

The World as Process

The world is made up of things: rocks, tables, dogs, people, stars. Nothing is more fundamental in our experience than this perception. It's in our language with words for all these and many more.

We know of process and change, too. But we know of them only through things. For example, suppose I show you an apple. It's round, red, shiny. I take a bite of it. It's changed—no longer round, no longer red and shiny where I bit into it. I take another bite. The apple has changed some more. I take another bite, and another, and the apple has changed a lot. I give the core to my donkey. The apple is all gone.

The apple changed. But is that the apple I started with? If one apple changed, it wasn't what I first showed you, it wasn't what I bit into the second time, it wasn't the core. It must have been something beyond all those, somehow beyond any particular time, something that persists through all "its" changes. Talking of change we find ourselves talking about things beyond any particular time.

Change, we feel, is not real like things are real, like rocks, tables, dogs, people, stars, the sun. The sun? Everything we know about that fiery ball tells us that the sun is a process: nothing endures in it, not shape, not form, not even molecules—only the process. A rock, too, is process, changing, never stable, though we don't notice the changes. The difference isn't that the sun is a process and the rock is a thing; the difference is the scale of time over which we note "changes."

Our focus in our language is on the world as made up of things, on stability in the flow of our experience. Still, we have some sense in our lives of flow, of flux, of change, of process. And we have some hints of that in our language.

Suppose you're in my living room with me, and I look out the window and say,

It's raining.

Yes, that's true. But what's raining? There's no "it": the weather isn't raining. The weather is rainy; the weather doesn't do anything. The word "it" is a dummy, there because in English every verb requires a subject. I could have said just,

Raining.

You would have understood me. It's clear I'm talking about now,

which is all the “is” in the original sentence tells us. And it’s clear I’m talking about there, outside the window, though in English we don’t require any word or phrase to mark that.

On a winter day I might say “Snowing,” and you’d understand me. That’s complete, clearly true or false, though it doesn’t look like a sentence in English. Or I could say, “Sun-ing” or “Breeze-ing,” which are odd, but once you’ve got the hang of my talking this way, you’d understand me.

If we were at my friend’s apartment in the city, I might look out the window and say,

Running.

You’d understand me. It sounds odd because I haven’t said who or what is running. That seems essential when we talk English because verbs are descriptions of what’s happening to or because of a thing. Yet running is running, whether it’s one person, a dog chasing a cat, or lots of people in a marathon. I don’t describe all when I say “Running,” but we never describe all. What I’ve said is true or false, enough to communicate.

Looking out my window at the patio at home I could say “Barking” and you’d understand me. On another day looking at my dogs I could say, “Sleeping.” These are process words, and used this way they begin to become part of a way to describe process without a focus on things.

After a rain, as I look out at the patio I might say, “Mud.” Mud isn’t a thing. We don’t say “There are three muds out there.” We say, “There’s some mud,” because mud is a mass. Water, gold, snow are masses, too. We know they’re part of what the world is made up of, different from things. Every part of mud is mud, while there’s no part of an apple that is an apple. Processes are like that, too. Every part of raining is raining—there’s no smallest part of raining, for a single drop of water is not raining.

Starting to see the world as process-mass, I look out the window and say, “Dog-ing.” You’d understand, though it seems incomplete. One dog or many dogs? What’s the dog doing? We need a verb and an indication of singular or plural when we talk in English. Yet if I say, “There’s a dog,” the verb is just “is.” The dog is there, it exists there, that’s all. “Dog-ing,” understood as about there and now, does that as well, though it doesn’t say whether there’s one or many, whether alive or dead, whether big or small. Much is left out, but much is left out of our description “There’s a dog.”

3 *The World as Process*

I could turn, and looking around the room say, “Table-ing.” You’d understand. An odd way to talk, but true. Or pointing to the next room I could say, “Woman-ing.” Odd, too, incomplete, but true. We are beginning to see the world as made up of processes.

Processes? To say that is to slip back into thing-talk. This process, that process, one process, two processes, a fast process, a blue process. No. To see process in the world there are not processes, just process. The world is flux. Words like “raining,” “sun-ing,” “running,” “dog-ing,” “mud-ing” describe the flux of all at a time and place. They don’t pick out separate parts of the flux any more than “Pacific Ocean” and “Baltic Sea” pick out parts separate and distinct from the water that covers the earth.

