Why is the shark not an animal? On the division of life-form categories in Oceania

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Abstract

In Oceania, there is a strong linguistic link between terms for marine resource exploitation and the division of life forms. Aspects of this relationship (especially in Cook Islands and Tonga) are described and discussed in this paper from a cross-cultural perspective. A Polynesian response to the question of why the shark is not an animal shows that modern science, which is a "science of the abstract", has something to learn from traditional taxonomy, which is a "science of the concrete".

Introduction

It has been argued that the human species by nature is a classifying animal whose continued existence depends on the ability to recognise and linguistically mark similarities and differences among objects. Berlin (1992:4–5) states that the biological resources of a local environment must be classified before they can be used by people. He writes that people must be able to recognise, categorise and identify examples of one species, then group similar species together and differentiate them from others, and also be capable of communicating this knowledge to others.

While no one could deny the adaptive importance of recognising and naming useful or dangerous organisms, it has also been argued that humans have a much more fundamental cognitive need to make sense of the biological diversity that surrounds them. The best known of those who have exemplified the latter position is Lévi-Strauss (1966), who notes that the use of more or less abstract terms is a result of interests that are differently marked or detailed in different societies, and that one often encounters a very detailed terminology for species that occur in the environment of the people in question but that things generally become useful according to the way they are known, rather than vice versa.

The ethnobiological literature abounds with examples of traditional knowledge about plants and animals. My own list of vernacular plant and animal names used in Tonga totals more than 1,400 items (Malm 2007a). A major task for ethnobiologists, or human ecologists, is to not only collect information on the uses of named organisms, but to also try to understand the cognitive principles through which people create an order in diversity, particularly the ways these are reflected in the taxonomy.

If, for instance, a Westerner argues that a shark is an animal, and a Polynesian that it is not, how is it possible for both of them to be correct and fully rational? In this paper, comparisons are made between Polynesian (especially Tongan) and modern Western (essentially scientific) traditions of classifying organisms, in order to find an answer to this riddle. In this regard, the relationship between marine resource exploitation and the division of life-form categories in Oceania are discussed.

All animals are not "animals"

Although a local people's detailed knowledge of organisms and their names may be considerable, if not overwhelming, certain general terms are often lacking. This can be quite confusing to someone from another cultural background. I made my first acquaintance with this classic ethnobiological issue as a young biologist while working at the Rarotonga Marine Zoo in the Cook Islands in 1983–1984. One day, a Cook Islander who was also working there and who was in his early-20s, told me that I was entirely wrong in speaking and writing (in English) about sharks as "animals". "The shark is not an animal", he said. "It is a fish. Animals do not live in the sea." I answered that the shark was a fish, but that fish of course are animals. After further discussion that lead nowhere, he just shook his head and left.

The matter remained unsettled until I learned from a dictionary that the Cook Island word for animal is *vaevae 'ā*, which translates as "four-legged" (Strickland 1979:33). Cook Island children who learn that

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vaevae ʻā means "animal" in English may end up in confusing conversations such as the one I had with my friend, because while a *vaevae ʻā* certainly is an animal, an animal is not necessarily four-legged.

After some inquiry, I found out that quadrupeds are also called *manu vaevae ʻā* and that birds are called *manurere,* meaning "flying animals". I thought that because animals have legs or wings they were perceived as *manu*, or animals, whereas fish, which are called *īka*, were not regarded as animals.

I came to realise, however, that it was not legs or wings vs fins, but land and/or air vs water — a habitat segregation — that was of fundamental importance to the cognitive distinction between a *manu* and an *īka.* As I was to find out 10 years later during anthropological fieldwork, it is exactly the same in Tonga, where no sea animal, no matter how many legs it may have (and crabs and lobsters have many legs), can be spoken of as a *manu.*

If one asks a Tongan about the word for animal, the answer will be *manu* or *monumanu.* The first term refers to a particular animal, whereas the second is used generally. On closer investigation, it is clear that these words do not cover the whole spectrum of organisms that are defined as animals in English, because they are used only for animals that are living on land: birds and bats, four-legged mammals, lizards and insects.

Similar notions are, for example, found in the Society Islands (Lemaître 1977) and Cook Islands (Clerk 1981). It is not certain if terms signifying "four-legged" were used in Polynesian classification during the pre-Christian era. For Tahitian, Lemaître (1977:176) states that *manu ʻāvae maha* is an example of how translators of the Bible "had to find expedients for transposing Judaic ideas about the animal world into Tahitian". What is clear, however, is that the word *manu* and its cognates (e.g. *manuk, manok* and *maan*) are found among many Austronesian-speaking peoples, from eastern Polynesia to Indonesia and the Philippines in the west (Brown 1981:93–96). *Manu* often refers to birds, as among the Nuaulu people of Seram in the Moluccas (Indonesia), where *manue* refers to "dwellers of the sky", and *ikae* to "ones of water", but only when there is no comparable term for land animals (Ellen 1993:112).

