

Free software and education Fighting the digital divide

Stephen Downes, *Córdoba, Argentina April 29, 2010*

Free Software

- The meaning of 'free'
 - Free 'libre'
 - Free 'gratis'
- The meaning of software
 - Algorithms, principles, mechanisms
 - Digital content, representations
 - Software is writing, creating, publishing

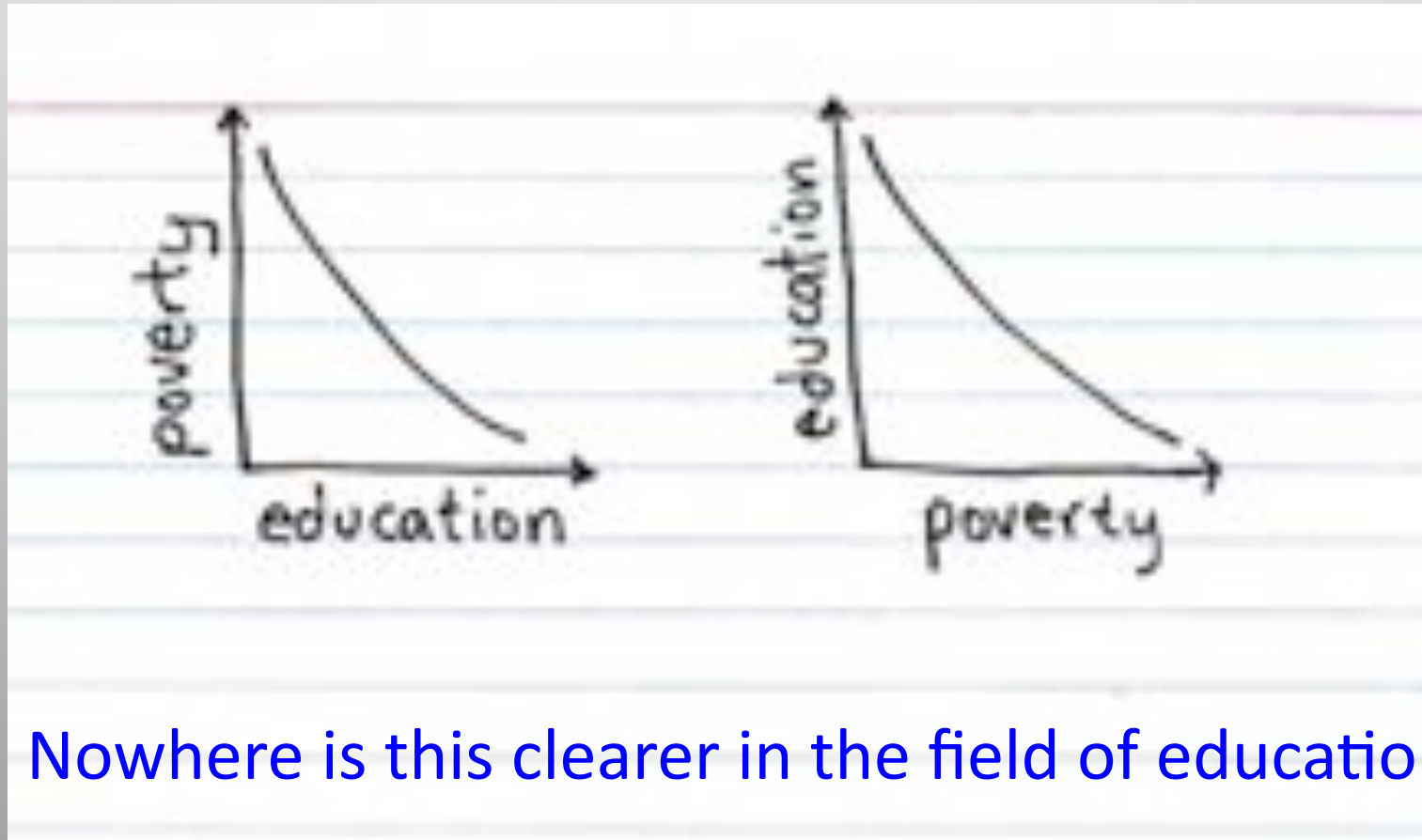
Digital Divide

- Not just a question of poverty
- Also a question of liberty

The freedom of the press belongs to those who own one

- Free 'libre' and free 'gratis' are tied together; we cannot address the economic without the social

Education



Nowhere is this clearer in the field of education

But why? Why do we need *free* learning?

