MERGING ATOMS AND BITS TO HELP US ALL BE LESS DISABLED

THE CALMING CONVERGENCE

JOHN SEELY BROWN

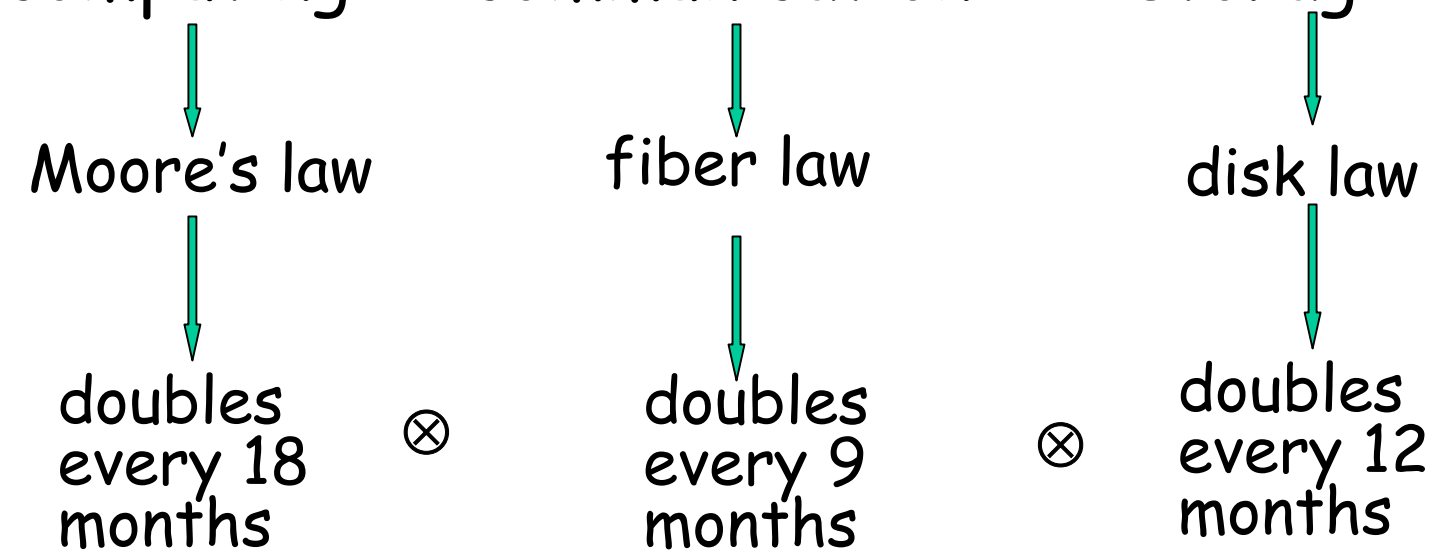
BUT COMPUTERS DON'T SEEM TO MAKE MY LIFE ANY CALMER.

LET THE VIRTUAL AUGMENT THE PHYSICAL

Fundamental dynamics--
(Pace of change of the digital infrastructure)

Digital power =

computing ⊗ communication ⊗ storage



hyper exponential pace of change

Fundamental dynamics--
(Pace of change of the digital infrastructure)

