Anthropomorphic Bias in Naming

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ABSTRACT

What kind of entity may bear a proper name? In semantic theory, a proper name is typically taken to designate a unique individual over time, where the individual is typed by a count noun. Naming practices in various cultures provide names for people, animals, places, objects, and events, but not all individuals are judged to be equally suitable referents for a proper name. The class of namable entities is a *domain* in the technical sense: there is an underlying system of knowledge which is universal, emerges early in development, identifies phenomena belonging to a single general kind, links the kind to a class of entities, and shows hallmarks of dedicated processing. This domain is characterized by a bias toward naming anthropomorphs. The naming mechanism is a component of a cognitive system that evolved to meet the demands of social interaction.

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1. Namable Entities

What may bear a proper name? Each of us knows the names of people, animals, objects, places and events, and at first it seems as if almost anything can be named. This intuition is captured in the semantic theory of proper names developed by John Macnamara and colleagues (e.g., Reyes, Macnamara, Reyes, & Zolfaghari, 1993). Under that account, a proper name designates a unique individual over time and through various situations. The only requirement for the individual is that it be typed by a count noun. So a *man*, a *dog*, a *ghost*, a *hammer*, and a *glass of milk* are all equally good bearers of the name 'John'. Note that *some milk* may not receive a proper name as it is typed by a mass noun. This reflects a consensus that a mass conceptualized as a mass is not namable.

The naming practices of various cultures further restrict the class of namable entities. In English, 'John' is a probably a man. Although dogs may be named, a more typical dog name is something like 'Spot' or 'Rover'. On the other hand, a hammer is rarely given a proper name unless it is very special, like Thor's magic hammer 'Mjöllnir' (MacCulloch, 1930). And a glass of milk is very unlikely candidate for a proper name.

The fact that very few of the semantic individuals in our lives receives a proper name requires some explanation. When we see a friend's newborn we would be remiss not to ask its name, but the same can't be said for a friend's new spark plugs. If there are about twenty thousand everyday objects (Norman, 1988), how do we know that a doll probably has a name, but that a doorknob probably doesn't? It is a commonplace in onomastics that the individuals singled out for naming will depend on circumstances (Nuessel, 1992), "predilections, interests and necessities" (Pulgram, 1954), and on the culture and period (Rogan, 1990). Judgements of what kinds of things are namable are remarkably consistent between cultures, and among people of different ages, however. After a brief review of naming practices, I will argue that this consistency is due to a dedicated cognitive system for circumscribing a domain of namable entities.

2. Naming Practices

Besides its denotative function, a proper name typically carries a certain amount of connotative baggage (contrary to the claim of Mill, 1842 that proper names connote nothing and have "strictly speaking, no meaning"). For example, most people probably do not imagine that an 'Elvira' will be blond, or that someone named 'Hitler' or 'Satan' is very nice. Although they are quite rare, some American given names have clear semantic content. In a total sample of 2,500 names, seven men's names had such content, including 'Earnest', 'Lance', and 'Victor'. These kinds of names are more common for women (40 were listed), where they describe laudible qualities ('Charity', 'Faith', 'Prudence', 'Patience'), flowers ('Daisy', 'Jasmine', 'Rose'), or jewels ('Amber', 'Crystal', 'Jade', 'Ruby') (Alford, 1988). More commonly, names in English convey information implicitly, such as gender ('Marion Morrison' got more respect as 'John Wayne'), age ('Dot' is likely to be a bit older than 'Ocean'), and social information (consider 'Billy Bob Thornton' and 'Jimmy Carter'). Carter, incidentally, was the first US president to be listed on the ballots and sworn in with the informal form of his name.

In a 1971 study, Buchanan and Bruning asked 1,350 subjects to rate over a thousand names for aesthetic preference, masculinity-femininity, and activity-passivity. They found that people tend to associate relatively consistent images with most names, and that name preferences are based on these associations.

There is nothing in the semantic theory which suggests that names should reflect or influence their bearers, but they are often taken to. The practice of onomastic magic is widespread, reflecting a belief that magic wrought on the name affects the entity named, not only for 'primitive man' (Frazer, 1911), but for members of contemporary cultures as well. Parents in Ohio (c.1926-66) were advised not to name a child after someone who had died of a disease, for fear that the child would inherit the disease (Hand, 1984). In 1989, the Norwegian Navy named an expensive submarine 'Intrepid' only after much deliberation, as the first 'Intrepid' sank in 1942 (Rogan, 1990).

Names may be culturally constrained to have only negative or only positive connotations. In the Mediterranean, there is a practice of not naming a baby positively, so

as to avoid envy and the evil eye. This is also common in some African cultures when a mother loses a number of children in succession. Then a child will be named something like 'Dead Thing' or 'Born to Die'. Journet suggests that in this practice the name is sacrificed so that the child will live (Journet 1990, cited by Valentine, Brennan, & Bredart, 1996). In contrast, the Yoruba include only socially valued information in personal names, and eliminate anything that is socially unacceptable in the child's family context (Akinnaso, 1981).

With respect to seemingly irrational or superstitious practices, it is important to distinguish stated beliefs from behavior. In a naturalistic study, pedestrians walked into traffic to avoid walking under a ladder, but survey respondents typically claim not to be superstitious (Jahoda, 1969). This discrepancy is not a reflection of the falseness of subjects, but of their inability to delineate the competence underlying particular cognitive performances (in the sense of Chomsky, 1964). I will argue that the weak connotative properties of proper names are an important design feature of the naming system, even if they occasionally lead to practices that can be labelled "magical" or "superstitious".

A more prosaic example of the name's reflection on its bearer comes from work in social psychology on the effect of *name attractiveness* on social judgements. For example, Harari and McDavid (1973) presented subjects with short essays whose authorship was identified by a given name and randomly selected initial. Essays putatively written by people with frequent and attractive names ('Karen', 'Lisa', 'David') were graded more highly than those supposedly by people with unusual and unattractive names ('Bertha', 'Elmer', 'Hubert'). This bias was stronger when the grading was done by experienced teachers than by inexperienced college sophomores. Similar findings have been reported in a number of other studies.

