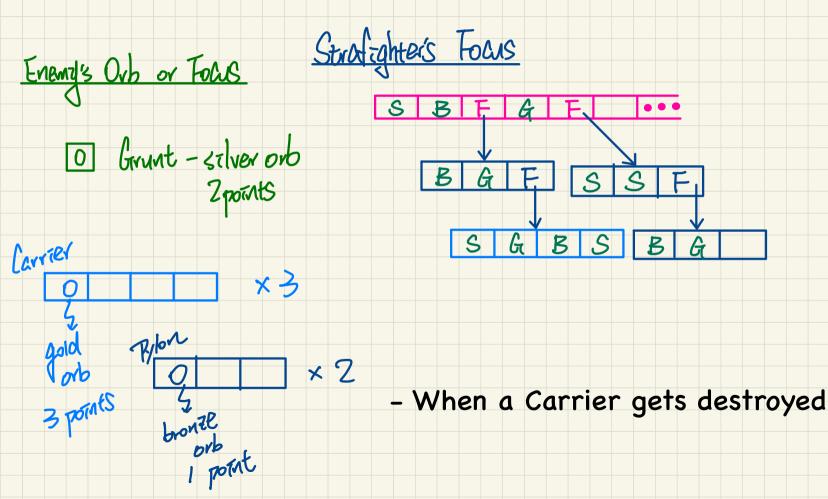
Scoring (1)



Scoring (2)



Scoring (3)



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] K

See p.8 of instructions.

Part 1 of 8

Part 2 of 8

->setup_next(5)				
state:in game(0.0), debug, ok				
Starfighter:				
[0,S]->health:70/ <mark>70</mark> , energy:70/ <mark>70</mark> , Regen:1/ <mark>3,</mark> Armour: <mark>1</mark> , Vision: <mark>13</mark> , Move:1 <mark>0</mark> , Move Cost <mark>:3,</mark> 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				
ES				
F				
G				
H				
I				
J				

<u>Reference</u>: See values of attributes in messages.txt

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)	– projectiles move
Power:Recall (50 energy): Teleport back to spawn. score:0	
	 Energy regen done before pass
Enemy: Projectile:	- chergy regen done before pass
Friedly Projectile Action:	
Enemy Projectile Action:	– Enemies act
Starfighter Action:	
Enemy Action:	– Enemy spawn
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	
8	
□	
F S	
F Starfighter:	
	3, Armour:1, Vision:13, Move:10, Move Cost:3, location:[E,1]
H Projectile Pattern:Standard, Projectile Da	
I Power:Recall (50 energy): Teleport back to	o spawn.
j	
Enemy:	<pre>sion:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[A,30]</pre>
Projectile:	sion.s, seen_by_starrighter.r, can_see_starrighter.r, totation. [A, so]
Figure 1 -	
Enemy Projectile Action:	
Starfighter Action:	
The Starfighter(id:0) passes at location [E,	1], doubling regen rate.
Enemy Action:	
Natural Enemy Spawn:	$\rightarrow 2/6$
(A Grunt(id:1) spawns at location [A,30].	
	15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
A	•
G	
$\dot{H} = \frac{1}{2} = \frac{1}{2}$	

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.



- **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:
 - $\diamond\,$ 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.

Part 4 of 8

<pre>state:in game(1.0), debug, ok</pre>	
Starfighter:	
[0,S]->health:70/70, energy:70/70, Regen:1/3, Armour:1, Vision:13, Move:10, Move Cost:3, location:[E,1]	– projectiles move
Projectile Pattern:Standard, Projectile Damage:70, Projectile Cost:5 (energy)	
Power:Recall (50 energy): Teleport back to spawn.	
score:0	 Energy regen done before pass
Enemy:	
[1,G]->health:100/100, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[A,30	
Projectile:	- Grunt preempted by pass
Friendly Projectile Action:	
Enemy Projectile Action:	Decen then est
Starfighter Action:	- Regen then act
The Starfighter(id:0) passes at location [E,1], doubling regen rate.	
Enemy Action:	– Enemy spawn
Natural Enemy Spawn:	- chemy 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	
B	
L State:in game(2.0), debug, ok	
E S Starfighter:	
	egen:1/3, Armour:1, Vision:13, Move:10, Move Cost:3, location:[E,1]
	tile Damage:70, Projectile Cost:5 (energy)
H Power:Recall (50 energy): Teleport	
I score:0	
	<pre>ir:1, Vision:5, seen by Starfighter:F, can see Starfighter:F, location:[A,28]</pre>
	<pre>ir:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location: [A, 30]</pre>
Projectile:	
[-1,<]->damage:15, move:4, location:[A.271
Friendly Projectile Action:	
Enemy Projectile Action:	r 46
Starfighter Action:	
The Starfighter(id:0) passes at locat	ion [F 1] doubling regen rate
Enemy Action:	
A Grunt(id:1) gains 10 total health.	Phase I
A Grunt(id:1) moves: [A,30] -> [A,28] A enemy projectile(id:-1) spawns at	location [A.27],
Natural Enemy Spawn:	
A Grunt(id:2) spawns at location [A,3	01.
7	13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Legen 1 2 3 4 5 6 7 8 9 10 11 12 A	
belliontal of Maxe /	

