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Exclusivity, Teleology and Hierarchy: Our Aristotelean Legacy

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ABSTRACT: This paper examines Parmenides's Fragments, Plato's The Sophist, and Aristotle's Prior Analytics, Parts of Animals and Generation of Animals to identify three underlying presumptions of classical logic using the method of Foucauldian discourse analysis. These three presumptions are the notion of mutually exclusive categories, teleology in the sense of linear progression toward a goal, and hierarchy both through logical division and through the dominance of some classes over others. These three presumptions are linked to classificatory thought in the western tradition. The purpose of making these connections is to investigate the cultural specificity to western culture of widespread classificatory practice. It is a step in a larger study to examine classification as a cultural construction that may be systemically incompatible with other cultures and with marginalized elements of western culture.

1. Nature of the Problem

The problem addressed in this article is to identify the underlying presumptions of classification as it is generally practiced. In particular, I will trace these presumptions to the development of logic in fourth century BCE[1] Greece. This study is not only of academic interest. It can also help to explain the systemic structure of classifications and how problems in classification may be related to that systemic structure. A large body of research and descriptive literature has been built up over several decades documenting the failure of library classifications to accommodate effectively topics outside of a conventional mainstream.[2] Biases in terms of race, gender, ability, nationality, sexuality, religion and other factors have been well-established. However, library classifications have done reasonably well in representing mainstream conceptions of reality. But whose mainstream? Whose reality? A.C. Foskett (1971, p.117) observes that "when one begins to examine almost any scheme it quickly becomes clear that, far from being objective, it is likely to reflect both the prejudices of its

time and those of its author." Foskett implies, and I will explore further, the notion that classification is a cultural construction. It is efficient in representing the mainstream of its originating culture. However, if the fundamental presumptions underlying classificatory practice are culturally constructed, then what is marginalized in the originating culture and what is different in other cultures may well be poorly or even deleteriously represented.

This research is part of a larger project exploring the idea that classification is a cultural construction. The way we do classification is not only a reflection of our mainstream culture, it is a tool of that culture, both reflecting and reinforcing it. If a particular classification represents the mainstream in its originating culture is it simply a matter of adding more concepts and reallocating space to stretch a classification into representing other cultures? My suggestion in this paper is that its foundational elements – its underlying presumptions – may well be specific to the originating culture rather than universal. Classifications are being used increasingly across cultures, so if there is a systemic basis for bias we have an ethical responsibil-

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ity to recognize it. It is only through such recognition that it might be addressed. Just as the ubiquity of North American and European consumer products has shifted material practices and values within other cultures, so library classification promulgates a western view of how information is structured to form knowledge. Library classification, as a mapping of information, is one among many social classifications that construct people's everyday realities.

In this article I address the first element in examining the cultural specificity of our classifications: identifying the underlying presumptions of classification that are culturally linked to a European-derived culture (although it has become common in many other parts of the world) as developed from Classical Greece.

2. Methodology

This research is a Foucauldian discourse analysis examining texts in Classical Greek logic to identify the discourses underlying classificatory thought and practice in western culture.

Discourse analysis is a poststructural methodology and is especially useful for identifying and questioning underlying presumptions that operate to construct our realities. Poststructuralism, as a critical philosophy, questions the existence of universal principles. Therefore, it is appropriate for identifying culturally specific principles as such. As a specific poststructural methodology, Foucauldian discourse analysis examines texts for their indications of power as embodied in discourses. Discourse is used here:

> ... in the Foucauldian sense of a *conceptual grid* with its own exclusions and erasures, its own rules and decisions, limits, inner *logic*, parameters and blind alleys. A discourse is that which is beneath the writer's awareness in terms of *rules governing the formation and transformation of ideas* into a dispersal of the historical agent, the knowing subject. (Lather 1991 – emphasis added)

Classification is, indeed, a "conceptual grid" constructed by "rules governing the formation and transformation of ideas." As classificationists and classifiers we shape the ideas that transform knowledge by organizing it into a particular structure. We think of that structure as a *logical* arrangement and, as I will explore, the link between logic and classification seems a very strong one. Our purpose may not be to exert power, except the power of retrieval, but we are part of a powerful cultural discourse, not simply affected by it. This analysis will identify the characteristics of that discourse.