Even a name suffix can have a measureable impact on its bearer. In a study of psychological profiles, students with a Roman numeral suffix (such as 'II' or 'III') scored significantly higher on capacity for status, socialization, self-control, tolerance, responsibility, and well-being than students with a 'Jr.' in their names (Zweigenhaft, Hayes,

& Haagen, 1980). Plank (1971) found that the number of psychiatric patients in two Veterans Hospitals with 'Jr.' in their names was twice that of the regular population.

Another important feature of proper names as they are used is that there is not a strictly maintained one-to-one mapping between names and individuals. A single individual often receives more than one name. Nicknames may be bestowed on an individual to reflect salient properties ('Rocket' Richard, 'The Windy City', 'The City of Lights') or to commemorate significant events (such as in Roman Catholic confirmation, the change of university building names to reflect donorship, or the publicized transformation of 'Prince' to 'the Artist Formerly Known as Prince'). Many cultures practice *teknonymy*, where a parent takes on a new name with the birth of each child, becoming 'Father of (child's name)' or 'Mother of (child's name)'. Teknonymy is found among the Azande, Hopi, Kurds, Tlingit, and Yanomano, in Korea and Taiwan (Alford, 1988).

Occasionally there is functional necessity for the use of by-names. Among the Amish, allowable personal names have been restricted to such a degree that the use of by-names is extensive (Enninger, 1985). Homonymy is also widespread, not only among the Amish, but for every 'Tom', 'Dick', and 'Harry' in the English-speaking world. In some situations, names may be withheld from entities which are typically named, such as slaves or other people treated as chattel: soldiers, prisoners, women (Bosmajian, 1974). There is also an occasional practice of effacing the names of places where something particularly bad has occurred. In Salem, Massachusetts, the Gallows Hill used during the witchcraft trials of 1692 is not a tourist site, but is unmarked and difficult to locate (Foote, 1988).

There is also a marked dispreference for numerical names. For example, when 'Michael Herbert Dengler' tried to change his name to '1069' because that name "symbolized his relationship to nature, time, the universe, and essence" he met with rejection from five courts in North Dakota and Minnesota (Lockney & Ames, 1981).

If the semantic theory of proper names were explanatory in itself, we would expect there to be an exhaustive, strictly one-to-one mapping between unique individuals and unique, purely denotative proper names, like variables in a compiled computer program

(Abelson, Sussman, & Sussman, 1985). Balinese personal names are instructive in this regard. These names are usually arbitrarily coined nonsense syllables, do not indicate membership in any sort of group, and are unique to their bearers. For our purposes, the most interesting characteristic of these names is that they are rarely used; instead, most Balinese address and refer to one another by teknonyms (Geertz, 1973).

The fact that the same subset of entities tends to be named in different cultural contexts, that names are often connotative, and that the mapping between names and individuals is rarely one-to-one, suggests that other cognitive mechanisms are coming into play.

3. Namable Entities Constitute a Domain

People know which entities are namable because those entities form a *domain* in the technical sense (Hirschfeld & Gelman, 1994). A domain is an underlying system of knowledge which is universal, emerges early in development, identifies phenomena belonging to a single general kind, links that kind to a class of properties, and shows hallmarks of dedicated processing. We will consider each of these properties in turn.

3.1 UNIVERSAL. Naming is universal, subject to a small degree of cross-cultural variation (Alford, 1988; Brown, 1991). In every culture, human beings are the prototypically namable entity, with names for some animals, objects, places, and events.

3.2 EMERGES EARLY IN DEVELOPMENT. A sophisticated understanding of naming emerges early in development. This can be seen in young children's understanding that prototypically namable entities are animates or animate surrogates, that namable individuals need to be typed by a count noun, that names are rigid designators (Kripke, 1980), that mental state attribution makes entities more namable, and that names are conferred in the context of social relations.

The evidence that young children understand animacy restrictions on namable entities comes from classic work by Macnamara and colleagues (Katz, Baker, & Macnamara, 1974; Macnamara, 1982). Katz, Baker & Macnamara showed children a pair of different dolls, introducing one of the dolls with a nonsense label as either proper name

syntax ('Zav') or count noun syntax ('a Zav'). The other doll was referred to merely as "this one" or "the other one". After familiarization with the doll and the label, the child was asked to perform some activity on either 'Zav' or 'a Zav'. In the former case, the child was expected to select the named doll; in the latter, either doll could be selected. The authors found that girls as young as 17 months treated the dolls differently in the proper and common noun conditions, suggesting that they had at least some awareness of the grammatical role of articles in English.

One possibility is that the children in the study were doing distributional analysis, by finding the distributional properties of the article then searching for correlated semantic properties. Alternately, the children may have been first categorizing relevant aspects of the situation into classes, then searching for correlated grammatical distinctions. The former hypothesis would suggest that children use syntax to determine what can bear a proper name. The latter suggests that the child has some other system for picking out namable entities, and looks for grammatical distinctions that match pre-existing conceptual ones.

Katz, Baker and Macnamara reran the experiment using pairs of different blocks instead of dolls, and found no difference between proper and common noun conditions. They interpreted this as support for the second hypothesis, that conceptual cues precede and guide linguistic cues.

Gelman and Taylor (1984) clarified and extended the work of Macnamara and colleagues, introducing distractor items and objects for which the children had no names. They found that with animal-like toys, children interpret common nouns as category names and proper nouns as individual names. With block-like toys, however, common nouns were interpreted as category names, but proper nouns were attached to a particular stuffed animal (used as a distractor). Gelman and Taylor concluded that hearing a proper name causes the child to search for a single, animate referent. Although adults name vehicles, places such as houses, streets, and towns, and events, there is no evidence that children initially understand these practices (Macnamara, 1982).

