

M A T T I K A M P P I N E N

## **From Cultural Domains to Cognitive Models**

### **Inference and Explanation in Cognitive Anthropology**

I will examine the patterns of inference and explanation utilized in cognitive anthropology of religion. My aim is twofold: first, to explicate their complementary roles in anthropological inquiry, and second, to discuss whether religious data, or people's perception of fundamental questions, pose any specific questions that should be taken into account.

The story will go as follows. First I will remind the reader of the cycle of interpretation, also called the Sherlock Holmes Method, where the researcher purports to guess the underlying structures on the basis of perceived or otherwise measured data. Then I will proceed to three examples from the field. These examples will highlight the kinds of religious models that have been prominent in my own fieldwork, carried out in the Peruvian Amazon and Western Finland. With the help of examples, I will discuss, not only the problem of inference and explanation, but also the nature of religiosity and fundamental questions, and will propose the notion of quasi-religious attitudes in order to deal with diverse phenomena. After the examples I will bring up some questions inherent in the search for models, namely the multitude of possible models and pertinent doubts about under-determination. It may well be that until now, the reader has not been worrying about the problem of under-determination, but I hope, from now on, she will. Finally, I will set for the search for religious models: what they are, where they reside, on what features they should be grounded.

## 1. The cycle of interpretation, or Sherlock Holmes at work

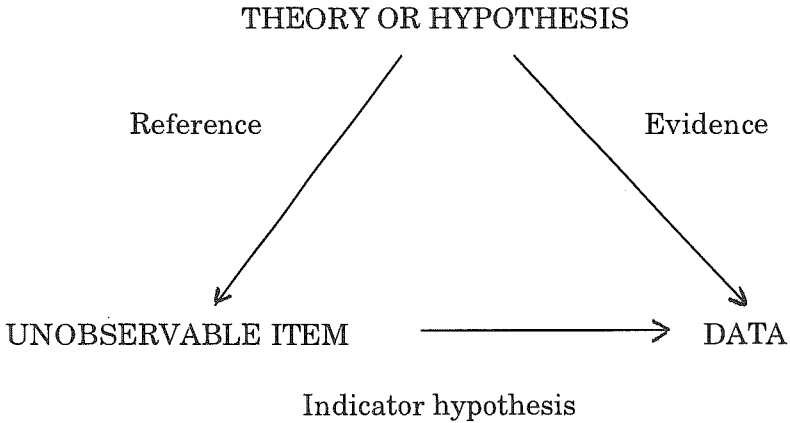
In the field of research of cognitive anthropology, there are three types of structured phenomena whose composition and dynamics are studied: (i) the cognitive systems themselves (human beings and groups), (ii) the cognitive or cultural models which provide the systems with representations and networks of meaning, and (iii) the cultural domains, or the cognized worlds, which are generated by the workings of cognitive systems and their models. The last realm is the collage of constructed realities. Both cognitive systems and cognitive models belong to the "cognizing" reality, whereas the cultural domains inhabit the "cognized" or constructed reality.

The course of cognitive inquiry consists of three steps: first, the cultural domain of a selected theme is mapped and described, and second, the existence and nature of cognitive models operating behind the domain is inferred. The third step is to utilize the inferred structures for the purpose of explaining the features of the cultural domain.

This three-step constellation is also known as the Sherlock Holmes Method, where the properties of the data are made intelligible on the basis of structures which are inferred from the very same data. Sherlock Holmes was famous for his ability to infer the existence of entities which actually did exist. For example, the forced smile of the butler, his nightly departure from the house, and the tracks of mud on the porch all point to the possibility that the butler was there at the time of murder. The assumption that the butler really is the villain, makes all these happenings intelligible, and enables Mr Holmes to weave a coherent story of what took place. We the cognitive anthropologists are on the same mission: making sense of perceived happenings in terms of hidden structures, or models.

An important distinction which should be made is the one between reference and evidence. Sherlock Holmes was extremely capable in constructing the reference in terms of the evidence. Theories of religious thinking and behaviour refer to the unobservable cognitive models, whereas the theories are supported by the evidence extracted from the cultural domain, or data.

The connection between the models and the domain is usually called operationalization, but I agree with Mario Bunge (1983) that the term *indicator hypothesis* is much more informative: the assumption to the effect that a cultural phenomena of type X indicates a model of type Y is a hypothesis. Figure 1 shows the mutual relations between these concepts.



