Anthropology and Displacement: Culture, Communication and Computers Applied to a Real World Problem

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**Abstract:** Displacement following natural disasters brings about both short- and long-term issues that urban planners must address. While we recognize that many (though not all) aspects of the short-term plans may not require extensive anthropological insights, the long-term plans, on the contrary, do. We suggest in this article that one of the most important contributions anthropologists can make is producing formal models of indigenous knowledge systems (which are derived from underlying cultural systems) and identifying the ways in which such systems are communicated. Adopting an interdisciplinary approach which borrows from developments in artificial intelligence (AI) and multi-agent modelling (MAM), we argue that many of the tools that such disciplines have produced can serve an important role in long-range planning for the coexistence of disparate communities if they are adequately informed by anthropological understandings of the communities involved. We briefly outline the anthropology of communication and the culture concept before turning our attention to something that AI and MAM researchers have dubbed ontologies to suggest that it is possible to model cultural systems in dynamic ways that enable sociocultural models of communities which are simultaneously resilient and robust. We give a concrete example of such a cultural system (izzat or ‘honour’ in South Asia) and demonstrate what an ontology of such a system might look like.

**Keywords:** displaced persons, cultural systems, computer ontologies, modelling

**Introduction**

The immediacy of displacement following natural disasters or conflicts demands immediate responses which might make use of some anthropological theory and methods, but in practice those first actions are likely to be informed more by the specialist assumptions of medical professionals, civil engineers, law enforcement and military personnel and, not least, by politicians interested in minimizing electoral disaster as a result of the perception of bad management. Following the short-term aid delivery, however, we need effective policies to enable disparate populations to coexist even if commingling and cooperation are not likely.

What can we, as anthropologists, offer? Is it only methods? Is it our ethnographic record? Is it the tools we have developed to carry out participant observation which have already made their way into a host of applied social sciences in various translated forms such as participatory methods? All these are undoubtedly useful, but a number of theoretical developments...
in anthropology directly address aspects of rapid, large-scale displacement.

The anthropology of indigenous knowledge systems (cf. Rappaport 1968; Ellen 1982; Sillitoe 2003) is an example of the finely detailed analyses of communication, knowledge and culture which can help identify not only potential areas of misunderstanding, but importantly potential mechanisms for reducing conflict between populations. Migration studies have long looked at strategies adopted by both host and incoming communities to cope with the rapid changes brought about by physical relocation. In this age of cyber infrastructure, globally dispersed communities have found the means to sustain meaningful relationships without regular face-to-face contact. Such technologies may play an increasingly important role in the study of displacement, even in the least developed countries. Anthropology is at the forefront of seamlessly working across disciplinary boundaries to address these issues, and the contribution of anthropological theory and practice is far, far greater than that offered by a handful of methods, no matter how valuable those may be.

This article does not deal with the substantial contribution of physical or biological anthropology to issues of displacement (see for a recent example the Bakers’ project of assisting people to find missing family members who have died while crossing from the US into Mexico <http://www.reunitingfamilies.org/>). The use of forensic, nutritional, epidemiological and other forms of physical anthropology is probably less problematic for non-academic users to include. This article is primarily concerned with the potential contribution of sociocultural anthropology. Nor do we address the specific issues associated with displacement as a result of political conflict; although much of what we discuss here will be relevant, we recognize that such situations introduce additional factors which must be taken into consideration.

**Displacement**

The tsunami that struck the Indian Ocean on Boxing Day 2004 resulted in the death of over 300,000 people, left hundreds of thousands more injured or missing and over one million people displaced (Kälin 2005). Hurricane Katrina struck the Gulf Coast of the southern United States affecting roughly 1.5 million people and forced tens of thousands of people to relocate to other parts of the country (DHS 2006). One of the primary destinations for victims of Hurricane Katrina was the city of Houston in Texas, which found its population increased by around 240,000 in the space of a few weeks (and a substantial portion of them have expressed their intention to stay permanently). The earthquake that struck northern parts of Pakistan killed 73,000 (or more) and forced 2.8 million people to relocate (estimates of the number of displaced persons vary and some estimate around 4 million people) (ADB and World Bank 2005). This very short list of catastrophic events which have compelled large numbers of people to move is only an indication of the scale of the problem. Estimates from the UN suggest that the world may see as many as fifty million people displaced both internally and internationally over the next twenty years. Long-range planning to identify areas of investment to cope with such large-scale movements of people are clearly needed and are underway around the world.

