PRELIMINARY ETHNOSEMANTICS OF THE AVIFAUNA VOCABULARY IN JIREL

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Introduction

In the summer of 1999 three of the co-authors of this paper formed a team to conduct ethnographic research among the Jirel people of eastern Nepal. The Jirels are one of 70 or so ethnic groups in Nepal and occupy a valley that carries their name, the Jiri Valley, about 190 kilometers east of Kathmandu. Very little ethnographic information has been recorded about the Jirels. Therefore, our primary goal for the initial research season was to begin the basic process of describing Jirel culture. Research time was limited to a brief field season, so we recognized that an ethnographic depth sufficient for contribution to important theoretical issues first required a reasonably good ethnographic description. Consequently, we focused on this basic ethnographic task and set out to characterize aspects of the culture, such as its social organization, subsistence patterns, religion, language, and politics.

In the linguistic portion of the research specifically, we sought to describe the basic referential ranges of lexemes, the things that go with words (Frake 1969), in as many semantic domains as possible. We were able to collect information in four principle domains: (1) kin terms, (2) objects associated with the kitchen, (3) macro-environmental zones, and (4) birds. In preparation for our fieldwork dealing with ethnosemantics (described below), we focused on the bird domain and in-depth ethnosemantic information was collected in that area. Additional information was collected for other aspects of the research, such as kin terms, and the other domains mentioned above.

Ethnographic Background

The Jirels are a relatively small ethnic group estimated to be only 3,525 individuals in 1985 (Blangero 1987). Geographically, they live in

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approximately nine villages, all of which are located in the Jiri region. Some ethnohistorical researchers have suggested that the Jirels are the descendents of a mating between a Sunwar woman and a Sherpa man (Fournier 1974). This hypothesis has support in the quantitative genetic study done by Blangero (1987). It is clear that Jirel culture is closely related to that of the Sunwars (Bista 1980). Both Jirel and Sunwar may be seen as belonging to a larger ethnic grouping known as the Kiranti (Fournier 1974).

Both Hindus and non-Hindus speak the national language of Nepal, i.e., Nepali, which is classified as an Indo-European language. These Hindus, who include the Brahmans and Chhetris, represent the traditional Hindu priestly and warrior high castes, with a long history. Brahmans and Chhetris first came to the Jiri region during the military expansion of King Prithvi Narayana Shah in the late 18th century (Fournier 1974). They are the wealthiest ethnic groups in the Jiri region. Chhetris predominate numerically, comprising approximately 37% of the population of the Dolakha District, in which the Jiri Valley is situated (Frank 1974).

The Jirels, Sherpas, Sunwars, and the Tamangs, all of whom inhabit the eastern hills of Nepal, practice group endogamy and speak Tibeto-Burman languages. Culturally, the Sherpas are very similar to the peoples of Tibet, and the languages and religions of these two groups are also very similar. This most probably is due to the Sherpas' relatively recent arrival into Nepal from Tibet, approximately 500 years ago (Fürer-Haimendorf 1964).

The Tamangs are one of the largest ethnic groups in Nepal and are probably of Tibetan origin (Bista 1980). These people are to be found throughout much of Nepal. The Tamangs are also located in the western portion of the Jiri area.

The Sunwars are a relatively small group, numbering some 20,000 individuals. The Sunwars live throughout the area (Fournier 1974, 1978). Their traditional tribal lands have been slowly lost to other groups, and they no longer own major landholds in the Jiri Valley (Fournier 1974,1978). Also, they are becoming rapidly Hinduized, increasingly relying on Brahmans, rather than their own traditional priests, for the conduct of many of their religious ceremonies (Fournier 1974,1978). The Sunwar language has been classified as belonging to the East Himalayish language grouping of the Tibeto-Burman languages (Glover 1970).

Most scholars agree that Jirel should be included in the Sino-Tibetan language family. But there is little agreement as to the internal structure of that language family, or on the place of its specific languages, including Jirel. Most language scholars dealing with the area agree that Jirel is one of the Tibeto-Burman group that is similar to Karen in the Tibeto-Karen sub-family of Sino-Tibetan languages (Benedict 1972; Matisoff 1978). Not all

linguists agree with the classification stated above. For example, Shafer (1940; 1955) disagrees with the whole idea of a Tibeto-Burman group, and whether it is a sub-family of Sino-Tibetan, or if it belongs to a lower order class. He appears to place Jirel, although not explicitly, in the Bodic division of Sino-Tibetan. In general it is difficult to disagree with Matisoff (1978:1) when he states that: "...one is not suffused with any delicious sense of certainty about the fine details of the interrelationships of the hundreds of the TB [Tibeto-Burman] languages."

Clearly, the placement of Jirel in these classifications is problematic because comparatively little has been published on the language. In this research we made extensive use of an unpublished Jirel-Napali-English dictionary which has been compiled over the past several decades by Anita Maibaum and Ester Strahm, both associated with the Summer Institute of Linguistics. These two field researchers have published a few descriptions of limited aspects of the Jirel language, such as discourse rules (Maibaum, 1978), a tagmemic description of Jirel clauses (Strahm 1975), and a word list (Maibaum and Strahm 1973). No general descriptive grammar of the language is available. Therefore, the classification of Jirel as Tibeto-Burman or Bodic, or whatever, relies on descriptions of closely related languages such as Sherpa (Glover 1974).

