

NATURAL KIND TERMS, ESSENTIALISM, AND THE TELEOLOGICAL APPROACH

By Emilie Mathilde Østerby Strandenæs

This paper considers relatively recent theories of reference for natural kind terms. I remain neutral on whether there are any natural kinds. I argue, however, that animals, humans included, act as if there are such kinds. My hypothesis is that natural kind terms refer in accordance with this behaviour. I claim that humans and other animals have a natural interest in separating chemical substances from one another. Natural kind terms and the notions they stand for reflect this interest.

All animals have an interest in properties that supervene on chemical structure: We are biological creatures, and different chemical structures produce different reactions in our bodies. Humans and other animals tend to behave as if the superficial properties of an instance of stuff we come about are necessary and sufficient conditions for the stuff's having some essential property that allows it to belong to a certain kind. When I come about an instance of watery stuff, I tend to behave as if such properties as the taste, visual appearance and location of the stuff necessarily entails that the stuff belongs to the kind water, in virtue of having some essential property. Within our natural habitat, such essentialist assumptions will generally allow us to make accurate predictions about what reactions we should expect the stuff we come about to produce: In my natural habitat, stuff that has the superficial properties of water is generally H₂O. In other words, we are developmentally justified in making essentialist assumptions: In our natural habitat, they allow us to make accurate predictions.

In the first part of this paper I briefly reconstruct the Kripke–Putnam theory of reference for natural kind terms. I then make some remarks about how the thought-experiments that the theory is based on have been thought to depend upon natural kind essentialism. I claim that such a view of the theory is wrong, and that it rather reveals information concerning beliefs about natural kind terms. Thereafter reconstructions of three responses to this theory follow. Conclusively, I present some remarks about the function of natural kind terms and the notions they are related to. These remarks are meant to speak in favour of a theory of reference for natural kind terms and notions that is compatible with teleological theories of language and mental content.

Natural Kinds

Natural kinds are orderings of entities that exist independently of human cognition. They are mind-independent categories. Essentialism about natural kinds maintains that the entities that naturally form groups have some essential property in virtue of which they earn kind-membership. On this view, any natural kind is the set of all entities that share such an essential property. Having such an essential property is the necessary and sufficient condition for belonging to a kind. Natural kind realists disagree on which natural kinds exist. In recent times, chemical structures are the primary candidates for a natural kind essentialist ontology: Most natural kind essentialists assume that molecular structure is the relevant essential property that allows things to naturally form mind-independent groups. The literature I address in this paper expresses the presupposition that theories about natural kind terms are theories about chemical kind terms: The authors I address all exclusively use chemical kind terms as examples. This is reflected in my reasoning. The claims I make about natural kind terms presuppose that these terms are about kinds that are assumed to naturally form in virtue of having a certain molecular structure: I state that the kinds are “assumed” to naturally form because I, as mentioned, do not wish to argue for the existence of natural, chemical kinds, but rather to claim that animals behave as if they believe that such kinds exist. My argumentation has no implications for terms for species, entities within astrophysics, social sciences (such as psychological kinds), or any other candidates for natural kinds: I am specifically presenting a theory of reference for names of chemical structures, or names for what is assumed to be chemical structures.

Kripke–Putnam Externalism

Semantic externalism is the view that the linguistic meaning of certain terms is determined partly by factors in an agent's environment. The agent does not need to be aware of these factors in order for the meaning of his terms to be externally determined. In other words, externalism about semantics might hold that what this agent, let's call him Oscar, means when he utters the word ‘water’ does not depend upon his intentions or beliefs, but on factors in Oscar's environment, of which he need not be aware. Hilary Putnam (1975) extended Saul Kripke's causal account of reference (Kripke 1980:299; 295–303) from proper names to natural kind terms and argues that the meanings of natural kind terms are externally individuated. In order to make this clear I will briefly outline Putnam's “Twin Earth” thought-experiment.

Putnam imagines there being a planet somewhere in the galaxy that is very much like our planet Earth. In fact, many of the inhabitants of this Twin Earth speak a language that exactly resembles English, apart from a few curious differences. On Twin Earth, the stuff that runs in rivers and lakes, the stuff they drink and the stuff they use to make their tea has a different chemical structure than it does here on Earth: It is a complex formula which Putnam abbreviates as XYZ. Twin Earthians use the Twin Earth English term ‘water’ to refer to the stuff in rivers and lakes, the stuff they drink, the stuff they use to make their tea and so on, just like we use the English term ‘water’ to refer to stuff that we give the same descriptions here on Earth. Putnam assumes that the Earthian term ‘water’ is co-extensive with ‘H₂O’. So the Twin Earthian term ‘water’ is assumed to be co-extensive with ‘XYZ’.