## 2. Three examples from the field: inferring the models of fundamental questions

### 2.1. *Healing in the Amazon*

Among the mestizo peasants of the Peruvian Amazon, there are several illnesses which are treated by means of blowing tobacco smoke. One such illness is **susto**, or fright, where the patient is assumed to have lost his or her soul in encountering an evil spirit or other negative influence. In the treatment process the patient is cleansed with tobacco smoke. The smoke enters her spiritual tubes and expels the evil influences which have entered her body. Sometimes the influences are in very concrete forms: illness projectiles like spines, magical darts or small animals. As a rule, witchcraft-related illnesses, or cases of **brujería**, involve projectiles. Their treatment consists in removing the projectiles from the body, and then sheltering and fortifying the body against invaders (for a detailed description and analysis, see Kamppinen 1989.)

In cases of fright and witchcraft, the patient is treated in accordance with the container model—that is, the participants construe the patient in terms of boundaries, inside and outside. The cleaning of the body tubes by means of the tobacco smoke, as well as the manipulation of evil influences all indicate the workings of the container model. Once accepted, the model makes the treatment, the beliefs, the sayings, and other cultural data intelligible.

The container model is inferred from the data, and the model and the data are connected by the means of an indicator hypothesis, which assumes that the encountered pieces of thinking and doing

are sustained by the container model. The explanation (or cognitive systematization) of encountered phenomena relies on the container model, or to be exact, on the hypothesis concerning the container model.

Ethnomedical beliefs are usually considered religious for the reason that they deal with fundamental questions, and in addition that they are accompanied with superhuman agents, for example spirits and mythical beings. The next example will take us to different kinds of fundamental questions, to a discourse which is not traditionally seen as backed by religious models.

## *2.2. Models of trust and superhuman actors in Western Finland*

The second example comes from Western Finland, where we studied the environmental attitudes of people affected by the siting process of the coal power plant (Raivola and Kamppinen 1994). I will argue that environmental attitudes qualify as quasi-religious attitudes. Their objects are superhuman actors, and they are conceptualized in like manner as traditional deities. The parallels between the contemporary era of late modernity and pre-modern times are sought and exposed, and the specific models of superhuman actors are discussed.

### 2.2.1. The archaic nature of late modernity

In several key sociology texts, contemporary times—notorious late modernity—have been compared to the pre-modern or archaic era. Anthropologists of religion have known all the time that the basic characteristics of man do not change rapidly, and that there are many shared features which span over ages. But there is more to this comparison. One explicit claim, made especially by Ulrich Beck (1992), is that the era of late modernity hosts risks and risk agents which behave like the superhuman actors of the pre-modern era. More precisely, apparent secularization is only apparent; it cultivates new (quasi)religiosity, which is directed towards the invisible superhuman agents of our times. Beck's claim can be given more content by means of a game-theoretical illustration (Brams 1983). Superhuman actors like deities, fairies, gods etc. are players similar to industrial or governmental agents: both are superhuman in the literal sense that they have intellectual, physical, emotional, causal and other resources which exceed the powers of average human beings. Most of us are familiar with the superhuman qualities of governmental agencies at least—how they remember your age, health, and unpaid taxes.

In addition to governmental actors, there are other curious things running wild in late modernity: the risks, especially those pertaining to chemicalization and radioactivity. What is characteristic of contemporary risks is that they are (1) theory-dependent, (2) invisible to unaided perception, (3) potentially lethal and potentially blessing. The first two characteristics are linked together. Since we cannot see, smell, taste or hear most risk agents of our times, we have to rely on the theoretical interpretations which inform us about the whereabouts of these risks. Theories provide us with sorts of causal maps, which indicate the causes and consequences of risk agents: where they reside, how they are brought into being, how they affect us, and what we can do in order to avoid them. Theory-dependence brings about dependence on experts, those who know how to deal with risks. The contemporary risks parallel with the evil effects or influences of pre-modern times. Both are controlled by "those who know", and average members of the respective societies have to have blind faith in the experts. Take, for example, the greenhouse effect: its presence, dynamics, and future effects are all provided to us through expert knowledge. Even those of us who choose to protest against the causes of greenhouse effect, are bound to accept the expert representation of the world. The risk consciousness is highly theoretical.

The third characteristic, namely, that risks involve enormous potential for harm and blessing, is most prominent in food additives. Their blessings are many: we can get edible items from the other side of the globe, and trust that vacuum-packed ham stays non-poisonous for days. On the other hand, we do not quite know what we are receiving as by-products, and very few people know what the long term effects are. The situation is similar to evil influences—as they behave, for example, in the mestizo culture of the Peruvian Amazon (Kamppinen 1989). The powers can be used both for good and evil purposes.

Thus the argument for the archaic nature of late modernity seems quite plausible. Beck is not the only one who has argued for the parallel in question. Mary Douglas, as well as Durkheim and Mauss, in their time, have argued for the similarity of risk classifications in different cultures (see also Kamppinen 1997).

