Hamburgers and Truth: Why Gricean explanation is Gricean
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Since Dick Grandy (this volume) offers a review of the last twenty years of Gricean cooperation, I shall concentrate on the first 2300 years and focus—in the spirit of McGarrigle (to appear) on the influence of Grice on Aristotle. It is by now widely accepted that the Gricean mechanism for the generation of generalized conversational implicatures through the exploitation of the maxim of quantity (Make your contribution as informative as required for the current purposes of the talk-exchange) provides a natural account of weak scalar operators (some, possible, permitted, or, warm) as semantically one-sided, lower-bounded by their literal meaning (= at least some, at least possible,...) with the two-sided understanding (= some but not all, possible but not necessary,...) derived by an upper-bounding scalar implicature:

1. S-IRED READING
   Max has 3 children. 1. SIDE READIMG 2. S-IRED READIMG
   ...at least 3...
   You ate SOME of the cookies. ...some if not all...
   ...at least 0...
   It's POSSIBLE she'll win...
   John is patriotic or quixotic. ...and perhaps both...
   It's WARM out...
   ...but not both...
   ...but not certain...

This line provides a straightforward means for reconciling the apparent two-millennium-old conflict between the mutual implications intuitively relating the members of subcontrary pairs (sometimes, not possible/possible not,...) and the desiderata of logical consistency and parsimony that remain unattainable when these implicatures are treated in semantic terms. But the quantity-driven pragmatic model of subcontrariety did not spring forth fully armed from the Gricean brow. I shall begin with a quick tour of some of the highs and lows in the long history of subcontrariety, concentrating on those models that tend to prefigure the (neo-)Gricean approach to the Square of Opposition. The traditional assertoric square is laid out in (2) and the relevant terms of opposition identified in (3).

2. A: all S is/are P.
   E: no S is/are P.
   Contradictories:
   A: every man is white.
   E: no man is white.
   Contraries:
   A: all S are P.
   E: no S is P.
   Subcontraries:
   A: some S are P.
   E: some S are not P.
   Subalterns:
   A: all S is/are P.
   E: no S is P.

3a. Corresponding A and E statements are CONTRARIIES and cannot be simultaneously true (though they may be simultaneously false).
   b. Corresponding A and O (and I and E) statements are CONTRADICTORIES; members of each pair cannot be simultaneously true or simultaneously false.
   c. An I statement is the SUBALTERN of its corresponding A statement (and O of E); a subaltern is unilaterally entailed by its corresponding supertem.
   d. Corresponding I and O statements are SUBCONTRARIES and cannot be simultaneously false (though they may be simultaneously true).

The last of these oppositions has a rich history, beginning with Aristotle’s recognition that while contraries are mutually exclusive, ‘the contradictories of a pair of contraries can be both true; for instance, “not every man is white” and “some are not white” can both be true’ (Prior Analysis 17b23). Indeed, this is an ‘entries of...’

Verbally four kinds of opposition are possible: universal negative [A/E], universal affirmative [A/O], particular affirmative to universal negative [I/O], and particular affirmative to particular negative [I/E]. Only the particular affirmative is truly negative.

It was five centuries later before the squarish topographic term SUBCONTRARY for this meaning of ‘contraries’.

Modal values can be superimposed on A, I, E, and O vertices assigned respectively possible, impossible, and the not necessary (possibility and subcontrariety to the two-sidedness of necessity, it is not possible to use the terms in the worlds of a two-sided and consistent model, he did not agree to this distinction). McCall (1963: 11) notes that ‘perhaps no other term consistently bad reviews’.

On the standard logical account of the terms, they are treated as parallel and unambiguous, but Aristotle led Aristotle to the formulation of complex expressions such as ‘some S is P’ has been AT LEAST one S is P, so too S may be P of A (since Aristotle’s disciple Theophrastus2) to say to be P: some is compatible with all and versions of both operators have thus won new life (some but not all, possible but not necessary, composite operators, when they are mentioned).

This approach has proved to be especially useful in statements, where a millennium of logicians have had.

If you say “some men are so-and-so” (and therefore are not so-and-so). If the proposition

(Avis)

Nevertheless, there is an equally long tradition of assertions that the negative proposition “some are not...”
The last of these oppositions has a rich and turbulent history, beginning with Aristotle's recognition that while contraries and contradictories cannot hold simultaneously, 'the contradictories of a pair of contraries can sometimes be true with reference to the same subject; for instance, "not every man is white" and "some men are white" are both true' (De Interpretatione 17b23). Indeed, this is an 'opposition' in name only:

Verbally four kinds of opposition are possible, viz. universal affirmative to universal negative (A/E), universal affirmative to particular negative (A/O), particular affirmative to universal negative (I/E), and particular affirmative to particular negative (I/O): but really there are only three: for the particular affirmative is only verbally opposed to the particular negative.

(Prior Analytics 63b21, emphasis added)

It was five centuries later before the square of opposition came along, and with it the topographic term SUBCONTRARY for this relation: the subcontraries appear beneath the contraries.

Modal values can be superimposed onto the same square of opposition, with the A, I, E, and O vertices assigned respectively to the necessary, the possible, the impossible, and the not necessary (possibly not). But for Aristotle the modal subcontraries are not only mutually compatible, they are - on what he calls the 'two-sided' reading of possible - equivalent. But if whatever is necessary is possible and whatever is possible is not not necessary, then whatever is necessary is not not necessary (De Int., Chapter 13). While Aristotle could have restricted the subalternation to one-sided possibility and subcontrariety to the two-sided variety, retaining logical consistency if not parsimony, he did not adhere to this distinction within his modal syllogistic, of which McCall (1963: 1) notes that 'perhaps no other piece of philosophical writing has had such consistently bad reviews'.

On the standard logical account of the subcontraries, particularity and possibility are treated as parallel and unambiguous, but only at the cost of ignoring the intuition that led Aristotle to the formulation of complementary conversion between possible and possible not. Just as some S is P has been regarded (since Aristotle) as true so long as at least one S is P, so too may be P or is it possible for S to be P; some is compatible with all and possible with necessary. The ‘one-sided’ versions of both operators have thus won the day, while their ‘two-sided’ competitors (some but not all, possible but not necessary) have been relegated to the role of secondary, composite operators, when they are mentioned at all.