To talk of the world as process-mass we can borrow and modify some words from English like “raining,” “sun-ing,” “running,” “dog-ing,” “mud-ing,” “woman-ing.” We add “-ing” to remind us of our new way of talking, of seeing. When we say what time and place these *base mass-process words* are meant to describe, as in “Raining (now, here),” we have a “sentence” that is true or false. Looking out the window, if I say “Cat-ing (now, there),” that’s false. Given any word t that describes a time and any word l that describes a location, “Raining (t, l)” is true or false, “Cat-ing (t, l)” is true or false, “Woman-ing (t, l)” is true or false, “Mud-ing (t, l)” is true or false.

We can fill out our descriptions. I can say,

Raining/hard (now, there)

You’d understand me as well as if I’d said “It’s raining hard there.” Or looking at my patio I could say, “Dog-ing/brown (now, there).” At my friend’s place in the city I could say, “Running/fast (now, there).” There’s no distinction between what we call adverbs and adjectives because there are no nouns and no verbs, no words for things and what is done by or to them. There are only base-mass process words meant to describe the flux at times and locations and modifiers of those words.

We can describe more fully. Seeing a rabbit running, I can say,

(Rabbit-ing + running) (now, there)

The flow of all can be described by both those base mass-process words in a joined way, as when we say of someone in English that she is a good student-athlete.

We can describe more fully by saying,

Not-Raining (here, now)

4 *The World as Process*

Coyote-ing (yesterday, there) *or* Dog-ing (yesterday, there)
(Rabbit-ing + Running) (there, now) *and*
(Dog-ing + Chasing) (there, now)

All the ways we join sentences in English with the connectives “not,” “or,” “and,” “if . . . then . . .” we can use in talking of the world as process, for those require only that the sentences are true or false, not that they are about things.

In English we get tongue-tied trying to talk of sameness and difference. Is (are?) the apple then and the apple now the same? How can two things be the same? Sameness and difference are very different in the world as process. A visitor to my ranch saw a couple dogs around the corral yesterday. She’s standing next to me today and wonders whether those were the same as the dogs that are here in front of us. Is it the same dog-ing? Is the dog-ing then and there the same as the dog-ing here and now? We can formulate that question in mass-process talk by asking whether the following is true:

Dog-ing (yesterday, corral) \approx Dog-ing (here, now)

The symbol “ \approx ” is not identity of things but similarity, indicating equivalent descriptions, just as we say that my dog Birta today is the same dog as the one I petted yesterday though she’s lost some hair, eaten a meal, We can assert similarity without talk of time and location, too, as in:

(Canine-ing/domestic) \approx Dog-ing

This is not a universal statement that at any place and time “(Canine-ing/domestic)” describes the same as “Dog-ing”. Rather, the concept, the category, the genus if you will of “Canine-ing /domestic” is the same (similar to) that of “Dog-ing”.

In English we talk of some mud, this mud, that mud, parts of mud. We also say that genus dog is part of genus animal. Basic to our talk of masses is the idea of a part of a mass. But to say “part of” seems wrong, for that brings with it from English the idea of substance. We can have a part of a thing or a part of a mass, but it would be odd to talk of a part of running, even though running is treated as a mass word in English. It would be better here to speak of subordination, as in “Dog-ing (here now) is subordinate to Dog-ing”. Abbreviating “subordinate to” as “sub”, we’d have that the following are true:

Dog-ing sub Canine-ing

5 *The World as Process*

Shovel-ing sub Working

And the following are false:

Cat-ing sub Dog-ing

Barking sub Meowing

We have a simple grammar: base mass-process words; conjunctions and disjunctions of base words; base words of specific times and places; modifiers; a subordination relation; and a similarity relation. In my forthcoming book *The World as Process* I've developed these ideas into a formal language and methods of reasoning about the world as process-mass that are as clear and correct as what we have for talk of things. What we have seen so far, though, is enough for us to look at how this different way of seeing comes with a different way of being in the world.

Owning

Birta is my dog, I own her. Hence I can do what I like with her, constrained only by laws that require humane treatment. I can sell her, I can kill her, or I can give her a doggy treat every morning. To think of owning Birta, though, is to view her as a thing, and me as a thing, too, for owning is a relation between things. As process I can only interact, intermingle, flow with her, perhaps controlling her flow but as much controlled by her flow.

I own my ranch Dogshine. Hence I can do with it what I like, subject only to laws that constrain the impact of what I do on others. I can sell it, I can divide it into parts, I can plant trees, or I can graze sheep until there is not a single bit of green on the land. It is mine. I own it, which is to say that this piece of land is a thing, and I am a thing, and I have a special relation to it. But as process I can only interact, intermingle, flow with the process of the land, perhaps controlling its flow but as much controlled by its flow. In process-mass grammar we think principally of the impermanence, we think of being with the land, of interacting. Conservation is not a foreign idea to be reconciled with ownership but is natural, for the relation is not owning but at most modifying the flow.

