

THE MEANING OF “NATURE”: INSIGHTS FROM COGNITIVE LINGUISTICS

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Abstract

The field of cognitive linguistics studies how language and concepts are related to underlying processes of the human mind. In this paper, I explore some ideas from cognitive linguistics that might help us understand how people use the concept of nature. The concept of nature appears to have a radial structure, in which many different variations of meaning arise from a central, basic definition. The basic meaning of “nature” can be represented in a simple idealized cognitive model, which is mapped onto situations in various ways. Alternative definitions for a “natural” environment or system may be combined in a cluster model, giving rise to prototype effects. Recognizing that there is a common basis of meaning and a common conceptual structure underlying many different senses of the word “nature” may help us in understanding how people experience natural environments, and in communicating and negotiating new understandings of the human-nature relationship.

1.0 Introduction

My purpose in this paper is to look at the meaning of the word “nature”—that is, at the concept of nature. To provide a context for the discussion, I will first give a brief description of a controversial situation that occurred several years ago over the management of public forest preserve lands in the Chicago area. Then I will introduce some ideas from the field of cognitive linguistics that may help us in understanding how the concept of nature is structured and how different concepts of nature are related to each other. I will conclude with a brief discussion of what these ideas imply for “reconstructing” the concept of nature in environmental philosophy and practice.

1.1 The Chicago Restoration Controversy

County forest preserve lands are one of the most important outdoor recreation resources in the Chicago area. Millions of people visit forest preserves each year for

picnicking, hiking, horseback riding, nature appreciation, canoeing, fishing, and a variety of other activities. Before the European settlers arrived, these lands had been mostly prairie, oak savanna, and woodland environments. Over the years, with the elimination of fire and the introduction of exotic species, they have developed into dense forests with thick undergrowth that includes both native and non-native species.

About 25 years ago, groups of volunteers began doing ecosystem restoration work on selected sites on public forest preserve land around Chicago. Their goal was to bring back the threatened, native ecosystems of the region and ensure their survival into the future. Their work included pulling non-native weeds and reseeding with native species, burning to reduce competition from invasive plants, and cutting brush and certain trees which were not part of the original ecosystem. As a result of the volunteers’ efforts, the sites where they worked took on a more open character and native species began to reestablish themselves. From the volunteers’ points of view, the outcome of all this work was the restoration of nature in the forest preserves.

But as the scope of the restoration work in the forest preserves expanded, some residents of neighborhoods near the restoration areas saw the cutting and burning and became very upset. They did not see these management activities and the changes they were producing in the landscape as a restoration of nature but as just the opposite. For them it amounted to the destruction of nature in the forest preserves. The ensuing controversy was acrimonious and resulted in a moratorium on restoration activities in many of the areas where the volunteers were working. An in-depth account of the controversy and the issues it raised can be found in Gobster and Hull (2000). For the purposes of this paper, the most interesting aspect of this situation is that both factions, while vehemently opposed to each other, believed that they were acting on behalf of nature.

1.2 Different Natures?

A social constructionist would be quick to point out that, while these two groups were both using the same word,

“nature”, they were in fact talking about two different things. They had constructed different meanings for this word. When the restorationists said “nature” they were thinking about the original, native ecosystem as it was before the Europeans arrived. When the restoration opponents said “nature” they had in mind the present-day environment of the forest preserves, where a diversity of plants and animals were getting along with relatively little direct interference from human beings.

Situations like this have inspired a great deal of discussion and debate about the whole notion of “nature”. Many books have been written and articles published (e.g., Evernden 1992; Soule and Lease 1995; Hull et al. 2001; Katz 2000; Light 2000), exploring questions such as, “Does nature really exist, or is it simply a concept constructed by humans?” and “How do we decide what is natural and what is artificial, and is that distinction even meaningful?” These are not just ivory-tower, philosophical questions. Concepts of nature are part and parcel of the values and experiences that many people seek through outdoor recreation, and they are involved in many conflicts over management of recreation areas.