When an Earthian spaceship travels to Twin Earth it seems plausible that the Earthling astronauts initially assume that the term ‘water’ has the same meaning on Twin Earth as it has on Earth. In other words, that the term stands for the same notion, on Earth and Twin Earth. Putnam's intuition is that the astronauts will change their opinion upon further scrutiny. When they discover that the stuff in Twin Earth's rivers and lakes and so forth, is in fact XYZ, they will claim that ‘water’ on Twin Earth has a different meaning than it does here on Earth: In Earth English, ‘water’ means H₂O while in Twin Earth English, ‘water’ means XYZ. The astronauts have a clear conceptual understanding of *why* ‘water’ does not have the same meaning (or really isn't the same word) on Earth and Twin Earth: The terms refer to different chemical substances.

The essential step of Putnam's thought-experiment is what follows when he asks us to consider how things were

in 1750. At the time, no Earthling or Twin Earthling possessed a conceptual understanding of chemical structure: In 1750, no one knew that there was such a thing at all. And yet, it seems intuitive to hold that ‘water’ had different meanings in Earth English and Twin Earth English in 1750 as well (Putnam 1975:139–142). Putnam explains this intuition through explicating a direct-reference theory of natural kind terms. He assumes that some instance of stuff falls under the extension of a natural kind term such as ‘water’ in virtue of possessing some essential similarity to some former instance of stuff (Putnam 1975:148–150). In 1750, people had not yet discovered what this relevant similarity amounted to. However, sharing this relevant similarity was still necessary and sufficient for falling under the extension of a term such as ‘water’. Scientific discoveries provide us with evidence that the relevant similarity in question is a chemical structure: ‘Water’ is whatever has the same *molecular structure* as the relevant former instance of stuff. In other words ‘water’ is H₂O. No instance of XYZ is Earthian water as no instance of XYZ has ever shared the relevant similarity (chemical structure) to some previous instance of Earthian water-stuff. This is why XYZ did not fall under the extension of ‘water’ in Earth English in 1750, even though the people of 1750 would have been unaware of this fact.

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Kripke–Putnam Essentialism

It is evident how such a causal account assumes essentialism of some form. One reading of Putnam-style thought-experiments implies that they assume natural kind essentialism. On this reading, people of 1750 meant H₂O when they used the term ‘water’ in virtue of there existing a natural kind, the group of all things possessing a relevant property: the property of being H₂O. According to this understanding, Putnam argues for “natural kind externalism”. Only the meanings of natural kind terms should be externally individuated according to such a position. In other words, if natural kind essentialism is false, so should semantic externalism be.

Tyler Burge (1979) presents thought-experiments equivalent to those of Putnam that avoid the problem of natural kind essentialism all together: He offers thought-experiments involving terms that are clearly not natural kind terms (Burge 1979:77–84). He shows that terms such as ‘sofa’, ‘brisket’ and ‘carburetor’ are externally individuated:

An entity falls under the extension of these terms in virtue of how a given linguistic society, and experts within that society, intend for a term to refer. Some have maintained that Putnam argued for a different position than Burge. Social externalism of the kind Burge presents argues that only social factors are necessarily relevant.¹ In other words, there need not be any essential properties in order for semantic externalism to be true of some terms: There is no essential property of sofas that determines which entities that are sofas and which that are not. However, there are certain things that are sofas and certain things that aren't, in virtue of the practice of a linguistic community. So the meaning of the term 'sofa' is partly independent of a person's knowledge of sofas and her intentions when using the term. Putnam explicitly claimed that his thought-experiments should be thought of as intuitions in favour of social externalism: People of 1750 were talking about H₂O and not XYZ, in virtue of factors within a linguistic community. Moreover, Putnam's thought-experiments do assume essentialism of some form. But if we take him to argue in favour of social externalism, it seems that they only assume psychological essentialism: The phenomenon that people believe that there is some essential property of

water (Bloom 2007:151). 'Water' meant H₂O in 1750, on this view, because a linguistic community used the term 'water' *as if* there is some essential property of the substance. Later scientific investigation has proved that this assumed essential property is to be H₂O. What we can extrapolate from Putnam's thought-experiment is the view that the term 'water', and terms like it, necessarily refer to stuff that is *believed* to have a certain property. A central critique of this view can be found in Chomsky (1995).