Part 5 of 8

state:in game(2.0), debug, ok	
Starfighter:	
[0,5]->health:70/70, energy:70/70, Regen:1/3, Armour:1, Vision:13, Move:10, Move Cost:3, location:[E,1]	– projectiles move
Projectile Pattern:Standard, Projectile Damage:70, Projectile Cost:5 (energy)	
Power:Recall (50 energy): Teleport back to spawn.	
score:0	 Energy regen done before pass
Enemy:	
[1,G]->health:110/110, Regen:1, Armour:1, Vision:5, seen by Starfighter:F, can see Starfighter:F, location:[A,28]	Count programments of hus propo
[2,G]->health:100/100, Regen:1, Armour:1, Vision:5, seen by Starfighter:F, can see Starfighter:F, location: [A,30]	 Grunt preempted by pass
Projectile:	
[-1,<]->damage:15, move:4, location:[A,27]	Degan than act
Friendly Projectile Action:	- Regen then act
Enemy Projectile Action:	
Starfighter Action:	– Enemy spawn
The Starfighter(id:0) passes at location [E,1], doubling regen rate.	- Litelity spawin
Enemy Action:	
A Grunt(id:1) gains 10 total health.	
A Grunt(id:1) moves: [A,30] -> [A,28]	ok
A enemy projectile(id:-1) spawns at location [A,27].	
Natural Enemy Spawn: [0,5]->health:70/70, ener	rgy:70/70, Regen:1/3, Armour:1, Vision:13, Move:10, Move Cost:3, location:[E,1]
A Grunt(id:2) spawns at location [A,30].	ndard, Projectile Damage:70, Projectile Cost:5 (energy)
	y): Teleport back to spawn.
A< G G	
B Enemy:	
	egen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[A,26]
	egen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[A,28]
ES (3,1]->heat(h:30/50, Rege	en:0, Armour:0, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[H,30]
F	a location: [A 23]
GG	
H_{-}	
I Friendly Projectile Action:	
J	$\rightarrow 2/h$
A enemy projectile(id:-1)) moves: [A,27] -> [A,23]
Starfighter Action:	
	sses at location [E,1], doubling regen rate.
Enemy Action: A Grunt(id:1) gains 10 to	stal health 1 7 and 7
A Grunt(id:1) gains to to A Grunt(id:2) gains 10 to	
A Grunt(11.2) gains ab (0	28] -> [A.26]
A enemy projectile(id:-	-2) spawns at location [A,25].
1 A Grunt(id:2) moves: [A,3]	30] -> [A,28]
A enemy projectile(id:-	-3) spawns at location [A,27].
Natural Enemy Spawn:	
A Interceptor(id:3) spawn	
	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
the bedration of	
	1

