

---

# ***The Philosophical Quarterly***

---

## EXPRESSIONS AND THEIR REPRESENTATIONS

BY ZOLTÁN GENDLER SZABÓ

### I. THE TYPE/TOKEN PROBLEM

When talking about words, phrases or sentences, we are well advised to avoid a lurking ambiguity: we ought to make clear whether we have a type or a token in mind. In Quine's prose, this is how we are led to draw this distinction:

*Es ist der Geist der sich den Körper baut:* such is the nine-word inscription on a Harvard museum. The count is nine because we count *der* both times; we are counting concrete physical objects, nine in a row. When on the other hand statistics are compiled regarding students' vocabularies, a firm line is drawn at repetitions; no cheating. Such are two contrasting senses in which we use the word *word*. A word in the second sense is not a physical object, not a dribble of ink or an incision in granite, but an abstract object. In this second sense of the word *word* it is not two words *der* that turn up in the inscription, but one word *der* that gets inscribed twice. Words in the first sense have come to be called *tokens*; words in the second sense are called *types*.<sup>1</sup>

This is as clear and unproblematic an ontological distinction as we can hope for. But there is an epistemic catch. On the face of it, our knowledge about linguistic expressions is knowledge about types. (Here and in what follows, I use the expressions 'type' and 'token' as abbreviations of 'linguistic expression-type' and 'linguistic expression-token' respectively.) When we say

<sup>1</sup> W.V.O. Quine, 'Type *versus* Token', in his *Quiddities: an Intermittently Philosophical Dictionary* (Harvard UP, 1987), pp. 216–19. The type/token distinction is originally due to Peirce: see 'Prolegomena to an Apology for Pragmatism', in C. Hartshorne and P. Weiss (eds), *Collected Papers of C.S. Peirce* (Harvard UP, 1933), Vol. iv, pp. 411–63.

that the English word ‘water’ is bisyllabic, or that the subject of the English sentence ‘The sky is blue’ is a definite noun phrase, we seem to be talking about expressions that can be pronounced or printed arbitrarily many times. Still, what we hear or see are concrete sounds or inscriptions, not the types themselves. And it seems that empirical information about tokens is relevant, even crucial, in justifying our knowledge about types. There must be something about the relation types bear to their tokens which makes the move from knowledge of the concrete to knowledge of the abstract possible. I shall call the challenge of explaining the relation between types and tokens in an epistemically illuminating way the *type/token problem*.<sup>2</sup> Its solution would have the following form:

There is a certain relation  $R$  that a type  $T$  bears to its tokens, and it is in virtue of  $R$  that empirical information about tokens of  $T$  can play a role in justifying our knowledge about  $T$ .

There are ways to defuse the type/token problem. Rationalists might say that the evidence which justifies our knowledge about types consists entirely of ‘intuitions’ which are themselves about types and have nothing to do with the particular tokens we hear and see. Nominalists might argue that, in the final analysis, sentences like ‘The subject of the English sentence “The sky is blue” is a definite noun phrase’, or ‘The English word “water” is bisyllabic’, quantify over tokens and say nothing about abstract types. Both of these views give up some aspect of the most natural way we think and speak about linguistic expressions. I am interested in seeing whether we can resolve the type/token problem without paying such a price.

One might accept that the problem is real and still object to my language-neutral way of stating it. A particular ink-mark may be a token of the English noun ‘fern’ or the German adjective ‘*fern*’; and so, the objection goes, we should distinguish between the relation  $R_E$  which holds between the English type and its tokens and the relation  $R_G$  between the German type and its tokens. But I do not think this is necessary: instead of relativizing the type/token relation, it seems more natural to relativize the *relata*. Tokens of the English noun ‘fern’ are tokens in English; tokens of the German adjective ‘*fern*’ are tokens in German. If this is granted, the relation between English and German types and their respective tokens can be the same.

In the next two sections, I shall present two solutions to the type/token problem. The first one is the standard view, which I shall ultimately reject; the second is a somewhat surprising view, which I shall defend.

<sup>2</sup> The problem is raised by S. Bromberger, ‘Types and Tokens in Linguistics’, in A. George (ed.), *Reflections on Chomsky* (Oxford: Blackwell, 1989), pp. 58–89. This paper was what set me thinking about types and tokens.

## II. THE INSTANTIATION VIEW

The usual way to address the type/token problem is to identify types with *kinds* of tokens. By ‘kind’ I mean what is sometimes called a natural or genuine kind, one that has some sort of underlying unity. Predicates whose nominalizations pick out kinds are projectible, so the move we make from properties of tokens to properties of types is a matter of legitimate *inductive generalization*. This reduces the type/token problem to the general problem of induction. Whatever explains how we can learn about the genus *Panthera leo* by observing particular lions will also explain how we can learn about the type ‘lion’ by observing particular tokens of that type. If we accept that types are kinds of tokens, and hence that tokens are instances of their types, we have the following solution to the type/token problem:

*Instantiation view.* A type *T* is instantiated by its tokens, and it is in virtue of this that empirical information about a token of *T* can play a role in justifying our knowledge about *T*.