For this analysis I have chosen the writings of Parmenides, Plato and Aristotle. Aristotle built on concepts established by Parmenides and Plato to create the pattern of reasoning we call logic and a classificatory mode that is still with us. Each of these three philosophers contributed a fundamental presumption and each of these presumptions now goes unquestioned. These presumptions – which I am calling exclusivity, teleology and hierarchy – have become so ingrained as to go unrecognized. They are transparent in the sense that we do not see them even while they are controlling our classificatory practice. It is for this reason that I refer to them as presumptions. Were they articulated as reasonable guesses on which we could build a classificatory structure they would be assumptions. However, as they are hidden (in plain sight) rather than recognized and articulated, they are presumptuous, taken for granted as acceptable.

In analyzing these texts I am also using works by feminist philosopher, Andrea Nye, and empiricist philosopher, John Dupré. Nye's chapter on classical logic in her *Words of Power: A Feminist Reading of the History of Logic* (1990) introduced to me the presumptions contributed by Parmenides, Plato and Aristotle that I relate to classification. My choice of these three philosophers follows her critique. Nye's interpretation is much like a discourse analysis, rereading the texts to discover the discourses of power behind the development and practice of logic. Exclusivity, teleology and hierarchy were not presumptions at the time that Greek philosophers were creating the branch of philosophy we know as logic. They have become presumptions because of their permeation of our culture. In ancient Greece, logic was developed within a social and cultural context and it is the preservation of certain aspects of that context that is the result of these discourses' continued influence. One aspect of the context was, of course, male control of society. To identify the mechanisms of male domination, a feminist critique must make the transparent visible. It is, therefore, also useful in revealing presumptions that have a broader influence.

Dupré's critique of the unity of science, *The Disorder of Things: Metaphysical Foundations of the Disunity of Science* (1993), is one of the few recent works to address issues of classification in philosophy. In it Dupré questions the presumption of modern western science that the universe is orderly, and, because it is orderly, a unified science is possible. Dupré posits essentialism, determinism and reductionism as the three presumptions required to establish the notion of an orderly universe. These three presumptions roughly parallel exclusivity, teleology and hierarchy making Dupré's discussion illuminating for this research.

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What, then, are the underlying presumptions of library classification that follows a western model? I propose that Aristotle brought together three presumptions that form the basis of classification in the western tradition as he built on the work of his predecessors, Parmenides and Plato. I will treat each of them, working in chronological order to follow that development.

3. Parmenides and Mutual Exclusivity

Parmenides was a Greek philosopher of Elea (a Greek city on the Italian peninsula) active during the fifth century BCE. Parmenides's surviving texts now include only fragments of a heroic poem. In it, Parmenides discusses ontology, the philosophy of being or existence. The hero of the poem is told by a goddess:

> Come now, I will tell you ... about those ways of enquiry which are alone conceivable. The one, that a thing is, and that it is not for not being, is the journey of persuasion, for persuasion attends on reality; the other, that a thing is not, and that it must needs not be, this I tell you is a path wholly without report, for you can neither know what is not (for it is impossible) nor tell of it ... (Parmenides, fragment 3)

This passage might be summarized as *what is is, because it is not not* and the relationship cannot be approached from the other direction of what is not – "a path wholly without report" – because there is no way to determine what does not exist. Parmenides divides "is" from "is not" and then, since "is not" does not exist, affirms his monist philosophy that Being is a unity, a whole. The irony is that Parmenides, the monist, contributed the idea of mutually exclusive categories to logic and introduced the idea that a concept is defined by what it is not.

This idea that Being and non-being are mutually exclusive categories was the inception of the Law of Non-contradiction in logic which can be stated in two ways:

no statement can be both true and false; and
nothing can be both A and non-A.

In classification we presume mutually exclusive categories. We define things as being either A or non-A, but not both. This division presumes that we can define limits for any given concept; that we can decide where one concept ends and another begins.

