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NOTE ADDED 9 Oct 2006:

A possibly new semantic theory concerning spatial prepositions, Gricean maxims, the role of higher order functions in language, and the evolution of language, which is very closely related to some ideas in this paper, is under development here.

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# HOW TO DERIVE "BETTER" FROM "IS"

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## *A. The programme*

ONE type of naturalistic analysis of words like "good," "ought," and "better" defines them in terms of criteria for applicability which vary from one context to another (as in "good men," "good typewriter," "good method of proof"), so that their meanings vary with context. Dissatisfaction with this "crude" naturalism leads some philosophers to suggest that the words have a context-independent non-descriptive meaning defined in terms of such things as expressing emotions, commanding, persuading, or guiding actions.

There are well-known objections to both approaches, and the aim of this paper is to suggest an alternative which has apparently never previously been considered, for the very good reason that at first sight it looks so unpromising, namely the alternative of defining the problematic words as logical constants.

This should not be confused with the programme of treating them as undefined symbols in a formal system, which is not new. In this essay an attempt will be made to define a logical constant "Better" which has surprisingly many of the features of the ordinary word "better" in a large number of contexts. It can then be shown that other important uses of "better" may be thought of as derived from this use of the word as a logical constant.

The new symbol is a logical constant in that its definition (i.e., the specification of formation rules and truth-conditions for statements using it) makes use only of such concepts as "entailment," "satisfying a condition," "relation," "set of properties," which would generally be regarded as purely logical concepts. In particular, the definition makes no reference to wants, desires, purposes, interests, prescriptions, choice, non-descriptive uses of language, and the other paraphernalia of non-naturalistic (and some naturalistic) analyses of evaluative words.

## *B. "Better" defined as a logical constant.*

(B1) In English, such phrases as "better for ...," "better at ...," "better as a ..." normally indicate the use of the concept here to be discussed: in this sense one thing cannot be better than another except in relation to what I call a *basis of comparison*, *B*, which is more or less explicitly indicated by what follows "for," "at," or "as a," in the above constructions.

Until a basis has been specified, the question "Which is better?" has no answer, and the assertion "x is better than y" is ambiguous. (Sometimes the question has no answer even when there is a basis, if the basis is not sufficiently specific, as will be seen below.)

Calling statements using "better" in the above sense *comparisons*, we easily see that comparisons relative to a basis *B* may have many different forms. For example, if *x* and *y* are particular things capable of being compared relative to *B*, and if *P* and *Q* are properties capable of being possessed by such things, and *R-er* a relation capable of holding between such things, then the following are among the possible forms of comparison:

- (i) *x* is better than *y* relative to *B*.
- (ii) Being *P* is better than being *Q* relative to *B*.
- (iii) The *R-er* the better relative to *B*.
- (iv) The *R-er* the better relative to *B*, other things being equal.
- (v) *x* is better than most (all, some) *P* things relative to *B*.

Of course, different grammatical forms may be used in ordinary discourse: in particular, grammar may be a very poor guide to logical structure of comparisons when the basis is not made fully explicit.

**(B2)** We shall analyze comparisons of form (ii), which can be symbolized as  $\text{Better}(P, Q, B)$ , since this is the most important form. For example, to see that form (i) depends on (ii) notice that which of two objects *x* and *y* is better relative to a basis *B* must always depend ultimately on their qualities, capacities, or relational properties, so that there is some difference *in virtue of which* one is better. In short, "better" in (i) is *supervenient* or *consequential*.

The fault of crude naturalism is to *define* "better" in terms of the qualities, etc., in question. Our aim, roughly, is to define the relation between the better-making qualities and the basis of comparison, a relation which remains unaltered when qualities and basis change, and which can be defined in purely logical terms, approximately as follows: being *P* is better than being *Q* relative to *B* if and only if being *P* is more conducive to satisfying some condition *C* specified in *B*, than being *Q* is. This approximate definition will now be made more precise in several stages. We first define a concept "absolutely better relative to *B*," then a concept "comparatively better relative to *B*," then define "better relative to *B*" as "absolutely or comparatively better, relative to *B*."

**(B3)** The basis *B* may have an inner structure, as in "This type of lathe is better in respect of precision (though not speed) for cutting lamp-stands out of wood, while that type is better when metal is used."

What I call a "fundamental basis" consists of four factors: a reference condition *C*, a respect of comparison *R*, the circumstances of comparison (or situation of comparison) *S*, and a subclass of comparison *Z*. A *fundamental comparison* has the form "Better(*P*, *Q*, *B*)," where *B* is a fundamental basis, so that the whole structure can be symbolized as "Better(*P*, *Q*, *C*, *R*, *S*, *Z*)." This can be read: "Being *P* is better in respect *R* than being *Q* with reference to satisfying condition *C*, in circumstances *S*, for members of the class *Z*."

Other types of basis, and other forms of comparison, may be derived from the "fundamental" kind by quantifying over *R*, *S*, or *Z*, or applying other weighing up operators to them, as we shall see later.

The reference condition *C* is the most important factor in the basis, since (roughly speaking) conduciveness to satisfying condition *C* is what determines whether being *P* or being *Q* is better. In ordinary discourse the precise reference condition is often not made explicit. For example, when we say "This is a better clock than that," the condition *C* is not just being a clock, but (something like) being able to tell the time accurately. In this case subtle conventions about functional concepts enable us to infer what the reference condition is. But the condition *could* be expressed quite explicitly, as in "This is better than that at telling the time accurately."

