

SOME COMMENTS ON THE BEGRIFFSSCHRIFT AND NATURAL LANGUAGE

Time and again, in the more abstract regions of science, the lack of a means of avoiding misunderstandings on the part of others, and also errors in one's own thought, makes itself felt. Both shortcomings have their origin in the imperfection of language, for we do have to use sensible symbols to think.

(Frege: 1972, 83)

With these remarks Gottlob Frege begins the justification of his much celebrated Begriffsschrift. For if natural language is logically defective, as Frege goes on to argue, and we do require 'sensible symbols to think', then we apparently need a logically reliable surrogate as 'a means of avoiding misunderstandings' and 'errors in one's own thought'.

Frege suggests it is the logical form, described as 'the logical kernel', of the sensible symbols that should dictate the direction of one's thoughts, and not the language's grammatical form. Hence his reprimand:

... our logicians still keep dragging in a number of things which are really of no logical concern, though they belong to the grammar of languages akin to our own, if not to others.

(Frege: 1979, 6)

However, with the Begriffsschrift, continues Frege, we have a means of dealing exclusively with matters of 'logical concern' - thereby escaping the 'misunderstandings' and 'errors' endemic to natural language and grammar. But what then is the relationship between natural language and the Begriffsschrift? This paper is an exploration of one possibility: representation. It is clear that Frege believed his notation was a representation - a representation of the so-called 'form of thought':

The logical relations occur everywhere, and the symbols for particular contents can be so chosen that they fit the framework of the conceptual notation. Be that as it may, a perspicuous representation of the forms of thought has, in any case, significance extending beyond mathematics.

(Frege: 1972, 89) (my emphasis)

Now if the logical relations occur everywhere, including natural language, then it is surely reasonable to infer that for Frege, the Begriffsschrift not only is a representation of the so-called forms of thought, but that it also represents the logical relations of natural language.

Assuming this is an accurate interpretation of his views, two crucial questions suggest themselves immediately:

- i) Can Frege's notation, or for that matter, any notation represent the logical relations, i.e. logical form, of natural language?
- ii) What conditions must be satisfied in order for a notation, such as the Begriffsschrift, to represent the logical form of a natural language?

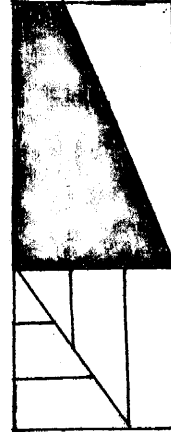
This paper is concerned with the second question. After an investigation of the concept representation I outline an implication of my analysis for Frege's views on the Begriffsschrift and natural language. Consideration of the first question would, I think, then be a natural adjunct to the discussion here. But first a word about my strategy. For the sake of clarity, I think it is useful to draw a distinction between the following two activities:

- i) attempts at representing an entity
- ii) attempts at representing a feature of an entity

In the section that follows I shall consider aspects of the concept 'representation' with this distinction in mind. Thereafter I shall relate my analysis to Frege's suggestion that his Begriffsschrift represents the logical form of natural language.

1. Aspects of the concept 'representation'.

Suppose we set out to represent something or other - a physical object, the world we live in, perhaps a language. What condition, or conditions, must be met by any representation of the entity (or entities) in question? Take the case of representing the entity below, a sketch:



(a)

Naturally, we could represent this sketch in a number of different ways - here are a few possibilities:



The sketch on this page

(b)

(c)

S

(d)

And in a table, or key, we could then specify that one of the marks, or representatives, represents the entity in question. For instance, we might write out the following stipulation:

The mark ' S ' represents the sketch on the previous page.

Now clearly we must not confuse the mark for the sketch, for to do so is to fail to distinguish between the representation and that which is being represented. So if the mark we use is identical to the entity we would like to represent, the mark does not qualify as a representation - for there is then no distinction between the representation and the entity represented. (What we would have in a case like this is a presentation of the original entity. I have something to say about the distinction between representation and presentation later on.) So it appears we could not use the mark below to represent sketch (a) above:



(e)

Similarly, in a business deal, the principal in the transaction may have an agent representing him, but should the principal and the agent turn out to be one and the same person, the principal is not said to have anyone representing him - the principal himself is involved in the negotiations.