2.0 Cognitive Linguistics

The field of cognitive linguistics focuses on the relationship of language and concepts to the underlying processes of the human mind. George Lakoff, one of the founders of the field, and his colleagues have published several books exploring how concepts are structured and how this influences the ways in which people speak, categorize, and think about the world (Lakoff & Johnson 1980; Lakoff 1987; Lakoff & Turner 1989). In the rest of this paper, I will examine how some principles from Lakoff’s (1987) book, “Women, Fire, and Dangerous Things” might apply to the concept of nature.

2.1 “Nature” as a Radially Structured Concept

Nature is a complex concept. The American Heritage Dictionary (Morris 1976) lists 14 different senses of the word “nature”, 16 senses of the word “natural”, and another 19 entries based in one way or another on these two words. Williams (1985) further documents the wide range of meanings that “nature” and “natural” have had in Western culture. Some of the meanings of these words extend far beyond the field of natural environments

and resources, to include many other areas of human experience. This complex array of meanings may appear bewildering at first. To cite just a few examples, we speak of the “laws of nature”, the “natural sciences”, and “natural environments”. We apply the concept of nature to human beings when we speak of “human nature” or advise someone to “act natural”. In the political and legal spheres there are “natural rights” and “naturalized citizens”. In baseball, some players are “naturals”, while a roll of the dice that wins immediately in craps is also a “natural”. There are many other specialized, technical uses of terms derived from “nature” in various fields, such as “denatured alcohol” in chemistry, “natural logarithms” in mathematics, and the “key of A natural” (as opposed to sharp or flat) in music. These are just a few instances of how the concept of nature is applied by speakers of the English language.

Is there some orderly structure underlying the diverse and wide ranging senses of this concept? Reading through the diverse definitions of nature in the dictionary, one senses that they all are variations on a common, underlying theme. This suggests that the concept of nature has what cognitive linguists call a radial structure. In other words, there is a central, basic definition of the concept, with many different variations spinning off from it. Thus, the concept of a “natural environment” is just one of many variations derived from a more basic, underlying concept of nature.

The central definition of nature, which has given rise to the many particular uses of the concept cited above, can be stated like this: “Nature is the way things inherently are”. That is, the concept of nature refers to the intrinsic, original, or genuine characteristics of things, people, systems, processes, places, or whatever the concept is applied to. This is consistent with the etymology of the word “nature”, which is derived from the Latin word for birth (*natura*). Thus the nature of a person or other entity literally means the qualities that they were born with (Ayto 1990).

2.2 An Idealized Cognitive Model for Nature

Cognitive linguists have proposed that human thought is structured in terms of basic conceptual schemas or idealized cognitive models (ICMs). An ICM describes

how the key components or actors in a situation are related to each other. People use these models to think about and classify the things and events that they encounter in the world. The basic definition of nature that I gave in the previous section appears to be part of just such an ICM, which is shown in Figure 1.

The focus of this ICM is an entity of some kind, which could be an organism, an object, a person, a system, an environment, a process, or anything of interest. The “nature” of this entity is some set of characteristics or features that are presumed to be inherent or intrinsic to it. These characteristics are often regarded as being inward or internal to the entity, i.e., they arise from or are located inside the entity, in some sense. The schema also includes an agent or actor that is external to the entity of interest and which acts upon it in some way. The action of the external agent gives rise to modifications of the entity’s intrinsic characteristics, or to new characteristics that are added to the entity’s original characteristics. These modified or added characteristics are often regarded as “outward” or “superficial” to the entity.

