Grading, A Study in Semantics
Author(s): Edward Sapir
Source: *Philosophy of Science*, Vol. 11, No. 2 (Apr., 1944), pp. 93-116
Published by: The University of Chicago Press on behalf of the Philosophy of Science Association
Stable URL: https://www.jstor.org/stable/184355
Accessed: 04-11-2019 14:35 UTC

GRADING, A STUDY IN SEMANTICS

EDWARD SAPIR

1. THE PSYCHOLOGY OF GRADING

The first thing to realize about grading as a psychological process is that it precedes measurement and counting. Judgments of the type "A is larger than B" or "This can contains less milk than that" are made long before it is possible to say, e.g., "A is twice as large as B" or "A has a volume of 25 cubic feet, B a volume of 20 cubic feet, therefore A is larger than B by 5 cubic feet," or "This can contains a quart of milk, that one 3 quarts of milk, therefore the former has less milk in it." In other words, judgments of quantity in terms of units of measure or in terms of number always presuppose, explicitly or implicitly, preliminary judgments of grading. The term *four* means something only when it is known to refer to a number which is "less than" certain others, say *five*, *six*, *seven*, arranged in an ordered series of relative *mores* and *lesses*, and "more than" certain others, say *one*, *two*, *three*, arranged in an ordered series of relative *mores* and *lesses*. Similarly, *a foot* as a unit of linear measure has no meaning whatever unless it is known to be more than some other stretch, say *an inch*, and less than a third stretch, say *a yard*.

Judgments of "more than" and "less than" may be said to be based on perceptions of "envelopment." If A can be "enveloped by" B, contained by it, so placed in contact with B, either actually or by the imagination, as to seem to be held within its compass instead of extending beyond it, it is judged to be "less than" B, while B is judged to be "more than" A. With only two existents of the same class, A and B, the judgments "A is *less than* B" and "B is *more than* A" can be translated into the form "A is *small*" and "B is *large*." In the case of the two cans of milk, we may say "There is *little* milk in this can" and "There is *much* milk in that can." Again, if there are three men in one room and seven in another, we may either say "The first room has *fewer* men in it *than* the second" and "The second room has *more* men in it *than* the first" or, if we prefer, "The first room has *few* men in it" and "The second room has *many* men in it."[1] Such contrasts as *small* and *large*, *little* and *much*, *few* and *many*, give us a deceptive feeling of absolute values within the field of quantity comparable to such qualitative differences as *red* and *green* within the field of color perception. This feeling is an illusion, however, which is largely due to the linguistic fact that the grading which is implicit in these terms is not formally indicated, whereas it is made explicit in such judgments as "There were *fewer* people there *than* here" or "He has *more* milk *than* I." In other words, *many*, to take but one example, embodies no class of judgments clustering about a given quantity norm which is applicable to every type of experience, in the sense in which *red* or *green* is applicable to every experience in which color can have a place, but is, properly speaking, a purely relative term which loses all significance when deprived of its conno-

[1] "Few" and "many" in a relative sense, of course. More of this anon.

tation of "more than" and "less than." *Many* merely means any number, definite or indefinite, which is *more than* some other number taken as point of departure. This point of departure obviously varies enormously according to context. For one observing the stars on a clear night thirty may be but "few," for a proof-reader correcting mistakes on a page of galley the same number may be not only "many" but "very many." Five pounds of meat may be embarrassingly "much" for a family of two but less than "little" from the standpoint of one ordering provisions for a regiment.

2. DEGREES OF EXPLICITNESS IN GRADING

We may bring these remarks to a focus by saying that all quantifiables (terms that may be quantified) and all quantificates (terms to which notions of quantity have been applied) involve the concept of grading in four degrees of explicitness.

(1) Every quantifiable, whether existent (say *house*) or occurrent (say *run*) or quality of existent (say *red*) or quality of occurrent (say *gracefully*), is intrinsically gradable. No two houses are exactly identical in size nor are they identical in any other feature that can be predicated of them. Any two houses selected at random offer the contrast of "more" and "less" on hundreds of features which are constitutive of the concept "house." Thus, house A is higher but house B is roomier, while existent C is so much smaller than either A or B that it is "less of a house" than they and may be put in the class "toy" or at best "shack." Similarly, the concept of "running," involving, as it does, experience of many distinct acts of running which differ on numerous points of "more" and "less," such as speed, excitement of runner, length of time, and degree of resemblance to walking, is as gradable as that of "house." Different examples of "red" similarly exhibit "mores" and "lesses" with respect to intensity, size of surface or volume characterized as red, and degree of conformity to some accepted standard of redness. And "gracefully" is quite unthinkable except as implying a whole gamut of activities which may be arranged in a graded series on the score of gracefulness. Every quantifiable, then, not yet explicitly quantified, is gradable. Such terms may be called *implicitly gradable but ungraded.*

(2) As soon as a quantifiable has been quantified, the resulting quantificate necessarily takes its place in an infinite set of graded quantificates. Thus, *three houses* and *the whole house* belong to infinite sets in which they are respectively "less than" *four houses, five houses, six houses,* $\cdots$, and "more than" *half of the house, a third of the house, a fourth of the house,* $\cdots$. Such terms may be called *implicitly graded by quantification.* The process of grading is here of interest only insofar as quantification is impossible without it.

(3) Instead of directly quantifying a quantifiable in terms of count or measure, e.g. *one hundred men* or *a gill of milk*, one may content oneself with an indirect quantification by means of quantifiers which are thought of as occupying positions in a sliding scale of values of "more" and "less," e.g. *many men* or *a little milk.* Such terms may be called *quantified by implicit grading.* Here the grading is of essential interest but is assumed as accomplished rather than stated as

taking place. Such terms as *many* are psychologically midway between terms like *more than* and *hundred*. First, a set A is perceived as capable of envelopment by another set B, which latter is then declared to be "more than" A. Next, B is declared to be "many," the reference to sets of type A_1, A_2, A_3, $\cdots$, all of which are "less than" B, being purely implicit. Finally, the "many" of B is discovered to consist of a definite number of terms, say "one hundred," at which point grading as such has ceased to be of interest. In the realm of quantity "one hundred" is a gradable but ungraded absolute in approximately the same sense in which in the realm of existents "house" is a gradable but ungraded absolute.

(4) Instead, finally, of quantifying by means of terms which grade only by implication we may grade explicitly and say, e.g., "*More men* are in this room *than* in that." Such a statement emphasizes the fact of grading itself, the quantifying judgment (e.g. "*Many men* are in this room but *few* in that" or "*Few men* are in this room but *even fewer* in that") being left implicit. Such terms as "more men" may be called *explicitly graded and implicitly quantified.*

The following scheme conveniently summarizes the grading gamut:

1. Implicitly gradable but ungraded: *house; houses*
2. Implicitly graded by quantification: *half of the house; a house 20 ft. wide; ten houses*
3. Quantified by implicit grading: *much of the house; a large house; many houses*
4. Explicitly graded and implicitly quantified: *more of the house (than); a larger house; more houses (than)*

3. GRADING FROM DIFFERENT POINTS OF VIEW

Only the last two types of terms are of further interest to us here. We shall briefly refer to the quantifying elements of terms of class 3 as *implicitly graded quantifiers*, to explicitly grading terms as *graders* (*more* than, *less* than), and to the implicitly quantifying elements of terms of class 4 as *explicitly grading quantifiers*. It is very important to realize that psychologically all comparatives are primary in relation to their corresponding absolutes ("positives"). Just as *more men* precedes both *some men* and *many men*, so *better* precedes both *good* and *very good*, *nearer* (= *at a less distance from*) precedes both *at some distance from* and *near* (= *at a small distance from*). Linguistic usage tends to start from the graded concept, e.g. *good* (= *better than indifferent*), *bad* (= *worse than indifferent*), *large* (= *larger than of average size*), *small* (= *smaller than of average size*), *much* (= *more than a fair amount*), *few* (= *less than a fair number*), for the obvious reason that in experience it is the strikingly high-graded or low-graded concept that has significance, while the generalized concept which includes all the members of a graded series is arrived at by a gradual process of striking the balance between these graded terms. The purely logical, the psychological, and the linguistic orders of primacy, therefore, do not necessarily correspond. Thus, the set *near, nearer, far, farther*, and *at a normal distance from* and the set *good, better, bad, worse, of average quality*, show the following orders of complication from these three points of view:

A. LOGICAL GRADING:

Type I. *Graded with reference to norm:*

(1) *Norm: at a normal distance from; of average quality*

(2) *Lower-graded: at a less than normal distance from* = *nearer* or *less far* (*from*) (explicitly graded), *near* or *not far* (*from*) (implicitly graded); *of less than average quality* = *worse* or *less good* (explicitly graded), *bad* or *not good* (implicitly graded)

(3) *Upper-graded: at a more than normal distance from* = *farther* or *less near* (explicitly graded), *far* or *not near* (implicitly graded); *of more than average quality* = *better* or *less bad* (explicitly graded), *good* or *not bad* (implicitly graded)

Type II. *Graded with reference to terms of comparison:*

(1) *Lower-graded: at a less distance than* = *relatively nearer* or *relatively less far* (explicitly graded), *relatively near* or *relatively not far* (implicitly graded); *of less quality than* = *relatively worse* or *relatively less good* (explicitly graded), *relatively bad* or *relatively not good* (implicitly graded)

(2) *Upper-graded: at a greater distance than* = *relatively farther* or *relatively less near* (explicitly graded), *relatively far* or *relatively not near* (implicitly graded); *of greater quality than* = *relatively better* or *relatively less bad* (explicitly graded), *relatively good* or *relatively not bad* (implicitly graded).

NOTE ON A (Logical Grading). In type I, "graded with reference to norm," any "nearer" or "near" is nearer than any "farther" or "far," any "worse" or "bad" is worse than any "better" or "good"; correlatively, any "farther" or "far" is farther than any "nearer" or "near," any "better" or "good" is better than any "worse" or "bad." But in type II "graded with reference to terms of comparison," "nearer" and "near" do not need to be near but may actually, i.e. according to some norm, be far, "worse" and "bad" do not need to be bad but may actually be good; correlatively, "farther" and "far" do not need to be far but may actually be near, "better" and "good" do not need to be good but may actually be bad. Hence specific "nears" and "bads" may factually be respectively farther and better than specific "fars" and "goods."

A warning: These are logical terms, not terms of actual usage, which exhibit great confusion. In certain cases usage preferentially follows type I, e.g. "more brilliant" and "brilliant" connote, as a rule, some degree of noteworthy ability, "more brilliant" being rarely equivalent merely to "not so stupid"; "good" follows type I, but "better" follows type II, being equivalent to "relatively better, not so bad," e.g. "My pen is *better than* yours, but I confess that both are bad" (on the other hand, "A is *more brilliant than* B, but both are stupid" is meaningless except as irony, which always implies a psychological transfer); "near" tends to follow type I, "nearer" follows type II, but "near" may frequently be used like a type II term, e.g. "From the point of view of America, France is on the *near* side of Europe," i.e. "*nearer than* most of Europe, though actually far." Interestingly enough, the correlatives of these terms do not exactly correspond. "Stupid" and "less stupid" follow type I, "less stupid" being never equivalent to "more brilliant" (except, again, ironically); "less brilliant" is still "brilliant" as a rule, just as "less stupid" is still "stupid." "Bad" and "less bad," differing in this respect from "good" and "better," both follow type I; "less bad" is still "bad" but "better" (with reference to another

term) may be even worse. (The "more" of inverse terms, e.g. "more stupid" and "worse," has a negative direction, as we shall see later.) "Far" tends to follow type I, "farther" follows type II, but "far" may frequently be used like a type II term, e.g. "He is sitting at the *far* end of the table," i.e. "at the end that is *farther*, though actually near." Needless to say, a logical analysis must proceed regardless of linguistic usage. On the whole, usage tends to assign comparative terms to type II of grading, positive terms to type I of grading, though this tendency never hardens into a definite rule. The linguistic types will be tabulated under C below.

According to strict logic, we should start from, say, *good = of average quality* (type I) or *of a certain quality* (type II) and grade all other qualities as follows:

Type I: *better, less good* (explicit), corresponding to ordinary *better, worse; good indeed, indeed not good* (implicit), corresponding to ordinary *good, bad.*

Type II: *relatively better, relatively less good* (explicit); *relatively good indeed, relatively indeed not good* (implicit).

How embarrassing logically such linguistic couplets as *good*:*bad*, *far*:*near*, *much*:*little* really are comes out in asking a question. "How *good* is it?" "How *far* was he?" and "How *much* have you?" really mean "Of what *quality* is it?" "At what *distance* was he?" and "What *quantity* have you?" and may be answered, with a superficial character of paradox, by "Very bad," "Quite near," and "Almost nothing" respectively.

B. Psychological Grading (*a* is graded with reference to *b*, which is either some other term comparable to *a* or stands for some norm):

Type I. *Open-gamut grading:* a, b, c, $\cdots$, n.

(1) *Explicit: a is less than b = b is more than a: a is nearer than b = b is farther; than a, a is worse than b = b is better than a.* Similarly for a:c; $\cdots$; a:n; b:c. $\cdots$; b:n; $\cdots$; c:n; $\cdots$

(2) *Implicit: a is little = b is much: a is near = b is far, a is bad = b is good.* Similarly for other cases.

Type II. *Conjunct closed-gamut grading:* a, b, c, $\cdots$, n [ ] o, p, q, $\cdots$, t (e.g series of colors graded from *a*, vivid green, to *t*, vivid yellow).

(1) *Explicit: a is less green than b = b is greener than a;* $\cdots$ [judgments of more or less green or yellow] *o is less yellow than p = p is yellower than o;* $\cdots$ In the brackets [ ] we have indeterminate field of marginal greens and marginal yellows, in which a_1:a_1 *is greener than* $b_1 = b_1$ *is yellower than* $a_1 = a_1$ *is less yellow than* b_1. In other words, at some point, *n*, crest of green is reached and *more green* as grader gives way to *more yellow*, with establishment in transition zone, [ ], of secondary *more green* always coming before *less green.*

(2) *Implicit: a, b, c, $\cdots$, n are shades of green;* [judgments of green or yellow]; *o, p, q, $\cdots$, t are shades of yellow.* In the brackets [ ] we have *yellowish greens* and *greenish yellows.*

Type III. *Open-gamut grading (I) interpreted in terms of conjunct closed-gamut grading (II):* "a, b, c, $\cdots$, n" interpreted, by analogy of (II), as "a, b, c, $\cdots$, g [ ] h, i, j, $\cdots$, n [ ]."

(1) *Explicit: a is less than b = b is more than a: a is less far than b = b is farther than a, a is less good than b = b is better than a; · · ·* [ ] *h is less near than i = i is nearer than h, h is less bad than i = i is worse than h; · · ·.* In transition zone [ ] we have psychologically indeterminate field of marginal fars (goods) and marginal nears (bads), in which a_1:b_1 is interpreted as b_1 *is less far (good) than* $a_1 = a_1$ *is farther (better) than* $b_1 = b_1$ *is nearer (worse) than* $a_1 = a_1$ *is less near (bad) than* b_1. In other words, at some point, g, crest of far (good) is reached and *farther (better)* as grader gives way to *nearer (worse)*, with establishment in transition zone, [ ], of secondary *farther (better)* always coming before *less far (less good)*. Type III, however, differs from type II in that it has a second psychologically indeterminate field of marginal nears (bads) and marginal fars (goods), in which h_1:i_1 is interpreted as i_1 *is less near (bad) than* $h_1 = h_1$ *is nearer (worse than* $i_1 = i_1$ *is farther (better) than* $h_1 = h_1$ *is less far (good) than* i_1. In other words, at some point, n, crest of near (bad) is reached and *nearer (worse)* as grader gives way to *farther (better)*, with establishment in second transition zone, [ ], of secondary *nearer (worse)* always coming before *less near (less bad)*. Obviously, our second [ ] brings us back to a, b, c, · · ·, g. Type III of psychological grading *(far-near, good-bad)* is circular in configuration, as we shall see more clearly later on, while type II *(violet-blue-green-yellow-orange-red)* is successively semicircular. Type II may be called *conjunct semicircular closed-gamut grading* or *conjunct closed-gamut grading with open ends;* type III, *conjunct circular closed-gamut grading* or *conjunct closed-gamut grading with meeting ends.*

(2) *Implicit: a, b, c, · · ·, g are far (good) in varying degree; h, i, j, · · ·, n are near (bad) in varying degree.* In first transition zone [ ] we have psychological blends of type *not near (bad), not really near (bad)*, in second transition zone [ ], psychological blends of type *not far (good), not really far (good).*

Type IV. *Disjunct closed-gamut grading:* a, b, c, · · ·, g [e.g. neither blue nor yellow] o, p, q, · · ·, t.