Unlike the types of large-scale movement that have characterized much of British recent history, the kinds of displacement we are concerned with are not driven by economic pull factors. Indeed, one of the biggest problems for the major cities of Pakistan, Southeast Asia and southeastern Texas right now is the sudden influx of people for whom there are no clear legitimate economic opportunities. Houston newspapers report dramatic increases in violent crimes associated with refugees from Hurricanes Katrina and Rita (Gelinas 2006). Major
urban centres of Pakistan are undoubtedly better prepared for refugees as a consequence of having Afghanistan as a neighbour, but the scale of the problem has led to enormous difficulties for both the host communities and incoming displaced persons. In such circumstances planners seek radical options to deal with radical problems. However, the people affected by such options have already suffered enormous pain and loss and it would be deeply unfortunate if they were to suffer additional difficulties because those responsible for long-range planning have imposed theoretically plausible solutions based on analyses that did not include the social and cultural context at all in which such solutions must be implemented, or which employed crude stereotypes of social and cultural context which provide little real information for anything other than producing entertaining television adverts for international banks.

Culture, Communication and Computing

One of the most important developments in anthropology was a focus on the meaning with which people imbue objects, people and relationships. Culture as an analytic concept is about organizing the range of meanings within a particular group of people and devising effective mechanisms for communicating that meaning. Fischer (2004; 2006) argues that certain kinds of knowledge systems affect social situations more favourably than others, and has characterized them as enabling, or powerful, knowledge. Such enabling knowledge is the result of the power of the knowledge system itself to do something useful (such as the knowledge to produce a particular kind of food) as well as the extent to which aspects of it are shared and therefore communicable (such as knowing how to prepare food to express group cohesion among a given set of people). Thus while culture is not exclusively about social situations, much of what we identify as culture results in presentations of appropriate behaviours. This knowledge and associated actions we class as shared culture. Shared culture depends on constant presentations or productions to coordinate the joint belief that culture is indeed shared; that is, part of what makes culture work is feedback between individuals which is effectively communication since people make inferences based on these productions and others’ reactions to them.

Anthropologists generally conceptualize societies as groups composed of individuals who coordinate in a holistic (or emergent) distributed manner through elaborated social behaviour and shared patterns of values. Anthropologists have proposed a vast number of definitions of ‘culture’ over the past century. The development of the ‘culture concept’ over this time has shifted from almost exclusively behavioural criteria to the inclusion of mostly ideational components. This shift represents both development in anthropological theory as well as the postwar impact of cybernetics and systems theory. In particular, cultural systems must fulfill the following three conditions:

- maintain and distribute knowledge within a population of agents;
- (re)produce and assemble the conditions within which cultural knowledge is useful;
- set the terms of reference within which behaviours or actions take place.

This has led anthropologists to focus on relationships of meanings (systems of meanings) rather than simply what a particular object might mean in isolation. Geertz’s (1966) influential depiction of religion as a system of symbols clothed in reality effectively works for all cultural systems. Cultural systems are conceptualized by most anthropologists as systems of symbols and relationships between these (which may be complex and contingent upon or rely upon a number of contextual factors which alter the meanings as well as the relationships between symbols); these systems enable mem-
bers of the same cultural group (or those conversant with the systems of a particular cultural group) to engage in the effective use and communication of meanings. This has profound practical implications for the study of transactions in the real world. Proper use of these systems facilitates social organization and makes emergent, and contingent, entities like ‘community’ and ‘society’ possible. Without the ability to effectively communicate between groups, one is left with divisions and possibly conflict. Without suggesting that all conflict is necessarily unwanted by those involved, it is clear that some level of tolerance and cooperation creates the capacity for larger-scale groups than the absence of such attitudes and behaviours. It is typical of displacement following natural disasters or wars that not only are populations from different culture (or subculture) groups forced to come together, the scale of those populations typically exceeds that which the individuals involved are ordinarily accustomed to dealing with. Consequently, not only must displaced persons contend with strangers (from both their own and other cultural backgrounds), they must also find ways of dealing with far more people than they might hitherto have found normal.