This is a very general schema. Many of the particular definitions of nature found in English usage can be derived by assigning different things to the various roles in this model. For example, when we speak of the laws of nature, the entity in the ICM is the physical universe. The scientific laws that govern physical events and interactions are considered to be intrinsic to the universe and hence they are “natural”. In this case, the external agent would be something that stands outside of physical reality (e.g., a spirit or deity), and an “unnatural” event would mean a supernatural or miraculous occurrence caused by that agent. On the other hand, when we tell a person to “act natural,” the entity of concern is the person’s behavior. “Nature” in this case refers to the person’s own intrinsic behavioral patterns and predispositions. The external agent is the person’s conscious will, which is capable of altering their

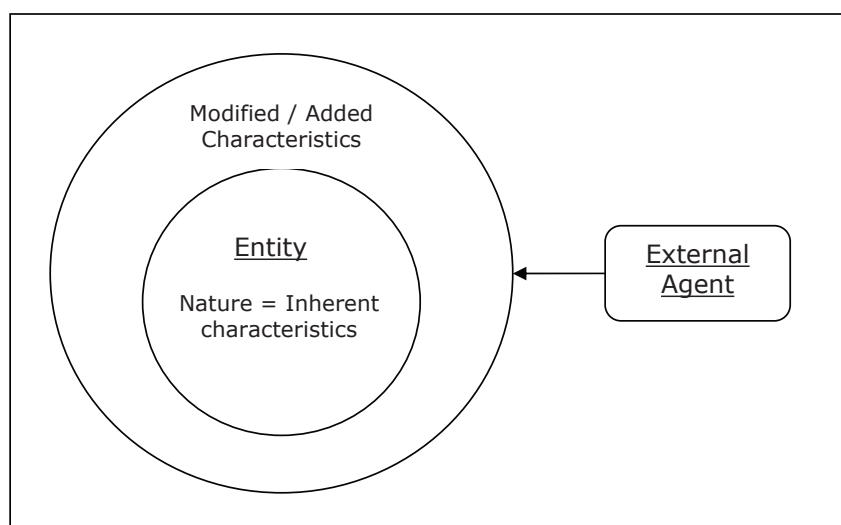


Figure 1.—An Idealized Cognitive Model for the concept of nature.

natural behavior pattern by deliberately imposing some other way of behaving (for example, to conform to social expectations). This altered behavior would be considered unnatural for the person.

Now let’s look specifically at how this idealized cognitive model for the concept of nature applies to the Chicago-area forest preserves, as seen by the two sides in the restoration controversy described above. The basic schema in Figure 1 can be used to represent the viewpoint of both groups. The entity of interest in the model for both groups is the forest preserve environment. For the restoration opponents, the nature of the forest preserves includes all the species of plants and animals presently existing there, which are carrying on their lives relatively free from direct human management and manipulation. They see the restorationists as external agents acting upon this environment, and the changes brought about by the restorationists’ work as an unnatural modification of the environment.

The restorationists, on the other hand, see the inherent or natural characteristics of the forest preserves as including only the native species that were there prior to European settlement. The external agent from their perspective is the exotic species, which have invaded the native ecosystem and have altered and degraded its natural characteristics. They see their work as a process of undoing the unnatural changes that were caused by

exotic species and other impacts of European settlement, so that the natural characteristics of the forest preserve environment can be reestablished. While they might not view their own activity as being “natural” per se, they do see it as supporting, defending, or helping the original nature of the forest preserves to survive (Schroeder 2000).

The key thing to note here is that both the restorationists and their opponents appear to be working with the same basic schema or model of nature, but they have assigned different players to the various roles in that basic model. In particular, the restoration opponents see the restorationists as external agents who are altering nature, while the restorationists have cast exotic species in the role of an external agent of unnatural change.

An idealized cognitive model is like a template. It provides a simple structure that can be mapped in various ways onto our experience. Different mappings give rise to different definitions of nature, but these definitions are not totally unrelated. They are motivated by the same basic, underlying definition of nature, and tend to follow the same basic structure provided by the nature ICM.

2.3 Metaphorical Models

Idealized cognitive models obtain their structure in a variety of ways. Metaphors are a very important source of structuring for many concepts (Lakoff and Johnson 1980). In a metaphor, the structure of one domain of experience is mapped onto another domain, providing a ready-made structure for that domain. Cognitive linguists have found that metaphorical mappings are fundamental and ubiquitous in human thought and speech. In particular, many of our ideas about nature appear to be derived from metaphors. For example, the idea of “Mother Nature” is a metaphor that draws upon our experience of family relationships to understand our relationship with the world of non-human nature. The popular notion of the “balance of nature” is also a metaphor, drawn from our experience of interacting with certain physical systems. Metaphors for nature such as these may add further structure and complexity to the simple schematic ICM for nature discussed above.