In saying that accepting the instantiation view is the usual way to solve the type/token problem, I do not intend to imply that the solution is frequently endorsed explicitly. Indeed, clear explicit statements are rare.<sup>3</sup> What one often finds in the literature instead are claims that types are *sets* or *patterns* of tokens.<sup>4</sup> (These two views differ substantially, but for present purposes they can be grouped together.<sup>5</sup>) But it is not just any set or pattern of tokens that can be considered a type: the members of the set or the examples of the pattern must be sufficiently alike as far as their linguistic properties are concerned. And there must be something that grounds this similarity, in a way that makes the relevant linguistic properties of the tokens projectable for the entire set or pattern. In other words, the members of the set or the examples must make up a kind. So the standard claims carry an implicit commitment to the instantiation view.

When proponents of this view claim that types are sets or patterns of their tokens, they often add a thesis about the similarity that holds among tokens

<sup>3</sup> For views which come close to explicit endorsement of the instantiation view, see Bromberger; also C.L. Stevenson, ‘On “What is a Poem?”’, *Philosophical Review*, 66 (1957), pp. 329–62; N. Wolterstorff, ‘On the Nature of Universals’, in M. Loux (ed.), *Universals and Particulars: Readings in Ontology* (Notre Dame UP, 1970), pp. 206–34.

<sup>4</sup> For example, S. Haack, *Philosophy of Logics* (Cambridge UP, 1978), p. 75.

<sup>5</sup> See, e.g., the debate between P. Hugly and C. Sayward, ‘Expressions and Tokens’, *Analysis*, 41 (1981), pp. 181–9, and P. Simons, ‘Token Resistance’, *Analysis*, 42 (1982), pp. 195–203.

of the same type, *viz.*, that the relevant similarity is similarity of shape or form. This claim is rarely argued for; it is usually taken to be self-evident.<sup>6</sup> As it stands, the suggestion is not applicable to spoken tokens, but the intent of such remarks is clear enough to make the necessary adjustment: tokens are categorized into types on the basis of *recognition criteria*; the criteria for spoken tokens are phonological, for written tokens orthographic.

There are several problems with this idea. First of all, neither phonological nor orthographic criteria are as easily applicable as they might initially seem. Tokens of the same type can be uttered in very different voices and written in very different handwritings. Only the competent ear can hear and only the competent eye can see whether two tokens belong to the same type. Second, the phonological and orthographic criteria may come into conflict. Word-types like 'meat' and 'meet' are spelt differently but pronounced the same; word-types like 'lead' (the metal) and 'lead' (the verb) are spelt the same but pronounced differently. Finally, there are tokens which are both pronounced and spelt in the same way but nevertheless belong to different types, for example, two tokens which look like this one: bank. If one of the tokens refers to a financial institution and the other to the edge of a river, it is implausible to insist that they belong to the same type. Categorizing tokens like this would make types linguistically widely heterogeneous, in a way that would imperil the reliability of inductive inferences from tokens to types. Even if phonological and orthographic criteria are acceptable for some purposes, they are unacceptable for explaining our linguistic knowledge of types. These criteria do not enable us to categorize tokens according to their linguistically relevant features.<sup>7</sup>

There is a familiar over-reaction to these difficulties. One can deny that recognition criteria play any role in determining whether two tokens belong to the same type, and suggest that tokens are categorized into types entirely on the basis of their linguistic meaning.<sup>8</sup> But if any two synonymous tokens must be of the same type, then a type cannot change its meaning, there is no such thing as being wrong about what a type means, and the very idea of an uninterpreted type is incoherent. One can accept these consequences only if one is willing to believe that our ordinary talk of words and sentences is fundamentally in error.

<sup>6</sup> See Hugly and Sayward p. 187; D. Davidson, 'Quotation', in his *Inquiries into Truth and Interpretation* (Oxford UP, 1984), pp. 79–92; C. Peacocke, *A Study of Concepts* (MIT Press, 1992), p. 103.

<sup>7</sup> These points are emphasized in J. Bennett, 'Quotation', *Noûs*, 22 (1988), pp. 399–418; D. Kaplan, 'Words', *Proceedings of the Aristotelian Society*, Supp. Vol. 64 (1990), pp. 93–120.

<sup>8</sup> A. McIver, 'Token, Type and Meaning', *Analysis*, 4 (1937), pp. 58–64, and W. Sellars, 'Abstract Entities', in Loux pp. 156–205, are advocates of this view. Sellars goes as far as suggesting that types are trans-linguistic entities.

We should acknowledge that recognitional features are necessary for categorizing tokens into types, and that normally they are even sufficient. In exceptional cases, however, determining whether two tokens belong to the same type may involve answering questions about their linguistic meanings, about the intentions of the subjects who produce them, about the linguistic context in which they occur, and perhaps even about their etymology. Although this is in conflict with what is often said or implied by the proponents of the instantiation view, it is not in conflict with the view itself. Criteria by which we decide whether two animals belong to the same species are no less involved, but that is no reason to reject the view that species are kinds.

