

Indie Level Design

Adventures in Negative Space!

Rudolf Kremers

Grand Poobah – Omni Systems Limited



INDEPENDENT GAMES
SUMMIT

GAME DEVELOPERS CONFERENCE EUROPE
COLOGNE, GERMANY
AUGUST 13-15, 2012 **2012**

Introductions



Introductions

- Rudolf Kremers
 - Bio
 - Omni Systems Ltd.
(Creative Director)

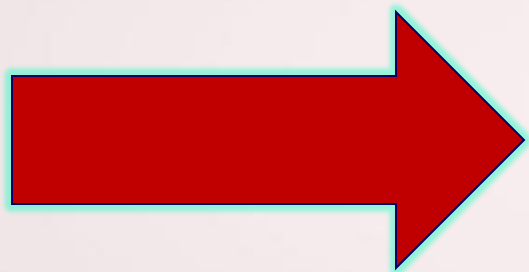


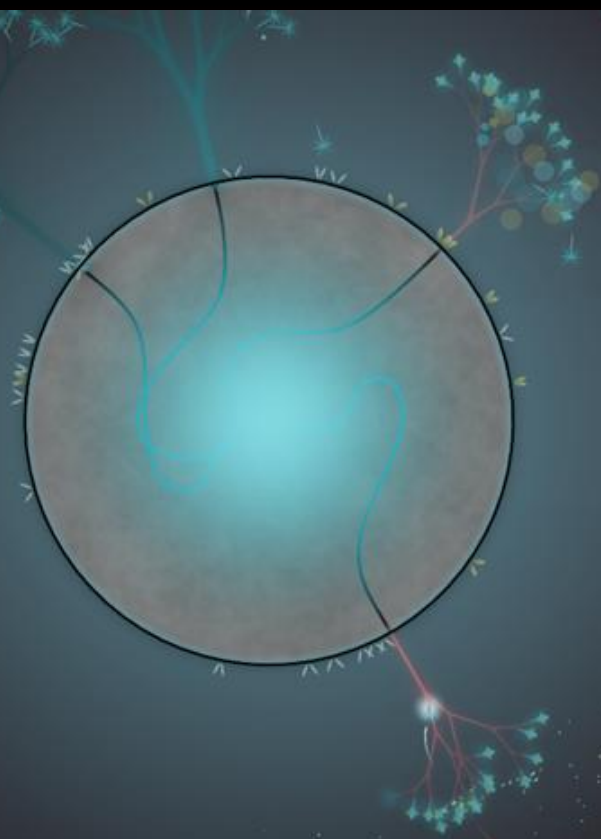
Introductions

- Rudolf Kremers
 - Bio
 - Omni Systems Limited
 - Book: Level Design – Concept, Theory & Practice

Introductions

- PLEASE BUY ME





Euforia

2 devs: Alex May, Rudolf Kremers (+ Brian Grainger + Tuna)

Introductions

- Rudolf Kremers
 - Omni Systems Limited
 - Book: Level Design – Concept, Theory & Practice
 - Eufloria - Creative success, (BAFTA/IGF Nominee)
 - 250k sold and still going strong

Fundamentals



Fundamentals

- Level design
 - What is it?

Fundamentals

- Level design
 - What is it?
 - What is so indie about this talk?

Fundamentals

- Level design
 - What is it?
 - What is so indie about this talk?
 - Many indie specific game-dev problems can be solved through level design

Fundamentals

- Level design
- What problems are we solving?

Fundamentals

- Level design
- What problems are we solving?
 - Assets
 - Aesthetics
 - Gameplay

Fundamentals

- Level design
- What problems are we solving?
- What solutions can we find?

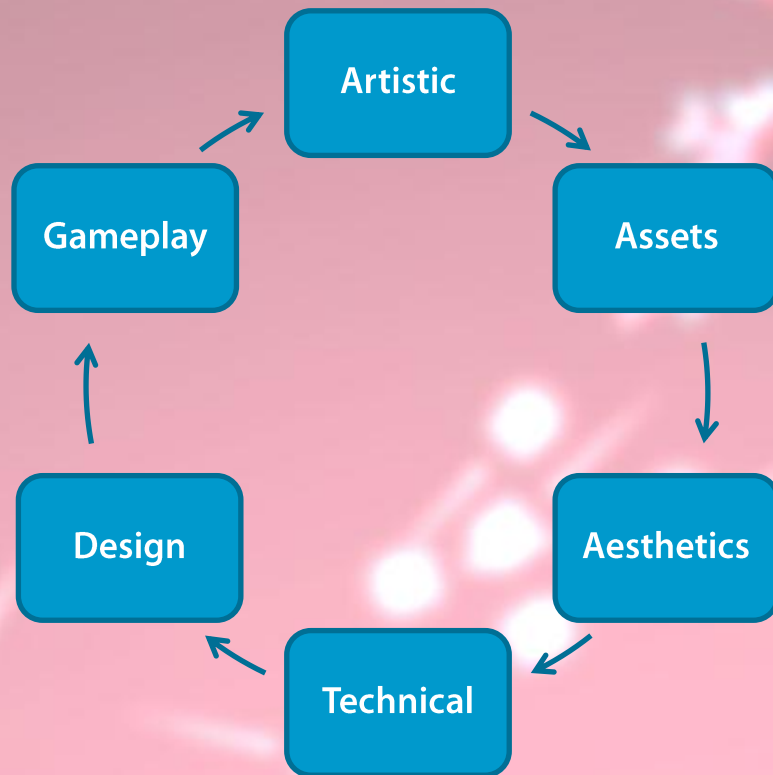
Fundamentals

- Level design
- What problems are we solving?
- What solutions can we find?
 - Technical (Asset creation)
 - Artistic (Appropriate aesthetic)
 - Design & Psychology (Make it engaging)

Fundamentals

- Co-dependent , Self-reinforcing systems!