To make the division between A and non-A, one has to identify what characteristics define something belonging to the set or kind, A. If these are the defining and immutable characteristics of A, then collectively they form the essence of A. They are essential

to A-ness. Dupré (1993) identifies the problem of this kind of essentialism as being its inability to explain and predict. Knowing the defining characteristics of women or men (for example, the absence or presence of a penis) does not explain why our culture constructs social roles as it does. Further, since there is considerable diversity within a given kind, it is not possible to say that all men will take on the same masculine roles. Nye (1990) notes that Parmenides's concern over gender roles suggests that he does see an immutable essence for each. According to Parmenides, men and women are forced by a goddess who "initiates hateful birth and union" (fragment 12) and as the potencies, the essences, of male and female mingle they risk the result that neither will emerge as the single dominant potency in which case "furies will vex the nascent child with double seed" (fragment 19). Thus, Parmenides bemoans the necessity of sexual union and highlights the risks it involves in bringing opposites together.

Dupré (1993, p.253) carries the example of sex differences further when he explains the potential for abuse in relation to essentialist presumptions. Essentialism has gotten a very bad name in contemporary thought because it verges on stereotyping. Systemic differences between the sexes in a given cultural context (such as the relation of men to reason and women to emotion) are often linked to their biological differences. If such differences are seen as essential then they are not subject to change, no matter how outdated and unjust they are.

Mutual exclusivity, then, is a long-standing fundamental, but it is also one that has an identifiable origin as it is defined in western culture and classification. The idea of creating categories defined by essences is, fortunately, something largely eschewed by bibliothecal classificationists. We typically claim only that we are constructing practical schemes for the accommodation of knowledge and information. However, the derogatory connotations of the word "pigeon-holing" as oversimplified and limiting should warn us that the presumption of mutually exclusive categories is as dangerous for us as for the broader social fabric of which we are an integral part.

Classificatory practice (like Plato and Aristotle as described below) has taken the idea of mutually exclusive categories beyond Parmenides's law of non-contradiction to suggest that not only is A not non-A, A is also not B and *vice versa*. We separate science from technology, literature from folklore, and politics from economics as though there are no overlap areas even though we know there are. There is no innate reason to think that concepts or topics are actually mutually exclusive or even that there is a dividing line between A and non-A. One development that has

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shown the problems of mutual exclusivity by trying to solve them is fuzzy logic in which something can be A to a varying degree. However, classifications still seek to build fences between concepts, even recognizing their artificiality by filling our schedules with notes about how to differentiate between concepts.

4. Plato and Teleology

Plato criticized Parmenides for this notion of the wholeness of being, his monism, but still accepted the idea of mutually exclusive defining opposites as the basis for his major contribution to logic, the dialectic. Parmenides' rejection of the way of "non-being" – his notion that "is not" does not exist – meant that he and his followers made it impossible to determine whether or not something is true or not true, being or not being, because everything was included in one unified structure. There was no way to discriminate between things or between thoughts:

> ... it will be necessary to put a statement of our father Parmenides to the test and overwhelm it with the claim that what is not in some sense is and in turn again that what is in some sense is not. ... For unless these things are either cross-examined or agreed to, then anyone whatsoever will hardly fail to be ridiculous when he is forced to contradict himself in speaking about false statements or opinion ... (Plato, *The Sophist*, 241D-E).

Here Plato is rejecting Parmenides' monism in no uncertain terms. Plato nevertheless took on Parmenides' concept of non-contradiction. That something could be A or non-A requires that "what is not" be accepted as existing. The law of non-contradiction is played out in the dualisms that Plato introduced to western culture: reason as opposed to emotion, mind as opposed to body, and so forth. What is interesting is that Plato (well ahead of Jacques Derrida) shows us how to deconstruct his own concept of dualism when he suggests that "what is not in some sense is and in turn again that what is in some sense is not." Ironically, he must contradict the law of non-contradiction before he can claim "what is not" exists and set the stage for using the law of non-contradiction in his dialectic.