The Jirel people are organized into patrilineal clans and sub-clans. These clans function primarily to regulate marriage through an extension of the incest prohibition to all clan mates. The incest prohibition extends on both sides of the family to include first cousins. These clans do not include corporate lineages, and in recent years access to wealth and the means of producing wealth are individually owned. The expressed ideal post-nuptial residence pattern is neolocal, but many newly married couples reside with the groom's family until they become self-sufficient. Polygyny is permitted, but extremely rare. Of all the Jirel men in the valley only two, both of whom are wealthy by local standards, had multiple wives. One of those had two wives, and the other five.

Jirel kinship terminology is Iroquoian for the first ascending generation but is otherwise Hawaiian for all others. The kin terminology system also incorporates a relative age feature for the first ascending generation, and ego's own generations. Ego's parents' siblings and ego's siblings and cousins are similarly marked for their relative ages (for a more complete description of Jirel social organization, see Sidky et al., "Social Organization, Economy, and Kinship Among the Jirels of Eastern Nepal," in this volume)

The Jirels practice a mixed subsistence pattern of horticulture supplemented by animal husbandry. Both land and animals are individually

owned. The principle crops are millet and corn (maize), and they keep cows, goats, pigs, and buffalo as well as chickens. National Nepali law prevents the use of cattle for meat, so bovines are used as a source of dairy products and as draft animals. The other animals are slaughtered for meat, which is consumed directly or typically preserved by drying.

Recent improvements in the infrastructure, financed by the Swiss government, have added marginally to the subsistence alternatives open to the Jirel people. A paved road that runs between Katmandu and the Jiri Valley has been constructed and is on the route to Mount Everest Base Camp. This road has allowed a small tourist industry to develop, and several retail stores catering to these visitors are now functioning. A few Jiri people participate in the operation of these businesses as well as in the operation of a cheese factory. Much of this involvement in the developing cash economy of Nepal, however, has been dominated by the Hindu castes, as well as people of other ethnic groups who have migrated into the valley following the construction of the road.

Principles of Folk Biological Classification

Beginning in the mid-1950s some anthropologists began to study the relationship between human society and thought. This research agenda came to be known as "cognitive anthropology." The first concerns of cognitive anthropology concentrated on the cultural content of the meanings of words, but these early interests evolved to include questions concerning general interactions of mental processes (such as memory, emotion, and reasoning), with cultural knowledge, that is, not merely what people know, but how they use that knowledge and pass it on to subsequent generations (D'Andrede 1995: xiii-xiv). In this work there was an early interest in documenting coherent word lists or lexicons, and that was of most interest to the work reported here.

Early in their work cognitive anthropologists discovered that different lexicons required different approaches to represent their meaning. Some lexicons are relatively small, in the range of 50 to 100 words, and are best represented as a concatenation of the features of meaning that distinguish the elements of the lexicon, a so-called componential analysis. One example of a common small lexicon is the kinship terms that often form the core of social organization. Other lexicons are much larger, in the range of 500-to-1000 words. They exhibit properties of meaning, such as "X is a kind of Y," that are common to all human languages. Many of these lexicons are the words people use to refer to living things (plants and animals) and are referred to in the literature as "folk taxonomies." Research on these folk taxonomies began with the earliest interests in cognitive anthropology and

continues to this day. One of the earliest studies of this sort was done by Conklin (1954) among the Hanunóo of the Philippines, whose plant lexicon contains over 1500 hierarchically arranged terms.

Most of the work on folk taxonomies since the 1950s has gone in one of two directions using either the "taxonomic hierarchy model" or the "natural core model" (Hunn 1982: 835). Berlin (1990) referred to these two as the "intellectual" model and the "utilitarian" model, respectively. The intellectual model, which is probably the more dominant approach, concentrates on the linguistic structure of the folk taxonomy itself and assumes that the lexicon is organized along strict lines of inclusion and exclusion. The utilitarian model questions whether the taxonomy is a rigid structure characterized by fixed ranks and "envisions folk biological domains as composed of a general purpose, polythetic core of taxa surrounded by special purpose monothetic concepts in peripheral positions" (Hunn 1982: 835). In this model the domain may be seen as a series of crosscutting groups, based on attributes, such as mode of reproduction or diet (Hunn 1976).

Both schools of thought start with some basic assumptions about folk taxonomies and their underlying structure. First described by Berlin, Breedlove, and Raven (1973), these general principles identify five or six levels, each of which forms a rank in the taxonomic hierarchy model. All folk taxonomies specify lexical and semantic characteristics of each level. These characteristics include the lexemic status of the taxon, whether it is a primary or a secondary lexeme, and its range of reference, that is, whether it is more or less polymorphic. Primary lexemes are one or more word phrases that cannot be productively analyzed (for example "oak" or "lion" in contemporary English). Secondary lexemes are multi-word expressions in which one element of the phrase makes reference to the next higher node in the taxonomy (for example "white oak" in contemporary English).

The Unique Beginner occupies the top node of the taxonomy at Level 0, for example, "plant" or "animal" in contemporary American English. It begins the taxonomy but quite often there is no overt label for this node. At Level 1, Life Forms are polytypic primary lexemes that are immediately included in the "Unique Beginner." "Fish," "bird," and "reptile" are Life Form examples in contemporary English. These taxa are typically few in number and rarely exceed five words in reported folk taxonomies. Sometimes Generic taxa from Level 2 are elevated to Level 1 when they are of particular ritual or economic significance in a culture. Generic taxa are primary lexemes that are immediately included in other primary lexemes usually at the Life Form level. They are significantly less polytypic than the Life Form taxa. For example, there is wide variation in the class of

"trees" but much less in the class of "oaks." They are numerous and are commonly in the range of 500 words. They are considered the core of the classification system. Level 3 Varietal taxa are relatively rare secondary lexemes that are included in primary lexemes. Generic taxa and Specific taxa at Level 4 are rarer than Varietals and are secondary lexemes. A sixth rank, called "Intermediate," occurs in some folk taxonomies between the Life Form and Generic levels. "Pine" in English has been cited as an example of an Intermediate taxon (D'Andrede 1995: 97).