Part 6 of 8

state:in game(3.0), debug, ok	
Starfighter:	
[0,S]->health:70/70, energy:70/70, Regen:1/3, Armour:1, Vision:13, Move:10, Move Cost:3, locat	ion: [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:120/120, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter	:F, location: [A,26]
[2,G]->health:110/110. Regen:1. Armour:1. Vision:5. seen by Starfighter:F. can see Starfighter	
[3,I]->health:50/50, Regen:0, Armour:0, Vision:5, seen by Starfighter:F, can see Starfighter:F	
Projectile:	
<pre>[-1,<]->damage:15, move:4, location:[A,23]</pre>	->pass
<pre>[-2,<]->damage:15. move:4, location:[A,25]</pre>	state:in game(4.0), debug, ok
<pre>[-3,<]- damage:15 move:4, location:[A,27]</pre>	Starfighter:
Friendly Projectile Action:	
Enemy Projectile Action:	[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)
A enemy projectile(id:-1) moves: [A,27] -> [A,23]	Power:Recall (50 energy): Teleport back to spawn.
Starfighter Action:	score:0
The Starfighter(id:0) passes at location [E,1], doubling regen rate.	
Enemy Action:	Enemy:
A Grunt(id:1) gains 10 total health.	[1,G]->health:130/130, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[A,24]
A Grunt(id:2) gains 10 total health.	[2,6]->health:120/120, Regen:1, Armour:1, Vision:5, seen by Starfighter:F, can see Starfighter:F, location:[A,26]
A Grunt(id:1) moves: [A,28] -> [A,26]	[3,1]->health:50/50, Regen:0, Armour:0, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[H,27]
A enemy projectile(id:-2) spawns at location [A,25].	[4,G]->health:100/100, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[G,30]
A Grunt(id:2) moves: [A,30] -> [A,28]	Projectile:
A enemy projectile(id:-3) spawns at location [A,27].	
Natural Enemy Spawn:	<pre>[-1,<]->damage:15, move:4, location:[A,19]</pre>
A Interceptor(id:3) spawns at location [H,30].	[-2,<]->damage:15, move:4, location:[A,21]
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 21 28 29 30	<pre>[-4,<]->damage:15, move:4, location:[A,23]</pre>
	[-5,<]->damage:15, move:4, location:[A,25]
	[-3, 5]-2damage:15, move:4, tocation: [A, 25]
B	Friendly Projectile Action:
C	Friendy Projectile Action: Enemy Projectile Action: A enemy projectile(id:-1) moves: $[A,23] \rightarrow [A,19]$ A enemy projectile(id:-2) moves: $[A,25] \rightarrow [A,21]$ A enemy projectile(id:-2) moves: $[A,25] \rightarrow [A,21]$
D	A enemy projectile(id:-1) moves: [A,23] -> [A,19]
ES	
	A enemy projectile(id:-3) moves: [A,27] -> [A,26]
9	The projectile collides with Grunt(id:1) at location [A,26], healing 15 damage. \sim \mathcal{N}
•	Starfighter Action:
I	
	The Starfighter(id:0) passes at location [E,1], doubling regen rate.
	Enemy Action:
	A Grunt(id:1) gains 10 total health. That > 2/6
	A Grunt(10:2) gains 10 total nealth.
- projectiles move	A Grunt(id:1) moves: [A,26] -> [A,24]
– projectiles move	
- projectiles move	
	A enemy projectile(id:-4) spawns at location [A,23]. A Grunt(id:2) moves: $[A,28] \rightarrow [A,26]$ A enemy projectile(id:-5) spawns at location [A,25].
 projectiles move Energy regen done before pass 	A enemy projectile(id:-4) spawns at location [A,23]. A Grunt(id:2) moves: $[A,28] \rightarrow [A,26]$ A enemy projectile(id:-5) spawns at location [A,25].
- Energy regen done before pass	A enemy projectile(id:-4) spawns at location [A,23]. A Grunt(id:2) moves: [A,28] \rightarrow [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] \rightarrow [H,27]
- Energy regen done before pass	A enemy projectile(id:-4) spawns at location [A,23]. A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn:
- Energy regen done before pass	A enemy projectile(id:-4) spawns at location [A,23]. A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,30].