In the next section I will look at a particular case which illustrates the nature of superhuman actors of late modernity.

### 2.2.2. The case of Meri-Pori coal power plant

We studied the cultural effects of the siting process of the Meri-Pori coalpower plant in Reposaaari, Western Finland (Raivola and

Kamppinen 1994). Our aim was to describe and contextualize the attitudes towards the plant. Our central hypothesis was the standard Douglasian idea: the perceived risks of the coalpower plant vary according to the different frames into which they are adjusted. The material was collected by means of interviews and systematic ethnographic participation.

The acceptability (or the risk) of the coal power plant was relativized to different dimensions:

- What is the distribution of costs and benefits?
- What is the location of oneself in the distributive map?
- How justified is the distribution?
- Are the effects under control, and if they are, who is in charge?
- How far in the future do the harmful effects reach?
- Is the direction of change to the better or worse?

These dimensions are known from studies conducted by Slovic et al. (see Slovic 1987). Another, kind of higher-level theme which figured in interviews was the notion of *trust*, namely:

- Who are the players in this game?
- What are their intentions?
- Can they be trusted?
- How powerful are they?

With respect to trust, our informants fell nicely into two ideal-type classes: the technology optimists and the technology pessimists. Those of our informants who trusted the technological and political elite, perceived the risks of the plant as acceptable. These optimists thought they were in good hands, and that Finnish engineering will solve the possible future problems. They did not see any unsolvable or lethal problems arising in the future. Hence, they constructed superhuman actors who were benevolent, powerful, and trustworthy. The pessimists saw grave problems in the future, felt that they were not taken into account in the decision making process, and constructed the superhuman players as malevolent, powerful and untrustworthy. The following citation from a female informant illustrates the construction. She comments on a public hearing which was held in the Reposaari community:

“These coal power company people, they are such that you cannot get a direct answer from them. And in this meeting, they talked for three hours. Since we were allowed to stay there for

four hours only, it was quite a short time. They talked and talked and showed flow charts. They were all well educated, and you know we here in Reposaari have gone only to elementary school. So it is impossible for us to understand them... It is so easy, you just put a flow chart there and show how everything goes just fine, but we don't understand it, unless someone explains it afterwards... If you make a really good flow chart, you silence the common people."

On the other hand, the industry was perceived more trustworthy than the governmental institutions. The political decision making was considered inconsistent, whereas the industry was seen as consistent, even though acting solely for its own good. It is easier to cope with a superhuman actor which is consistent (for example, consistently evil and greedy), than with an actor which changes its basic characteristics every other day.

We analyzed the construction of trust into two components, *fairness* and *control*, and we were able to systematize the construction of trust into four ideal types. Below, they are combined with characteristic statements of the informants:

- 1) Positive perception of fairness and positive perception of control: "Finnish engineering works well, and it is for everybody's benefit that the plant functions."
- 2) Positive perception of fairness and negative perception of control: "You cannot make it so good that there is no risk; it was a good try but the task was too hard."
- 3) Negative perception of fairness and positive perception of control: "They did not want to make it as good as possible; it was only question of money."
- 4) Negative perception of fairness and negative perception of control: "The figures are fake, and the decision making tries to cover previous mistakes."

Our study suggested that trust and its concomitant ontological and epistemological commitments can be used for systematizing the interview material. The different superhuman actors like experts, industry, and governmental entities received their distinctive roles when contextualized in the world of informants, where hopes, fears and other attitudes shape the cognitive landscape.

Next I will take a closer look on the cognitive tools used by our informants in the conceptualization of superhuman actors. The prominent tools were

- ontologization
- personification

Ontologization refers to the cognitive process where the object of mental state is given existential status. Superhuman actors, even though not experienced in visual, auditive, or tactile modalities, are conceived as being there. They are real (Finns believe in the existence of governmental entities more firmly than in the existence God), they have spatial and temporal properties, and they are causally effective. Ontologization transforms the object into a more concrete form, by giving, for example, spatial properties to "experts" who are nowhere in particular. The traditionally strong central government of Finland is also treated as being in particular places, especially in Helsinki, where its main representatives are. Ontologization turns abstract entities into more middle-sized physical objects.

Personification assigns personal, human qualities to non-human entities. Government is considered unfair, industrial bodies greedy, and so on. Personification can be seen as a kind of ontologization, where the concretizing properties are human-like ones.