The Polynesians' lack of a word to describe all "animals" is not as surprising as it may seem, and reflects a common principle of folk taxonomies according to which a taxon marking "animal" at the rank of "kingdom" generally is not named (Berlin 1992:27). It may be that birds constituted the primary, perhaps the only, zoological referent of the Proto-Polynesian term, and that daughter languages, in some cases independently, expanded their reflexes of **manu*[2] to additional animals, because most Polynesian islands had very few mammal species.

What is a "life form"?

What I had encountered in Rarotonga was a taxonomic system that was entirely different from what I had been taught in classes on systematic biology, and in order to understand it better I have found Berlin's (1992) analytical perspective useful. It gives scientists the possibility of comparing folk taxonomies by listing taxa (named categories) according to rank from "top" to "bottom". That is, from the most encompassing to the most specific.

As has been pointed out by Ellen (1993:96), it has become conventional to begin descriptions of folk classifications at the "top", presuming that there are actually levels. This may reflect scientific, but not necessarily indigenous, notions. In other words, general categories are accorded a prominence and primacy whether or not there is any independent ethnographic evidence for ascertaining their salience. For the sake of consistency, I have chosen to discuss the categories at the "top" as those categories that encompass the greatest number of organism types.

Berlin (1992) uses the term "kingdom" for such high taxonomic ranks as "plant" or "animal", whereas the second-order term life form refers to general taxa such as trees, fish and birds. Life forms are taxa that indicate a highly distinctive morphotype named by a simple word or idiom (a primary lexeme), which is not included in any other taxon than "kingdom", and which includes a number of lower-order taxa sharing the recognised characteristics of the type.

Ellen (1993:116–118) argues that it is possible to discuss the encoding sequence of animal terms in a language without referring to life forms, but instead referring to "primary term" or "primary category". According to Ellen, just because certain life-form categories are found in many cultures, this does not necessarily mean that scholars should accord them greater salience in particular folk classifications, because other categories may be more culturally salient. He writes that the taxa that Berlin, for instance, regards as life forms are salient and most often found in word lists "because they are terms

2 The asterisk signifies that the word is reconstructed.

most commonly in use, and which occur most frequently in ordinary speech correlated strongly with the order in which they are added to languages" (Ellen 1993:118). With regard to folk taxonomies discussed here, I consider "life form" to be quite apt for the categories under discussion, because indigenous terms occur frequently in ordinary speech, and also because the reason why organisms are classified as belonging to these categories is that they live in a certain way.

If asked what the general word for "organism" is, a Tongan may answer *me'a mo'ui,* which means "living thing", or just *mo'ui,* "living". Although it might have been used in the pre-Christian era, the Tongan term *me'a mo'ui* is connected mainly to the modern teaching system (introduced in the 19th century), and is most likely to be heard in classrooms or in religious addresses. Rather than in daily speech, it is used in textbooks for Tongan students and in the translation of the Bible where Tongan words were needed for expressions such as "all the living things that creep upon the Earth". Another question, however, is whether a "living thing" has the same meaning to a Polynesian as to a Westerner. There is no reason why animals and humans should be grouped together with trees and seaweeds in contrast to winds, water, clouds and stones. Although scientists talk about organic life as being made up of cells with a metabolism, this does not necessarily mean that all life is organic. Tahitians, for example, extend the domain of "living beings" to everything in the universe not made by humans (Lemaître 1977:177), and on Satawal in the Caroline Islands of Micronesia, inanimate objects such as water, stones and fire are grouped together with immovable trees and plants as a category, *miin,* which is in contrast to another category, *maan,* which includes humans and animals (Akimichi 1996:508).

Thus, within a framework other than the modern scientific one, a much wider understanding of living things is just as logical. And because "living things" include almost everything in creation, a term for it may not have been needed until fairly recently.

Ika and fingota

In the Tongan animal world there are not only *monumanu,* but also two main categories of aquatic (mainly marine) organisms: *ika* and *fingota.*

According to Churchward (1959:240), *ika* is the general word for fish and includes turtles and whales, but not eels or cephalopods, whereas Dye (1983:259) states that in Niuatoputapu, in Tonga's northernmost islands, this term does include eels and cephalopods (this may just be a local difference). In his list of fish names, Dye also includes sea snakes. McKern (n.d.:368) writes that cephalopods (squids and octopii), shrimps, jellyfish and palolo worms are classified with fish, turtles and sea mammals, probably because of their occurrence in deep water as swimmers or floaters in contrast to "shellfish", crabs and similar nearshore and seafloor animals. Dye (1983:259) notes that *ika* is a category characterised by scales, a head, eyes and free swimming ability.