This approach has proved to be especially popular for the general assertoric statements, where a millenium of logicians have followed Avicenna's lead:

If you say "some men are so-and-so", it is not necessary that some others are not so-and-so. If the proposition is about all, it is also about some.

(Avicenna (ibn-Sina)/Zabeh 1971: 24)

Nevertheless, there is an equally longstanding, if less hallowed, tradition of taking some to be two-sided and thus incompatible with all. Some have read it into Aristotle -

On the Aristotelian theory...wherever the affirmative "some are" applies, the negative proposition "some are not" holds also. (Dewey 1938: 182)
Aristotle seems to think that the main function of a particular statement is to describe a situation where the corresponding universal statement is false. His reasoning seems to be: If the universal is true, why assert the particular? (Rose 1968: 41)

But this reading appears dubious for Aristotle’s assertoric, given his endorsement of the one-way subaltern entailment from A to I and from E to O:

For having shown that it belongs to all, we will have shown also that it belongs to some; similarly, if we should show that it belongs to none, we will have shown also that it does not belong to all. (Topics 109a3)

Priority evidently belongs instead to the 5th–6th century Buddhist logician Dhamāga and his colleagues who, in their hetu-cakra or Wheel of Reasons,

do not admit four kinds of proposition like Aristotle and the Scholastics, but only three, since they interpret ‘Some S is P’ not as ‘at least some’ but as ‘at least some and not all’...This would give a logical triangle in place of the western logical square. (Bochenski 1961: §53.14; cf. Tucci 1928)

This triangle of oppositions did not surface in the West until the mid-nineteenth century, when Sir William Hamilton of Edinburgh inaugurated a debate over the proper treatment of the subcontraries. Distinguishing two senses of some, the INDEFINITE (at least some) and the SEMI-DEFINITE (some but not all), Hamilton (1860: 254) regarded the latter as basic: ‘Some, if not otherwise qualified, means some only - this by presumption.’ On this reading of the particular, the two statements Some men are learned and Some men are not learned are not alone (as for Aristotle) compatible, given that their conjunction is consistent, but logically indistinct. The purported opposition between the two subcontraries, charged Hamilton (1860: 261), was ‘only laid down from a love of symmetry, in order to make out the opposition of all the comers in the square of opposition...In reality and in thought, every quantity is necessarily either all, or none, or some. Of these the third...is formally exclusive of the other two.’

But even Hamilton tended to restore the indefinite some to its traditional place in his version of the syllogistic, although his practice was inconsistent enough to result in total incoherence, as his arch-rival Augustus De Morgan was quick to point out. While acknowledging the existence (at least in ‘common language’) of Hamilton’s ‘presumption’ whereby some conveys not all (some not), De Morgan defends the standard practice of relegating this inference to an extra-logical domain. De Morgan’s subtle views are sampled below:

IN COMMON CONVERSATION the affirmation of a part is meant to imply the denial of the remainder. Thus, by ‘some of the apples are ripe’, it is always [sic] intended to signify that some are not ripe. (De Morgan 1847: 4)

Some, in logic, means one or more, it may be all. He who says that some are, is not to hold to mean the rest are not. Some men breathe'...would be held false in COMMON LANGUAGE [which] usually adopts the complex particular proposition and implies that some are not in saying that some are. (De Morgan 1847: 56)

COMMON LANGUAGE makes a distinction between definiteness, which has been thrown off by Hamilton, usually means a rather small fraction, which would be expressed by ‘a good many’, ‘most’, while a still larger proportion is ‘nearly all’.

With logicians the word some has a synonym of not-one: it has stood for THE WORLD AT LARGE it is something not all, ACCORDING TO THE MATTER AT HAND, not all. Of these two one is true and the other false - some-certainly-not-all and some-points.

There are three ways in which one may describe complete inclusion, partial inclusion, complete exclusion. This trichotomy, as logic, IF HUMAN KNOWLEDGE HAD TO BE RESTRICTED TO THE ACCOUNT of the subcontraries. In spamming Hamilton

No shadow of justification is shown, unless sous-entendu of common common. If I say to any one, ‘I saw some CHILDREN’, it cannot unjustified in inferring that I did not mean CHILDREN I SAW WERE ALL OR NOT.

Emphasis in the De Morgan and Mill citations

Notice especially the epistemic rider on quantifiers. The predicate suggests (implies) that FOR ALL, the on the same scale could not have been substituted. MILL'S ALLusion to a tacit principle that place of the weaker some when possible, and stronger term is not used, is echoed even by

Whenever we think of the class as ALL, and therefore when we employ are not thinking of the whole, but the whole—that is, of a part only.

John Neville Keynes, the grandfather of m,

Logic (202-3) that a speaker whose knowledge with the meaning some only'.

some—certainly—not-all and some-points.
COMMON LANGUAGE makes a certain conventional approach to definiteness, which has been thrown away in works of logic. ‘Some’ usually means a rather small fraction of the whole; a larger fraction would be expressed by ‘a good many’; and somewhat more than half by ‘most’, while a still larger proportion would be ‘a great majority’ or ‘nearly all’.

(De Morgan 1847: 58)

With logicians the word *some* has in all time been no more than a synonym of *not some*: it has stood for *one or more, possibly all*. WITH THE WORLD AT LARGE it is sometimes possibly all, sometimes certainly not all, ACCORDING TO THE MATTER SPOKEN OF. But with the logician “some are” is merely and no more than the contradictory of “none are”. Of these two one is true and the other false, and *some* equally contains some—certainly not all—and some—possibly all.

(De Morgan 1861: 51)

There are three ways in which one extent may be related to another: complete inclusion, partial inclusion with partial exclusion, and complete exclusion. This trichotomy would have ruled the forms of logic, IF HUMAN KNOWLEDGE HAD BEEN MORE DEFINITE... As it is, we know very well the grounds on which predication is not a trichotomy, but two separate dichotomies.

