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# 27

## The Variety of Type Entities and the Epistemology of Linguistic Types

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### I. The Variety of Type Entities

The distinction between type and token is applicable not only to linguistic expressions but also to a variety of things we encounter in everyday life. It is easy to recognize that there is a type-token distinction in the commodities we consume or use. For example, there is ambiguity in saying “She and I drive the same car.” It might mean either that she and I are the joint owners of a single car and use it in turn, or that she and I own and drive cars of the same make. In the former interpretation we are concerned with token, and in the latter we are concerned with type. If we consider sentences like “They wear the same clothes” and “The two men ordered the same dish,” it is much more difficult to interpret them as being concerned with tokens. In the consumer society we now live in, we are surrounded by a vast number of mass-produced commodities which have a certain specified design and function in common. Each design determines a type, and an individual commodity which is produced after the design and sent to market is the token.

A type-token distinction is also applicable to natural kinds and individual entities belonging to the kind. In the sentence “The Siberian tiger is now facing extinction,” “Siberian tiger” refers to a type, whereas the same expression refers to a token in the sentence “The Siberian tiger is

in the next cage.” The entities that belong to the same natural kind are produced (or reproduced) in such a way that they have certain traits in common. Further, we find that these individual entities and the kind are called by the same name<sup>1</sup>. It has been frequently noted that the type-token distinction plays an important role in various genres of art. We all know that songs sung by different singers on very different occasions are still the same songs, and that novels published in different formats, even in different languages, are still the same novels. When we talk about a musical composition, not the performance itself, or when we talk about a certain famous novel, not a copy that I bought at my local bookstore, we talk about type entities.

In general, there are three kinds of cases in which the type-token distinction is applicable. First, there are cases such as commodities and natural kinds in which numerous individuals are produced or reproduced according to the same specification. Second, there are cases such as tonal systems and languages which are systematic in character and consist of elements that differ in complexity. Finally, there are cases such as musical compositions and novels whose existence depends on the systems that figure in the second sort of case.

Although musical compositions and novels are works of art to which the type-token distinction applies, it should be noted there are works of art to which it does not apply. It is not applicable to paintings and sculptures. In such genres, the original is absolutely unique, and even the most perfect copy is still only a copy. Even if two paintings or sculptures are so similar that nobody can distinguish them from each other, what we have are two different paintings or sculptures.

Among works of art to which the type-token distinction is applicable,

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<sup>1</sup> The fact that a type-token distinction applies to both mass-produced commodities and natural kinds suggests that there might be many similarities between natural kind names and names given to commercial commodities (brand names). Just as a natural kind name is introduced into our language as signifying a natural kind as type, a brand name is introduced into our language as signifying a commodity type. Hence, there is a good reason to think that brand names have most of the semantic properties which were ascribed to natural kind names by Putnam and Kripke in the 1970's.

there are those which are similar to commercial commodities in the sense that they are produced after a previously specified design. The obvious examples are woodcuts and lithographs; photographs are another example. We may also include films in this class. Here we should note the fact that a film has to be screened for watching. This fact leads us to two different views as to what should be regarded as a token of a film. According to one view, only a screened film is the token of the film; a token of *Tokyo Story* is nothing but a particular event which is its screening, and there are as many tokens of *Tokyo Story* as there are screenings of the same film. On the other hand, according to the other view, a token of *Tokyo Story* is not necessarily its screening. It can also be some physical object like a set of reels of the film, a videotape, or a disk. If we adopt this second view, there are two different categories of things among the tokens of *Tokyo Story*, namely, events like the screenings of the film and physical objects like tapes and disks.

Let us return to the case of musical compositions and novels. A musical composition usually depends on some system of tonal sounds, which is comparable to a language. In this respect, a musical composition resembles a literary work like a poem or a novel. Just as the existence of a particular token of *The Tale of Genji* depends on the existence of a series of tokens of Japanese words, the existence of a particular token of *Chromatic Fantasy and Fugue* depends on the fact that a number of the token sounds that belong to the tone system characteristic of modern Western music are distributed appropriately in time. All this shows that a literary work and a musical composition are type entities which presuppose the existence of systems of another sort of type entity, such as a language or a tonal system, whose elements are the material from which the literary or musical work is made.