Positive Feedback Loop



More With Less

Asset Creation



Asset Creation

- Generated content

Asset Creation

- Generated content
 - Procedural

Asset Creation

- Generated content
 - Procedural
 - User generated

Asset Creation

- Generated content
 - Procedural
 - User generated
 - Nature-Inspired (evolutionary/ecosystems)

Generated Content – *Procedural*



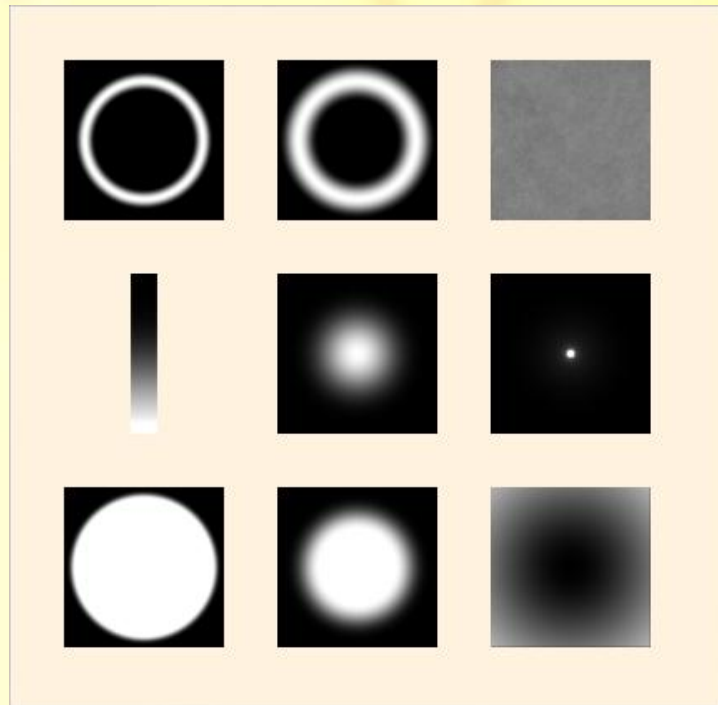
Generated Content – *Procedural*

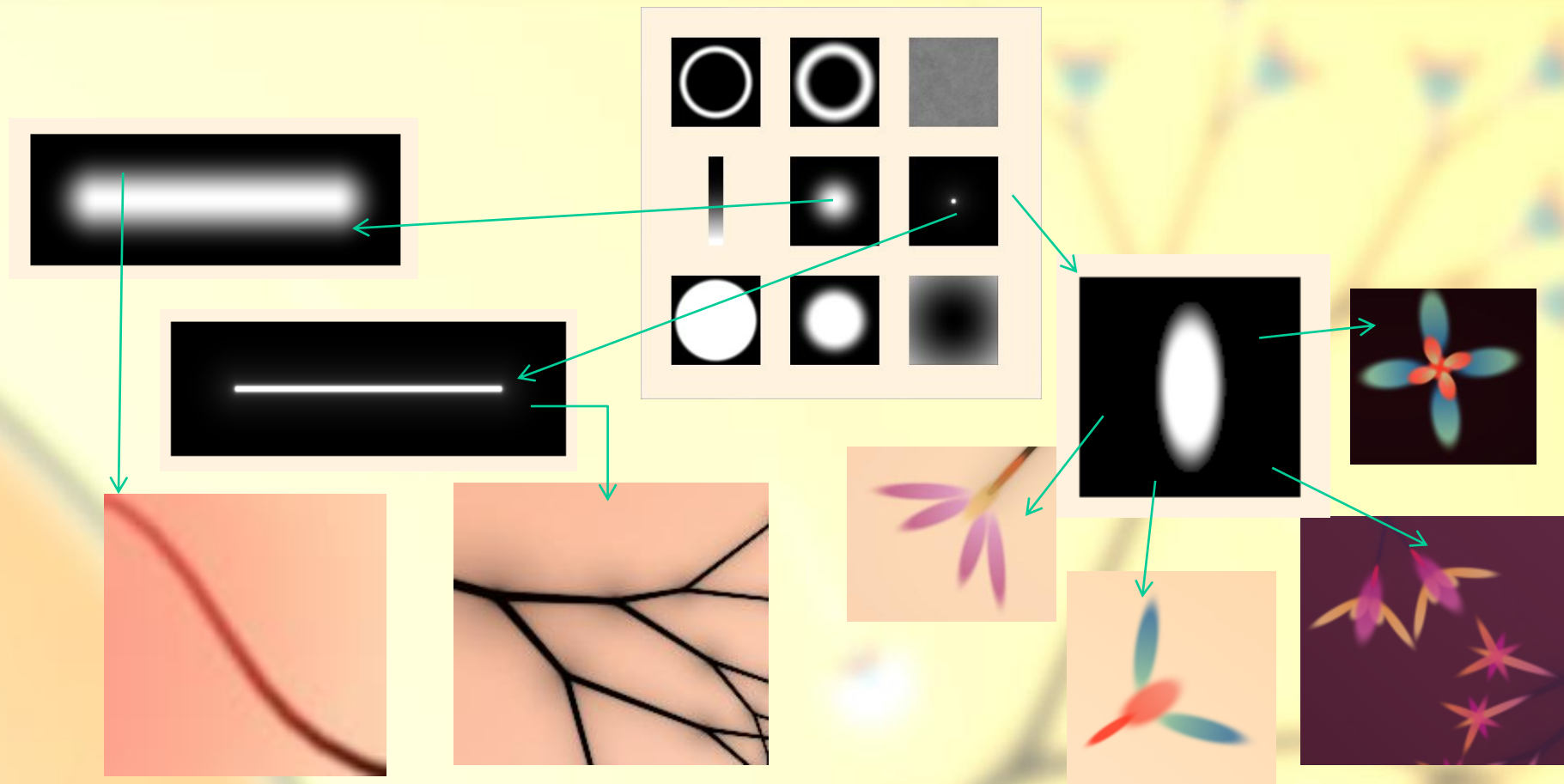




Generated Content – *Procedural*

- 9 Very simple textures (except icons and font)
- All textures generated procedurally