Tacitly or explicitly, the instantiation view underlies most philosophical discussion about types and tokens. It answers – pending an account of induction – the important epistemological puzzle about how we can learn about abstract phonemes, words and sentences by listening to the particular noises humans make when they communicate with one another. It is a simple and plausible thesis; but it is not a view without a rival. I shall sketch now an alternative in the next section.

### III. THE REPRESENTATION VIEW

I shall begin by drawing attention to a certain way we regularly use tokens. Here is a sentence:

1. This is the name of the highest peak in Africa: Kilimanjaro.

There is a token of this sentence in front of me which contains a token of the name ‘Kilimanjaro’. I shall call that second token ‘ $\mathcal{N}$ ’.  $\mathcal{N}$  refers to a mountain near the border of Tanzania and Kenya, but here it is used to perform a different task.  $\mathcal{N}$  is displayed after the colon in (1) to show the name of the highest peak in Africa. This much, I think, is uncontroversial. The question is this: how does  $\mathcal{N}$  come to perform this representative function?

One answer to this question goes like this. Tokens can represent their types because tokens are artefacts whose *function* it is to do so. Tokens are made in order to allow those who are familiar with the conventions of language to identify the type to which the token belongs. When speakers express a thought by uttering a series of word-tokens, they normally expect not only that the audience will understand the utterance, but also that they will understand it partly in virtue of their knowledge of what types the tokens of the utterance belong to. This latter expectation is based on a

knowledge shared between speaker and hearer that tokens represent their type. Because of the shared knowledge, we can say that tokens are *representations* of types.

It is sometimes said that tokens between quotation marks *depict* the type they belong to (e.g., Davidson p. 89). This way of thinking about quotation is encouraged if one thinks of the elaborate initials in mediaeval manuscripts, or of alphabets which consist of pictures of tiny human figures in letter-like postures. In a sense, those tokens do depict letter-types. But if they do so, why not their less fancy cousins, our simple mass-produced characters? Even if the metaphor of depiction is out of place here, the idea behind the metaphor can be preserved by saying that tokens are representations. A representation is a proxy or symbol, something whose function is to stand for its *representatum*. Besides paintings and photographs, the class of representations includes maps, numerals, hand gestures, traffic signs, horn signals and much else. It does *not*, however, include smoke, as long as this is not a smoke signal but a natural sign for fire. For smoke is not an artefact made by us in order to represent fire. Representations, that is, are roughly the entities that possess ‘non-natural’ meaning in Grice’s sense.<sup>9</sup>

It is an old idea that tokens are representations. But according to the traditional view, written and spoken symbols do not represent the same thing. Written marks represent the corresponding spoken sounds, which in turn represent something extra-linguistic.<sup>10</sup> I do not deny that written and spoken tokens have these representative functions, but I suggest that the picture is somewhat more complex. The English word-type ‘horse’ represents horses and so do all its tokens. But unlike the word-type, those tokens represent only *indirectly*: they represent the word-type ‘horse’, which in turn represents horses.<sup>11</sup> Since spoken and written tokens both represent types, they can also be indirect representations of each other.

If tokens are in fact representations of types, we have an alternative solution to the type/token problem. In learning about an object, we can use its representations. We can justify our beliefs about the shape of a country by looking at a map, and we can justify our beliefs about the condition of the road ahead of us by looking at a traffic sign at the side of the road. Of course, the map or the traffic signs do not *by themselves* do all the justification: we must also be justified in thinking that they represent their objects correctly. Nevertheless the representations do play a crucial role.

<sup>9</sup> P. Grice, ‘Meaning’, in his *Studies in the Way of Words* (Harvard UP, 1957), pp. 213–23.

<sup>10</sup> The view goes back to Aristotle’s *de Int.* I 1, ‘Now spoken sounds are symbols of affections of the soul, and written marks symbols of spoken sounds’.

<sup>11</sup> Cf. Peirce IV p. 537: ‘In order that a Type may be used, it has to be embodied in a Token which shall be a sign of the Type, and thereby of the object the Type signifies’.

*Representation view.* A type  $T$  is represented by its tokens, and it is in virtue of this that empirical information about a token of  $T$  can play a role in justifying our knowledge about  $T$ .

According to the representation view, the move from tokens to types is not a matter of straightforward inductive generalization. It is not like justifying a belief about *Panthera leo* by an appeal to particular lions; it is more like justifying it by an appeal to pictures in zoological books. The difference is potentially significant. Some general properties of the textbook pictures are not consequences of what lions are like, but consequences of those methods by which we see fit to represent them. If we are to learn anything from the pictures, we should take care to 'subtract' these properties. Similarly, if the representation view is correct we should expect that there are some properties of tokens that have little to do with the properties of the types they represent.