Communication

- The theme of *this* talk is communication
 - Education is communication
 - Free learning is open communication



Two Subthemes

- In society, we communicate with each other through our artifacts
- openness is necessary for this kind of communication



1. Ubiquitous Communication



I want to talk about how easy it is to do what I do

The rule of threes (or fours)

- Winging It
- Everybody's guide to making speeches without notes



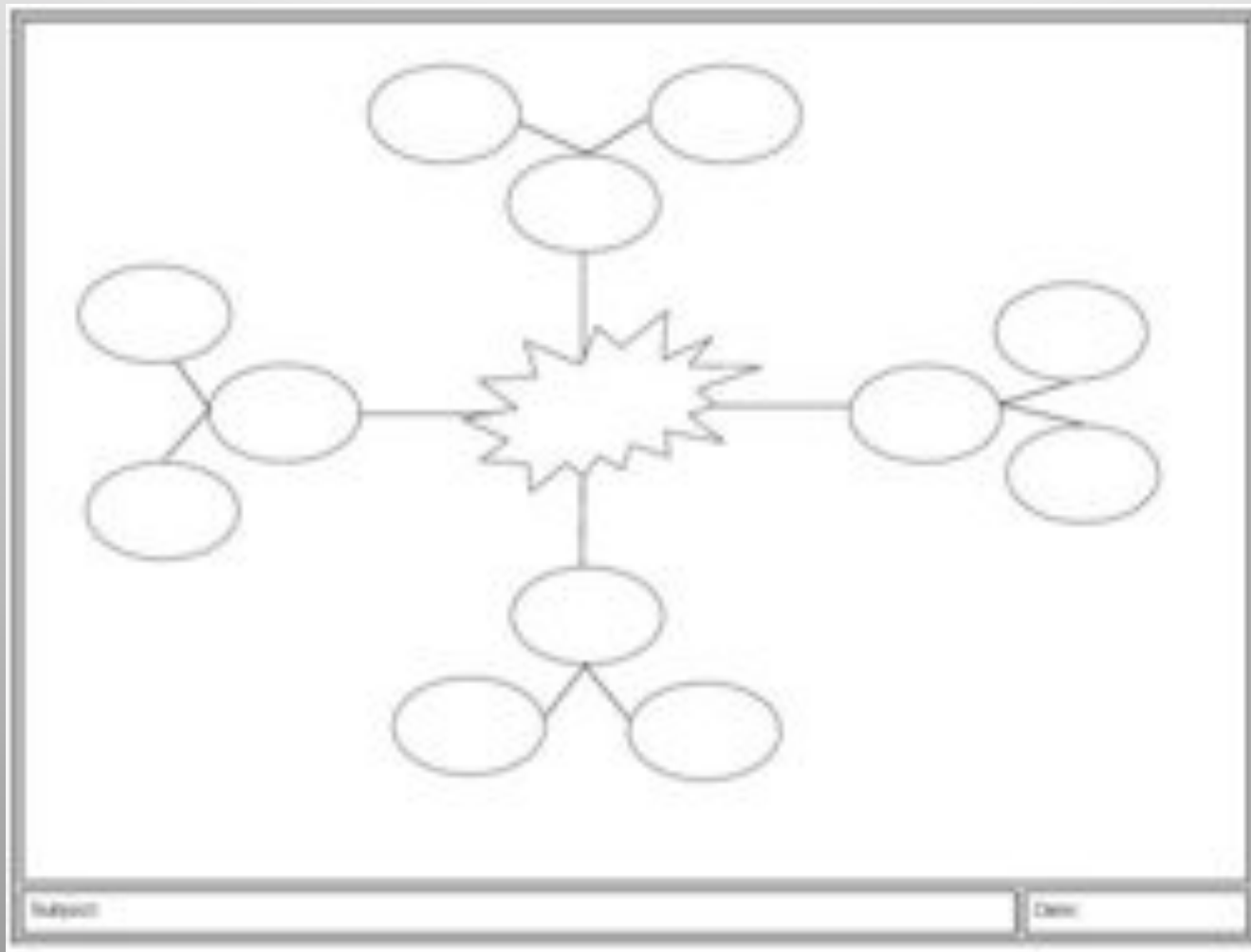


The idea: divide your topic into three (or four) major parts

Don't
do this



Simple Mind Map



http://www.mymindmap.net/Mind_Map_Templates.html

Don't
do this



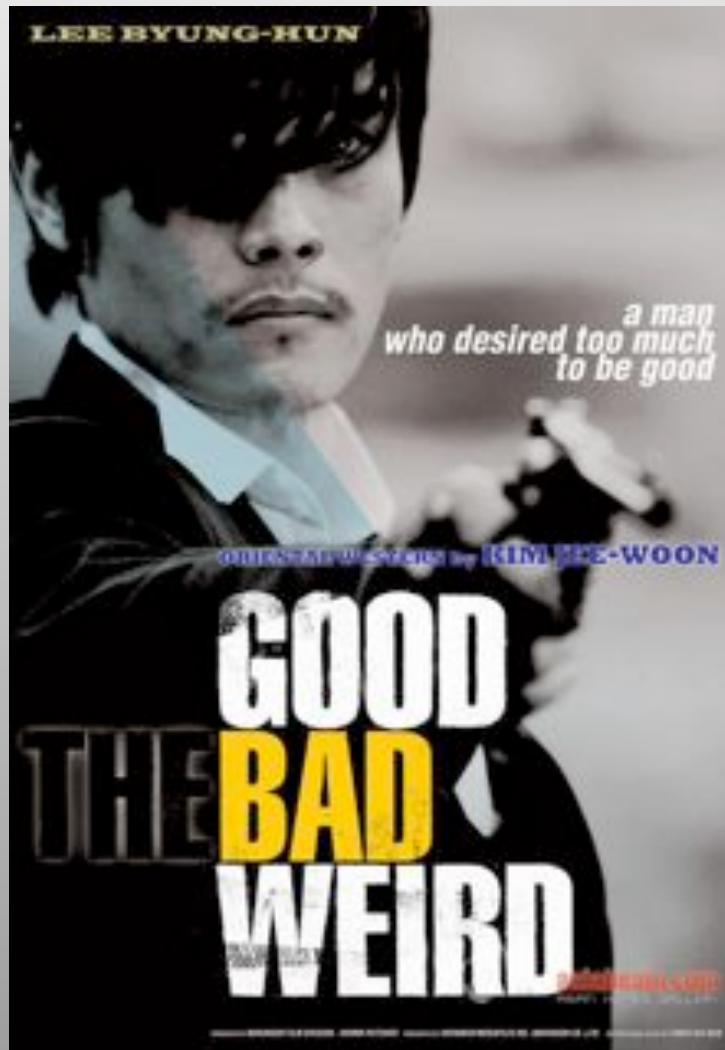
Rules of Three...