Generated Content – Procedural

- Great way to create an enormous amount of content
- Can be beautiful & modern

Generated Content– *User Generated*



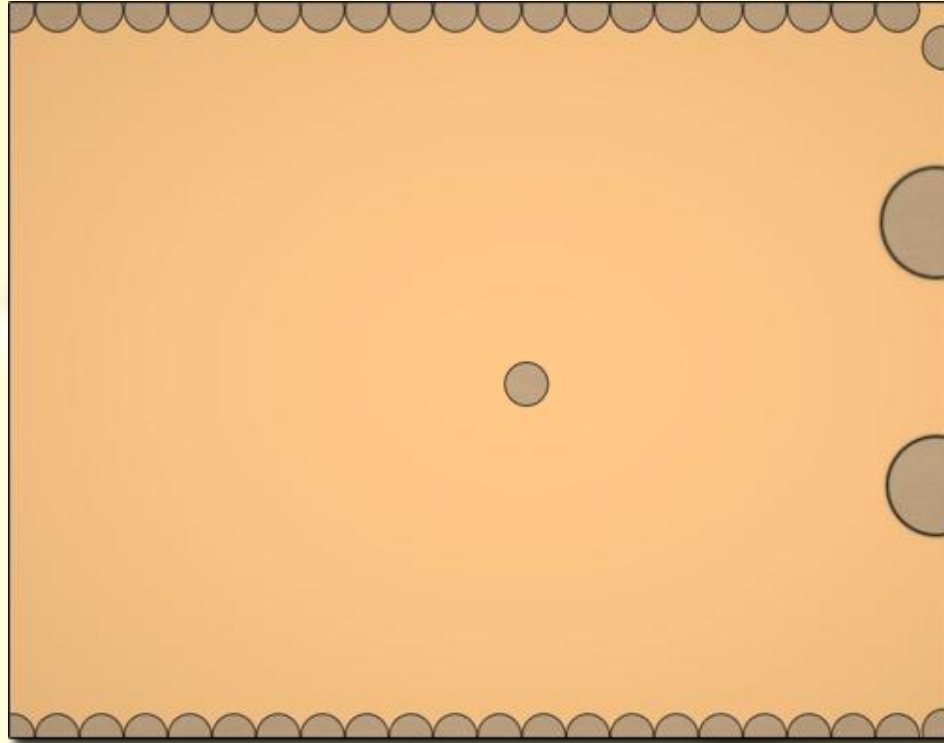
Generated Content– *User Generated*



Generated Content– *User Generated*



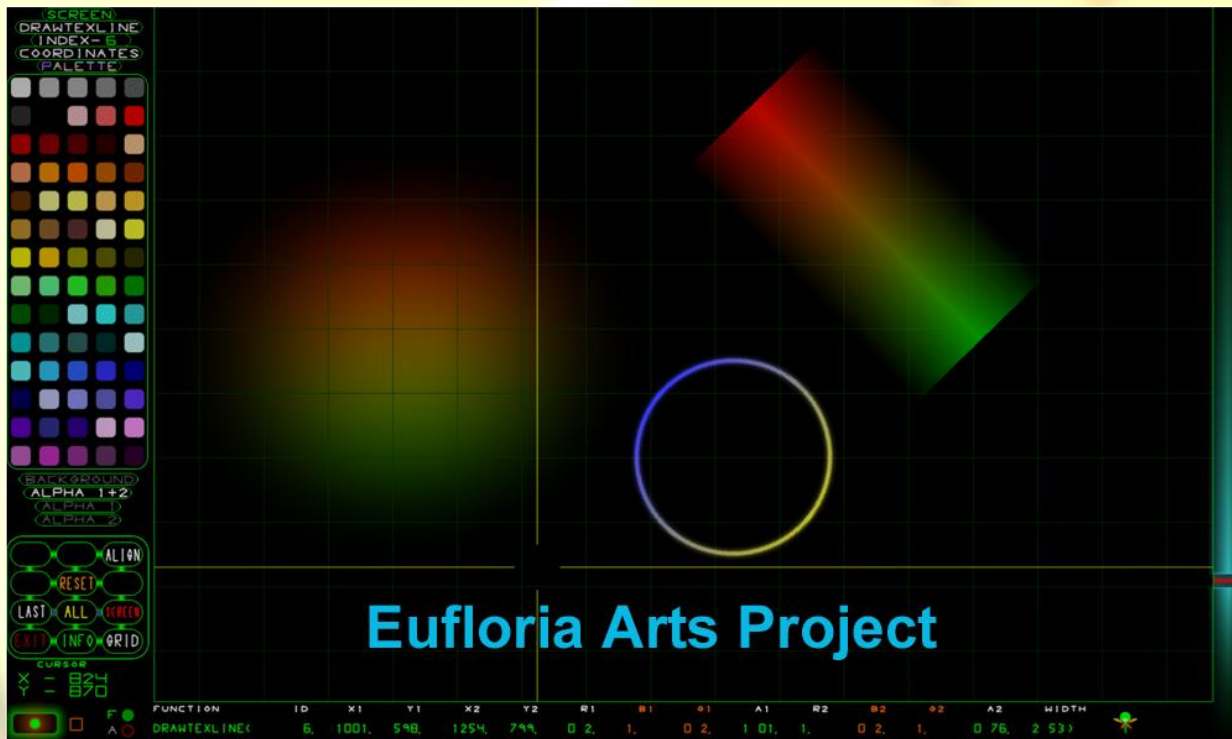
Generated Content– *User Generated*



Generated Content– *User Generated*



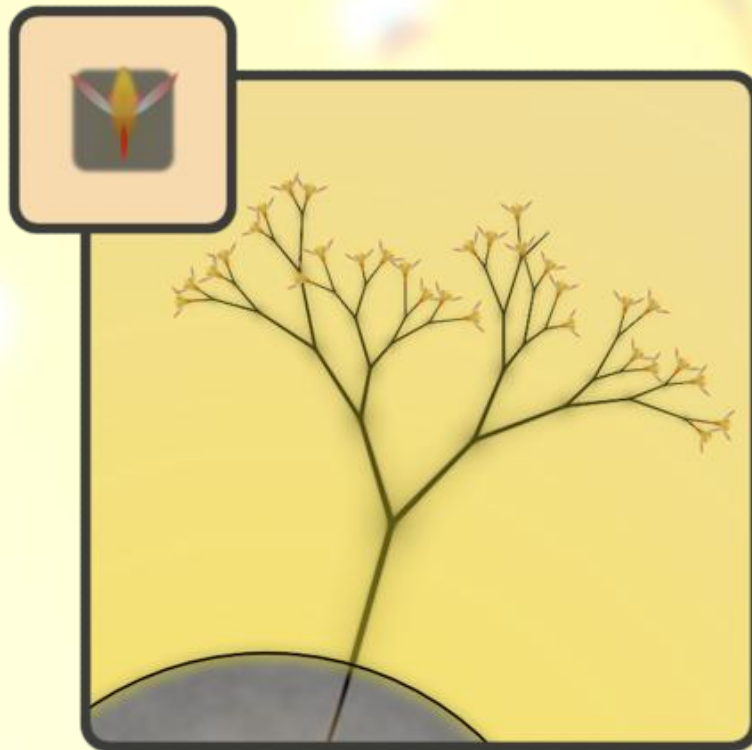
Generated Content– *User Generated*



Generated Content– User Generated

- Users/Players can create more content than you can ever imagine (or compete with)
- Empower your fans and they will reward you 1000x over

Generated Content– *Nature-Inspired*



Generated Content– Nature-Inspired

- Design an ecosystem or lifecycle to populate levels
- Nature offers countless fascinating examples (Alien)
- No need to aim for scientific accuracy, just inspiration



More With Less