Here is a (somewhat contrived) example to illustrate how the instantiation and representation views might differ in their assessment of a concrete situation. Suppose we build a machine which imitates human speech successfully: competent speakers of English recognize sounds produced by the machine as expressions of English. Now suppose also that the sounds which the machine makes are such that it is anatomically impossible for human speakers to reproduce them exactly. Under these circumstances, a defender of the instantiation view would feel pressure to conclude that the machine is not producing tokens of English expressions: after all, the sounds generated by this machine have certain properties which no human-produced sound could have. The sounds are excellent imitations of tokens, but they are not the real thing. A defender of the representation view, on the other hand, would feel no such pressure, and could easily say that the sounds produced by the machine are English tokens. They represent English types, as is shown by the fact that speakers recognize them as tokens of those types; but they represent them in a way we cannot because of the way our speech-organs function. In short, if one believes that tokens are type-instances, it is more natural to deny that the machine produces genuine tokens, while if one believes that tokens are type-representations, it is more natural to take the opposite view.

How would a debate between defenders of the instantiation and representation views be conducted? The most obvious move for each party is to argue that types do not bear to their tokens the relation which the other party tries to exploit epistemologically. So the former would claim that types are not represented by their tokens, and the latter that types are not instantiated by their tokens.

For the instantiation view, one might point out that instances of a kind are often used to call attention to the kind without, strictly speaking, representing the kind. At the zoo, one can point to a particular lion and say of it

2. This is the largest cat living in Africa.

One might suggest that (1) should be construed similarly to (2). In both sentences the demonstrative pronoun refers to an instance of a kind which calls attention to the kind itself. The only difference is that the referent of the demonstrative pronoun is displayed in tokens of (1), but not in tokens of (2). A defender of the representation view would respond by saying that the analogy is mistaken. It is a function of a token to represent a type, and it is this function that is exploited in sentences like (1). By contrast, lions are not artefacts, so that even if they can be used to call attention to a species they belong to, they are not representations of that species. From here, the debate would probably move towards fundamental issues concerning the nature of representation – which is a bad sign for the prospect of a quick resolution.

The defender of the representation view could emphasize that types are abstract particulars, and hence cannot have instances. This claim is supported by grammatical evidence: we use singular terms to refer to types. We talk about the first line of Gray's *Elegy*, the last words of Goethe, the fourth letter of the Hebrew alphabet, or simply about 'water'. Frege concluded on the basis of the features of our number-expressions that numbers are objects, i.e., individual entities which cannot have instances. Analogous considerations might establish the same about types. However, defenders of the instantiation view will not be moved by this. They will most likely reject the idea that we can determine whether types are kinds or individuals on the basis of considerations linked tightly to surface grammar. Again the prospect of a quick resolution seems remote.

To solve the type/token problem we have to choose between the instantiation and representation views. (To say that empirical information about a token of a type can play a role in justifying our knowledge about the type because the type is *both* instantiated *and* represented by the token is unhelpful. This ecumenical view would be exposed to arguments from both sides without explaining anything that either side could not.) But I think we can choose between them without taking a stand on hard questions whether representations are necessarily conventional and whether grammar is a reliable guide to ontology. In the next section I shall advance an argument against the instantiation view.

## IV. THE INVERTED WORD ARGUMENT

My argument is directed against the way the instantiation view must treat knowledge of reference. The argument has two parts. First, I shall argue that knowledge of reference involves knowledge of tokening, i.e., knowledge of what types the tokens employed by the speaker belong to. But according to the instantiation view, knowing that a certain token belongs to a certain type is a matter of knowing a particular way to categorize it. So according to this view knowledge of reference for a certain token involves knowledge of a certain categorization. Second, I shall argue that this thesis is implausible, which undermines the credibility of the instantiation view.

Karel is a seventeen-year-old who has recently begun to study English. In his book, because of a series of unfortunate misprints, there is the following chart:

3. 13 : thirty; 14 : forty; 15 : fifty; etc.  
30 : thirteen; 40 : fourteen; 50 : fifteen; etc.

He interprets this chart as any of us would, and consequently comes to believe that 'seventeen' refers to 70, and that 'seventy' refers to 17. The mistake is perfectly manifest in his writing. But it is not detectable when he speaks because in pronunciation he makes the opposite mistake: he pronounces 'seventy' as a normal English speaker would pronounce 'seventeen' and he pronounces 'seventeen' as a normal English speaker would pronounce 'seventy'. One day the English teacher asks Karel how old he is, and in response Karel makes a linguistic utterance which sounds like a normal English utterance of

4. I am seventeen years old.

The question whether Karel's utterance is true is a tricky one. On the one hand he clearly intends to express the true proposition that he is seventeen, and he utters a sentence-token which expresses just that proposition. On many views, this much is sufficient for his utterance to be true. But the present case should give us pause. For there is no question but that the sentence-token he intended to utter, which of course would have expressed a false proposition in his mouth, is a token of

5. I am seventy years old.

There is no need to decide whether Karel's actual utterance is true. What matters is only that *it is not obvious* that in this case the two mistakes result in

a true utterance. In some sense Karel has doubly misrepresented the facts, even though thanks to a lucky coincidence he can still successfully convey his age in English. He would not have been able to do so had he chosen to use writing, for then he would have written a token of (5) rather than a token of (4).