In the folk classification literature, both schools of thought employ these principles but in different ways. The taxonomic hierarchy school takes the principles to be well established and use them as the basis for further research. Brown (1977, 1979), for example, has done extensive research on the evolution of "Life Form" taxa in various languages. Healey (1993: 19-34) has used this model to investigate the correspondence between the folk classification system and mythology for birds of paradise in highland New Guinea. Medeiros Costa-Neto used the principles as a starting point for his discussion of the cultural significance of bees and wasps among the Pankararé in northeastern Brazil (1998: 1-13). This continued extensive use demonstrates the importance of the taxonomic hierarchy model.

The natural core scholars, on the other hand, often employ the Berlin, Breedlove, and Raven (1973) principles in discussing the advantages of their perspective in accounting for folk classification data. Randall (1976: 545-546), for example, reports that the Samal have a Life Form taxon, *kayu* (tree), whose meaning is a blend of both morphological and functional meaning features (a plant with good wood for cooking, houses, and boats). The taxonomic hierarchy model allows only morphological meaning features (for example tree) while functional features (good wood for cooking, houses, and boats) are permissible as part of the natural core of meaning for a taxon. Hunn and French (1984: 73-92) also make use of the Berlin, Breedlove, and Raven model in an explicit argument from Sahaptin against taxonomic hierarchy. They report that Sahaptin exhibits little taxonomic hierarchy, especially in the realm of Specific and Varietal Taxa. They describe three nomenclature patterns, one of which resembles the class inclusion characteristic of the taxonomic hierarchy model, while the other two draw relations of coordination (for example "relative" or "friend of") between taxa.

The debate between scholars who follow the taxonomic hierarchy model and those who follow the natural core model is of fundamental importance for our understanding of culture and humanity, since it is a debate over the nature of the human mind, and because it is a debate about the human mind, wherein culture resides, it is a debate the nature of culture. It is also one of

those issues in social science that make anthropology a "hard" science, as opposed to an "easy" science like physics or chemistry (Hamill 1990: 14). At present there is no single piece of evidence that will decide the issue. Rather it will be decided only with an accumulation of evidence from languages and cultures around the world that shows which model, if either, provides the better understanding of people and their cultures. It is because reports on previously unreported languages, such as Jirel, provide new evidence and deepen our comprehension of the issues that makes them important.

Data Collection

The ethnosemantic information reported here was collected as part of a collaborative research project among the Jirels. The research goals included collecting base-line information and describing Jirel culture in terms of its social organization, subsistence patterns, religion and ritual, ethno-medical practices, and language with a focus on meaning systems. The research team collected data in all of these areas and also made extensive use of data which had been collected in a separate long-term bio-medical research project designed to study the genetics of susceptibility to helmenthic infections among the Jirels.

Time limitations forced some modification of typical ethnographic methods. Under ideal conditions, anthropologists have the luxury of time to elicit their information and check its accuracy. In typical folk taxonomy research, for example, the researcher may spend months with consultants investigating the local environment, identifying and naming the local plants and animals, and categorizing them according to culturally significant principles.

These limitations were, of course, known prior to the start of the research project, hence some accommodations were made. For the ethnosemantic portion of the study, an attempt was made to use available resources that described the local environment in order to reduce the amount of time that would normally be necessary to identify and name the real biotic features. An attempt was made to produce a relatively complete set of pictorial representations, i.e., photographs and drawings of a group of plants or animals reported as having been found in the local Jiri environment. These were used as a stimulus set instead of real objects. This set was prepared for presentation to local consultants for them to name and group. In general, most of the biotic environment was, however, like the Jiri people themselves, minimally reported in the literature. However, ornithological research carried on over the past century has resulted in very good documentation of the avifauna of Nepal, including that of the Jiri

Valley. Library research in the fall of 1998 through the spring of 1999 produced a relatively exhaustive set of pictures of local birds that were eventually used for this portion of the research project.

Inskipp and Inskipp (1985) provided the information for the first step in the process. Their *Guide to the Birds of Nepal* (1985: 87) divides the country into squares of about 0.5 degrees longitude and latitude, approximately 54 km, on each side. Each species reported for Nepal in the literature was then identified for each of the demarcated territories in which it had been observed. From this, a master list of over 300 species of birds reported in the Jiri Valley as well as the surrounding area was developed.

The second step in the process involved locating pictures of the birds identified in the first step. This was accomplished with the use of Ali and Ripley's ten volume *Handbook of the Birds of India and Pakistan* (1968 through 1974). The reference contains extensive series of color plates from which pictures of birds were copied with the use of a scanner. The color plates in Ali and Ripley provided pictures of 243 of the birds identified in Inskipp and Inskipp (1985). Two sets of pictures were printed on a high-resolution printer and laminated for durability and field use. Before fieldwork began, each bird picture was recorded on a spreadsheet and cross-referenced with both its common English and scientific names. Where Ali and Ripley disagreed with Inskipp and Inskipp on the scientific names, a cross-reference made use of the more recent Inskipp and Inskipp classification scheme.

