A theory of modelling for humanities research

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What is research?

♦ "Investigation, inquiry into things" (*OED*).

♦ Research usually implies either

  ♦ a plausibly solvable problem for which no solution is currently known (e.g. a cure for cancer; proof of Fermat's Last Theorem) or
  ♦ an inexhaustibly fruitful problem (e.g. Martianus Capella's influence in Carolingian intellectual history; the role of music in Soviet revolutionary thought).

  Research in the humanities is of the latter kind.

♦ In either case, research means looking into things. How is this done using digital methods?

What is digital method?

♦ *Method*: "A way of doing anything, esp. according to a defined and regular plan; a mode of procedure in any activity, business, etc." (*OED*).

♦ *Digital method* is a way of acting on the world that involves computing, i.e. software, a real-world object and the data representing that object.

What is digital research?

♦ The object of digital research is anything about which there is a question, anything not perfectly or completely known – anything *interesting*.

♦ The purpose of this research is to problematize the object of study, to ask ever better questions about it.

♦ It is an unstable, unending, incomplete, perpetually open process.

What is digital research?

♦ It is an unstable, unending, incomplete, perpetually open process, because

   ♦ The objects & processes of study are transcendent (i.e., we can never exhaust what may be said of them);

   ♦ The digital medium demands absolutely explicit and completely consistent representation; and

   ♦ It is by nature indefinitely malleable.

♦ Hence although we speak of the representation or "model" we make to carry out a particular research project, this is to be understood as a temporary form of the process known as *modelling*, which is the conceptual lemma.

What kinds of modelling?

♦ There are two kinds:

- ♦ *modelling of* (analytic): emphasis on manipulating symbol structures so as to bring them, more or less closely, into parallel with the pre-established non-symbolic system.

- ♦ *modelling for* (synthetic): emphasis on manipulating the non-symbolic systems in terms of the relationships expressed in the symbolic.

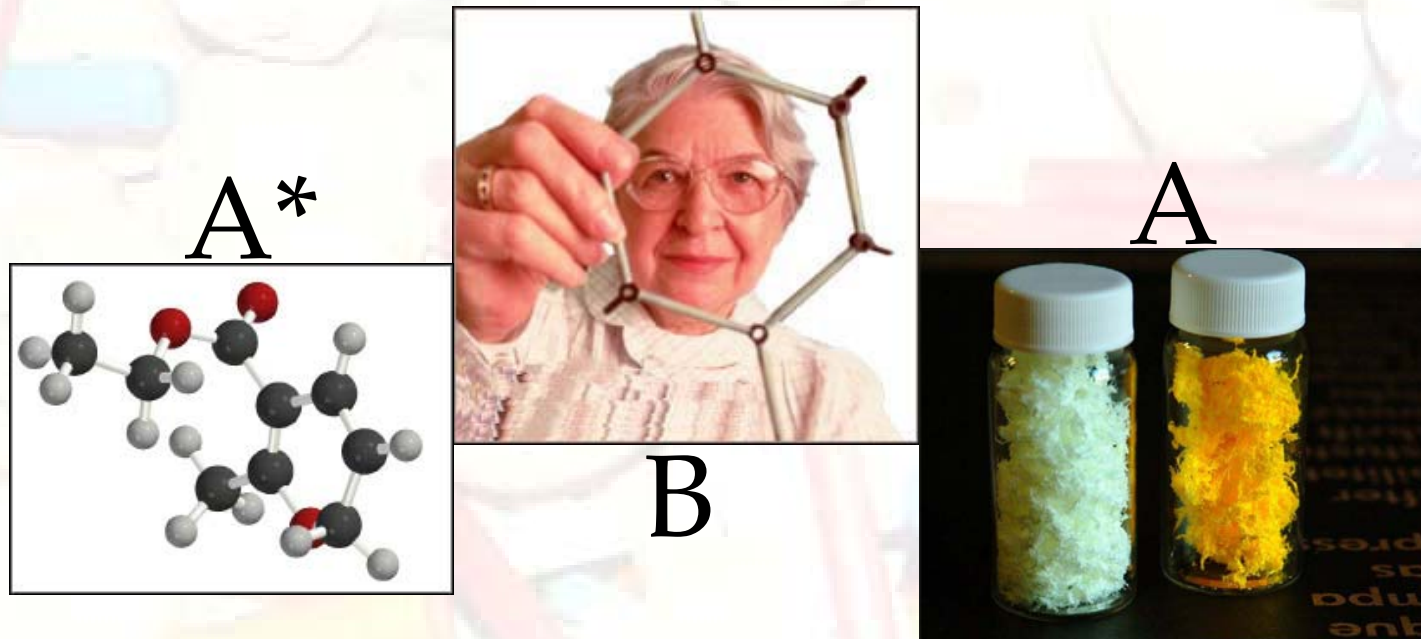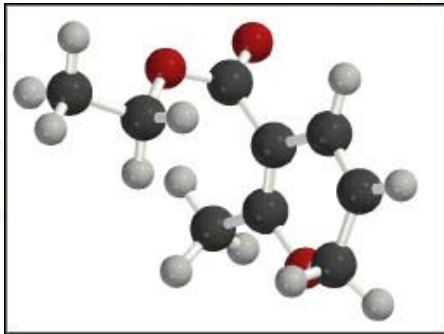Clifford Geertz, "Religion as a cultural system", in *The Interpretation of Cultures* (1993/1973): 93.