The ground for seeing Karel's utterance as problematic is that he does not know what his token of 'seventeen' refers to. If asked orally, Karel would reply

6. My token referred to seventeen,

but if he had to give his answer in writing, he would put on paper

7. My token referred to seventy.

If we take both of these answers at face value, we must conclude that Karel has conflicting beliefs about what number he is talking about when he identifies his age. So although Karel thinks that he knows what his token of 'seventeen' refers to, he is mistaken about this. And no utterance can be unproblematically true where the speaker does not know what his word-tokens refer to.

This argument could be called *the inverted word argument*. It shows that our knowledge of reference is mediated by types: not knowing what types the tokens employed in an utterance belong to undermines the speaker's ability to know what those tokens refer to. The case is analogous to colour-inversion cases which putatively show that perceptual knowledge is mediated by *qualia*. Someone who is red-green inverted may not know that the grass he perceives is green, even though he says that he does, since he experiences it as red. Analogously, someone who is 'seventy'-'seventeen' inverted does not know that his token of 'seventeen' refers to 17, even though he says that he does, since he believes that his token belongs to the type 'seventy'.

But unlike the colour-inverted subject, Karel is *behaviourally distinguishable* from normal English speakers, provided that he knows how to write. There is also no question but that Karel is mistaken in his beliefs about 'seventy'. None of the problems which are often raised as sceptical challenges in the colour-inversion case arises here. So inversion arguments provide *stronger* reasons for accepting the claim that knowledge of reference is mediated by knowledge of types than for accepting the claim that knowledge of colours is mediated by knowledge of *qualia*.

The representational view sits quite well with the conclusion of the inverted word argument. Reference is one kind of representation, which makes word-tokens representations of representations. Tokens represent

only *indirectly*: they represent a type, and that type in turn represents a referent. If tokens refer indirectly, Karel's utterance is certainly a deviant one. He does not know what he is talking about, because knowing that would require knowing what word-type the token he is using belongs to and what that word-type refers to. He is wrong about both of these things, so he does not know that his token of 'seventeen' refers to 17.

By contrast, the instantiation view does not seem to have the resources to explain what makes Karel's utterance anomalous. No doubt Karel has false beliefs about what he is doing. He believes, for instance, that the token of 'seventeen' he uttered is a token of 'seventy'. But according to the instantiation view this is only a mistake in classification: Karel is wrong about what *kind* of token he uttered. There is no reason why *this* should imply lack of knowledge of what he referred to.

To show why mistakes in classifying tokens tend to be compatible with knowledge of reference, I shall compare Karel with his twin brother Vladimir. Vladimir's textbook is free of typographical errors and his pronunciation is excellent. So he has neither of Karel's problems with 'seventeen'. However, he is confused about grammar; he believes that 'seventeen' is a verb, and has correspondingly strange beliefs about what it is for a word to be a verb. It seems clear that we have to say that Vladimir does not know what verbs are, but it seems equally clear that this confusion need not interfere with his grasp of 'seventeen'. He does not know what kind of word 'seventeen' is – or at least he does not know how to classify it with respect to a particular important division – but he is perfectly clear about what it stands for. When he utters a token of (4), there is no question but that his claim is true. If types serve merely as classificatory labels for tokens, Karel's mistake about what type a given token belongs to would be much like Vladimir's error. But this is simply not the case.

Speakers must know the referents of the tokens they use, and in order to know this they need to know what types those tokens belong to. This requirement is easily explained if we endorse the representation view, but it seems mysterious if we accept the common wisdom that types are kinds of tokens. For there is no obvious reason why categorization mistakes concerning the tokens one uses should interfere with their correct use. The inverted word argument shows that knowledge of reference is mediated by knowledge of tokening, which in turn provides a strong reason to reject the instantiation view, and hence is an indirect argument in favour of the representation view.

In the remainder of this paper I shall discuss two problems with the representation view, one semantic and one ontological. I shall try to show that neither of them poses a real threat.

## V. THE AMBIGUITY OF 'WORD'

There is a simple question which the representation view has to answer: we do not say that pictures of horses are horses; why then do we say that tokens of words are words? To reply that word-tokens are not words in the same sense as that in which word-types are words does not disarm the challenge. For the type/token ambiguity extends to a variety of expressions ('phoneme', 'letter', 'syllable', 'phrase', 'sentence', 'paragraph', etc.), and it is presumably present in all natural languages. So it is not unreasonable to demand an explanation.

The ambiguity of 'word' is not a problem for the instantiation view. *All* common nouns are, after all, susceptible to a kind/instance ambiguity, like 'compass', for example:

8. The compass was invented by Petrus Peregrinus de Maricourt in 1269
9. The compass was hidden in my back pocket.

The subject term of (8) refers to a kind of instrument, whereas the subject term of (9) refers to a particular instance of that kind. The ambiguity of 'word' could be of the same sort:

10. The second word in (8) is a noun
11. The second word in (8) is printed in black.

The subject term of (10) refers to a kind of expression (type) and the subject term of (11) refers to a particular instance of that kind (token). No similar explanation is available if we deny that tokens are instances of types. For the representation view, two possibilities are open: explaining the ambiguity in some other way, or explaining the ambiguity away. I shall explore both options.