- Past
- Present
- Future



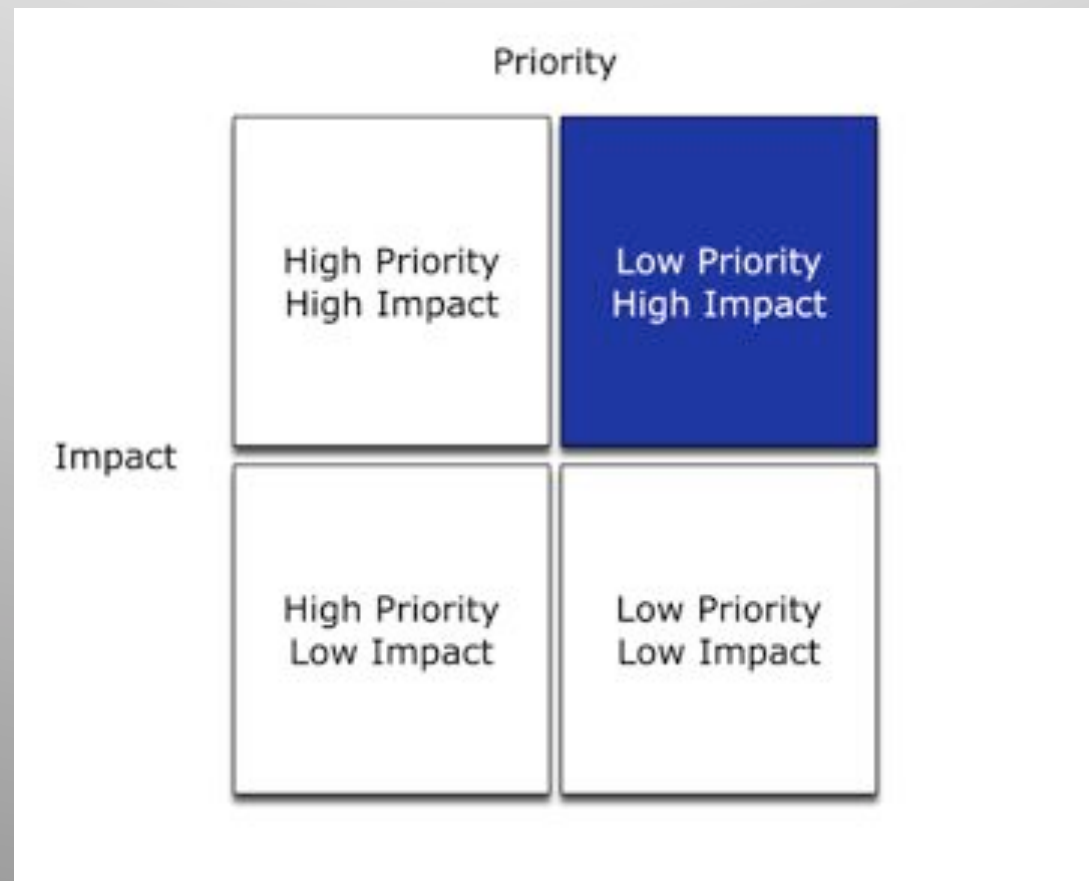
Rules of Three...

- Bad
- Good
- Better
(or ugly)
(or weird)



