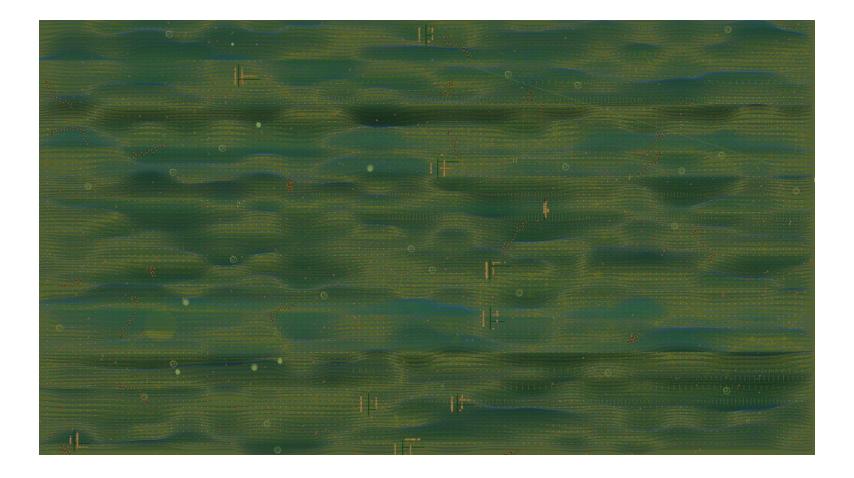
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Project Overview



The Regeneration of the Earth After Its Destruction by the Capitalist Powers

Project Overview: Main Features

- hostile environment
- primitive entities
- must act within energy constraints
- horizontal transfer of genetic information including:
 - copy
 - take
 - insert
 - transduction
 - mutation
- fitness function based on sensitivity to environment
- sensitivity based on environmental awareness, community membership

The Regeneration of the Earth After Its Destruction by the Capitalist Powers

Project Overview: System Loop

- system starts in balance
- entities use world materials to create energy
- when possible entities transfer genetic information
- sensitivities are updates
- reaper function removes least sensitive
- generation function repopulates randomly

Project Description: World Elements

Composites	Entities	Facilitators	Communities	World Clocks
Acid	Acidophiles (remove acid)	Donors (give genes)	Colonies (acid)	Reaper
Heat	Halos (remove light)	Cooperators (share genes)	Films (metal)	Generation
Light	Gammons (remove radiation)		Vents (heat)	
Metal Curtain	Metallics (remove metal)		Vortices (radiation)	
Plastic	Thermophiles (remove heat)			
Radiation				

Project Description: Structure of Entities (Agents)

Energy Profile (amount of energy * rate) +	Phase Features (direction strength location speed)	Genome + (state of operations)	+	Clock update energy run operator call transfer update genome	+	Operator (order of execution)	=>	Entity
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The Regeneration of the Earth After Its Destruction by the Capitalist Powers

Project Description:Initial Acidophile Genome

position --> operation

Entity ID 00 --> header, no actions

Sensitivities 01 --> feels_acid 02 --> feels_light 03 --> feels_metal 04 --> feels_plastic 05 --> feels_radiation 06 --> hears_sound 07 --> feels_temperature

Abilities 08 --> can_hue_up

09 --> can_hue_down 10 --> can_bright_up 11 --> can_bright_down 12 --> can_grow 13 --> can_shrink 14 --> can_branch 15 --> can_fold 16 --> can_move; 17 --> can_hunt 18 --> can_hide

Efficiencies 19 --> can_scramble_energy 20 --> can_scramble_rate

Transfer Styles 21 --> can make copy 22 --> can take 23 --> can_insert 24 --> can transduction 25 --> can mutate Community 26 --> can seek 27 --> can cooperate 28 --> can join colony 29 --> can join film 30 --> can join ring 31 --> can join vortex 32 --> can join community x 33 --> can join community y 34 --> can join community z

Operations 35 --> sort operator 36 --> reverse operator 37 --> shuffle operator 38 --> can_make_energy

Project Description: HGT

Сору	Take	Insert	Transduction	Mutation
choose random donor choose random gene copy its state	choose random target choose random location take gene	choose random target choose random location insert gene	choose random donor A choose random receiver B choose random segment A transfer to random location B	choose random target choose random location alter gene

The Regeneration of the Earth After Its Destruction by the Capitalist Powers

Project Description: Acidophile After HGT

Acidophile	010000000000000000000000000000000000000		
Donor	00010000000000010100010100010000 1		
		via copy>	010100000000000000000000000000000000000
		via removal>	010000000000000000000000000000000000000
		via insertion>	010000000001010001000000000000000000000
		via mutation>	010000000000000000000000000000000000000
Acidophile	010000000000000000010000000000000000000	via transduction>	010000000000000000101000000000000000000
Donor A	00010000000000010100010100010000 1		0001000000000010100010100010100010001
Donor B	00010000000000010100010100010000 1		000100001010000010100010100010100010001
Acidophile	010000010000000000000000000000000000000		
Cooperator	000010000100001100111100000101010101010		
		via cooperation>	000010100100001100111100000101010101010

Project Description: Increases in Sensitivity

Acidophile (Before) (Less Sensitive)

Acidophile (After) (More Sensitive)

000010100100001100111100000101010101010

Project Description: Increases in Sensitivity

- add abilities
- join communities

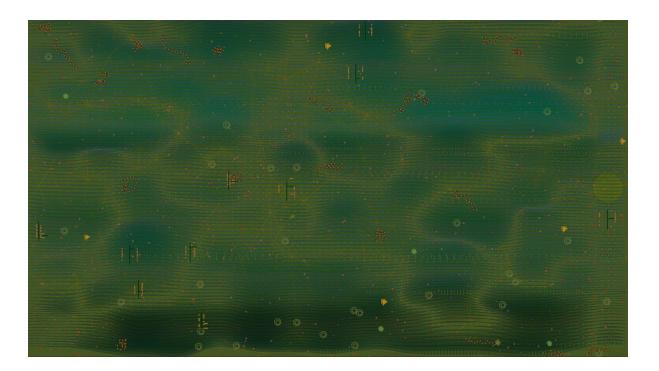
The Regeneration of the Earth After Its Destruction by the Capitalist Powers

Project Analysis: What is Success?