- Energy regen done before pass	A enemy projectile(id:-4) spawns at location [A,23]. A Grunt(id:2) moves: [A,28] \rightarrow [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] \rightarrow [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,30].
- Energy regen done before pass - Grunt preempted by pass Regen	A enemy projectile(id:-4) spawns at location [A,23]. A Grunt(id:2) moves: $[A,28] \rightarrow [A,26]$ A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: $[H,30] \rightarrow [H,27]$ Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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
- Energy regen done before pass - Grunt preempted by pass Regen	A enemy projectile(id:-4) spawns at location [A,23]. A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,30].
- Energy regen done before pass - Grunt preempted by pass Regen	A enemy projectile(id:-4) spawns at location [A,23]: A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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
- Energy regen done before pass	A enemy projectile(id:-4) spawns at location [A,23]: A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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
- Energy regen done before pass - Grunt preempted by pass Regen - Interceptor not preempted by pass	A enemy projectile(id:-4) spawns at location [A,23]: A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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
- Energy regen done before pass - Grunt preempted by pass Regen - Interceptor not preempted by pass	A enemy projectile(id:-4) spawns at location [A,23]. A Grunt(id:2) moves: $[A,28] \rightarrow [A,26]$ A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: $[H,30] \rightarrow [H,27]$ Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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
- Energy regen done before pass - Grunt preempted by pass Regen - Interceptor not preempted by pass	A enemy projectile(id:-4) spawns at location [A,23]: A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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
- Energy regen done before pass - Grunt preempted by pass Regen	A enemy projectile(id:-4) spawns at location [A,23]: A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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
- Energy regen done before pass - Grunt preempted by pass Regen - Interceptor not preempted by pass - Regen then act	A enemy projectile(id:-4) spawns at location [A,23]: A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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
- Energy regen done before pass - Grunt preempted by pass Regen - Interceptor not preempted by pass - Regen then act	A enemy projectile(id:-4) spawns at location [A,23]: A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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
- Energy regen done before pass - Grunt preempted by pass Regen - Interceptor not preempted by pass	A enemy projectile(id:-4) spawns at location [A,23]: A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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
- Energy regen done before pass - Grunt preempted by pass Regen - Interceptor not preempted by pass - Regen then act	A enemy projectile(id:-4) spawns at location [A,23]: A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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
- Energy regen done before pass - Grunt preempted by pass Regen - Interceptor not preempted by pass - Regen then act	A enemy projectile(id:-4) spawns at location [A,23]: A Grunt(id:2) moves: [A,28] -> [A,26] A enemy projectile(id:-5) spawns at location [A,25]. A Interceptor(id:3) moves: [H,30] -> [H,27] Natural Enemy Spawn: A Grunt(id:4) spawns at location [G,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