Digital power =

computing ⊗ communication ⊗ storage

Moore's law → doubles every 18 months

⊗

fiber law → doubles every 9 months

⊗

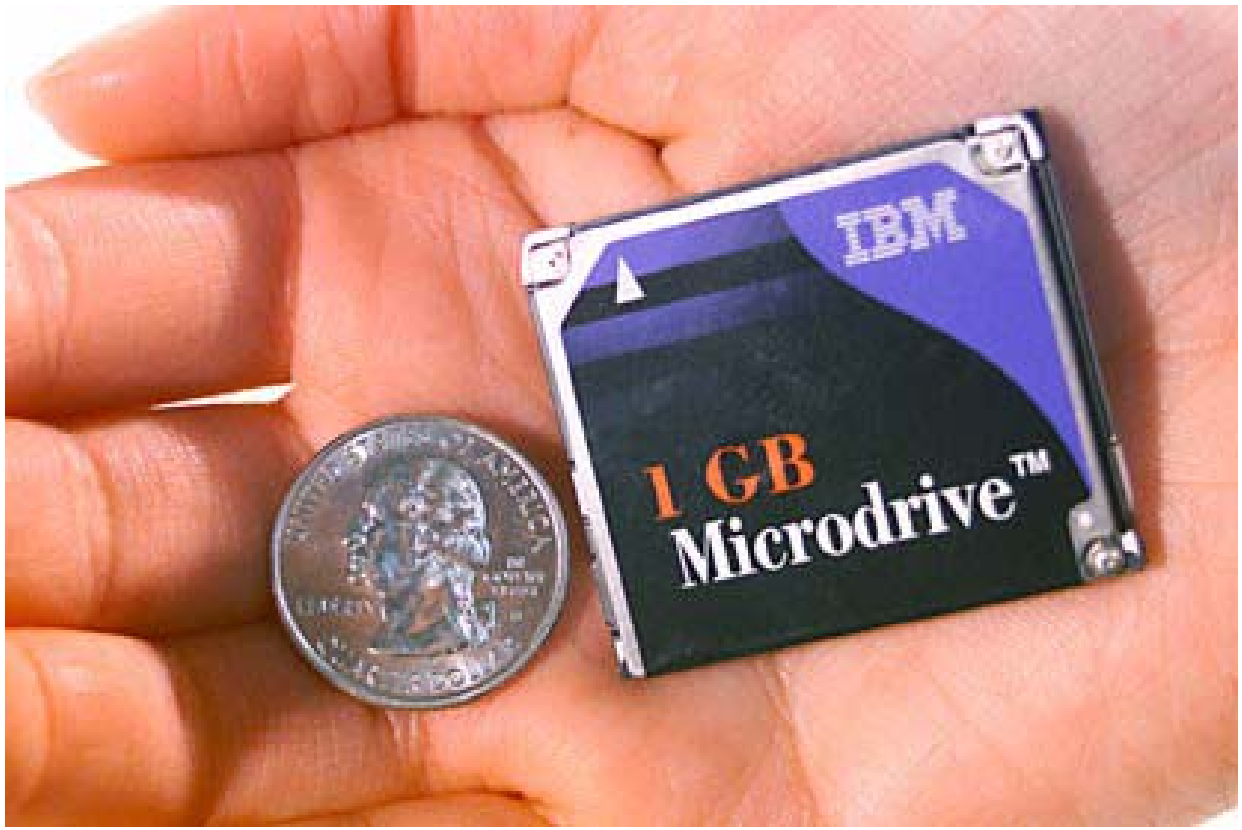
disk law → doubles every 12 months

AND DON'T YOU ALSO HAVE MUCH BETTER ALGORITHMS?

COMPRESSION ALGORITHMS FOR MUSIC 20X BETTER. MP3 CHANGES THE BUSINESS AND SOCIAL WORLDS OF MUSIC.

THE AMAZING DISK DRIVE

FOR MY DIGITAL CAMERA WHERE PHYSICAL SIZE MATTERS

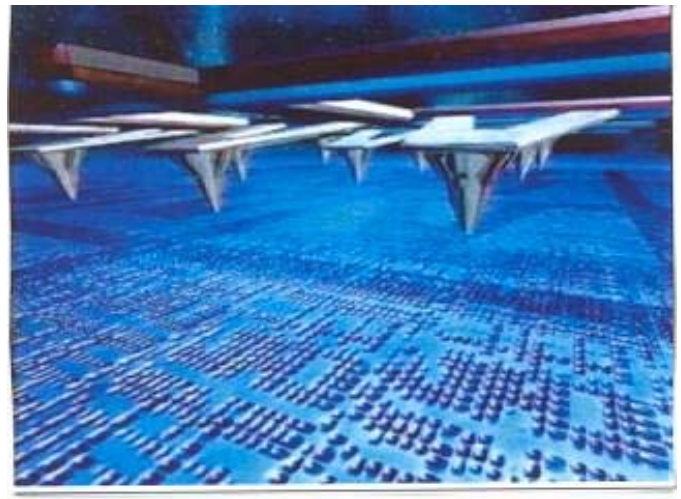


BOTH A DISRUPTIVE AND COMPLEMENTARY INNOVATION

STEPS TOWARD 1000 GIGABYTES

The tiny millipede disk array

BITS MEET ATOMS



1,024 array of cantilevers 3mm by 3mm
each with a 50 nanometers wide tip.

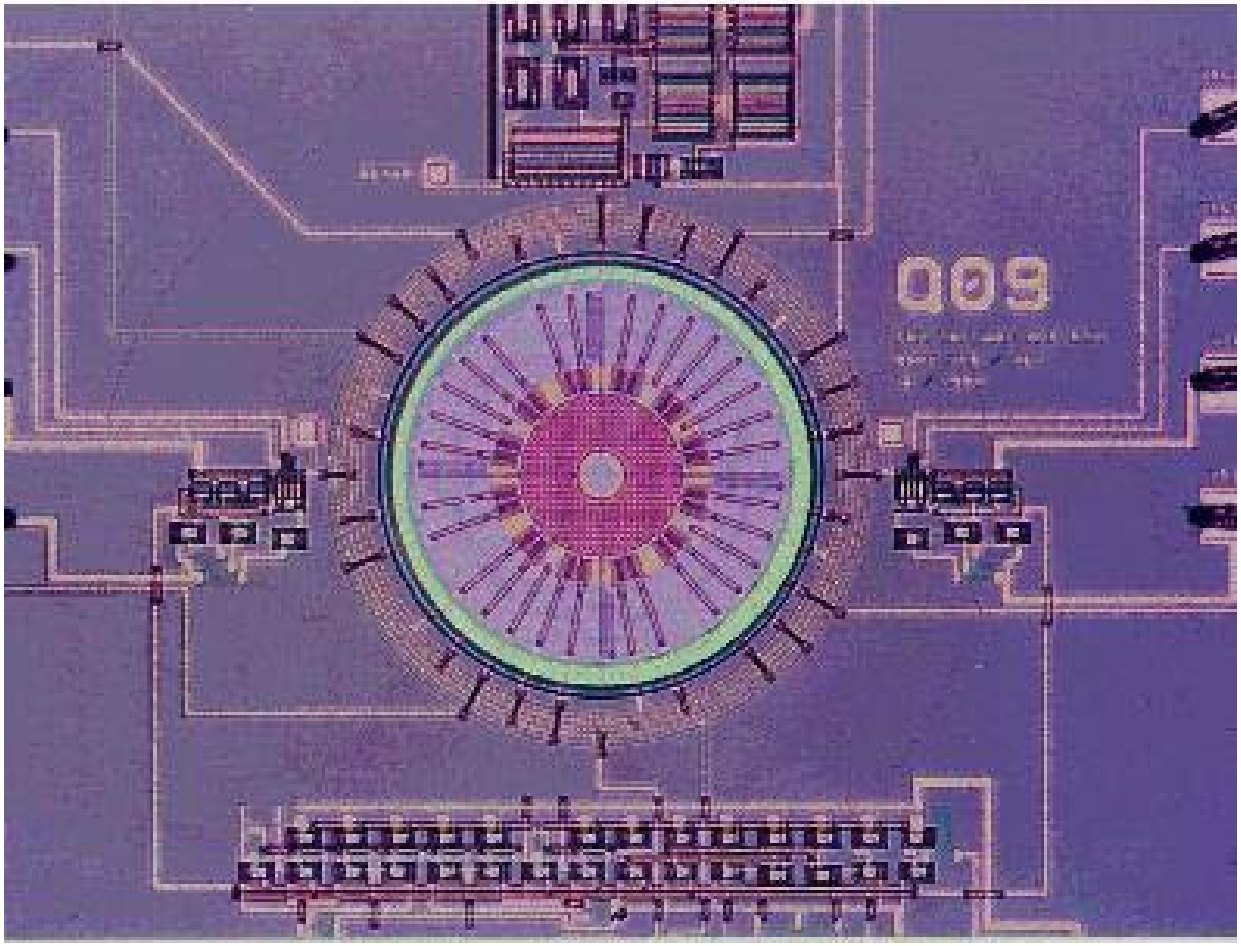
MEMS – BRIDGING THE NANO AND THE MACRO WORLD

