Ethnoarchaeology: examples

Previous: Slab lamps

Watson: none

Gould:  - **fixed division of meat** (‘argument by anomaly’)
       - **bone reduction** as indicator of hunting stress (uniformity rather than analogy)
       - **Aborigines of Arnhem land**: a single culture with different tool-kits, or two subcultures? (inconclusive analogy)
       - **Bernoulli’s principle** (not an analogy)

Wylie: none

Shelley:
   - **British arrowheads** made by humans, by analogy with N. American arrowheads (583)
   - **Peruvian pots** and signales ⇒ indication of ownership/manufacture in shared kiln or stored in common area (Direct Historical analogy)
   - **Greek figurine legs** ⇒ contract or identification
   - **Clovis mammoth harvesting**
     - analogy with African elephant hunt
     - disanalogy: marrow not extracted (significance?)
     - analogy restored with a plausible scenario: ease of finding next meal
Background

1. Ethnographic analogy

- a method of justifying hypotheses about the behaviour of ancient inhabitants of a site (often direct testing is impossible)
- based on similarities between their artifacts and those used by living (or recently living) cultures
- simplest hypotheses take the form: the probable function of this artifact was the same as the current function of a similar artifact

Two types:

a) Direct Historical Approach:
   Modern culture (source) must be a direct descendant of the ancient one.

   Ex: Peruvian pots, mammoth harvesting

b) Comparative approach
   No historical connection, but the two cultures must manipulate similar environments in similar ways.

   Ex: European stone-age “slab” lamps

2. Functional (teleological) explanations: what is being transferred?

Hempel, 1965: Explanations of the function of part X in system S:

(H1) The function \( N \) is necessary for the system \( S \) to remain in some preferred state (e.g., continued survival); and

(H2) The part \( X \) in question has a structure or form that enables it to fulfill the function \( N \).

Wright, 1976:

(W1) \( X \) is able to do \( Z \) under the appropriate circumstances;

(W2) \( X \) is there (or has the form it does) because it does (or results in) \( Z \).

Artifacts (pots or light-switches) have the form that they do because that form is capable of fulfilling the desired function.
3. Uniformitarianism

Lyell (uniformitarianism in geology):

a) general patterns and processes persist over time and can be projected into the past.

b) good teleological explanations utilize these ‘lawlike’ principles

**Implication:** (W2) is not enough for an adequate explanation: we must invoke a generalization that (say) under certain environmental (or social, in case of archaeology) conditions, certain types of cultural groups tend to have Z as a goal and tend to use objects like X to meet that goal.

**Ex:** Technology is more complex for groups in harsher climates. (Variational laws)

**Qu:** 1) Are teleological explanations inadequate unless they make explicit use of uniformitarian principles?

2) Role of analogy, with or without uniformitarian principles.
   (Wylie: still need analogy to project present-day uniformities into the past. This is unproblematic for geology, but problematic for human sciences.)

Problems with application to archaeology:

1) Diversity of human behaviour.
   E.g., Inuit “slab” is much less complex than tools in harsh climates
   **Response:** Disjunctive conclusion?

2) Insistence on uniformitarian explanations would rule out single-source analogical arguments in particular cases.

3) Ambiguity about level of generalization (broad ones are not interesting).
   Which is better: a broad uniformity with a weak or vague conclusion, or a limited one that holds for a range of cultures deemed most relevant to the ancient culture of interest? (cf. signales)

4) Absence of any broadly accepted or acceptable theories in archaeology (Gould, Watson); limited knowledge of uniformities.
   Should we stop doing archaeology until we have a complete ethnographic record of all remaining pre-industrial cultures?
IV. Watson & Gould Dialogue

Questions:
1. Is the use of ethnographic analogy scientific? Is it convincing?
2. What are the meaning and use of analogy in archaeological reasoning?

A. Watson
1. Objectives of archaeology
   - *Particular* explanations of artifacts
   - *General* theories and laws that explain human behavior in different cultures

   a) Particular explanations
      - Direct historical approach more compelling than general comparative approach
      - Archaeologists lack well-confirmed laws in their explanations for (or theorizing about) past cultures. (We need a theory of cultural dynamics.)
        - poor understanding of site formation
        - small sample
        - complexity and scope of human behavior
      - conclusion: for particular cases, we still rely on direct analogies. But this “general framework” of reasoning by ethnographic analogy can be empirically respectable.
      - DHA vs. GCA
        - not different in kind
        - but DHA increases likelihood of greater number of similarities, and of more profound similarities
        - GCA is more in keeping with the uniformitarian spirit

Method of ethnographic analogy:
1. Number and nature of similarities
   (?? Independent contexts?? p. 360)
   2. Test interpretive hypotheses by checking implications for the archaeological record: *(confirmation* of the *specific* analogy, or *testing*: Watson’s ambivalence).

