



The Representative Student

Stephen Downes

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Representative...

- ... typical, a model of
- ... one who engages in acts of representation
- ... one who stands for others



Two challenges

1. Modeling

- act of learning as modeling
- Proof of learning theory as modeling



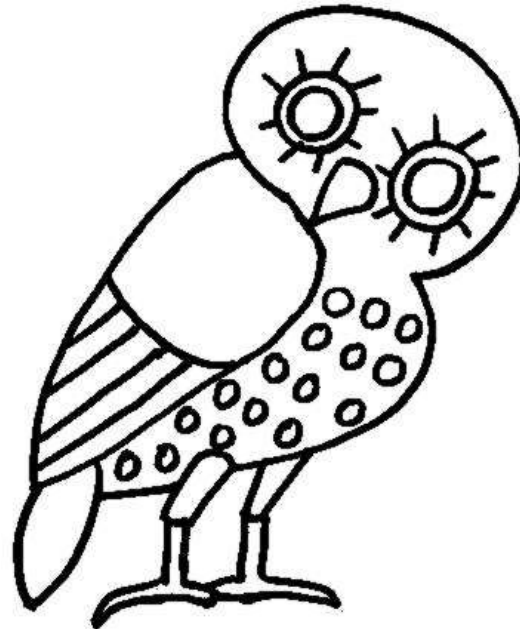
2. Adaption

- Student as adaptive
- System as adaptive

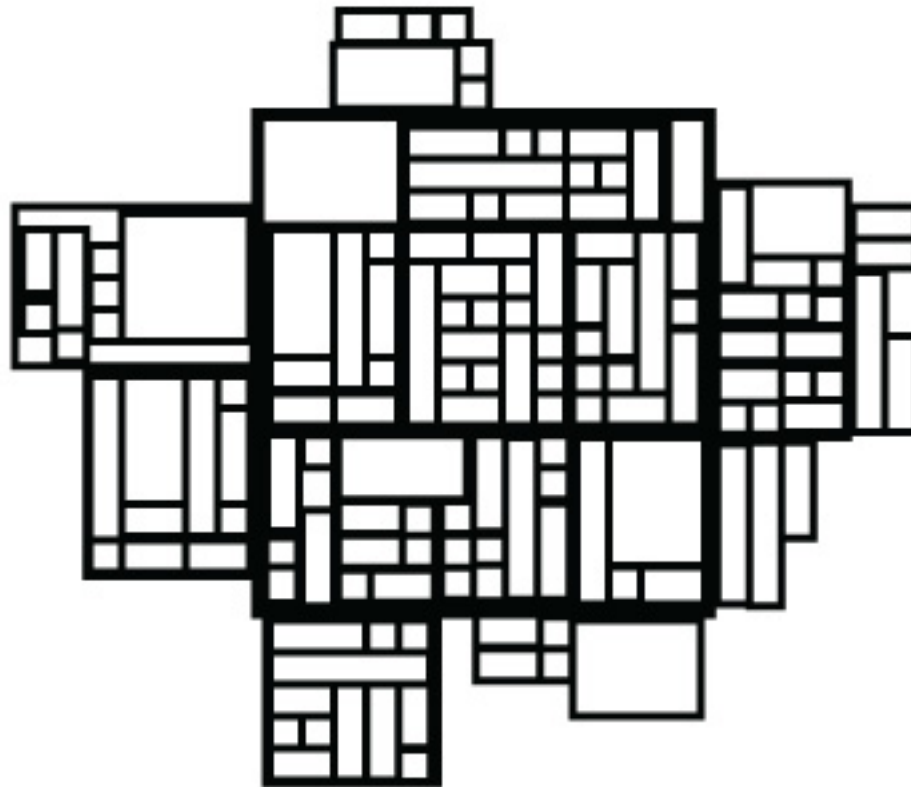


- Is it better for the student to adapt to the system, or for the system to adapt to the student
- Not simply a *deus ex machina* question
- Not a duality, not polarization – just a frame to discuss this in