Aesthetics

Aesthetics

- Negative space

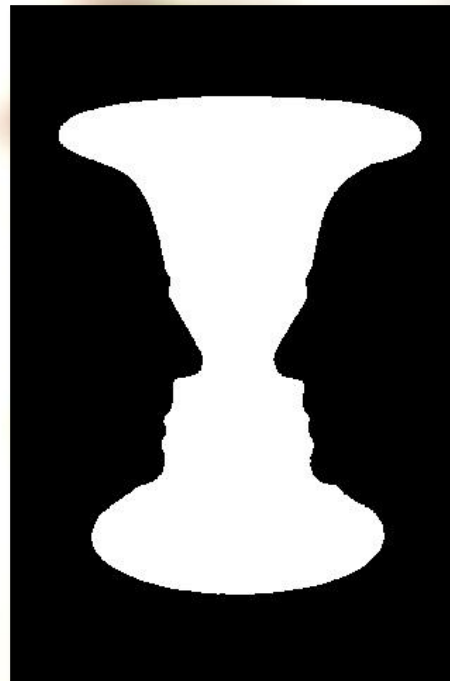
Aesthetics – *Negative Space*

- Subject is **positive space**



Aesthetics – *Negative Space*

- Space surrounding the subject is called **negative space**



Aesthetics – *Negative Space*

- What is **NOT** there....



Aesthetics – *Negative Space*

- ...helps define what **IS** there....



Aesthetics – *Negative Space*

- Subject is *positive space*, Space around it is *negative space*
- What is NOT there, helps define what IS there
 - This matters in gameplay; clarity of design is important
- Strong tradition that can be studied

Aesthetics – *Negative Space*



Aesthetics – *Negative Space*

- Subject is *positive space*, Space around it is *negative space*
- What is NOT there, helps define what IS there
- Strong tradition that can be studied
- Good use requires LESS resources = **Indie friendly**