Communication

Communication, as it happens, is a lot trickier than one imagines. That one person can have an idea and produce behaviour that results in another person who then has a viewpoint on this idea that is either the same or similar enough to the original idea for us to have confidence that they now share a common idea is an amazing act. Indeed, it is almost certainly the complexity of this act among humans which singles us out amongst all other animals (leaving aside cetaceans who may or may not have an equally elaborated capacity for the communication of ideas). Communication is not simply the consequence of the combination of language and the medium of message transmission (i.e. speaking or writing). Habermas (1976) outlines some of the operational difficulties in linking linguistic and mental grammar. There are real problems when one assumes that communicative competence stems from linguistic competence alone. Clearly humans rely extensively on language as a powerful tool in communication. However, Leaf (2005) suggests that language is only one of a number of specialized cultural systems which must be shared in order for effective communication to occur. Language, he proposes, is a unique cultural system because of its ability to act as a carrier for other such systems. So linguistic competence is indeed very helpful for communicating a great many things, but competence in other cultural systems is equally vital for effective communication (see also Lyon 2005).

If language is a cultural system, which the weight of evidence would certainly suggest, then it is also, in part, a physiological one, given the adaptations necessary to produce language both physically and with respect to brain-based mechanisms. We argue that while language may be one of the more well understood such sociophysiological cultural systems, it is not the only one. Such systems which seem to display unusually high levels of cross-cultural constraint, such as language (Chomsky 1965; D’Andrade 1995), basic colour terms (Berlin and Kay 1999), plant and animal taxonomic systems (Berlin 1992) and kinship terminologies (Read and Behrens 1990; Read and Fischer 2004), would appear to provide some of the fundamental building blocks for other cultural systems. These cultural systems demonstrate two critical points: first, that knowledge of language itself is insufficient to capture or understand thought; second, that some cultural systems appear to be constrained in ways that cannot be accounted for by culture alone.

Berlin and Kay’s (1999) groundbreaking work on colour classification showed that people of any culture could all see and distinguish pretty much the same things when asked, but actual words used to describe colours were
very different. Nevertheless, even in the differences, there are rules of implication; for example if a language has a term for colour Q it will also have a term for colours X, Y and Z. In the case of kinship, there may be inbuilt mechanisms that help people keep track of the social world in the way we call kinship, but there is radical diversity in the actual structures in which different terminologies are ordered (Read and Fischer 2004). What are common to all kinship structures are principles of construction based on descent, affinity, sex and collaterality (and the latter is often derived from the first). The ways that different groups apply these principles imply most of the terminological relations recognized as kin relations. The generators within kinship systems always correspond to terminological positions, with the possible exception of the identity generator, which is implicit in most terminologies. There are other domains that have such rules of implication. However, in colour terminology and kin terminology we have universal sets of implications, and universals can only occur under limited circumstances. Either there is a specific set of structures in the brain that selects key features that conform to the implicational structure, or the physical environment and human demands of it are sufficient to functionally select similar features in a structure that has the appropriate implicational relationships.

