


PASTEL
COOKIE
Aqua

PASTEL COOKIE + Soda

ENVIRONMENTAL IMPACT

Sustainability:



LIFE CYCLE ANALYSIS:

- over its lifetime, product goes through many stages
- identify impacts of each stage
- sum them to get overall environmental impact

EMBODIED CARBON:

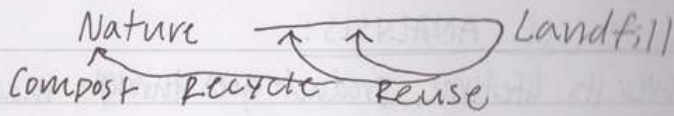
- carbon footprint, Global Warming Potential
- units kg CO₂ eq ← "equivalent"

9.9.25

ENVIRONMENTAL IMPACT

SUSTAINABLE DESIGN:

- close loops (on material & energy flow)

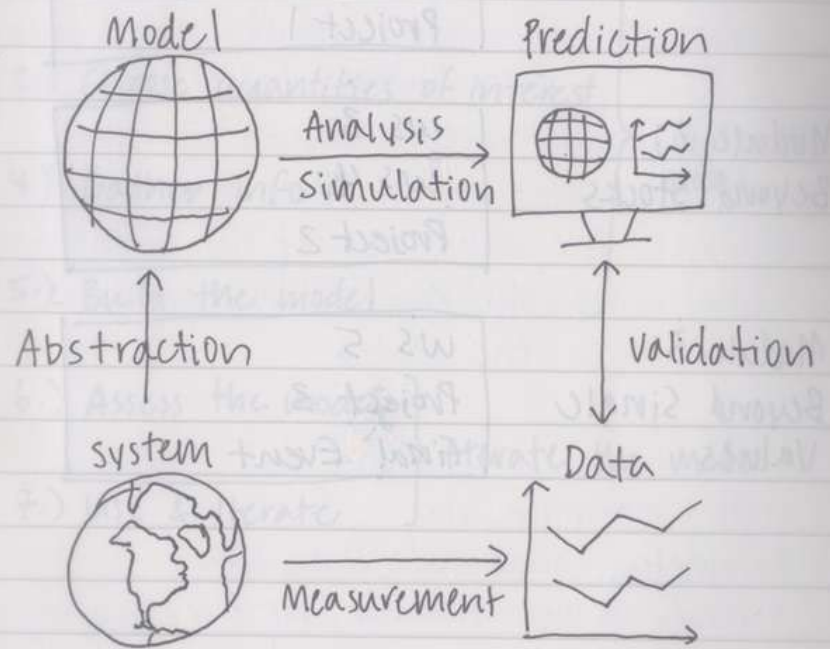


- coordinate nutrients
 - ↳ biological nutrients vs. technical nutrients
 - ↳ don't mix, or make easy to separate
- Light weight
 - ↳ reduce material
- Low impact materials

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MODSIM INTRO

"How to pose and answer scientific questions using computational models"



"All models are wrong, but some are useful"

"A model can only be 'good' if it helps us answer a question"

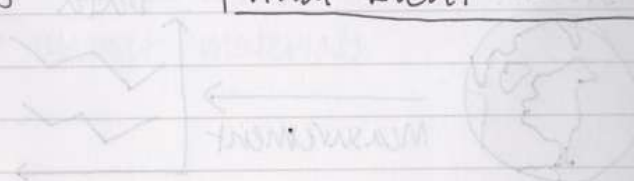
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COURSE STRUCTURE

Module 1: Modeling w/ Stocks	Course Intro WS 1 WS 2 Project 1
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Module 2: Beyond Stocks	WS 3 WS 4 Project 2
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Module 3: Beyond Single Values	WS 5 Project 3 Final Event
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MODELING PROCESS

- 1.) start w/ a question } Pose a question
 - 2.) Define the system
 - 3.) Choose quantities of interest
 - 4.) Gather info
 - 5.) Build the model
- } Create the model
- 6.) Assess the model
 - 7.) Use & Iterate
- } Iterate the model

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SPAM

- essential components of a model

State: info you keep track of over time
(what's changing?)