A ternary relation

A*

B

A

"To an observer B, an object A* is a model of an object A to the extent that B can use A* to answer questions that interest him about A. The model relation is inherently ternary."

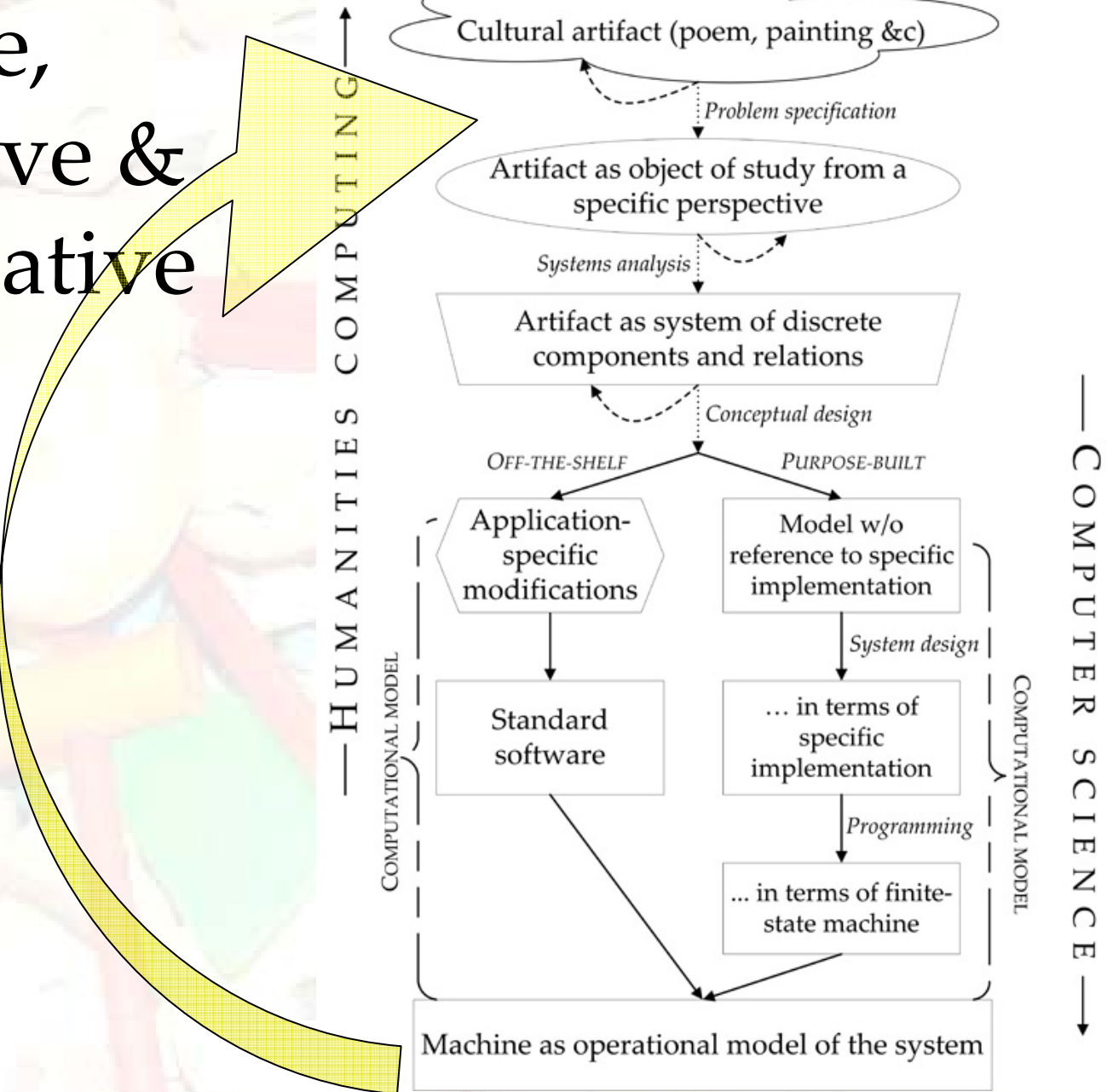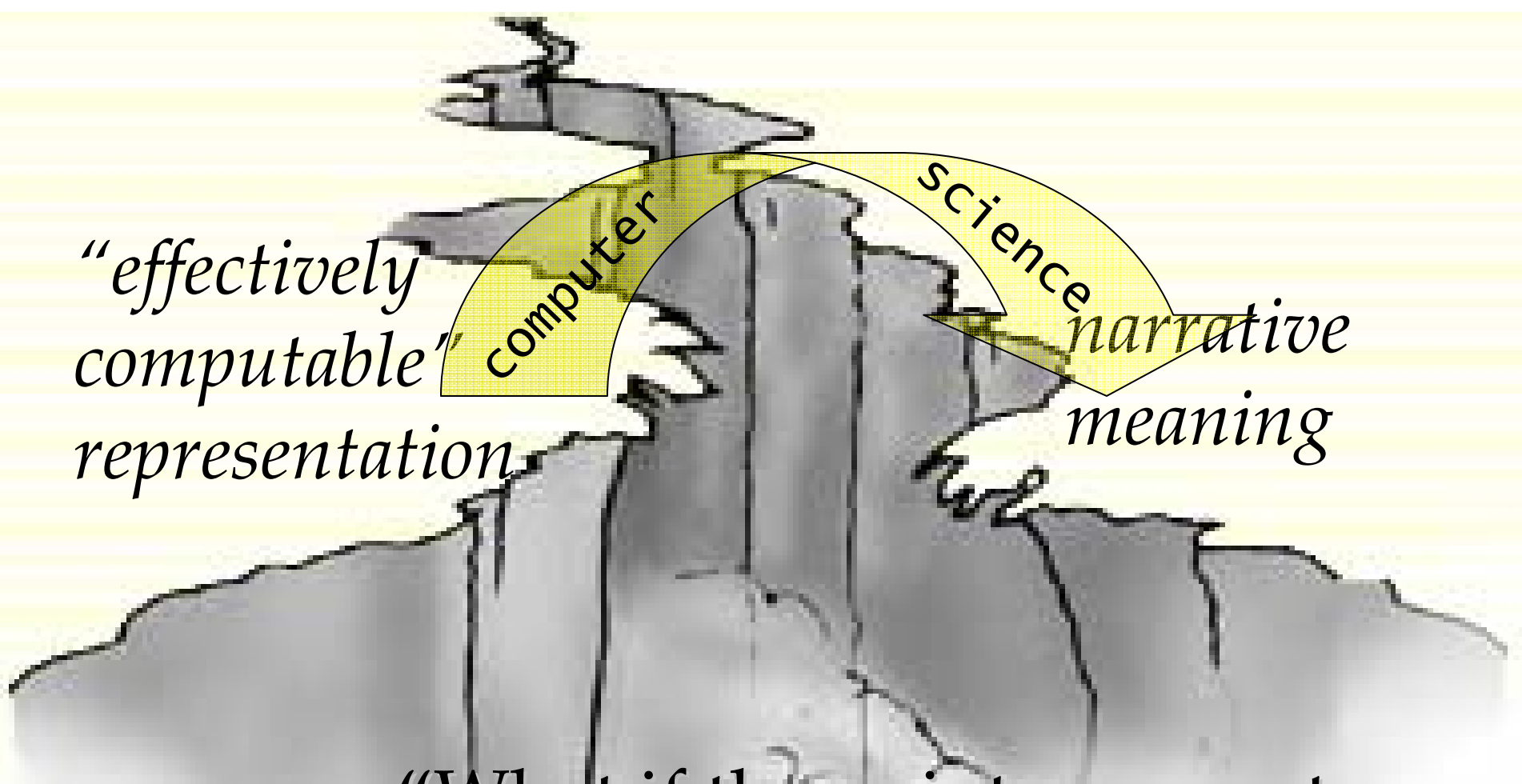Marvin Minsky, "Matter, Mind and Models"