Once in the field, the elicitation process used these pictures in an iterative, two step process. In the first step, consultants were asked to review the entire set of 243 pictures and sort out the ones with which they were familiar, and then name all of those that they could. In the second step, consultants were asked to group those that they recognized and, when possible, to provide a name for the groupings created. Each name provided was recorded using standard Napali spelling conventions. Almost all of the elicitation sessions were conducted in a group setting in which two or three consultants would examine the pictures and discuss them, before deciding on a final name or grouping. Each step in the process was repeated with the consultant group until the master set was sorted to everyone's satisfaction and all of the names were agreed upon.

While this elicitation process did shorten the normal time required to gather this type of information, several problems in using it emerged during the course of the research. These should be taken into account when evaluating the data. One problem was with the pictures themselves. It was

found that most of the Jirel people who are still knowledgeable about local birds and the names for them in the Jirel language are older and often have failing eyesight. The Nepali economy and healthcare system make eyeglasses prohibitively expensive for most rural people. Of all the consultants who participated in this part of the research, only one wore glasses. As a result most complained during the elicitation session that some of the pictures were difficult to see with clarity.

A second problem involved the interplay of language and writing. It is not uncommon in the Jiri Valley for people to be at least tri-lingual and tri-literate in Nepali, Jirel, and English. Many of the Nepali speakers report that they are able to participate in Hindi conversations and enjoy mass media broadcasts in Hindi as well. While this fact made recording the data easy, the use of local writing skills also obscured much of the inner workings of the Jirel language in this semantic domain. The local spelling conventions make use of the Roman alphabet as adapted for Nepali, but Nepali and Jirel are very different languages. Nepali is an Indo-European language very closely related to Hindi. Jirel is a Tibeto-Burman language that is much more highly inflected than Nepali. It makes phonemic use of tone, whereas Nepali does not. The Nepali writing system misses many of these important features of Jirel, especially tone, and blurs other morphological processes. The research team decided that the ethnosemantic data were more important than the finer points of Jirel grammar, so local writing systems were used with local interpreters. For these reasons the data are to be considered preliminary.

The data were elicited in one of two general settings. The first was the Jiri Helminth Project Research Center. This site is a frequent meeting place for local people who visit to chat with friends or receive basic medical care. The consultants who were interviewed at the research station had stopped by in the course of a normal working day, often after they had heard of our interest in the collection of bird vocabulary. Each of these data collection sessions was conducted in public and usually attracted a crowd of people who were interested in the pictures and willing to contribute their knowledge to the discussions.

The second setting was in consultants' homes, several of which were visited because the research was being conducted during the primary millet-planting season. Many of the consultants were busy planting their fields and either could not, or did not, visit the research station. These sessions were similar to the public sessions in that they always engendered lively group discussion, but in these cases the discussions were between members of the family and not the general public.

The data elicitation processes and settings thus produced two classes of consultants. Primary consultants were those who were the focus of the data collection interviews. They were asked if they would contribute their time because they were well known in the community for having knowledge of the natural environment. Secondary consultants were those people who joined in the conversations about birds and contributed their opinions but their identities were not formally recognized in the field notes.

People in the community generally agreed that only older men would know about the names of birds in Jirel, because the Jirel language is quickly being replaced by Nepali and this knowledge is limited only to those who have had extensive life experience with the local animals. For example, one of the primary consultants has had experience serving as a local forest warden for the past several years; another two are brothers who have acted as local guides for trekking tourists in the region. In all, seven primary consultants contributed to the ethnosemantic data on birds. These consultants were all older men whose families included both children and grandchildren. When they were asked about their ages they were often vague and responded with their family status, that is, numbers of children and grandchildren. We estimated that they were in their sixties and seventies.

Avifauna Lexicon in Jirel

All of the primary and secondary consultants who reviewed, sorted, and named the stimulus package agreed that all of the pictures were kinds of *chyojyungma* (birds). Two of the primary consultants mentioned that there were two *chyojyungma* not included in the package. They claimed that they knew these but could not name them. Other consultants did not mention this, nor did any of them agree to include other flying creatures such as bats, moths, butterflies, etc., in the class of *chyojyungma*.

Chyojyungma is thus a primary lexeme, highly polytypic, and includes primary lexemes that are much less polytypic. On morphological grounds alone it is, therefore, a Life Form taxon of the creature folk taxonomy in Jirel. The other names elicited in the research are on either the Generic level or lower. This is typical of many folk taxonomies. For example, Brown (1979) identifies "bird" in his universal evolutionary sequence of creature Life Forms along with "fish", "snake", "wug" (worm and bug), and mammal-like animals.

The seven primary consultants varied in their responses to the two parts of the data elicitation activities. In the primary sorting/naming task one

consultant identified a little over twenty of the birds with eleven Jirel names, while another two consultants were able to name over one hundred. There was also some variation in the names provided for specific pictures. Sometimes consultants would use the Nepali name for the bird, while other consultants would respond with the Jirel name. Once all seven had completed the initial sorting/naming task, a master consensus list was developed. The accuracy of this list was checked with each of the seven consultants when differences were detected between their names and those of the other consultants.

Consultants differed in their names in one of two ways. Either a consultant did not recognize and name a bird while another consultant was able to provide a name, or the two consultants provided two different names. In this second case, either the names provided were in two different languages (i.e., Jirel and Nepali) or more rarely, the consultants gave differing Jirel words for the same bird. The cross-reference process resolved almost all of the disagreements, and the one or two that were not resolved were decided on the basis of majority opinion. This cross-checking provided a consensus list of sixty-six (66) names for birds in the Jirel language that refer to one hundred thirty-four (134) separate species identified in the more formal scientific biological taxonomy. These names are provided in Table-1, Jirel Names for Birds, along with the genus and species designation from taxonomic biology for each of the identified birds.