In unpublished work I conducted with Geoff Hall and Barbara Veltkamp (henceforth HVT), 5-year-olds and adults were asked to list everything besides people that they thought could get a proper name. We found that animates and animate surrogates made up 72% of the entries in the children's lists, and 21% of the entries in the lists made by adults. In contrast, no animates or animate surrogates appeared on either children's or adults' lists of non-namable entities.

The evidence that children understand that namable individuals need to be typed by a count noun comes from work by Hall (1991). He found that children who knew a basic-level count noun for animate surrogates were more likely to correctly apply a new label as a proper noun. Those children for whom the individual was unfamiliar often interpreted the new label as a count noun referring to a kind of object, even though the label was modelled as a proper noun ("This is 'Zav'").

Kripke (1980) introduced the idea that a proper name is a *rigid designator*. This thesis states that a proper name refers to a unique bearer across all the situations of which that bearer is a constituent, in all times, and in actual and counterfactual situations. The evidence that children understand this property of naming comes from the following study.

Liittschwager & Markman (1993) showed that children are able to track an individual by using its name, even when its appearance has changed. They taught children a proper name for a familiar animate object such as a doll. They then moved the doll to a new location and changed its appearance in some way, and placed an identical doll at the first doll's original location. The children continued to apply the name to the originally-named doll, rather than to the identical distractor. Liitschwager also taught children the name of a boy who was later transformed into a rabbit by a special machine. They were still willing to attribute the boy's name to the rabbit (Liitschwager, 1994).

Work by Sorrentino (1999) shows that attribution of mental states can influence children's judgements about whether complex non-animal toys are namable. She provided children with pragmatic cues (such as singling out a toy and drawing attention to it) or pragmatic cues with mental state attribution (such as singling out a toy and describing it as having thoughts and desires). Only the former kind of information was usable by two-

year-old boys to construe a non-animal toy as namable; only the latter kind was usable by two-year-old girls for the same purpose. By four years of age, both boys and girls use either kind of information to increase the likelihood of construing a non-animal toy as namable.

Finally, there is also some evidence that children understand that names are conferred in particular social contexts. Hall (1994) demonstrated that it is possible to shift the child's preferential interpretation of a label when the syntax is ambiguous and different kinds of animals and artifacts are being labelled. He taught children novel words for a variety of animals and artifacts using the sentence frame "This Y is X-y". As an example, a child might be shown a bird and told "This bird is Zavy". This syntax is ambiguous between a proper noun reading (cf 'Harry') and an adjectival reading (cf "hairy"). Hall found that most children interpreted the word as a proper name for typical pet animals such as birds. They also interpreted the word as a proper name when used for non-pet animals such as caterpillars, but only when those animals were described as being owned by someone. When the non-pet animals were not so described, about half of the children interpreted the word as describing a property of the animal. In the artifact conditions, the children typically interpreted the word as describing a property of the artifact.

3.3 SINGLE GENERAL KIND. In addition to being universal and emerging early in development, domain knowledge also identifies phenomena of a single general kind, which cross-cuts the ontological categories of other domains. As we have seen, namable entities can be typed by a variety of count nouns. In the HVT study, subjects judged people, animals, dolls, TV characters, and imaginary friends to be namable. These might be captured by Macnamara's phrase "animates or animate surrogates", but people also name objects, places, and events. Cross-linguistically, names fall into a number of different grammatical categories.

3.4 CLASS OF PROPERTIES. The kind is linked to a class of properties and supports inferences about entities in the domain. In another study conducted by Hall, Veltkamp & Turkel (henceforth HVT2), 5-year-olds and adults were shown pictures of the entities most commonly listed in the first study. There were four conditions, two involving

entities judged to be namable, and two involving entities judged to be non-namable. For each kind, subjects in one of the conditions were told that the entity had a name and asked to explain why, and subjects in the other condition were told that it did not have a name, and asked to explain why. We found that subjects thought that things get names to identify and distinguish them, to facilitate social interaction and affection, because they are valuable or important, to indicate posession, or to show that they are alive. Subjects thought that things did not have names for converse reasons: because they were indistinguishable, or no one was attached to them, or because they were not valuable or important, or not alive. Thus being named serves as an explanatory frame for predicting concomitant properties.

3.5 DEDICATED PROCESSING. Finally, domain knowledge should show hallmarks of dedicated processing. These include involuntary or constrained processing, resistance to counterevidence, and selective impairment. Subjects in the HVT2 study showed some evidence of constrained processing and resistance to counterevidence when confronted with an animate (such as a dog) that they were told did not have a name, or with an artifact (such as a bed) that they were told did. For example, five-year-olds suggested that the unnamed dog had not been named yet, or that it was not really a dog but was made of paper. Confronted with a bed with a name, they explained that someone was hiding under the covers or under the bed, and that that was what the name referred to. When they did not reject the premise of the question, they explained the anomaly using the properties of namable entities: the bed was really alive, could walk and talk, had a head, or was very special or fancy. Adults typically reasoned that the animal did not have a name because it was not owned by anyone (yet). Some went so far as to reject the question: one subject suggested that a fish really did have a name, and that the experimenter was joking when she claimed the fish didn't.

There is also some evidence of selective impairment. Carney and Temple (1993) describe a patient with *prosopanomia*, a specific impairment in naming familiar faces. The patient did not have trouble with other complex visual information tasks, with name recognition, or with face perception and access to identity-specific autobiographical information from faces. Hittmair-Delazer & Denes (1994) report a case where a 40-year-

old man with a large left fronto-temporal lesion had difficulty with proper names in a variety of tasks, but relatively spared use of common nouns. This subject also had deficits in matching faces to names. Another patient showed a selective deficit in retrieving proper names after left temporal lobectomy. He was able to provide semantic information about people, but could not name them in conversation, in response to photographs, or in response to verbal descriptions (Fukatsu, Fujii, Tsukiura, Yamadori, & Otsuki, 1999). Patients with atrophy in the left temporal lobe show a similar pattern of deficits (Fadda, Turriziani, Carlesimo, Nocentini, & Catagirone, 1998). Finally, a study of patients with mild to moderate Alzheimer type dementia showed a number of instances of being able to provide detailed and accurate information about persons without being able to name them. There were no instances of naming without being able to provide semantic information, suggesting that access to semantic knowledge is necessary for successful naming (Hodges & Greene, 1998).

