

PERSUASIVE COMMUNICATION AS METAPHORICAL
DISCOURSE UNDER THE GUIDANCE OF
CONVERSATIONAL MAXIMS

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To Chaim PERELMAN
Teacher and Friend (1)

1 Introduction

The value of rhetorics is felt by many among our contemporaries a) In the theory of Literature, the «Rhétorique Générale» (2) produced by Dubois and the group «mu», offers a general theory of literary «figures» or «tropes» b) in formal logic Paul Lorenzen in his «antagonistic logic» (3) explains the properties of logical operators by means of rules for disputations; he is accompanied by Jaakko Hintikka's study of games of seeking and finding (4) in semantic dialogues, c) in the logic of value, Chaim Perelman (5) considers a generalized version of the Aristotelean rhetoric as the foundation of such a logic. His life work has extended this rhetoric to such an extent that for him, all practical reasoning (especially

(1) We want to dedicate this paper also to Mrs. L. Olbrechts-Tyteca, Perelman's co-author. Mrs. Olbrechts-Tyteca, who has in «Le comique du discours» developed in an interesting way the rhetorics she helped to renew, is a keen and benevolent thinker. In every point of view, put forward in her presence, she tries to discover the hidden value. Her never failing interest, cheerfulness and encouragement is gratefully acknowledged.

(2) J. DUBOIS (et le groupe mu): «Rhétorique Générale», Paris, Larousse, 1970.

(3) Paul LORENZEN: *Methodisches Denken* (1968).

(4) Jaakko HINTIKKA, *Logic, Language Games and Information* (Chapters III and VI), 1973, Oxford University Press.

(5) Ch. PERELMAN and L. OLBRECHTS-TYTECA «*Traité de l'argumentation*» La nouvelle rhétorique, 3^e édition 1970. (Edit. de l'Université de Bruxelles). This 3d edition is the republication without modifications of a first edition in 2 volumes that appeared at P.U.F. France in 1952. We shall quote this work as P-O.

legal reasoning, his own focus of interest) is guided by rhetorical principles.

The paper we are presenting here is guided by two ideas, pointing in apparently opposite directions.

Our first proposal is, that every form of argument, studied by Perelman-Olbrechts in their «Treatise on Argumentation» can be considered as the use of a certain intellectual figure of speech, most frequently a metaphor.

Our second proposal is that the theory of figures of speech in general, and of metaphor in particular can be given the status of a formal science.

Even a person who finds our first suggestion one-sided could accept that it would be a fruitful «perspective» to look at all «argumentative techniques» from the point of view of metaphor. (= to apply the metaphor of «metaphor» to all rhetorical reasoning.) Other perspectives might be equally fruitful. The value of the one we are going to adopt has to show itself by its results. The reader will judge. *If our first point of view* is fruitful, it is no longer needed to stress the differences between the «rhétorique des figures», considered as formal and static, of Dubois, and the theory of argumentation, considered as global and dynamic (Perelman saw such an opposition in his «Introduction» to «L'Empire Rhétorique» of 1977) ⁽⁹⁾. Quite to the contrary metaphor itself being a dynamic entity can very easily be connected with the action of argumentation. *If our second point of view is fruitful*, we are allowed to look for a link between the «formal rhetoricians» (Lorenzen and Hintikka) and Perelman. In fact we consider our undertaking, stressing maximally the connections between rhetorics and poetics on one side, and simultaneously stressing maximally the connections between poetics and logic on the other side, as a little Quixotic, but as an oxymoron not without grace and as an attempt to continue the dialogue with rhetorics and Perelman that we have begun in two earlier papers, claiming that his discovery can be exploited with-

(9) Ch. PERELMAN, *L'Empire Rhétorique*, Vrin, 1977, Avant Propos.

out his own ideological bias (?).

This aim divides our paper in four parts:

1. A preliminary sketch of a theory of metaphor
2. Perelman's argumentative techniques as metaphors
3. Towards a formal analysis of metaphor
4. Conclusion.

