Human Computing

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New Ways of Using Computers

- Warehouse management
- Restaurant management
- Neither a problem domain, nor an application domain is in mind at the outset
- The model is initially informal, subjective, provisional and not well understood
- Modelling with observables, agency, dependency
- Part of new ways of thinking about computers

Semantic Relations (I)
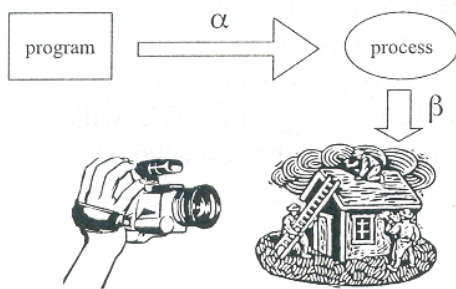
Semantic Relations (II)
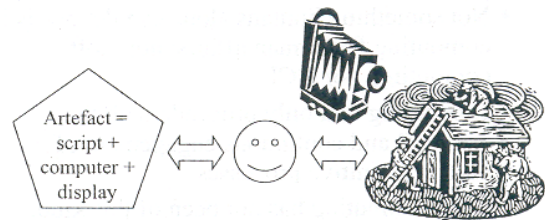
User As Semantic Agent

- Continuous, connected interaction
- Interaction determines course of computation
- Interaction informed by knowledge and context
- Interaction may give rise to new knowledge

Machine Computing

- Machine metaphor and engineering paradigm

- Focus of conventional computing has been on program and process – on maps α and β

- Essence of computing seen in the algorithmic or the automatic – so beginning with the specification of a process

Quotation1

Present day computers are designed
primarily to solve pre-formulated
problems or to process data according
to pre-determined procedures.

JCR Licklider *Man-Computer Symbiosis*. 1960

What Is Computing?

- Can also use computers to explore and
  identify new, reliable patterns of interaction
- Such activity is *prior* to programming
- Motivates a focus on state and script
- Modeller mediates the correlation of artefact
  and referent: experiment establishes meaning

Human Computing

- Not something humans alone can do, nor is it
  computing for human affairs, nor 'soft'
  computing, nor HCI
- Computing that only proceeds with the
  essential and continuous engagement of
  human cognitive processes
- Most computing has not been of this kind,
  some of it already is, and much of it will be

Quotation 2

The hope is that, in not too many years
human brains and computing machines
will be coupled together very tightly and
that the resulting partnership will think as
no human brain has ever thought ….

JCR Licklider *Man-Computer Symbiosis* 1960

Research Programme

- Human computing and Empirical Modelling
- Human computing and other disciplines
- Modelling and software system development
- Object-orientation and methodology
- Evolution of requirements and software

Empirical Modelling

EM as a framework for movement between the
unreliable and the reliable:

state		behaviour
experience	$\longrightarrow$	abstraction
modelling		programming
experiment	$\longleftarrow$	construction
environment		system