- Attempt to respond to both = connectivism
- Course structure models / is real world structure
- Activity to receive, work with, create ideas/resources/objects/models



- A model is a representation
- Representations = complex constructions



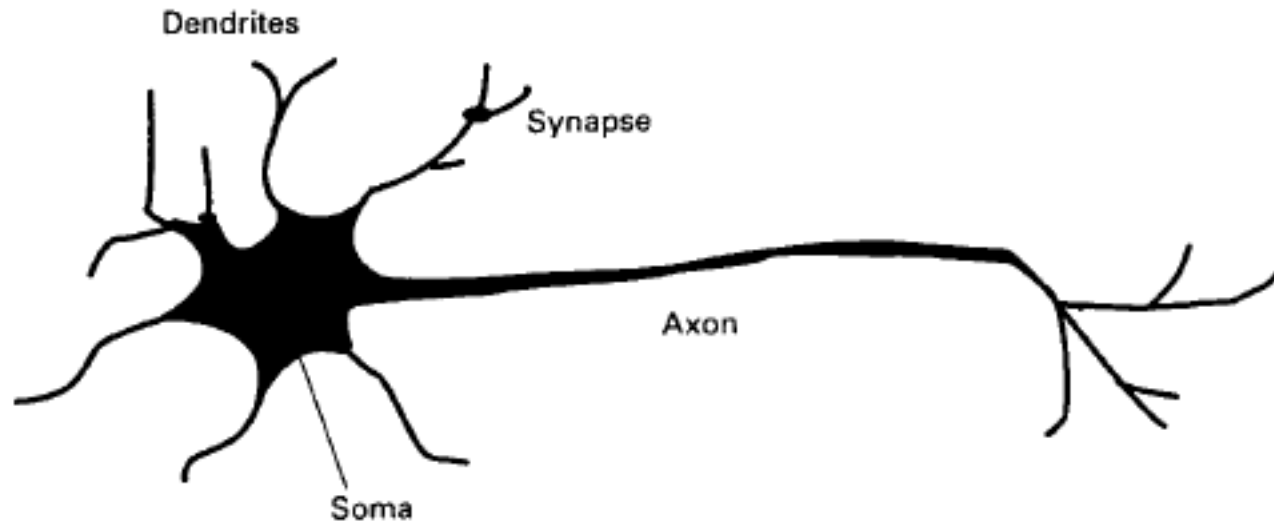
The Connectivist model

- Basically equates model building with network building
- ‘what happens in the neuron is what happens in the network’
- George – seems sometimes to depict it as one and the same thing – the stuff happening inside a person *is* the stuff happening outside