Can we even talk about owning in our process-mass language? To do so we would need some way to import thing-talk. It might seem we could pick out a smallest location at which "Dog-ing," say, is true at a particular time in order to single out one dog. But at no time is there a smallest location that my dog Birta occupies, for she breathes in and

6 *The World as Process*

out, she sheds a hair, The idea of a thing needed for the concept of owning is alien to the world as portrayed in the grammar of mass-process. We would have to introduce an individuating-operator and write, say, “*i* (dog-ing)” to mean a single, individual dog. That would bring the entire idea of thing into the language and logic of the world as process, though as a subordinate notion. Absent that, owning is not expressible in the language of the world as process. What is natural for us as we speak this language is to see my flow intermingling with the flow of dog-ing and land-ing here and now and through time past into the future.

Counting

To someone raised on a process-mass language, the idea of the world as made up of things must be a mystical vision. Counting would be an alien notion, for it is only things that are counted. Perhaps one, two, many—but not seventeen sheep and eight children.

Crime and punishment

Higaberto is an evil person, a murderer. We put him in prison for his crime. He is a thing with a label: “evil.” So we isolate him from our society. We are punishing, isolating a thing. But seeing the world as process, putting Higaberto in prison we are mixing the flow we describe with “Higaberto-ing” with the process of prison-ing, and we think of how those intertwine, how they may affect one another and all the flow they encounter. The possibility of change in the process of Higaberto comes to the fore, rather than as an afterthought with a notion like “reform” or “degrading.”

Death

We say, “What a pity Louisella died,” thinking of Louisella as she was before she died with the qualities she had then. We regret that she didn’t live on, thinking of her as a thing that had those qualities, not initially thinking how she might have changed. But in the grammar of process, dying is not a wiping out of some thing with some qualities. We can say what a pity the process of Louisella-ing stopped, and saying that we think of the way the process might have changed. Loss seems different, not of a thing but of a process interacting, changing, intertwining with other processes. But really, from the perspective of the world as not processes but process, the flux of all, there is no separate process of Louisella-ing. It’s just that we can no longer describe any part of the flux with the word “Louisella-ing.” There is no ending, no finality except in the way we describe parts of the flux of all.

What exists—and God

“What exists?” isn’t even an intelligible question when we see the world as process. Or if it is, the only answer is “the world”—the flux of all “exists.” There are no parts of it, only parts as arise by our paying attention in certain ways. “Why is there something rather than nothing?” is not a deep question leading us to a conception of God but only ungrammatical nonsense in our process-mass language.

God at least in the Jewish, Christian, and Muslim conception of a being outside space and time is inconceivable when we see the world as process. God, if such a conception is to arise, could only be all, the flux independent of any particular description, encompassing all of time and space, not distinct and outside time and space.

Still, this talk of the world as process-mass seems artificial, contrived from scraps and manglings of English. It’s not a real language, not a language anyone would speak. We created it only to overcome the limitations of what we can say in English. Why take it seriously? Our process-mass language allows us to enter into another way of seeing the world. We have a way to talk and see without assuming that the world is made up of things, a way to talk without nouns and verbs.

What seemed a mystical vision, the unity of all, the world as flux, is accessible to us now not as revelation, not as mystical insight, but through learning a different language. It is not mysticism but a habit of grammar.

They’re not like you and me. They think that the broad divisions of our language correspond, however imperfectly, with what is “out there” in the world. There are things and masses, substances and what is done by or to them. We know that the world is not so static, so fixed, so correctly classified. These are our ways of seeing the world, but there are other ways that are just as “real.” Our language is a template we hold up to the world. We see through the holes that make the pattern and think this is the world. But we can, with some effort, put that pattern down and pick up another. What we cannot do is see the world without such a pattern—or if we can, we cannot communicate what we see. That is where mysticism begins and grammar ends.

DISCUSSION

The essay above grew out of my trying to explain to friends the ideas from a preprint *The Internal Structure of Predicates and Names with an Analysis of Reasoning about Process* (Draft 20, 2010). The many

discussions I had with Don Brown, Fred Kroon, Melissa Axelrod, Arnold Mazotti, and Esperanza Buitrago-Díaz helped shape what I have said, and I am grateful to them.