Chomsky on Functionality

Chomsky argues against analyses of the reference of natural kind terms that assume psychological essentialism. What Chomsky points to is that Kripke–Putnam essentialist thought-experiments do not explain why we talk of some substances containing a high percentage of H₂O as 'water', while other such substances are never referred to in this manner. He goes against Putnam's assumption that the term 'water' is co-extensive with 'H₂O'. Obviously, we generally do not mean pure H₂O when we use the term 'water'. Indeed, in many communities the water in people's faucets contains large amounts of chlorine and other contaminants. In these communities, one still uses the term 'water' for the stuff running from the tap. Chomsky claims that when the stuff from the tap is heated, poured in a mug and a teabag is added to it, it ceases to be water but is rather tea. The stuff no longer falls under the extension of 'water' (Chomsky 1995:30). If one were to analyse the percentage of H₂O in the liquid in the mug, once before and once after adding the teabag, the experiment might yield a result in which the difference was less or equal to that between Norwegian and Spanish tap water.² So why do we talk about contaminated tap water as 'water', while we refer to tea as 'tea'? The percentage of H₂O in the substances does not seem to account for this separation. An even more puzzling point is that Chomsky is aware that the H₂O levels found in tea and in tap water are nearly invariant. Yet he still names one substance 'water' and another substance 'tea'. Chomsky's intuitions about 'water' and 'tea' as presented so far are not completely at odds with common beliefs: Malt (1994) presents analogous views based on a psychological study where intuitions about 'water' were investigated. In the study it was found that believed percentages of H₂O present in a liquid do not wholly determine when one talks about it as 'water' and when one gives the liquid some other name (Malt 1994:1). People believed on average that swamp-water, assumed to be an example of stuff that falls under the extension of the term 'water' contains 68.8 percent

H₂O. They believed that tea contains 91 percent H₂O. Yet tea is not commonly referred to as 'water'. They also generally believed that ocean water and tears contain the same percentage of H₂O. However, ocean water was deemed to be 'water', while tears were not (Malt 1994:49–50).

Malt's analysis of the data from the study provides empirical evidence in favour of Chomsky's intuition: The meaning of the term 'water' is not reducible to "stuff of a certain molecular structure". Substances can have molecular structures that are similar in the relevant way (they contain an equally large amount of H₂O), and yet people do not talk about them in such a way that they seem to both fall under the extension of a supposed natural kind term such as 'water'. Even more puzzling is the fact that people's beliefs are consistent with facts about molecular structure: They believe that two instances of stuff contain equal amounts of H₂O, yet they speak as if one instance is water and the other is not. The extension of a natural kind term doesn't seem to be all the entities that possess some relevant physical property: In any case the relevant property cannot be chemical structure, as is assumed by Putnam. Chomsky argues that natural kind terms are not essentialist, and Malt presents analogous argumentation. People do not seem to assume that there is some essential property, such as chemical structure, that determines the extension of natural kind terms (Malt 1994:43; Chomsky 1995:43–44). The data from Malt's study seems to suggest that 'water' is not co-extensive with 'H₂O'.

Chomsky considers a case in which a large tea filter is installed at the water-reservoir that provides water for his faucet. When finding a cup of the liquid that now pours from his tap, Chomsky imagines that he refers to it as 'tea'. However, upon learning that no teabag has been put into his cup, but that the liquid is just the sort of stuff that runs from the faucet, he corrects himself, and starts referring to the liquid as 'water' (Chomsky 1995:30). Malt and Chomsky both argue that "use, location and source of a liquid may also influence whether it is considered to be water" (Abbott 1997:1; Bloom 2007:151). According to Chomsky, these are "matters of special human interests and concerns" (Chomsky 1995:22). Rather than there being any physical property, such as molecular structure, that plays the role of fixing the extension of 'water', considerations about the role of 'water' in our lives play this part. This role is defined in light of superficial, non-physical properties such as location, source and function. On Chomsky's view, a correct disambiguation of 'water' might be "the stuff that fills oceans and lakes", or even the anthropocentric description "the stuff that runs out of

the faucet". Chomsky and Malt both wish to advocate the view that natural kind terms are really functional terms. 'Water' is the substance that plays some relevant role in our lives, *independently of chemical properties*. They both present descriptivist theories of reference for natural kind terms: One on the basis of idiosyncratic intuitions, the other on the basis of psychological data.