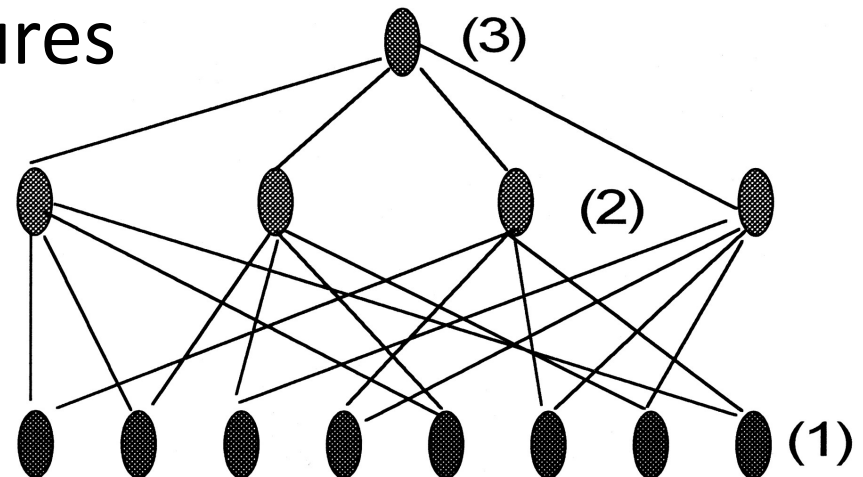
Simple Connectivism

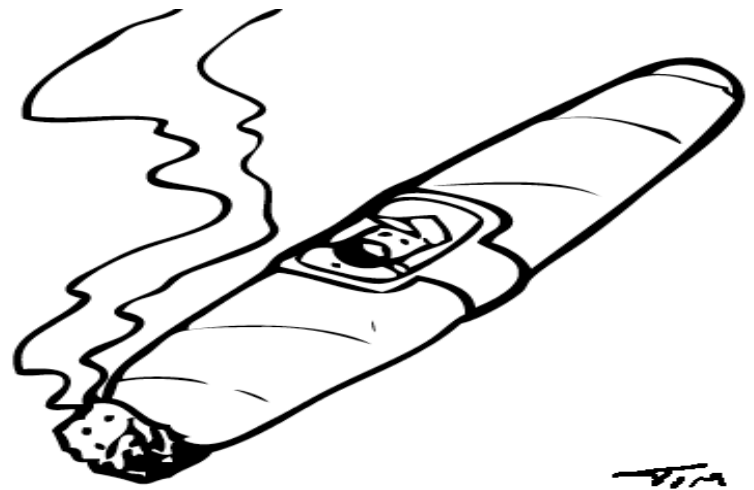
- What happens in the neuron is what happens in the network...
- The neuron connects
- Ergo, the network connects



Complex Connectivism

- What happens in the neuron is what happens in the network
- Network = complex representational structures
- Ergo, what the neuron is doing = complex representational structures