I'm grateful also to João Marcos, who at the Universidade do Natal, Brazil, in February 2011 gave me my first opportunity to give a talk, in Portuguese, about this work, and to Petrucio Viana and Renata de Freitas who invited me to give a talk about this work at the XVI Encontro Brasileiro de Logica in Petropolis, Rio de Janeiro, Brazil, in May, 2011, and to Ivan da Costa Marques who arranged for me to give the "same" talk in Portuguese there. Since then I have presented this material in talks at the Philosophy Department of the Universidade Federal de Minas Gerais and at the Department of Linguistics at the University of New Mexico, and I am grateful to the participants whose comments led me to revise this work.

I first became concerned about our inability to formalize reasoning about process in formal logic in the 1980s, and several times I gave a talk about that, which I published as "The Metaphysical Basis of Logic." At the same time I noted how different logics lead us to reason and see differently, and I used the template analogy in my *Propositional Logics*. I was much influenced later by translating the stories in *The BARK of DOG*.

Process and stability—a comparison and a little history

I am hardly the first to note that our language leads us to find stability in parts of experience that seem far from stable. Friedrich Nietzsche suggested that in "‘Reason’ in Philosophy." Benjamin Whorf was clearer, and Friedrich Waismann has written suggestive passages. But those discussions fail to provide any method for how to talk and reason about the world as process-mass that approach the clarity we expect for reasoning about the world as made up of things, which is what I hope to have provided in *The World as Process*.

Alfred North Whitehead, Nicholas Rescher, and others whose work Johanna Seibt discusses in "Process Philosophy" take the contrast: process vs. substance. Here I take the contrast: process vs. things. In contrasting process and substance, they rely heavily on the notion of thing, but now a substance-less thing. They talk of processes rather than just process as I do. A big question for them is the status of "things." There seem to be two choices. Things could be like Plato's forms, somehow real but abstract, placing form on the world of experience. Or they could be our attempt to impose order on our experience, our

attempt to have stability and diversity in our experience. The latter can slip into subjective idealism, as it seems Whitehead sometimes does when he talks of process as psychological.

Taking the contrast to be process vs. things, the issue of substance falls away. We don't have to ask what things are made of. There is just the flow of all, and we can, if we wish, impose some kind of thing-talk on that. But that's just our way of describing process at a particular time and place. There is no slipping into subjective idealism, though one could take that view. The flux of all can be quite real and not just our perception. What is subjective, or intersubjective through our language, is our describing the flow of all.

Identity—and the apple again

I hope to show through the apple example that puzzles about identity which are central to many philosophical traditions are real puzzles in our daily life once we reflect even a little on how we talk. When did the apple I was eating begin to exist? When did it end? To ask that is to view the apple as a thing in the world, real and distinct with distinguishable properties independent of us. Our work is to see it correctly. In the process-mass language we ask instead when it is correct to use the word "apple-ing." We replace worries about the reality of what is "out there" with worries about how best to describe the world of our experience. The question of what is the thing in itself, pure of the properties we attribute to it, evaporates.

At the talk in Petropolis I was asked whether I have criteria for identity for process talk. What counts as "the same" when we say that the dog-ing here now is the same as the dog-ing then there? I have none. But the status of what counts as the same for things is still unsettled after 2,500 years of worry, though I hope to have clarified it some in *Predicate Logic*.

Time and space

Time and space for us as English speakers are archetypes of mass-process. They do not come in bits and pieces, for every part of time is time, and every part of space is space. Yet in our process-mass language we talk of times and places as if those are things. We can understand such talk as picking out parts of those masses, paying attention to here and not there, then and not now, no more distinct from the mass of all than the Arctic Ocean is distinct from the great salt waters that cover the earth. Still, this seems to embed a thing-conception in our language.

We can, though, dispense with talk of times as things. We can use “before” and “after” to relate propositions, asserting, for example,

(Dog-ing + Barking) before (Rabbit-ing + Running)

A true proposition establishes a time in relation to other true propositions, and those “times” need have no more reality than our subjective evaluations of propositions about experience being true or false in some sequence, as I’ve shown in *Time and Space in Formal Logic*. To eliminate talk of locations in favor of relative places in space looks to be harder, for we have no ordinary connectives that determine space as fully as “before” and “after” do for time.

Cause and effect

If a cause is a thing or a power in a thing, and an effect is what happens to some thing, how can we reason about cause and effect in a process-mass language?