The anthropology of communication provides some important theoretical insights that have applications in addressing some of the problems relating to displacement. It is generally useful for us to identify the markers, behaviours and principles of cultural systems which might be more easily translatable in particular contexts. However, it is vital for us to identify potential areas where miscommunication is likely to occur. Bateson argued that such miscommunication can be the source of serious mental ill health arising from his now famous ‘double bind’ (1999). Bateson’s notion of the double bind is helpful as a starting point for developing useful models of the kinds of clashes between systems of meaning characteristic of the interaction between members of different cultural or social groups.3

In Bateson’s model, messages that cannot effectively be ‘classed’ in an appropriate way provoke unease and anxiety in the receiver of the message. In particular, this arises when critical principles appear to be violated. An example of this from rural Punjab is the principle that brothers should support each other while, in fact, brothers often connive against each other. When such conniving is discovered it is deeply disturbing, and Bateson’s study of communication can help us to understand why such perceived betrayals might be more disturbing in some cultures than others—because not only is the behaviour itself inconvenient or unpleasant, but it violates a base rule of the culture (which nevertheless is violated with sufficient regularity to suggest that there are contingencies where such rules are violable). Bateson’s premise is that people seek consistency in logic and communication. Similar examples might be drawn from the reaction of some groups to homosexuality, incest, women priests, sixty-year-old pregnant women and so on. Such cases are unusual and so understandably tend to attract some attention, but more importantly the extent to which people find such things disturbing varies across sociocultural groups. In part, but only in part, such variation can be modelled and understood in terms of cultural ‘rules’ (something Bateson’s double bind theory lends itself to all too readily). Underlying such rules, however, are important issues of communication and transmission of meaning.

Sperber and Wilson’s (1986) work on communication is instructive in its contrast between the codification versus inference schools of thought. Communication via codified messages, such as a computer’s translation of Latin script into binary code and then back again to enable humans to transmit e-mails and write academic articles, is clearly not exactly what we do when we speak or read written messages. If it were, then there should be substantially less
miscommunication in the world than there is. Instead, human communication depends on a process of inference from culturally meaningful message packages. So the transmitter (person) has an idea which gets packaged into an appropriate message which then gets transmitted via some channel (let us say, speaking). The receiver (person) receives the message package and identifies the symbolic relationships between the constituent elements in the message. Rather than simply decoding the message, however, the receiver must in fact create a brand new message which is (hopefully) very similar to the original transmitter’s message. Sperber and Wilson effectively show that human communication must necessarily involve some elements of both codification as well as inference.

Belief, Desire and Intention; Logics and Comparisons

One of the interdisciplinary ways in which anthropology is likely to be of use comes from developments in computer agent modelling. Particularly in the development of so called ‘belief, desire and intention’ (BDI) agents. These agents’ ‘thoughts’ (so to speak) correspond to generative semantic descriptions that computer scientists often refer to as ontologies, which can be represented as taxonomic systems. These ontologies have sufficiently little in common with (or consequences for) the philosophical usage that it is safest to consider ontology in this context as an entirely new term,4 defining a structure that probably is most related to the semantic analyses from 1960s ethnoscience trading under labels like ‘domain analysis’ (see Goodenough 1970 and Tyler 1969 for many examples). In general, computer scientists are not interested in developing ontologies which mimic semantic understanding in the same full-blown manner that human beings require (for understandable reasons—but see the Cyc project (Lenat and Guha 1990), which very much does attempt to do so), and in practice developing such models for computer simula-

tion is highly challenging, in part because there is little good theory of how to start. The formal production of such ontologies may offer a useful first step in constructing models of culture groups, however, while ontologies can work well in a computer application to define the behaviours within it, though they do not work as well in the real world because they are static in the most important sense. They are generative in that they are far better than a simple taxonomic list of terms and definitions in that they establish more rules of inference, but they are not generative in the same way that a language is; and significantly, cannot satisfy the three criteria stipulated above that characterize cultural systems. Rather, an ontology is a way of describing cultural knowledge, not a model of culture. The ontology describes objects, properties and relationships, but does so in a static manner, usually with no motivation other than being a valid description; there are usually no generative principles that underlay the ontology. This is offset somewhat by the interpreters that computer scientists almost always produce to make their ontology do work, but these interpreters generally serve to derive logical inferences in a given context.

To fully model a cultural system requires a much more dynamic approach that can fulfil the three aforementioned criteria (see Fischer 2006; Zeitlyn and Fischer N.D.). However, ontologies can be a powerful tool for description and modelling. They definitely represent a more formal way of modelling what we think we know about cultural knowledge and for comparing with other cultural knowledge. To recognize a technique is flawed is not to say it is not useful.