An explanation of the ambiguity would start by pointing out that there are cases when predicates applying to certain entities come to apply to the representations of those entities as well. Rubber ducks called 'ducks' and stuffed elephants called 'elephants' are obvious cases. But there are more subtle examples as well. The sentence

12. Italy is shaped like my boot

initially seems to claim that there is a similarity in shape between Italy and my boot. But this straightforward interpretation cannot be right. My boot is a three-dimensional object with a deep internal cavity. Italy bears no significant direct resemblance to that object. What Italy resembles is a *picture* of

my boot taken from the side. Or, perhaps, what a *map* of Italy resembles is a picture of my boot taken from the side. The map and the picture have similar shapes, and since they are standard representations of Italy and my boot, their *representata* are also said to have a similar shape. If we standardly pictured boots from above, or if we used very different cartographic projections, we would certainly judge (12) to be false.

If we consider representations of abstract entities, examples of this sort abound. We often say things like ‘The numbers are printed in italics in this book’ or ‘The equator on my globe is red’. When pressed, we may concede that strictly speaking it is only numerals that are printed in the book, and literally it is only the line representing the equator on my globe that is red. But it is not clear that by saying this we repudiate our earlier utterances. It might be correct to say that ‘number’ has a secondary sense in which it refers to numerals, and that ‘equator’ has a secondary sense in which it refers to lines representing the equator.

Our willingness to call tokens ‘words’ may be a similar case. That ‘word’ is primarily used to talk about word-types is shown by the fact that we think that different people can utter the same word at different times. When someone says that those are not the *very same* words, only *extremely similar* ones, we may agree without repudiating our earlier utterance. We may point out that there is a secondary sense of the word ‘word’ in which this is true, but that this other sense arises simply because of our tendency to apply terms referring to abstract entities to their standard representations as well. In this way we might explain the ambiguity of ‘word’.

The alternative line is to deny that there is more than an appearance of ambiguity here: word-tokens are *not* words, just as pictures of horses are not horses. There is no denying that this proposal sounds odd. To say that ink-marks on a paper and sound waves in the air cannot literally be words runs counter to our ordinary ways of talking. We can compensate for this by pointing out that while in calling a token a word we say something false, we may nevertheless communicate something true. For our interlocutor will no doubt recognize that we are referring to a standard representation of a word, rather than to the word itself. Such a pragmatic line of argument has the advantage of avoiding the duplication of the entry for ‘word’ in the lexicon.

There is a familiar argument against this pragmatic view. ‘Word’ is a count noun, and semantically count nouns are *sortal predicates*, expressions associated with a criterion of identity. Anyone who understands the word ‘horse’ is thereby guaranteed to have mastered a general principle for individuating and hence for counting horses. Similarly, anyone who knows the meaning of ‘word’ must know how to count words. But there are two

different ways to count words: as we were reminded in Quine's passage at the beginning of the paper, counting word-types and counting word-tokens yield different results. So there must be two ways to individuate words, which in turn means that we are dealing with two sortal predicates.

The argument is simple and *prima facie* persuasive. Nevertheless it has a weak point: it presupposes that a single principle of individuation must be associated with a single correct way of counting. I shall argue that this assumption is incorrect.

If someone asks you how many pages there are in a particular book, you might carefully page through the volume, counting as you go. Alternatively, you might simply look at the last page and read off the page number. These two methods are likely to yield different results, since usually not all pages in a book are numbered. The first and the last pages are often left unmarked, sometimes there are a few empty pages towards the end for notes, and the preface of the book may be numbered separately with Roman numerals. So the question arises: when the numbers obtained by the laborious and the lazy methods diverge, which is correct?

I think one should be reluctant to make a choice. The laborious method is certainly legitimate, but one should not dismiss the lazy one either. Even if one goes through the book page by page, one might decide to neglect the empty pages or the pages of the preface. In so doing one would simply be following a reasonable convention used by editors and printers. There is nothing objectionable in such neglect; this is one of the legitimate ways of counting pages. Should we then conclude that there is more than one criterion of individuation for pages and that 'page' is therefore ambiguous? This is dubious. For the problem is not that the neglected pages are in some sense non-pages; it is rather that those pages *do not count* for certain purposes.

Here is another example.<sup>12</sup> The question 'How many passengers did British Airways carry in 1997?' can be taken in at least two different ways. First, one might ascertain for each person whether he or she travelled on British Airways in 1997, and add up the positive cases. Alternatively, one might check how many people took each British Airways flight in 1997 and add up these numbers. The results of these two methods will be different, since there are people who travelled on British Airways more than once in 1997. One could say that this shows that we must have counted different things: passengers in the first case, events consisting of a single passenger taking a flight in the second.<sup>13</sup> But we do not have to say this; it is perfectly

<sup>12</sup> This example is prompted by the discussion in A. Gupta, *The Logic of Common Nouns* (Yale UP, 1980), p. 23. He takes a very different line from the one I am advocating here.

<sup>13</sup> This is suggested by M. Krifka, 'Four Thousand Ships Passed Through the Lock: Object-induced Measure Functions on Events', *Linguistics and Philosophy*, 13 (1990), pp. 486–520.

reasonable to maintain that in both cases we counted the same people, but counted them differently. Someone who flew five times with British Airways in 1997 may count as one passenger or as five.