Literature generated by the restorationists and their opponents around the time of the Chicago controversy

illustrates how each group used different metaphors to elaborate upon the basic ICM for the nature concept. For example, the restorationists sometimes used metaphors of war and invasion to depict the effect of exotic species on native ecosystems. They saw themselves as an army on the battlefield, waging war against alien invaders to defend native ecosystems from destruction (Schroeder 2000). The restoration critics, on the other hand, employed metaphors of immigration and assimilation to portray the role of exotic species. In criticizing one county’s Natural Areas Management Plan (NAMP), which called for removing non-native plants, a restoration critic noted that

This is America, the melting pot. The greatest example of non-judgmental tolerance of all types in the world. But by NAMP standards, (being non-native) is justification for removal (Humpf 1996, p.3).

One implication of this immigration metaphor is that, like “naturalized citizens” in American society, exotic species in an ecosystem have the same right to be there as native species. The restorationists’ invasion metaphor, on the other hand, implies that the exotics are violating the “rights” of native species, which need to be protected and defended. Each metaphor highlights different aspects of the ecological interactions that can occur when exotic species enter an ecosystem, and each leads to different inferences about what actions are appropriate or ethical in response to exotic species.

Both the invasion metaphor and the immigration metaphor are compatible with the structure of the ICM in Figure 1, even though they conflict with each other. The basic ICM does not necessarily imply that changes caused by an external agent are harmful or negative. Such changes could be seen as either conflicting with and harming nature, or as harmonizing with and enhancing nature, depending on what additional meanings are brought to the model.

2.4 Cluster Models and Prototypes

Given the variety of ways in which the nature ICM can be mapped onto situations and the variety of metaphors and other sources of structure that can be added to it, it is clear that many different definitions for “nature” are

possible. This raises the possibility that, not only may different people define nature in different ways, but that the same person may define nature differently with respect to different situations. In cognitive linguistic terms, this suggests that the concept of nature as it applies to environments, landscapes, and ecosystems might best be represented as a cluster model.

A cluster model is an ICM that is composed of several submodels, each of which provides a somewhat different definition of the concept. Saying that “nature” is a cluster concept means that there is no single definition that provides necessary and sufficient conditions to fit all the cases where the concept of nature applies. Instead, when a person is deciding whether something is natural or not, they have several different submodels to draw upon. If an environment or system satisfies the conditions of one of the submodels, the person may consider it to be natural even though it does not satisfy all of the other models.

For example, consider the following set of possible submodels for the concept of nature as it applies to biophysical systems. (This example is for illustration only. I am not claiming that this is a complete or even a good formulation of a cluster ICM for nature.)

Native ecosystem submodel: A system is natural if it has the same structure and function as the ecosystem that was there prior to some key point in history (e.g. European settlement of North America).

Non-interference submodel: A system is natural if it is not being directly modified or manipulated by human beings.

Nurturance submodel: A system is natural if it gives rise to living organisms and provides the conditions and resources that living things (which may include humans) need to survive.

Autonomy submodel: A system is natural if it is capable of developing and sustaining its own organization without the need for design, management, or control from an outside source.

With this cluster ICM for nature, a person might consider a restored ecosystem to be an instance of “nature” because it meets the definition given by the native ecosystem model, even though it fails to satisfy the non-interference and perhaps also the autonomy submodels. An unmanaged forest with an understory of exotic invasive species fails to meet the native-ecosystem definition, but a person still might see it as natural because it satisfies the other submodels in the cluster. As a third example, a person could consider an agricultural landscape to be a type of nature via the nurturance submodel, although it does not fit the other three models. Under a cluster ICM, each of these cases could be classified as instances of nature in some sense (perhaps even by the same person), because they each satisfy one or more of the submodels in the cluster.