Parameters: info that doesn't change over time
(what's the setup?)

Action: how the state changes over time
(what are the rules of change?)

Metrics: The values you get out of the model
at the end (not always something
in the state)

ex. fish:

State - population size

Parameters - growth rate, lake size

Action - @ each timestep, pop. ↑ or ↓ according
to current pop. & parameters

Metrics - Max. Pop.

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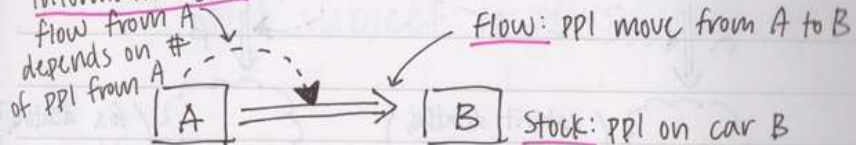
STOCK & FLOW

(aka compartmental model)

- Boxes = stocks, count of things in a pop.
- Arrows = flows between stocks, rate of things moving between stocks
- Dashed Lines = Information Links, show which stocks affect a flow (goes stock to flow!)

Information Link:

Flow from A depends on # of ppl from A



$$A_{t+1} = A_t - a A_t$$

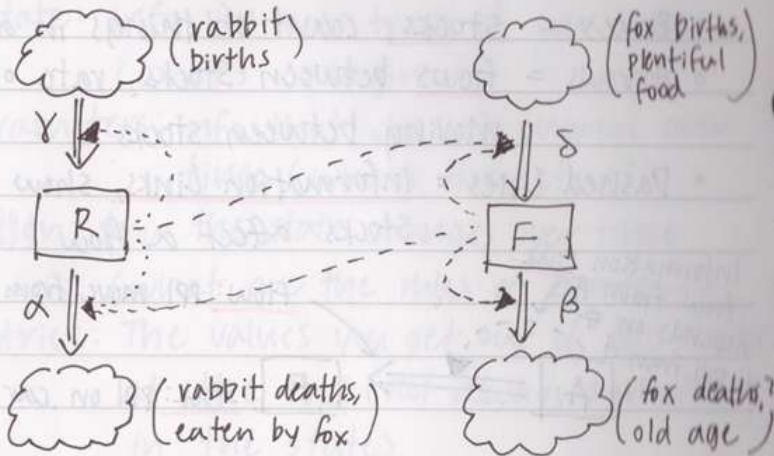
$$B_{t+1} = B_t + a A_t$$

- Clouds = Sources & Sinks
- Law of Mass Action: If there are multiple related stocks, then each stock value multiplies the flow parameter

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STOCK & FLOW

ex. Rabbits & foxes



Update Rules:

$$R_{i+1} = R_i + \gamma R_i - \alpha R_i F_i$$

$$F_{i+1} = F_i + \delta F_i R_i - \beta F_i$$

Law of Mass Action!

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MIND - BRAIN DIVIDE

CARTESIAN DUALISM:

- separation between mind & brain
- matter includes body & brain
 - ↳ exists in a physical space
 - ↳ follows physical laws
- mind is composed of thoughts
 - ↳ not subject to physical laws

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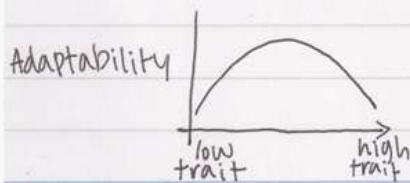
PERSONALITY

THREE-LEVEL FRAMEWORK:

- personological framework
 - ↳ attempts to describe whole person
- descriptive framework
 - ↳ description vs. explanation

1.) Dispositional Trait

- Traits are:
 - ↳ decontextualized (stable across situations/"states")
 - ↳ relatively stable across lifespan
 - ↳ continuous
 - ↳ fairly genetic (from birth)
 - ↳ better to be in the middle generally (evolution-wise)
- Five-Factor Model ("The Big Five")