- increased sensitivity
- evolution of behaviors
- individualization
- emergent behaviors
- joins groups
- influence from group
- influence to group

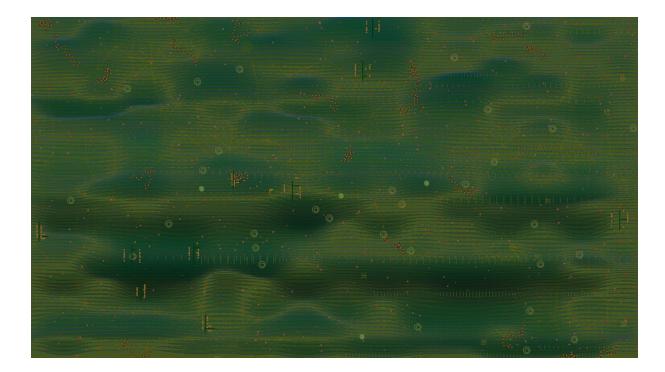
Project Analysis: What is Success?

Acid Sensitive Entities - Phase



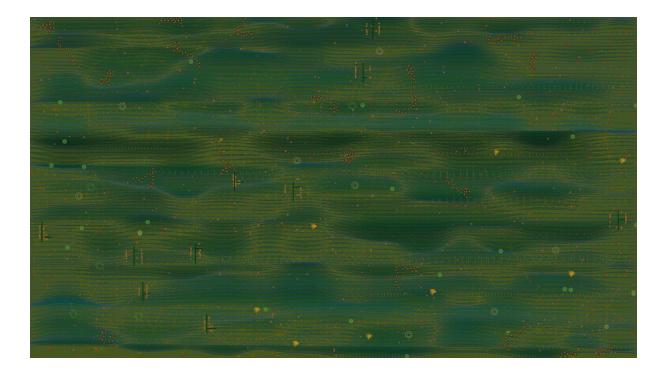
Project Analysis: What is Success?

Acid Sensitive Entities - Compound



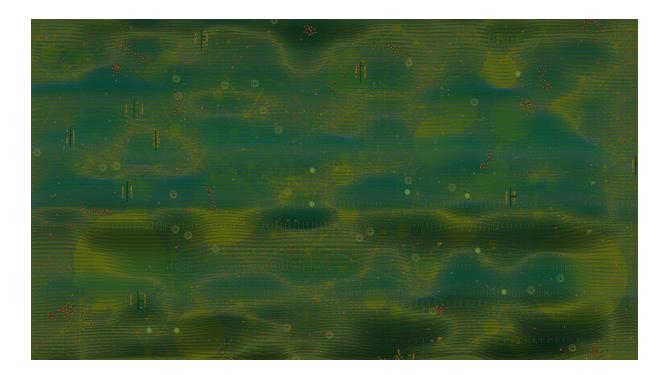
Project Analysis: What is Success?

Light Sensitive Entities - Phase



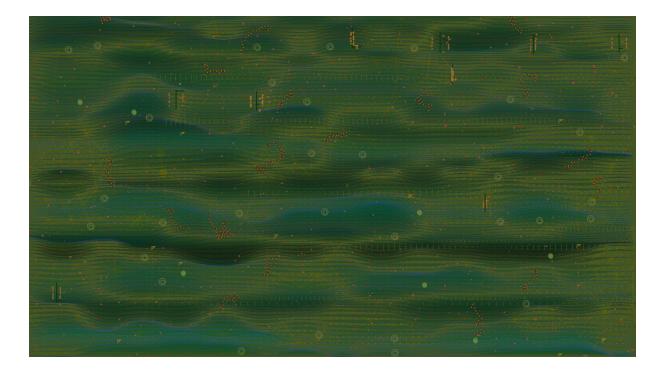
Project Analysis: What is Success?

Light Sensitive Entities - Signaling



Project Analysis: What is Success?

Metal Sensitive Entities - Signaling



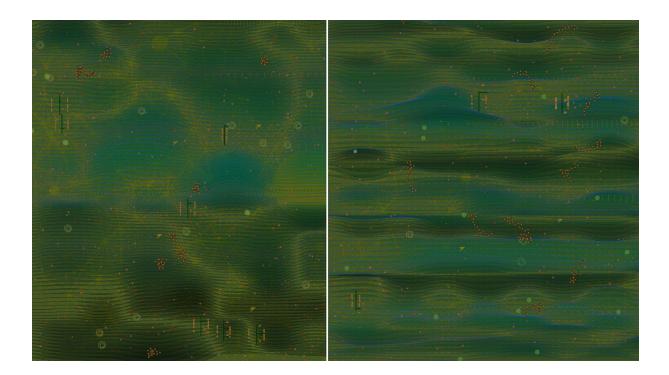
Project Analysis: What is Success?

Radiation Sensitive Entities - Signaling



Project Analysis: What is Success?

Entities Influence Environment



Project Analysis: Future Goals

- greater self-organization
- morphogenesis
- more adaptivity
- emergent behaviors

Grazie Mille!

Thank you!

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