Most, but probably not all, of these Jirel names should be classified as Generics. The total of sixty or so Generics in the folk taxonomy is typical. In fact if the entire folk taxonomy often contains over five hundred Generic taxa (Berlin 1992), comprising perhaps a total of five Life Forms, then sixty would be rather sparse, but not unexpected. The number of binomials (two word names) is also consistent with typical folk taxonomies (see Table-2. Jirel Bird Name Binomials). It is not clear that any of these are Specific or Varietal taxa.

Table-1
Jirel Names for Birds

Jirel Name	Scientific Name
Bakulla	Bubulcus ibis, Anthropoides virgo, Egretta garzetta
Bwantete	Pomatorhinus erythrogenys
Chenchen	Pyrrhocorax phrrhocorax
Chenchero	Arborophila torqueola, Lerwa lerwa
Chhengchheng	Turdus albocinctus, Zoothera monticola
Chhilbak	Passer montanus,
Chilibili	Seicercus xanthoschistos, Serinus thibetanus, Phylloscopus reguloides, Phylloscopus inornatus, Phylloscopus proregulus, Cettia flavolivacea
Chirima	Carpodacus rhodopeplus, Anthus sylvanus
Chuchupe	Parus monticolus
Chui Hans	Aythya fuligula, Phalacrocorax carbo, Anas clypeata
Chyakura	Alectoris chukar
Chyankabire	Tesia castaneocoronata
Dambek	Alcedo atthis, Tringa ochropus, Capella gallinago, Tringa glareola, Tringa nebularia, Tringa hypoleucos
Damphu	Rhipidura albicollis
Chhyojungma	Lophophorus impejanus
Danken	Aethopyga gouldiae
Denchenachili	Tringa totanus
Denchenli	Streptopelia decaocto
Gadingma	Gypaetus barbatus, Torgos calvus, Pandion haliaetus
Gidda	Rhodonessa caryophyllacea
Hans	Vanellus cinereus
Honka	Ceryle rudis
Jalewa	Garrulax rufogularis
Jhyomuk Jodate	Garrulax ocellatus
Jhyomuk Leh	Actinodura nipalensis, Garrulax erythrocephalus
Jhyomuk	Phragamaticola aedon, Acrocephalus aedon, Cisticola juncidis
Jiglok	Phylloscopus reguloides
Jukurma	Treron sphenura
Jyoring	Cissa flavirostris
Kebarule	Carpodacus ruticilla, Carpodacus pulcherrimus, Carpodacus erythrinus, Pyrrhula erythrocephala
Khadak	Corvus splendens, Corvus macrorhynchos
Khokaling	Accipiter nisus, Circaetus gallicus,
Khrangmu	Garrulax striatus
Kifrekfrek	Monticola rufiventris, Phoenicurus frontalis

Kokale	Dendrocitta formosae
Kolumgma	Mycerobas affinis, Megalaima virens
Kukkuk	Cuculus micropterus
Lamadui	Pericrocotus flammeus
Liklike	Motacilla flava, Montacilla cinerea (caspia)
Lunken	Chalcophaps indica
Momo	Tragopan satyra
Muste	Pnoepyga albiventer
Panpotok	Bubo bubo
Parewa	Columba leuconota
Petamu	Zoothera mollissima
Phenche	Dicrurus leucophaeus, Dicrurus aeneus
Phista	Seicercus burkii, Seicercus castaniceps, Phylloscopus furcatus, Phylloscopus maculipennis, Carpodacus nipalensis, Dicaeum agile, Dicaeum ignipectus, Alcippe castaneceps, Sylviparus modestus, Saroglossa spiloptera, Emberiza pusilla
Pitakuli	Yuhina gularis, Fulica atra
Ponbotok	Falco amurensis
Quali	Strix aluco
Rolgimata	Hieraaetus pennatus, Haliastur indus
Rongi thunke	Copsychus saularis
Sarul	Acridotheres tristis
Sikre	Accipiter gentilis
Suga	Psittacula himalayana
Suhie	Minla Strigula
Sukudandan	Cuculus poliocephalus
Suyasuya	Rhyacornis fuliginosus
Tajungma	Lanius tephronotus
Tatire	Zosterops palpebrosa
Tayamu	Picus flavinucha, Picus squamatus, Picus canus, Certhia discolor, Blythipicus pyrrhotis, Hypopicus hyperythrus, Micropternus brachyurous
Tha	Falco peregrinus, Falco chicquera, Spizaetus nipalensis, Buteo hemilasius, Buteo buteo, Buteo rubinus. Milvus migrans, Pernis ptilorhyncus
Tha Jungma	Falco subbuteo
Tha Lemma	Aquila chrysaetos
Thunke	Muscicapa superciliaris
Toktokma	Phoenicurus hodgsoni, Muscicapa sundara, Phylloscopus fuscatus,
Toktokma phista	Muscicapa hyperythra Saxicola ferrea,
Tonyotonyo phista	Yuhina occipitalis, Yuhina flavicollis
Tukruma	Falco tinnunculus

True Specifics and Varietals must occur in contrast sets all of which are analyzable binomials that make reference to the next higher node in the taxonomy (Berlin 1990). However, this structure is not true of the Jirel bird binomial *Rongi thunke*. The "*rongi*" in this phrase refers to the altitude of the Jiri Valley but there are no other kinds of *thunke* with this taxon. Other binomials are also not found in such contrast sets. *Jhyomuk jodate* and *jhyomuk leh* are noun-adjective pairs. *Jodate* can be glossed as "big" and *leh*, from "*lekh,*" refers to an altitude between the snow cap of mountains "*himal*" and the local altitude of the Jiri valley "*rongi,*" although in reverse order. The consultants, however, identified three species that were merely *jhyomuk*; so these names would not fit in the strict intellectualist model as specific taxa. The same is true of *tha Jungma* and *tha Lemma*, as well as *toktokma phista* and *tonyotonyo phista*. It appears, therefore, that these binomials are neither Specific nor Varietal taxa.