If the accounts presented by Malt and Chomsky are accurate, it seems evident that the extensions of natural kind terms are not isomorphic to natural kinds. Chomsky used his intuitions about the reference of natural kind terms to argue in favour of an individualistic semantic: If we assume that Kripke–Putnam externalism depends upon essentialism about natural kinds (which I argue that we do not need to do), this seems to be a critique that is aimed well. If there is no assumed essentialism behind natural kind terms at all, the extension of the natural kind terms will not be determined by some essential physical property. If 'water' is not co-extensive with 'H₂O', then Oscar will obviously not necessarily mean H₂O when he is talking about 'water', even though most of the substances he refers to as 'water' happen to contain a large amount of H₂O. The fact that 'water' and 'H₂O' are *to a large part* co-extensive is contingent or accidental according to Chomsky. It does at least not give evidence to any necessary link between the terms. Chomsky argues that people relate to water through properties that are contingently linked to chemical structure. So 'water' cannot mean a chemical structure.

Abbott on Essentialism

A response to Chomsky can be found in Abbott (1997). Abbott evaluates the plausibility of Chomsky and Malt's analogous intuitions. She considers Chomsky's thought-experiment where a tea-filter is installed at the water reservoir. She points to the questionable assumption that one would not think that tea is running out of the faucet. Consider horror-movies where blood pours out of the showerhead: We do not generally say that the liquid coming out of the shower is water, in virtue of its location alone (Abbott 1997:314). I can imagine a number of cases where it just seems silly and dangerous to assume that whate-

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Illustrasjon: Åshild Aurlien

ver comes out of the faucet is water. Intuitively I would imagine that this is abnormal behaviour deserving psychological examination. If a thirsty person pouring herself a glass of liquid from the sink finds that what comes out of the faucet is blue and etching, she generally does not drink it assuming that it *must* be water. If she were to attempt such a thing, most people would probably question her judgement, and argue that “*that* isn’t water”. Similarly, if Chomsky were to pour me a glass of liquid from his tea-faucet and present it as a glass of water, I would attempt to correct his language use: I would argue that “*that* isn’t water, it’s tea!” (At least I would argue that if we are going to talk about ‘hot water that has been added a tea leaves’ as ‘tea’, then the stuff in the faucet is also tea, regardless of its location.)

It is worth noting that Chomsky never claims that all things called ‘water’ must be drinkable. Consistent with Chomsky’s position, one might think that the person standing with the glass of blue, etching-stuff in her hand might say “this *water* certainly isn’t drinkable! Yet it must be water, for it came from the faucet”. I suspect that such an understanding of a person’s reaction is close to Chomsky’s intended result: One believes that something is ‘water’ in virtue of where it stems from, independently of what physical properties one believes that it has. Thus, examples of substances that people believed contained a low percentage of H₂O in Malt’s study, were referred to as water due to their location and function: Swamp-water is water because ‘water’ is typically stuff found in the forest, radiator-water is ‘water’ because ‘water’ is typically used in machinery in order to cool or heat parts of it.³ Chomsky’s argument appears to account well for why some liquids, typically ones found in locations that seem to correspond with intuitions about our natural habitats, are ‘water’. If a substance is located in a river or a lake we do generally talk about it as being ‘water’: Location does seem to come into play. However, as pointed out by Abbott, Chomsky’s account entails some highly counter-intuitive results for the extension of ‘water’. For example, the shower-blood in horror-movies should be water and some instances of XYZ should be water as it is found in rivers and lakes, possibly, turpentine in a water bottle could be water. It is not completely clear when Chomsky thinks that something is water only in virtue of location, source and/or function. How much H₂O does it need to be in the stuff that comes out of the faucet in order for it to be water? Abbott presents a strategy for explaining natural kind term reference that resembles the Kripkean strategy proposed by Putnam.

She argues that the data found in the psychological

study by Malt, and the intuitions presented by Chomsky only point to a fact about how we use words, and not to some fact about how we believe that the physical world is (Abbott 1997:315). She argues that ‘water’ simply means H₂O. The two terms are *in practice* co-extensive: However, due to Gricean mechanisms,⁴ we do not always speak in a way such that this point is revealed (Abbott 1997:316). There is some assumed essential property that includes a substance into the extension of a term like ‘water’. For ‘water’, this property is being H₂O (Abbott 1997:316). But there are additional terms, such as ‘tea’ and ‘tears’ that are partially co-extensive with ‘water’. And in most situations where we talk about tea, it seems more relevant to use the term ‘tea’ than to talk about ‘hot water, containing an infusion of tea or other herbal matter’ (Abbott 1997:315). As far as the meanings of our terms go, however, we might as well have used the latter form. Abbott’s view responds to the criticism of the Kripke–Putnam thought-experiments: She argues that terms like water are essentialist: Chomsky and Malt have only shown that this aspect of our language use is sometimes opaque.