IBM

MY WORLD IN MY HAND

HOW DOES THIS CHANGE WHAT I NEED TO KNOW?

MEMS GALORE

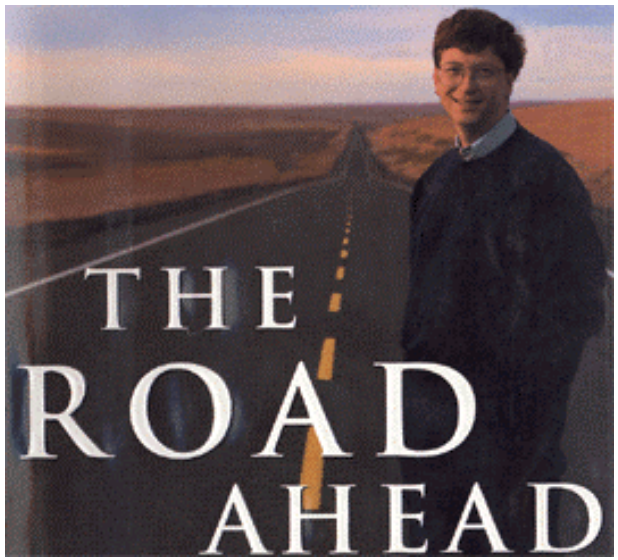


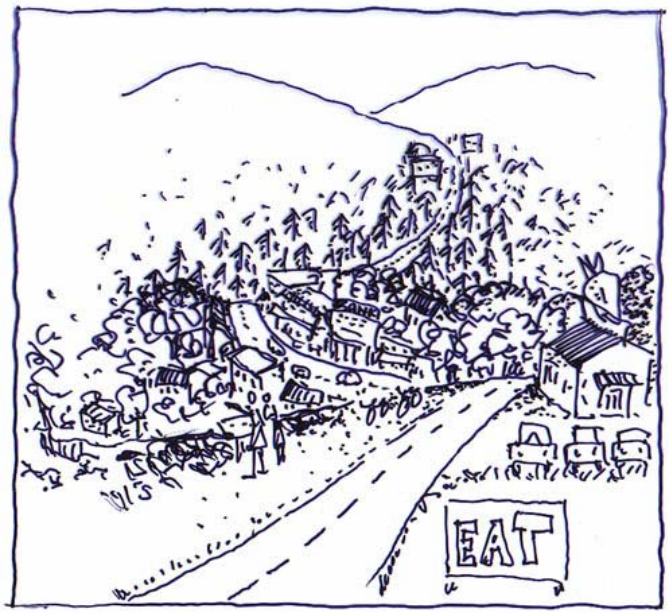
Dual-axis Gyro

DYNAMICAL BALANCE
A WALKING WHEELCHAIR

THE ROAD AHEAD AIN'T STRAIGHT –
A COMPLEX DIGITAL CULTURE IS UNFOLDING.