Such formal modelling and computational tools are clearly of interest for academic reasons. They offer a way of comparing groups of people which can be scrutinized and from which falsifiable hypotheses become possible. If the underlying logics of a culture are poorly understood or poorly stated at the outset, then the resulting generated BDI agents in a simu-
lation will behave in ways which are not observable in the ethnographic record. If the BDI agents, on the other hand, conform to the range of observable behaviours in the ethnographic record, then such BDI agents might be a valuable tool in identifying potential flashpoints of conflict when those BDI agents are brought into extended contact with BDI agents built upon different ontologies.

Of course, we are not interested in formal descriptions and models just because they are formal. In an interdisciplinary context, where we must communicate our findings to others, formal descriptions and models, by definition, clearly communicate to others the definitions and ideas we are proposing and expose these to scrutiny and criticism. For ourselves, even if we do not believe that our formal description precisely describes cultural phenomena, it permits us to accurately identify where inadequacies in our representation may lie, and thus where we need to pay more attention or make allowances. And for comparative studies, some kind of formal base is almost necessary, since we can only be comparative by abstracting from the compared studies which requires the increased capacity for reflexive and critical examination that only formal methods can provide. Particularly for our interdisciplinary colleagues, a formal presentation of our accounts elevate them from being perhaps ‘good ideas’ to ‘good ideas that can be evaluated’ with respect to an applied problem, such as planning for displaced people, families and populations.

To be sure, developing logics which satisfy the development of computer-simulated BDI agents brings a host of complications and challenges to social anthropologists. We are not in the habit of isolating closely integrated systems of meaning and we are typically not enthusiastic about models which unduly reduce the complexity of our subject matter (meaning people, objects, ideas, environments and pretty much everything under the sun and moon in the areas in which we work). In short, social anthropologists are not always the natural bedfellows of computer science and vice versa. Nevertheless, these two disciplines have a great deal to learn from one another. Artificial intelligence (AI) seeks to develop in silico intelligence which can learn from interaction with others and make better decisions as a consequence of iterative runs of the programme. Humans possess just such skills (which is of course a necessary prerequisite in the existence of AI studies at all), but we are typically unaware of the complexity and enormity of what those skills represent; hence the challenge of simulating such skills in a computer. Anthropologists render explicit much of the assumed world in which we exist. Computer scientists render formal much of the explicit knowledge and activities that humans perform. Together, this interdisciplinary combination offers powerful, new ways of modelling real-life problems of the present and the future (as well as the past, but of course we have fewer options for rectifying many of those problems).

Anthropologists synthesize collective representations formulated at a symbolic level. Using a range of literary and expository techniques and conventions, they communicate a sense of the content of these representations, how they vary and how they change over time. They also produce detailed descriptions of human behaviour, though of necessity these also often are synthetic, drawn from a lot of partial experiences or individuals’ accounts of experience.

Where anthropologists have found difficulty is in the critical area of relating the symbolic to the descriptive. As D’Andrade (1995) relates in his account of the development of cognitive anthropology, it is only since the 1950s that explicit systemic relations/distinctions between concepts and behaviours have been available to anthropology, though one can find less explicit use of this idea in earlier work, especially that of Whorf (see especially the 1956 collection of his principle work), as early as the 1930s. However, the norm is to either consider the idea and the action as one (e.g. if X says she does A, QED she does A), to produce analyses...
of the world as if it were contained in language, or to produce detailed descriptions of behaviours with some hand-waving interconnection with ‘beliefs’. Such descriptions make no distinction between the two; that is, between what is ‘known’ or ‘believed’ need be enacted, and the actions themselves. The excuses for this have not been very convincing.