Part 7 of 8

<pre>state:in game(4.0), debug, ok</pre>	
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)	
Pojetile Faternistandard, Flojetile Danager/0, Flojetile Costis (energy) Power:Recall (50 energy): Teleport back to spawn.	>nass
score:0	state:in game(5.0), debug, ok
Enemy:	Starfighter:
[1,G]->health:130/130, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[A,24]	
[2,6]->health:120/120, Regen:1, Armour:1, Vision:5, seen by Starfighter:F, can see_Starfighter:F, location: [A,26]	
[3,I]->health:50/50, Regen:0, Armour:0, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[H,27]	Power:Recall (50 energy): Teleport back to spawn.
[4,G]->health:100/100, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[G,30]	score:0
Projectile:	Enemy:
[-1,<]->damage:15, move:4, location:[A,19]	[],G]->health:140/140, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[A,22
<pre>[-2,<]->damage:15, move:4, location:[A,21]</pre>	[2,6]->heatth: 130/130, Regenit, Armouri, Visionis, seen by Starfighter:F, can see Starfighter:F, tocation: [A,24]
<pre>[-4,<]->damage:15, move:4, location:[A,23]</pre>	[1, d] ->health: 50/50, Regenter, Amourter, Vision: 5, seen by Starfighter: F, can see Starfighter: F, location: [4, 24]
[-5,<]- damage:15 move:4, location:[A,25]	[3,1]-heat(1.36), Kegenia, Amouria, Visionia, see by Starfighterr, Carsec Starfighterr, Coarton (6,28) [4,6]-sheat(1.16)/10, Regenia, Amouria, Visionia, see by Starfighterr, Can see Starfighterr, Iocarton (6,28)
Friendly Projectile Action:	[5, 5] ->health:58/58, Regen:0, Armour:0, Vision:5, seen by Starfighter:F, can see Starfighter:F, location:[0,30]
Enemy Projectile Action:	Projectile:
A enemy projectile(id:-1) moves: [A,23] -> [A,19]	[-1,-]->dmage:15, move:4, location: [A,15]
A enemy projectile(id:-2) moves: [A,25] -> [A,21]	[-2, -]-domage:15, move:4, location: [A, 17]
A enemy projectile(id:-3) moves: [A,27] -> [A,26]	[-4, -]->damage:15, move:4, location: [A, 19]
The projectile collides with Grunt(id:1) at location [A,26], healing 15 damage.	[-6.<]->damage:15. move:4. location:[A.21]
Starfighter Action:	[-7,-]->damage:15, move:4, location:[A,23])
The Starfighter(id:0) passes at location [E,1], doubling regen rate. Enemy Action:	$\begin{bmatrix} [-7, -] - 3damage: 15, move: 4, location: [6,23] \\ [-8, -] - 3damage: 15, move: 4, location: [6,27] \\ Existed by Designed to Action: [6,27] \\ \end{bmatrix}$
A Grunt(id:1) gains 10 total health.	Friendly Projectile Action:
A Grunt(id:2) gains 10 total health.	Enemy Projectile Action:
A Grunt(dit) gains to total nearth. A Grunt(dit) moves: [$A_261 \rightarrow [A_242]$	A energy projectile (idi-1) moves: $[A, 19] \rightarrow [A, 15]$
A demy projectile(id:-4) spawns at location [A,23].	A enemy projectile(id:-2) moves: $[A, 21] \rightarrow [A, 17]$
A Grunt(id:2) moves: [A,26]	A enemy projectile(id:-) moves: $[A,21] \rightarrow [A,19]$
A enemy projectile(idi-5) spawns at location [A,25].	A enemy projectile(id) -5 moves: $[A,25] \rightarrow [A,24]$
A Interceptor(id:3) moves: [H,30] -> [H,27]	The projectile collides with Grunt(id:1) at location [A,24], healing 15 damage.
Natural Enemy Spawn:	Starfighter Action:
A Grunt(id:4) spawns at location [G,30].	The Starfighter(id:0) passes at location [E,1], doubling regen rate.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 2 <mark>5</mark> 26 27 28 29 30	Enemy Action:
A	A Grunt(id:1) gains 10 total health.
B	A Grunt(id:2) gains 10 total health.
C	A Grunt(id:4) gains 10 total health.
	[A Grunt(id:1) moves: [A,24] -> [A,22]
	A enemy projectile(id:-6) spawns at location [A,21].
	A Grunt(id:2) moves: [A,26] -> [A,24]
	A enemy projectile(id:-7) spawns at location [A,23]
······································	A enemy projectile(id:-7) spawns at location [A,23]. A Interceptor(id:3) moves: $[H,27] \rightarrow [H,24]$
	X A Grunt(10:4) moves: [6,30] -> [6,28]
u. *	A enemy projectile(id:-8) spawns at location [G,27].
	Natural Enemy Spawn:
– projectiles move	A Interceptor(id:5) spawns at location [D,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
- Energy regen done before pass	A < _ < _ < _ < _
– Energy regen done before pass	B
	<u>c</u>
- Grunt preempted by pass	P
	E 5
- Interceptor not preempted by pass	
	<u>6</u>
- Regen then act	[↓]
	<u> </u>
Enomy snown	
– Enemy spawn	