The key that Plato introduces is logical division on the basis of difference. Being able to divide A from non-A is the prerequisite for his dialectical form of argument. Plato's dialectic uses opposites through division rather than wholeness. In *The Sophist*, Plato sets out to entrap his philosophical opponent, Theaetetus representing the Sophist school of philosophy, through a series of dualistic questions. The answer to each question leads to another dualistic question in a progression toward the goal of logical victory over his opponent. So, for example, the first set of divisions explores the art of the Sophist which is:

> acquisitive, not productive
> by conquest, not by voluntary exchange
> by hunting, not by competition
> *etc.*

And the hunter hunts:

> things on land, not swimming
> tame, not wild
> human, not nonhuman
> by persuasion, not by force
> in private, not in public
> for wages, not as a gift
> *etc.*

Several series of such dialectical strings of dualistic questions back the Sophist into a corner where he must admit to being a seeker of profit obtained by insinuating himself into private instruction on the topic of virtue based on imitation and ignorance.

In this way Plato makes the next step in the mutual exclusivity of categories at the same time that he introduces the linear and teleological dialectic. The definition of teleology I am using here is: a linear progress toward a goal (*telos* in its sense of "goal," "purpose," or "end"). Plato's dialectic uses mutually exclusive answers to a series of questions to progress inexorably toward the goal of winning the argument.

Dupré (1993) examines order in light of the goal it is intended to achieve. Different goals will demand classification into different categories with different characteristics. That is, which characteristics are chosen for differentiation will depend on the goal sought. Obviously, Plato followed this pattern in *The Sophist*. However, if there are different purposes then the order of the universe is disorder. The variant characteristics considered to constitute essences will make the essential qualities of any category mutable, not immutable. What a universal order requires is, according to Dupré, a type of determinism: a world "in which everything that happens is fully necessitated by antecedent circumstances" (1993, p.171). With such determinism, the goal will never vary. Further, if everything that happens has an antecedent, there must also be a first cause – what "happens was necessitated by the manner in which the world began ..." (1993, p.171). Each essence would be predetermined and, therefore, each category would be predetermined. If the essences/categories are not predetermined then there can be no universal order. Dupré, as one can imagine, argues that such determinism is flawed and, therefore, so is the concept of an ordered universe.

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What his argument contributed to my discussion is the notion that the order we create is, indeed, constructed with a goal in mind, even if that goal is not always immediately apparent. In fact, the goal may well be as transparent as the fundamental presumptions.

Plato sets up a parallel to such determinism in his dialectic. The essences of Plato's dualisms are predetermined by Plato to result in a specific end. In *The Sophist* he sets up a linear argument that has certain advantages in its seeming to be open to variance. As Nye points out:

> Logical division offers an alternative to a lecture which can be ignored or disbelieved, at the same time as it prevents discussion from being interrupted by contrary views or responses.
> Logical division makes possible a conversation in which one party is in complete control of the discussion. The Stranger leaves Theaetetus no opening for any substantive contributions to the discussion. At the same time the illusion is created of an exchange of views. At each level of division, the Stranger elicits either a positive response or a question asking for further clarification from Theaetetus. The either/or questions he asks, however, strictly limit the kind of answer Theaetetus can give. (1990, p.33)

Plato's is a constructed determinism in its orientation toward a goal.

Teleology within classification is illustrated by two factors: 1) the progression of main classes from basic to more developed (the development of Dewey's main classes from William T. Harris's inverted Baconian progression is a case in point); and 2) the development of a hierarchy with the level of specificity indicating its degree of sophistication and with generalization (the top level of the hierarchy) being the goal. This integral relationship between teleology and hierarchy follows from Aristotle's development of syllogistic argument and hierarchy.