(De Morgan 1858: 121)

De Morgan’s views are reflected in John Stuart Mill’s even more directly proto-Gricean account of the subcontraries. In spurning Hamilton’s innovations, Mill objects that

No shadow of justification is shown...for adopting into logic A MERE SOUS-ENTENDU OF COMMON CONVERSATION in its most unprecise form. If I say to any one, ‘I saw some of your children today’, he might be justified in inferring that I did not see them all, NOT BECAUSE THE WORDS MEAN IT, but because, if I had seen them all, it is most likely that I should have said so; EVEN THOUGH THIS CANNOT BE PRESUMED UNLESS IT IS PRESUPPOSED THAT I MUST HAVE KNOWN WHETHER THE CHILDREN I SAW WERE ALL OR NOT.

(Mill 1867: 501)

Emphasis in the De Morgan and Mill citations is added to reflect Grice’s influence here. Notice especially the epistemic rider on quantity-based inferences: the use of a weaker predicate suggests (implies) that FOR ALL THE SPEAKER KNOWS the stronger predicate on the same scale could not have been substituted salvus veritate.

Mill’s allusion to a tacit principle that requires the speaker to use the stronger all in place of the weaker some when possible, and to draw the corresponding inference when the stronger term is not used, is echoed even by one of Hamilton’s would-be supporters:

Whenever we think of the class as a whole, we should employ the term All; and therefore when we employ the term Some, it is implied that we are not thinking of the whole, but of a part as distinguished from the whole—that is, of a part only.

(Monck 1881: 156)

John Neville Keynes, the grandfather of modern economics, similarly noted in his 1906 *Logic* (202-3) that a speaker whose knowledge is incomplete cannot use *some S’s are P* with the meaning ‘some only’.
The idea that some should be assigned the two-sided rather than, or along with, the one-sided meaning did not die with Hamilton. Ginzberg (1913, 1914) carried the quarrel across the Channel, jettisoning the square of opposition for a triangle of contraries with vertices representing all, none, and exactly some—"quelques et rien que quelques". But Couturat (1913, 1914), again too happy to play De Morgan to Ginzberg's Hamilton, attempted to dissuade his countryman from following 'le plus mauvais des logiciens' in collapsing the two distinct subcontraries into one basic proposition which is, in fact, a logical conjunction; he argues that the classical system cannot be perfected by adopting 'précisions' that are foreign to its very spirit.

The same logical triangle, still undrawn, makes an implicit reappearance in Jespersen's tripartition of logical operators (1917: Chapter 8). The category labels and instantiations here are Jespersen's, the geometry mine.

But while Jespersen's B category, the nadir of this Triangle of Opposition, corresponds semantically to the conjunction or neutralization of the I and O vertices of the traditional Square, it has the lexical membership of the I vertex (some, possible). On logical, epistemic, and discourse grounds the identification of I and O is untenable, precisely for the traditional reason that the former is the contradictory of the latter of A.

Thus Jespersen's tripartition gets the triangle right, but not the square. With characteristic insight, Sapiro opts for a square and the Jespersenian Triangle. His particular version of it is not, strictly unilateral:

'Not everybody came' does not mean 'some did not come'. Logically, there include the totalized negative, i.e., possibility, but ordinarily this interpretation is not expected.

Note especially Sapiro's use of is implied emphasizing the essential role of the context.

One final trianglist salvo was launched by three philosophers working independently but quite concurrently.

For Jacoby (1950), Sesmat (1951-2), and Sapiro (1952), the triangle of (4) can be combined to form a more orthodox "contrariety" in which the opposed terms are contrarieties:

![Diagram]

Thus, we have here is not so much a triangle as a defective three-cornered square, given that in a wide variety of languages those values mapping onto the southeast corner of the square are systematically restricted in their potential for lexicalization. Thus alongside the quantificational determiners all, some, no, we never find an O determiner *null; corresponding to the quantificational adverbs always, sometimes, never, we have no *naryways (= 'not always', 'sometimes not'). We may have equivalents for both (of them), one (of them), neither (of them), but never for *noth (of them) (= 'not both', 'at least one...not'); we find connectives corresponding to and, or, and sometimes nor (= 'and not'), but never to *nand (= 'or not', 'not...and')—at least not outside the lexicon of electronic circuitry. The missing O phenomenon, extending to the modals and deontics, is reinforced by a general tendency of O-E drift, wherein lexical items or collocations associated by their compositional form or etymology with the O corner of the square move inevitably northward toward E. As I have argued more fully elsewhere (Horn 1972; Horn 1989: §4.5), the pragmatic inferential relation between the positive and negative subcontraries results in the superfluous of one of these subcontraries for lexical realization, while the functional markedness of negation assures that the superfluous, unlexicalized subcontrary will always be O.
Thus Jespersen’s tripartition gets the lexical facts right, but for the wrong reason. With characteristic insight, Sapir opts for a solution midway between the classical Square and the Jespersenian Triangle. His particular subcontraries are neither semantically bilateral nor strictly unilateral:

‘Not everybody came’ does not mean ‘some came’, which is implied, but ‘some did not come’. Logically, the negated totalizer (not every) should include the totalized negative, i.e. opposite or contrary [none], as a possibility, but ordinarily this interpretation is excluded. (Sapir 1930: 21)

Note especially Sapir’s use of is implied (vs. means) and his qualifier ordinarily, emphasizing the essential role of the context in licensing the implication in question.

One final triangulist salvo was launched in the early 1950’s, appropriately enough by three philosophers working independently but exploiting essentially the same geometry. For Jacoby (1950), Sesiati (1951-2), and Blanché (1952, 1953, 1969), the square and triangle of (4) can be combined to form a logical hexagon on which the diametrically opposed terms are contradistinctions:

(4) (Jacoby 1950: 44)

[(either A or E)]

“Every man is just”

“ContraEries”

“Neither E nor A.” “Not every man is just.”

(Asome, but not all, men are just.)