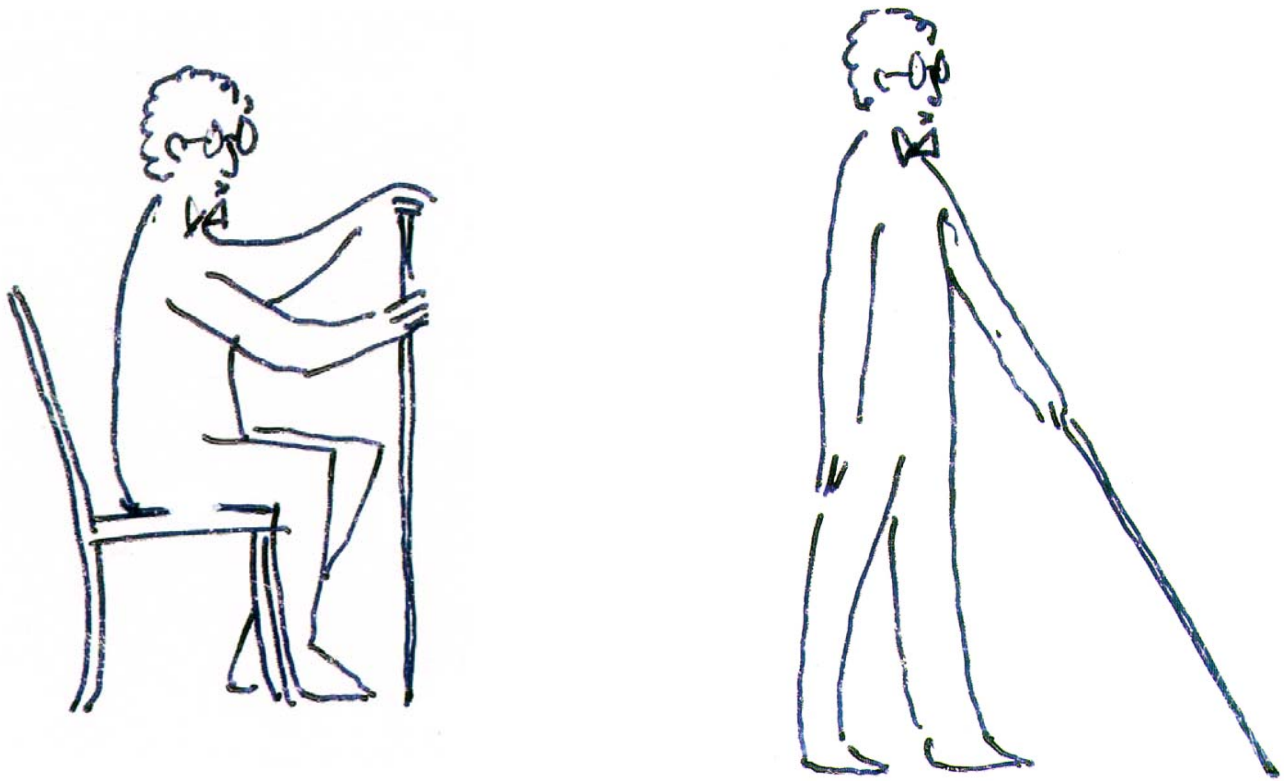
SOCIETY AND TECHNOLOGY CO-EVOLVE





BE AWARE OF TUNNEL VISION

HEIDEGGER - THE BLIND MAN & THE CANE



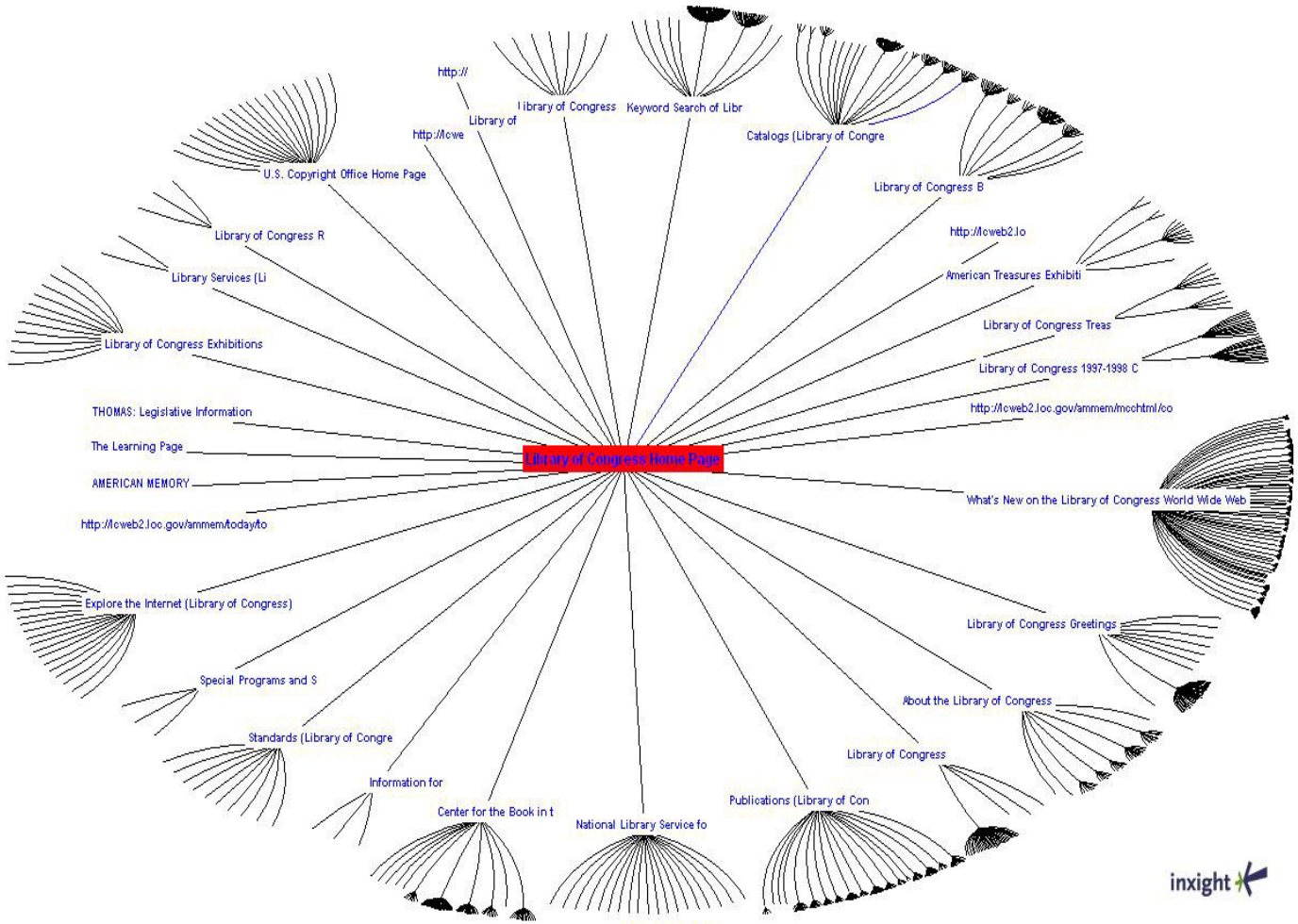
READY AT HAND: THE HANDLE DISAPPEARS.