2. A preliminary Sketch for a Theory of Metaphor.

Let us consider the sentence «Man is a shadow» (1) (Pindaros)

This sentence occurs in a certain context C, that for obvious reasons we shall not describe, but the properties of which will be important in the analysis that follows.

I. The sentence (1) is false (in other cases it may even be a contradictory or a semantically absurd sentence). If a shadow is the consequence of light being intercepted by a solid body, and if by «man» is meant «the class of human beings» then it is obviously false that these organisms can be identified with the relative absence of light caused by a solid body intercepting the rays of the sun.

II. The hearer (or reader) knows that the speaker or writer knows this sentence (1) to be false and knows that the hearer or reader knows him knowing this.

III. The sentence is grammatically well formed (it is not gibberish, of the type of «abracadabra»: it is a syntactically correct English sentence).

IV. The hearer or reader, by consulting the context of speech (or of writing) C, can derive inductively or/and deductively from the context and its properties that the producer of sentence (1) a) is able to produce syntactically and semantically well formed sentences, b) is, according to the pre- and post-

(?) 'Rhétorique, Psycho-Sociologie et Logique' — (Logique et Analyse, nouvelle série, n° 21-22, pp. 263-314) and 'Assertion Logic and Theory of Argumentation' (Philosophy and Rhetoric, Vol. 4, n° 2, 1971, pp. 92-110).

context, indeed doing so and c) is moreover producing sentences relevant to the discourse expressed in the context C. From this conviction the hearer or reader derives the imperative «Interpret the sentence (1) in such a way that it is both a syntactically and semantically correct sentence, and moreover relevant to the discourse the speaker or writer is committed to».

Note. The conversational postulates of Grice (⁸), in a more or less generalised form, are considered to be applied by the speaker or writer. The hearer or reader believes indeed that the producer of the metaphor is applying some version of the conversational postulates, and thus is using the linguistic means at his disposal to effect a cooperation, or as Asa Kasher (⁹) would prefer, a coordination of the actions of the speaker and the hearer by means of instruments he considers optimal (thus making true relevant, meaningful, clear and succinct remarks).

V. (II) and (IV) cause a clash in the interpretation system of the recipient of the message (1). He can only conclude on one side that (1) is false, or contradictory or meaningless, or irrelevant (anyway counterpurposive for any person applying the conversational postulates) but on the other side he has strong evidence that his partner is indeed efficiently and purposively applying these same conversational postulates. So, the recipient is caused to believe (in virtue of this clash) that there exists one or more interpretations of the words «shadow» «is» and «man» that will transform the sentence (1) into a sentence (1'), that will be neither false nor contradictory nor meaning-

(⁸) H. Paul GRICE, *Logic and Conversation* (William James Lectures, ms.).

(⁹) Asa KASHER, «*Conversational Maxims and Rationality*», (*Language in focus*, 197-216, 1976). A. Kasher was with us at Ghent University and we discussed part of the final version of this paper together. In particular a) his view on analytical sentences as «extremes» (i.e. unallowed in every communication situation) encouraged us to interpret these analytical sentences, when they occurred as metaphorical and b) his strong stress on Grice's maxims certainly led us to give them here the central importance we already attributed to them in our «*Communication of Action*» (*Studies in the Theory of Action*, 1979, Communication and Cognition, Ghent).

less nor irrelevant. In general these sentences (1') are not unique.

(1') might be for instance all or any of the following list

1. Every human being is to a certain extent a copy of somebody else (here both the meanings of «is» and of «shadow» are changed).

2. Every human being is to a certain extent the result of an interaction between non human entities (again «is» and «shadow» are changed)

3. Every human being is weak and lacks resistance (features of «shadow»)

4. The universal «man» is not a real entity (here the meaning of «man» and of «shadow» is changed, «is» preserving its own)

5. Every human being is only an imperfect realisation of what he or she might be (here «shadow» changes meaning).

VI. The hearer or speaker either selects among the list of sentences (1') a privileged sentence and declares this to be «the literal meaning» of the metaphor, or he considers them all to be meant simultaneously, or he oscillates between the different sentences (1') and considers this oscillation between various beliefs to be the purpose aimed at by the speaker or writer. These different decisions will occur in function of context C. If context C is a poem, the reader will often take last decision; if the context is a funeral, the hearer will take it to mean that the vanity and shortness of human are alluded to and will prefer some interpretation like 3.