Our analysis will be concerned only with the meaning of comparisons where the reference condition is made explicit (I shall deal on another occasion with the linguistic and other devices by which we manage to avoid the need for such precision in ordinary English.[4]) We must now take a closer look at the four factors, *C*, *R*, *S*, and *Z*.

**(B4)** Any condition which things can fit, or fulfil, or satisfy, or fail to fit, fulfil, or satisfy, can be the reference condition *C* of a comparison.

*C* need not refer to the wants, purposes, interests, or needs of any person or set of persons. Further, to use *C* as reference condition in a basis of comparison is not to imply that anybody actually wants or is ever likely to want *C* to be satisfied. For example, "being usable for sawing off one's own leg with as much pain as possible" *could* be a reference condition, even though no one ever in fact makes comparisons relative to it.

Further,  $C$  may be vague (e.g., "being able to travel fast"), may be unsatisfiable (e.g., "being able to get from  $A$  to  $B$  instantaneously"), and may be capable of being satisfied to different degrees. An important task still to be carried out is a survey of different types of reference conditions, with a view to bringing out the logical differences between the comparisons in which they can occur.

**(B5)** To see why other factors besides  $C$  are sometimes needed in the basis, notice that the question "Which is more conducive to satisfaction of  $C$ ?" may have no answer until some or all of  $R$ ,  $S$ , and  $Z$  have been specified.

Thus, if we are comparing two types of machines,  $P$  and  $Q$ , with reference to the condition  $C$  "being usable for cutting grass," it may be that in one respect  $R1$  (e.g., speed)  $P$  is better, while in another respect  $R2$  (e.g., ease of operation)  $Q$  is better, neither  $P$  nor  $Q$  being better *simply* with reference to  $C$ . Similarly one type may be better in some circumstances  $S1$  (e.g., uneven terrain) while the other is better in circumstances  $S2$  (e.g., flat terrain).

Further, even if a respect  $R$  and circumstances  $S$  have been specified, neither being  $P$  nor being  $Q$  may be definitely better with reference to satisfying  $C$ , except for things of type  $Z1$  or things of type  $Z2$ , where possession of property  $P$  is better in the former case,  $Q$  in the latter. E.g., which type of metal should be used for the blades of a lawnmower for greatest ease of operation on level ground may depend on which of several possible configurations is used for the blades.

**(B6)** The circumstances  $S$ , or the subclass of comparison  $Z$ , may appear from the above explanation to be merely part of the reference condition, as if things were being compared with reference to a new condition  $C'$ , namely the condition of satisfying  $C$  in circumstances  $S$  while being a member of  $Z$ .

However, the reason for treating  $S$  and  $Z$  as separate factors in the basis, as will become clearer later on, is that we need to allow them to vary while  $C$  remains constant, if we are to construct a general theory of comparisons: e.g., "*ceteris paribus*" clauses may involve quantification over  $S$  and  $Z$  while  $C$  is fixed.

Similarly we want the respect of comparison  $R$  to be distinguished from the reference condition, so that we may ask such questions as: Is this respect relevant to condition  $C$ ? To clarify this we need to make the notion of a respect precise. In general when we refer to a respect we seem to be referring to a kind of property, or a set of properties. For example, in saying that  $x$  and  $y$  are exactly similar in respect to height we mean that among the class of possible heights there is one which is a property of both  $x$  and  $y$ . Similarly the class of possible distances from New York is referred to when we say that two towns differ in respect to distance from New York.

In short, a respect is a *determinable*, each of whose determinates is a quality or feature or relational property. (This notion of a set of properties of the same kind could be analyzed further, but will not be here.) To render the discussion manageable it is necessary to restrict it to what I call *one-dimensional respects*; namely, classes of properties of the same kind completely ordered along one dimension by a transitive asymmetric relation (and consequently also its converse). Thus the set of heights is ordered by the relation "higher" and its converse "less high," which I call the *associated relations* of the set.

By contrast, the set of three-dimensional shapes is not completely ordered in a natural way by any relation (though an order can be imposed on the set, for example, by projecting it onto the set of ratios of maximum and minimum diameters). If  $R$  is a set of properties completely ordered by the relations *R-er* and (its converse) *less-R*, I call the latter the associated relations of the (one-dimensional) respect  $R$ . (Strictly speaking, the respect consists of  $R$  and the relations, since the set of properties need not uniquely determine the relations. Thus the set of *lengths* is completely ordered both by "longer" and by "closer to 10 feet long," though the orders are different. A failure to grasp this point leads some people to make irrelevant objections to the definition given below.)

**(B7)** With reference to the condition  $C$  of being usable for cutting grass, differences in some respects (e.g., color) are clearly irrelevant, while others (e.g., speed) are relevant. Further, a respect which is relevant in some circumstances may be irrelevant in others. For example, if the grass is being cut in a field where there is a large potentially dangerous animal which reacts violently to red objects (e.g., by charging them), then differences in "color may well be relevant to  $C$ , in these circumstances. Investigation of a large number of examples suggests the following as a first approximation to a definition of "relevance."