(1) *Explicit: a is less blue than b = b is bluer than a; · · ·* [zone of indifference in which neither *blue* nor *yellow* strictly applies] *o is less yellow than p = p is yellower than o; · · ·.* There is no psychological interest in zone of indifference, [ ], which is only gradually spanned with increasing experience and demand for continuity. When zone of indifference [ ] is recognized as h, i, j, · · ·, n, it may: (a), take on distinctive character, e.g. *green,* in which case type IV becomes identical with II, for with establishment of continuity certain blues now become *greenish blues, bluish greens* are created, and certain yellows now become *greenish yellows;* or (b), be characterized negatively, in which case we cannot do better than say *h is neither blue nor yellow, neither h nor i is blue or yellow, but h is more nearly blue than i and i is more nearly yellow than h, j is more nearly blue than yellow (is bluer than it is yellow), k is more nearly yellow than blue (is yellower than it is blue).* In other words, for grading are substituted other techniques, which have grading implications, e.g. intermediate placement *(between blue and yellow)*, goal-gauging *(nearly blue)*, graded goal-gauging *(more nearly blue, nearer yellow than)*, negation of alternatives *(neither blue nor yellow)*, compromise *(blue-yellow*[2]*)*.

[2] To be understood as theoretical tag for *green.*

(2) *Implicit: a, b, c, · · ·, g are shades of blue; o, p, q, · · ·, t are shades of yellow.* For zone of indifference [ ] see (1).

Type V. *Open-gamut grading* (I) *interpreted in terms of disjunct closed-gamut grading* (IV): "a, b, c, · · ·, n" interpreted, by analogy of (IV), as "a, b, c, · · ·, e [ ] j, k, l, · · ·, n."

(1) *Explicit: a is less hot, old, brilliant, good than b = b is hotter,* (*even*) *older, more brilliant,* (*even*) *better than a; · · ·* [zone of indifference in which neither *hot* nor *cold*, neither *old* nor *young*, neither *brilliant* nor *stupid*, neither *good* nor *bad* strictly applies] *j is less cold, young, stupid, bad than b = b is colder, younger, more stupid, worse than a; · · ·.* When zone of indifference [ ] is gradually recognized as f, g, · · ·, i, it may: (a), take on distinctive character, e.g. *temperate, middle-aged, of normal intelligence, of average quality*, such terms establishing filling-in norms rather than mores and lesses of primary fields (e.g. *more than middle-aged* rather than *more middle-aged, of more than normal intelligence* rather than *more normal*, which would generally be understood as an ellipsis for *more nearly normal*), in which case type V becomes identical with type I, f, g, · · ·, i being intercalated between j, k, l, · · ·, n and reversed field e, d, c, · · ·, a; or (b), be characterized negatively, e.g. *f if neither hot nor cold, neither f nor g is old or young but f is more nearly old than g, h is more nearly stupid than brilliant.* In other words, for grading are substituted other techniques, which have grading implication, e.g. intermediate placement (*betwixt old and young*), goal-gauging (*nearly good*), graded goal-gauging (*nearer cold than hot* = implicitly graded *cool*), negation of alternatives (*neither good nor bad*), compromise (*good or bad, depending on one's standard*).

(2) *Implicit: a, b, c, · · ·, e are hot, old, brilliant, good in varying degree; j, k, l, · · ·, n are cold, young, stupid, bad in varying degree.* For zone of indifference [ ] see (1).

NOTE ON B (Psychological Grading). It must be carefully borne in mind that these five psychological types of grading, which naturally do not preclude the possibility of still other, and more complex, grading configurations, are by no means mutually exclusive types. The same objective elements of experience, e.g. *good:bad*, may be graded according to more than one type. Thus, when we say "A is *better than* B," though A and B are both bad, we are obviously treating *better* as an incremental grader in an open series in which the movement is assumed to be toward the relatively good and away from the relatively bad. "A is *better than* B" therefore illustrates type I, open-gamut grading, which is the prototype of all logical grading. On the other hand, when we say "A is *worse than* B, which in turn is *fairly good*," we do not mean to imply that A too is perhaps not too far from good, rather that A belongs distinctly to the lower end of the gamut, that *good* and *bad* are psychologically distinct qualities (not, like logically graded terms of type I, merely a more and a less of a single quality), but that these distinct qualities are psychologically contiguous and capable of being fitted into a single series with two crests or maxima. All of this means that in this case we are fitting the concepts of *good* and *bad* into a conjunct closed-gamut grading scheme, and since the natural, or rather logical, type to which *good:bad* belongs

is type I, we speak of a transfer on the analogy of type II and create a blend type III. Finally, when we say "A is *better than* B but both are *good*, C is of quite a different order and is actually *bad*, while D, being *neither good nor bad*, is of no interest," we are thinking in terms of a type of grading in which psychologically distinct qualities are connected, by intercalation, into an open series of the disjunct closed-gamut grading type, namely type V.

Type I recognizes no crest, only a norm at best, which, in the logical form of the grading (A), sinks to an objective or statistical norm—in other words, an average. Type III recognizes two crests and two areas of blend, but no norm except at the points where psychology, via neutral judgments, fades away into logic. Type V recognizes two extreme and opposed crests and a trough of normality between them. Types I, II, and IV (*near:far*, *green:yellow*, *blue:yellow*) are given us directly through our sensations or perceptions. Type III is probably the most natural type for psychologically subjective, as contrasted with objective, judgments; even such simple contrasts as *near:far* and *good:bad* probably present themselves, first of all, as contiguous areas of contrasting quality, not as points above or below a norm with which they intergrade in an open series. After considerable experience with socially determined acceptances and rejections, familiarities and strangenesses, contrasting qualities are felt as of a relatively absolute nature, so to speak, and *good* and *bad*, for instance, even *far* and *near*, have as true a psychological specificity as *green* and *yellow*. Hence the logical norm between them is not felt as a true norm but rather as a blend area in which qualities grading in opposite directions meet. To the naive, every person is either good or bad; if he cannot be easily placed, he is rather part good and part bad than just humanly normal or neither good nor bad. Type V represents the most sophisticated type of judgment, for it combines psychological contrast with the objective continuum of more and less and recognizes the norm as a true area of primary grading, not as a secondary area produced by blending.

We can easily see now that the confused psychological state of our grading judgments and terminology, also the unsatisfactory nature of our logical grading terminology, is due to a number of factors, the chief of which are: 1, the tendency to conceive of certain points in an evenly graded series as primarily distinct and opposed to each other instead of directly capable of connection by grading in terms of more and less (this tendency is, of course, carried over even into the realm of abstract quantity, and even a mathematically trained person may find it somewhat paradoxical to call 7 "many" and 100 "few," though the 7 belong to a context in which 9, say, is the maximum, and 100 to another context in which 500 is the norm); 2, the contrary direction of grading in two such contrasted qualities, the "more" of one being logically, but not quite psychologically, equivalent to the "less" of the other (e.g. logically *better* = *less bad*, *worse* = *less good*, but psychologically this is not quite true; contrast *nearer* = *less far*, *farther* = *less near*, where logic and psychology more nearly correspond); 3, a preference for the upper or favored quality, in its relative sense, as grader (e.g. *better* and *heavier* more easily serve as incremental upward graders, *of more quality* and *of more*

weight, than do *worse* and *lighter* as incremental downward graders; this hangs together with 5); 4, the conflict with psychological grading brought in by a more sophisticated attempt to establish an absolute continuity of grading in a logical sense (problems of interpretation of how, of two contrasted terms, a and b, "more a" is related to "less b," and of whether the neutral area between a and b is to be understood as a "both and" area, a "neither nor" area, or logically as a tie between a and b, which thereupon lose their distinctiveness and one of which, in consequence, must change its direction of grading so that a complete open-gamut grading may be established); 5, the different psychological value of a given grade according to whether it is reached positively, e.g. *fairly good* from *poor*, or negatively, e.g. *fairly good* from *very good* (the latter "fairly good" is almost necessarily an "only fairly good," i.e. a "fairly good" with emotional coloring of "poor").