Anthropologists have long been concerned with the analysis of the less material creations of people; in particular, those entities that appear to be creations of the mind. However, there are problems with the approaches that have been used. Firstly, although symbolic approaches have been rather successful at uncovering good analytic ideas that might account for relationships within society, and may be a very good method for producing these insights, these studies fall short in being able to establish that these ideas are anything other than good ideas. That is, there is no immediate method for testing these revelations. The classical methods for doing this, triangulation and participant observation, go some of the way, but fail to provide methods of confirmation that can easily be compared or generalized. Results we have obtained from four prior research projects, together with some data from a pilot research project, suggest that suitable application of information theory may provide an initial means to extending the range and power of more traditional methods of confirmation, at least for a limited domain of some ethnographic problems.

There are claims by anthropologists that multi-agent modelling is a theory-building tool (Bharwani and Fischer 2006; Fischer 2006; Kuznar 2006) rather than simply being a method to mechanically implement models based on other theories. In other words, are the logic and semantics of multi-agent modelling strong enough to build theory, or perhaps more pragmatically, are the models we implement using a multi-agent framework limited by the framework in a manner that leads to explanation rather than exclusively description?

**Anthropology and Multi-agent Simulation**

It is proposed that the use of agent-based models in some areas of anthropology can help to illuminate ethnographic description and thus provide a valuable contribution to current mainstream anthropology. Bennett’s (1976) framework in particular could also be applicable in other areas of anthropological enquiry due to its generic nature. It is a useful method of formalizing interview material and could serve as an important transitional phase for use in a simulation (Bharwani 2004). The use of primitive effects and strategic designs could be applied to a range of problems, allowing macro-level properties to be analysed using primitive, micro-level identifiers. While Bennett’s model has merely facilitated a formal representation of modellers’ understanding of the knowledge within this domain and does not claim in any way to exhaustively represent it, there are many advantages in creating a more formalized representation of domain knowledge within anthropology (Fischer and Finkelstein 1991). Thus, Bennett’s model could make a significant contribution to the study of a social phenomenon which exhibits similar general characteristics to those which the research questions address here. The benefits of mapping and modelling a complex, adaptive system using this framework are twofold: first, it enables the identification of characteristics (macro-level strategic patterns/designs) which are important to the functioning of a successful system and its essential underlying components, second, the identification of strategies with primitive effects (micro-level effects) which can also be easily identified and analysed.

Anthropological studies using simulation having been increasingly helping to explore social situations which would otherwise be difficult, such as religious ceremonies or rituals. Fischer writes that before the introduction of computers, simulations had long been used by anthropologists to validate their hypotheses against observed ethnographic data and to
investigate the proposed models of understanding (Fischer 2002). The dominant application of simulations in anthropology has been to evaluate the interrelationships between demographic structure and real or hypothetical social structure or cultural practice. For example, Buchler and Fischer (1986) have used simulation to choose between different models of land allocation for horticulture in New Guinea and Fischer (1980) has investigated the relationship between cultural models for agricultural planning and crop yields. But simulation is not limited to such problems.

Social anthropology often uses data which are impossible to quantify or sample and where it is impossible to prove measures or probabilities, or at least it is not clear how to do so. Simulation has applications to both quantitative and qualitative problems and thus has important implications for a discipline such as anthropology which is nonexperimental, yet rich with qualitative comparative studies and thus provides a mechanism to explore problems which may not otherwise be observed, for example ceremonies and rituals (Fischer 2002). The ability to create populations with qualitative data and structural relationships between individuals, rather than creating a population and individual agent characteristics as simple aggregates (Fischer 2002), is a great advantage to a discipline such as anthropology which is based on rich ethnographic studies which require comparison.

Simulation is the ideal platform to extend current knowledge-based methods to anthropology. Kippen (1998) has used a knowledge-based simulation to represent indigenous knowledge about the improvisation of tabla music that indigenous experts could criticise and make adjustments or suggest refinements to. Fischer’s research demonstrates that a detailed knowledge-based model can produce classificatory results regarding arranged marriages that are comparable to indigenous thinkers and indeed are acceptable to them (Fischer and Finkelstein 1991). Though knowledge-based models do not claim to represent cognitive processes and the actual structure of indigenous thought, they are useful in going beyond an ethnographic account/narrative as a formal representation method for describing and exploring ethnographic data and for components in simulations.