A

Y

E

I

O

U

(Sesiati 1952: 450)

(Blanché 1969: 56)

More accurately, a major triangle of mutual contraries A E Y, representing De Morgan’s trichotomy of definite human knowledge, is superimposed upon a minor triangle of subcontraries whose vertices - designated appropriately enough as I O U4—are disjunctively defined. Curiously, Doyle, Sesiati, and Blanché fail to note that what we want here is not so much the Logical Hexagon of (5) as the Logical Magen David of (6):

[Diagram of logical hexagon]
These efforts to redesign the square have met with general nonacclaim or, in the case of Jacoby’s (1950: 43-44) ‘double triangle’, with a prescient response by an unfortunately obscure proto-Grice in an equally obscure Jesuit journal:

What can be understood without being said is usually, in the interest of economy, not said... A person making a statement in the form, “Some S is P”, generally wishes to suggest that some S also is not P. For, in the majority of cases, if he knew that all S is P, he would say so... If a person says, “Some grocers are honest”, or “Some books are interesting”, meaning to suggest that some grocers are not honest or that some textbooks are not interesting, he is really giving voice to a conjunctive proposition in an elliptical way.

Though this is the usual manner of speech, there are circumstances, nevertheless, in which the particular proposition should be understood to mean just what it says and not something else over and above what it says. One such circumstance is that in which the speaker does not know whether the subcontrary proposition is also true; another is that in which the truth of the subcontrary is not of any moment.

(Doyle 1951: 382)

Thus, a host who has received a couple of acceptances and no declinations from his invitees could felicitously claim that some of those invited will come without licensing an inference from I to O and hence to Y. In more current terminology, Doyle depicts Quantity as potentially overridden by either Quality or Relation (cf. Horn 1984 and below). But like De Morgan, Mill, and Monck before him, Doyle must tacitly appeal to a crucial principle yet to be explicitly codified.

An early formulation of this principle is offered by Strawson (1952: 178-9), who however credits his ‘general rule of linguistic conduct’ to ‘Mr. H. P. Grice’:

One should not make the (logically) stronger (and with greater or equal clarity) move...

Grice’s own ‘first shot’ at the relevant principle...

—later evolves into his [FIRST] MAXIM OF COMMUNICATION:

Make your contribution as informative as is required (for the purposes of the talk-exchange).

Fogelin arrives independently at the Rule of Strength (1967: 20-22):

Make the strongest possible claim...

Invoking a Grice-like ‘distinction between what is said and use of a statement indicates’, Fogelin emphasizes the nature of language and the license to draw inferences from rules are being obeyed:

The use of language is under the control of the person who employs a given expression. Appropriate rules are being followed if the use of a statement implies that the speaker usually indicates that our inference is permitted, and hence, some linguistic rule is in force.

In the case of the Rule of Strength, we have:

• Do not employ an I or an O proposition unless you employ an A or an E proposition... This suggests the appropriateness of using...

• Do not affirm one subcontrary if you affirm another subcontrary...

Thus accoutered, Fogelin (1967: 22) tries hi...
(6) Logical Magen David

\[
(\vDash U) \\
A \vDash E \\
no men are white \\
E \\
Y \\
(\vDash Y) \\
some men are white (and some aren't)
\]

met with general nonacceptance, or, in the case of, for example, a奔 response by an unfortunately
at the time a journal:

saying said is usually, in the interest of clarity, the case statement in the form, "Some S is P, some S also is not P. For, in the
some S is P, he would say so...If a person
some books are interesting",

saying is a meta for honest or that some one is not giving voice to a conjunctive

of speech, there are circumstances, no
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nothing else over and above what it says, which the speaker does not know to be true; another is that in which the teacher

(Doyle 1951: 382)

In the case of circumstances and no declinations from his
invites the, argument will come without licensing an inference

Doyle's terminology, Doyle depicts Quantity as
(cf. Hom 1984 and below). But like De

Thus accoutered, H. P. Grice:

One should not make the (logically) lesser, when one could truthfully
(and with greater or equal clarity) make the greater claim.

Grice's own 'first shot' at the relevant principle (1961: 132)—

One should not make a weaker statement rather than a stronger one
unless there is a good reason for so doing.

—later evolves into his [FIRST] MAXIM OF QUANTITY (Grice 1967/1975: 45):

Make your contribution as informative as is required (for the current
purposes of the talk-exchange).

Fogelin arrives independently at the same principle in the form of his RULE OF
STRENGTH (1967: 20-22):

Make the strongest possible claim that you can legitimately defend!

Invoking a Grice-like 'distinction between what a statement implies (or entails) and what the
use of a statement indicates', Fogelin emphasizes the connection between the rule-governed
nature of language and the license to draw inferences obtained through the assumption that
rules are being obeyed:

The use of language is under the governance of rules and thus when
someone employs a given expression we are entitled to assume that the
appropriate rules are being followed. When we can draw inference from
the use of a statement that we cannot draw from the statement itself, this
usually indicates that our inference is grounded on the assumption that
some linguistic rule is in force.

In the case of the Rule of Strength, we have these corollaries:

• Do not employ an I or an O proposition in a context where you can legitimately
employ an A or an E proposition...The use of one subcontrary typically
suggests the appropriateness of using the other.
• Do not affirm one subcontrary if you are willing to deny the other.
• Subcontraries tend to collapse together.

Thus accoutered, Fogelin (1967: 22) tries his own hand at beating squares into triangles:
As our earlier avatars from De Morgan to Doyle recognized, the arrows are activated only when the context allows. Thus Fogelin's triangles - as distinct from those of the Jacoby-Sesmat-Blanché triumvirate - are pragmatically derived and not semantically driven.

Finally, we come to Hamish's MAXIM OF QUANTITY-QUALITY (1976: 362). Make the strongest relevant claim justifiable by your evidence, which decomposes into three subrules at potential logorrheas: Be as informative as necessary, Be relevant, Have evidence for what you say. Hamish cites Grice and Fogelin, as well as O'Hair (1969:45):

Unless there are outweighing good reasons to the contrary, one should not make a weaker statement rather than a stronger one if the audience is interested in the extra information that would be conveyed by the latter.