C. Linguistic Grading (elaboration of terms):

Type I. *Explicit:*

(1) *Abstract: more than, less than.* These terms are general upward and downward grading terms and carry no implication as to class of graded terms or as to presence or absence of norms or crests. Certain other terms, of originally specialized and normated application, such as *greater, larger*, and *smaller*, have taken on abstract significance (e.g. *a greater amount of* = *more* ··· *than, a larger number of* = *more* ··· *than, a smaller number of* = *less, fewer*). *More* and *less* apply to both count and measure. *Fewer*, as equivalent of *less*, applies to counted terms only, e.g. *fewer people* = *less people*, but is secondary as explicit grader, being based on *few*, which is implicitly graded. There is no special count term in English corresponding to *more*. *More* and *less* are old comparatives in form, but are not really referable to *much* and *little*.

(2) *Specialized.* There are no explicit specialized graders in English which are not based, generally by use of *more* and *less* or suffixing of comparative *-er*, on linguistically primary graded terms which imply above or below a logical norm. Thus, *heavier*, based on *heavy* (= *of more than average weight*), means *heavy to a greater extent* (*than another heavy object*) to begin with, and only secondarily takes on, in its specialized sphere of weight, the purely relative grading quality of *more;* similarly with *less heavy* as parallel to *less*. Such terms as *of more weight* or *more weighted, of less linear extent, of more temperature, less in volume* are not in ordinary use and have to be replaced by comparatives of such terms as *heavy, short, warm, small*, which are not neutral in reference as to graded area.

Type II. *Implicit:*

(1) *Abstract: much* and *little* for measured terms; *many* and *few* for counted terms. Note that implicitly graded terms can themselves be taken as new points of departure for grading, e.g. *less than many, more than a few, many* and *a few* being respectively arrived at by grading upward and downward from a certain norm. "How *much*?" and "How *many*?" show how helpless language tends to be

in devising neutral, implicitly graded abstract terms; linguistically upper-graded terms for logically neutral ones are also used in such terms as *so and so many, as much as.*

(2) *Specialized:* A great variety of terms, most of which appear as pairs of opposites. We may distinguish:

(a) *One-term sets* (graded as *more* and *less;* there is no true contrary): *capacious, silvery, distant* (in its strictly scientific sense of *at such and such a distance, near* and *far* being "psychologized" forms of it). Such terms are either of notions of a relatively ungradable type or are of scientific rather than popular application. Such terms as "how *far?*", "how *long?*", "2mm. *wide,*" "how *warm?*", "*as heavy as* one tenth of a gram," "*old enough* to know better" again show how helpless language tends to be in devising specialized single terms which are logically neutral as to grading.

(b) *Two-term sets.* Two types are both common: 1, *linguistically unrelated terms* indicating opposites, e.g. *good:bad, far:near, high:low, long:short, full:empty, heavy:light, friend:enemy, hard:soft, old:young;* 2, *linguistically related terms* which are implicitly affirmative and explicitly contrary (formally negative) terms, e.g. *friendly:unfriendly* (also type (b) 1, *friendly:hostile, inimical*), *usual:unusual, normal:abnormal, frequent:infrequent, discreet:indiscreet.* These formally negative terms frequently take on as distinctive a meaning as type (a) contraries and can be as freely graded, "upward" and "downward," e.g. *more* and *less infrequent* are as good usage as *rarer* and *less rare.*

NOTE ON (*b*), *Two-term sets.* As regards grading relations, two-term sets (contrary terms) tend to fall into three types:

I. SYMMETRICALLY REVERSIBLE, e.g.

far, farther — *near, nearer*

:

not near, less near — *not far, less far*

II. PARTLY REVERSIBLE, e.g.

good, better — *bad, worse*

:

not bad, less bad — *not good, less good*

III. IRREVERSIBLE, e.g.

brilliant, more brilliant — *stupid, more stupid*

:

not stupid, less stupid — *not brilliant, less brilliant*

Note that implicitly graded specialized terms can themselves be taken as new points of departure for grading, e.g. *more than good, less than bad = better than bad.*

(c) *Three-term sets.* These are not as common as type (b) (two-term sets) in ordinary usage but are constantly required for accurate grading. Generally one takes opposite terms of type (b) and constructs a middle term by qualifying the upper-graded one, e.g. *bad, averagely* (or *moderately* or *normally*) *good, good.* Sometimes a middle term comes in by way of transfer from another field, e.g. *bad,*

fair, good. Specific middle terms, however, tend to gravitate toward one or the other of the two opposites, e.g. *fair*, on the whole, leans more to good than bad. If we further insert *poor*, again transferred from another field, we get type (d), four-term sets: *bad, poor, fair, good.* (The reason why *poor*, when transferred to the *bad:good* scale, does not quite fall in with *bad* is that *poor:rich* has not quite as great a scale amplitude as *bad: good* (zero to maximum) but is felt as corresponding rather to a scale of little to maximum. *Zero, lower average, higher average, much* is the implicit measure of *having nothing* (= *destitute, penniless*) *having little* (= *poor*), *having a moderate amount* (= *fairly well off*), *having much* (= *rich*). Hence *poor* stresses *something, though little* and cannot entirely parallel *bad*, which includes its logical extreme.) On the whole, three-term sets do not easily maintain themselves because psychology, with its tendency to simple contrast, contradicts exact knowledge, with its insistence on the norm, the "neither nor." True three-term sets are probably confined to such colorless concepts as: *inferior, average, superior*, in which the middle term cannot well be graded.

(d) *Four-term sets: cold, cool, warm, hot.* These are formed from type (b) by grading each of the opposites into a psychologically lower and higher. The new terms become psychological opposites (or sub-opposites) of a smaller scale. It is important to note that the two middle terms do not correspond to the middle term of type (c) (three-term sets), i.e. *warm* is psychologically no nearer to *cool* than *superior* is to *inferior*. In other words, *cold-cool* contrasts with *warm-hot* precisely as does *very bad-bad* with *good-very good.* The problem of connecting *cool* and *warm* has to be solved, psychologically, by blend-grading (*coolish; warmish, lukewarm*) or, more objectively, by norming (*of ordinary, normal, temperature*). As usual, the normed term is quasi-scientific rather than popular in character.

More complex linguistic sets are of course possible. We may summarize these analyses of the grading process by saying that logical grading is of the open-gamut type and may be with or without reference to an objective norm or statistical average, while psychological grading and linguistic grading tend strongly to emphasize closed-gamut grading, whether of the conjunct or disjunct type, and have difficulty in combining the notions of grading and norming into that of a normed field within which grading applies. Furthermore, it is worth noting that the difference between explicit and implicit grading is of little importance logically, of considerable importance psychologically (with constant conflict of the relative and fixed points of view), and of paramount importance linguistically.

4. IMPLICATIONS OF MOVEMENT IN GRADING

The main operational concepts that we have used in developing our notions of grading up to this point have been: the successive envelopment of values by later ones (giving us a set of "lesses" in an open series); the establishment of a norm somewhere in such an open series; the placement of values "above" and "below" this norm; the contrasting of specific gradable values which belong to the same class; the establishment of continuity between such contrasting values

by means of intercalation; and certain implicit directional notions (upward,[3] e.g. *good:better, bad:less bad;* downward,[3] e.g. *good:less good, bad:worse;* contrary, e.g. *good-better:bad-worse*).

The directional ideas so far employed have merely implied a consistent increase or decrease in value of the terms which are seriated and graded. Thus, of a set of terms "a, b, c, ···, n," in which a is less than any of the terms "b, c, ···, n," and b is less than any of the terms "c, ···, n," and c is less than any of the terms "··· n," and no term is more than n, we have established an upward grading direction, consistently from less to more, but the terms themselves are not necessarily thought of as having been arrived at either by moving up from a or down from, say, c. Logically, as mathematically, *b increased from a = b decreased from c.* Psychologically, however, and therefore also linguistically, the explicit or implicit trend is frequently in a specific direction. It is this tendency to slip kinaesthetic implications into speech, with the complicating effects of favorable affect linked with an upward trend and of unfavorable affect linked with a downward trend, that so often renders a purely logical analysis of speech insufficient or even misleading.