4. Adaptation for Social Interaction

Given that purely semantic theories provide an insufficiently explanatory characterization of the class of namable entities, and that the class appears to be a form of domain-specific knowledge, we still have the task of accounting for the form that the knowledge takes. Domains are thought to arise in evolutionary time as a stable response to a set of recurring and complex problems faced by a given species. What sort of solutions would be facilitated by having domain-specific knowledge about namable entities?

In a classic paper, Humphrey (1976) argued that higher primates seem much too intelligent for their ecological niche. He proposed that primate intelligence is an adaptation for dealing with conspecifics, the product of a cognitive arms race. Each individual must pursue goals without threatening the stability of the group. This involves calculating the consequences of their own behavior, of the reactions of others, and the balance of gain and loss. The information available is ambiguous and dynamic; modelling an interdependent series of actions and reactions leads to a rapidly explanding and changing decision tree (Goody, 1995a).

Determining the intentions that motivate actions, and making moves in a rapidly-changing ongoing sequence of actions is a computationally complex, or even intractable, feat. Levinson (1995) divides the task into two problems: determining mutual salience, and mutual computation of mutual salience. Consider the problem of trying to meet someone for lunch without prearranging a place. If you both end up at the same place, then that location was mutually salient. If you thought, 'She knows I will go to my favorite bookstore to wait' (and you both end up there), then that is mutual computation of mutual salience.

Designing a cognitive system around mutual salience and the computation thereof results in an organization that is *dyadic* or *dialogic* (Goody, 1995a). Problem solving templates or schemata have slots for *self* and *other*, and it is best to provide a rich interpretation of the actions, intentions, and abilities of the other. In the cognitive science literature, this ability is occasionally referred to as *theory of mind* or *mindreading*: using subtle cues such as direction of gaze to determine what the other is thinking, and what he or she will do (Premack & Woodruff, 1978; Povinelli & Preuss, 1995). This ability apparently emerges very early: 12-month-olds seem to generate expectations about the behavior of an agent given knowledge of its previously goal-directed actions (Gergely, Knadasdy, Csibra, & Biro, 1995), 18-month-olds use line-of-regard to determine the referent of a novel label (Baldwin, 1991), and pre-schoolers use an understanding of intentional cues to determine word meanings (Bloom, 1997).

What adaptive problem is solved by proper names? They serve as labels, as rigid designators, for that class of entities which can instantiate the *other* slot in dyadic/dialogic templates. Naming an entity integrates it into the social flow (Alford, 1988), makes it accountable (Goody, 1995b; Heritage, 1984), means that it is necessary to provide a fairly rich interpretation of its actions, intentions, and abilities, and to plan to act act accordingly. Conversely, failing to name an entity keeps it out of the social flow.

Because it is the *other* that is named, names are rarely bestowed upon the self. In the Catholic confirmation ceremony, the person being confirmed chooses a new name, but that name is given to them by another. A person may decide to change their own name,

but civil approval is necessary for the change. Even then, the new name may not be accepted by others in the community. In the BBC television program *Red Dwarf*, the character named 'Rimmer' (a name with an extraordinarily bad connotation) wants to be known as 'Ace'... but fails to get his colleagues to adopt the new name. One claim in anthropological theory is that naming confers socialness, but that selfhood is conferred later, in various initiation rights (Cohen, 1994).

Names for others can be used to serve various pragmatic ends. Antoun (1968) showed that calling a man by a nickname was used in an Arab village as a way of derogating him and influencing attitudes toward him. Among the Baatombu of Northern Benin, owners choose proverbial names for dogs, so that they may convey a message to overhearers by simply calling the dog. For example, the Baatombu have a proverb, "When goodness is overdue, (it's because) the idiot has forgotten." By naming a dog 'When goodness is overdue', the owner can call attention to a breakdown in reciprocity. Similar practices are used by the Ewe, Nzakara, and Kasina (Schottman, 1993).

To review the argument so far, we found that the semantic characterization of those entities which can receive a proper name is too loose: it admits far too many individuals. Nevertheless, naming practices are remarkable consistent across cultures and at different times. This consistency was argued to be the result of a cognitive domain which circumscribes the namable, and supports reasoning about namable entities. One of the primary adaptive problems faced by social primates is interaction with conspecifics, and names serve as labels and rigid designators for actual and potential social interactants. We have one remaining question, how are namable entities recognized?

5. Anthropomorphic Bias in Naming

There are a number of ways that the class of namable entities might be delimited. *Name Individuals Typed by a Count Noun* is too loose. *Name Human Beings* is too tight. One possibility is used informally by Macnamara, *Name Animates and Animate Surrogates*. This does a good job of capturing a large proportion of namable entities, particularly those acknowledged by children: people, pets, dolls, puppets, teddy bears, and

cartoon characters. Other cases are more problematic: artifacts such as Tamagotchi, 'Thomas the Tank Engine', and 'Herbie the Love Bug', places, and events.

Here I will argue that the correct way to characterize the domain of the namable is as a bias to *Name Anthropomorphs*. Sorrentino (personal communication) has suggested a variant, *Name Minds*. These alternatives may be somewhat difficult to disentangle, especially if Boyer is correct in his argument that attributing intentionality is the fundamental anthropomorphic projection. Given that very namable entities such as dolls do not have minds (at least not yet), I prefer the *Anthropomorph* formulation, but I leave open the possibility that it is the attribution of mind which makes an entity namable. In ancestral environments, human faces and bodies were very reliably correlated with minds, and with actual and potential social interactants. The *Name Anthropomorphs* hypothesis suggests a number of predictions, which will be the subject of the final section.