   Note: common pattern with abductive analogical inference.

b) Theories and Laws
Main point: archaeology should strive for a theory of “cultural dynamics”

Portrayal of Gould’s concerns:  {Are these really his main worries?}
   - parochialism
   - ethnocentrism
B. Gould

- status as a science: not just data collection and measurement, but also the method of reasoning to arrive at explanations

Key claims:
1) Uniformitarianism is the key to scientific reasoning in archaeology: what holds true for past and present human behaviour?

2) Variability can be accommodated by “asking questions in the right order”:
   - first, seek ‘eco-utilitarian’ explanation (appeal to uniformities derived from biology or other natural sciences).
   - only when this fails (‘argument by anomaly’), resort to “ideational and symbolic” (i.e., cultural) explanation

Ex: division of kangaroo meat

*3) Argument from analogy mis-directs research in archaeology (369)
   - instability of explanations over small anomalies a hallmark of science (but glossed over in analogical thinking)
   - testing and generalization are also characteristic features (again, suppressed by analogical thinking, which makes prediction impossible – and how can there be testing without prediction?)

Ex: bone reduction.
  (Shelley provides a response: you test by looking at multiple sources)

Is analogy necessary?

Simplistic argument: extension from natural sciences is analogy.

Response: narrow ‘dictionary’ view of analogy

Three main objections:

1) **Fallacy of affirming the consequent** (ethnocentrism)
   - response: probability, not deductive certainty
   - Gould: uniformitarian explanations are a more compelling alternative

Ex: Arnhem aborigines – only ‘eco-utilitarian’ study can decide between two hypotheses supported by analogy.

(Q: plausibility or theory acceptance?)

2) **Resemblance cannot provide confirmation.**
   - even analogies depend upon the assumption that there is some uniformity
   (Better: upon the probability that there is such a uniformity.)
   - multiple ways of producing the same artifact: technology studies

3) **Resemblance cannot account for variability:** pre-suppose little change
V. Wylie

Main claims:

1. Nothing in Gould’s constructive proposals entails the abandonment of ethnographic analogies.

2. Gould’s method is non-analogical only if analogy is construed narrowly.
   - Narrow sense: consideration only of similarity
   - Broader sense: Add differences and causal relations (laws)

   - Gould’s indirect reasoning (via laws) is compatible with using tested analogies (in broad sense)
   - The “argument by anomaly” is a procedure for testing hypotheses that still have to generated by analogy

Role of uniformities

Gould and Watson seem to agree, but positions may be distinct.

Gould: non-positivist understanding of uniformities and causal relationships
Watson: still positivist about uniformities and causal relationships

Role of analogy

Both agree on method: interpretive arguments supported by laws. Watson sees this as analogical; Gould does not.

1. Ampliative inference: Gould’s indirect reasoning is still inductive and uncertain, and still relies on “affirming the consequent”. Further, it is still analogical.

   Pattern: Under circumstances x, material y has been produced.
            Y is observed in this case.
            Hence, circumstances x obtained.

   a) If backed by additional knowledge, the argument can be strengthened.
   b) But there will nearly always be other possible routes by which y was produced. (To confine research to cases where a unique route can be established would cripple archaeology.)
   c) Analogy is still involved in extending the present uniformity into the past.

2. Long discussion aimed at showing that analogical inference is not based on narrow comparisons for similarity (cf. sampling argument). Conclusion: the difference over the role of analogy seems to be just terminological. Pragmatic reasons for broad usage.

**Shelley: Multiple Analogies in Archaeology**

Purpose: to examine the role of multiple (source) analogues

1. **Multiconstraint theory (MT)**

Holyoak & Thagard: same as earlier theory, but with mappings listed in order of the degree of relation

**Qu:** Other than organizing the information, what is added to justification by MT? Almost all of the ‘systematic’ correspondences are part of Q; the justification is based on feature mapping (visual similarity) with a minor argument about frequency (signales).

2. **Multiple analogies: three examples**

Multiple analogies raise the following issues, not present in single-case analogies:

a) **Visual imagery**
   - why not important even for single-source analogies?

b) **Specificity**
   - multiple sources may introduce vagueness
   - multiple sources can strengthen confidence that some feature is essentially related to the feature of interest

c) **Supplementation**
   - inventing plausible scenarios to preserve an analogy

3. **Philosophical issues**

Sampling models: current definitions of analogies fail to put emphasis on system mapping

**Problem:** which set of ‘system’ concepts to apply? No stable theory.

Discovery vs. justification