We can easily test the kinaesthetic aspect of grading by observing the latent direction and associated feeling tone of an implicitly graded term like "few." If some one asks me "How many books have you?" I may answer "A few," which is, on the whole, a static term which, though indefinite, takes the place of any fixed quantity, say 25, deemed small in this particular context. But if I answer, "I have few books," the questioner is likely to feel that I have said more than is necessary, for I have not only fixed the quantity, namely "a few," but implicitly added the comment that I might be expected to have a larger number. In other words, "few" suggests grading downward from something more, while "a few" is essentially noncommittal on the score of direction of grading. The difference here in implicit grading is not one of magnitude, but of direction only. The psychological relation between "a few" and "few" is very similar to the psychological relation between "nearly" and "hardly," which belong to the conceptual sphere of gauging.

Can "a few" be given an upward trend? Not as simply and directly as the change to "few" gives a downward trend, but there are many contexts in which the upward trend is unmistakable. If I am told "You haven't any books, have you?" and answer "Oh yes, I have a few," there is like to be a tonal peculiarity in the reply (upward melody of end of "few") which suggests upward grading from zero. Language, in other words, here ekes out the notional and psychological need for an upward-tending quantitative term as best it can. If I use "quite," which has normally an upward-tending feeling tone, and say "Quite a few," the kinaesthetic momentum carries me beyond the static "a few," so that "quite a few" is well on toward "a considerable number."

The kinaesthetic feeling of certain graded terms can easily be tested by trying

[3] "Upward" and "downward" are used in the sense of "in the direction of increase" and "in the direction of decrease" respectively. This purely notional kinaesthesis may be, and probably generally is, strengthened by a concomitant spatial kinaesthesis.

to use them with terms whose kinaesthetic latency is of a different nature and noting the baffled effect they produce due to implied contradictions of movement. Thus, we can say "barely a few" or "hardly a few" because "a few" is conceived of as a fixed point in the neighborhood of which one can take up a position or toward which one can move, positively or negatively. But "nearly few" is baffling, and even amusing, for there is no fixed "few" to be near to. "Hardly few" is psychologically improper too, for "hardly" suggests a falling short, and inasmuch as "few" is downwardly oriented, it is hard to see how one can fall short of it. "Hardly few" has the same fantastic improbability as the concept of A moving on to a supposedly fixed point B, which it "hardly" expected to reach, and finding that B was actually moving toward A's starting point, and eventually reaching it, without ever passing A. Again, "all but" requires a psychologically fixed term to complete it, e.g. "all but half," "all but a few." "All but few" suggests a remainder which is not even a remainder. Again, "all but quite a few," even if "quite a few" is no more factually than a small proportion of the whole, is psychologically difficult because "quite a few" is no more static than "few." The "all but" form is implicitly static, hence "all but few" and "all but quite a few" ring false, involving, as they do, down-tending and up-tending elements respectively.

5. THE CONCEPT OF EQUALITY

We are now in a position to arrive at a simple psychological conception of "equal to." "Equal to" may be defined as the quantitative application of the qualitative "same as," "more than" and "less than" being the two possible kinds of quantitative "different from." But it seems more satisfactory, on the whole, to define "equal to" in a more negative spirit, as a more or less temporary point of passage or equilibrium between "more than" and "less than" or as a point of arrival in a scale in which the term which is to be graded is constantly increasing or diminishing. In other words, if we take q as defined to begin with, we can give meaning to $a = q$ by saying that: (1) a is less than q to begin with, gradually increases while still less than q, and is later found to be more than q, having passed through some point at which it was neither less than nor more than q; or (2) a is more than q to begin with, gradually decreases while still more than q, and is later found to be less than q, having passed through some point at which it was neither more than nor less than q: or (3) a is less than q to begin with, gradually increases while still less than q, and finally rests at some point at which it is neither less than nor more than q; or (4) a is more than q to begin with, gradually decreases while still more than q, and finally rests at some point at which it is neither more than nor less than q. These four types of equality may be classified as:

I. Explicitly dynamic
- (1) While increasing toward and away from
- (2) While decreasing toward and away from

II. Implicitly dynamic { (1) Having increased toward / (2) Having decreased toward }

A fifth type of equality, that of kinaesthetic indifference, is the limiting or neutral type which alone is recognized in logic:

III. Non-dynamic: Statically "equal to."

So far are these psychological distinctions from being useless that, as a matter of fact, a little self-observation will soon convince one that it is hardly possible to conceive of equality except as a medium state or equilibrated state in an imagined back and forth of "more than" and "less than." It is safe to say that if we had no experience of lesses increasing and of mores decreasing, one could have no tangible conception of how obviously distinct existents, occurrents, and modes could be said to be "equal to each other" in a given respect.

6. THE CLASSIFICATION OF TYPES OF GRADING JUDGMENT

The classification of "equals" applies, of course, equally well to "mores" and "lesses," so that we have, psychologically speaking, 15 fundamental judgments of grading to deal with, of which the 3 logical ones ("more than," "equal to," and "less than") are the kinaesthetically neutral judgments. The best way to understand this enlarged grading scheme is to express it symbolically. Let $a \rightarrow q$ be understood to mean "a is less than q and is increasing toward it," $a \leftarrow q$ to mean "a is less than q and is decreasing away from it," $q \rightarrow a$ to mean "a is more than q and is increasing away from it," $q \leftarrow a$ to mean "a is more than q and is decreasing toward it." In other words, "to the left of" means "less than," "to the right of" means "more than," while an arrow pointing to the right means "increasing," an arrow pointing to the left means "decreasing." An arrow pointing downward will mean "having increased," an arrow pointing upward will mean "having decreased," and an arrow superimposed will mean "equal to, with implication of actual or prior movement." We then have the following symbolically expressed notional scheme of grading judgments which can be made of two entities of the same class, a and q, of which q is supposed to be known and fixed. In the symbolism a will be understood as the subject of the implied proposition.

TYPES OF GRADING JUDGMENT

I. Explicit dynamic	*Increasing*		
	1. $\rightarrow$ q	6. $\overrightarrow{\text{q}}$	11. q $\rightarrow$
	Decreasing		
	2. $\leftarrow$ q	7. $\overleftarrow{\text{q}}$	12. q $\leftarrow$
II. Implicit dynamic	*Increased*		
	3. $\downarrow$ q	8. $\underset{\downarrow}{\text{q}}$	13. q $\downarrow$
	Decreased		
	4. $\uparrow$ q	9. q$\uparrow$	14. q $\uparrow$

III. Nondynamic 5. $\left\{\begin{matrix}a=q\\q=a\end{matrix}\right\}$ 10. $\left\{\begin{matrix}a=q\\q=a\end{matrix}\right\}$ 15. $\left\{\begin{matrix}a>q\\q<a\end{matrix}\right\}$

These symbols may be read as follows:

1. "is being less than q, though increasing" (= "still falls short of")
2. "is being less than q, and decreasing" (= "falls shorter and shorter of")
3. "is less than q, though increased from still less" (= is still short of")
4. "is less than q, and decreased from more" (= "is even short of")
5. "a is less than q" (= is short of) = "q is more than a"
6. "is equalling q, on its way from less to more"
7. "is equalling q, on its way from more to less"
8. "is equal to q, having increased to it"
9. "is equal to q, having decreased to it"
10. "is equal to q"
11. "is being more than q, and increasing" (= "exceeds more and more")
12. "is being more than q, though decreasing" (= "still exceeds")
13. "is more than q, and increased from less" (= "is even in excess of")
14. "is more than q, though decreased from more" (= "is still in excess of")
15. "a is more than q" (= "is in excess of") = "q is less than a."

The symbols for nos. 5, 10, and 15 are of course the ordinary mathematical ones, $a < q$ and $q > a$ being considered equivalent notations. The sign of equality, $=$, may, if one likes, be looked upon as the neutralized forms of nos. 6 and 7: $\rightleftarrows$.

In order to give more reality to these theoretically distinct types of grading, it may be of some service to give simple examples of them. For this purpose we shall take *5* (*miles, pounds, hours*) as illustrative of q, thus applying our notions of grading to the sphere of quantity.