From the fact that some kinds of type entities are dependent on more basic entities, it does not follow that the former are reducible to the latter. For example, nobody would think that a literary work could be completely explained by the intrinsic properties of the language in which it was written. Thus, nobody would think that all that can be said about *The Tale of Genji* is derivable from facts about the vocabulary and grammar of the Japanese language of the time it was written. But, at the same time, in order to see how a particular work of literature or music is organized, we

should know beforehand the system of types upon which the existence of these works depends. This means that we can safely leave the examination of type entities like literary works and musical compositions until later in our ontological investigation of type entities. Then we are left with only two kinds of type entities, those represented by commercial commodities and natural kinds and those represented by languages and tonal systems.

When we compare these two kinds of type entities, we will find that there is a noticeable difference in how indispensable they are to our overall ontology. This is suggested by the fact that we can identify an object which is a token of some commodity without knowing the type it is a token of. I don't know the make of the car which is always parked at the end of my street. But I know that it is a car, and I can even judge whether the car I see now is the same one I saw yesterday.

The matter is much different with linguistic tokens. Let us consider the simplest case, that of letters of the alphabet. Suppose we travel to a country whose letters we have no knowledge of. It will not be difficult to have some idea about the shapes of the letters if we can recognize a signboard, a book, or a newspaper there. But however often we encounter such letter tokens, we will not know how many letter tokens there are in a supposed series of letters, or where one letter token begins and ends, if we are not taught the letters of the language as types. We can recognize a letter in a variety of fonts or styles only because we have an idea of that letter as type.

A letter as type is an abstract object which does not have a spatial or temporal location, in contrast to a letter token, which is a concrete object that exists at a particular time and place. Given this, it sounds paradoxical to say that knowledge of a letter as type is necessary for recognition of a letter as token. It cannot be true that we already know the letters of the language of a country we have never visited before unless we studied the language in school. Because in our experience we encounter only concrete things and events, our encounters with letters are nothing but encounters with letter tokens. As we have only tokens, how do we come to know letter types, which are abstract? The matter is still more serious. If knowledge of the letter type is necessary for recognition of a particular token as a letter token, how is it possible for us to have knowledge of a letter token in the first place?

What applies to letters applies to linguistic expressions in general. On one hand, when all we have are only concrete tokens, how can we come to know about abstract types? On the other hand, if we can know a token only through the knowledge of a type, how can we know a token in the first place?

## II. The Epistemology of Linguistic Types

Although a type is given to us only through its tokens, we cannot recognize each token as such without an idea of a relevant type. This is the dilemma we are facing. Let us label its horns as (i) and (ii). Thus, the two horns of the dilemma are

- (i) a type is given to us only through its tokens, but
- (ii) we cannot recognize a token as such without an idea of its type.

This dilemma arises also for an infant who has no language and is going to acquire one, as well as for a linguist who tries to learn a language unknown to her.

If asked how a type becomes known through its token, we might be tempted to reply in the following way: first, the tokens which resemble each other are collected into one group, and then a type is abstracted as a common characteristic of those tokens in the group. But obviously such a story is not plausible if we admit the validity of (ii), which says that there cannot be a token recognition without an idea of its type. To convince ourselves that it is utterly impossible to get a type by abstraction from the tokens which resemble each other, it is sufficient to note the fact that a wide variety of designs can represent the same letter. It is no exaggeration to say that only characteristic which is shared by all the tokens of the letter "A" is being a token of the letter type "A."

But then, according to the other horn of the dilemma, namely (i), it seems impossible to have the idea of the letter type "A" in the first place. A person who has never seen any token of "A" cannot have an idea of the type "A." It is absurd to claim that the type "A" is known a priori, even if it might not be absurd to claim that mathematical objects like numbers are

known a priori. Then it seems that we should conclude that we come to have knowledge about types, which are abstract objects, in an a posteriori way, through the experience of encountering its tokens. This conclusion, however, embodies the seemingly absurd idea that we have empirical knowledge about abstract objects<sup>2</sup>. Moreover, we are still far from escaping from horn (ii) of the dilemma, according to which encountering a token presupposes the knowledge of its type.

It might be helpful to consider how perception of a material object is possible. Strictly speaking, the only information about a material object that is given to us through our senses is about its surface at a particular instant. This is true not only of vision, but also of touch, which has the same importance as vision in the perception of a material object: what is given in touch at each instant is concerned with only a part of the object, and not the whole, and in that sense what is touched at a particular instant is only a “surface” and not the whole object. Although a material object is more than the totality of the sense perceptions of its surface, there can be no doubt that we succeed in perceiving a material object which endures in time and extends in three-dimensional space. Still, it is true that no perception of an object is possible without perception of its surface.