Bloom on Hybrid Conceptions

A more recent entry to the debate between Chomsky, Malt and Abbott is represented in Bloom (2007). In light of the data from Malt’s study, Bloom argues that there are two separate notions associated with ‘water’: In one sense, ‘water’ means H₂O (or rather instances of stuff containing some sufficient amount of H₂O, tea included). In another sense, ‘water’ is an *artefact kind term* (Bloom 2007:151–153). An artefact kind is in this case something similar to what Chomsky has in mind: A kind of which the members are members in virtue of their *functional role*, and perhaps even the purpose intended by their designers. However this remains somewhat unclear in Bloom’s definition of artefact kinds. Bloom argues that people’s use of the term ‘water’ implies that we not only think that water has a functional role, but that it is like an artefact with a purpose. Bloom considers our use of the word ‘Sprite’ to be analogous to our use of ‘water’. In one sense, Bloom argues, stuff is Sprite if it has the correct chemical structure (the correct essential property). On this view, what Sprite is made for does not come into the picture when we determine whether something is Sprite (Bloom 2007:153). If someone washes their hair with Sprite, if Sprite is found to be a miraculous cure for male baldness and is thus marketed for this purpose, if someone starts making Sprite in their basement, it is still Sprite. However, Bloom argues that this picture of Sprite alone does not capture all our

intuitions about what it takes for something to be Sprite: For example, were the Sprite-people to change the recipe of Sprite, and thus market a mixture of different chemical structures under the same brand name, we might still agree that they are making Sprite. Sprite light seems to be Sprite.

What Bloom appeals to is that the people behind Sprite seem to have some privileged role when it comes to determining the extension of the term ‘Sprite’. One correct disambiguation of ‘Sprite’ is on this view ‘whatever the people who make Sprite believe Sprite to be.’ Bloom argues that ‘water’ has one sense equivalent to this. Many chemical kind terms, including ‘water’, should be thought of as hybrid terms: One correct disambiguation of ‘water’ reduces it to H₂O. Another correct disambiguation of ‘water’ takes it to be the stuff that fills a certain functional role. It does not seem intuitive to me that there prevails a general psychological attitude toward water that assumes that it is designed with a purpose, and this particular part of Bloom’s analysis seems quite idiosyncratic. But the claim that we relate to water as something with a functional role, seems to be somewhere along the lines of Chomsky’s and Malt’s arguments. Bloom attempts to unify the views of Putnam and Chomsky. ‘Water’ seems to both directly

and descriptively refer to its extension. He explicitly argues against Abbot’s suggestion that Gricean mechanisms can account for the ambiguous meaning of ‘water’. On his view, tea is not “actually water” in any relevant sense. Bloom does not normally call his children mammals, even though this seems not to be merely due to reasons of politeness and pragmatics (Bloom 2007:152). Somehow there are stronger reasons for not talking about them in this fashion. He does agree that they *are* mammals, strictly speaking. But somehow there are some ways of talking about them that are unrelated and non-reducible to this property. The same applies for terms like ‘water’: There is one sense of ‘water’ that is simply different from ‘H₂O’. Bloom argues that our reasons for creating hybrid concepts might be learning difficulties: As children we have trouble understanding intuitively which things are artefacts and which things are not. This leads us into thinking about groups of substances as both artefact kinds and natural kinds: We do not always have the capacity to settle for one way of categorizing (Bloom 2007:155).

A serious issue with Bloom’s account is that it does not make clear just what the difference between artefact kinds and natural kinds are. If we are, like Bloom assumes, partially innate essentialists (Bloom 2007:150), we assume that



Illustration: Åshild Aurlien

in one sense a natural kind is individuated in virtue of the members of the kind having some specific property: a certain chemical structure. On this view, many artefacts are members of natural kinds: Synthetically produced ethanol or carbon is “artificial”, but still instances of a natural grouping of stuff. Some artificially produced kinds are also natural kinds, such as rutherfordium, a synthetically produced chemical element that is not found in nature. For the term ‘rutherfordium’, there does not seem to be any independent notion that is not reducible to its chemical composition.

Bloom assumes that the two notions that form the hybrid notion ‘water’ are not reducible to one another: There is one notion ‘water’ that is reducible to the notion ‘H₂O’. But there is an additional notion associated with the term that is not, in the same way that ‘child’ cannot be reduced to ‘mammal’. Even if people believe that there is some essential property that makes mammals mam-

It seems to imply that we have a notion of water that is only contingently co-extensive with a natural substance that is a substantial part of our bodies and that we need to consume in order to survive.