The different ways of counting pages and counting passengers are each correct – there is no oversight or error involved – but they are not on equal epistemological footing. One might count Fs in full accordance with the criterion of identity associated with the sortal predicate ‘F’, counting each F exactly once. This is strict counting. A strict counting of pages enumerates the empty ones and the ones that belong to the preface; a strict counting of passengers of British Airways in 1997 lists each travelling person just once. A *loose counting* of Fs is based on the same criterion of individuation as the strict counting, but some of the Fs are neglected, or counted more than once. Perhaps the fact that there are two equally correct ways to count the words in a sentence like ‘The dog chases the cat’ should also be explained along similar lines by saying that the type-count is strict, while the token-count is loose. Then we do not have to say that ‘word’ ambiguously refers to abstract and concrete words.

This analysis receives support from the fact that there are not just two but dozens of ways to count words. If one is to answer the question how many words a given sentence or paragraph contains, one may have to decide issues like these: do interjectives like ‘hmm’ or ‘ouch’ count? Do hyphenated words like ‘garden-variety’ or ‘self-made’ count as one word or two? Do misspellings like ‘phylosophy’ or ‘hipnosis’ count as words? Do misspellings like ‘draw back’ or ‘pine apple’ count as one word or two? Do auxiliaries like ‘will’ and ‘have’ count as separate words or as part of a complex word? It seems to me that there is no single correct decision in these and many other cases. But this should not force us to say that there are dozens, perhaps hundreds, of different kinds of entities ambiguously called ‘words’. It seems much more plausible to say that in these cases questions about word individuation and word count come apart. There may well be a correct answer to the question whether ‘garden-variety’ *is* one word or two, but this answer may not resolve the issue whether it should *count* as one or two. And, I suggest, if we recognize this possibility in these cases, we might as well recognize it even when we have to decide whether we count types or tokens.

So it seems that, despite counting considerations, the possibility of rejecting the type/token ambiguity is open to the representation view. One might say that ‘word’ refers to word-types only, and that consequently it is, strictly speaking, false that there are words engraved on buildings at Harvard. The things Quine is talking about in the quoted passage are representations of words.

To summarize, the representation view must explain why ‘word’ is ambiguous between word-types and word-tokens, given that ‘horse’ is not ambiguous between horses and representations of horses. If tokens are in fact type-representations, we should expect a parallel. I discussed two possibilities. The *semantic* account accepts that ‘word’ has a sense in which it applies to tokens, and then provides an explanation of how ‘word’ acquires this secondary sense. The *pragmatic* account denies that ‘word’ has a sense in which it applies to tokens, and then provides an explanation of how sentences in which ‘word’ seems to stand for tokens can, despite their literal falsehood, communicate something true. Both these accounts base their explanations on our tendency to apply terms referring to abstract entities to their standard representations as well. Ultimately the choice between the two accounts depends not so much on what one thinks of words but on one’s views about the boundary between semantics and pragmatics.

## VI. WHAT TYPES COULD NOT BE

The representation view cannot simply replace the instantiation view. If, as I have argued, types are not kinds of tokens, we are left with two open questions, ‘What is the nature of types?’ and ‘What is the relationship between types and tokens?’. The thesis that types are represented by their tokens partially answers the second, but leaves the first untouched.

It is not just that the representation view fails to tell us what types are: this view suggests the wrong answer. If inscriptions of the word ‘lion’ are representations, it seems that their *representatum* must be the eternal unchanging archetype, a *quasi*-Platonic form of lion-ness. By contrast, the instantiation view identifies types with kinds of tokens, which are, although arguably still abstract entities, less removed from ordinary physical objects. (Kaplan suggests in ‘Words’ that talk of types by itself encourages a Platonist metaphysics. Saying that tokens are representations makes this suggestion even more obvious.)

The best way to answer the charge of Platonism is to show that the thesis that types are represented by their tokens does not imply that types must be entities without a history. What I say in this section will be tentative and speculative. My purpose is merely to answer an objection, not to provide all the details of a non-Platonist conception of types.

When Kenneth Branagh plays Henry V, reciting Shakespeare’s words, the actor can be thought of as representing the young king before, during and after the battle of Agincourt. This is so, despite the facts that Branagh may not look much like the real Henry and that the actual events in 1415

bore only a faint similarity to those described in the play. Branagh represents Henry, for when he acts he intentionally and successfully conforms to certain key features of the character and behaviour of the real Henry.

Furthermore, what Branagh tries to become is not just any representation of Henry V; he is representing *Shakespeare's* Henry V. He may occasionally deviate from Shakespeare's intentions, but he would not do so just to get closer to the historical truth. Even if modern scholarship proved that Henry did not in fact deliver anything like the famous 'Crispin Crispian' speech before the battle, that would not give the slightest reason for Branagh to alter Shakespeare's text. The actor's aim is to represent a character created by the author. In this case the character is also a representation – a representation of the historical winner of the battle of Agincourt.