### 2.2.3. Environmental issues as fundamental questions

Do environmental attitudes, or attitudes towards technology, qualify as religious attitudes? They certainly deal with fundamental questions, that is, with issues which are of utmost importance for the people in question. The livelihood, the surroundings of everyday life, is the aspect of reality with which people are most intensively dealing. In addition to being of fundamental nature, environmental issues involve superhuman actors, which must be taken into account, diagnosed, prognosed, and manipulated. If the term "religious" should be saved for more traditional uses, I think here we have extremely interesting and systematically behaving quasi-religious attitudes.

### 2.3. *The container model of green markets*

This final example deals with the models of new markets created by environmental legislation and consumer awareness. We studied small and medium sized Finnish firms to find out how they perceive the emergence and the nature of the new green market (Peltomäki and Kamppinen 1995). The methods of data collection were interview and survey. Our principal finding was that those firms which were co-operating with other firms saw the new market as more promising. A question which arose due to this finding was how the



green market was conceptualized. Here it was natural to apply the container model in the process of interpretation. The green market appeared to be an entity whose crucial properties were its boundaries, inside and outside. The market was constantly conceptualized in terms of its boundaries: how to enter, with whom, and when; what was it like to be there, and when to retract from the market.

Here we have another good example of quasireligious attitudes, if you will. The entrepreneurs we interviewed were people who worked for 12 or 16 hours per day. The fundamental question for them was the question of finding the market, entering the market, and staying there.

### **3. Under-determination**

Are there other possible models which could generate the domains of phenomena described above? Unfortunately, there are. What is unfortunate about the situation, is that the models or interpretations are always under-determined by the data. Data provides evidence for alternative models as well. And there is no way to put our favourite models to crucial tests. For one, the healing scene I described in the first example could have been produced by the force model, the balance model, the model of sacred things, or by the propositional ethnotheory of illness and health. The ontological model of superhuman actors could be substituted by a similar set of models. The green market data is readily understood in terms of human action plans, strategies, and resources.

Thus under-determination is real, and there is no escape from it. The problem is well-known also in other fields of research. What is characteristic of humanities and social sciences, is that—in the absence of crucial tests—the determination of models is constrained by intuition, rationality, aesthetic considerations, and over-all argumentative structure employed in the study. Different kinds of models are so abstract that they do not exclude one another, and therefore many researchers have their favourite models which are then put to work. As the reader can conclude from the above examples, my favourite models are container and entity models.

### **4. Search for religious models of fundamental questions**

What are the characteristics of religious models, if any? I propose that religious models are second-order models—they presuppose the

models (and the constructed worlds) of time, space, causality and boundaries. Religious models of gods, for example, ascribe temporal, spatial and causal properties to these things, yet they combine the properties in such ways that gods (entities with such combinations of properties) are found in religious traditions only. Quasi-religious models of superhuman actors, on the other hand, make ontological commitments in ascribing various spatial and temporal properties to these things.

Since religious models can be conceptualized in several alternative ways, and since there is no way to submit them to crucial tests, how to choose between different models? The model of superhuman entity, for example, can be construed in terms of containers and boundaries, or in terms of causal forces, or in terms of social and moral qualities.

In cognitive studies and in cultural anthropology in general, there have been two traditions of placing the different models in top ten lists. One tradition looks for the origins of models, and the other tries to find their actual dwelling places. The Durkheimian tradition has argued that since all cognition is socially conditioned, this “great conditioner”—society—must be the Ultimate Reality which affects all other models, especially the models of fundamental questions. Body-thinkers like Mary Douglas, Mark Johnson, Maurice Merleau-Ponty see the bodily experience as the Ultimate Experience, which shapes all other experiences. This line of thought, which emphasizes the origin models, proceeds to offer the following working rule: religious models will bear traces of their origins, so in studying religious models or in constructing and explaining them, look for their society-like or body-like features. The second tradition, the one which tries to find the actual dwelling place of these models, is more alive today: cognitive neuropsychology aims at pinpointing the mechanisms affecting the models.

To put it briefly, religious models (or models of fundamental questions) have been grounded upon

- society (E. Durkheim)
- bodily experience (M. Johnson, M. Merleau-Ponty, M. Douglas)
- neural structures
- characteristics of human information processing (P. Boyer)
- evolutionary sense (S. Atran, E. O. Wilson, D. C. Dennett)
- human/environment interaction (G. Lakoff, R. D’Andrade)
- logic (E. Hutchins)
- computability
- explanatory cash value (all of us!)

A fruitful source for the construction and evaluation of religious models is the common sense ontology of "Aristotelian" categories. By this I refer to the ontology lying behind the everyday experience, to the assumptions which form the building blocks of the Hortonian "primary theory." This common sense ontology is a theory which deals primarily with middle-sized physical objects, persons, space and time. Its central concepts are those of entity, property, boundary, inside, outside, process, change, action and object.

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