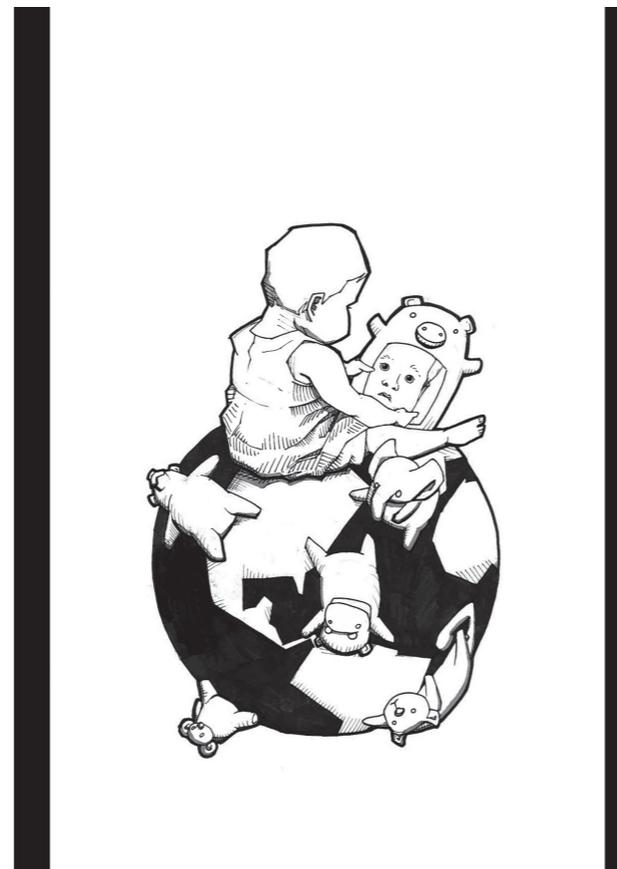
mals, they do not talk about all the things bearing this property as being mammals. However, this point seems different from the point that two distinct notions are associated with ‘water’. ‘Mammal’ and ‘child’ are obviously different notions: They are associated with different words. The claim that two different notions are associated with what appears to be one word, ‘water’, is more troublesome. A problem with Bloom’s analysis is that appealing to hybrid conceptions seems somewhat unsatisfactory: Do we really want it to be the case that Chomsky both has tea and water in his faucet? This doesn’t seem to quite capture natural language use either. Bloom might agree that really, everything that is water is H₂O. However, there is one way of using the term ‘water’ where the chemical structure is irrelevant. The context we are in determines which sense of ‘water’ we use. Why should we not, if this is the case, assume that there are in fact many concepts associated with ‘water’, or that the use of the term ‘water’ is completely context dependent? Bloom’s views are not explicit about this concern.

His analysis does have some appeal, in that it explains why ‘water’ and other natural kind terms sometimes seem to refer to chemical structure in a strict sense, for example in a laboratory, while sometimes it refers to stuff that is not an instance of a pure chemical structure. Yet it seems to

advocate the view that the Earthian-English word ‘water’ is really many words, corresponding to many different notions. My main concern about Bloom’s account, however, is that it does not consider human practice in light of the practice of other animals. Imagining that there is a public notion of ‘water’ somehow dependent on thinking in terms of artificiality, design, and purpose seems to “de-naturalize” the term ‘water’: It seems to imply that we have a notion of water that is only contingently co-extensive with a natural substance that is a substantial part of our bodies and that we need to consume in order to survive. In the following, concluding section, I argue that such considerations actually play a substantive role in our usage of terms such as water. I attempt to explain the data from Malt’s study by pointing to our biological needs.

Abilities, Functions, Notions and Terms: A Teleological approach

Having the ability to discern drinkable water from other stuff is obviously not a distinctly human capacity. When I say drinkable water, I mean a substance that is mainly H₂O with less than a certain limited amount of pollution. Many animals have advanced abilities to distinguish H₂O-based liquids from other liquids, and to distinguish H₂O



Illustrasjon: Petter Faustino

with dangerous pollution from H₂O with contamination that is not harmful. I do not see any general reason for assuming that the human capacity to distinguish different instances of liquids containing H₂O from each other is different from other animals’ capacity to perform the same task. Humans may have conceptual abilities that are used in such ‘deductive’ work. This conceptual ability is related to our sensory system and instincts, which we share with many animals. Humans and other animals have a general interest in being able to distinguish between different chemical substances. This general interest arises due to the fact that different chemical substances produce different chemical reactions. Although non-human animals do not do chemistry, the ability to discriminate chemical substance is an animal ability.