The idea that causes are or are in things, that there is some kind of causal power in things, has been abandoned in science, as you can read in my paper “Reasoning about Cause and Effect” in *Cause and Effect, Conditionals, Explanations*. Even in ordinary speech we don’t need to think of causes as things or in things. Take, for example, the causal claim “Spot’s barking caused Dick to wake up.” We can describe the purported cause with the sentence “Spot barked” and the purported effect with “Dick woke up.” Then to claim that there is cause and effect can be understood as claiming that the inference from “Spot barked” to “Dick woke up” satisfies the conditions for a good causal inference, as I explain in that essay. Describing causes and effects with sentences that are true or false of particular times and locations, we can analyze causal claims in our process-mass language, too.

Note that it is only by assuming that causes are in or are embedded in things that the old question “Why is there something rather than nothing?” can lead one to believe in a first cause, and then in God. Better is to see that query as begging the question: what makes you believe that there could have been nothing?

Does language shape our thought?

Some assert (or try to refute) that each language has its own metaphysics that colors, or shapes, or perhaps even determines how speakers of that language see the world, as you can read in the superb survey *Linguistic Relativities* by John Leavitt. In *Language Diversity and Thought* John

A. Lucy describes how linguists look to other languages, see how those differ, infer metaphysics from that, and then look for, first linguistic consequences and then cultural and behavioral consequences. Perhaps that can be done, but looking at number or gender or tense, though interesting, is not likely to lead to Benjamin Lee Whorf's thesis that language shapes how we see the world. That's not relativity, for it could be true even if no other language embedded a different way to see the world, as I hope the essay above shows.

Lucy and others look to those parts of the language that are hardest for speakers to recognize as significant as the key to the most fundamental metaphysics that shape their conception of the world. But every speaker of English is aware, or can be easily shown, that the language has words for things. The notion of thing is not hidden or covert, yet we can see that it is a fundamental part of our language experience because it is so extraordinarily hard for us to conceive of an alternative.

Language universals

Linguists are much concerned with whether there are universals for languages. Many say that nouns and verbs, or something very much like those, are universal. Our process-mass language seems to contradict that. But whether it does depends on how we understand the idea of a universal. There are at least five possibilities.

Human descriptive universality

The notion is present in all extant or previously spoken human languages.

This is entirely descriptive. If a language were discovered in which the universals are not present, it would upset nothing in the taxonomies, simply limiting them to the class of languages previously studied. There being no nouns and verbs in our process-mass language does not show that those notions aren't universal in this sense.

Human universality

The notion is present in all extant or previously known human languages and will be found in any other human language that we discover.

A linguist much concerned with the idea of universals in language, William Croft, told me that we get human universality from human descriptive universality by induction, just as we go from knowing that all swans anyone has ever seen are white to believing that all swans are

white. Of course the induction may be wrong, but it is as reliable as any reasoning in the sciences.

Strong human universality

The notion is present in all extant or previously known human languages, will be found in any other human language that we discover, and further, it will be found in any possible human language, any language that could be devised for humans to use to communicate.

The process-mass language shows that nouns and verbs are not universals in this sense. William Croft says that this kind of universality is of no concern to linguists (though Bernard Comrie takes it as the focus of his investigations in “On Explaining Language Universals”). In that case the induction from human descriptive universality to human universality must depend on some assumptions about not only the nature of humans but also about how languages arise and evolve. At present there is no good argument to show that humans have to view the world as made up of things.

Descriptive universality

The notion is present in all extant or known languages, any form of communication at all.

To be universal in this sense means the notion must be fundamentally involved in not only human languages but also in communication by chimpanzees, by penguins, and between humans and dogs. This idea of universality is far from what linguists typically study, but it is central to ethology and issues of the nature of mind and thought. Grappling with this idea is crucial for devising some clearer idea of what we mean by “language,” which would further clarify the induction to human universality from human descriptive universality.

Strong universality

The notion is present in all known or extant languages and will be present in any other language yet to be discovered or which is even possible.

Whether there are strong universals is not idle speculation. Why else would “messages” have been enclosed in the first satellites we sent out of the solar system? Why else would people be looking for contact with other civilizations through examination of radio emissions in the universe? How can we argue that universals of human languages apply

to languages spoken by intelligent beings from another solar system? What assumptions would be necessary for such generalizations?

Even if the mass-process language described here does not reflect the grammar and semantics of any human language, it does show that there are more possibilities that need to be considered in understanding what we mean by language and communication.

But there are mass-process languages

Though I use English as the example of how our language shapes our conception of the world as made up of things, similar observations apply to many languages. Still, English has words for mass and process. So let's call a "thing-language" one that directs its speakers first and principally to see the world as made up of things and then only secondarily or derivatively to allow for talk of mass and process.