Rules of Four

- Four square diagram

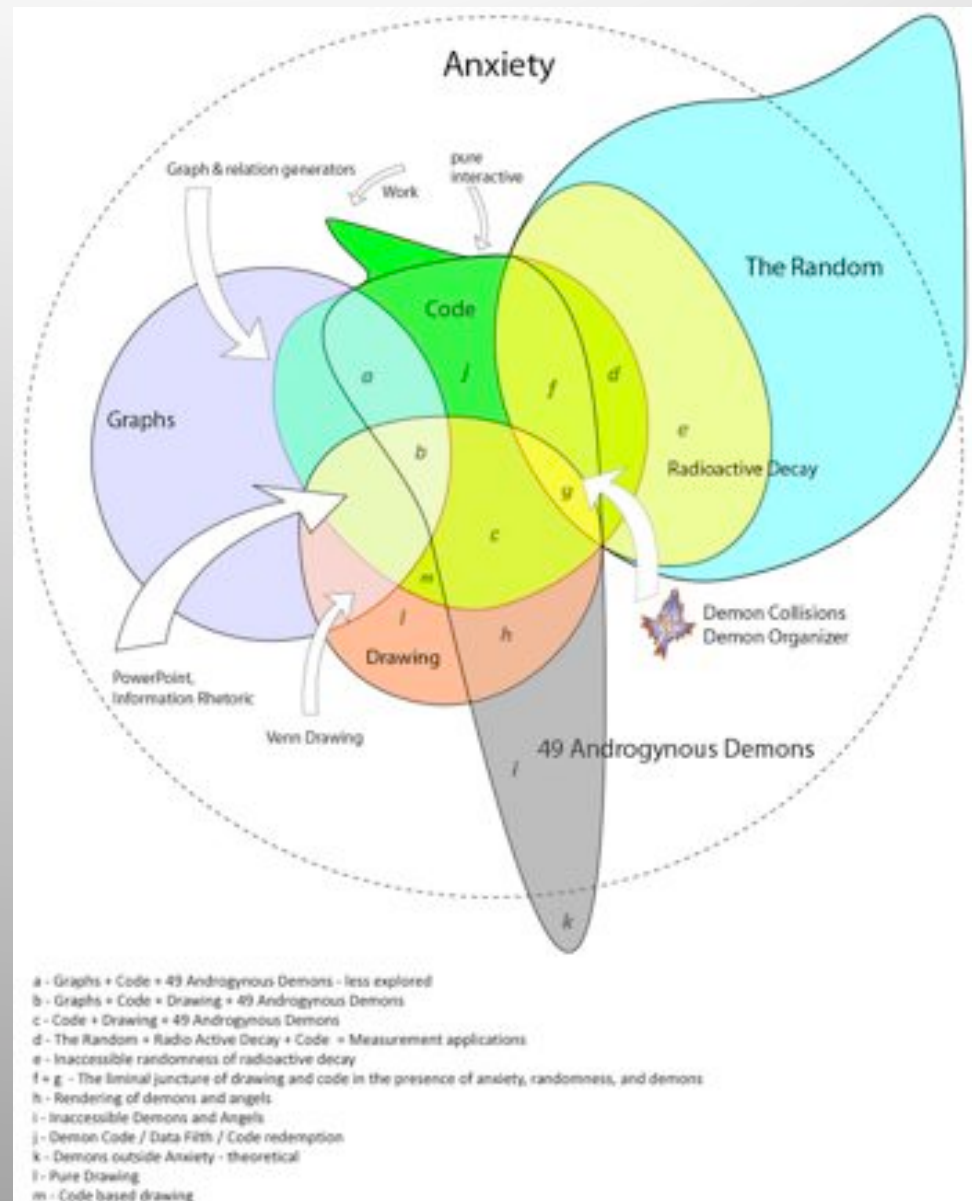


Rules of Four...

- Venn Diagram



Don't
do this



McLuhan – four questions

- What does the new medium enhance?
- What does it make obsolete?
- What previously abandoned thing does it retrieve?
- When pushed, what will the new media reverse into?

<http://johndilworth.com/20-marshall-mcluhan-four-laws-of-media>

Stallman – four freedoms

- Freedom to run the program
- Freedom to read and study the program
- Freedom to share the program
- Freedom to modify, and share the modified version

<http://www.gnu.org/philosophy/free-sw.html>

Propositional Logic

- And
- Or
- Not
- If-then



Programming

- Let $a = (\text{expr})$
- If-then
- For-next
- While



The
fundamental
tenet of
freedom is that
the capacity to
create, to
communicate,
is in everyone



- So...
- I want to reframe, and ask why this would be so expensive, why there would be a digital divide?



2. Paying People



Why will people create content if they don't get paid?

The Butterfly Thesis



<http://www.flickr.com/photos/durhamskywriter/2858347734/>

How We Get Paid

- Every work a bricklayer creates is an original work, but he doesn't get a patent or copyright for it



How We Get Paid

- Even a famous chef will share recipes freely



How We Get Paid

- I work for the government, and am paid to add to the social good



Content as a Byproduct

- Content is something we produce *anyway*
- It is a *byproduct* of the other activities we undertake
- And we are not paid for it, mostly
- We are paid for the *good we produce* while using and sharing content, not for the content itself
- In an economics of *value*, content would be free

Three Types of Goods



- Personal good

- “Personal publishing”
- Content production as definition of identity (boyd - <http://www.danah.org/papers/AAAS2006.html>)
- Personal marketing – e-portfolios (<http://www.educause.edu/ELI/Archives/EPortfolios/5524>)
- Personal learning (<http://www.downes.ca/presentation/237>)

- Corporate good

- Advertising or public relations (
<http://www.entrepreneur.com/marketing/publicrelations/prbasics/article62440.html>)
- Product information and support (
http://en.wikipedia.org/wiki/Product_information_management)
- Corporate learning initiatives (
<http://www-01.ibm.com/software/data/education/selfstudy.html>)

- Social or public good

- To communicate vital information, news, public health and policy changes (<http://www.snb.ca/>)
- To promote the community's culture and social values (<http://www2.parl.gc.ca/Content/LOP/ResearchPublications/prb0841-e.htm>)
- To promote research and development (http://en.wikipedia.org/wiki/Open_Archives_Initiative)
- Public Education (<http://www.schoolnet.ca>)

Yes of *course* people get paid to produce content – but we *all* produce content, it's how we as a society communicates with itself

... but why?



What is the purpose of all this communicating?