All of which suggests the following necessary condition for the representation of an entity (abbreviated 'NCRE'):

NCRE: If Y is a representation of an entity X, then Y must be different to X.

Unless Y is different to X, Y would amount to another instance of X i.e. a presentation of X. But what then is the difference between representation and presentation?

To illustrate the difference between these two concepts, consider the following arrangement of entities - five numerals:

2 4 5 7 9

(f)

This collection has been arranged in a particular way such that certain relationships hold between the constituents of the collection. So the collection has, as one of its features, a particular form. And the numerals, naturally, constitute the contents of the collection. Now if we worked with the same numerals, and merely rearranged them, we would end up with different presentations of the numerals. To give three examples:

9 7
2 4 7 4 2 9 7 5 4 2
5 9 5

(g) (h) (i)

Thus as long as the entities in the new arrangement are the same as those in the original collection we are working from, the new collection is said to constitute a presentation of the contents of the original set. And with ingenuity we could come up with a multitude of different arrangements i.e. different presentations. (*)

Now what is significant about presentation, as opposed to representation, is that the entities presented must be the same as those originally given - what changes is the arrangement of the entities in the collection, not the entities themselves. So a florist, for instance, may rearrange the flowers in a vase in a number of ways, thereby providing us with a number of different arrangements, or presentations. But should she replace the proteas with tulips, for instance, any subsequent arrangement would naturally not constitute a presentation of the original bunch of flowers.

This suggests the following necessary condition for presentation:

NCP: If we use Y as a presentation of X, then the contents of Y must at least be the same as the contents of X.

(i.e. Y must include at least all of the contents of X.)

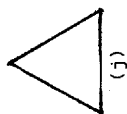
I say 'at least' because there are occasions where the constituents of a presentation include additional items e.g. we would not say a ring was not being presented, or displayed, merely because there were other items with it in the display window - the ring is being presented alongside the other jewellery. So the inclusion of additional items in an arrangement would not entail the arrangement is no longer a presentation.

So much for the difference between the presentation and representation of an entity, or entities. Now it would appear that what has been said above about attempts to represent an entity can be extended to include

(*) It is important to bear in mind that I am concerned here with the presentation of the contents of the collection - I am not discussing the presentation of the collection itself.

these occasions where it is a feature of an entity (or collection of entities) we wish to represent, and not the entity itself. For if Y must be different to X for Y to qualify as a representation of X, then it seems likely that if it is, say, feature A of entity X that we want to represent, Y ought in this respect be different to X i.e. Y ought not contain feature A if it is feature A of entity X we want to represent. Let's consider this suggestion.

Take my earlier example: suppose we wanted to represent a particular feature of the sketch, say its colour. The following could count as representatives of the grey colour of the sketch:



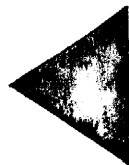
Die kleur van di skets
(k)

And our key would then stipulate that the particular mark represents the colour of the sketch, say like this:



The mark '▲' represents the colour of the sketch.

So far so good. However, a complication arises at this juncture. Suppose now that the mark itself contained a colour, and that this colour happened to be the same as that in the sketch. An important question that would arise here is this: can the (coloured) mark represent the colour of the sketch? To illustrate this complication, suppose someone wants to represent the colour of sketch (a) and comes up with the following mark:



(l)

Had this mark to qualify as a representation of the colour in the earlier sketch it would do so not because of its colour - for the colours of the mark and the sketch are not different. So in a case like this the burden of representation, as it were, of the representative mark (l) would not be on its colour, but on another feature of the mark. What do we make of this suggestion?