There may, in fact, be environments that satisfy all of the sub-definitions in this cluster model. For example, a virgin forest that has never been impacted by human activity or invaded by exotic species would likely be considered natural according to all 4 of these submodels. Environments such as this, for which all the submodels of a cluster ICM converge, function as prototypes for the overall concept. Prototypes are seen as the “best” instances of a concept. They are what a person is most likely to think of when asked to give examples of members of a conceptual category (Rosch 1978). The other examples given above, for which the various submodels diverge in their determination of naturalness, may still be regarded as instances of natural environments, but they are less prototypical. Some people might consider them to be special cases of the concept, but not “really” natural. Thus, it seems likely that the restorationists and their opponents in the Chicago controversy would agree that the prototypical case of a pristine, virgin forest is a good example of a natural environment, even though they disagree on whether the less prototypical case of a restored ecosystem is a genuine instance of nature.

Prototype effects are important for understanding how people use concepts. Prototypes may act as cognitive reference points used in drawing inferences about a concept (Rosch 1975). Thus, if you ask a person a very general question (e.g., “What is nature?”) without

providing them with any specific context, they may think and respond in terms of prototypes. But if you present them with an example of a specific environment, they may classify it as natural or unnatural based on a particular submodel that is most relevant to it. Their judgment about the specific case may then appear to conflict with their response to the general question about “nature”. This would not be a sign of irrationality or inconsistency on their part, but an indication of the underlying complexity in their concept of nature.

3.0 Conclusions

Concepts play an essential role in how people experience and interact with each other and with their environments. Concepts of nature and naturalness appear frequently in the field of resource management, and are at the center of many debates and controversies over the management of recreation lands. Different interest groups express different interpretations of the concept of nature in arguing for their preferred environmental management policies. Recently, philosophers, scientists, and practitioners in the fields of ecosystem restoration and management have engaged in a lively debate over what the words “nature” and “natural” mean, or ought to mean. Some of them are attempting to reconstruct the meaning of “nature” to accommodate a new vision of the human role in ecosystems, a vision which denies that there is any fundamental separation or distinction between humans and nature.

In the midst of these debates, it is important to recognize that the concept of a “natural environment” is just one variation on a much broader concept that is relevant to many areas of human life and experience. The ideas from cognitive linguistics presented in this paper suggest that there is an underlying structure and a basic, central meaning that connects the many different senses and definitions of the word “nature”. If this is so, it may imply that the concept of nature cannot be arbitrarily reconstructed to mean whatever we would like it to mean. New meanings of “nature” that do not relate in some way to the existing central meaning of the concept may not make sense to most people.

It is also important to recognize that conceptual meanings are intimately connected with people’s values, emotions, and experiences of the world. This is another reason why the meaning of a concept like “nature” cannot be reconstructed arbitrarily. Socially created concepts constitute a major part of the reality in which people live, but societies and groups of people do not construct concepts *ex nihilo*. People create conceptual meanings as part of the process of interacting with each other and with the environments in which they live. Conceptual meanings expressed in language are thus inseparable from perceptions, feelings, and other nonlinguistic facets of experience. When people make conceptual distinctions such as “natural versus human”, those distinctions are expressing something real and important about how they experience the world.

Change in the meaning of a concept is more likely to occur by extending its definition and developing new variations on it than by replacing the existing definition of the concept with a completely new one. For understanding the social and psychological processes by which concepts change and develop, “evolution” or “succession” might be better metaphors than “construction”. Inviting people to consider ways of extending and elaborating their concepts of nature may be more effective than insisting that they replace an “outmoded” concept of nature with a new meaning that is inconsistent with their own experiences and values.

Research drawing on the methods and ideas of cognitive linguistics could help us better understand how complex concepts like “nature” evolve in relation to people’s experiences and values. For example, future studies could investigate whether the concept of nature as applied to environments does in fact have a cluster model structure, how the submodels in such a structure are defined, and whether new submodels are developing in response to social, scientific, and technological change. Such research could provide valuable insights for environmental education, communication, and conflict resolution.

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