*Definition:*

"The respect  $R$  is *relevant* to the condition  $C$ , in circumstances  $S$ , for members of  $Z$ " means "There is some proper subset of the set  $R$  such that possessing a property in the subset is a logically necessary condition for satisfying  $C$ , for members of  $Z$  in circumstances  $S$ ."

If  $C$  is the condition of being small enough to fit through a rectangular opening 4 feet high and 3 feet wide, then in accordance with the above definition we find that height and width are respects which are relevant to  $C$  (in all circumstances), while colour is irrelevant (except perhaps in certain bizarre circumstances). It should be noted that the mere fact that two things differ in a respect which is relevant to a condition  $C$  does not imply that either is better than the other in that respect with reference to satisfying  $C$ . It should also be noted that the proper subset of  $R$  mentioned in the definition may include all the properties in  $R$  but one. For example, if  $C$  is "being usable for cutting grass," and  $R$  is the set of speeds of cutting grass, then since possessing some speed *other than zero* is necessary for satisfying  $C$ , it follows that  $R$  is a relevant respect. The opposite case occurs if  $C$  is the condition of being usable for cutting grass as fast as possible: here the subset of  $R$  contains only one speed, the highest possible.

(The definition of relevance could be generalized, in a more complete discussion, first so as to allow probabilistic relations, and secondly so as to include "indirect relevance," i.e., the case where there is some other respect  $R^*$  such that  $R^*$  is relevant to  $C$  in the above sense, while differences in respect  $R$  entail differences in respect  $R^*$ .)

We now explain how if  $R$  is relevant to  $C$ , differences in respect  $R$  can make a difference to whether  $C$  is satisfied, or the degree to which  $C$  is satisfied, or the degree to which things approximate to satisfying  $C$ .

**(B8)** First we need a notion of "absolute betterness," to be used in statements of the form "Being  $P$  is absolutely better than being  $Q$  with reference to satisfying  $C$ , for members of  $Z$  in circumstances  $S$ ," which we symbolize as "Abs-better( $P, Q, C, S, Z$ )," and define as follows:

*Definition:*

"Abs-better( $P, Q, C, S, Z$ )" means "For members of  $Z$  in circumstances  $S$ , either (a) being  $P$  entails[1] satisfying  $C$  while being  $Q$  does not, or (b) being  $Q$  entails satisfying not- $C$  while being  $P$  does not, or both (a) and (b) hold."

(To avoid various complications it is necessary to regard "Abs-better( $P, Q, C, S, Z$ )" as false, or ill-formed, if either  $P$  or  $Q$  is self-contradictory.)

Our problem now is to generalize this to include mention of a respect of comparison, as in the phrase "absolutely better in respect  $R$ , with reference to  $C$ ."

For example, suppose  $C$  is the condition of being at most 4 feet high and at most 3 feet wide,  $P$  the property of having a width of 4 feet and a height of 3 feet, while  $Q$  is the property of having a width of 3.5 feet and a height of 5 feet. Then with reference to  $C$  neither being  $P$  nor being  $Q$  is absolutely better than the other. But I shall say that with reference to  $C$  being  $P$  is absolutely better *in respect to height*. Why? Because being  $P$  entails having a height in the range necessary for satisfaction of  $C$ . This can all be made more precise as follows:

*Definition:*

" $C^*$  is the  $R$ -derived condition of  $C$ , for members of  $Z$ , in circumstances  $S$ " means " $C^*$  is the condition of possessing one of the properties in the smallest subset of  $R$  such that for members of  $Z$  possessing some property in the subset is necessary for satisfaction of condition  $C$  in circumstances  $S$ ."

*Definition:*

"Abs-better( $P, Q, C, R, S, Z$ )" means "Abs-better( $P, Q, C^*, S, Z$ ), where  $C^*$  is the  $R$ -derived condition of  $C$ , for members of  $Z$  in circumstances  $S$ ."

Thus, being  $P$  is absolutely better in respect  $R$  than being  $Q$ , with reference to satisfying  $C$ , if being  $P$  ensures or being  $Q$ , prevents, possession of at least one of the properties in the range  $R$  which are necessary for satisfaction of  $C$ . Notice how the relevance of  $R$ , as defined previously, is used in these definitions.

**(B9)** This notion of absolute betterness has to be supplemented now with a notion of comparative betterness. Whereas the former can be thought of metaphorically in terms of "black and white" distinctions, i.e. the distinction between satisfaction and non-satisfaction of a condition, the latter is concerned with matters of degree, distinctions of shade, etc., as in "You, are getting better all the time, though you still have not succeeded." A similar notion to the latter is used in "thin end of the wedge" arguments in ethics. The construction of a completely general definition of the notion presents great difficulties, which is why the discussion has been restricted to *one-dimensional* respects, although this restriction was not required for the above definition of "absolutely better in a respect." Comparative betterness is defined in two stages: first we need the idea of approximating to satisfying  $C$ , then the idea of satisfying  $C$  to different degrees.

**(B10)** The abbreviation " $\text{App}(P, Q, C, R, S, Z)$ " will be used for statements of the form "For members of  $Z$  being  $P$  entails approximating more closely in respect  $R$  to satisfying  $C$  in circumstances  $S$  than being  $Q$  does." This notion, like the others, can be defined in purely logical terms, using an idea suggested by Professor John Kingman.