But can we have a perception of the surface of an object without having an idea of a material object? In the first half of the 20th century, several attempts were made to explain how we construct the idea of a material object from a class of surface perceptions which resemble each other. Bertrand Russell’s *Our Knowledge of the External World* (1914) is an early example, a much later one is Nelson Goodman’s *The Structure of Appearance* (1951), and in between we have Rudolf Carnap’s *Die logische*

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<sup>2</sup> In his paper “Types and tokens in linguistics,” S. Bromberger pointed out that it is philosophically problematic that knowledge of type can be had only through tokens (A. George (ed.), *Reflections on Chomsky*, 1989, Blackwell, pp. 58-89). But it must be remembered that the same point had been already made by C. Parsons in his paper “Mathematical intuition” (*Proceedings of the Aristotelian Society* 80 (1980) 145-168). In particular, note the following passage: “The *problem* about the timelessness of types is really epistemological: how can we know truths about types by a certain kind of perception of tokens, which are then valid for *any* tokens of the type involved” (p.160; emphasis is by Parsons).

*Aufbau der Welt* (1928). The present consensus about the feasibility of such attempts seems to be negative. Therefore it is impossible to get the idea of a material object from only surface perceptions, although the latter are indispensable to the former.

Thus, we have a dilemma similar to the one about linguistic types and tokens. Whereas

- (i) a material object is given only through perception of its surface,

we have to hold that

- (ii) we cannot have any perception of a surface without an idea of a material object.

To begin with, as a matter of fact, when we perceive a material object, we are not conscious that what is given immediately to us is only its "surface." We regard ourselves to be perceiving a three-dimensional body which endures in time. Surface perceptions of material objects are always accompanied by thoughts about currently unperceived parts of the objects. It is rather difficult to have a "pure" surface perception, because our surface perceptions are almost always "impure" in the sense that they are accompanied by ideas of enduring three-dimensional objects<sup>3</sup>.

We would like to suggest that something similar holds also in the perception of linguistic expression. When we see or hear words, we are not aware that what is given to us are tokens, which are physical events or objects. We regard ourselves to be seeing or hearing types, which can be written or said again at different times and places. This may be supported by the fact that it requires conscious effort on our part to become aware of the mere physical sound or design of a word, instead of its phonemes or letters. We also know that if we say or write the same word again and

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<sup>3</sup> We owe these points to Shozo Ohmori. Among many writings of his, see, for example, *Mono to Kokoro* (Thing and Mind, 1976, Tokyo: The Tokyo University Press).



again, it loses its linguistic “shape” and is felt to be a mere sound or design. As the word's “shape” is sustained by the idea of type, the word ceases to be a linguistic entity when the idea of type drops out.

We should conclude that when we perceive a linguistic expression we perceive a type rather than a token, just as when we perceive a material object we perceive a three-dimensional object enduring in time rather than a surface. Just as the perception of material objects involves the understanding that its objects are three-dimensional and endure in time, the perception of linguistic expressions involves the understanding that its objects are type entities which can have various instances at different times and places.

Now do these considerations help us to solve our dilemma? First let us take up the question of how we come to know about types, which are abstract objects, when all we have are tokens, which are concrete objects.

The most straightforward answer is that we perceive abstract objects themselves when we perceive linguistic expressions. Just as we perceive material objects themselves rather than their surfaces when we perceive our environment, we perceive abstract types rather than concrete tokens, which are physical events or objects, when we perceive linguistic expressions. However, we should note that these abstract objects depend on their concrete tokens in an essential way: every perception of a type depends on some token object which exists at the time or on some auditory or visual event caused by the token object. In general, a linguistic type is a contingent being because its existence depends on that of its tokens. The claim that linguistic types are abstract objects which exist contingently has an epistemological correlate in the claim that we have a posteriori and empirical knowledge about abstract objects when we know facts about linguistic types.

But then, if we perceive a type when we hear or see a token, how is it possible for us to learn a new expression? It is not only that. How is it possible for us to acquire a language at all? For though a type is given to us only through its tokens, according to the present view we can recognize a token only when we already know its type. What we are now facing is nothing but horn (ii) of our dilemma.