Note: In general, while an infinite number of simultaneous or successive changes of meaning of the words are possible — for sentence (1') other candidates might be found — the interpreter of the metaphor will select among the possible substitutions the interpretations that will show the metaphor to be the *minimal necessary deviation from common usage in order to achieve the purpose of the writer or speaker*. This preference derives from an extended use of the conversational postulates of Grice: if a speaker deviates from the conventional rules of the language he uses, this speaker will do it only if his meaning cannot be conveyed by any conventional use of the language

(this entails that no metaphor can have a literal equivalent), and he will make his deviation as small as it can be made. The concept of «measure of a semantical deviation or of «distance between meanings of terms» is unavoidable in the analysis of metaphor. This concept will be one of the topics of the final part of this paper.

Corollary: From the conversational postulates applied to a model speaker, it follows thus that no metaphor can be «translated» into literal language (if it could, the speaker would have no need to use it) but it follows also that the interpreter will, as we have done, produce a list of «literal» interpretations. Taken together, these two consequences entail that the list of interpretations must be infinite, for every metaphor. In order to obtain this result, we either must assert «for every syntactically grammatical but semantically deviant sentence (1) used by a speaker in the setting C there are an infinite number of syntactically and semantically correct sentences of the language L at minimal distance of (1)» or we must assert «for every syntactically correct and semantically incorrect sentence in the context C, there is only a finite list of correct sentences at minimal distance, but the relations between the sentences of this finite list have to be taken as asserted too, or at least as proposed, so that no finite list of beliefs, or statements could be equivalent to this potentially infinite sequence passing continuously from one hierarchical level to another.»

We do not want to bother the reader at the present moment with the consequences of this view of metaphor, the full complexity of which we only need in the cast of practical or scientific metaphors and not in the metaphors of natural language.

The sentence «he is a pig» means that the speaker wants to convey to the hearer that the person spoken about has many of the properties that are in the speech community to which they both belong, commonly ascribed to pigs (he is only interested in his food, he is living in dirt, he is making unpleasant noises, he exhibits his physiological functions indecently, he is very fat asf.). The delicate relationships between dirt, fatness, indecency, and food are of some psychoanalytical interest but

are certainly not intended to be evoked by the simple communication «he is a pig».

We wanted to make these last remarks however to prevent the reader from thinking that we believe that all metaphors are of the same type; quite to the contrary: a multiplicity of theories of metaphors seems to be needed to take into account metaphors of different types. This is not sufficiently stressed, it seems to us, in the current literature, just as it is insufficiently stressed that no metaphor can be reduced to comparison, or analogy. We do believe (our examples show it) that every metaphor can be partly «developed» by means of correspondence or analogy, but simultaneously, very strongly adopting the «interactionist» view of I. A. Richards, recently defended by Max Black, we think that the multiplicity of interpretational sentences, their interactions among each other as much as the interactions between the operations performed simultaneously on the different words of the original metaphorical sentence, are constitutive of the metaphor as such.

As a sketch or diagram, let us finish these preliminary remarks by the following summary:

1. $P(a)$ is «illegitimate» (meaningless, contradictory, false, irrelevant asf)
2. $P(a)$ should be interpreted as not being so (syntactical correctness and properties of context C)
3. There exists a list of properties $Q_i (i = 1, 2, 3...n)$ and a list of individuals $b_j (j = 1, 2, 3,...n)$ such that all $Q_i(b_j)$ are «legitimate» for same ij combinations and such that a privileged relation S (analogy or similarity) exists between $P(a)$ and all couples $Q_i(b_j)$. In some limit cases $P(b_j)$ or $Q_i(a)$ are to be found among the list. In some cases there exists a S maximum, but not always
4. There exists a list of relations R_i and T_j defined on the set of individual constants b_j and on the set of predicates Q_i such that a relation of the same type (to be defined) as the privileged relation S , exists between P and the members of T_j , and between a and the members of R_i .