6. Predictions

If human beings are predisposed to name anthropomorphs as a way of keeping track of actual and potential social interactants, we should be able to find corroborating evidence in a variety of places.

1. Since human beings are the best anthropomorphs, pretty much every human being everywhere should have a proper name.
2. Both human beings and non-human entities will often be named after individual human beings.
3. Connotative naming should aid in distinguishing social interactants and in specifying socially important properties.
4. Multiple names for the same individual should be OK, especially if each has a different (and useful) connotation.
5. Homonymy should be disprefered.
6. Anthropomorphic perception and social interaction with anthropomorphs should be universal.
7. Anthropomorphic perception and social interaction with anthropomorphs should emerge early.
8. Anthropomorphized things should be named.
9. Namable things should be anthropomorphized.

10. There should be some sense that a named entity is socially accountable.

PREDICTIONS 1 & 2. Proper names for people are generally considered to be universal (Alford, 1988; Brown, 1991), and a universal human right (Valentine et al., 1996). Naming one person after another is a very common practice in many cultures. There is a Christian custom of naming children after saints. Traditionally, the names given to children of Ashkenazi Jews derive from the names of dead ancestors (Seeman, 1983). The Muslim Hausa of Northern Nigeria are often named after the Prophet and his relations (Ryan, 1981). Hindi personal names are often derived from gods and goddesses, saints and philosophers (Mehrotra, 1982).

The Yakima Indians believe that a child is born with the spirit of some deceased loved one, and so name the child after a dead relative (Akinnaso, 1981). On the other hand, names of the dead are avoided in about one quarter of the 60 cultures studied by Alford (1988). Taboos on names of the dead are typically found where there is no ancestor worship or belief in reincarnation.

Where non-human entities are named, they are very often named after individual people. Examples of places named after people include the Californian mission towns ('San Diego', 'San Francisco', 'Santa Clara'), 'Billings' (Montana)--named after the founder of the Northern Pacific Railroad, and 'Osh Kosh' (Wisconsin), which was named after a leader of the Menominee Indians (Nuessel, 1992). Of Pakistan's 172 urban places, about 42% are named after people (Siddiqi & Bastian, 1981). Soviet cities were renamed after exceptional people: political and military leaders during the 1920s and 1930s, and native writers, composers, and poets (Ilyin, 1993). Gaffin has argued that place names in the Faeroe Islands function as embodiments of personality and personhood (Gaffin, 1993). Place names often have great social significance, as locality is the primary basis for social grouping, and place names are used to label localized groups (Takaki, 1980).

Since Venus is the only planet with a female name, the working group of the International Astronomical Union which is responsible for naming features on planets chose to use only female names for topographic features. The system is elaborate, using female first names and the names of famous women for craters, and using mythological

names for non-crater features. The three Venusian continents are named after the Greek, Babylonian, and Slavonic goddesses of love: 'Aphrodite', 'Ishtar', and 'Lada' (Burba, 1990). As of 1990, there were 376 such names in total.

Environmental events such as winds and hurricanes are also named, often with people's names such as 'Andrew'. Atlantic tropical cyclones in the year 2000 will be named from a list which is recycled with some changes every six years: 'Alberto', 'Beryl', 'Chris', 'Debby', and so on (Forrester, 1982; National Hurricane Center, 1999).

Besides places and environmental events, artifacts are also often named after people. Much of the evidence comes from names for vehicles. For example, Rogan found that Norwegian truck drivers that spent a lot of time in their trucks (upwards of 240 days a year) were inclined to name them. One of the drivers told him, "The truck is not only their home during the greater part of the year, but it is also the other woman in their life. So you can see why they give her a name." (Rogan, 1990). Kus (1979; 1994) has made a study of the names given to Peruvian trucks. In his 1979 sample, 35.5% of the 2254 trucks had the names of men or women, or male or female saints. Twenty-one percent of the names were religious, including names of Christ or the Virgin Mary associated with a particular place. Other classes of names, such as personal and place names, "pop" culture names, and so on, also contain names derived from names for people. Kus does not report his data in such a way that we can tell exactly how many of the trucks are named after people, but it is evidently a fairly large proportion of the total.

Around 1890, about half of the Norwegian pleasure boats bore the names of people. The largest single group was female names (23%), followed by male (13%), mythological (11%), and literary (3%) names. In the 1980s, the use of names for humans on similar vessels decreased to about one quarter of the total names, with a concomitant increase in humorous or expressive names (Rogan, 1992). Rogan argues that the use of such names facilitates social interaction among boat crews at sea.

Many non-vehicular artifacts also bear the names of people. Rogan (1990) gives examples such as 'Moses' and 'Aron', Norwegian cannons that met the German invasion army in April 1940, and 'Vera' and 'Victor', computer clusters at the University of Oslo.

Works of fiction are also often named after one or more of the characters: *David Copperfield*, *Jane Eyre*, *Mary Barton, Jerry McGuire, Seinfeld*, *The Simpsons*, *Dilbert*, and so on.

PREDICTIONS 3 & 4. We have already considered the connotative load that proper names seem to bear. If the name were merely a label for a unique individual then a purely denotative tag should do the trick. After all, even 'Eric the Red' will be grey-haired if he lives long enough, and for 'Charles the Bald', there is always Rogaine. It was considerations like these that led Mill to propose that names are purely denotative. If the purpose of the name is to facilitate reasoning about social interactants, however, than the bit of information in connotation could be useful. When 'Honest Al' sets up a dealership in used cars across the street from 'Jimmy the Cheat', you can be sure potential car buyers will welcome the increased selection. Of course, they may get ripped off anyway, as connotations can be consciously manipulated.

Connotative naming is found in a variety of cultures, and often used to indicate socially relevant information. Before contact with Europeans, Mississippi Choctaw names were connotative, acquired in response to a hazardous or worthy deed (Vickers, 1983). In many non-Western societies the semantic content of personal names reflects birth order position in the family, relationship to siblings, or other circumstances associated with the child's birth (Akinnaso, 1981).