WHY CAN'T WE USE INCREASE IN COMPUTATIONAL POWER TO DESIGN INFORMATION SYSTEMS WITH INTERFACES THAT DISAPPEAR??

AN EXAMPLE OF TUNNEL VISION –

THE TOILET TUBE PHENOMENON

HYPERBOLIC TREE BROWSER



Web Browser created by Inxight Software using Hyperbolic Tree for Java.

TAPPING THE SUBCONSCIOUS

3 CRITICAL DISTINCTIONS

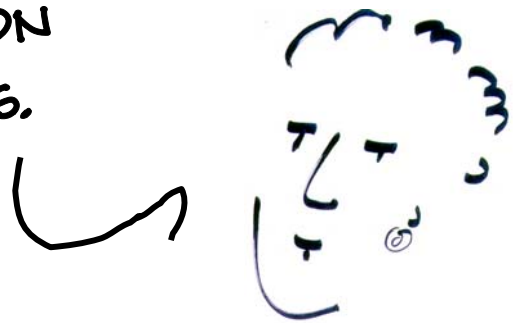
1. CENTER – PERIPHERY

2. EXPLICIT – IMPLICIT

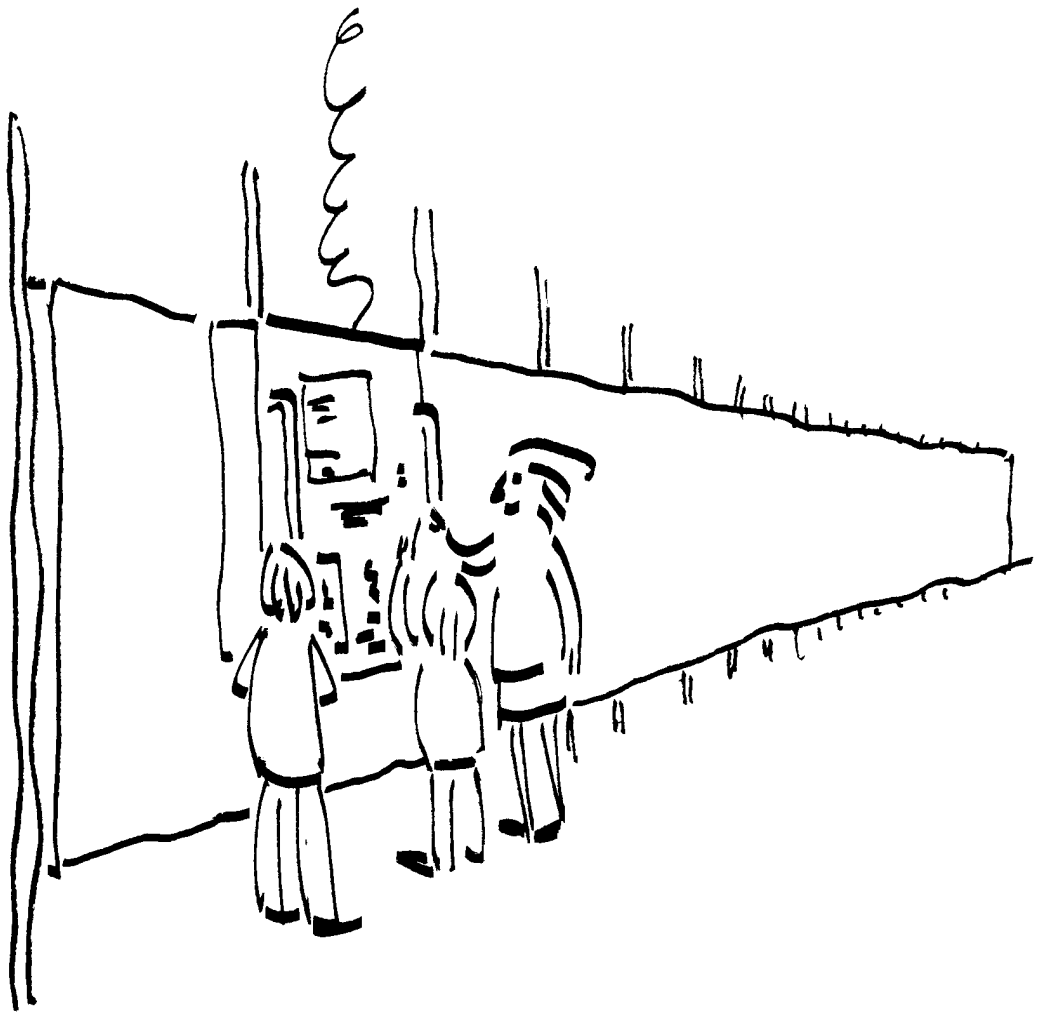
3. ATTENDING – ATTUNING

PLEASE, JSB BE CONCRETE.

HMM, GOING BEYOND THE DESIGN OF INFORMATION APPLIANCES.