3. Associationism



The mechanisms described in section 1
are forms of association – they are
forms of reasoning



- Hume -

- Association versus deductive reason
- Scepticism of reason and inference
- Forms of association – similarity and contiguity

- Hebbian association

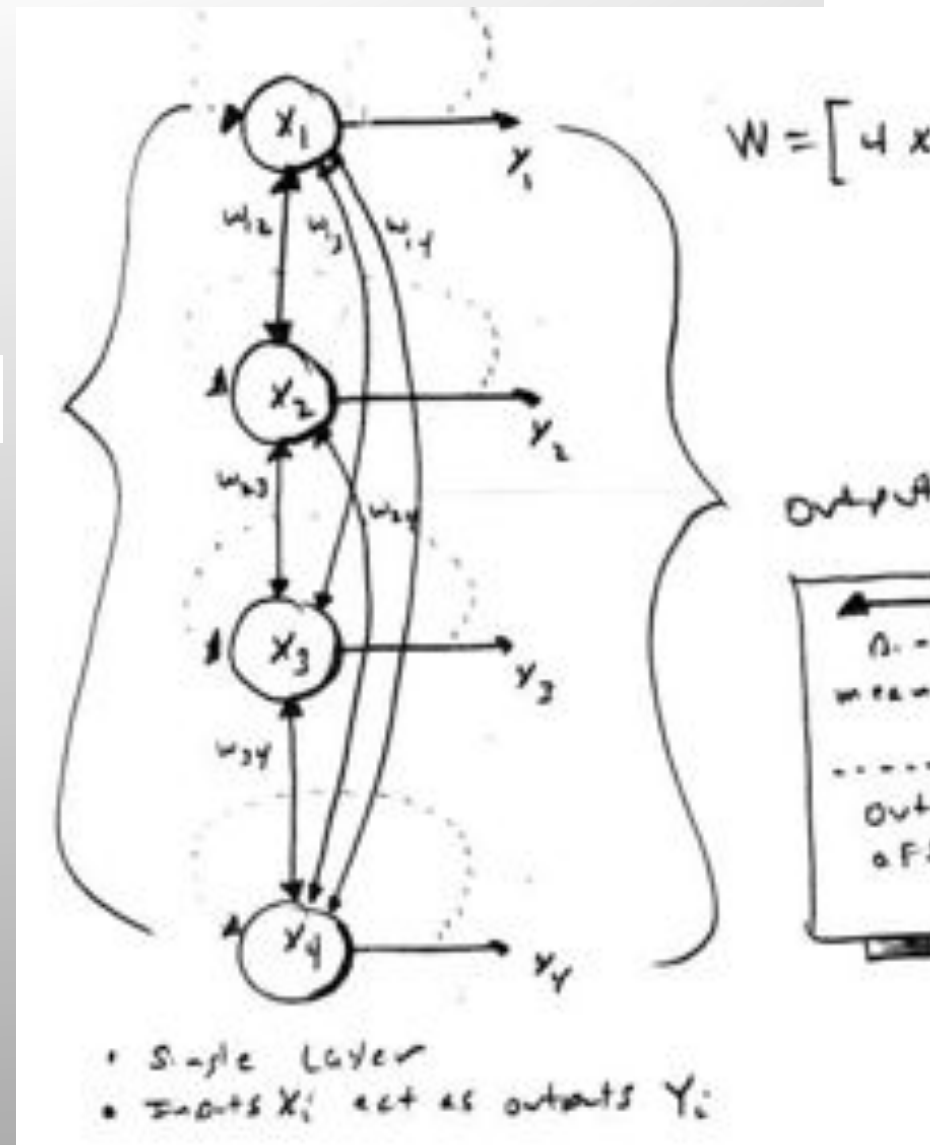
- Principles of inference
- forms of association



Self Organization

Network Learning... Inputs

- Hebbian associationism
 - based on concurrency
- Contiguity
 - Based on Proximity
- Back propagation
 - based on desired outcome
- Boltzman
 - based on 'settling', annealing



- Human associative memory – JR Anderson

- Distributed representation
- Holographic model



Connectivism

- Connective Knowledge
- The Connectivism course and experiments in reason

<http://connect.downes.ca>

Theme revisited – when we
communicate, we are cogitating as a
society



We as a society cannot think without a
clear and open mind



Stephen Downes

<http://www.downes.ca>





Themes of course

-Some things resemble other things
(patterns, rules, syntax)

-Some things stand for or represent
other things (semantics)

-Some things are used to do things
(prag)

-Some things are part of other things

Some things lead us to other things
(inference)

- Some things change into other things