O'Hair in turn takes Grice 1961 as a starting point, while Fogelin, who takes no cognizance of Grice, leans on Nowell-Smith, who seems to have been equally unaware of the existence of his erstwhile fellow Oxonian Paul Grice, and vice versa. Nowell-Smith's definition and rules of contextual implication (1954: 80-82) are given as follows:

A statement p contextually implies a statement q if anyone who knew the normal conventions of the language would be entitled to infer q from p in the context in which they occur.

Rule 1: When a speaker uses a sentence to make a statement, it is contextually implied that he believes it to be true. [cf. Grice's Quality1]

Rule 2: A speaker contextually implies that he has what he himself believes to be good reasons for his statement. [cf. Grice's Quality2]

Rule 3: What a speaker says may be assumed to be relevant to the interests of his audience. [cf. Grice's Relation]

Clearly an idea whose time had come. We have in embryo here all of Grice's content maxims EXCEPT Quantity or Strength; by putting Nowell-Smith together with Fogelin we arrive in the neighborhood of Grice (1967/1975: 45-6) and William James:

QUALITY: Try to make your contribuible.
1. Do not say what you believe
2. Do not say that for which you
QUANTITY:
1. Make your contribution as (for the current purposes
2. Do not make your contrib
MANNER: Be perspicuous.
1. Avoid obscurity of expression
2. Avoid ambiguity
3. Be brief. (Avoid unnecessary
4. Be orderly.

But while Nowell-Smith discusses issues of language, he offers no general account of means to explain how conveyed meaning arises, recognition of a quantity or strength rule, the bounding of the subcontraries, lack a coloquial yields the rich array of nonlogical inference literature. More specifically, the following Principle—Make your conversational contribuible, election of the accepted purpose or direction of engagement—of which (George Green pos) six maxims must be seen merely as special instances—

The invocation of the maxims may also be especially given their self-evident or trivial. Macauley's general maxim that nothing is further wondered whether Grice's neo-Kantianism provides a significant advance over the also commemorated this BLS weekend (William) relations between Grice's conversational civility and decent behavior in company—endorsed by the General, wary as he noted

79th: Be not apt to relate news if you
35th: Let your discourse with mene
90th: Being set at meat, scratch no
73th: Think before you speak; pro
80th: Be not tedious in discourse or

QUALITY: Try to make your contribution one that is true.
   1. Do not say what you believe to be false.
   2. Do not say that for which you lack evidence.

QUANTITY:
   1. Make your contribution as informative as is required
      (for the current purposes of the exchange).
   2. Do not make your contribution more informative than is required.

RELATION: Be relevant.

MANNER:
   1. Avoid obscurity of expression.
   2. Avoid ambiguity.
   3. Be brief. (Avoid unnecessary [sic] prolixity.)
   4. Be orderly.

But while Nowell-Smith discusses irony, lying, and play-acting as 'secondary uses of language', he offers no general account of speaker meaning, cooperation, or exploitation to explain how conveyed meaning arises, just as Mill, Doyle, and Fogelin, despite their recognition of a quantity or strength rule exploitable to generate the pragmatic upper-bounding of the contraries, lack a coherent set of rules or maxims whose interaction yields the rich array of nonlogical inferences in context described in the post-Grecian literature. More specifically, the forerunners never explicitly anticipate Grice's Cooperative Principle—Make your conversational contribution such as is required, at the state at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged—of which (as Georgia Green points out in her contribution to this volume) the maxims must be seen merely as special instances. It was Paul Grice who put it all together.

The invocation of the maxims may not be universally regarded as a breakthrough, especially given their self-evident or trivial appearance. The skeptic may recall Lord Macaulay's general maxim that nothing is so useless as a general maxim, and it might be further wondered whether Grice's neo-Kantian gang of four (or nine, counting submaxims) represents a significant advance over the rather bulkier set assumed by an earlier colonist also commemorated this BLS weekend (Washington [1746]1988). My proposed mapping relations between Grice's conversational maxims and George Washington's 'rules of civility and decent behavior in company and conversation' would not necessarily be endorsed by the General, wary as he notoriously was of foreign entanglements.

679th: Be not apt to relate news if you know not the truth thereof.  
35th: Let your discourse with men of business be short and comprehensive.  
90th: Being set at meat, scratch not; neither spit, cough, or blow your nose, except if there is a necessity for it.  
73th: Think before you speak; pronounce not imperfectly nor bring out your words too hastily, but orderly & distinctly.  
80th: Be not tedious in discourse or in reading unless you find the company pleased therewith.

The appeal to informativeness or strength in the various castings and restatements of the principle invoked implicitly by Mill, Monck, and Doyle, and explicitly since Grice, assumes that such a notion can be defined and quantified. An obvious starting point here is the relation of unilateral entailment or proper inclusion of classes, as recognized by Fogelin: 'A proposition "a" is stronger than a proposition "b" if "a" implies "b" but "b" does not imply "a"'—for some appropriately defined sense of 'implies' stronger than
material implication (Fogelin 1967: 20). A similar conception of informativeness can be
discerned in Aristotle:

If one is to say of the primary substance what it is, it will be more
informative and apt to give the species than the genus. For example, it
would be more informative to say of the individual man that he is a man
than that he is an animal (since the one is more distinctive of the
individual man while the other is more general); and more informative
to say of the individual tree that it is a tree than that it is a plant.
(Categories 2b10ff.)

Of course, as recognized by Fogelin, and no doubt by Aristotle and Grice, to provide a
real (and not just working) definition of informational strength is no simple matter. Some
of the difficulties involved are addressed in Thomson 1987 and Ginzburg 1989.