In the first place, a practical question arises immediately: how am I to know that the burden of representation of the mark is on a particular feature, say feature A, and not on feature B? Thus suppose I encountered the following key:



The mark '▲' represents the colour of the sketch.

From what has been said above, it is clear that all I can be sure of is that it is not the colour of the mark that does the representing. But without further elucidation it remains anyone's guess precisely which feature actually does the representing: I cannot read off from the mark alone which feature it is that does the representing.

There is, however, a more fundamental objection to the suggestion: (l) constitutes a representation of the colour of the sketch - mark (l) already constitutes a presentation of that colour i.e. we now have a second occurrence, or display, of the colour of the sketch. And if we accept that there is a distinction to be made between representation and presentation, which is implicit in our earlier discussion of these two concepts, we must conclude that mark (l) cannot qualify as a representation of the colour of sketch (a). That is to say, if we accept that representation and presentation are mutually exclusive activities, we must conclude that the inclusion in the mark of the feature (of the entity) we want to represent disqualifies that mark as a representation of that feature.

But what has all this to do with Frege's views that his *begriffsschrift* represents the logical form of natural language? A good deal, as I hope to demonstrate in the next section. For if we remember that we set out to represent a particular feature of natural language, in particular certain logical features of the language, we realize that the discussion in this section is pertinent to Frege's enterprise.

Before we turn to this question I think it useful to summarize the results of the preceding discussion. Put briefly, we have discovered the following:

- i) Y must be different to entity X for Y to qualify as a representation of entity X.
- ii) If it is a feature of entity X, say feature A, we want to represent then it's because Y possesses other features that Y can qualify as a representation i.e. it is the absence of feature A that enables Y to represent feature A of entity X.

These conclusions have interesting implications, especially for advocates of formal languages. In the next section I shall outline one for Frege's views.

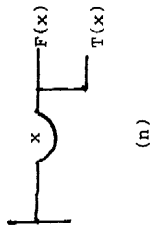
2. An implication

As was pointed out previously, Frege thought that his *begriffsschrift* was a (perspicuous) representation of the logical form of natural language. Thus suppose we presented him with the following English sentence:

All tigers are fierce

(m)

For Frege the logical form of this sentence would be represented by the following expression:



So a specific feature of the natural language sentence, i.e. its logical form, has (apparently) been represented by an expression from the begriffsschrift.

Now Frege may well be correct about all this. But what is clear, if my analysis of the concept 'representation' is acceptable, is that if Frege's logical notation is a representation of the logical form of natural language then it's by virtue of the absence of this feature of natural language that the notation can qualify as a representation. For if the begriffsschrift possessed a logical form, and more particularly the same logical form as that of the natural language sentence, it would not qualify as a representation of the logical form of that natural language sentence - at best it could serve as a presentation.

So, if the begriffsschrift does represent the logical form of natural language if either lacks a logical form itself, or its logical form is different to that of natural language. However, it is clear that for Frege the begriffsschrift has a logical form: for he claimed we require sensible symbols to think, while also maintaining that it is the logical form of these sensible symbols that ought dictate the direction of our thoughts. Which then leaves us with the second disjunct: the logical form of Frege's logical notation is not the same as that of natural language. With the consequence that if we relied on the begriffsschrift, with its logical form, to think, we would end up with results different from someone else who used a natural language, with its different logical form. And for those who seek 'a means of avoiding misunderstandings' and 'errors in one's own thought' this would be unpalatable, to say the least. (*)

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Bibliography

Frege G

1972 Conceptual notation and related articles.
(trans. by T.W. Bynum) Oxford University Press.

1979 Posthumous Writings. (ed. H. Hermes, F. Kambartel and F. Kaulbach)
(trans. P. Long and R. White) Blackwells, Oxford.

(*) A further complication arises from the implication: the logical forms of the begriffsschrift and natural language are different if the notation is a representation; there are at least two logical forms. Naturally, it remains to be seen whether this suggestion makes any sense.