What is the Function of ‘Water’?

On Chomsky’s view, water has a functional role that is *distinct* from its having a chemical structure. The non-physical functional role of water explains why ‘water’ and ‘H₂O’ seem not to be co-extensive. He explicitly claims that the reference of ‘water’ depends on interests that are uniquely human. These interests are somehow unrelated to chemical structure. Bloom seems to advocate a similar view about the functional role of ‘water’: In one sense, we think about water independently of its chemical structure. But is there really any useful way to think about the functional role of ‘water’ that is distinct from thinking about water as H₂O? Again, consider the relevance of distinguishing H₂O from other substances: My interest in water seems reducible to my interest in knowing about the chemical structure of a substance. Or at least reducible to my interest in predicting and understanding the chemical reactions that a certain substance will produce. I am interested in knowing whether something is water because I am interested in knowing whether it can be bathed in, or drunk, or whether it is toxic or will explode in contact with fire. The functional role of ‘water’ *is* referring to H₂O, it is not independent of chemical structure. Whatever functional description I associate with the term ‘water’ seems to depend on water being H₂O. Chomsky’s tea faucet seems only to point to the same conclusion: The reason that I have grounds for believing that the stuff in the faucet is water is that the stuff in the faucet is generally (polluted) H₂O. The reason why I assume that the stuff in the swamp is water is that there in general is contaminated H₂O in swamps. Being evolutionarily developed within a certain habitat, I have innate capacities (my olfactory system, my visual system and other parts of my sensory apparatus play

into this capacity) that allow me to make good predictions about whether instances of stuff I come across are instances of the same chemical substances. I can also learn that some locations of stuff (being in a faucet, in a water bottle or in a glass) provide evidence that that stuff is H₂O. This point is somewhere along the lines of what Putnam says, but it appeals to inductive empirical evidence rather than to necessity: When an Earthian of 1750 talks about water, we have good evidence for believing that he is talking about H₂O and not XYZ. This is due to the physical fact that individuals of his social environment have an interest in H₂O, and not in XYZ. H₂O is a chemical substance that is important for his community. He needs to be able to distinguish H₂O from other naturally occurring substances, in the same way that other animals in their natural habitat do.

Rational humans have the ability to have conceptual thoughts about H₂O. The fact that this chemical substance plays an important role in our lives implies that people probably have some notion of water: If we accept social externalism, this notion is individuated by an agent’s social environment. There is nothing about the physical environment that necessarily makes it the case that the term ‘water’ is really co-extensive with ‘H₂O’. However, if we consider what the notion of ‘water’ is for, its proper function, we find strong evidence that it will correspond to ‘H₂O’. The hypothesis that I wish to draw from these considerations about the relevance of H₂O is that natural kind terms refer in virtue of the role that their extensions have for us: This role is of being a certain chemical substance. In other words, the assumption that some stuff has essential properties, namely a certain chemical structure, does play a role in determining the reference of natural kind terms.

We use natural kind terms in order to successfully communicate about relevant environmental aspects: Different substances and their different chemical structure. These considerations indicate that ‘water’ really *does* mean H₂O, but that we do not always speak in a way that makes this obvious. ‘Water’ means H₂O because the term ‘water’ is a tool for communicating about relevant aspects of our natural habitats, namely whether some stuff will behave in this or that way: Whether it has this or that chemical structure.

I do not see any general reason for assuming that the human capacity to distinguish different instances of liquids containing H₂O from each other is different from other animals’ capacity to perform the same task.

THE TROUBLES THE TERM 'TASTY' TOTALS TO

AN OBJECTIVIST SEMANTIC FOR 'TASTY' MAKING USE OF SEMANTIC MINIMALISM

By Levin Hornischer

The term 'tasty' gained the interest of semanticists since it seems like standard semantic theories don't assign the correct meaning to it. We shall look at three semantics that have been developed as more apt theories: Semantic Minimalism, Contextualism and Relativism. Confronted with a difficult collection of data, straightforward views that take the meaning of 'tasty' to be an objective property are typically dismissed. This text aims to show that those objectivist views shouldn't be discarded too rashly. In order to achieve this aim, I present an objectivist semantic for 'tasty' making use of Semantic Minimalism.