But strength is not enough. In (5) above we extended the Square of Opposition
vertically to produce a tall hexagon by including a southerly Y vertex corresponding to the
conjunction of the subcontraries and a northerly U vertex corresponding to the disjunction
of the contraries. But we can also follow the (mutually independent) suggestions of
Czezewski (1955) and Fogelin (1967: 17) and extend the Square OUTWARD to form a FAT
hexagon. This move is motivated by the need to represent singular propositions with
respect to their universal and particular counterparts, unmodalized propositions with
respect to the necessary and the possible, and so on. Adopting A for the intermediate
positive (westerly) value between A and I, and O for its contradictory, the negative
(easterly) intermediate value between E and O, we get the figure below:

![Hexagon Diagram]

The unlabeled values are intermediaries of subalternation in that each unlaterally entails the
weak value below it and is unilaterally entailed by the strong value above it. Thus
Everybody won unilaterally entails Kim won, which in turn unilaterally entails Somebody
won; if nobody came then Lee didn’t, and if Lee didn’t then someone didn’t. Similarly, if
Kim won AND Chris won (A) then Kim won (A), and if Kim won then Kim won OR
Chris won (I); necessarily p (A) unilaterally entails p (A) which entails possibly p (I), and
so on for all sets of values mapping onto the positive and negative sides of the fat
hexagon.

But the symmetry of the fat hexagon belies an asymmetry in implicature. If I tell
you that my wife is either in the kitchen or the bedroom, you will infer that I don’t know
that she’s in the kitchen (Grice 1961: 130). But I can inform you that the kitchen is a mess
without implicating that the bedroom isn’t. If you tell me something is POSSIBLY true, I
will assume you don’t know it’s true, but if you tell me that something is true (e.g. that all
bachelors are unmarried), I will not assume you don’t know it’s NECESSARILY true. That
is, the use of the weak I or O form proposition licenses the inference that the speaker was
not in a position to use the corresponding intermediate (or strong) proposition, but the use
of an intermediate A or O form does NOT quantity-implicate the negation of its strong
counterpart, A or E respectively. Since the distinction between these (sub)subalternates
elsewhere. As O’Hair (1969: 45-48) observes subalternates are not to be treated as
inferences (as is said): it is because the intermediate values are more prolix, so Quantity here is
The rich framework makes it possible that just what CAN be implicated but what WILL
I have argued (Horn 1984, 1989) contra Sperber & Wilson 1986 that Qualia attempt to boil the remaining maxims
countervailing principles. Within the
Principle—MAKE YOUR CONTRIBUTION oriented correlate of the Law of Least Eff
MORE THAN YOU MUST (GIVEN Q). The
SUFFICIENT—is a lower-bound heuristic for informative content: Say as much as you
Doyle 1951: 382, cited above). R collects
Quantity1, and the last two submaxims of Quantity and the first two
between these two antinomic principles go
but a wide range of linguistic phenomena from periphrastic causatives to logical
interpretation of pronouns and gaps; cf.
Wilson 1986 and Levinson 1987 for others
and to predict the resolution of maxim clas
Grice’s model of conversational

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of assumption-sharing between speaker an
A familiar conception of informativeness can be illustrated. A speculative judgment is, it will be more informative, in some respects, than than the class to which it belongs. For example, it is more distinctive of the individual man that he is a man than one is more distinctive of the species (more general); and more informative about a tree than that it is a plant.

(Categories 2b:10ff.)

There is doubt by Aristotle and Grice, to provide a distinction between these two (sub)subalternations, we must seek the source of the asymmetry elsewhere. As O'Hare (1969: 45–48) observes for the disjunctive cases, the crucial distinction here relates not to the content (what is said) but to the form (HOW what is said is said): it is because the intermediate values are not only more informative but more curtly counterfactual, the use of the latter will strongly implicate that the one is more true than the other. But the strong values, while more informative than their unadorned counterparts, are more prolix, so Quantity here is offset by Manner and potentially by Relation. The richness of Grice's framework makes it possible to begin to develop a theory of not just what CAN be implicative but what WILL be implicative in a given context.

I have argued (Horn 1984, 1989) that if we assume (with Grice 1975: 46–7 and contra Sperber & Wilson 1986) that Quality is primary and essentially irreducible, we can attempt to boil the remaining maxims and submaxims down to two fundamental countervailing principles. Within the dualistic functional model I propose, the R Principle—MAKE YOUR CONTRIBUTION NECESSARY—is an upper-bounding speaker-oriented correlate of the Law of Least Effort dictating minimization of form: SAY NO MORE THAN YOU MUST (given Q). The Q Principle—MAKE YOUR CONTRIBUTION SUFFICIENT—is a lower-bounding hearer-based guarantee of the sufficiency of informative content: Say as much as you can (given R and the Maxim of Quantity; cf. Doyle 1951: 382, cited above). R collects Gricean Relation, the second submaxim of Quantity, and the last two submaxims of Manner, while Q responds to the first submaxim of Quantity and the first two Manner submaxims. The functional tension between these two antinomic principles governs not just the determination of implicatures but a wide range of linguistic phenomena, from lexical change to politeness strategies, from periphrastic causatives to logical double negation, from euphemism to the interpretation of pronouns and gaps; cf. Horn 1984, 1989 for details and Sperber & Wilson 1986 and Levinson 1987 for other attempts to reduce or reconstruct the maxims and to predict the resolution of paradigm collisions.

Grice's model of conversational interaction and nonlinguistic inference is most dramatically distinguished from competing accounts by his emphasis on how the exploitation of shared tacit principles allows an interlocutor to map what was SAID into what was MEANT based on what was NOT said. This feature is also present in the independently arrived-at pragmatic theory of Oswald Ducrot, which is equipped with its own version of the quantity or strength rule and its own definition of exploitation:

[The Loi d’exhaustivité] exige que le locuteur donne, sur le thème dont il parle, les renseignements les plus forts qu’il possède, et qui sont susceptibles d’intéresser le destinataire...Le destinataire, supposant que le locuteur a respecté cette règle, aura tendance, si la réserve du locuteur ne peut pas être attribuée à une absence d’information, à interpréter toute affirmation restreinte comme l’affirmation d’une restriction (s’il ne dit que cela, alors qu’il sait ce qui s’est passé, c’est qu’il n’y a que cela).