*Definition:*

"A relational  $R$ -property is a property of the form " $h$  or  $R$ -er than  $h$ " or of the form " $h$  or less- $R$  than  $h$ ," where  $h$  is a property in  $R$  and  $R$ -er and less- $R$  are the associated relations of  $R$ .

If  $R$  is the set of heights, and  $C$  the condition of being at least 10 feet high, then we can pick out a subset  $T$  of the set of relational  $R$ -properties, such that possession of all properties of  $T$  is necessary for satisfying  $C$ , namely, the set of all properties of the form " $h$  or higher" (i.e., "at least as high as  $h$ ", where  $h$  ranges over the heights between 0 and 10 feet. Clearly, among the things which fail to satisfy  $C$  (i.e., they are too short), those which possess more properties in  $T$  approximate more closely to satisfying  $C$ . This illustrates the following definition of approximating more closely:

*Definition:*

" $\text{App}(P, Q, C, R, S, Z)$ " means "For members of  $Z$  in circumstances  $S$ , being  $P$  entails possessing a more inclusive subset of the properties in  $T$  than being  $Q$ , does, though not all the properties in  $T$ , where  $T$  is the set of all relational  $R$ -properties possession of which is necessary for members of  $Z$  to satisfy  $C$  in circumstances  $S$ ."

The phrase "though not all ..." is intended to rule out the case of absolute betterness in respect  $R$ . Thus, our definition lays down in effect that being  $P$  approximates more closely to satisfying  $C$  than being  $Q$  does if and only if things which are  $P$  satisfy more necessary conditions for satisfying  $C$ , but not all, though this last formulation is not sufficiently precise to cover all cases. Although the definition is applicable only to one-dimensional respects, a generalization to include multi-dimensional respects which can be subdivided into one-dimensional respects is clearly possible.

**(B11)** We now define "Among members of  $Z$ , things which are  $P$  satisfy  $C$  to a higher degree in respect  $R$  than things which are  $Q$ , in circumstances  $S$ ," which we abbreviate as " $\text{Deg}(P, Q, C, R, S, Z)$ ," thus:

*Definition:*

$\text{Deg}(P, Q, C, R, S, Z)$  means " $\text{App}(Q, P, \text{not-}C, R, S, Z)$ ."

So, satisfying  $C$  to a higher degree is the same as approximating less closely to satisfying  $\text{not-}C$ . We are now in a position to define comparative betterness in the obvious way: being comparatively better with reference to satisfying  $C$  amounts to either satisfying  $C$  to a higher degree or approximating more closely to satisfying  $C$ .

These definitions have interesting consequences in connection with "thin end of the wedge" arguments, and reference conditions which involve theoretical limiting cases, but there is no space to explore these consequences here.

It is important to notice (a) that the definitions are based only on purely logical concepts (b) that they are sufficiently general to include respects of comparison which do not involve a "metric," i.e., although we require a relation  $R$ -er, we do not require that " $R$ -er by how much?" make any sense.

A still more general account of comparative betterness would make use of the concept of  $P$  making satisfaction of  $C$  more probable than  $Q$ , does, but the concept of probability is too full of obscurities to be discussed here. We might perhaps be able to incorporate this case within the framework of the above definitions by allowing the respect  $R$  to be probability of satisfying  $C$ . (Compare footnote 1 to definition of "Abs-better.")

**(B12)** We now, at last, define "better," so that it is equivalent to "either absolutely or comparatively better," thus:

*Definition:*

" $\text{Better}(P, Q, C, R, S, Z)$ " means " $\text{Abs-better}(P, Q, C, R, S, Z)$  or  $\text{App}(P, Q, C, R, S, Z)$  or  $\text{Deg}(P, Q, C, R, S, Z)$ ."

*Definition:*

" $\text{Worse}(P, Q, C, R, S, Z)$ " means " $\text{Better}(Q, P, C, R, S, Z)$ ."

This completes the analysis of fundamental comparisons. It is worth noting that there are at least four distinct ways in which such a comparison may be false: (i) for members of  $Z$  in circumstances  $S$ ,  $R$  may not be relevant to  $C$ , (ii) the properties  $P$  and  $Q$  may be exactly similar in respect  $R$ , (iii) although  $R$  is relevant and  $P$  and  $Q$  differ in respect  $R$ , the difference may be such that neither is absolutely or comparatively better (e.g., if  $C$  is between 10 and 11 feet long, and  $P$  and  $Q$  are lengths of 9 feet and 12 feet), (iv) finally " $\text{Better}(P, Q, C, R, S, Z)$ " may be false because " $\text{Worse}(P, Q, C, R, S, Z)$ " is true, and *vice versa*. (Case (iii) is particularly interesting because of the possibility of replacing the respect  $R$  with another

respect consisting of the same properties ordered by a different relation: see end of B6 above.)