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2.) Personal Concerns:

- contextualized within time, place, social role
- concerned w/ motivation
- Erikson's model, Maslow's hierarchy
- not derivatives of traits, but not completely separate
- Limitations:
 - ↳ no story, meaning

3.) Narrative Identity:

- internalized, evolving story of the self
 - ↳ "who I am"
- reconstructed past + perceived present + imagined future
- life stories provide unity, purpose
- Redemption Sequences vs. Contamination Seq.
 - ↳ RS = positive mental health
- Look for themes
 - ↳ more stable than content, more predictive

PERSONALITY

Level 1 + 2 + 3 = Personality/self

Level 3 = Identity = Narrative Identity

CULTURE:

- context which personality is expressed
- Traits - display rules
- Personal Concerns - content of motivation, values, needs, developmental stages
- Narrative Identity - menu of possible scripts

SUMMARY:

- three levels aren't necessarily an integrated system but operate at least partially independently

↳ Assessing all three gives description of the whole person (personological)

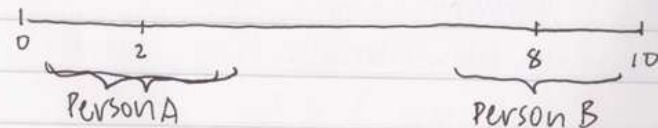
TRAITS

FIVE-FACTOR MODEL:

- Openness to Experience
- Conscientiousness - self-discipline
- Extraversion - sociability, "positive affectivity"
- Agreeableness
- Neuroticism - "negative affectivity", tendency to experience negative emotion
- five traits are unrelated, orthogonal
 - ↳ but traits can influence the same behavior

SET-POINT THEORY:

- theory of traits, based on theory of weight
- can move around a bit (w/ work) but can't drastically move around



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TRAITS

USEFULNESS:

- Non-conditional - stable across situations & time

↳ "stable" refers to rank order

- Comparative

LIMITATIONS:

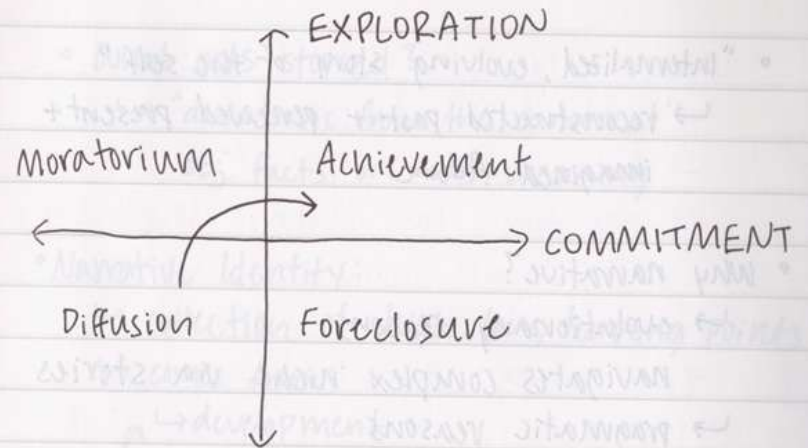
- Broad & general

↳ "the psychology of a stranger"

- don't predict behavior well

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IDENTITY STATUSES



- everyone starts @ Diffusion
 - ↳ Moves to Moratorium, asks "who am I"
 - ↳ Achievement, finds the answer
- Not a great model for identity, categorical

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NARRATIVE IDENTITY

- "Internalized, evolving story of the self"
 - ↳ reconstructed past + perceived present + imagined future
- Why narrative?
 - ↳ evolutionary reasons
 - ↳ navigates complex niche via stories
 - ↳ pragmatic reasons
 - ↳ cognitive reasons
 - ↳ taking info, making meaning through context
 - ↳ ethical reasons
 - ↳ respect ppl's stories
 - ↳ empirical reasons
- Narratives matter:
 - ↳ indicate life outcome
- begin to form during adolescence