Aesthetics – *Negative Space*



Aesthetics – *Negative Space*



Aesthetics – *Negative Space*



Aesthetics – *Negative Space*



Aesthetics – *Negative Space*



Aesthetics – *Negative Space*



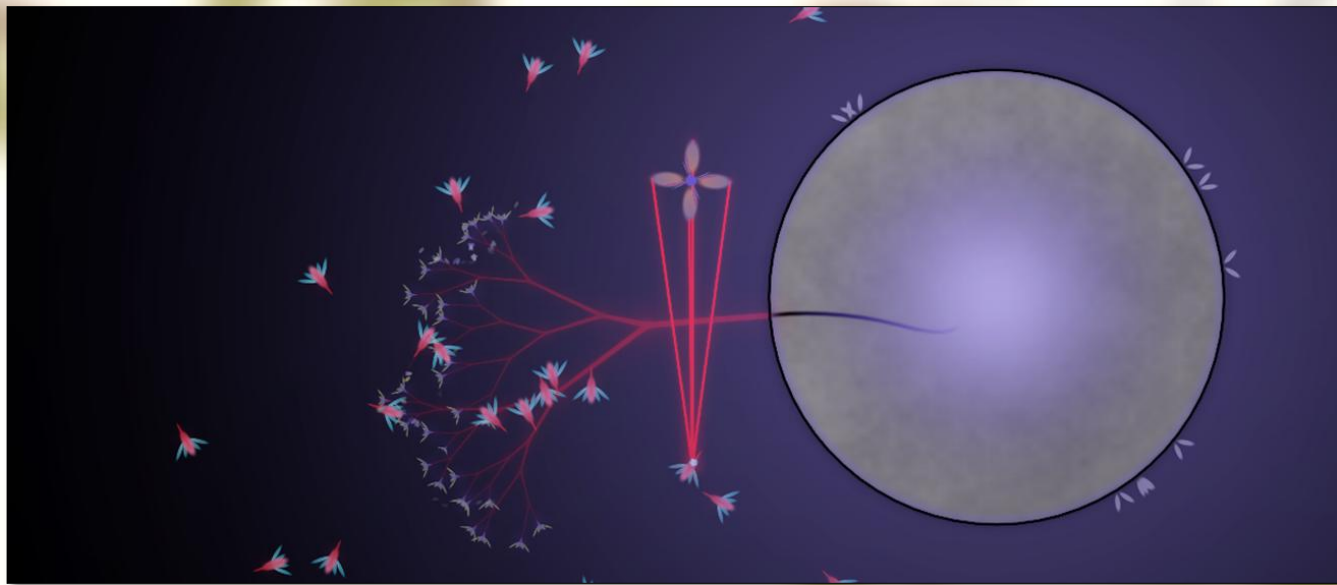
Aesthetics – *Negative Space*



Aesthetics – *Negative Space*



Aesthetics – *Negative Space*



Aesthetics

Data Driven

```
SetBackdropColour(252/255,245/255,190/255)
```

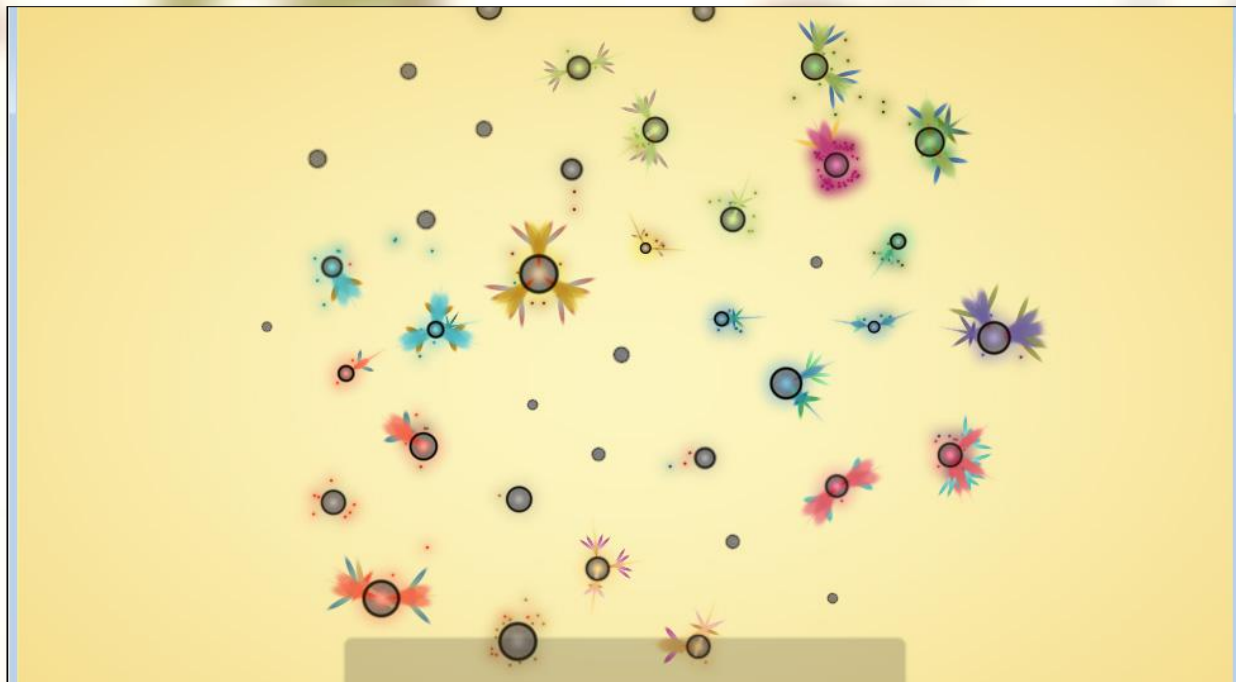
```
Globals():Get("Asteroids"):Set("MaxTrees",4)  
Globals():Get("Asteroids"):Set("MinRadius",100)  
Globals():Get("Asteroids"):Set("MaxRadius",600)  
Globals():Get("Asteroids"):Set("RadiusPowerRule",2)  
Globals():Get("Asteroids"):Set("SizeFromEnergy",166)  
Globals():Get("Asteroids"):Set("SizeFromStrength",166)  
Globals():Get("Asteroids"):Set("SizeFromSpeed",167)  
Globals():Get("Asteroids"):Set("MinCoreHealth",70)  
Globals():Get("Asteroids"):Set("MaxCoreHealth",300)  
Globals():Get("Asteroids"):Set("CoreHealthPowerRule",2.5)  
Globals():Get("Asteroids"):Set("MinSendDistance",3000)  
Globals():Get("Asteroids"):Set("MaxSendDistance",9000)  
Globals():Get("Asteroids"):Set("SendPowerRule",3.0)  
Globals():Get("Game"):Set("EnemyFactionsMin",10)  
Globals():Get("Game"):Set("EnemyFactionsMax",10)  
Globals():Get("Game"):Set("MaxAsteroidNeighbourDist",5000)  
Globals():Get("Game"):Set("MinAsteroidSeparation",1600)  
Globals():Get("Game"):Set("MaxAsteroidNeighbourDist",6000)  
Globals():Get("Game"):Set("StartingSeedlingsPlayer",60)  
Globals():Get("Game"):Set("StartingSeedlings",50)  
Globals():Get("Game"):Set("GreysProbability",0)  
Globals():Get("Structures"):Set("FlowerProbability",0.3)
```

```
AddAsteroidRing(42, 0,0, 6000, 600)
```