Table-2
Jirel Bird Name Binomials

Jirel Name	Scientific Name
Jhyomuk Jodate	Garrulax ocellatus
Jhyomuk Leh	Actinodura nipalensis, Garrulax erythrocephalus
Rongi thunke	Copsychus saularis
Tha Jungma	Falco subbuteo
Tha Lemma	Aquila chrysaetos
Toktokma phista	Muscicapa hyperythra, Saxicola ferrea,
Tonyotonyo phista	Yuhina occipitalis, Yuhina flavicollis

In an effort to elicit the Specific and Varietal taxa consultants were asked to sort the pictures which they had named into groups. This procedure did not, in the end, provide evidence of these taxa, but it did prove useful. The failure came because the groups into which consultants sorted the pictures were almost always ecologically based. For example, one group of three primary consultants working together named a total of forty birds, which they then grouped by habitat, thirty-five were classified as forest birds, and the remaining five were water birds. Two primary consultants who named over one hundred birds, grouped these into thirty-one categories. These two consultants acknowledged that the thirty-one categories were not really different kinds of birds. Rather, they were just convenient groups that the two were using in order to understand the large array of pictures. These thirty-one groups, while not related to any sort of taxonomic hierarchy, did

represent, therefore, a rough approximation of how these two individuals conceptualized the universe of birds in Jirel culture. The result of this sorting task is given in Table-3.

Table-3
Sorting Task Results

Group	Birds
1	Pomatorhinus erythrogenys, Garrulax erythrocephalus, Garrulax rufogularis, Garrulax ocellatus, Zoothera mollissima
2	Garrulax striatus, Rhyacornis fuliginosus
3	Dicrurus leucophaeus, Dicrurus aeneus
4	Tringa ochropus, Tringa nebularia, Tringa glareola, Tringa hypoleucos, Tringa totanus, Capella gallinago
5	Dendrocitta formosae, Cissa flavirostris
6	Carpodacus erythrinus, Yuhina gularis
7	Zoothera monticola, Turdus albocinctus
8	Pericrocotus flammeus, Muscicapa superciliaris, Muscicapa sundara, Phylloscopus reguloides, Copsychus saularis, Phoenicurus hodgsoni
9	Alectoris chukar, Tragopan satyra, Arborophila torqueola, Lerwa lerwa, Lophophorus impejanus
10	Passer montanus
11	Gypaetus barbatus, Accipiter gentilis, Accipiter nisus, Hieraaetus pennatus, Pernis ptilorhyncus, Buteo rubinus, Buteo buteo, Buteo hemilasius, Milvus migrans, Haliastur indus, Pandion haliaetus, Falco peregrinus, Spizaetus nipalensis, Circaetus gallicus, Aquila chrysaetos, Torgos calvus, Falco subbuteo, Falco amurensis, Falco chicquera, Strix aluco, Bubo bubo
12	Corvus macrorhynchos, Corvus splendens
13	Psittacula himalayana
14	Acridotheres tristis
15	Lanius tephronotus
16	Saroglossa spiloptera, Cettia flavolivacea, Seicercus xanthoschistos, Phylloscopus reguloides, Phylloscopus furcatus, Pnoepyga albiventer, Alcippe castaneceps, Rhipidura albicollis, Seicercus burkii, Seicercus castaniceps, Tesia castaneocoronata, Phylloscopus fuscatus, Cisticola juncidis, Phylloscopus inornatus, Phylloscopus maculipennis, Phylloscopus proregulus, Parus monticolus, Zosterops palpebrosa

17	Picus squamatus, Blythipicus pyrrhotis, Picus flavinucha, Hypopicus hyperythrus, Picus
18	canus, Micropternus brachyurous, Certhia discolor
18	Alcedo atthis, Ceryle rudis
19	Aythya fuligula, Anas clypeata, Rhodonessa caryophyllacea
20	Megalaima virens
21	Dicaeum agile, Aethopyga gouldiae, Dicaeum ignipectus
22	Chalcophaps indica, Streptopelia decaocto, Treron sphenura
23	Egretta garzetta, Bubulcus ibis
24	Actinodura nipalensis
25	Cuculus micropterus, Cuculus poliocephalus
26	Carpodacus nipalensis, Emberiza pusilla, Carpodacus pulcherrimus, Carpodacus rhodopeplus, Carpodacus ruticilla, Sylviparus modestus
27	Monticola rufiventris
28	Montacilla cinerea, Motacilla flava
29	Anthus sylvanus
30	Pyrrhocorax phrrhocorax
31	Acrocephalus aedon, Phragamaticola aedon

When these grouping exercises failed to elicit Specific and Varietal taxa, one of the primary consultants was asked to describe each of the eleven birds for which he had given a name. It was hoped that this process would provide insight into some of the features that are encoded into the Jirel bird terminology, and in so doing indicate some of the cultural significance linked to these birds. His responses are summarized in Table-4, Selected Bird Descriptions.

In his responses, this particular consultant made use of features of altitude ("higher altitude" or "at this altitude"), habitat ("jungle," "home," "local"), and common foods eaten by the birds ("carrion," "chickens," "crops"), to describe this small set of birds.