Simplified & interpretative

"The unbridgeable break between the limited and selective consciousness of the subject and the unlimited complexity and 'richness' of the object is negotiated by *purposeful simplification* and by *transformation of the object of study inside consciousness itself*."

Teodor Shanin, "Models and thought", in *The Rules of the Game* (1972: 10)

Iterative, perfective & comparative

The epistemological question: *how do we know what we know?*

Cultural artifact (poem, painting &c)

Problem specification

Artifact as object of study from a specific perspective

Systems analysis

Artifact as system of discrete components and relations

Conceptual design

OFF-THE-SHELF   PURPOSE-BUILT

Application-specific modifications

Model w/o reference to specific implementation

System design

Standard software

... in terms of specific implementation

Programming

... in terms of finite-state machine

Machine as operational model of the system

HUMANITIES COMPUTING

COMPUTER SCIENCE

COMPUTATIONAL MODEL

COMPUTATIONAL MODEL

"effectively computable" representation
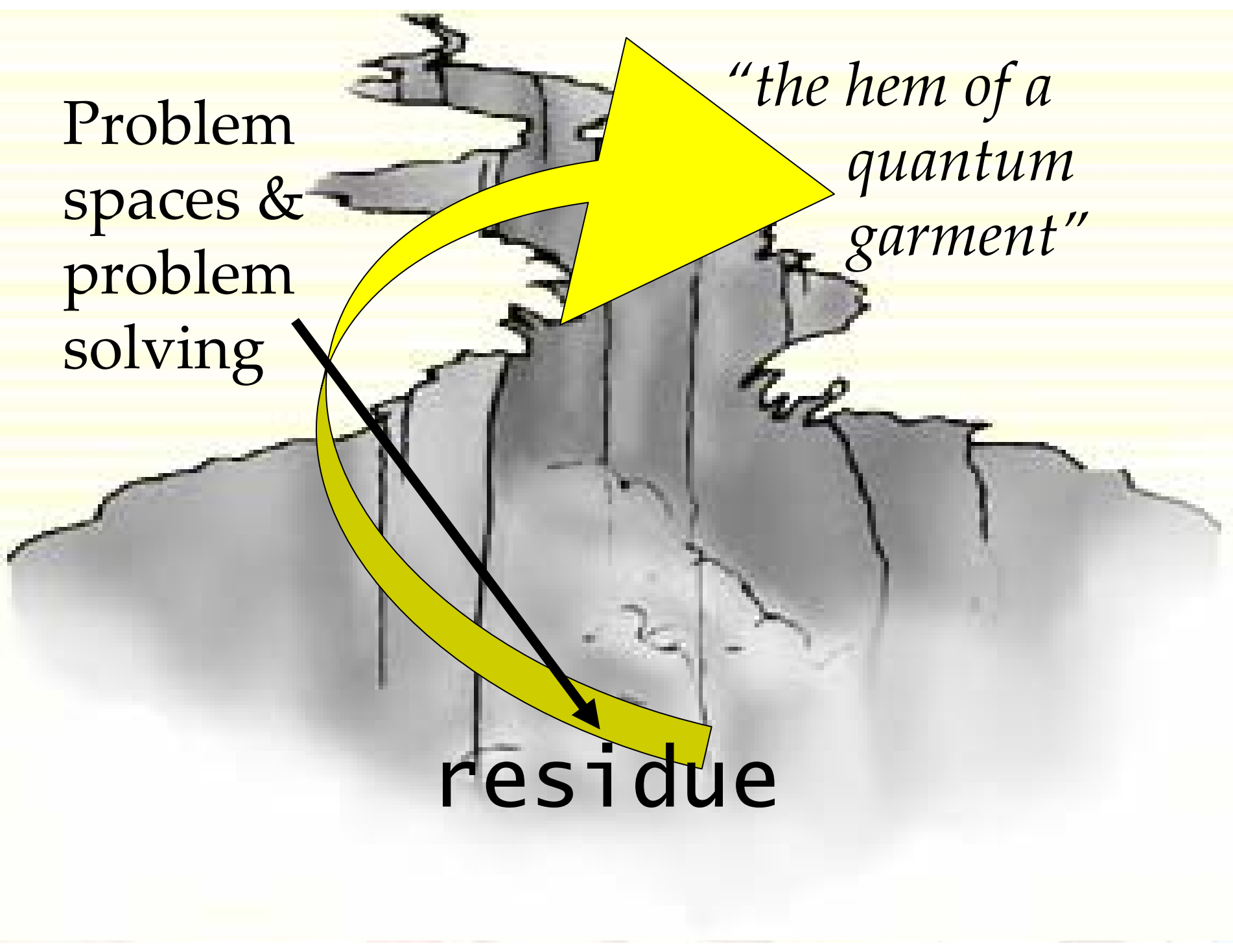
computer science