WHERE VIRTUAL MEETS PHYSICAL--
HONORING THE PERIPHERY



A MAGIC LENS ON A TIME WALL

THE ENVISIONMENT & DISCOVERY COLLABORATORY

EVOCATIVE OBJECTS AFFORD KNOWING AND LEARNING

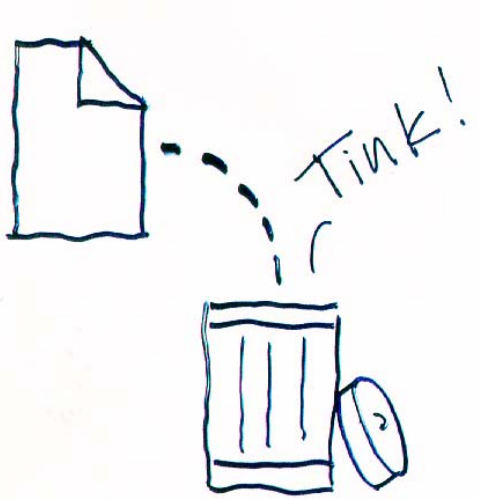
GERHARD FISCHER – CENTER FOR LIFE LONG LEARNING & DESIGN

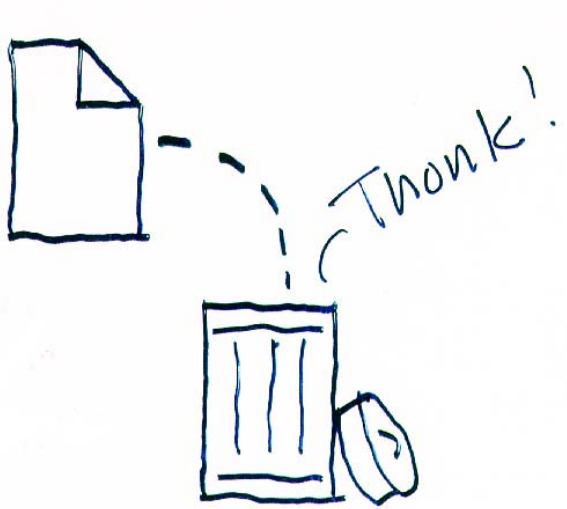
TAPPING THE SUBCONSCIOUS

3 CRITICAL DISTINCTIONS

1. CENTER - PERIPHERY
2. EXPLICIT - IMPLICIT
3. ATTENDING - ATTUNING

AUDIO ICONS



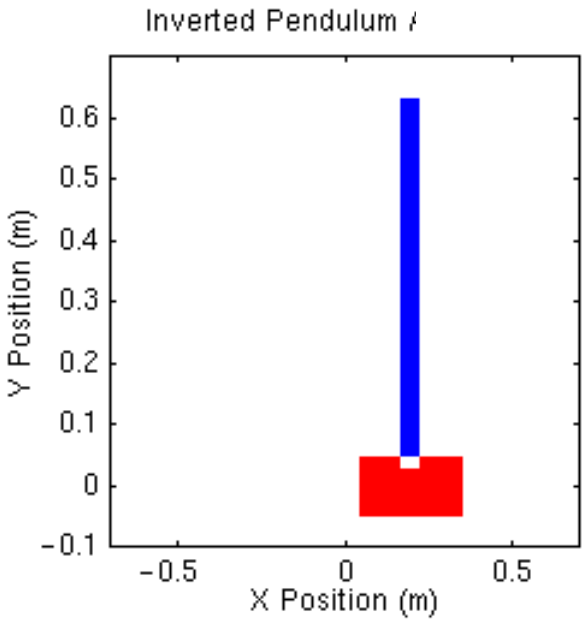


AHHH -- ICONS WITH A LEITMOTIF!

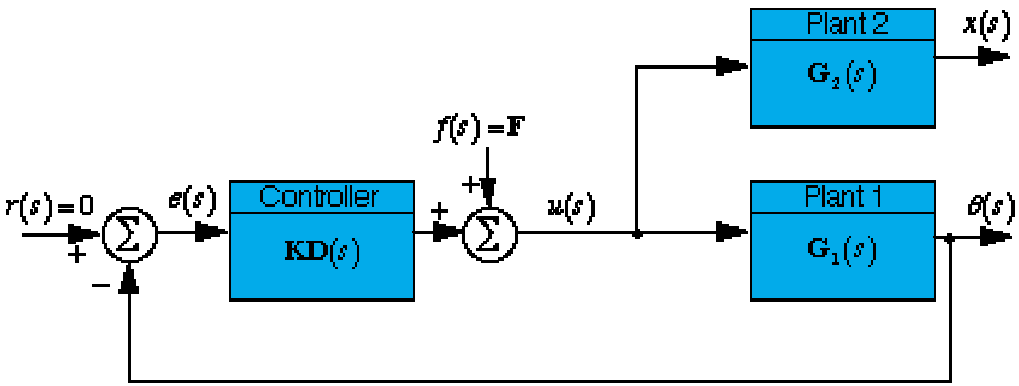
THANKS BILL GAVER.

DYNAMIC AFFORDANCES AND SQUEEZY INTERFACES

DYNAMIC BALANCE IS THE COIN OF THE DAY



Proportional-Integral-Derivative control



GYROSCOPES, SENSORS, COMPUTING

SEGWAY

TRANSPARENT, ROBUST

TAPPING THE SUBCONSCIOUS

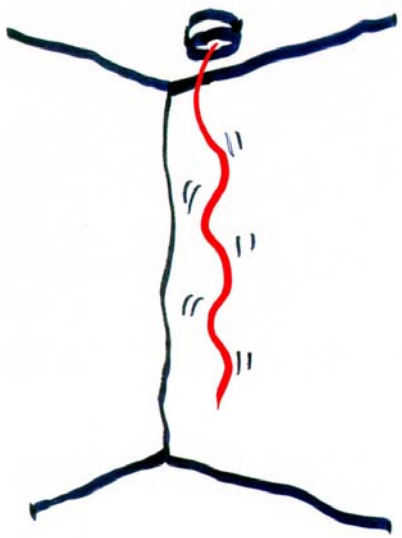
3 CRITICAL DISTINCTIONS

1. CENTER – PERIPHERY
2. EXPLICIT – IMPLICIT
3. ATTENDING – ATTUNING

WHAT IS ATTUNING?