5. Aristotle and Hierarchy

Aristotle took the step-by-step approach of Plato's dialectic and turned it into a hierarchical form of argument, the syllogism, and into classification. The syllogism "is a form of words in which, when certain assumptions are made, something other than what has been assumed necessarily follows from the fact that the assumptions are such" (Aristotle, *Prior Analytics* I.I.24b). That is, a syllogism is a means of pursuing new knowledge based on existing assumptions of knowledge. Each assumption in the syllogism is a premiss or

... statement of something about some subject. This statement may be universal or particular or indefinite. By universal, I mean a statement which applies to all, or to none, of the subject; by particular a statement which applies to some, or does not apply to all; by indefinite, a statement which applies or does not apply without reference to universality or particularity ... (*Prior Analytics* I.I.24a)

An example of such a syllogism is:

> All humans are mortal
> Socrates is human
> Therefore, Socrates is mortal.

The first two statements are premisses from which the third statement is deduced. This syllogism is in the form of what Aristotle called the first figure: "When three terms are so related to one another that the last is wholly contained in the middle and the middle is wholly contained in or excluded from the first, the extremes must admit of a perfect syllogism" (*Prior Analytics* I.IV.25b). Another way of thinking about this relationship is in terms of set theory: the set of mortal beings contains the set of humans (a universal premiss); and the set of humans contains Socrates (a particular premiss). Aristotle suggests that only by having this type of relationship between the elements of the syllogism is it possible to have a totally self-contained "perfect" syllogism. It requires no other information to reach its conclusion that Socrates is mortal. Other types of syllogisms (Aristotle's second and third figures) have the potential to reach true conclusions with the addition of other premisses. However, ultimately, they will be validated only if they can reach the form of the first figure (*Prior Analytics* I.VII.29a). The progression of a logical argument between the particular and the universal in Aristotle's syllogisms clearly implies hierarchical relationships if the syllogism is to be perfect. The class of mortal beings contains the exclusive subclass of humans, but also other exclusive subclasses. The subclass of humans contains Socrates, but also Lao Tzu, Sophia Loren, Martin Luther King, Jr., Catherine the Great, Ibn Bhattuta and me – among others.

Aristotle uses this process of logical division to invent "natural" classification in the form of a taxonomy. He explains the process in his *Parts of Animals*. He does not accept Plato's concept of division as A or non-A. Aristotle, developing much more fully the notion of categories and essences, does not recognize "non-A" as a valid essence:

> ... this method of twofold division makes it necessary to introduce privative terms, and those who adopt it actually do this. But a privation, as

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privation, can admit no differentiation; there cannot be species of what is not there at all, *e.g.* of "footless" or "featherless", as there can be of "footed" and "feathered"; and a generic *differentia* must contain species, else it is specific not generic. (Aristotle, *Parts of Animals* I.III.642b)

The *differentiae*, the characteristics by which differentiation of genera and species are made, cannot be the equivalent of non-A as non-A does not positively identify a genus or species. Therefore, at each level of a hierarchy the division is into however many genera, species, *etc.* are necessary to account for the whole. "The number of *differentiae* will be equal to the number of species" (Aristotle, *Parts of Animals* I.III.643a.). Further,

> ... if the *differentiae* under which the indivisible and ultimate species fall are to be proper and private to each one, it is necessary that no *differentiae* be common; otherwise, species which are actually different will come under one and the selfsame *differentiae*. ... And we may not place one and the same indivisible species under two or three of the lines of differentiation given by the divisions; nor may we include different species under one and the same line of differentiation. Yet each species must be placed under the lines of differentiation available. (Aristotle, *Parts of Animals* I.III.643a.)

So each species falls in its own place in the hierarchy and only in that place. Thus, at each level the logical division creates mutually exclusive categories. This structure is the same as that of the elements in a perfect syllogism – hierarchical relationships differentiated on the grounds of unique characteristics.

The applied taxonomy generally drawn from Aristotle is based on his *Generation of Animals* in which he uses type of reproduction for the highest level of differentiation. This criterion is teleological in that Aristotle suggests that the higher degree of development reached before "birth," the more advanced the animal:

> ... those animals are viviparous which are more perfect in their nature, which partake of a purer "principle"; ... And since an actual animal is something perfect whereas larvae and eggs are something imperfect, Nature's rule is that the perfect offspring shall be produced by the more perfect sort of parent. (*Generation of Animals* II.I.732b-733a)

Therefore, animals that give birth to fully developed offspring (vivipara), rather than to eggs (ovipara) or larvae (larvipara) that still require development are closer to the goal. This taxonomy appears natural since it is based on characteristics of the animals themselves. However, it is actually a very stylized system and not simply a natural reflection of what is. Other criteria for division (or facets) such as function, form and characteristics of various body parts would have been equally natural.