narrative meaning

"What if the point were not trying to bridge [the] gap but to feed off and develop it?"

Jerome McGann, *Radiant Textuality: Literature after the World Wide Web* (New York: Palgrave, 2001): 103

Problem spaces & problem solving

"the hem of a quantum garment"

residue

An art-historical example

Pieter Bruegel the Elder, *Fall of Icarus* (1558)

Icarus
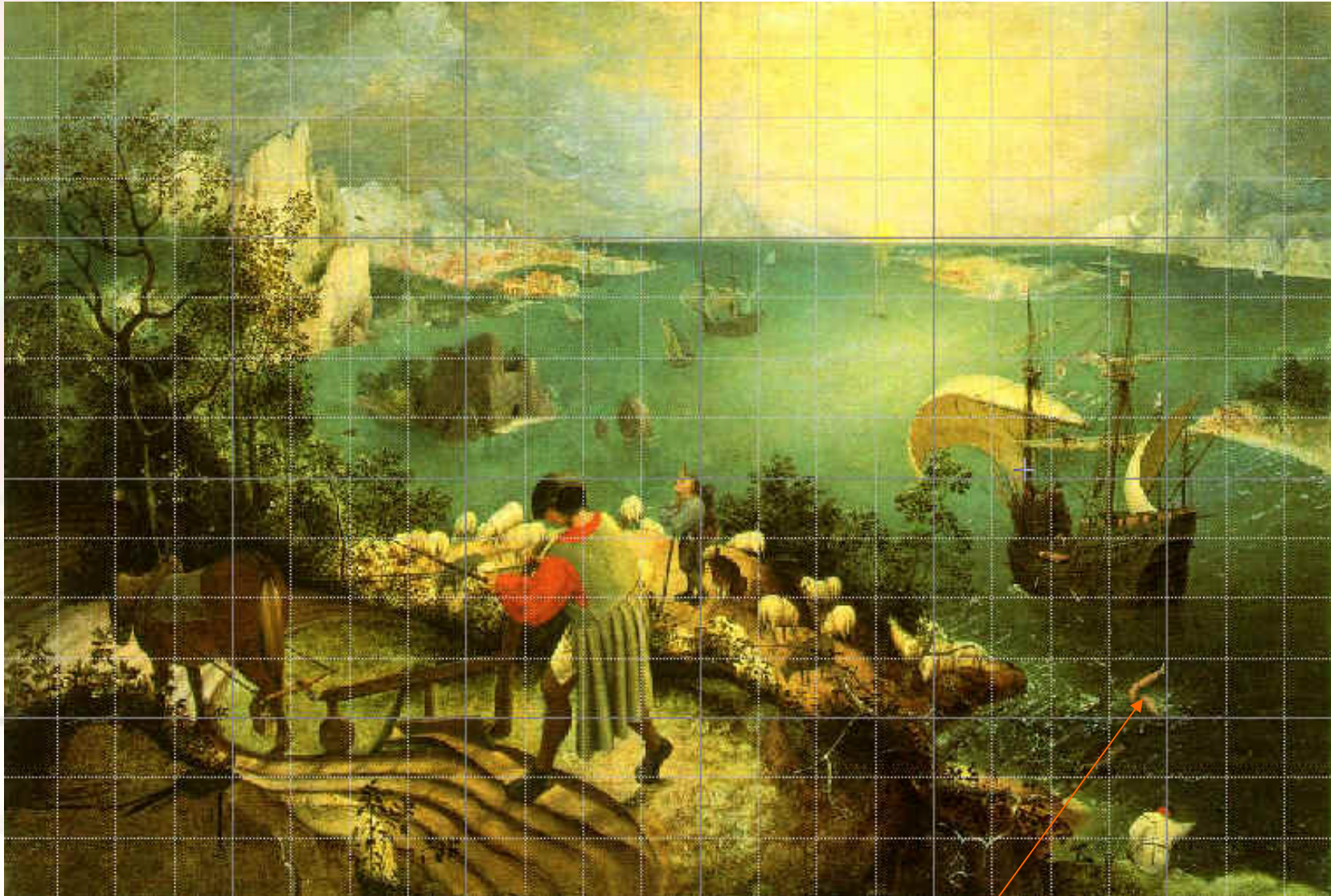
Fall of Icarus as a problem space