STEPS TOWARD ATTUNING

THE DANGLING STRING
(INDICATOR OF ETHER TRAFFIC)

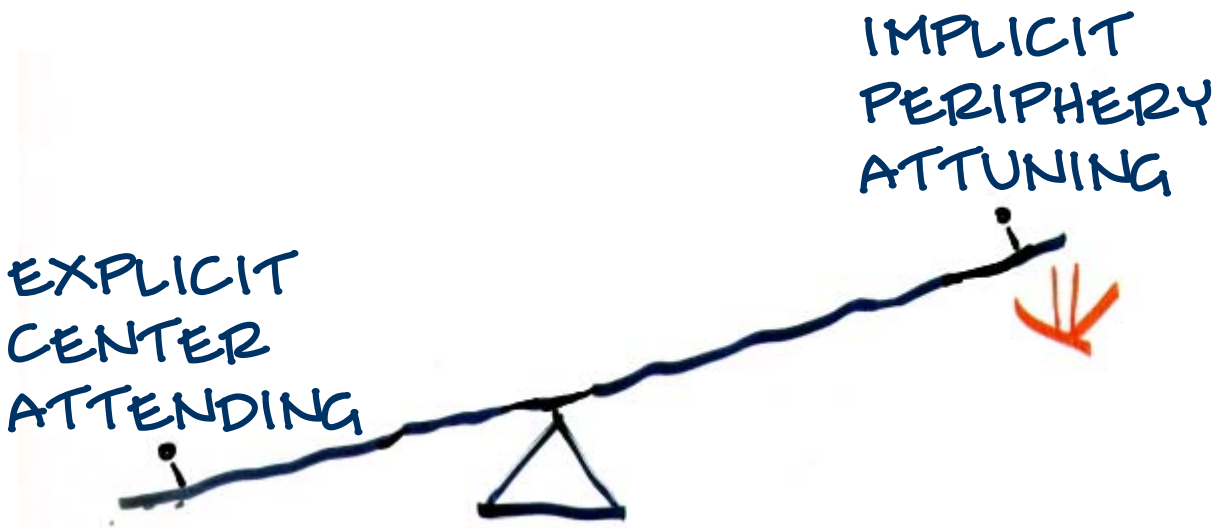


THANKS NATALIE AND ROY!

THE WATER FOUNTAIN
(INDICATOR OF STOCK PRICES)

THINGS THAT THINK AND LINK!