Interesting theorems can be proved from the definitions, such as that for *fixed*  $C, R, S, Z$ , "Better" determines a transitive asymmetric relation between  $P$  and  $Q$ . Further, owing to the manner in which not- $C$  occurs in the definitions it follows that  $\text{Better}(P, Q, C, R, S, Z)$  if and only if  $\text{Better}(Q, P, \text{not-}C, R, S, Z)$ . i.e.,  $\text{Worse}(P, Q, \text{not-}C, R, S, Z)$ . It seems that in view of the possibility of applying various logical operators to such things as  $P, Q, C$  and  $S$ , there is an interesting branch of formal logic waiting to be developed here.

## C. Non-fundamental comparisons

(C1) Having defined "Better" as it occurs in *fundamental* comparisons, we can easily extend its use to other forms. For example, if  $x$  and  $y$  are particular objects in the range of significance of  $C$ , we can analyze " $x$  is better than  $y$  in respect  $R$  with reference to satisfying  $C$  in circumstances  $S$ ," i.e., " $\text{Better}(x, y, C, R, S)$ " thus: " $x$  has property  $P$  in  $R$  and  $y$  has property  $Q$  in  $R$ , and  $\text{Better}(P, Q, C, R, S, Z)$  for all classes  $Z$  whose members differ in respect  $R$  and in no other respect relevant to  $C$  in circumstances  $S$ ." The last clause of this indicates how "*ceteris paribus*" clauses can be dealt with in general.

Similarly, "The  $R$ -er the better with reference to satisfying  $C$ , in circumstances  $S$ , for members of  $Z$ ," where  $R$ -er is an associated relation of a respect  $R$ , can be analyzed as "For any  $x$  and  $y$  in  $Z$ , if  $R\text{-er}(x, y)$  then there exist properties  $P$  and  $Q$ , in  $R$  such that  $P(x)$  and  $Q(y)$  and  $\text{Better}(P, Q, C, R, S, Z)$ ."

Comparisons mentioning no circumstances can be derived from fundamental comparisons by quantifying over *all* circumstances. Comparisons mentioning no subclass of comparison can be treated as cases where  $Z$  is the whole range of significance of the condition  $C$ . Thus, the logical constant "Better" defined above can occur in a very wide range of forms of comparison, with different degrees of complexity, just as the ordinary word "better" can (even though some of the complexity is not always made explicit in ordinary English). It is perhaps surprising that a logicist analysis should define a word so similar to "better" in some of its ordinary uses, even if there are other uses which cannot easily be accounted for along these lines.

(C2) One use not so far accounted for is that in which many comparisons in different respects are weighed up, giving an answer to "Which is better on *the whole*, taking all respects into account?" Similarly with circumstances  $S$ . The problem does not seem to arise for sub-classes  $Z$ , since taking all sub-classes into account would appear to amount to letting  $Z$  be the class of all things capable of being compared relative to  $C$ , a case mentioned in the previous paragraph.

Similarly there is no problem of weighing up all reference conditions  $C$  since no sense can be made of a comparison with reference to satisfying all conditions. Our problem then is to define a weighing up operator, applicable to  $R$  and to  $S$ . If we represent it as "acc-," we can read "acc- $R$ " and "acc- $S$ " as "taking all respects into account" and "taking all possible circumstances into account," for example, in comparisons like  $\text{Better}(P, Q, C, R, S, Z)$  and "acc- $S$ , acc- $R$ ,  $\text{Better}(P, Q, C, R, S, Z)$ ."

Like a quantifier, "acc-" binds the variable to which it is applied. Clearly if being  $P$  is better than being  $Q$  in *all* respects, or in *all* circumstances, then it is better taking all respects, or all circumstances, into account. So we have the following criterion of adequacy for any definition of "acc-":

(A) "all-" implies "acc-".

But neither our previous definition of "Better" nor this criterion determines a unique weighing up operation, for dealing with cases where  $P$  is better than  $Q$  in some respects, or circumstances, while  $Q$  is better than  $P$  in others, with reference to satisfying condition  $C$ .

(C3) For example, suppose that for a given  $C, S$ , and  $Z$ , being  $P$  is better in some respects while being  $Q$  is better in others, then all the following methods of taking all respects into account conform to (A).

(1) Being  $P$  is better than being  $Q$ , acc- $R$ , if the former is better in more respects than the latter: here respects are simply counted.

(2) More generally, weight each respect, then add. For example, if the respects involve measurable differences, then weight each according to the degree or extent (positive or negative) to which being  $P$  is better than being  $Q$  in that respect, with reference to  $C$ . E.g., one may be *much* better in respect to speed while the other is only *slightly* better in respect to accuracy. In addition the respects might be weighted according to some measure of their importance, or some measure of the difficulty or cost of changing things in each respect. Several different weights may be applied prior to summation.

- (3) Ignore all respects in which neither being  $P$  nor being  $Q$  is absolutely better than the other (in the sense defined previously), and then apply weighting and summation only to the remainder, assuming there is a remainder.
- (4) Using a measure of degree of betterness in each respect say  $P$  is better on the whole if its minimum degree of betterness is greater than  $Q$ 's. (A "maximin" method: the better is the one with the largest minimum lead.)
- (5) Alternatively say  $P$  is better on the whole if  $Q$ 's maximum degree of betterness is less than  $P$ 's, (A "minimax" method: the better is the one with the smallest maximum lag.)
- (6) Order the respects which are relevant in a series  $R_1, R_2, \dots, R_n$ , e.g., according to diminishing importance. Then take the *first* respect in which  $P$  and  $Q$  differ, and say  $P$  is better on the whole if it is better in that respect, ignoring the rest.
- (7) "Constrained maximization": specify "constraints" by choosing subsets from each respect, and then apply method (6), or one of the others, so long as  $P$  and  $Q$  entail possessing properties in the subsets specified, and in other cases use some other method, or treat them as non-comparable.