< 4% of the total space

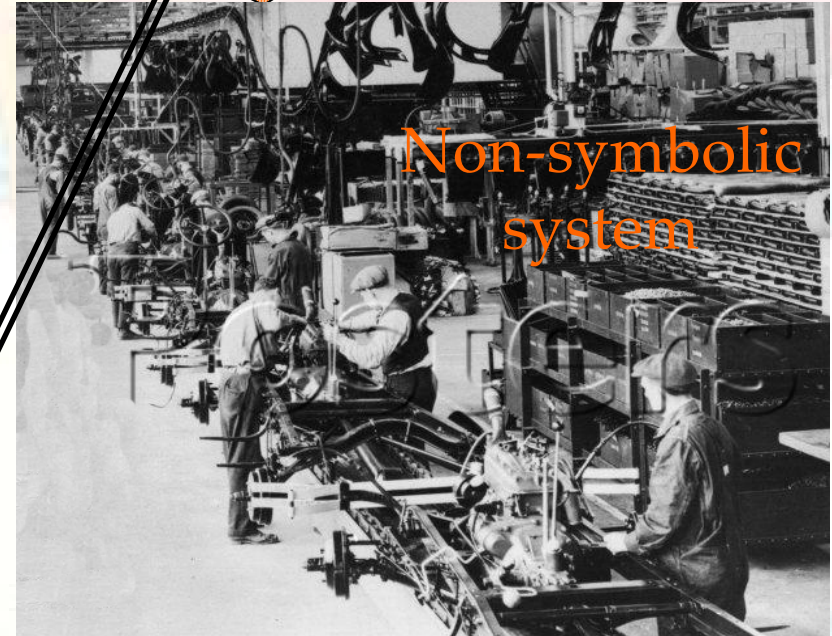A better than 96% successful solution to the Icarus problem