In English, names for twins often encode that relationship in one of two forms. In 62% of 187 pairs of twins studied by Plank (1964), first names began with the same letter ('Arthur' and 'Allen'). In 17% of the pairs, the names rhymed or had the same accentual structure ('Arlene' and 'Charlene').

Naming to indicate people and circumstances relevant at the child's birth is common in a number of African cultures: Zulu, Xhosa, Sotho, Tswana, and others (Suzman, 1994). In the case of the Yoruba of southwestern Nigeria, the name identifies the baby with its people and the social order. It may convey information about the fact that the child was born foot first, or that there was a concurrent war or famine, or that the

traditional occupation of the family is as drummers or warriors (compare with the common English surnames 'Cooper', 'Miller', 'Weaver', and 'Smith') (Akinnaso, 1981).

Names in Bimanese convey the sex of the speaker, relative seniority, life stage, marital relation, and various other special statuses (Brewer, 1981). In southwest Ireland, naming and nicknaming expresses socially significant relationships, naming by classifying the individuals in a system of similarities, and nicknaming by classifying them within a system of differences (Breen, 1982). Based on cross-cultural work, Alford (1988) argues that proper names for people serve two functions, categorization and differentiation.

Interpreting the socially relevant information in a name can literally be a matter of life and death. For the Kalinga people of Northern Luzon in the Philippines, names are used strategically to tie people to particular regions, and to distinguish friend from foe (Takaki, 1980). In the 1930s, the Nazis issued name decrees to distinguish "undesirables" from "true Aryans" (Rennick, 1970).

Artifact names are often connotative. The British Royal Navy had a gunboat called 'Insolent'. We had a space shuttle named 'Challenger'. Rogan (1992) reports Norwegian pleasure craft with names such as 'Costa Nok' (Cost Enough), 'Arren' (The Inheritance), 'Crita' (On Credit), 'Studielånet' (Student Loan), and 'Taak Banken' (Thanks to the Bank). Many Peruvian trucks include 'Picaflor' (Hummingbird) in the name, with a strong sexual connotation of going from woman to woman as a hummingbird flits from flower to flower (Kus, 1994). More explicit examples included 'Playboy', 'El León De Las Frazadas' (The Lion of the Bedcovers), and 'El Doctor De Solteras' (The Doctor of Single Women).

Besides vehicles, weapons are often given connotative names. In Alfred Hitchcock's *The Trouble with Harry*, a hunter calls his shotgun 'Old Faithful'. Another fictional rifle is called 'The Sheriff Killer'. A rifle allegedly used to kill 30 bears was called 'The Unequalled' (Rogan, 1990).

PREDICTION 5. Homonymy decreases the discriminability of individuals, and thus should be dispreferred. There is some evidence that young children do not mind learning more than one name for a given individual, but have trouble with multiple individuals

having the same name (Macnamara, 1982). In cultural contexts where naming practices lead to homonymy, use of nicknames and by-names increases, as in the Amish case discussed above, and in the historical case of the introduction of surnames. In large databases, individuals are typically identified by a number which is guaranteed to be unique, thus eliminating homonyms altogether (Landau, 1967).

PREDICTION 6. Anthropomorphic perception and social interaction with anthropomorphs is universal (Brown, 1991; Ellen, 1988; Guthrie, 1993; Looft & Bartz, 1969). Following Boyer (1996), we can divide anthropomorphism into five different aspects, each a possible way of projecting human attributes onto non-human entities.

(i) *Anatomical Structure.* Examples include description of landscape features or inanimate objects in terms of their resemblance with human body parts ("mouth of a river", "neck of a jug"). In the Mayan language Tzeltal, approximately one quarter of the 80 terms for human body parts are used to describe inanimate objects. These descriptors are not metaphorical, but are based on the internal geometry of the entities in an object-centered frame of reference (Levinson, 1994).

(ii) *Physiological Processes.* There are many examples of spirits and gods having children and feasting. A vehicle which needs fuel is sometimes said to be "thirsty", and engines may "purr" or "roar".

(iii) *Personal Identity.* Boyer gives the example of the contrast between religious systems that treat the ancestors or the spirits as a collective, and those which provide a separate identity for each.

(iv) *Social Organization.* Animals and spirits are often attributed features of human social life. Each colony of social hymenoptera is said to have a "queen", and in past times the social insects were thought to live in a regimented, hierarchical society. In some Christian thought, angels are arranged in a hierarchy topped by the Seraphim.

(v) *Intentional Psychology.* Boyer suggests that this is most common, and fundamental in the sense that attribution of intentionality is entailed by other projections, but the converse is not always true. For example, to represent a god in

human form is not only to "provide perceptual information about the god's putative anatomy, but also [to] indicate that the god is *looking* somewhere, and can presumably *perceive* what he is looking at." (Boyer, 1996) Conversely, a god can easily be thought of in intentional terms without being given human form. We will discuss some examples below, like the case of technical divination.

Researchers have found that adults often use animistic language to describe mechanical or abstract events (Bassili, 1976; Heider & Simmel, 1944). For example, when Michotte (1963) used stimuli designed to resemble billiard ball collisions, subjects often described what they saw in animistic terms although their causal perceptions agreed well with the laws of mechanics. White has suggested that the common sense world view can best be seen as an *anthropomorphic machine*: that the universe "is like a large and complex machine which operates smoothly and never runs down, but which is endowed with purposiveness, direction, and natural justice." (White, 1992)

Now we will consider four cases of interaction where the *other* is an anthropormorphized, named entity, but is not a like-minded human adult: interaction with infants, prayer, divination, and the computer program ELIZA. In each case, the projection of psychological properties is the most fundamental aspect of the interaction.

Interaction with human infants has often been argued to be dialogic or conversational in structure, with the adult doing the conversational work (Goody, 1978; Snow, 1977). Mothers talk most to infants when in a face-to-face position or sharing activities and least when feeding. They frequently use turn-passing conversational devices but never turn-grabbing or turn-keeping devices. They frequently use conversational repair procedures such as repetition or taking the infant's turn. They also regularly play interactive games with babies, such as interaction games. Among the Kaluli, the mother speaks for the infant in a high-pitched voice (Schieffelin, 1979).