(C4) Similar methods might be used for weighing up comparisons relative to all possible states of affairs. Each possible state of affairs which covers too wide a range of possibilities must first be divided into sub-ranges such that either  $P$  or being  $Q$  is definitely better in each sub-range. If each sub-range is given a measure, positive or negative according to whether  $P$  or  $Q$  is better in that sub-range, then we can use the above weighting and adding (or integrating) techniques for taking account of all possible states of affairs. For example, each possibility might be weighted according to the likelihood of its occurrence, or the likelihood of the reference condition having to be satisfied in that state of affairs, or according to the ease or difficulty with which unfavorable aspects of the circumstances can be removed, or favorable aspects introduced. For example, if  $C$  is the condition of being usable for cutting grass, then inferiority in circumstances where the grass is covered with snow may not be important if such circumstances rarely arise, or if snow is easily removed. Similarly maximin and minimax methods can be used.

(C5) This illustrates the wealth of possible ways of applying "acc-" to  $R$  and  $S$ . It may in some cases, though not in others, make a difference whether  $R$  is first weighed up holding  $S$  constant and then  $S$  weighed up, or vice versa: but either gives a way of taking both all respects and all circumstances into account. We have already remarked that neither the criterion (A) nor our previous definitions (nor, for that matter, the ordinary sense of "better") determines which of the many possible methods should be used.

It may further be noted that even within each type of method there is a further element of arbitrariness in the choice of the various measures used for weighting. E.g., if we are trying to measure the degree by which one thing is better than another in respect to speed, with reference to being able to cut grass, one person may want to use the difference in the number of pounds of grass cut per minute, while another argues that as speeds get greater differences in speed matter less, so that the measure should be the difference in speed divided by the average speed of the two machines. Similarly arbitrariness enters into the selection of a common measure for differences in different respects, such as speed and accuracy, as in method (2).

These kinds of arbitrariness, to say nothing of the complexity of the structure of the problem as stated here, are ignored by those who claim that specifying a function (or purpose) automatically determines criteria of relative merit in relation to that function: "better as a means" is thought quite wrongly to be completely unproblematic, unlike "better as an end." (Actually the case is still more complicated with "good.") The complexity and arbitrariness go equally unnoticed by those who claim that the job of politicians (or voters) is to select goals, and the job of civil servants and social scientists to find the best ways of achieving these goals.

(C6) Can this arbitrariness be eliminated? We could, of course, select one weighing up operation and build it into our definition of "Better," or our definition of "acc-," so that "Which is better on the whole, with reference to satisfying  $C$ ?" always had a single determinate answer. But this restriction would itself be arbitrary, and would limit the application of our definitions too much. Alternatively, we could simply require that the basis of comparison be enlarged to include an additional factor  $W$  (or two factors  $W_r$  and  $W_c$ , for respects and circumstances) which specifies a definite weighing up method. The question "Which is better *on the whole*, relative to  $B$ ?" would then have a clear sense as long as  $B$  was so enlarged, and comparisons like "Acc- $S$  acc- $R$ , Better( $P, Q, C, R, S, Z, W$ )" would have a definite truth-value, which might depend on which method  $W$  was.

This method of eliminating arbitrariness is no more an undesirable trick than the specification of the other factors in the basis, since it is unreasonable to expect the question "Which is better on the whole?" to have a determinate answer when no weighing up method is specified. However, it may be that even when no such factor is made explicit some subtle convention often operates to determine one. For example, it may be that people never make statements (or perhaps never make comparisons) without having some purpose or motive in doing so, in which case the condition of serving this purpose could be used in a "second-order" basis for comparing different possible weighting factors. Thus, where a particular weighting method can be shown to be better than all others, relative to the purpose for which the original comparison is being made (or the purpose in asking "Which is better?"), then we could lay down that that is the method to be used in

applying "acc-," thus creating a subtle relation between semantics and pragmatics. (This suggests a need for a study of higher-order comparisons, i.e., comparisons between bases of comparison.)

Alternatively the convention might operate that the weighting factor should be chosen in accordance with what would serve the needs of a normal human being who wanted the condition *C* in the original basis to be satisfied. (This would, of course, break down for conditions no normal person would want satisfied!) From the point of view of our logical analysis, however, it does not matter how a particular factor comes to be added to the basis: once it is added, our analysis shows what sense is expressed by comparisons relative to the new basis.

## ***D. Connections with some other meta-ethical theories***

**(D1)** The sense of "Better" in fundamental comparisons of the form "Better(*P, Q, C, R, S, Z*)" may be called a *logician's* sense, since it is defined in purely logical terms. It is neither a descriptive relational word, nor an "expressive" word, but a logical statement-forming operator, applicable to six arguments, *P, Q, C, R, S* and *Z*, and we have seen how it can occur in other forms of statements besides fundamental comparisons. Although our definitions do not lay down any specific descriptive content, i.e., they do not mention descriptive criteria of betterness, nevertheless such criteria, and thus descriptive content, are generated by interaction between the meaning of "Better" and the basis of comparison. Thus comparisons are able to state objective facts, though usually rather vague facts, since saying that one thing is better than another relative to *B* gives much less information than describing the specific features which make it better. Hence comparisons entail and are entailed by straight-forwardly factual or descriptive statements.