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NARRATIVE IDENTITY

- What gets storied?
 - ↳ "deviations from the canonical"
 - ↳ obj. facts or subj. meaning
- Narrative Identity:
 - ↳ collection of high, low, turning points
 - ↳ comes from:
 - ↳ development
 - ↳ crucible of Adolescence
 - ↳ Biological Transformation, Social Expectations
 - ↳ Cognitive Maturation
 - ↳ Autobiographical memory (unreliable)
 - ↳ Master narratives
 - ↳ "scripts on the menu", cultural
 - ↳ Redemption = American M.N.
 - ↳ help us feel "normal"
 - ↳ Nexus of self & society
 - ↳ Both protag & narrator

NARRATIVE IDENTITY

- Counter-Narratives:
 - ↳ Contradict: nonbinary
 - ↳ Subversive: cooption of slurs
 - ↳ over time, can change M.N.
- Features of Narrative Identity:
 - ↳ key scenes: high, low, turning
 - ↳ characters: +, -
 - ↳ themes: show more stability than content

Affective:

Redemptive, Contamination

Motivational:

Agency, Communion

Integrative Meaning:

Assimilation, Accommodation

Structural Aspects:

Coherence

not
orthogonal

IIIS

- Introduce
 - ↳ contextualize!
- Insert
 - ↳ take minimum amount that has a point
- Interpret
 - ↳ analyze language (use Oxford dict!)
 - ↳ don't just summarize or go too far away
- Show
 - ↳ good but not required
 - ↳ point back to larger argument

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PERSONALITY OVERVIEW

3 Levels

- Big 5 (Ocean) (1)
 - Personal Concerns (2)
 - Narrative ID (3)
- } influenced by culture

- Stages of development (2)
- Hierarchy of needs (2)
- I.D. stage → statuses $\xrightarrow{\text{Ex com}} (2/3)$
- Master Narratives (3)
- Themes (3)
- You are narrator + protagonist (3)
- Value gap (history) (3)
- adaptation (3)

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COMMUNICATION

SYNC
(SYNCHRONOUS)

I2C

SPI

USB

Ethernet

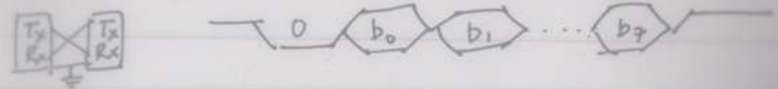
CAN

ASYNCH
(ASYNCHRONOUS)

UART

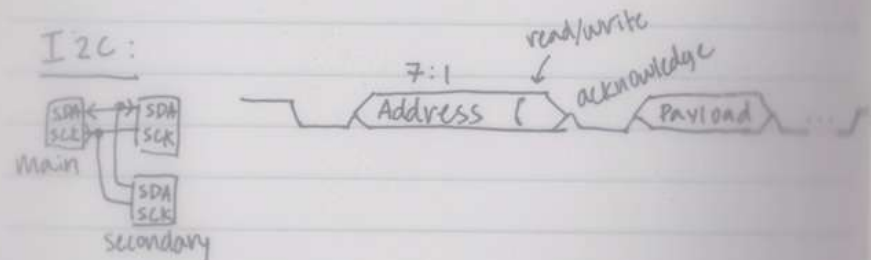


UART:



- line default is high, start bit is low
↳ 0 tells it when to start

I2C:



COMMUNICATION

СЛУША
(СЛУШАЮЩИЙ)

СЛЫША
(СЛЫШАЮЩИЙ)

СЛЫШ

СЛУШ

СЛУ

СЛУ



СЛУШАЮЩИЙ

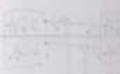
СЛУ

СЛУШАЮЩИЙ



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СЛУШАЮЩИЙ



СЛУШАЮЩИЙ

Postmodernism

- challenges conventions of modern thought
- social construction