1. "He has run *less than five miles*" : $\rightarrow$ 5 (answer to question: "How far has he run by now?")

2. "He has *less than five hours* to finish his job" : $\leftarrow$ 5 (answer to question: "How much time can he count on to finish his job?")

3. "He ran until he came to a point that was *less than five miles* from his starting point": $\downarrow$ 5 (answer to question: "How far had he got when he stopped running?")

4. "He got weaker and weaker until he could lift *less than five pounds*" : $\uparrow$ 5 (answer to question: "How much could he still lift when he had to give up?")

5. "Jersey City is *less than five miles* from New York": a < 5 (answer to question: "How far [a, i.e. required distance] is Jersey City from New York?")

6. "He has run (*as much as*) *five miles*": $\overset{\rightarrow}{5}$ (answer to question: "How far has he run by now?")

7. "He has (*just, still*) *five hours* to finish his job: $\overset{\leftarrow}{5}$ (answer to question: "How much time can he count on to finish his job?")

8. "He ran until he came to a point that was (*just, as much as, already*[4]) *five miles* from his starting point": $\overset{\downarrow}{5}$ (answer to question: "How far had he got when he stopped running?")

9. "He got weaker and weaker until he could lift (*just, only, no more than*) *five pounds*": $\overset{\uparrow}{5}$ (answer to question: "How much could he still lift when he had to give up?")

10. "A is (*just*) *five miles* from B": a = 5 (answer to question: "How far [a] is A from B?")

11. "He has run *more than five miles*": 5 → (answer to question: "How far has he run by now?")

12. "He (*still*) has *more than five hours* to finish his job": 5 → (answer to question: "How much time can he count on to finish his job?")

13. "He ran until he came to a point that was (*even*) *more than five miles* from his starting point": 5 ↓ (answer to question: "How far had he got when he stopped running?")

14. "He got weaker and weaker until he could lift *hardly more than* five pounds": 5 ↑ (answer to question: "How much could he still lift when he had to give up?")

15. "Philadelphia is *more than five miles* from New York": 5 < a (answer to question: "How far [a] is Philadelphia from New York?")

7. AFFECT IN GRADING

It will be observed that such terms as *as much as, just, still, already, only, no more than, even, hardly*, and others not illustrated in our examples help along, as best they can, to bring out the latent kinaesthetic element in the logical concepts "less than," "equal to" and "more than" when these are applied to experience, but at best they are only a weak prop. Most languages suffer from the inability to express the explicitly dynamic, implicitly dynamic, and non-dynamic aspects of grading in an unambiguous manner, though the notional framework of fifteen grading judgments that we have developed is intuited by all normal individuals. Such English terms as we have suggested are really unacceptable for two reasons: 1, they are transfers from other types of judgment than dynamic and non-dynamic grading (e.g. "only" is properly an exclusive limiter; "hardly" and "just" are goal-gauging limiters; "still" has time implication, at least in origin); and 2, they unavoidably color the judgment with their latent affect of approval or disapproval (e.g. "as much as" smuggles in a note of satisfaction; "only" and "hardly" tend to voice disappointment).

[4]More idiomatic in German: *schon*.

Even the simple graders "more than" and "less than" tend to have a definite affective quality in given contexts. Thus, if a quantitative goal is to be reached by increase, say "ten pages of reading," *more than* necessarily has an approving ring (e.g. "I have *already* read *more than three pages*," though it may actually be less than four), *less than* a disapproving ring (e.g. "I have *only* read *less than eight pages*," though it may actually be more than seven). On the other hand, if the quantitative goal is to be reached by decrease, say "no more reading to do," *more than* has a disapproving ring (e.g. "I have *still more than three pages* to do," though actually less than four remain to be done), *less than* an approving ring (e.g. "I have *less than eight pages* to do," though more than seven pages remain to be done out of a total of ten). In other words, grading and affect are intertwined, or, to put it differently, *more than* and *less than* tend to have both an objective grading value and a subjective grading value dependent on a desired or undesired increase or decrease. This means that linguistic awkwardnesses arise when it is desired to combine an objective *more than* with a subjectively desired decrease or an objective *less than* with a subjectively desired increase. Thus, if the *more than three days* in "I have *more than three days* to wait" is to convey the approving connotation of "only four or five days," we cannot say "I have *only more than three days* to wait" (as contrasted with a possible *more than ten days*) but must recapture the note of approval by minimizing the implied excess, hence "I have *only a little more than three days* to wait." An approved *more than* (a slight quantity) in a desiredly decreasing scale, though logically defensible, goes against the psychological grain of language. Again, it is hard to say "I have *only more than fifty dollars* in the bank," for *fifty dollars* plus *a slight amount* (by implication) is on an upgoing trend, as it were. We have to grade down from *fifty-one dollars*, say, and say "I have *less than fifty-one dollars in* the bank." To put it differently, if $50.99 is disapproved of, it must be graded downward as *less than fifty-one dollars;* if $50.01 is approved of, it can be graded upward as *more than fifty dollars*. The difficult word *hardly* frequently reorients the normally implied affect, hence "I have *hardly more than three days* to wait" (approval), "I have *hardly more than fifty dollars* in the bank" (disapproval).

If we had a subjective grading symbolism that was independent of objective grading, it would be possible to convey very compactly every possible type of grading judgment—static, implicitly dynamic, and explicitly dynamic grades independently combined with neutral, approving, not disapproving, disapproving, and not approving affect. How complex, in actual speech, our grading judgments, or rather intuitions, really are from a psychological standpoint, however simple they may seem to be from a purely logical or merely linguistic standpoint, may be exemplified by considering the meanings of such apparently simple statements as "I have *three pages* to read," "I have *more than three pages* to read" and "I have *less than three pages* to read." In the first place, it makes a difference if "three pages" (or "reading matter equal to three pages") is conceived non-dynamically or dynamically, e.g. "three pages as an assigned task" (grade 10: non-dynamic "equal to") or "more than three pages in a rapidly accumulating series of MS pages submitted for approval" (grade 11: explicit dynamic increasing "more than") or "more than three pages still to do in the passage from a total

of ten pages to do to the goal of no pages left to do" (grade 12: explicit dynamic decreasing "more than") or "less than three pages yet accumulated in a long MS report which one desires to read" (grade 3: implicit dynamic increased "less than"). Ordinarily, the affective valuation involved in such statements does not clearly rise in consciousness because "more than" and "less than" pool the energies, as it were, of the grading process itself and the approval or disapproval of increase (growing exhilaration, growing fatigue) or decrease (growing relief, growing disappointment). We cannot possibly go into all the involvements of this very difficult field of inquiry, but a general idea of its nature may be had by considering one case, say the explicit dynamic decreasing forms of "less than" (grade 2), "equal to" (grade 7) and "more than" (grade 12).

Our type statements will be "less than three pages (to read)" "(still as much as) three pages (to read)" and "more than three pages (to read)." These will be

$$\overleftarrow{}$$

symbolized, in the first instance, by $\leftarrow 3$, 3, and $3 \leftarrow$ respectively. If, in the statement "I have less than three pages to read," the reading is conceived of as a task which is to be accomplished, say a certain amount of Latin to be prepared for translation, the statement will be normally interpreted as implying approval of decrease (growing relief), the implication being that of "only." Had we wished to imply disapproval of increase (growing fatigue), we should normally have put it not at "less than three pages" but at "more than two pages," with an implication of "still." We could combine the form of approving "less than" statement with that of disapproving "still" and say "I have less than three pages to read, *to be sure, but* there is *still* some of my assignment to read." In other words, when the goal, zero, is approved, any form of statement implying decrease toward that goal involves approval, and the factual disapproval of having still so much left to do has normally to be rendered by terms implying reversal of judgment, such as *to be sure, but, still.* Our linguistic awkwardness in expressing disapproval of a state which is kinaesthetically committed, as it were, to approval, is on a par with, though less obviously helpless than, such periphrases for the potential mode as "He will come, he will not come," a naive substitute for "Perhaps he will come" or "He may come." Let us, for the sake of brevity, reduce the complete circle of valuation in judgment to the two simple forms of approval and disapproval, symbolized respectively by $\frown$ and $\smile$. Then $\overleftarrow{\frown} 3$ symbolizes an explicit dynamic decreasing "less than 3" which is approved of, the "less than 3" of growing relief inadequately rendered in English by "less than 3" or the rather unidiomatic "already less than 3" or the round-about "only 3, in fact less." And

$$\overleftarrow{\smile} 3$$

symbolizes an explicit dynamic decreasing "less than 3" which is disapproved of, the "less than 3" of growing fatigue, which cannot easily be rendered in English except by such periphrases as "still some, though less than 3."