At this point the researcher was presented with only a few Jirel binomials for birds, while at the same time the consultants were comfortable with further division of the entire set of birds. In fact consultants had volunteered further groupings of the stimulus set without prompting. On this basis it was decided to provide each consultant with features under which to group a representative set. After the consultants did this grouping they were asked if the groups were related to generic taxa in "kinds of" relationships.

The features used were derived from the descriptions summarized in Table-4 and the representative set was developed from the thirty-one groups

in Table-3. A set of forty-eight pictures was selected from these thirty-one groups. If a group contained only one example, for instance groups 13 and 14, that picture was included in the set, but for the larger groups (for example 11 and 16), several pictures were used. Groups of primary consultants were asked to sort the set on the basis of altitude, habitat, food, and nesting environment. Finally they were asked to do a free sort in which they could group the set into as many groups as they wanted on whatever basis they wished. The results of these sorting tasks are given in Table-5. Sort by Altitude, Table-6. Sort by Nesting Environment, Table-7. Sort by Food, and Table-8. Free Sort.

The sorting by altitude was relatively straightforward. The consultants easily classified the pictures into four named groups using Jirel phrases. Three of the group names, *lekh*, *rong* and *lekh rong*, used words from Jirel bird names and from the descriptions summarized in Table-4. The consultants, however, would not agree that these groupings had any "kind of" relationship to any bird name they knew. The same was true of the four groups in Table-6, except that the groupings were not as "natural." The consultants could not provide any Jirel word or phrase, except for the descriptive phrases given in the English glosses, unlike their ability to do so for the "altitude sorting" procedure in Table-5.

Table-4
Selected Bird Descriptions

Jirel Word	Description
Sarul	*Sarul* eats snakes. It is a good bird, a "home" bird in that it stays around the home and builds its nests of clay called "*chuchukuni*" in the nooks and crannies of the house. It is like pigeons, sparrows and other small birds in that it migrates in and out of the area by season.
Khadak	*Khadak* lives in the jungle and takes chicks and corn so farmers do not like them. Farmers will make a *torba* (scarecrow, dummy of a man with a hat and they put it in the field). Jirel people believe that if you hear *Khadak's* sound in the morning you will get a message (good news) that day from the directions of the sound. *Khadak* is important in *Tihar*, the festival of lights. This four day celebration comes in the fall festival

	spanning October and November during which large quantities of local alcoholic brews called *roxi* and *chang* are consumed. In it sisters honor their brothers and lights are put around the house. One day of the festival is known as *Kagtiha* (from Napali "*kag*" glossed "crow") on that day you worship "in the name of *khadak*" because the crow is not there.
Gidda	*Gidda* lives in the jungle and eats carrion (*richyobo* in Jirel). In Tibetan funerals people will dismember the corpse and offer it to *gidda*. There are two kinds of *gidda*, one that lives at high altitudes (Jirel *lekh*) and another smaller one that lives in the Jire region and eats chickens. Farmers do their best to scare this one away but nobody likes *gidda*.
Tha Jungma	*Tha Jungma* is not native to the Jire valley and is only rarely seen. When it is seen it is considered a bad omen.
Jyoring	*Jyoring* is a small bird with a big tail that eats corn. It lives near the home and is considered a good bird even though it eats crops.
Pitakuli	*Pitakuli* a very good jungle bird. There, in the jungle, is a plant called *thwasing* in Jirel that looks like corn but is poison to people. *Pitakuli* eats this plant.
Penche	*Penche* is a jungle bird.
Quali	*Quali* is a jungle bird but sometimes comes near the house and make a loud sound. It is a small nocturnal bird that eats in the jungle.
Parewa	*Parewa* stays around the house but raids both field and house for food. It is considered a very good bird and sacrificed for the goddess *Nidota*.
Suga	*Suga* is a parrot. It does not live in the Jiri valley but can be trained to talk.
Momo	*Momo* is a *lekh*, high altitude, bird.

Table-5
Sort by Altitude

Lekh (high altitude)

Tragopan satyra, Lerwa lerwa, Pyrrhocorax phrrhocorax, Garrulax erythrocephalus, Garrulax striatus, Garrulax ocellatus, Actinodura nipalensis

Lekh rong (between *lekh* and *rong*, the level of the Jiri valley)

Falco peregrinus, Falco chicquera, Strix aluco, Blythipicus pyrrhotis, Megalaima virens, Picus canus, Corvus splendens, Cissa flavirostris

Rong (the level of the Jiri valley)

Capella gallinago, Treron sphenura, Columba leuconota, Cuculus micropterus, Lanius tephronotus, Acridotheres tristis, Dicrurus leucophaeus, Carpodacus rhodopeplus, Carpodacus ruticilla, Yuhina gularis, Muscicapa superciliaris, Muscicapa sundara, Rhipidura albicollis, Phylloscopus reguloides, Cisticola juncidis, Copsychus saularis, Phragamaticola aedon, Monticola rufiventris, Parus monticolus, Anthus sylvanus, Motacilla flava, Dicaeum ignipectus, Passer montanus, Zoothera monticola

Terai (the Nepali lowlands)

Anas clypeata, Egretta garzetta, Torgos calvus, Tringa nebularia, Psittacula himalayana

The sorting by food (Table-7) produced similar results. The consultants could provide no Jirel word or phrase that captured the groupings, and the groupings themselves were considered to be rather artificial. One consultant even said that the birds in the three groups really do not fit together, except by the accident of their diet.