The very earliest definition for *fingota* was "shells" (Samwell 1967 [1777]:1046; Labillardière 1799:43). A more common and recent definition is "shellfish" (e.g. Clark 1981, 1991; Collocott 1925:162; Schneider 1977). The general description of animals that belong in this category, in contrast to *ika,* is that they are stationary or move by creeping or crawling, often have shells, and lack a head and often also eyes. Churchward (1959:190) states that *fingota* means "sea creature of any kind other than *ika*", and that this category includes "shellfish" (by which I take it that he means molluscs with shells), crustaceans, cephalopods, jellyfish, eels, sea snakes, sea cucumbers, starfish, and even seaweeds. McKern's statement about cephalopods, shrimps, jellyfish, and palolo worms being classified as *ika* was not generally agreed on by my informants, and none had ever heard of the palolo worm occurring in Tongan waters (see Malm 1999:247–251).

The need for clearly defined categories presents more of a problem to researchers than to Tongans, probably because modern science has been built up as a "science of the abstract", whereas traditional knowledge is basically a "science of the concrete" (see Lévi-strauss 1966). From my conversations with fishermen and women, it is clear that *ika* and *fingota* are two generally recognised categories, but that a very specific vocabulary is usually preferred when one speaks about particular kinds of animals. If one talks about collecting marine invertebrates in general, *fingota* is used, and *ika* can be used as a general word for swimming animals that men catch in the open sea or that one looks for at the fish market. However, even if a whale is seen as a big fish, one mainly speaks about it as a *tofua'a,* and whether a moray eel is a *fingota* or an anomalous, scale-less kind of *ika* does not seem to matter, because one always uses its particular name (*toke*). There would be no point in saying that one had caught a big *ika* if it happened to be an octopus or a turtle. Some would see an octopus as an *ika,* others (and most, according to my experience) as a *fingota,* but everyone would know what an octopus was: simply a *feke.* Tongan folk taxonomy has, until fairly recently, existed only orally and not in books, where a generally accepted system of clearly defined categories was needed for treating various groups of organisms in different chapters, or to place the books on the correct shelf in a library. To the Tongan, it is not important to have a clear division between these

two categories, as a specific word can hardly be misunderstood in its context.

Neither *ika* nor *fingota* are defined in relation to whether they are caught by women, children or men. Bataille-Benguigui (1994:117) defines *fingota* as invertebrates in general that are collected by women and children. But although collecting *fingota* is mainly women's work (Malm 1999, 2007b, 2009a, 2009b), it does not mean that an organism is a *fingota* because it is collected by a woman, or that another organism is an *ika* because it is harvested by a man. A fish (other than an eel) is never viewed as a *fingota* if it has been caught by a woman, and even men collect *fingota*. Giant clams, for example, are regarded as *fingota*, not *ika*, whether they are collected by women or brought to the surface by men who dive for them. On the other hand, corals are not regarded as belonging to either of these two categories, but are instead seen as rocks or, especially if the colony looks like a tree, as marine plants (such as *toa tahi*, "ironwood of the sea", for black coral).

Both *ika* and *fingota* are words that are used by a number of people in Oceania. With varying local pronunciation, *ika* is found from eastern Polynesia to Southeast Asia as *i'a* (Tahitian), *yiik* (Satawal) and *ikan* (Indonesia). *Fingota*, however, occurs only in western Polynesia, on Polynesian outliers (Clark 1991).

Fingota has various definitions, but usually includes seashells or shellfish. I use "shellfish" somewhat reluctantly, within quotation marks for two reasons. First, "shellfish" does not refer to any special group of organisms recognised by modern systematic zoology. Second, I would, at least for the Tongan context, dispute "shellfish" as an adequate definition of *fingota* because it not only leaves out seaweeds, but also animals that have no shell. (Besides, with the exception of eels, none of them is a fish.)

It may, of course, be the case that the use of these words varies among islands (as between Tongatapu and Niuatoputapu), or even people on the same island, but it is obvious that some dictionary compilers have not been careful in finding out exactly what kinds of organisms a category in question covers. The latter is exemplified with the language of Niue, where *fingota* means "an edible sea-crab" or "shell-fish", according to two different dictionaries (quoted by Clark 1981:79).