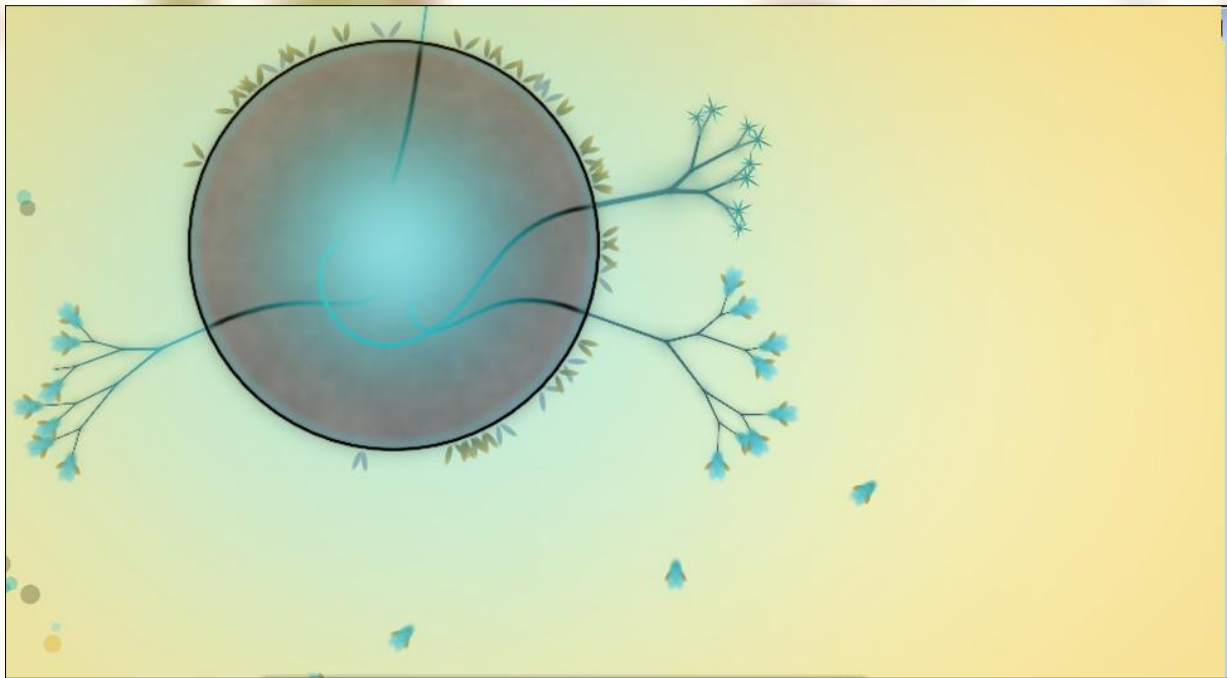
```
function LevelLogic()  
    SetCameraPositionToAsteroidID(0)  
    player = GetEmpire(1)  
    Pause()  
    MessageBox("03a_01")  
    WaitDialog()  
    Unpause()  
  
    while GameRunning() do  
        if (player.NumDysonTrees == 0  
and  
        player.NumSeedlings == 0) then  
            Pause()  
            PlayLoseSound()  
            MessageBox("03a_lose")  
            WaitDialog()  
            Quit(false)  
            break;  
        end  
        win = true  
        for i = 0, GetNumFactions() do  
            e = GetEmpire(i)
```

```
        if i ~= 1 and e ~= nil  
        and e.Deefeated == false then  
            win = false  
        end  
    end  
  
    if win then  
        Pause()  
        PlayWinSound()  
        MessageBox("03a_win")  
        WaitDialog()  
        Quit(true)  
        return;  
    end  
  
    coroutine.yield()  
end  
end
```