Similarly, let's call a "mass-process-language" one that first and principally directs its speakers to see the world as mass, process, genus if you like, and then only secondarily or derivatively to allow for talk of individuals. By that standard, Wintu, an indigenous language of northern California, is a mass-process language, as Dorothy Lee explains in "Categories of the Generic and Particular in Wintu." M. Dale Kinkade's description of Salishan languages in "Salish Evidence Against the Universality of 'Noun' and 'Verb'" sounds very much like how I describe the mass-process language in the essay above. Chad Hansen in *Language and Logic in Ancient China* explains that in pre-Han Chinese each character (graph) is used to pick out a "substance" that may pervade many locations. So a dog is part of the general mass of dogging, if I understand him correctly. He shows that this mass-part view of the world had consequences for how the ancient Chinese developed philosophy. For example, the question of how different individuals share some common essence, which has been a central concern of Western philosophy, was not considered, any more than when I submerge a glass into a tub of water and lift it out do we worry how the water in the glass shares a common nature with the rest of the water in the tub. Linguists and translators such as Perry Link and A. C. Graham say that the characters of modern dialects of Chinese, too, are mass words.

These languages have features that distinguish them from thing-languages. Many have base words that can stand alone as a sentence that is true or false. For example, when I told the story of looking out the window and saying "Raining" to Carole Uentillie, a native Navajo

speaker who is a lecturer in linguistics, she immediately said that's just what we do in Navajo. You can look out and say "Wind," and that's the whole sentence, a perfectly good sentence, not an abbreviated way of talking. Some languages don't have base words but have roots that when modified can serve as a sentence.

In these languages no singular-plural marking is made for base words. Nor can a numeral modify a base word; first, a classifier has to be used with the base word, and then the numeral can be given. This is like what we do in English where we can use "three" with "water" only after we have used a classifier word or phrase as in "three cups of water."

In these mass-process languages there is no clear verb-noun distinction. M. Dale Kinkade says this is so for Salish. Aert H. Kuipers says that Squamish, which is a Salish language has no noun-verb classification. Jan P. van Eijk and Thom Hess disagree. According to Jürgen Broschart, Tongan has no noun-verb classification. Part of the difficulty is that there are no agreed-on criteria across languages for classifying words as noun and verb. Some take syntactic criteria, others semantic, and others a combination. But invariably, whatever other syntactic or semantic criteria are invoked, the principal distinction is that a noun picks out a thing or class of things, and a verb tells what is done by or to things, or what state a thing or things is in. So to say that a language has as basic a noun-verb classification is to assert that it is a thing-language.

These features, which are as much semantic as syntactic, allow us to distinguish a mass-process language from a thing language. Perhaps, then, the big difference in languages is between those that first direct us to see stability and diversity in the world and those that first direct us to see the world as process, as the flux of all.

What is common to thing languages and mass-process languages

Still, there is a deep similarity between thing languages and mass-process languages.

In English it's only by modifying or using the word "dog" that we have a word which fits into a grammatical category:

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| dog | a singular noun, though it needs an article or quantifier to show that, as in "A dog is barking" or "Some dog is barking." |
| dogs | a plural noun, as in "The dogs are barking." |

dog	a mass noun, as when a person in a country where dogs are eaten might say, "Let's have dog for dinner tonight"(and be damned to eternity for that).
to dog	an infinitive, as in "He wants to dog her steps."
dogs	the present tense of a verb, as in "He dogs her steps."
dogging	the progressive of the verb, as in "He is dogging her."
dogged	the past tense of "to dog", as in "He dogged her steps."
doggéd	an adjective, as in "She had doggéd determination."
doggy	an adjective, as in "Birta coming out of the river has a wet doggy smell."
doggedly	an adverb, as in "She doggedly pursued the subject."
doggieness	a noun, a mass word.

Though the last seems like a mass-process word, it is a genus or universal word, an essence word. You could say that my dog Birta is an example of doggieness, but you couldn't say that Birta is a part of doggieness nor that a couple dogs roaming down the street are a part of doggieness. A part of doggieness is not a dog or dogs or dogging. Rather, "dog" by itself is like a mass-process word. Alone, without modification, without use in a sentence, it conjures up all of the notion of dog: one animal; many animals; dogging; the nature of doggieness; the way dogs act; the way other concepts are likened to dogs;

Similarly, only by modifying or using "run" do we have a word that fits into a grammatical category:

to run	an infinitive, as in "He likes to run."
runs	the present tense of the verb, as in "She runs well."
running	the progressive of the verb, as in "She is running."
run	a singular noun, as in "He had a good run around the block."
runs	a plural noun, as in "They won by five runs."
runner	a noun, as in "There was only one runner on the street."
run	an adjective as in "He was run over."
runny	an adjective, as in "She likes her eggs runny."
running	a mass noun, as in "Running is good for your health."