Part 8 of 8

state:in game(5.0), debug, ok	state:in game(6.0), debug, ok
Starfighter:	Starfighter:
<pre>[0,5]->health:70/70, energy:70/70, Regen:1/3, Armour:1, Vision:13, Move:10, Move Cost:3, location:[E,1]</pre>	[0,5]->health:70/70, energy:65/70, 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)	Projectile Pattern:Standard, Projectile Damage:70, Projectile Cost:5 (energy)
Power:Recall (50 energy): Teleport back to spawn. score:0	Power:Recall (50 energy): Teleport back to spawn.
Score:0	score:0
[1,G]->health:140/140, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[A,22]	Enemy:
[1,0]->health:130/130, Regen:1, Armour:1, Vision:5, seen_by_starfighter:F, can_see_starfighter:F, location:[A,24]	[1,6]->health:140/140, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[A,20]
[3,1]-health:50/50, Regen:0, Amour:0, Vision:5, seen by Starfighter:F, can see Starfighter:F, location:[H,24]	[2,G]->health:130/130, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[A,22]
[4,G]-health:110/110, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[6,28]	[3,I]->health:50/50, Regen:0, Armour:0, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[E,24]
[5,1]->health:50/50, Regen:0, Armour:0, Vision:5, seen by Starfighter:F, can see Starfighter:F, location: [0,30]	[4,6]->health:110/110, Regen:1, Armour:1, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[6,26]
Projectile:	[5,I]->health:50/50, Regen:0, Armour:0, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[E,30]
[-1,<]->damage:15, move:4, location: [A,15]	<pre>[6,1]->health:50/50, Regen:0, Armour:0, Vision:5, seen_by_Starfighter:F, can_see_Starfighter:F, location:[F,30]</pre>
[-2,<]->damage:15, move:4, location: [A,17] - projectiles move	Projectile:
[-4,<]->damage:15, move:4, location: [A,19]	<pre>[-1,<]->damage:15, move:4, location:[A,11]</pre>
[-6,<]->damage:15, move:4, location: [A, 19] [-6,<]->damage:15, move:4, location: [A, 21] - Energy regen done before fire	<pre>[-2,<]->damage:15, move:4, location:[A,13]</pre>
[-7,<]-damage:15 move:4, location: [A,23] [-8, c]-sdamage:15 move:4, location: [6,27] - Grunt not preempted by fire	[-4,<]->damage:15, move:4, location:[A,15]
	<pre>[-6,<]->damage:15, move:4, location:[A,17]</pre>
Friendly Projectile Action: - Interceptor preempted by fire	<pre>[-8,<]->damage:15, move:4, location:[6,23]</pre>
Enemy Projectile Action:	<pre>[-9,*]->damage:70, move:5, location:[E,2] [-10,<]->damage:15, move:4, location:[A,19]</pre>
A enemy projectile(id:-1) moves: [A,19] -> [A,15] - Regen then act	[-10,<]->damage:15, move:4, location:[A,19] [-11,<]->damage:15, move:4, location:[A,21]
A enemy projectile(id:-2) moves: [A,21] -> [A,17]	(-1, -, - damage: 15, move: 4, location: [6, 25]
A enemy projectile(id:-4) moves: [A,23] -> [A,19] - Enemy spawn	Friendy Projectile Action:
A enemy projectile($id:-5$) moves: $[A,25] \rightarrow [A,24]$	Enemy Projectile Action:
The projectile collides with Grunt(id:1) at location [A,24], healing 15 damage. Starfighter Action:	A enemy projectile(id:-1) moves: [A,15] -> [A,11]
The Starfighter(id:0) passes at location [E,1], doubling regen rate.	$ \begin{array}{c} [-12,<] > damage: 15, move: 4, location: [A, 19] \\ [-11,<] > damage: 15, move: 4, location: [A, 21] \\ [-12,<] - sdamage: 15, move: 4, location: [G, 25] \\ Friendly Projectile Action: \\ Enemy Projectile Action: \\ A enemy projectile (id: -1) moves: [A, 15] \rightarrow [A, 13] \\ A enemy projectile(id: -2) moves: [A, 17] \rightarrow [A, 13] \\ \end{array} $
Energy Action:	(A enemy projectile(id:-4) moves: [A,19] -> [A,15]
A Grunt(id:1) gains 10 total health.	A enemy projectile(id:-6) moves: [A,21] -> [A,17]
A Grunt(id:2) gains 10 total health.	A enemy projectile(id:-7) moves: [A,23] -> [A,22]
A Grunt(id:4) gains 10 total health.	The projectile collides with Grunt(id:1) at location [A,22], healing 15 damage, 💦 💦 🚺
A Grunt(id:1) moves: [A,24] -> [A,22]	A enemy projectile(id:-8) moves: [G,27] -> [G,23]
A enemy projectile(id:-6) spawns at location [A,21].	Starfighter Action:
A Grunt(id:2) moves: [A,26] -> [A,24]	The Starfighter(id:0) fires at location [E,1].
A enemy projectile(id:-7) spawns at location [A,23].	A friendly projectile(id:-9) spawns at location [E,2].
A Interceptor(id:3) moves: [H,27] -> [H,24]	Enemy Action:
A Grunt(id:4) moves: [G,30] -> [G,28]	A Interceptor(id:3) moves: [H,24] -> [E,24]
A enemy projectile(id:-8) spawns at location [G,27].	A Interceptor(id:5) moves: [D,30] -> [E,30]
Natural Enemy Spawn:	A enemy projectile(id:-10) spawns at location [A,19].
A Interceptor(id:5) spawns at location [D,30].	A elienty projectice ($12, 24$) - $4, 22$
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 enemy projectile(id)-11) spawns at location [A,21].
▲ < < < < G < G	A Grunt(id:4) moves: $[0,28] \rightarrow [0,26]$
	A enemy projectile(id:-12) spawns at location [G,25]. These Z
	A Interceptor(id:6) spawns at location [F,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
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