(Ducrot 1972: 134)

But Grice’s notion of exploitation, unlike Ducrot’s, plugs into a comprehensive system of maxims and extends from conversational to conventional inferences in ways Grice himself may not fully recognize. In his recent defense of semantic presupposition, Noel Burton-Roberts points out that pragmatic theory of presupposition is "in terms of assumption-sharing between speaker and hearer" is "quite simply wrong":

[Diagram of maxims and submaxims]

```
E       [strong values]
|      /
F   (Fx) O [intermediate values]
|   /  |
\  /   |
(-Fx) O [weak values]
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\  /   |
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If I were to say to you, ‘My sister is coming to lunch tomorrow’, I do presuppose that I have a sister but in presupposing it I do not necessarily assume that you have a prior assumption or belief that I have a sister.  
(Burton-Roberts 1989: 26)

From this observation, Burton-Roberts correctly concludes that presupposition cannot be defined directly in terms of mutual knowledge. But then nobody ever said it could. For Stalnaker 1974, pragmatic presuppositions are ‘propositions whose truth [the speaker] takes for granted, or seems to take for granted, in making his statement’ (1974: 198); presupposed material can be communicated as new information by a speaker who ‘tells his auditor something...by pretending that his auditor already knows it’ (Stalnaker 1974: 202). The linking of presuppositions to what is potentially non-controversial, rather than to what is mutually known, was motivated by an observation of Jerry Sadock:

I am asked by someone who I have just met, “Are you going to lunch?” I reply, “No, I’ve got to pick up my sister.” Here I seem to presuppose that I have a sister even though I do not assume that the speaker knows this.  
(Stalnaker 1974: 202, citing Sadock (p.c.))

The idea that a speaker can ACT AS IF a proposition is part of the common ground when it isn’t, and thereby force the hearer to adjust her map of the common ground to encompass that presupposed proposition, was later codified in Lewis’s RULE OF ACCOMMODATION for presupposition:

If at time $t$ something is said that requires presupposition $P$ to be acceptable, and if $P$ is not presupposed just before $t$, then—ceteris paribus and within certain limits—presupposition $P$ comes into existence at $t$.  
(Lewis 1979: 340)

But this notion of accommodation, which Lewis generalizes to permission statements, descriptions, vagueness, relative modalities, performatives, and planning, and which Sperber & Wilson (1986) put to their own uses in Relevance Theory, is itself—as Stalnaker recognized—just a special case of Gricean exploitation. So we should not be surprised to find Grice himself (1981: 190) forging the same connection:

It is quite natural to say to somebody...My aunt’s cousin went to that concert, when one knows perfectly well that the person one is talking to is very likely not even to know that one had a aunt, let alone know that one’s aunt had a cousin. So the supposition must be not that it is common knowledge but rather that it is noncontroversial, in the sense that it is something that you would expect the hearer to take from you (if he does not already know).

Grice, working in isolation from the Stalnaker-Lewis tradition—indeed, this 1981 publication recapitulates a 1970 talk in Urbana which precedes the development of that tradition—thus provides the foundation for a tenable construct of pragmatic presupposition. But unintentionally so: faithful to his Oxford roots, Grice himself always saw presupposition as a semantic notion. Of course, he didn’t really NEED pragmatic presuppositions since his conventional implicatures (Grice 1975) fit the same job description, as Karttunen & Peters (1979) have shown. But even the Oxonian in charge of the presupposition detail was no stranger to accommodation, although it is not clear how any notion of presupposition so qualified can remain semantic. Here is Strawson (1950: 344) polishing off his shot across the Russellian bow:

A literal-minded and childless man asleep will certainly not answer “No” but nor will be answer “No” on the question does not arise. To say sentence, “All my children are asleep,” I know that I have children, or else have. Nor is it any weakening of phrases of the form “the so-and-so” similar purpose. Neither Aristotle nor the logic of any expressions of ordinary no exact logic.

The collapsing of Strawson’s splendid schedule into one another disappears into the common ground, and Stalnaker, who herself systematic metaphors into the underfitted sister of the evolution of pragmatic theory, all progress.

In the valuable Retrospective Epilogue of the William James lectures, I doctrines of exploitation and conversation, objections to the causal theory of perception.

It then occurred to me that apparently one area might be equally successful. I canvassed the idea that the alienations of Logic and vulgar logical connectives matter not of logical but of pragmatic.

For philosophers, the most significant of the conditional and the if-then of ordinary language (‘senses are not to be multiplied beyond the philosopher’s stone (the cooperative principle) swallowed through the ancient thickets of meaning)

Grice observes in the same respect used in isolation standardly carries a certain context, for example appears within the sentence, ‘You may be interpreted as governing not the implicature of the embedded sentence’. I mean in point, the denial of a conditional, and the truth (You didn’t eat some of the cookies, you generalized neo-Durco’s theory of metal).

But where, you may ask, do the ideas from his predecessors and from such coevolving cooperation in the conversational enterprise (see again Georgia Green’s paper in this volume).

It is irrational to bite off more than you can chew in your pursuit is hamburgers or the teddy

Ever true to the spirit of Quantity and to W.
A literal-minded and childless man asked whether all his children are asleep will certainly not answer "Yes" on the ground that he has none; but nor will he answer "No" on this ground. Since he has no children, the question does not arise. To say this is not to say that I may not use the sentence, "All my children are asleep" with the intention of letting some one know that I have children, or of deceiving him into thinking that I have. Nor is it any weakening of my thesis to concede that singular phrases of the form "the so-and-so" may sometimes be used with a similar purpose. Neither Aristotelian nor Russellian rules give the exact logic of any expressions of ordinary language; for ordinary language has no exact logic.

The collapsing of Strawson's sleeping children into the sister of Stalnaker and Sadock, who herself metamorphoses into Grice's aunt's concert-going cousin, who in turn mutates into the lunch-going sister of Burton-Roberts, should remind us that in the evolution of pragmatic theory, all progress is relative.

In the valuable Retrospective Epilogue to his collected works, Grice relates the genesis of the William James lectures. Having developed (though not yet named) the doctrines of explication and conversational implicature in response to Wittgensteinian objections to the causal theory of perception, he recalls (1989: 374-75),