The last seems like a mass-process word, for this man running might be understood as a part of all running. Yet it is not a mass-process word in our new sense. Rather, “run” all by itself is like a mass-process word, conjuring all the notion of run.

And we have:

- white an adjective, as in “This is a white piece of paper.”
- white a noun, as in “This restaurant serves only whites.”
- whiten a verb, as in “Whiten his face for the show.”
- whiter a comparative, as in “This dress is whiter than that one.”
- whiteness a noun

The last is not a mass-process word in our new sense. Rather, “white” all by itself is like a mass-process word, conjuring all the notion of white.

Nouns and verbs and (some) adjectives and adverbs of English serve in our understanding very much as the base words or roots in a mass-process language. They are what establish the categories or concepts. The rest of the language, including prepositions, sentence connectives, negation, quantity words, suffixes like “-ed” and “-ly” and “-ness”, and prefixes like “re-” are what we use to organize our use of the base words.

The search for universals has not established any. Another language considered and another doubt arises about some universal. What, then, is essential to language? There must be some symbols that are meant to evoke—not stand for—concepts or categories. Thus, the spoken “dog” evokes all of that concept ready to be used in many ways within the grammar of English. This is how I explain meaning in “Language-Thought-Meaning” in *Language and the World: Essays Old and New*. There you’ll see that “concept” and “category,” even “idea,” are too rigid for describing how we mean. Such base words, such roots, are what all languages must have. How those words or roots are used, how they are placed into a grammatical system varies from language to language. But in each language we can find such words or forms, such basic symbols that evoke a concept or category. We start with those words when we translate. Learning Arabic, if someone points to a dog and says “kalb,” I have a way to begin to understand the concept, though not whether what is meant is one dog, a dog as part of the mass of doggieness, the essence of doggieness, or some other, for I do not know how it is used in the grammar. Only by

application, by learning to speak and use the grammar, do I begin to see with the language as a thing language or as a mass-process language, though with “kalb” the doggy smell, the pleasure of petting a dog, the barking, the howling, the whimpering, the running and chasing are all there ready to be fit into the grammar or adjusted to include, perhaps, uncleanness, once I have seen the person point to a dog. How else could we begin to translate?

Logics and languages , and a summary

The diagram below sets out a fuller idea of the relation of logics and languages.

Starting at the bottom left, there are thing-languages, such as English, German, and Romance languages. In the 19th and early 20th centuries, speakers of those created mathematics as we know it now. They replaced all talk of process and transformation with talk of things, usually abstract things. They ignored all talk of masses. Set theory was seen as the ultimate basis of such mathematics, and is the ultimate in a thing-only view of the world. Motivated by examples in those thing-languages and examples from mathematics that could not be formalized in the previously dominant Aristotelian logic, speakers of those languages developed predicate logic. They based it on the syntax and semantics of things in those languages, principally the noun-verb, subject-predicate divisions. They ignored, just as in the mathematics they used in devising the logic, all talk of mass, process, and change.

Only much later, beginning with my *Predicate Logic*, was the use of predicate logic to formalize propositions and inferences of ordinary language investigated to devise criteria of formalizing, illuminating the implicit metaphysics of things in English and other ordinary languages. Hundreds more examples of formalizing in my *The Internal Structure of Predicates and Names* and *Time and Space in Formal Logic* made it clear that the thing-metaphysics embedded in predicate logic did not allow for formalizing reasoning about mass, process, and change.

Systems for formalizing reasoning about masses have been proposed, beginning with Aristotelian logic and continuing through the work of Harry C. Bunt and others. But none of those seem suitable for formalizing reasoning about the world as process since they take masses to be substances.

So I was led to devise a formal mass-process language and logic. Now we can see that the formal logic reflects much of languages such as Chinese, Salishan, and Wintu. We can better see how those

languages are based on an implicit metaphysics that cannot be reconstructed in English or German but can only be pointed at, as I have tried to do in the essay above. Now we can draw from the syntax and conceptions of mass-process languages for the development of the formal mass-process logic. In the other direction, as people who speak mass-process languages begin to formalize propositions and inferences from those languages in the formal mass-process logic, we'll begin to understand better the implicit metaphysics of mass-process in those languages. And, perhaps with time, we can come to better ways of translating between mass-process languages and thing-languages.