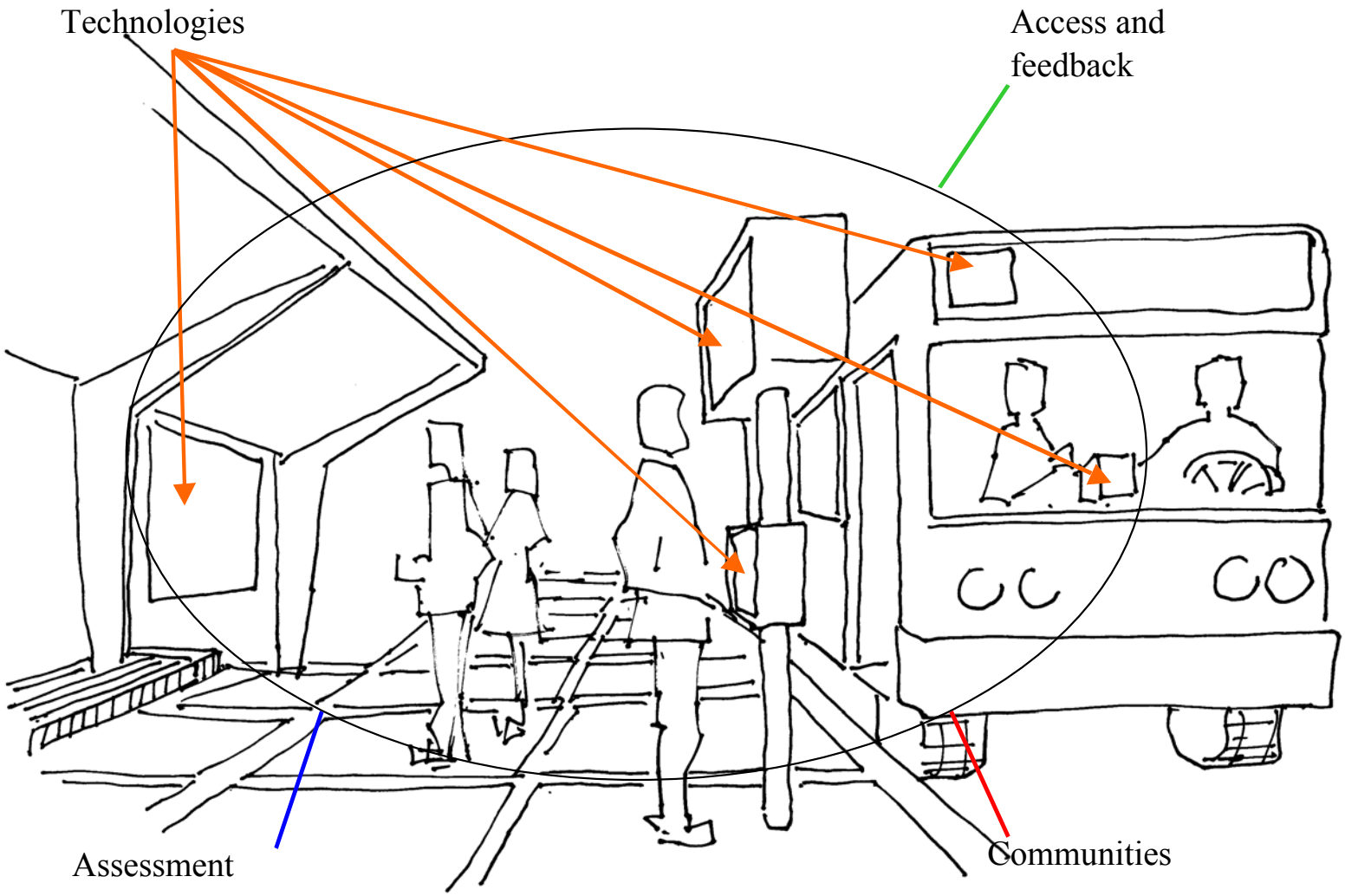
CALM COMPUTING: REBALANCING --



AH, HONORING ALL OF OUR COGNITIVE/SOCIAL CAPABILITIES, NOT JUST THE LEFT BRAIN.

INFORMATE THE CONTEXT

MOBILITY FOR ALL: A SOCIO TECHNICAL DESIGN

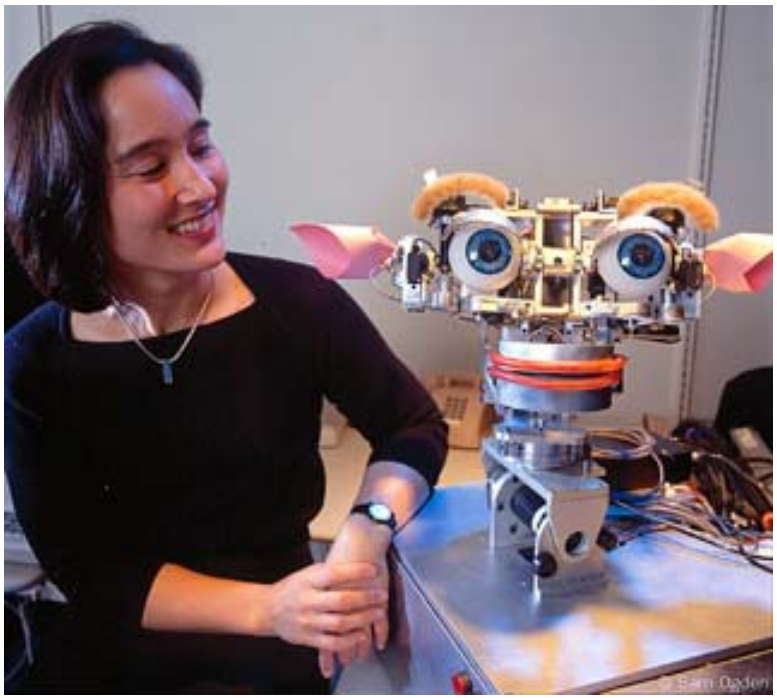


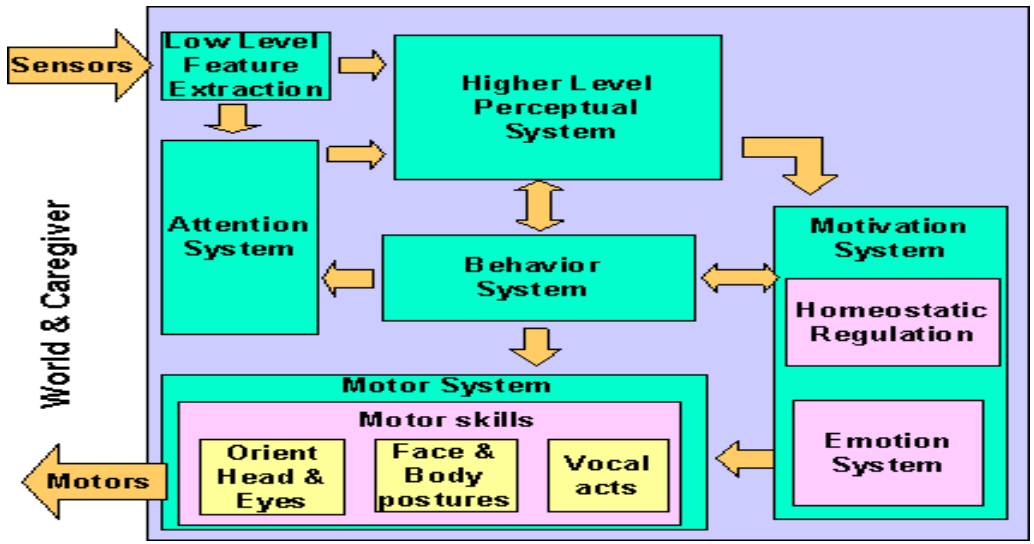
HELPING SENIOR CITIZENS NON INTRUSIVELY

THE COMPUTATIONAL, WIRELESS AWARE PET

BETH MYNATT

KISMET PROJECT – DESIGNING SOCIABLE ROBOTS





CYNTHIA BREAZEAL

THANK