**(D2)** However, interaction between "better" and the context of utterance can also generate non-descriptive force. For the reference condition *C* may be one which a hearer or the speaker wants, needs, intends, etc., to have satisfied, even though this possibility was at no stage presupposed in our analysis of comparisons with fully explicit basis. If one wants *C* to be satisfied and is told that *x* is better than *y* in all respects and in all circumstances, with reference to satisfying *C*, then this gives one reason for choosing *x* rather than *y*, provided one has no other conflicting attitudes and no more specific information about *x* and *y*. For one can infer that if *y* satisfies *C* then *x* does also, but there is a possibility that *x* does though not *y*, hence the choice of *y* is more likely to frustrate one's want.

Similarly, if one is told that, with reference to *C*, *x* is better in a certain respect *R1*, or in circumstances *S1*, then this gives one *prima facie* reason for choosing *x* rather than *y*, though much weaker reason. However, in both examples further information can cancel the reason, such as the information, although *x* is better, neither *x* nor *y* satisfies *C* (or perhaps both do), or the information that although *x* is better in respect *R2*, *y* is better in respect *R2*, with reference to *C*. Of course, whether further information cancels the reason given depends on further facts about the person concerned, such as whether he not merely wants *C* satisfied but wants it satisfied to the highest possible degree, or whether he regards a miss as being as good as a mile. Similar remarks apply to the *speaker's* commitment to choosing *x* rather than *y* when *he* wants *C* to be satisfied.

Thus, in certain contexts, we see that statements using the logician's "Better" may have "action-guiding" force, or may express advice, recommendation, or preference. Exactly the same remarks, of course, apply to "Worse," since whoever wants not-*C* to be satisfied has as much reason for choosing the worse of two things relative to *C* as one who wants *C* satisfied has for choosing the better. What is better with reference to my aims may well be worse with reference to yours. This brings out a "symmetry" between "Better" and "Worse."

**(D3)** The non-descriptive force of comparisons so far discussed depends on someone wanting the condition *C* or the condition, not-*C* satisfied, but this relativity can be removed by existential quantification, for example in comparisons like the following:

- (i) "*x* is better than *y* with reference to some condition you want satisfied,"
- (ii) "*x* is better than *y* with reference to some condition which everyone wants satisfied at all costs."

These have action-guiding force in the direction of choosing the better, no matter what the wants of the hearer, though in (i) the question of conflicting wants or purposes is left open, so the force is only *prima facie*. However, since no specific reference condition is mentioned, there is no risk of some hearers not wanting it satisfied, so in neither case can some hearers claim to be given reason for choosing the worse. (A similar use of existential quantification can remove the relativity to evidence otherwise inherent in "*p* is probable.")

(D4) We can now see how people who started off using the logicist concept "Better" as defined above, might, in time, come to use the word "Better" with a different sense, in certain contexts. For example, it might become customary to leave out phrases like "with reference to some condition which you want satisfied," the existential implication being taken for granted when no reference condition was mentioned. Then "this is better than that" would\* always give *prima facie* reason for choosing this rather than that, as explained above.

In time, this action-guiding force would come to be associated directly with "Better," so that it acquired a new meaning and could be used intelligibly in non-descriptive speech acts without any reference to a basis of comparison, explicit or implicit. Of course, no true or false proposition could then be expressed, and there would be nothing for "Better" to interact with to generate descriptive criteria of betterness though this issue would be likely to be confused by lingering associations with the previous descriptive use. The new use, or uses, would conform more closely to an emotivist, attitudinist, or prescriptivist analysis, and some philosophers would regard this kind of meaning as central or in some sense primary, even if the other descriptive use continued (e.g., where the reference condition was made explicit), owing to the difficulty of thinking of any other way of explaining how "Better" could occur in such a wide range of contexts without changing its meaning.

Failing to think of the logicist analysis, they might even say that  $x$  is better than  $y$  with reference to satisfying  $C$  expressed a hypothetical commitment or prescription, to choose  $x$  rather than  $y$  if one wanted  $C$  satisfied, other things being equal. Apparent logical relations (e.g., entailment) between descriptive statements and these hypothetical commissives would be explained away as being due to the "logical oddness" of not choosing what satisfies one's acknowledged desires. Perhaps something like this little story has already happened in reality?

(D5) Another illuminating possibility is that in a (primitive?) society where the logicist concept "Better" was used, it might become customary for certain commonly used reference conditions to be left unstated, for example being conducive to the general happiness, or being in accordance with the will of God, or the King. In time such a basis would seem to be redundant: it would already be part of the meaning of "Better" to refer to the standard basis, unless otherwise qualified.