Anthropomorphizing human infants is a very adaptive practice, because they eventually become full-scale social interactants in their own right. Naming and anthropomorphizing pets, plants, and vehicles is less sound, but people seem to do it anyway.

Other cases of interaction with named anthropomorphs are prayer and divination, both of which have been claimed to be universal (Brown, 1991; Murdock, 1945). Goody (1995b) analyzes prayer in terms of *accountability*--the requirement that we account to one another for our actions, thus making orderly social relations possible. She suggests that prayer is an attempt to engage powerful, non-human entities in accountability. The person who is praying typically understands the prayers to have been heard by a spiritual entity that is typically anthropomorphized (Guthrie, 1993).

Divination is usually used as a means of resolving questions for which answers are not readily available (Zeitlyn, 1995). In technical divination, the diviner formulates a series of questions and receives a series of random answers (random at least from the perspective of the analyst). In most cases, this will lead to situations where answers are contradictory. For the divination to continue, it is crucial for the diviner to manage contradictions as they arise. This is accomplished via a conversational repair strategy, where a contradiction is interpreted as a rejection of the question. Mambila diviners speak of asking questions of divination as if it were an individual and report a result by saying, "Divination says..."

In a series of experiments, students were counselled via intercom, receiving yes or no answers to polar questions (Garfinkel, 1967; McHugh, 1968). When the students realized that the answers were random, they gave up in disgust. It took a long time for them to get to that point, however, because they imputed arguments to the experimenter to explain the pattern of answers they received. A similar example is the simple computer program ELIZA, which is based on pattern-matching templates (Weizenbaum, 1966). The idea behind ELIZA was to emulate the nondirective interaction of a Rogerian psychoanalyst. Rather than volunteering new information, ELIZA would be passive and reactive. Users interacting with ELIZA typically find it easy to imagine that it is another person, even those that understand exactly how it works (Turkle, 1984). In fact, people treat computers, television, and other media as full participants in social interaction (Reeves & Nass, 1996). Media are treated politely, given personalities that match our own, and treated as teammates. They can elicit gender stereotypes, evoke emotional responses, demand attention, and influence memories.

PREDICTION 7. Anthropomorphic perception and social interaction with anthropomorphs also emerges early in development. Ethological work with human infants suggests that the child shows an attunement to maternal signals and a bias toward interactive behavior virtually from birth (Trevarthen, 1979a; 1979b; 1988). A tendency toward anthropomorphic perception is best seen in the vast literature on so-called *child animism*. In the work of Piaget and followers, the child goes through a series of stages in which life as a property is attributed first to things that are useful or active in general, then to things which move, and so on, finally being reduced to the proper class of entities (Laurendeau & Pinard, 1962; Piaget, 1929; 1933). Animistic responding in children is sensitive to a variety of factors. Asked to explain the behavior of unfamiliar objects, children tend to provide more animistic responses than they do when asked about familiar objects (Berzonsky, 1971). In another study, children were shown cards of inanimate and animate entities, and asked to "Pick out the things that...". When asked for the things that were alive, they responded animistically 60% of the time. When asked for the things that eat, they never responded animistically (Holland & Rohrman, 1979).

Research in cognitive development has brought the idea of childhood animism into question, however, by showing that children have a collection of domain-specific ontologies, including those for Persons, Artifacts, and Animate Beings. For example, in the physical domain, infants expect solid objects to obey constraints such that they move along continuous paths, don't coincide in space, and so on (Spelke, 1990). Similarly, physical objects should not act a distance, although social actors do (Leslie, 1988).

Boyer (1996) argues that the existence of such intuitive ontologies makes childhood animism suspect, and that to the extent that children or adults entertain anthropomorphic projections they are counter-intuitive (in the precise sense of being counter to intuitive ontologies). While I am in agreement with his rejection of animism as a developmental stage or a characteristic of primitive thought, on the account being developed here namability provides evidence for yet another intuitive ontology. Certainly there is no contradiction in thinking of a person as a Social Actor or an Animate Being, of their body as a Physical Object, or of a detached or anesthetized body part as an Inanimate Object. The fact that we readily perceive anthropomorphs where we know there aren't

any shows that different domain-specific knowledge may be triggered by the same stimulus. The existence of non-anthropomorphic ontologies would not be an argument against an anthropomorphic ontology unless the coverage of the domains was non-overlapping.

PREDICTION 8. We predict that anthropomorphized things will be given names. Under normal circumstances, one human body is one individual, and that individual is named. Under unusual circumstances, more than one perceived anthropomorph inhabits a single body, and then each can get a name. Examples come from multiple personality disorder, Tourette's syndrome, the menstruation expressions of some American women, alien hand sign, and the practice of naming body parts, usually sexual.

The best known case of multiple personality disorder is that of 'Eve White', first presented in Thigpen & Cleckley (1957). Eve assumed three different personalities at different times, 'Eve White', 'Eve Black', and 'Jean'. The different personalities used "she" or "her" to refer to one another, representing strict bounds of identity. In keeping with the idea that names are given to the *other*, the names were assigned to the personalities by the psychiatrist.

Tourette's syndrome is a neurological disease characterized by convulsive motor and phonic tics. Echolalia (repetition of heard words) and palilalia (repetition of one's own words) are typical symptoms; coprolalia (compulsive utterance of obscenities) is an occasional symptom. Because many of the tics are felt as intentional, people with Tourette's syndrome sometimes perceive the compulsions to be the expression of an alien will. This is in contrast to diseases like parkinsonism or chorea, which have no perceived intentional quality. Consequently, people with Tourette's syndrome sometimes personify it, and give it a name such as 'Toby' or 'Mr. T' (Sacks, 1992).