### Cultural Systems: Izzat

The theoretical possibilities of communication theory and intelligent agent simulation are profound and far reaching. Here we provide one example of a cultural system and show how this can be formally described in such a way that computer modellers can integrate such models into multi-agent simulations which can then serve as part of a battery of long-range planning tools.

Throughout the Middle East, Mediterranean, Central Asia and South Asia there exist various codes of conduct and reputation which have crudely been translated as ‘honour’ systems (for a nonexhaustive indication of the importance given to systems of honour in these areas see: Pitt-Rivers 1966; Lindholm 1982; Peristiany and Pitt-Rivers 1992; Stewart 1994; Chaudhary 1999; Lyon 2004). In Punjab, Pakistan, there is a widespread concept linked to honour called izzat. Izzat is not exactly honour; however, it is often loosely translated that way. Therein lies a potential for misunderstanding with Punjabi migrants to an area in which local people also have a pronounced and explicit cultural system based on some notion of honour. In teaching undergraduate students about this Punjabi notion of izzat, Fischer developed a very simple expert system to determine the level of izzat of an individual. The specific ethnographic content of the expert system takes the form of a set of propositions, which the logic engine uses to interpret the input from the user.

#### Izzat

Izzat

| if children are obedient  
| then respect is high  

if women creep  
then izzat is not high  
if not women creep  
then women observe purda  
if women observe purda  
then women don’t creep  
if izzat is high  
then hyp honour is great  
if women don’t creep  
and respect is high  
and women observe purda  
then izzat is high

The goal of the expert system is not actually to give students a nuanced understanding of something as complex as izzat or honour systems, rather it is to demonstrate the potential power of the reductions which clarify concepts and illustrate important aspects of those concepts. So in Fischer’s set of propositions, izzat is a reflection of children’s obedience and women’s behaviour (fidelity). For Punjab specialists there is considerably more to examine in the concept of izzat and its consequences (see Lyon 2004: 18–21, for a concise summary of the some of the difficulties in producing bounded definitions of such vibrant concepts); nevertheless, this very simple start to a formal description of izzat unquestionably captures some of the most important aspects of izzat. If one’s children and one’s women (wives, sisters, daughters and so forth) behave in certain ways then izzat may become compromised.

Using the logic of permission and obligation, Fischer has modelled several key aspects of the processes involved in getting married in Punjab, Pakistan (Fischer and Lyon 2000; Fischer 2004). Using such a simple but powerful logic, it becomes possible to generate remarkably complicated cultural performances, which suggests that the ability to create such logics may well be part of humans’ evolved cognitive toolkit (working in a cybernetic feedback relationship with culture, society and the environment).

It is feasible to implement ontologies using basic propositional representations of complex cultural systems, such as izzat, to develop realistic classes of social values which we believe are useful to policy advisors developing explanatory and predictive models of cross-cultural interaction (particularly when that interaction takes place in stressful and unexpected contexts). Using software tools to develop ontologies and corresponding logics which generate cultures for artificial intelligence, it becomes possible to build objects (in this case we are interested in people, so people-objects) which inherit from a number of critical classes (cultural systems) to produce simulated individuals with the capacity for culture. Sophisticated modelling of individuals enables more realistic modelling of social interaction between individuals.

Figure 1 illustrates what an ontology of a cultural system might look like. In this illustration, izzat is the only social value represented, but for an ontology to be useful to urban planners, there would need to be more. Similarly, we have not expanded any of the lower-level domains or modifiers for either Social Structure or Cultural Knowledge, without knowledge of which it is likely to be very difficult to make sense of the ontology represented. Briefly, we have identified three clusters of types of knowledge about izzat—those pertaining to a person’s behaviour, their character and their position within their community. Each of these is expanded to a number of indigenously relevant things (behaviours or attributes). Some of these things are common to both men and women, but where they differ there is a lower level of precision.