Another, more subtle, possibility is that some specific weighing-up method (e.g., one referring to conduciveness to normal human aims) might always be used for weighing up different respects and circumstances, in cases where things were being compared neither of which was better in all respects or in all circumstances, with reference to  $C$ . This too might lead to the feeling that this weighting factor was somehow part of the meaning of "Better," except, perhaps, where an explicit qualification cancelled this implication. In both cases, we should have a use of "Better" in which reference to a particular basis, or part of a basis, was part of its *meaning*, and not just a consequence of the interaction between its meaning and the context: in this use the basis would be "ossified." Concentration on examples of this use would lead some philosophers to put forward naturalistic analyses of "better" in terms of descriptive criteria for betterness.

To such philosophers the use where an explicit basis implied different non-standard criteria of betterness (e.g., "This is a much better poison for killing old ladies quickly without leaving traces") would be inexplicable, as would non-descriptive uses of the sorts referred to previously.

(D6) Prescriptive and descriptive uses of "better" and other evaluative words, though easily intelligible in their own right, seem to be given a new unity by being accounted for as derived from the logicist use, even if there is no historical accuracy in the above stories about alterations in the meaning of "Better." However, there is a type of use which is not so easy to understand in its own right, and is not so easy to explain away: the type of use illustrated by "This just *is* better (good, right, wrong, etc.), not merely in relation to this or that purpose or aim or end." Of course, *some* such uses can be given a non-assertive analysis, but occasionally people do mean to assert something with this form of words.

I believe that this, like many metaphysical uses of language, has to be explained in terms of the extrapolation of perfectly sound concepts into contexts which subtly undermine the presuppositions of their use, in such a way that although something is said which has a kind of meaning, it is nevertheless fundamentally confused and incapable of being true or false. This is similar to the mistake of trying to make non-relative statements about movement or spatial position, a mistake which is by no means *trivial*, as the history of science shows. (E.g., "This can move, *that* can move, and so can that and that .... surely it is possible for *everything* to move?") Analogously people might somehow come to believe that there is an "ultimate" basis of comparison, in some way more fundamental than all others, relative to which all others can be compared. This belief, however confused, gives sense, of a sort, to comparisons relative to an absolute basis, and accounts for uses of "better" which do not fit into emotivist, prescriptivist, or crude naturalist moulds.

An intrinsic, or absolute, use of "better" then can be thought of as a "secondary sense" of the logicist use.[2] This topic really needs more discussion than there is space for here.

(D7) It should be clear from the above discussion that no claim is made that all uses of "better" can conform to the definition in purely logical terms. In fact, the set of ordinary uses seems to be a mixture of *at least* four things (a) the logicist use, (b) the non-descriptive uses discussed by emotivists and prescriptivists, where there is no basis of comparison, (c) "crude naturalistic" uses where a particular basis (or part of a basis) has become part of the meaning of "better" and (d) the metaphysical or absolute use based on belief in an absolute frame of reference.

Of course, there are various uses which can be derived from the logicist use by making minor modifications in the definition, as where it is implied that "a miss is as good as a mile." (This is not always implied, e.g., in "Your aim is getting better even though you still cannot hit the target"!) Further, even when the use of "better" does conform to the logicist pattern this may be obscured by the use of indirect means of indicating the precise basis of comparison, as in the clock example in B3, and in some cases the basis actually used may not divide up into *C*, *R*, *S*, and *Z* in a unique way. Despite all this, the logicist concept is an illuminating idealization, as I have tried to show. It might even be argued that an explicit attempt to stick to the logicist concept would make much moral and political controversy more tractable, to say nothing of the added clarity that might be given to consumer guides.

Quite apart from questions of practical applications, the above analysis may shed new light on some philosophical problems not so far mentioned. For example, one of the many problems of induction can be formulated as "What makes some predictive policies better than others?," and I have already hinted at some ways of clarifying this question in the latter half of [3]. A related application would be the replacement of subjective utility scales in Games Theory and Decision Theory with an order of merit objectively determined by a basis of comparison. Returning to moral philosophy, it seems to be possible to clarify the meaning of "ought" by starting from statements of the form "It ought to be the case that *p*" and analyzing these (in some cases) as being elliptical for "Relative to the basis *B*, *p* is (or would be) better than other members of the class of possible states of affairs *Z*."

The relation between "good" and "better" is somewhat more complicated, and involves elements of extreme vagueness, but is also worth exploring. Finally, it should be possible to shed new light on the problem of the nature of moral judgments by discussing what makes a basis of comparison a moral one. These and other developments will have to wait for another occasion.

#### FOOTNOTES

[1] Logical entailment is meant. By allowing the circumstances *S* to include the holding of certain causal laws we avoid mentioning more general relations.

[2] Cora Diamond, 'Secondary sense' in *Proceedings of the Aristotelian Society*, Volume 67 (1966-7), pp 189-208.

[3] A.Sloman 'Predictive Policies: What makes some better than others?', in *Proceedings of the Aristotelian Society, Supplementary Volume*, Volume LXI (1967), pp 77-94

[4] A.Sloman, "'Ought" and "Better"', in *Mind*, Vol 79, 1970, pp 385-394.

NOTE 20 Oct 2002

There's an interesting paper by E.P. Brandon, discussing ellipsis of the sort analysed here, but in a more general context:

E.P. Brandon

Ellipsis: History and Prospects *Informal Logic*, vol. VIII.2, Spring 1987, pp. 93-103

<http://www.uwichill.edu.bb/bnccde/epb/ellhp.html>