Possibly because its cyclicity makes it seem intentional, menstruation is sometimes personified and named by American women. These names may be female ('Aunt Sylvia', 'Aunt Tilly', 'Mary Lou') or male ('George', 'Herbie', 'Mr. Red'), and may be part of more elaborate expressions, such as "My Aunt Flo[w] is coming from Redfield, Pennsylvania" (Ernster, 1975).

Alien hand sign is the failure to recognize a limb, usually the hand, as one's own, coupled with observable involuntary motor activities. These included grasping and groping, self-destructive behavior and intermanual conflict. Again, perceived intentionality leads to personification and naming of the affected body part. Doody & Jankovic (1992) report on a remarkable case: an 85-year-old woman believed that her left arm was a baby called 'Joseph', and interpreted its actions against other parts of her body accordingly. For example, she interpreted the hand pinching her nipples as 'Joseph' biting while nursing.

It is the perception of the limb as an anthropomorphic *other* that allows it to bear a proper name. Under normal conditions, the hands are not named, although one of the subjects in the HVT study (a 5-year-old girl) suggested that fingers could get names if you painted a face on each to make it a puppet.

The only body parts that are given proper names with any regularity are the genitals. The practice of naming sexual body parts exhibits a variety of characteristics that corroborate the idea that it is an anthropomorph which is being named. First, there is a strong component of personification and attributed intentionality. In a study by Cornog (1986), 17% of the informants differentiated the "personality" of the body part from their own; attributing a mind to it, for example. This view of the genitals is reflected in sculptures of animated phalli from the Greco-Roman world: phalli with legs, and birds with heads in the form of a phallus (Boardman & Rocca, 1978), and in folklore, where there are subthemes of talking genitals (Thompson Motif D1610.6), people talking to genitals, and genitals acting on their own volition.

Not unexpectedly, genitals are often named after people, often other people, emphasizing a degree of independence from the self. For the penis, some examples collected were 'Casey' (after the brave engineer), 'Hank', 'Lazarus' (who rose from the dead), and 'Yorick' (who, alas, stayed dead). Fewer names for the vulva were reported, but many of them were names of (other) people, such as 'Eunice', 'Priscilla', and 'Henrietta' (Aman, 1988-89; Cornog, 1981). In Cornog's 1986 study, 57% of genital pet names were names of people. Only 6% derived from the name of the owner, the other 51% being

named after other people. This was also the case, of course, with the most famous named genitals in literature, Oliver Mellors' 'John Thomas' and Constance Chatterley's 'Lady Jane' (Lawrence, 1983). The phenomenon of named genitals suggests that vibrators might also be named, and they are: 'Vladimir' and 'Charlie', and 'Steely Dan' from William Burroughs' *Naked Lunch* (Aman & Friends, 1981; Aman 1988-89).

PREDICTION 9. We also predict that named things will be anthropomorphized. We will consider animals, artifacts, places, and environmental events.

The kinds of animals which are most likely to be named are also anthropomorphized and granted higher cognitive abilities. Eddy, Gallup, & Povinelli (1993) demonstrated that inferred cognitive abilities of animals were directly related to the degree to which the animal is anthropomorphized. Subjects rated cognitive similarity to human beings as increasing in the order: invertebrates, fish, amphibians, reptiles, birds, mammals (except cats, dogs, and primates). They found that subjects showed a marked increase in judging cognitive similarity between people and cats, dogs, and nonhuman primates, and a marked increase in attributing cognitive abilities. In the HVT2 study, when subjects were told that a given animal had a name, they inferred that it had personal ties with someone, that it was loved, could communicate with other animals, that it had feelings, and so on. When they were told that an animal did not have a name, they concluded that the animal couldn't walk or talk or play, was wild or stray, couldn't respond to a name, was dead or had no meaning for anyone.

Rogan (1990) notes that objects that are given a proper name are invested with more meaning than most artifacts--typically with status, emotional meaning, and a degree of life.

Place names provide particularly interesting cases of anthropomorphization of a named entity. Porteous (1986) shows that landscape metaphors derived from the body are ubiquitous in English. The earth is a recumbent giant, we speak of its skin, of it being clothed with snow. Vegetation is hair, water blood, rivers and minerals form veins. Landscapes may be fat or lean, they may age. Vapors, fumes, and mists are seen as breath. "We speak of an arm of the sea, a neck of land, the mouth of a river, cavern or crater, the

face of Europe, the face of the earth. ... Mountains have crests, shoulders, flanks, feet. Their caverns and craters have mouths; the latter also possess lips. Between mountains we find the heads of passes, and on mountainsides are the heads of valleys, the rivers within which terminate in mouths. We may climb the brow of a hill, the spine of a ridge, the tail of a drumlin, a volcanic neck, a headland." Cross-culturally, we find anthropomorphic perception of nature (Bird-David, 1990) and of the land (Taussig, 1980).

Environmental events, such as winds, are often anthropomorphized. In the classical Western tradition, the god 'Eole' is depicted as a cloud with a blowing human face (Boyer, 1996). Magical rites are practiced in many cultures in an attempt to control the wind (or, in Goody's terms, to engage it in accountability). In other cases, the wind is the action of an anthropomorphic weather god, like 'Thor' or 'Zeus' (Forrester, 1982).

PREDICTION 10. Finally, named entities are considered to be socially accountable. As we have seen in cases of prayer, divination, and onomastic magic, knowing the name of some entity is often taken as a form of control over it.

7. Conclusion

Algeo (1985) argued that onomastics needs a theory that treats naming in relation to some unified theory of human behavior, and that discovers such universal tendencies of naming as may exist. In this thesis, I have tried to provide the outlines of such an approach, by providing a deductive theory of namable entities that is grounded in evolutionary and cognitive psychology. The kinds of entities which can bear a proper name are a subset of those individuals which are typed by a count noun. There is evidence that the class of namable entities is a form of domain-specific knowledge, and that the best way to characterize that knowledge is as a bias toward naming anthropomorphs. This naming system is adaptive, and is a component of an intelligence specialized for social interaction.

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