It then occurred to me that apparatus which had rendered good service in one area might be equally successful when transferred to another; and so I canvassed the idea that the alleged divergences between Modernists' Logic and vulgar logical connectives might be represented as being a matter not of logical but of pragmatic import.

For philosophers, the most significant of these divergences is that between the material conditional and the if-then of ordinary language. But Grice's Modified Occam's Razor ('senses are not to be multiplied beyond necessity'), honed with his personal philosopher's stone (the cooperative principle and its component maxims), cuts a wide swath through the ancient thickets of meaning and ambiguity—i.e. GRICE SAVES.

Grice observes in the same retrospection (1989: 375) that 'when a sentence which used in isolation standardly carries a certain implicature is embedded in a certain linguistic context, for example appears within the scope of a negation-sign', that negative operator may be 'interpreted as governing not the conventional import but the nonconventional implicatum of the embedded sentence'. I have argued (Horn 1985) that both Grice's case in point, the denial of a conditional, and that of 'paradoxical negation' in scalar contexts (You didn't eat SOME of the cookies, you ate ALL of them) can be subsumed within a generalized neo-Ducrotian theory of metalinguistic negation.

But where, you may ask, do the hamburgers come in? Grice departs crucially from his predecessors and from such coevas as Fogelin and Ducrot in regarding linguistic cooperation in the conversational enterprise as a subcase of a general theory of rationality (see again Georgi Green's paper in this volume). Thus, he reminds us,

It is irrational to bite off more than you can chew whether the object of your pursuit is hamburgers or the Truth. (Grice 1989: 369)

Ever true to the spirit of Quantity and to Washington's 97th Maxim,
Put not another bit into your mouth till the former be swallowed. Let not your morsels be too big.

(Washington 1988: 27)

Grice was always rational enough to bite off neither more nor less than his appetite allowed. But no man lives by meat alone, much less a philosopher of language large enough to beseige the warrone camps of Russell’s Modernists and Strawson’s Neo-Traditionalists (Grice 1989: 372). And anyway hamburgers need rolls. So it is meet that such a healthy portion of the Grecean legacy on pragmatic inference consists not of solutions but of problems and questions, of roadmaps and menus. For, as Grice reminds us elsewhere in offering a defense of absolute value admittedly ‘bristling with unsolved or incompletely solved problems’,

If philosophy generated no new problems it would be dead... Those who still look to philosophy for their bread-and-butter should pray that the supply of new problems never dries up. (Grice 1986: 106)

Fortunate indeed are we linguistic philosophers and philosophical linguists, nourished with the ground meat of conversational logic and the fresh bread of Grecean analysis. We know that we shall never starve, for we have been served the biggest Mac of all.

Footnotes

1 I would like to acknowledge the help of Jay Atlas, Bob Fogelin, Dick Grandy, Georgia Green, Jerry Sadock, Bob Stalnaker, and Jean Thomson in lighting my way along some of the longer and windier byways of scholarship.

2 As Aristotle’s pupil and successor as head of the Peripatetic school, as well as his nephew, the executor of his will, and the lover of his son (Stüber/Bekker 1854: 498), Theophrastus presumably knew whereabouts he spoke.

3 That the O vertex, unlike its three square companions, enjoys no simple representation was recognized by St. Thomas, who observed that whereas in the case of the universal negative (A) ‘the word “no” [nullus] has been devised [sic!] to signify that the predicate is removed from the universal subject according to the whole of what is contained under it’, when it comes to the PARTICULAR negative (O), we find that there is no designated word, but ‘not all’ [non omnis] can be used. Just as ‘no’ removes universally, for it signifies the same thing as if we were to say ‘not any’ [i.e. ‘not some’], so also ‘not all’ removes particularly inasmuch as it excludes universal affirmation.

(Aquinas, in Arist. de Int., Lesson X, Oesterle 1962: 82-3)

4 It will be noticed that Seshat’s hexagon has the Y above and the U below, as does the somewhat sketchier model of Hegenberg 1957. I opt here for Blanché’s vowel system for its mnemonic value. Von Wright (1951) proposes in effect a logical pentagon, with a nadir (= our Y) for the conjunction of I and O but no apex (= U) for its contradictory.

5 In fact, the triangulist perspective—minus the geometry—has its adherents still. Thus Kuroda (1977: 97-8) posits an ‘every-day reading’ of Some animals are white, which is ‘assumed to entail’ Some animals are not white, so that the two come out ‘logically equivalent’. Kuroda is not dissuaded from this ‘logical equivalence’ by his recognition that on its ‘every-day reading’, Some animals are not white since both propositions from a semantic account of assertoric and modal statements (Tagliabue 1981: 302):

The $\exists x$, the ‘possible’, may, to some extent, mean ‘all (x)’, the ‘necessary’, without everything or tortoise...It is excluded that while saying ‘nobody’ and saying ‘not-nobody’ (I) are contradictory and people are clever” (O), this means that

6 While something was clearly in the air, the Oronian atmosphere was decidedly diffuse. More fondly recalls as the ordinary language philosopher (letting be persuaded) until the death of their primus inter pares J. L. Councilor the loop as far as the development of the theory of

7 Note the connection between Relationism could make a speaker’s contribution more informative of material irrelevant for the current purposes.

References


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(Washington 1988: 27)
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Jays

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and modal subcontrariety is also endorsed by Morpurgo-
Taglabe (1981: 502):

The 3x, the ‘possible’, may, to some extent, come nearer and nearer to the
‘all (x)’, the ‘necessary’, without ever reaching it, like Achilles and the
tortoise...It is excluded that while saying ‘not-all’ (O) one could mean
‘nobody’ and saying ‘not-nobody’ (I) one could mean ‘all’. If I say “not all
people are clever” (O), this means that there are some who are stupid.

6While something was clearly in the air in the Oxford of the early 1950’s, the
Oxonian atmosphere was decidedly diffuse. His exclusion from what Grice (1986: 49)
landly recalls as the ordinary language philosophers’ ‘Play Group’ that met every Saturday
until the death of their imus impar parcats J. L. Austin may have placed Novell-Smith out of
the loop as far as the development of the theory of contextual implication was concerned.

7Note the connection between Relation and the second Quantity submaxim: what
could make a speaker’s contribution more informative than is required except the inclusion
of material irrelevant for the current purposes of the exchange?

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