In addition to the criterion Aristotle chose, the order in which he placed animals was determined by his judgment of what type of reproduction was most advanced, choosing, of course, the one characteristic of humans. He suggests, according to the understanding of reproduction of his time, that animals have separate male and female so that the semen of the male can produce a foetus from the matter found in the female. The need to have the female as a separate being is so that animals can, in addition to simply reproducing, perform cognition at some level:

> All animals have, in addition [to reproduction as a purpose], some measure of knowledge of some sort (some have more, some less, some very little indeed), because they have sense-perception, and sense-perception is, of course, a sort of knowledge. ... Compared with the intelligence possessed by man, it seems as nothing to possess the two senses of touch and taste only; but compared with entire absence of sensibility it seems a very fine thing indeed. (*Generation of Animals* I.XXIII.731a-731b)

Aristotle's implication is that the male is free to be sentient because of the female's responsibility for reproduction once the generative semen has been contributed to the process. However, plants, which Aristotle takes to have reproduction as their sole purpose, can have the male and female combined in one being. The logic of this is transparent according to Aristotle: "... Nature acts in every particular as reason would expect" (*Generation of Animals* I.XXIII.731a).

This classification is then clearly a constructed one exhibiting hierarchy and mutual exclusivity through Aristotle's development of division. He constructs a hierarchical order in the teleological progression toward humans (males) as the pinnacle of what we would now call evolution. This sequence of development of various parts of a domain from primitive to sophisticated (*e.g.* plants to humans) implies the value placed on different entities in the progression. For example, Juliet Clutton-Brock (1995) develops a parallel between Aristotle's ordering of animals and our value and treatment of animals. The values reflected in the classification are also reinforced by it.

Hierarchy, as the division of a domain (*e.g.* nature) into ever smaller parts that are subsumed under the next larger, the parts becoming ever tinier and less

meaningful to the whole as it progresses, combines mutual exclusivity and teleology into a constructed order. Dupré (1993) defines this kind of division as reductionism: breaking down the complex into the simple in order to understand it. Dupré suggests that the type of reductionism involving division is, in fact, oversimplification. By creating a hierarchical arrangement, it narrows the relationships between entities to purely hierarchical ones, failing to reflect other types of relationships. The example he gives is the problem of understanding ecology as a knowledge domain if we try to examine it hierarchically rather than in some other structure that allows for the multiple interactivity of its elements. A second criticism of this kind of reduction is that each level is limited by the one above it. In classification we refer to this concept as hierarchical force. It is the hierarchy of Aristotle's perfect syllogism. Whatever is true of the universal is true of the particular. Since the criteria for constructing hierarchy are chosen, not innate, then the essences of the higher levels are made the characteristics of the lower. The order of levels (or citation order of facets) determines the groupings and, therefore, which characteristics are dominant. The fixity of these relationships in any given classification limits what can be represented and in what context.

6. Cultural Context

In the above discussion I have established the fundamental logical concepts of exclusivity, teleology and hierarchy as derived from Parmenides, Plato and Aristotle and have related them to classification. Along the way I have noted some instances of the social and political ramifications of these presumptions. These ramifications may well grow from the cultural context in which these presumptions were developed.

Plato's dialectic and Aristotle's syllogistic forms of argument were applied by those who were of the educated elite in fourth century BCE Athens. Therefore, women, artisans, laborers and slaves were unlikely to be adept at logic. As a result, the men who controlled Athens had logic as their own device for enforcing their control since they could exercise what has become known as reason (Nye 1990, p.48). Reason, in the form of logic, has the same power of control in classification. A classification like Aristotle's, is an ontological device. The etymology of the word "ontology" is a useful tool for understanding this power: "onto" derived from the Greek word for being and "logo" meaning "reason" or "speech." Thus, it is possible to define what is recognized as existing based on reason in the form of logical argument and classification as developed in Plato's dialectic and Aristotle's syllogism.