Modelling for

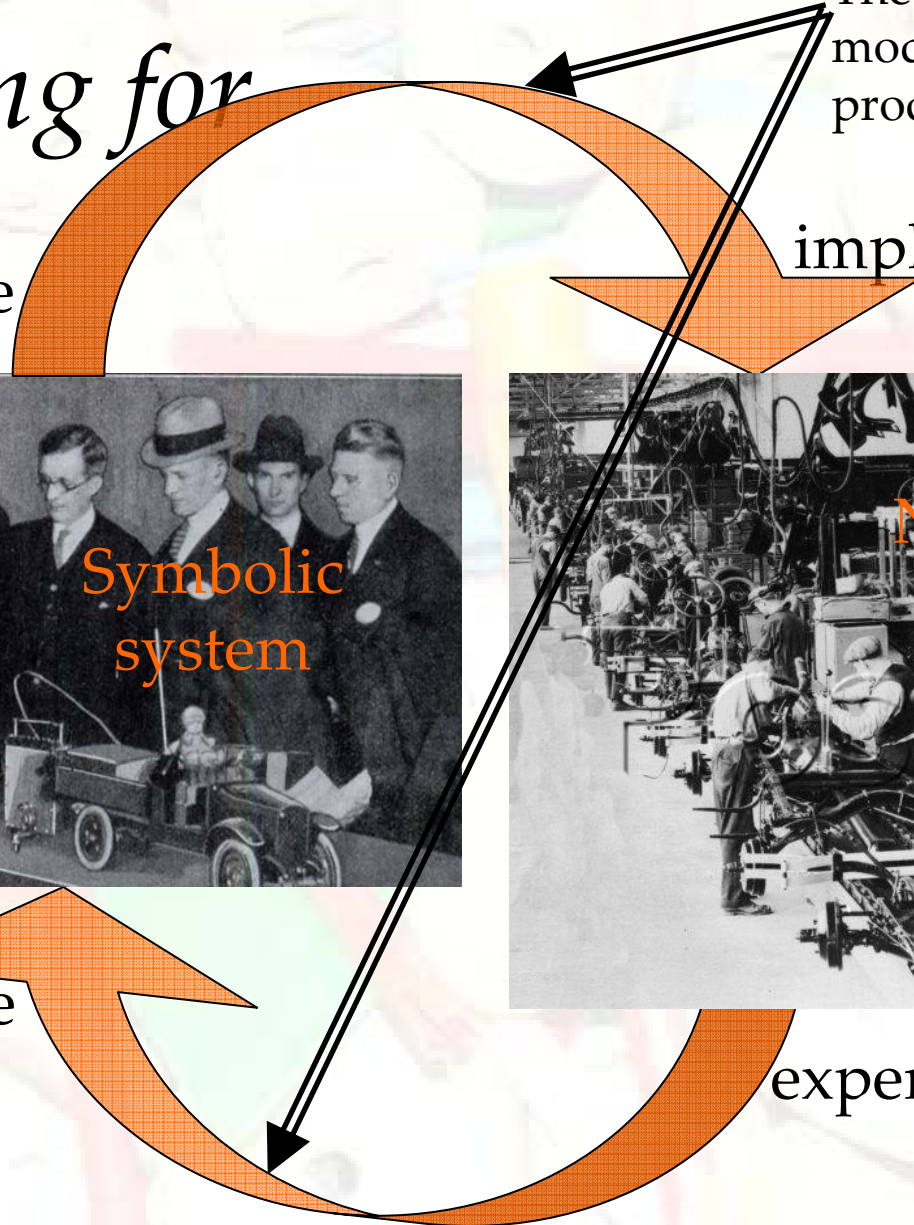The modelling process

imagine

implement

Symbolic system
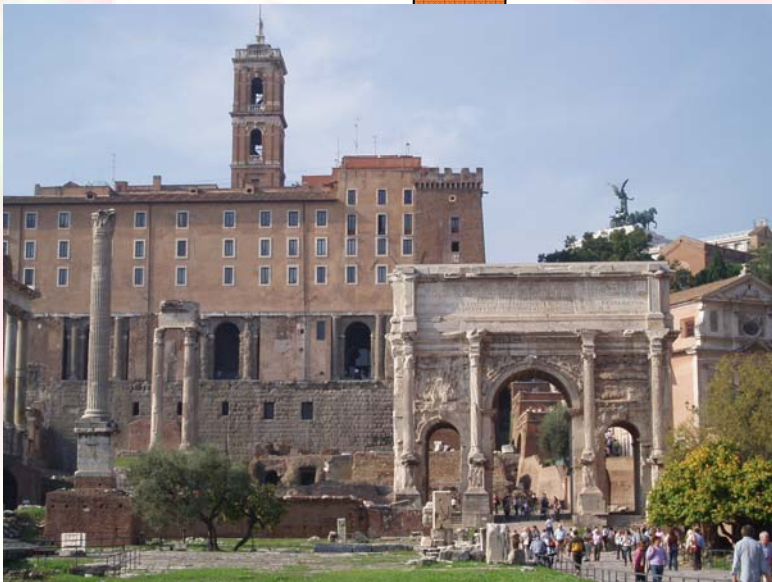
Non-symbolic system

manipulate

experience

Modelling for

VR
reconstruction

Archaeological data
from the Foro Romano

Modelling for

Many prosopographies

Welcome to the PASE Database

You may enter and use the PASE database in a number of different ways, depending on your interests or purposes:

- **PERSONS:** for listing occurrences in the database of persons with a particular name, or of all persons named in a particular source, or of all men or women in a particular source.
- **SOURCES:** for listing factoids, events, or persons mentioned in a particular written source.
- **STATUS:** for listing occurrences of persons accorded a particular status (e.g. 'Bretwalda') in the written sources; bearing in mind that 'status' is not always distinct from 'office' or 'occupation' (below).
- **LOCATIONS:** for listing occurrences of persons or events associated with a particular place (in a single alphabetical list) or in a particular county or region (also listed alphabetically).
- **EVENTS:** for listing occurrences of a particular kind of event (e.g. adultery, book-commissioning, council [ecclesiastical and/or lay], siege) in the written sources.
- **OFFICES:** for listing occurrences of persons accorded a particular office (e.g. abbot, goldsmith, scribe, sub-deacon) in the written sources.
- **OCCUPATIONS:** for listing occurrences of persons accorded a particular occupation (e.g. baker, scholar, swineherd, teacher) in the written sources.
- **RELATIONSHIPS:** for listing occurrences of the different kinds of personal relationship (e.g. affinal kinship, consanguineal kinship, quasi-kinship, ritual kinship) in the written sources.
- **POSSESSIONS:** for listing occurrences of particular kinds of possession (e.g. animals, books, horses, relics) in the written sources.

Tabs for each type of search are displayed in the bar across the top of the page. Another tab is provided for finding occurrences of two particular persons who are in some way linked to each other. You may also build a search [link to build a search page] by selecting particular terms while browsing, and then by submitting the search to see if there are any records which satisfy your selected criteria.
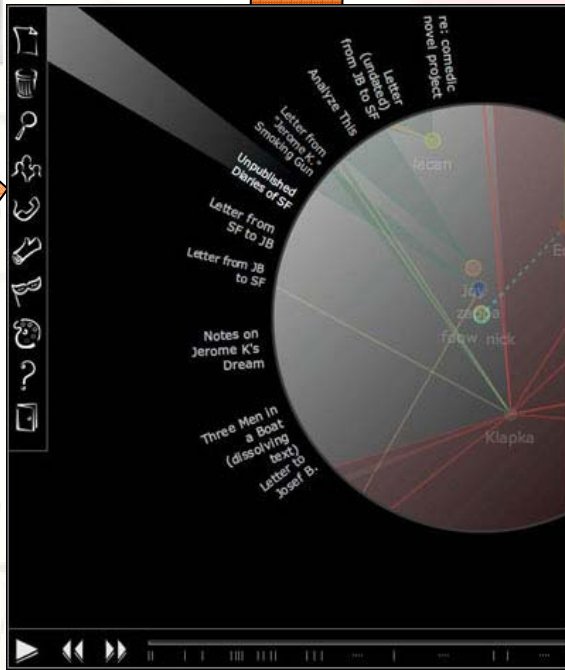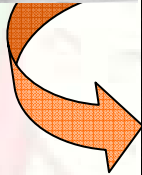
*Data from the
historical record,
in the Prosopography of
Anglo-Saxon England*

Aethelred the Unready
(d 1016)

Modelling for

Possible
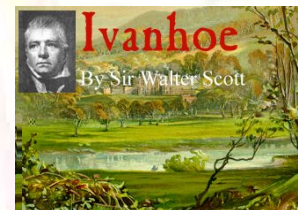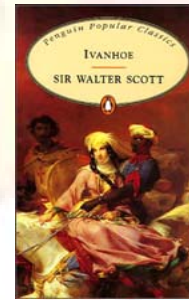*Ivanhoe*s

*Ivanhoe
Game*

Conclusion

1. Constructing resources

2. Inventing new genres

Prosopography of Anglo-Saxon England

3. Modelling *of* (analytic)

The Frame, from Jonathan Swift, "Voyage to Laputa", in *Gulliver's Travels* (1726)

4. Modelling *for* (synthetic)

VR reconstruction: Struder model, St Gall

5. Modelling *for* possible worlds

Ivanhoe Game

Second Life with Linus Pauling

AND NOW, OVER TO HAROLD…