I am often asked how to formalize or say some sentence such as "I walked the dog yesterday, you didn't" in the mass-process logic. Attempting to do so would be as much a mistake as trying to formalize "Snow is white" or "Running is good for you" in predicate logic. There is a metaphysical mismatch, trying to force one conception of the world into a grammar based on a very different one. Just as formalizing "Justice is a virtue" as "All things that are just are virtuous" is wrong, formalizing "My dog is bigger than your dog" in terms of mass-process and parts would be wrong. The only reason to try to formalize English sentences in a mass-process language or a sentence from a mass-process language in predicate logic would be to uncover how different the metaphysics of that language is from the metaphysics on which the formal logic is based. Perhaps doing so would lead us to a way to meld the two conceptions into one logic.

Dedicated to the memory of Suely Porto Alves,
in the flow of all.

REFERENCES

BROSCHART, Jürgen

- 1997 Why Tongan Does it Differently: Categorical Distinctions in a Language without Nouns and Verbs.
Linguistic Typology, vol. 1, pp. 123-165.

BUNT, Harry C.

- 1985 *Mass Terms and Model Theoretic Semantics*
Cambridge University Press.

COMRIE, Bernard

- 2003 On Explaining Language Universals
In *Volume 2: Cognitive and Functional Approaches to Language Structures*, ed. Michael Tomasello, Psychology Press, pp. 195–210.

EPSTEIN, Richard L.

- 1990 *Propositional Logics*
Kluwer. 2nd edition, Oxford University Press, 1995.
3rd edition Advanced Reasoning Forum, 2012.
- 1994 *Predicate Logic*
Oxford University Press. Reprinted by Advanced Reasoning Forum, 2012.
- 1999 The Metaphysical Basis of Logic
Manuscrito, 1999, vol. 2, no. 2, pp. 133–148.
- 2011 *Cause and Effect, Conditionals, Explanations*
Advanced Reasoning Forum.
- 2013 *The BARK of DOG*
The BARK of DOG Foundation.
- 2015 *Reasoning and Formal Logic*
Advanced Reasoning Forum.
- 2016 *The Internal Structure of Predicates and Names*
Volume 1 of *Logic, Language, and the World*
Advanced Reasoning Forum.
- 201? *Time and Space in Formal Logic*
Volume 2 of *Logic, Language, and the World*
Typescript, to appear, Advanced Reasoning Forum.
- 201? *The World as Process*
Volume 3 of *Logic, Language, and the World*
Typescript, to appear, Advanced Reasoning Forum.
- 20?? *Language and the World: Essays Old and New*
Editor. To appear, Advanced Reasoning Forum.

- GRAHAM, A. C., translator
1965 *Poems of the Late T'ang*
Penguin Books, 1965.
- HANSEN Chad
1983 *Language and Logic in Ancient China*
University of Michigan Press.
- KINKADE, M. Dale
1983 Salish Evidence against the Universality of 'Noun'
and 'Verb'
Lingua, vol. 60, pp. 25–40.
- KUIPERS, Aert H.
1968 The Categories Verb-Noun and Transitive-Intransitive in
English and Squamish
Lingua, vol. 21, pp. 610–626.
- LEAVITT, John
2011 *Linguistic Relativities: Language Diversity and
Modern Thought*
Cambridge University Press.
- LEE, Dorothy
1944 Categories of the Generic and Particular in Wintu
American Anthropologist, vol. 46, no. 1, pp. 362–369.
- LINK, Perry
2016 *A Magician of Chinese Poetry*
New York Review of Books, vol. LXIII, 2016, No. 18,
pp. 49–50. (A review of *19 Ways of Looking at Wang Wei*
and *The Ghosts of Birds* by Eliot Weinberger.
- LUCY, John A.
1992 *Language Diversity and Thought:
A reformulation of the linguistic relativity hypothesis*
Cambridge University Press.
- NIETZSCHE, Friedrich
1895 "Reason" in Philosophy
In *Twilight of the Idols*.
- SEIBT, Johanna
2013 Process Philosophy
Stanford Encyclopedia of Philosophy.
- VAN EIJK, Jan. P and Thom HESS
1986 Noun and Verb in Salish
Lingua, vol. 69, pp. 319–331.

WHORF, Benjamin Lee

1956 *Language, Thought, and Reality: Selected writings of Benjamin Lee Whorf*

ed. John B. Carroll, The MIT Press.

WAISMANN, Friedrich

1945 Verifiability

Proceedings of the Aristotelian Society, Supp. Vol. 19, 1945,
pp. 119–150.

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