An additional group that was the target of logic were non-Greeks or "barbarians." Both Plato and Aristotle were known to consider foreigners inferior, which is one of the reasons both criticized Parmenides (who was Greek, but not Athenian) even though they also drew from his work (Nye 1990, p.37). At the time, many non-Greeks were drawn to Athens for commercial purposes and the Sophists were among them, accounting for the money-grubbing imprecations of Plato's dialectic in *The Sophist*. Other "barbarians" were slaves brought to Athens as the spoils of imperialistic conquest. For a moral justification of slavery, Aristotle argued that "barbarians" were natural slaves and inferior just as animals are inferior to humans and women to men (Aristotle *Politics* I.IV.1254b). They may have had different values in terms of the role of women and other salient points. Such benighted views showed their lack of reason and, therefore, their inferiority in the eyes of Athenians like Aristotle (Nye 1990, p.48). Further, one of the dualities that Plato sets up in *The Sophist* is that of public *versus* private, suggesting not only the Sophists, who typically worked in private homes, but also women whose domain was the private while men controlled the public. The groups of the excluded were knit together in their exclusion.

The use of division to separate terms in a logical argument reflects its purpose of division between Athenian and non-Greek, men and women, free and slaves, public and private, reason and emotion as mutually exclusive categories with each pair having one element hierarchically superior to the other. These values of the cultural elite that developed classical logic are paralleled in the sexism, homophobia, racism and xenophobia of our contemporary world. It is vital that we not allow our classifications to be tools of such values, especially if these values are linked to the structure and not just the content of our classifications.

Hierarchy follows logically from teleology since the progression both up and down a hierarchy is oriented toward a goal. Most of us find it difficult to imagine a classification without hierarchy, but there is no innate reason that some other structure is not feasible. Many kinds of relationships can occur between concepts such as process and product, cause and effect, but we privilege hierarchical relationships over all other kinds of relationships – just as Aristotle did.

7. Conclusion

To uncover exclusivity, teleology and hierarchy as underlying presumptions of classification drawn from the philosophical study of logic is only a beginning to

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understanding the cultural construction of classification and its ramifications. While it is of academic interest in and of itself, its cultural ramifications require further research. First, the examination of classificatory texts and practices in the intervening centuries is necessary to determine how pervasive these three presumptions have been. Second, the views of western culture toward other cultures in relation to classification would give an idea of the manner in which classificatory presumptions may or may not have been imposed. Finally, an attempt must be made to see whether or not these presumptions are incompatible with other cultures (see Olson, in press).

A knowledge of the metaphysics of our classificatory practice and its potential ramifications will allow us to approach an ethical relationship to others both within and across cultures. This article offers one interpretation from which to proceed.

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Notes

1   I use the abbreviation "BCE" meaning "before the Christian era" rather than the conventional "BC", "before Christ", as a reminder that the world in which we classify is heterogeneous in its religions and cultures as is pertinent to this research.

2   For a content analysis of the literature of bias in subject access see Olson and Schlegl (1999). The literature reviewed in this content analysis is listed at: http://www.ualberta.ca/~holson/margins.html. For a conceptual overview see Olson (1998).

3   For a fuller description of discourse analysis see Frohmann (1994).

4   References to Parmenides' fragments use the numbers in the Coxon translation (1986) which are in a different order from those in the other commonly used version: H.Diels. *Die Fragmente der Vorsokratiker.*

5   For a fuller discussion of essentialism see Diana Fuss (1989) *Essentially Speaking: Feminism, Nature & Difference.*

6   References to *The Sophist* follow the traditional use of paging in the Stephanus edition of the Greek text.

7   References to Aristotle's works use the book and chapter plus the standard citation of the page and column in Becker's 1831 edition.

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