Fingota and fāngota

More widespread than the noun *fingota* and its cognates, are cognates of the related verb *fāngota*. The latter word is, with varying pronunciation, found all over western Polynesia, on Polynesian outliers, in some Melanesian languages and among the Cook Islands in the east (Christiansen 1975, Clark 1991; Dye 1983; Foale 1998; Pawley 1996). In the rest of Polynesia, both *fingota* and *fāngota* are, apparently, unknown terms. (The occurrence of the word in the southern group of Cook Islands can probably be explained by the roots of some of its people in Samoa western Polynesia.)

The terms used for "shellfish" in the rest of Polynesia seem to be less inclusive, referring either to specific types (e.g. lobsters or sea urchins) or to molluscs with shells. In Hawaiian and Tahitian, for instance, *pūpū* refers to shells, especially gastropods, but there is no special word used for all marine invertebrates, in contrast to fish. Neither does there seem to be any special verb corresponding to *fāngota* for obtaining them. Instead, in Hawaiian, the ordinary word for "to find/catch" (*loa'ā*) or "to gather/collect" (*'ohi;* as in *'ohi 'i'o pūpū*, "to gather shells") is used (Pukui 1983; paragraphs 307, 607, 2263). In Tahitian, the verb *ofa* is used for "collecting or amassing food", and *ao* for "collecting, gathering or netting" (Andrews and Andrews 1944:13, 97). In Mangaia, Cook Islands, where marine invertebrates and smaller lagoon fish are caught by women, the activity is simply referred to as "women's fishing" or *tautai va'ine* (Clerk 1981:212).

Clark (1991:81) suggests that *fingota* originally was not a biotaxon, but rather a category of produce obtained during an activity called *fāngota*, or something similar, and that subsequently it might have evolved, in one or more languages, into a biological category. He also concluded that the slightly varying forms of the words *fāngota* are recent cognates of an original Proto Polynesian word, **faangota*, and possibly an even older Proto Remote-Oceanic or Proto Oceanic word, **pangonta*, with the basic meaning "having shellfish or *fingota* as its main catch, the reef as its location, and women as fishers", which evolved into **pingonta* as a biological category (cf. Pawley 1996:134–135).

On some islands, women and children probably catch *fingota* only on the reef simply because the lagoon is too deep, even at low tide, or because there are only fringing reefs and no lagoon at all. But on some islands, such as Tongatapu, the lagoon is important (Malm 1999, 2007b, 2009a, 2009b). Therefore, I suggest the following, albeit somewhat lengthy, definition of *fāngota* in its exclusive sense (i.e. not as a general term for fishing) as "the collecting or catching of mainly invertebrates — non-*ika* marine organisms (excluding coral) — in the area between the beach and the open sea, mostly by women and children".

According to Clark (1991:81), the basic meaning of *fāngota* as "women gathering mainly shellfish"

has, over time, been broadened independently in a number of languages to mean "fishing in general". He discusses why this might have happened. One reason is that it reflects a principle suggested by Berlin (1972:66): words that are elevated from generic meaning to a major class are those that are the most culturally salient because of their distribution and cultural importance. Referring to the fact that *fāngota*, as in Tonga, is considered unworthy of a man's attention, Clark (1991:81) writes that culturally it does not seem to be the most salient form of fishing. He goes on to suggest two ways in which the repeated shift in meaning of *fāngota* might be explained: First, whereas it is women's and children's work, and thus the opposite of the more prestigious fishing activities of men, it is nevertheless the activity that people do the most often, and spend more time doing, than any other. Second, owing to the low prestige accorded to *fāngota*, the term might have been used by men — in jest, through modesty, or perhaps for reasons of word taboo — to refer to more "serious" types of fishing. The lack of ethnographic data from pre-European times makes it hard to say which one of the two suggestions is most plausible, although I lean towards the first one.

Conclusion

Going *fāngota* for *fingota* is a culturally salient form of obtaining food in Oceania, and is connected to traditional ways of dividing organisms into life forms that exemplify what Lévi-Strauss calls "a science of the concrete", in contrast to "a science of the abstract". Ways in which island people divide organisms into life forms according to habitat, morphology and behaviour offer us an opportunity to see scientific biological taxonomy from a comparative cultural perspective. Scientific taxonomy, empirical and rational as it may seem, is by no means more so than traditional taxonomies, such as those discussed in this article. To a scientist it is quite self-evident, for example, that a shark is an animal, and to a Rarotongan Maori, it is equally self-evident that it is not. From each one's perspective, only one of those opinions could be correct, but through a cross-cultural analysis we understand that neither one is more logical or empirical than the other. There is, therefore, something very important to learn from the answer to the question about why the shark is not an animal in a part of the world where *fāngota* has been many a child's first steps towards the more prestigious fishing in the open sea.

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