What is the meaning of the term 'tasty' in English as we speak it? In section 1 three different answers, i.e. three semantic theories for 'tasty', shall be outlined. They are called Semantic Minimalism (section 1.1), Contextualism (section 1.2) and Relativism (section 1.3). In section 2 I present the data any satisfactory semantic for 'tasty' has to account for. If a semantic can't account for this data, it isn't a semantic for 'tasty' in English as we speak it. In section 3 I sketch the relevant features of the contemporary discussion of the correct semantic for 'tasty'. We will see that objectivist approaches (the view that the meaning of 'tasty' is an objective property) are rather poorly elaborated and quickly dismissed compared to contextualist and relativist views. So in section 4 I present Objectivist Semantic Minimalism (OSM), an objectivist semantic for 'tasty' making use of Semantic Minimalism. I show how it can account for the data and reply to objections (in doing so a framework to identify genuine or only superficial disagreement is presented). The aim of this text is to show that straightforward objectivist approaches should not be put off the table too rashly – or, to put it positively, that OSM is a plausible candidate for a good semantic theory for 'tasty'.

1 Three semantics for 'tasty'

What do we mean when we say that a thing is tasty? I address three views. According to the first, we say that the thing has an objective property that we can perceive (and misperceive) with our taste organs (objectivism). According to the second view, we say that the flavor of the thing is pleasant to us (contextualism). The third view claims that whether we said something correct about the thing or not depends on whether the one who assesses what we said likes its flavor (Relativism).^{1,2} (If it is not clear from the context, I use, for example, 'Contextualism' to refer to the specific contextualist view as outlined in section 1.2 and the uncanceled 'contextualism' to refer to all kinds of contextualist views). Of course one might ask: Why is the meaning of 'tasty' philosophically interesting at all? A satisfying answer would take us to far afield, though the idea is the following. In recent years, relativism about truth has experienced a revival in various areas of philosophy. Relativism about truth is partly motivated by and argued for by claiming to be the only view able to provide a correct semantic for 'tasty'. This text attempts to show how a straightforward objectivist and context-insensitive

This account clearly goes against the view presented by Chomsky. I hold that the function of 'water' is nothing but to refer to H₂O. Location and source play a role in determining how we use the term 'water' because generally, in our natural habitat, such factors function as evidence for something having a certain chemical structure. Stuff in rivers and swamps is H₂O. We have come to learn that the stuff in the faucet is generally H₂O, this is why we

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talk about the stuff coming from the faucet as being water. However, contrary to Chomsky's claim, we do not allow the location to wholly determine whether something is water or not: If the stuff in the faucet clearly isn't H₂O, we do not say that it is water. That some liquid runs from the faucet is generally evidence that it is H₂O, but it is not foolproof.

This view seems more compatible with Abbott's claims. If the view is to have substantial explanatory value, it needs to account for why certain instances of stuff with a high percentage of H₂O are water, while certain instances are not. Abbotts view, that substances such as tea really are 'water' but that we just do not speak of them in this way seems compatible with my account.

The outlined view does not seem compatible with Bloom's theory: Bloom, like Chomsky, assumes that there

is some relevant notion of 'water' that is independent of the chemical structure of water. According to Bloom, we partly think about water as being an artefact. My argument is that it is not plausible to extract the meaning of 'water' away from animal practice to such an extent. We individuate instances of 'water' due to its relevance for us as animals. I think this might urge us to think about the meaning of 'water' in terms that are relevant for animal practice. If this is the case, a direct-reference theory is the best candidate theory for the reference of 'water' and other natural (chemical) kind terms. Our interest in the stuff these terms refer to is reducible to an interest in their physical properties. In our natural habitat, these physical properties are related to chemical structure. Any other property of water (such as location) is of interest only in virtue of providing evidence as to its chemical structure. My account is meant to accord with teleological theories of semantics and mental content. These theories assume that understanding the developmental history of humans is essential for understanding their language use and their mental content. They assume that one cannot understand language and mind independently of an individual's ancestry and their natural habitat. I believe that this certainly is the case for the reference of natural kind terms: In order to understand how natural kind terms refer, we have to think about them in terms of having a "biological" function.

LITERATURE

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NOTES

- ¹ Only social factors play an important role in the thought-experiments. However, physical factors may be of additional significance, see for example Burge (2010).
² In fact, some faucet water contains up to 1 mg/l (1 %) of chlorine: Fluoridated chlorinated tap water can contain an additional 1 ml/l of fluorine.
³ See Malt (1994).
⁴ See Grice's four maxims: <http://plato.stanford.edu/entries/implicature/#GriThe>.