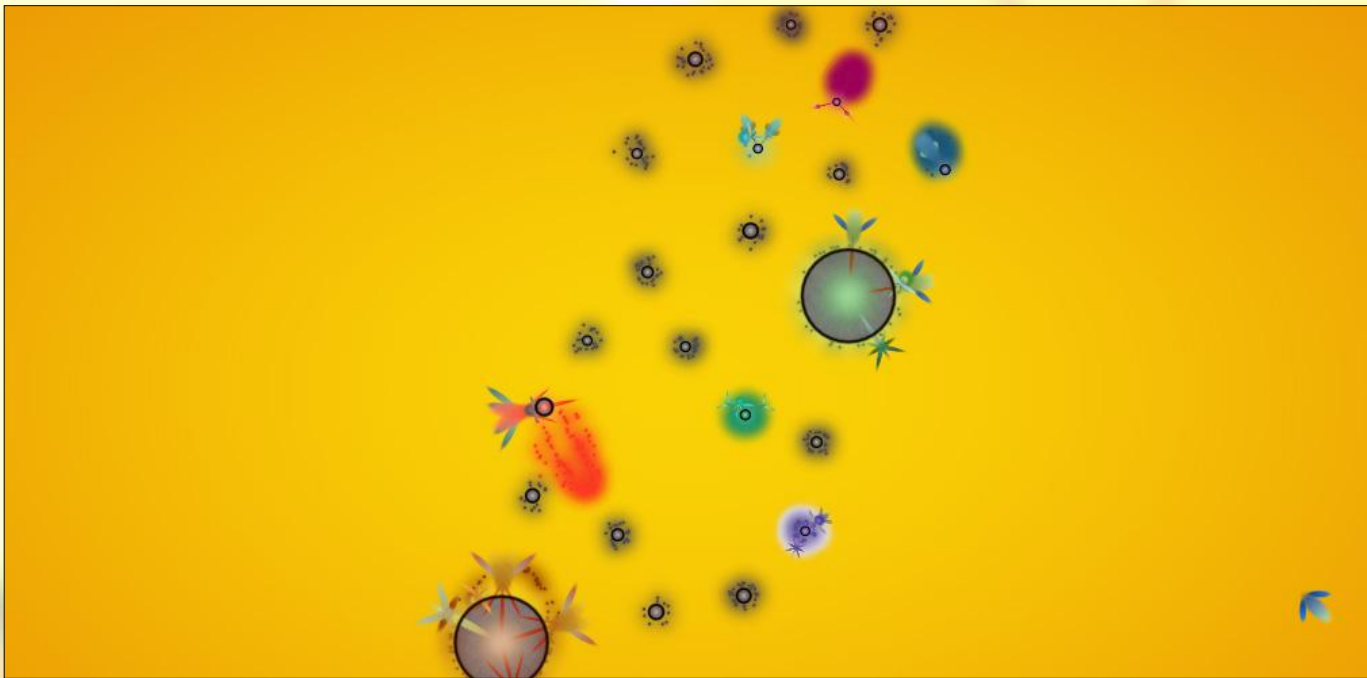
Aesthetics – *Data Driven*



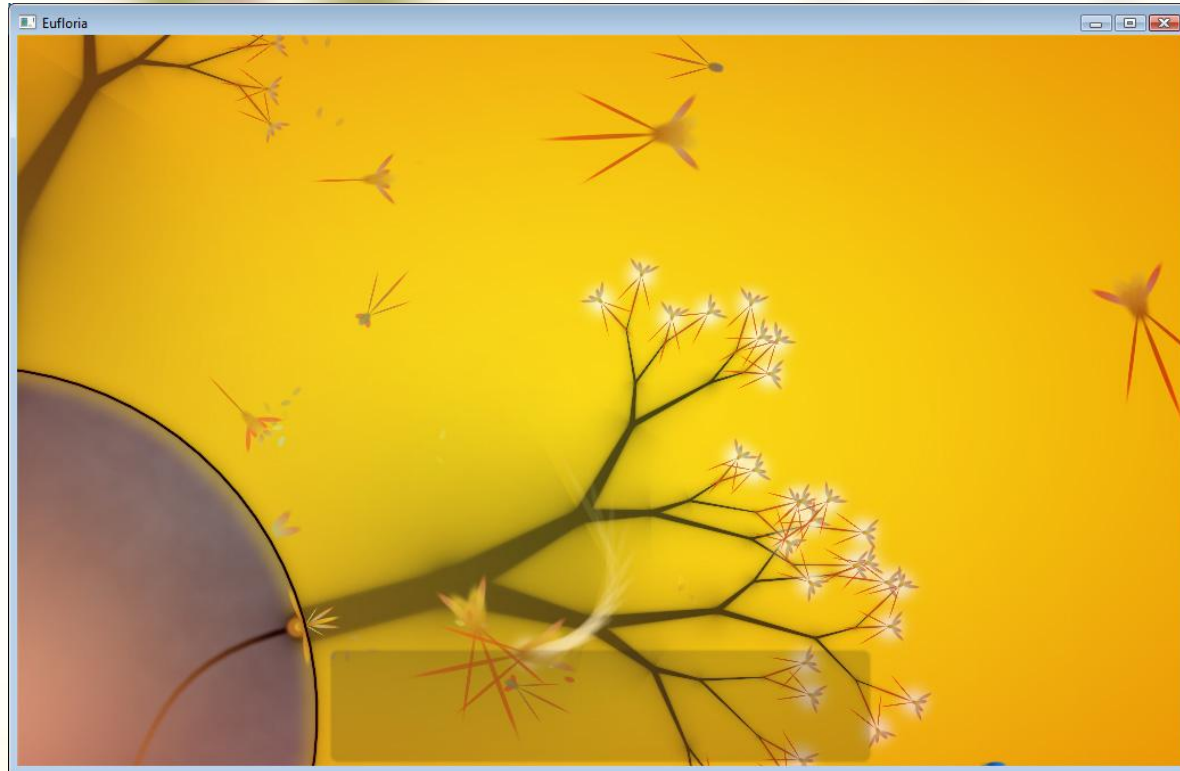
Aesthetics– *Data Driven*



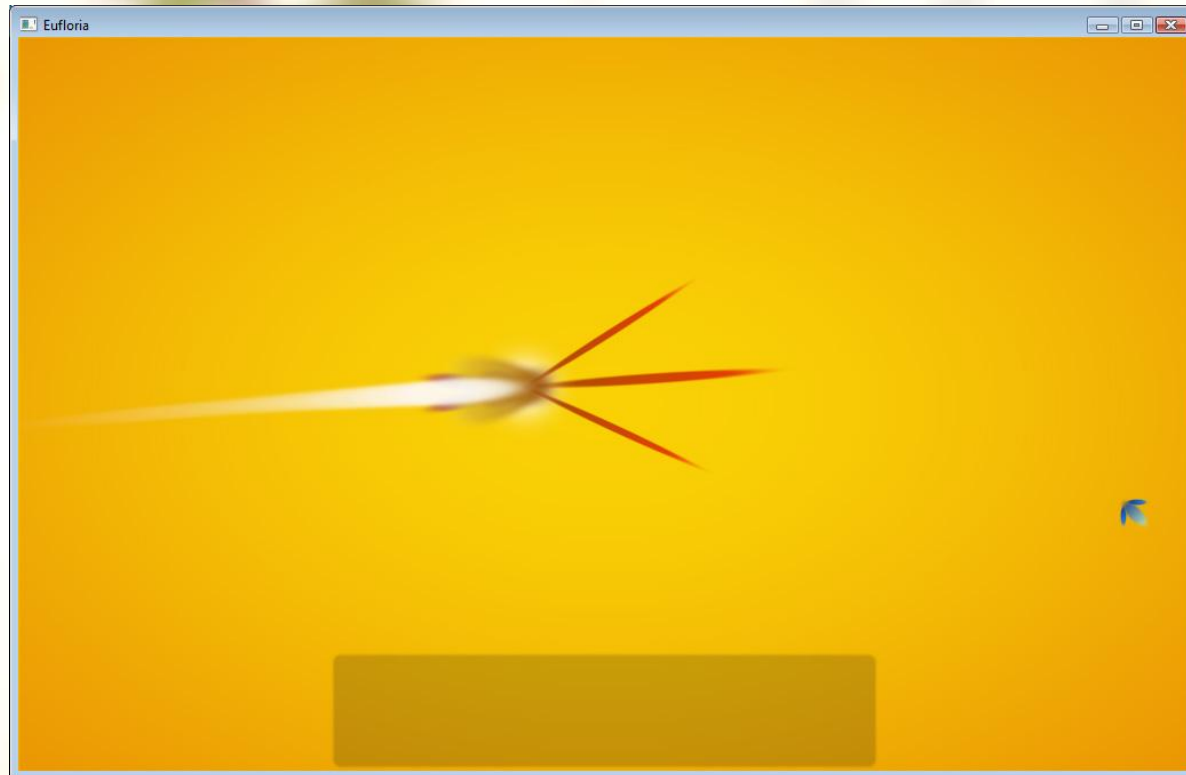
Aesthetics– *Data Driven*



Generated Content– *User Generated*



Aesthetics– *Data Driven*



Aesthetics – *Negative Space*

- Subject is *positive space*, Space around it is *negative space*
- What is NOT there, helps define what IS there
- Strong tradition that can be studied
- Good use requires LESS resources = **Indie friendly**
- Data driven visuals are powerful and flexible

More With Less

Design & Psychology



Design & Psychology

- Closure
 - Brain can't help constructing connections and meaning

Design & Psychology – *Closure*

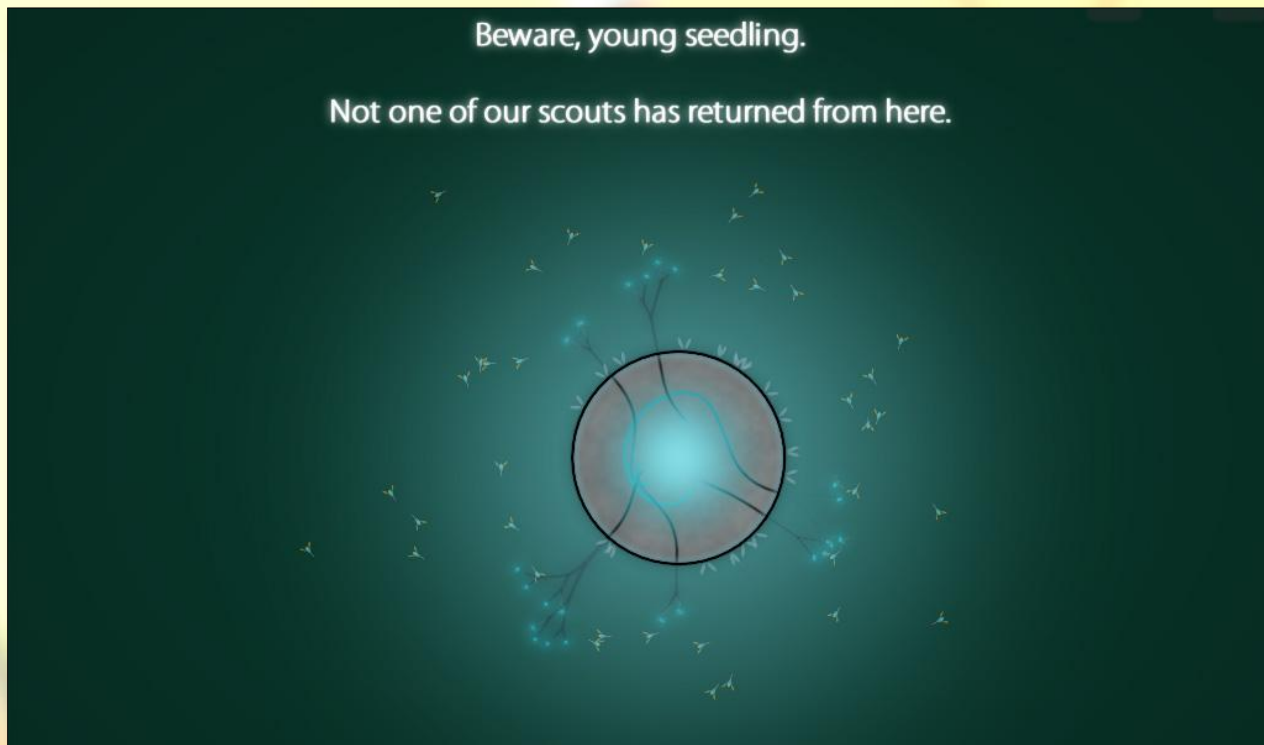




MOVIECLIPS.COM



Design & Psychology – Closure



Design & Psychology

- Closure
 - Player fills in the blanks, VERY powerful
 - Narrative can come from tiny story snippets
 - Use few but evocative details to suggest a whole world

Design & Psychology

- Closure
- Dynamic levels! Grow your own!



IRNEFON
Energy
Strength
Speed



Core Energy: 104
Trees: 2/5
Seedlings: 29
Enemies: 0



Design & Psychology

- Closure
- “Grow” your own levels
 - This is not cosmetic! The visuals represent gameplay meaning and feedback



Design & Psychology

- Closure
- “Grow” your own levels
- Systemic design: Territorial life cycle

Design & Psychology

- Closure
- “Grow” your own levels
- Systemic design: Territorial life cycle
 - Level appearance is subject to hunter prey cycles.

Design & Psychology

- Closure
- “Grow” your own levels
- Systemic design: Territorial life cycle
 - Level appearance is subject to hunter prey cycles.
 - Constantly evolving/renewing levels

Conclusions



Conclusions

- **Assets:** Generated content frees up dev-time
 - Procedural, user generated, nature inspired
- **Aesthetics:** Indie levels benefit from “less is more” approach
 - Negative space, data driven
- **Design:** There are alternative ways to look at levels
 - Closure psychology, “grow” levels, subject to dynamic systems

Questions?

www.rudolfkremers.com

Rudolf@omni-labs.com