Further consideration of the implied "only" and "still" of these statements shows that they may indicate exactly the opposite affects if we assume that the goal of decrease is not desired but resisted. Thus, if my desire is to read all I

can get, an approving ←⌒3 can not imply that I am relieved to find that what I still have left to read is even less than three pages, but that I am glad to know that while there are less than three pages left, at least there is *still* left more than nothing. This, then, is an approving "still." Correlatively, the disapproving "only" of ←⌣3 implies that neither the quantity on hand nor its proximate extinguishment is approved of. In other words, two distinct affective judgments are involved, that of the grade itself and that of the goal of its implied tendency. How can we distinguish the ←⌣3 of growing fatigue from the ←⌣3 of growing disappointment? Obviously we must have some way of indicating the affect attaching to the factual goal, which gives the whole grading process its significance. We shall therefore use a symbol for limit of tendency, $\underset{q}{|}$, in which q stands for any quantity, and express the four affective types of explicit dynamic decreasing "less than" as follows:

1. ⌒ | ←⌒3 (both decreasing quantity and zero-limit are approved: "I have *only* [a little] less than 3 pages [still] to read"
2. ⌒ | ←⌣3 (quantity disapproved, zero-limit approved: "I have *still* to read [only a little] less than 3 pages," "I have *hardly* less than 3 pages [still] to read"
3. ⌣ | ←⌒3 (quantity approved, zero-limit disapproved: "I *still* have for reading [but a little] less than 3 pages")
4. ⌣ | ←⌣3 (both decreasing quantity and zero-limit are disapproved: "I have *merely* less than 3 pages left for reading")

The four affective types of explicit dynamic decreasing "more than" are as follows:

1. ⌒ | 3⌒← ("I have *only* [a little] more than 3 pages [still] to read," "I have *hardly* more than 3 pages [still] to read"
2. ⌒ | 3⌣← ("I have *still* to read more than 3 pages")
3. ⌣ | 3⌒← ("I *still* have for reading more than 3 pages")
4. ⌣ | 3⌣← ("I have *merely* [a little] more than 3 pages left for reading," "I have *hardly* more than 3 pages left for reading")

And the four affective types of explicit dynamic decreasing "equal to" or "as much as" are as follows:

1. ⌒ | ←⌒ 3 ("I have *only* [no more than] 3 pages [still] to read")
2. ⌒ | ←⌣ 3 ("I have *still* to read [no less than, as much as] 3 pages")
3. ⌣ | ←⌒ 3 ("I *still* have [no less than, as much as] 3 pages for reading")
4. ⌣ | ←⌣ 3 ("I have *merely* [as much as] 3 pages left for reading")

Needless to say, analogous distinctions are to be made for the other grading cases. Here, as in every other phase of linguistic inquiry, we find that the more

closely we study actual linguistic forms, the more we are driven to realize that they never express merely static, affectively neutral, concepts and judgments, but classes of concepts and judgments in which nuclear notions, capable of logical definition, are colored by unavowed dynamic and affective determinants. These determinants must be laboriously ferreted out and set in their own configuration of possible scale or types, so that the nuclear notions themselves may stand out with logical rigor. Certain of these dynamic and affective determinants are primary or typical, because arising naturally in experience; others are complex, involving a blending of features in logically permissible but psychologically atypical form, as when a logically static concept is blended with a dynamic implication and two opposed affects. So far as the primary, maximally natural, blends of dynamic tendency and affect with logically static grading concepts are concerned, we have probably to reckon with the following five types:

1. "More than" of growing exhilaration: $q \overset{\frown}{\rightarrow} \underset{a}{\overset{\frown}{|}}$
2. "More than" of growing fatigue: $q \overset{\smile}{\rightarrow} \underset{a}{\overset{\smile}{|}}$
3. "Less than" of growing relief: $\underset{a}{\overset{\frown}{|}} \overset{\frown}{\leftarrow} q$
4. "Less than" of growing disappointment: $\underset{a}{\overset{\smile}{|}} \overset{\smile}{\leftarrow} q$
5. "Equal to" of balanced satisfaction: $\left\{\begin{matrix} a \overset{\frown}{\rightarrow} q \\ q \overset{\frown}{\leftarrow} a \end{matrix}\right\}$

The neutral, logical, "more than" is probably derived from nos. 1 and 2 by progressive elimination of upward tendency (stage 1: $q \rightarrow$; stage 2: $q \downarrow$; stage stage 3: $q <$) and affect; the neutral, logical, "less than" is probably derived from nos. 3 and 4 by progressive elimination of downward tendency (stage 1: $\leftarrow q$; stage 2: $\uparrow q$; stage 3: $< q$) and affect; the neutral, logical, "equal to" is probably derived from no. 5 by elimination of balancing (stage 1: $a \overset{\frown}{\rightarrow} q$; stage 2: $a \overset{\frown}{=} q$) and affect (stage 3: $a = q$). Once the kinaesthesis and affect are rooted out of the psychology of grading, the human spirit is free to create richer and more complex meanings by recombining the elements of grading, of direction, of movement, halt, and status, and of immediate and prospective affect, into novel configurations in which inhere conflicts that have been reconciled.

$q \overset{\frown}{\leftarrow} a$

8. THE SUPERLATIVE

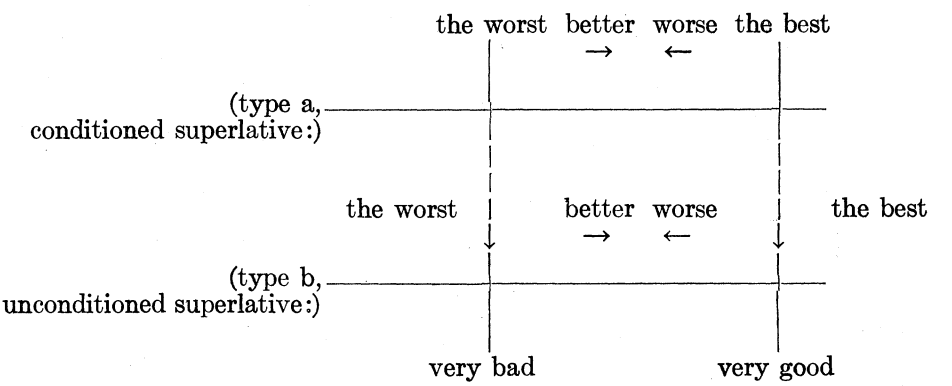
"More than," "less than," and "equal to" are the most general grading terms and concepts we have. Owing to our habit of thinking of such triplets as *good-better-best*, *bad-worse-worst*, *famous-more famous-most famous*, and *famous-less famous-least famous* as possessing a logical structure which is analogous to their linguistic form, we tend to consider the concepts expressed by *most* and *least* as of the same nature as *more than* and *less than*. A little reflection shows that

this feeling is an illusion and that the linguistically suggested proportion *good*: *better* = *better*:*best* is logically incorrect. If a, b, and c are arranged in a series of relative qualities, a may be said to be "good," b "better than" a, and c "better than" b. But c is just as truly "better than" a as it is "better than" b, in fact more unreservedly or *a fortiori* so. We cannot say that c is "best" unless we know either (a), that a, b, and c are the only members of the series that are to be graded, in which case c is "best" not because it is better than b as well as better than a but because there is no other member of the series which is better than it; or (b), that the quality possessed by c is equal to that grade which is known not to be exceeded by any other possible member of the whole class of gradable members. In the former case c may soon cease to be "best" as other members (d, e, f, ···, n) are added to the series, though it always remains "better than" certain other fixed members of it. In the latter case c remains "best" throughout. These two meanings of the superlative form are really quite distinct, though they are often confused linguistically. Type (a), e.g. *the most*··· *of them, the least*··· *of them, the farthest of them, the best of them, the nearest of them, the worst of them,* may be called the "conditioned superlative" or "relative superlative." The other type, (b), e.g. *the most*··; *possible* (= *as*··· *as possible*), *the least*··· *possible, the farthest* (*possible*), *the best* (*possible*), *the nearest* (*possible*), *the worst* (*possible*), may be called the "unconditioned superlative" or "absolute superlative." Both represent unique grades, though in differently ordered contexts, at the upper or lower end of a series. If we characterize a class of individuals, say as "good," the criterion of membership, *good*, applies to all; *better* (or *less bad*) applies to all but one of the class, which is thought of as *least good* (or *worst*); *less good* (or *worse*) applies to all but one of the class, polar to the member excluded from the sub-class "better," which is thought of as *best* (or *least bad*); *best* (or *least bad*) applies to only one member, the extreme of the sub-class "better"; and *least good* (or *worst*) applies to only one member, the extreme of the sub-class "less good."