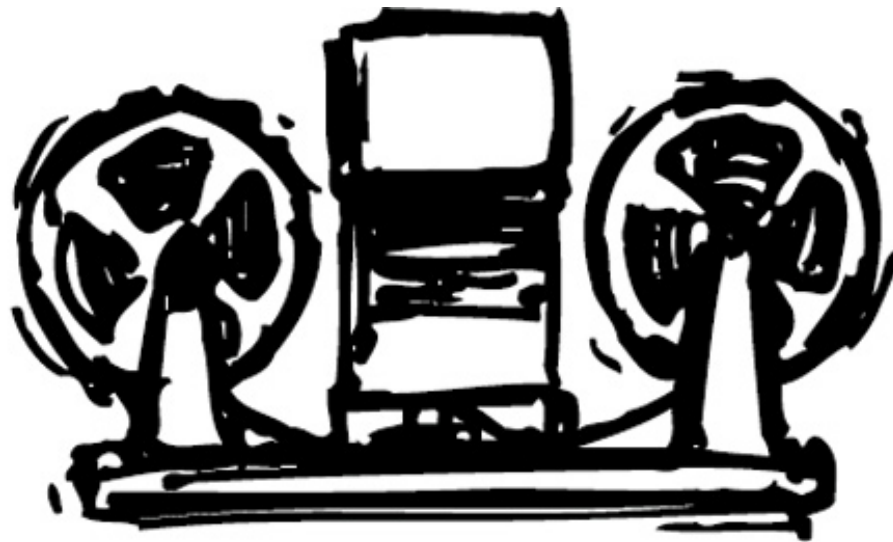


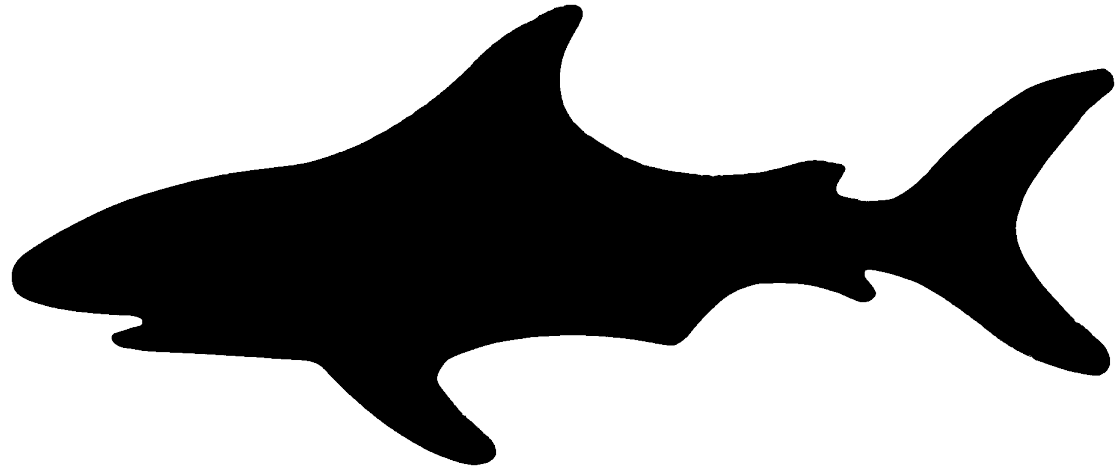


- Simple Connectivism:
thoughts of cigars ---> everything is made of cigars
– ie. Nature of mind informs nature of world
- Complex Connectivism:
Thoughts of cigars <--- various meanings of ‘cigars’
– ie. Nature of world informs nature of mind
- Like Dennett’s ‘intentional stance’, but with connections

Critical Literacies

- CritLit = an attempt to get at what those complex representational structures look like
- Such that what's happening in the network (society) = what's happening in the network (person)

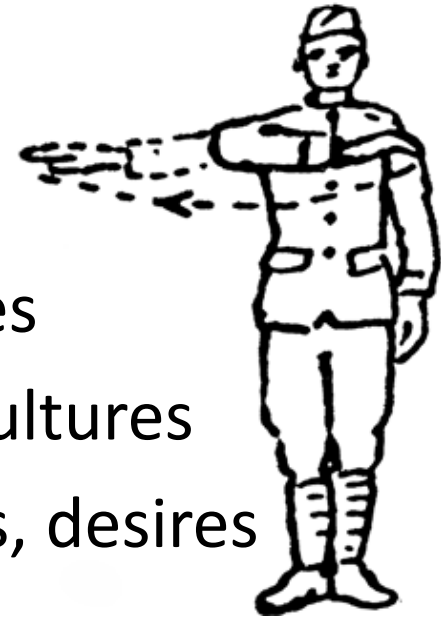




- What are those things – three aspects of ‘representation’
- ... typical, a model of (aggregation)
- ... one who engages in acts of representation (remix, repurpose)
- ... one who stands for others (feed forward)

Critical Literacies

- The six critical literacies:
 - Cognition – argument, explanation, definition, description
 - Change – patterns of change
 - Pragmaticism – use, effect, cause
 - Syntax – construction, possibilities
 - Context – frames, perspectives, cultures
 - Semantics – meaning, truth, goals, desires



These are all:

- Aspects of experience
 - Aspects of thought
 - Aspects of communication
-
- They are at once the constituents of these models, but also the skills involved in understanding, manipulating and communicating these models