For example, if one models the structures of family relationships in Pakistan, one generating logic is the logic of izzat and how it is distributed in the family. This has a direct bearing on whom one draws inferences from in assessing behaviour, so the head of household’s izzat is related to his own conduct, then the conduct of his wife, followed by that of his daughters,
and then sons. Mothers’ conduct impacts on daughters and their husbands, and that of elder daughters on younger (Fischer and Finkelstein 1991). From this information one creates more comprehensible analyses of the kinds of conduct heads of household/sons can use to offset the conduct of wife/mother and daughters/sisters (in brief, either demonstrate an ability to check their behaviour, or in extreme cases, eliminate them in an appropriate manner).7

The family can also be described by the logic of kinship, the logic of work and economics, the logic of land/property/obligations and so forth. Collectively, these define radically what a family must be and the application of each logic in turn reduces the degrees of freedom available. This also makes the definition difficult (in conventional terms) since the effective definition is the emergent property of all of these logics interacting together in different contexts, as seen from each logic. Such a definition would provide a more systematic and useful model for comparison in real-life situations where policy makers are intent on devising strategies for situations such as those faced by millions of people forced to flee the devastation of natural disasters for extended periods of time.

Conclusion

Sillitoe (this volume) suggests that two-dimensional representations of the flow of categories and knowledge are a poor reflection of the complexity of the relationships between what we would call indigenous knowledge domains. Our brief representations of izzat, and the suggestion that this is generated by underlying
logics which form part of the definition of a more complex cluster of knowledge domains called the family, certainly underscore Sillitoe’s point. What we are suggesting is that we cannot afford to produce the kinds of flat models of cultural and social institutions which have hitherto been available, and instead must be far more ambitious in making use of the computational capacity available. Definitions of the family need no longer prioritize the most colourful characteristic such as agnation, or nucleation, but can simultaneously integrate as many generative logics as the ethnographic record enables anthropologists to develop. To be sure, this is a slightly different approach to anthropology and one that will not find favour in all circles, but we believe that it is the one that will be of most use outside of the discipline and, unsurprisingly, one that probably requires anthropologists to modify adopted interdisciplinary approaches from AI studies.

In addition to offering a valuable way forward in applying anthropology to real-life solutions, we suggest that such formal modelling by inference provides anthropologists with a rigorous set of tools for exposing what we do and do not know. Such models may be just as prone to error as other models of human phenomena, but such errors will have the benefit of being more explicit than some other ways of representing culture and knowledge and can thus be debated productively.

We stated earlier that the solution to miscommunication lay not in simply producing better message packages (or spin). In the normal course of global migration for economic reasons, we think addressing issues related to cross-cultural migration are extremely important, but in the heightened disruptions that result from unimaginable events such as the Boxing Day Tsunami of 2004, Hurricane Katrina and the Pakistan earthquake of 2005, in which literally millions of people have been forced to relocate (sometimes permanently), we cannot help but believe rather strongly that anthropologists have a role to play which will make the difference between the host communities developing into dystopian nightmares of fragmented tension and violence or, instead, into dynamic and relatively functional multicultural communities.

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Notes

1. See also the recent series of edited volumes generated from a number of European-based conferences on the relevance of indigenous knowledge to development: Ellen et al. 2000; Bicker et al. 2003; Pottier et al. 2003; Bicker et al. 2004.
2. If discussions of colour classification and kinship terminologies seem unnecessarily formalistic or opaque, please bear in mind that such systemic analyses are the only way we have of inferring vital clues about how people organize information and create instances of knowledge from generative principles of knowledge management.
3. Bateson developed this notion with the problem of schizophrenia in mind and it was tar-
geted at family therapy with people in the same cultural or social group.


6. The words used were generated from Punjabi informants in Lahore, Pakistan. To refer to women as ‘creeping’ is to imply that they behave immorally with men and evade the control of their fathers, brothers and husbands. Purda refers to the segregation or seclusion of women (it comes from the Arabic word for curtain) and is not specific to the Punjab. Such terms must be understood as complex concepts and simple translations or definitions as presented here, fail to convey an adequate sense of what may be communicated when one person tells another that a woman ‘creeps’.

7. Clearly, such analyses have much to offer contemporary Britain, despite the fact that most British Pakistanis did not migrate in response to natural disasters.

References