Table-6
Sort by Nesting Environment

Nest in Jungle and Trees

Falco peregrinus, Falco chicquera, Tragopan satyra, Lerwa lerwa, Treron sphenura, Psittacula himalayana, Cuculus micropterus, Strix aluco, Blythipicus pyrrhotis, Megalaima virens, Picus canus, Lanius tephronotus, Dicrurus leucophaeus, Corvus splendens, Cissa flavirostris, Pyrrhocorax phrrhocorax, Carpodacus rhodopeplus, Carpodacus ruticilla, Garrulax erythrocephalus, Garrulax striatus, Actinodura nipalensis, Yuhina gularis, Muscicapa superciliaris, Rhipidura albicollis, Phylloscopus reguloides, Cisticola juncidis, Phragamaticola aedon, Monticola rufiventris, Zoothera monticola, Parus monticolus, Anthus sylvanus, Motacilla flava, Dicaeum ignipectus,

Nest Around Home

Columba leuconota, Acridotheres tristis, Copsychus saularis, Passer montanus

Nest in Cliffs and Rocks

Torgos calvus

Nest near Water

Anas clypeata, Egretta garzetta, Tringa nebularia, Capella gallinago

Table-7
Sort by Food

Do Not Eat Meat

Anas clypeata, Egretta garzetta, Tragopan satyra, Lerwa lerwa, Tringa nebularia, Capella gallinago, Treron sphenura, Psittacula himalayana, Blythipicus pyrrhotis, Megalaima virens, Picus canus, Lanius tephronotus, Dicrurus leucophaeus, Pyrrhocorax phrrhocorax, Garrulax erythrocephalus, Garrulax striatus, Garrulax ocellatus, Actinodura nipalensis, Yuhina gularis, Muscicapa sundara, Rhipidura albicollis, Phylloscopus reguloides, Cisticola juncidis, Phragamaticola aedon, Monticola rufiventris, Zoothera monticola, Parus monticolus, Anthus sylvanus, Motacilla flava, Dicaeum ignipectus

Eats Crops (Wheat and Corn)

Columba leuconota, Carpodacus rhodopeplus, Carpodacus ruticilla, Passer montanus

Eats Meat

Falco peregrinus, Torgos calvus, Falco chicquera, Cuculus micropterus, Strix aluco, Acridotheres tristis, Corvus splendens, Cissa flavirostris

The free sort worked much like the altitude sort. The consultants were able to give concise Jirel labels for the five groupings but did not agree that the groups themselves were "kinds of" birds. They identified four groups based on size and a fifth group of "water birds," but even this fifth grouping was not taxonomically related to any Jirel bird name.

Table-8
Free Sort

Tektekte (small)

Carpodacus rhodopeplus, Carpodacus ruticilla, Yuhina gularis, Muscicapa superciliaris' Muscicapa sundara, Rhipidura albicollis, Phylloscopus reguloides, Cisticola juncidis, Copsychus saularis, Phragamaticola aedon, Zoothera monticola, Parus monticolus, Anthus sylvanus, Motacilla flava, Dicaeum ignipectus, Passer montanus,

Adote

Lerwa lerwa, Treron sphenura, Columba leuconota, Cuculus micropterus, Acridotheres tristis, Corvus splendens, Cissa flavirostris

Ado Thikate (between *tektekte* and *adote*)

Psittacula himalayana, Blythipicus pyrrhotis, Megalaima virens, Picus canus, Lanius tephronotus, Dicrurus leucophaeus, Pyrrhocorax phrrhocorax, Garrulax erythrocephalus, Garrulax ocellatus, Actinodura nipalensis, Monticola rufiventris

Jodate (large)

Falco peregrinus, Torgos calvus, Falco chicquera, Tragopan satyra, Strix aluco

Chula Khumkante (water birds)

Anas clypeata, Egretta garzetta, Tringa nebularia, Capella gallinago

Two of these three sorting tasks did seem relatively natural to the consultants, that is, it captured something salient about the Jirel organization of avian knowledge. They were comfortable with the sorting by altitude and the features used in their free sort, and they were able to name the grouping that resulted from the sorting task with one- or two-word phrases. The other two sorting features, habitat of nests and common foods, were apparently much less natural. The consultants noted that they could accomplish the sort, but that they thought it was more or less meaningless, and their descriptions were not expressed in concise language. Instead they were described in rather lengthy sentences. Finally, none of these sortings exposed any Jirel Specific or Varietal taxa.

Suggestions for Further Research

In many ways the domain of Jirel bird words offers no surprises in comparison to the general folk classification literature. The data elicited from Jirel-speaking consultants produced a Life Form Taxon in Jirel which corresponded to "bird" and there was a reasonable set of Generic Taxa for birds in Jirel. The data, however, did not reveal any clear taxa at the Specific or Varietal levels. While there are a few binomials in the data, they do not exhibit the linguistic structures necessary to be Specifics or Varietals in the strict intellectualist model. This is not to say that the sixty or so Generic taxa for birds are not sub-divided by Jirel speakers. Rather, that the sub divisions, as shown by the responses to sorting tasks, are more dynamic than would be expected in a typical taxonomic hierarchy structure.

The research conducted in the Jiri Valley in the summer of 1999, however, was too brief to be conclusive in this matter. Clearly, there are enough indications to justify further consideration of Jirel folk biological classification, but further study is needed to take the entire semantic domain of living things into consideration. The absence of Specific and Varietal taxa in the bird lexicon does not mean that such taxa would be missing from other parts of the biological classification system, such as mammalian animal, grass, or tree lexicons; and this research does not say much at all about the integration of folk biological knowledge into Jirel culture. Only further and more in-depth ethnography can answer these questions.

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