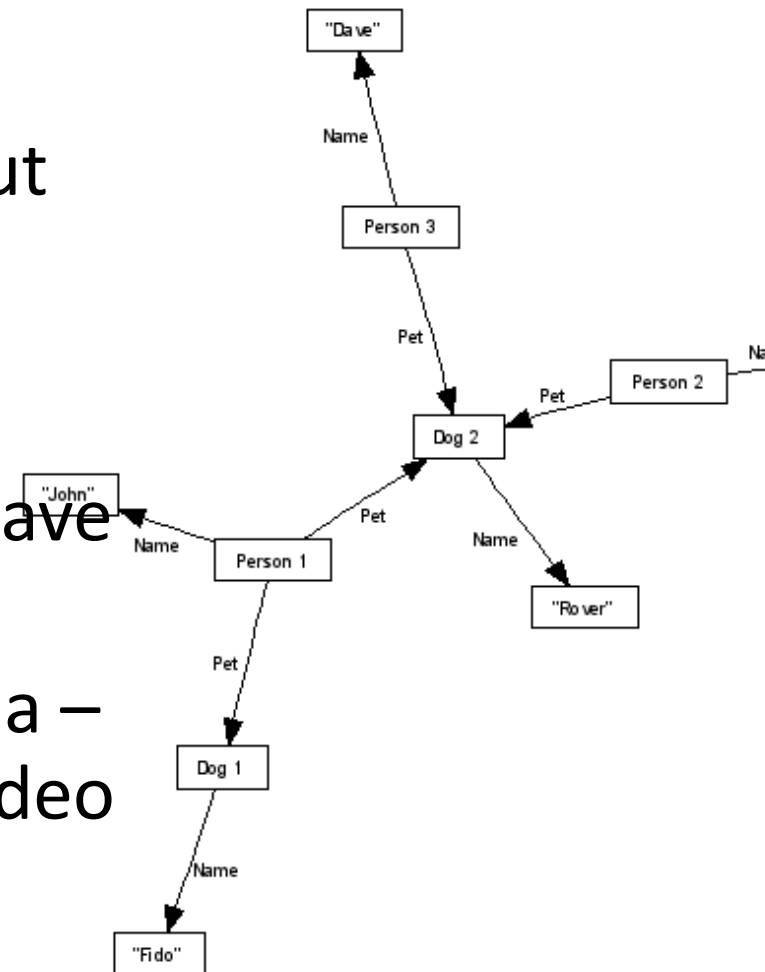
The Linguistic Pull

- Pylyshyn – the “objective pull” – the tendency to view representations in terms of the properties of the represented objects
- “Linguistic Pull” – the tendency to view the objects represented in terms of the properties of the representations
- (eg. ‘meaning of life’)

靈
氣

Beyond Linguistic Entities

- We are learning today that representations may be constructed (found, grown) out of anything – that linguistic properties are *just one set* of properties objects/representations can have
- Cross the six literacies against various representational media – mathematics, audio, photo/video





- Gardner's multiple intelligences are multiple representative systems
- (what the heck do you think interpretive dance *is*?)

What to Represent?

- Back to adaptive software – what do we represent about students?
- It's tempting to use *propositions* – triples – to generate these representations (isn't that what an adaptive system would do?)
- What is it to *learn* about a student?



Tyranny of the Drop-Down List

- Jaron Lanier – You are not a gadget
- Representations are abstracts – the more formal, the more abstract
- Asif: feels like it sterilizes natural language



How to Represent

- Linguistic structures
- Mathematical representations
- Videos, paintings, songs
- Gestures, behaviours
- More...?



Forms of Models

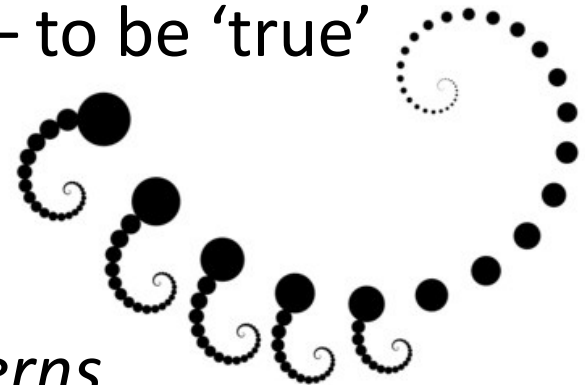
can = forms of simulations, forms of games

- Quiz – propositional knowledge
- Branch & Tree – process knowledge
- Database – system knowledge
- Simulation – spatial knowledge
- More? Improv?