Here again, it helps to remember how the matter stands with the perception of a material object. As we noticed before, there is a similar

dilemma here. Though only the spatial and temporal surface of the object is immediately given to us, we perceive the object enduring in time with its three dimensions. On the other hand, we can perceive the surface of an object as a surface only if we have an idea of a material object. Thus, though a material object is given to us only through its surface, it seems that we can recognize a surface only when we already have the idea of a material object.

It is important to notice that the idea of a material object which we need for the recognition of a surface is not that of the particular object whose surface is in question, but only that of a material object in general. The same applies to the case of linguistic expressions. The idea of a type which we need for us to be able to recognize a token is not that of the particular type whose instance we have at hand, but only that of a linguistic type in general. Just as the perception of a material object has the form "here is a material object, one of whose surfaces this is," the perception of a linguistic type has the form "here is a type, one of whose tokens this is." In both cases, what we need is only an idea of a material object's having a surface or a type's having a token as its instance.

The whole issue then hinges on the question of how we come to the idea of a material object, or how we come to the idea of a type. For the case of the idea of a material object, there seem to be at least three ways to answer this question.

- (a) We come to the idea of a material object by induction from our experiences of its surfaces.
- (b) Material objects are theoretical entities that are postulated by us.
- (c) The idea of a material object constitutes a part of our basic conception of the world.

In the case of a linguistic expression, we have the same three options.

- (a) We come to the idea of a type by induction from our experiences of its tokens.
- (b) Types are theoretical entities that are postulated by us.
- (c) The idea of a type constitutes a part of our basic conception of the world.

Let us examine each of these three options in turn.

We have already argued against (a). Just as we cannot determine whether or not two surfaces belong to the same body if we know only the perceptible properties of surfaces and their relations to each other, we cannot determine whether or not two tokens are instances of the same type if we know only the perceptible properties of tokens and their relations to each other. Thus, however great the amount of perception we have of surfaces or tokens, we cannot get the idea of a material object or a type by itself. Compared to (a), (b) might be thought to be a more reasonable position. Let us take the concept of a word. In a given language, what constitutes a word depends to a large extent on theoretical considerations, because the identity of a word is closely connected with the question of how a string of expressions should be articulated, and different theories provide different answers. The same applies to the concept of a sentence. It is not too much exaggeration to say that what constitutes a sentence differs according to different grammatical theories. Such a consideration leads us to the conclusion that linguistic types like words and sentences are theoretical entities postulated by a grammatical theory.

No doubt there are concepts of words and sentences which depend on grammatical theories. Does this imply that linguistic types in general are theoretical entities? If it does, we would have a strong reason to doubt the claim we made before, namely, that we perceive a type when we perceive a linguistic expression. For, whatever conception we might have of theoretical entities, it would be true that they cannot be the objects of our perceptions, and hence, if a linguistic type were a theoretical entity, it could not be the object of our perception.

Here again, let us go back to the case of the perception of a material object. The reason why we hesitate to regard material objects as theoretical entities is that, if we did, we would have to conclude that what we perceive are not material objects. However, there is no contradiction in thinking both that material objects are not theoretical entities and that we should appeal to a theory in order to get a more precise conception of material objects. Our perception of material objects is always an articulated perception of a scene consisting of a number of objects. When we wish to answer in a systematic way questions like where one object begins and ends, or how many objects there are in a perceived scene, we need a theory.

We claim that the same consideration applies to the perception of linguistic expressions. When we hear or see words, our perceptions of them are always articulated. Just as there are no perceptions of physical scenes without articulation into various material objects, there are no perceptions of linguistic expressions without articulating into words or phrases. But reflections on how we accomplish such articulations, what sorts of principles are used in them, and the like, do not belong to perceptual activity itself, but are a part of theoretical considerations about it. There is no contradiction between the fact that grammatical categories like word and sentence can be characterized only by theoretical considerations and the claim that linguistic types are not theoretical entities and can be the objects of perception. Thus, our considerations so far present alternative (c) as the most promising way to explain the origin of the idea of type. We should hold that the idea of type, in particular that of linguistic type, is as fundamental to our conception of the world as the idea of material object. According to our idea of type, a type has various tokens as its instances, just as a material body presents to us various appearances which differ with its position relative to us, and in the perception of type, tokens play the part which perspectives play in the perception of material objects.