Whether the terms *worst* and *least bad* properly apply to any of the members of the class depends, of course, on whether *good* and *bad* are thought of as mutually exclusive classes separated by a normative line of division (logical grading: A, I, with reference to norm) or as relative terms applying to the "more" and "less" of a single class (logical grading: A, II, with reference to terms of comparison). Hence arise certain ambiguities in the use of *least*. *Least good* may either mean *the least good of good individuals*, i.e. the first grade toward "best" beyond the dividing line of neutrality, as when we say "*The least good*, if good at all, will do"; or, more naturally, *the least good of good and bad individuals*, i.e. *the worst*, as when we say "*The least good* is indistinguishable from the worst." Similarly with *least bad*, except that here it is the normative usage that seems the more natural. Correlative ambiguities, though less easily, may arise for *most*. Paradoxically enough, language so handles *least* and *most* that *least good* (*of good ones*) and *least bad* (*of bad ones*) are often next door to each other, though *least good* and *least bad* may in other contexts be polar extremes, while *best* and *worst* are typically polar extremes. The set *best* (*of bad ones*) and *worst* (*of good ones*)

is not generally thought of as a natural neighborhood. It is only in "open-gamut grading" (psychological grading: B, 1) that *least* and *most* can be defined as identical concepts arrived at by opposite movement of grading (*farthest* = *least near*, *nearest* = *least far*). We may conveniently speak of "open-gamut superlatives" (of which there are only two possible in the unconditioned type, namely *most* and *least*, e.g. *best* and *worst*) and of "closed-gamut superlatives" (of which there are typically four in the unconditioned type, e.g. *best*, *least good*, *least bad*, *worst;* or any higher even number, depending on the nature of the grading).

It is interesting to note that the superlative form is often used to denote a high grade, but not necessarily an apical grade, of the graded quality. Thus, Latin *amatissimus* means not only "most beloved, the most beloved" but also "greatly beloved." Similarly, we say in English, "He had a *most pleasing* personality," i.e., not "*the most pleasing* personality" among some implied number of individuals but simply "a *very pleasing* personality." It is probable that this logically unreasonable, but psychologically somehow inevitable, usage is due to a transfer of conditioned superlatives (type a) to the grading gamut in which unconditioned superlatives (type b) occur as polar points. The following diagram illustrates the process for unnormed grading:



In other words, a conditioned superlative, true of some limited range of instances, becomes, when seen in the wider perspective of all possible instances, not a true superlative at all but an up-graded or down-graded comparative fixed at some point psychologically near the unconditioned extremes. This process at the same time involves a translation of explicit superlative grading into implicitly quantified grading, a more sophisticated type of grading judgment. Hence, to reverse the direction of transfer, it seems natural, because psychologically archaic, to see such judgments as "very bad" or "very good" as conditioned superlatives in an imaginary series in which all other graded terms fall below. It is as though one felt that what is merely "very good" in this context or the context of all values is actually "the best" in some other imagined context.

9. POLAR GRADING

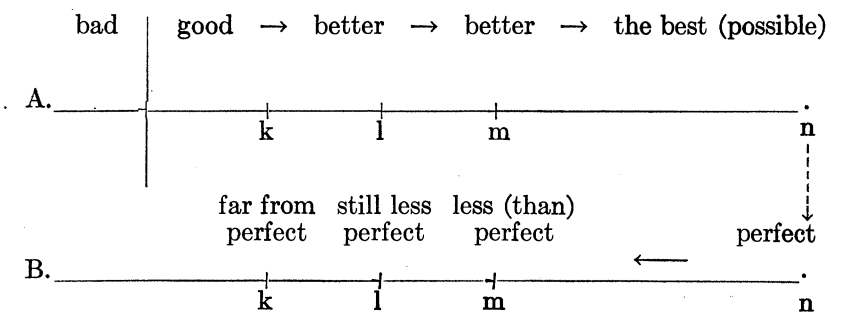
At first sight it seems that the differences between explicit and implicit grading can not be carried out for the superlative. But there are, as a matter of fact,

quite a number of implicitly superlative terms which have, however, this linguistic and psychological peculiarity, that they are not felt as end points of a graded series but as points of polar normality. These outer points, though logically arrived at by the cumulative grading process that gives us "most" and "least," are not, psychologically speaking, worked up to *via* "more than" but can only be fallen short of *via* "less than." If, for instance, a series

a, b, c, · · · , k, l, m, n

is graded via increments of "more than" up to n, "the most," and we then accept this n as a new norm, we note: 1, that there can be no up-graded terms which are "more than" n; 2, that such terms as c, · · ·, l, m, which could in the first instance be defined as progressively "more than" such lower terms as b, · · ·, k, l, respectively, can now only be defined in an opposite sense as progressively "less than" the unique term n. We thus arrive at what amounts to a new type of grading, which we may term "polar grading."

A good example of a transfer from ordinary grading to polar grading is shown in the following normed scheme:



Observe that the "less perfect" of B is really as illogical as "more perfect" would be. It may be considered an ellipsis for the logical "less than perfect" or "less nearly perfect" based on a secondary extension of the range of meaning of the term "perfect." The superlative implication of "perfect," which should make of it a unique and ungradable term, tends to be lost sight of for the simple reason that it belongs to the class of essentially gradable terms (e.g. "good"). Such terms as "less perfect" are psychologically blends of unique terms of the type "perfect" and graded terms of the type "less good." The polar term is stretched a little, as it were, so as to take in at least the uppermost (or nethermost) segment of the gradable gamut of reality. Observe that at the worst the term which is farthest in significance from the unique value of the polar term under which it comes does not ordinarily relapse into the normal area of the term which implicitly underlies this polar term. Thus, "least perfect" is generally better than the merely normal "good," e.g. "the least perfect of these poems," which could hardly be said of a poem that did not belong to a set of poems which could be described, most of them, as "perfect." On the other hand, a complication arises when we fix the polar point not so much objectively as on the basis of a desired upper norm, as when we say "even the least perfect of God's creatures," which

is a way of saying "even the worst of God's creatures, of whom we would all were perfect." As a result of such affective interferences, polar terms may be secondarily graded down (or up) to their polar contraries.

"Perfect" is perhaps the best example of a polar term. "Complete" and "full" are others of the implicitly up-graded type; "empty" and "barren," of the implicitly down-graded type. Implicit superlatives and polar grading offer many psychological subtleties, of which we have only touched the more obvious. Through the habit of using polar terms only to indicate some measure of falling short of their proper significance they may finally take on a less than polar function. Thus, "perfect" comes to mean to some people, and to all people in certain contexts, merely "very good." This paves the way for the secondary grading of polar terms in a positive direction, e.g. "more perfect" and "most perfect." Logically such terms might be interpreted to mean "more nearly perfect" and "most nearly perfect" (conditioned superlative with polar goal); actually, that is psychologically, they denote rather "better" and "best" in an upper tract of "good."

This paper was finished, in essentially its present form, many years ago as part of a larger study carried on, in collaboration with Professor W. Collinson, for the International Auxiliary Language Association (IALA). My original purpose was to carry the analysis of grading considerably further but it seems best to offer this fragmentary contribution to semantics in the hope that others may be induced to explore the sadly neglected field of the congruities and non-congruities of logical and psychological meaning with linguistic form.

My thanks are due the IALA and Mrs. Alice V. Morris for permission to publish this paper here. I am also indebted to Mrs. Morris for her careful reading of the manuscript and for a number of critical observations from which I have profited greatly.

E. S.