Words, like characters, are intermediate representations. As Branagh represents the real Henry in virtue of representing Shakespeare's Henry, a token of 'horse' represents horses in virtue of representing 'horse'. The analogy may not sound particularly illuminating, since I do not have a good story about what characters are supposed to be. However, all that matters here is what they are not. Whatever the Shakespearian character Henry V might be, it is certainly not a Platonic form. It is a created entity, something that did not exist before the spring or summer of 1599. The author's work cannot be described as a kind of *discovery*: writing a play is a paradigmatic case of *invention*. I think the same holds for word-types: they are human creations.

This may answer the charge of Platonism, but it still fails to dispel the sense of ontological unease. For it seems that, by accepting that linguistic types are human creations, I concede something in conflict with the basic tenet of the representation view. Word-types are coined by someone who in the right circumstances and with the right intentions produces the *first token* of a type. But how can something be created in virtue of being represented?

The worry concerning the ontological primacy of *representata* over their representations is an amalgam of a temporal and a modal problem. It seems that one cannot make something by representing it, for what is represented must exist both *before* and *independently of* its representations.<sup>14</sup> But these concerns stem from too simple a conception of representation. It is natural to think of representations as *copies* of an original. Copying is a causal process, which fully explains why it is impossible to copy an original that does not exist earlier than and independently of its copies. But not all representing is copying, for not all representing is a straightforward causal process.

<sup>14</sup> Such concerns are voiced by S. Stebbing, 'Sounds, Shapes and Words', *Proceedings of the Aristotelian Society*, Supp. Vol. 14 (1935), pp. 1–21.

Even if one cannot take a photograph of a building that is yet to be built, this does not mean that all forms of representation are impossible at this stage. Most of the work of an architect consists in producing representations – floor plans, drawings, models, detailed descriptions – of buildings that do not yet exist. Once we abandon the copy-model of representation, there is no difficulty here. The representation view can coherently maintain that the first tokens of a new word-type are much like the drawings of the architect: they represent something that does not yet exist.

Whatever can be represented in a photograph must exist independently of being photographed. But this trivial observation fails to generalize for all types of representations. National borders must be represented somehow – if not by walls or boundary marks, then by maps and the texts of international treaties. When all these representations are absent, there is simply no fact of the matter as to where one country ends and the next begins. So national borders are entities whose existence depends on the existence of their representations. It is open to the representation view to insist that the same holds for certain linguistic types: they cannot exist untokened. This is obviously not true of all types, since many complex expression-types remain for ever unpronounced and unwritten, but it is plausible for simple expression-types – word roots, morphemes, etc. – from which all the complex ones are built.

A word-type has a history which unfolds through its representations. The story starts with some inventive or confused individual who utters a token which does not belong to any existing type and whose intended meaning is made sufficiently clear entirely by the context of its utterance (or the context of its inscription). If things go well, the token will spread through replication among speakers of the language. At some point – there is no sharp line here – the conventions that guide the use of these tokens become sufficiently widely known, and a new word-type is born. Its status is then documented by the introduction of a new lexical entry in dictionaries, with a birth date corresponding to the first documented use. Such an outcome is often intended by the person who used the first token, but this is not always the case. When Lewis Carroll wrote “‘Oh, frabjous day! Callooh! Callay!’”, he chortled in his joy’, he presumably did not expect that ‘chortle’ would survive as a word any more than that ‘frabjous’ would.

The charge against the representation view was that it is committed to a Platonist conception of types. But I have argued that it carries no such commitment. Types need not be considered as eternal or unchanging, but can instead be construed as artefacts which are created and may change through their tokens. This constrains what sort of thing the relation of representation between types and their tokens might be. In particular, it must be possible for certain tokens to represent types which do not yet exist,

and it must be possible for certain types to be essentially untokened. But these constraints should not dissuade us from endorsing the representation view.

## VII. CONCLUSION

I have argued for three theses in this paper. First, there is an important epistemic constraint on what we can say about the relation types bear to their tokens: empirical information about tokens of a type can play a role in justifying our knowledge about the type, so the relation between these entities must make possible this transition from the concrete to the abstract. Second, the standard solution to this problem – that tokens are instances of a type, and that the transition from tokens to types is a matter of inductive generalization – should be rejected. This view leads to the claim that knowing what type a given token belongs to is classificatory knowledge, which cannot easily be reconciled with the fact that this knowledge is essential for knowledge of reference. Third, the instantiation view can be replaced by an alternative which holds that the relevant relation between types and their tokens is representation. I have tried to defend this view against the semantic objection that it cannot account for the systematic type/token ambiguity of expressions like ‘word’, and the ontological objection that it leads to an implausible form of Platonism.<sup>15</sup>

*Cornell University*

<sup>15</sup> I thank Richard Boyd, Sylvain Bromberger, Gail Fine, Tamar Szabó Gendler, Sydney Shoemaker, Barry Smith, Jason Stanley, Daniel Stoljar and anonymous referees of this journal for discussion and/or comments. In addition, I owe thanks to the participants in a philosophy colloquium at Syracuse University where I had the chance to present part of this material.