Cognitivism vs Connectionism

- Cognitivism
 - representations are like sentences (triples, etc)
 - Representational realism – grammar guaranteed by properties of mind/world – to be ‘true’
- Connectionism
 - Representations are like *patterns*
 - Representational realism – patterns guaranteed by properties of mind/world – to *resemble*



Limits of Language

- Cognitivism vs Connectivism not a dualism – cognitivism is a decision to focus on a *certain set* of patterns
- But the patterns are limited by the vocabulary
- Also, false perception of precision (= believing, based on identity of word, there is an identity of understanding)



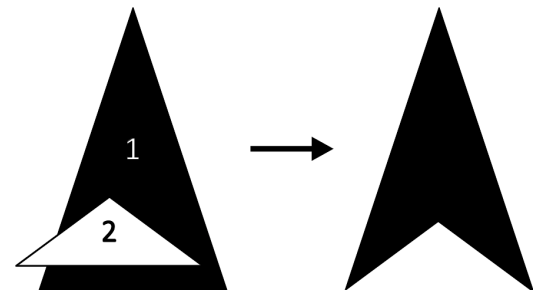
The Resemblance Theory of Mind

- 'A' is a model of 'B' because A 'stands for' B

VS

- 'A' is a model of 'B' because *A resembles*.

Compare the sorts of inferences that can be made – the sorts of things that can be said about cognition, pragmatics, etc. based on *resemblance* rather than representation



Similarity

- Logic of similarity = a logic of associations
- Four mechanisms of association
- Semantics of similarity = degree of resemblance (*not* contra others, 'distance')
- Tversky – feature-based similarity
- Stalnaker – salience
- Inference = a form of similarity-based production



The Representative Student

- Compare... the sort of inferences a triple-based representation can make about a student
 - Equivalent to drop-down lists?
 - Based on a selected set of patterns
- But – computationally – is there any other way?



Constructionism



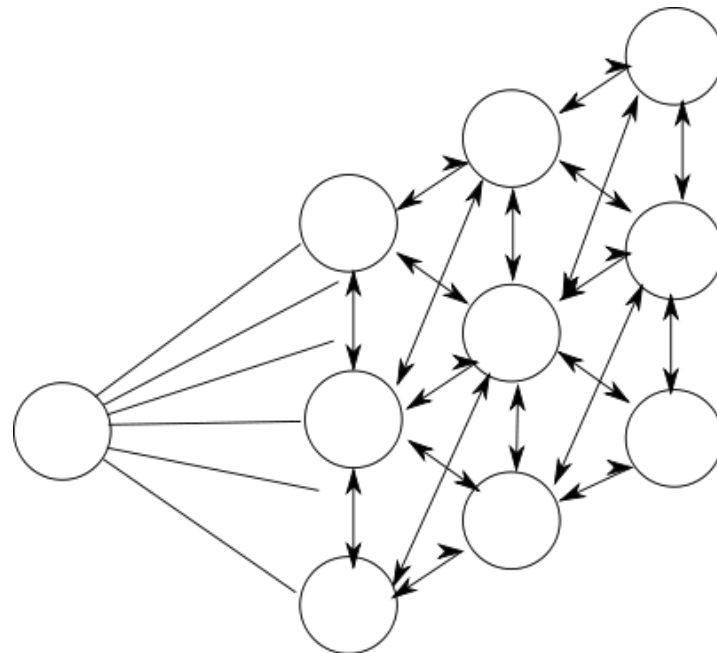
- What happens in the network is what happens in the neuron
- The task of the student (in the network) is to build a representation (of his/her ideal self)
- This generates a *representation* of the ideal self in the neuron (= in the student) = resemblances with the model

Constructive Adaptation

- = opening new vistas to the student
- = worlds, based on *resemblances* with the students' *own construction*, open up
- What are these worlds?
 - Sentential structures (= propositional knowledge)
 - Models, simulations, representations
 - Networks, people, groups, structures



- the network surrounding the student resembles the student's representation of him/her self, based on the constructions the student creates, based on aspects of the world (role models) he/she would like to resemble



Stephen Downes

<http://www.downes.ca>