The reader should not be worried by the abstractness of this

conclusion, that is not fully warranted by the remarks leading up to it.

We simply need that much machinery to point to the variables in the definition of «interpretation of a metaphor» (illegitimate, obligation to interpret, privileged relation, multiplicity of interpretations, relevance of the relations between the multiple interpretations). This finishes our preliminary sketch.

3. *Perelman-Olbrecht's Technology of Argument and Metaphor*

A rhetorical situation is characterised by the following features: 1. an agent: the speaker, 2. an audience this agent is interacting with by arguing, 3. the belief systems of the agent and of the different members of the audience, 4 the product of the interaction: these same belief systems at the end of the argument, 5. the purpose of the speaker-agent: the desired change in beliefs effected over time by his intervention, 6 the arguments developed by the speaker-actor.

Thus a rhetorical situation is a seven-tuple with the following elements: $[R, A(a_0 \dots a_n), B(x_i t_j), B(i_k), B(f_k), P(R, x_i, t_j, t_k), T(R, t_j)]$ where:

R = the orator (= a_0 as member of this own audience)

$A = (a_0 \dots a_n)$ = the audience composed of n agents-hearers.

$B(x_i t_j)$ = the belief system of the i -th element of the audience (R included) at the j -th moment of the speech.

$B(i_k)$ = the initial belief system of the k -th member of the audience.

$B(f_k)$ the final belief system of the k -th member of the audience

$P(R, x_i, t_j, t_k)$ = the belief system the orator R at the k -th moment of his speech wants the i -th member of the audience to have at the j -th moment of the speech (the purpose-set at moment k).

$T(R, t_j)$ = the argument used at the j -th moment by the orator.

Generalisations of this schema can be obtained by replacing R by a set, by adding preference systems, to belief systems, by

considering subgroups of A, by considering different orators at different times, by using unions, or other functions of belief sets to define P. Reasonable axioms for this seven-tuple can be found. This is not our purpose here however.

For us, who are strongly influenced by Kotarbinski's praxeology, a rhetor is an actor, working with certain materials (the belief system of the audience) to which he applies certain instruments (the presentation of his arguments) and by doing this he obtains certain results or products (the final belief states) that are (or are not) identical to the belief states he wanted to obtain. (his purpose)

Already this description of the rhetorical situation allows a typology: either the audience is homogeneous or heterogeneous as to the purpose the orator wants to obtain (the distributions of beliefs among its members are at equal distances from the distribution aimed at or at unequal distances); either the purpose is to preserve an unstable belief system or to install a new one; either the purpose is to obtain this end state in a stable way over a longer period or for a short period only; either the purpose is to provoke action or simply agreement on a certain number of assertions. As to the relations between the rhetor and the audience either he knows the audience in detail or he does not; he is himself known in detail or not known; he belongs to the audience or to certain groups among the audience or he does not. Many other distinctions between audiences can be introduced. Our aim here is not to add to our knowledge of the theory of audiences but to say just so much that we can use it to establish the relation between the types of rhetorical situations and the kinds of metaphors used to influence them.

It is interesting to remark that debate or discussion do not lie in the focus of Perelman's work (as they do in Lorenzen or Hintikka). He obviously wants to begin with the simpler situation in which fundamentally one speaker wants to convince one audience, the audience being certainly considered as active and the speaker being preceded or followed by other speakers defending other viewpoints. P—O study *macro-rhetorics* (speeches, full arguments) and in this sense their topic is

more complex than Lorenzen's or Hintikka's (who focus on the micro-rhetorics of logical constants) P—O introduce intensional entities (beliefs); Lorenzen does not but on the other side, P—O simplifies by avoiding *debate*.

We ask our reader to forgive us for presenting a more or less streamlined model of the discussion situation. It was needed to understand the structure of Perelman-Olbrechts' treatise and its relation with metaphor.

Any action will have to start with given materials. This entails that any discussion will have to begin with audiences agreeing on certain statements (expressing their initial belief states). These initial agreements are agreements concerning beliefs or agreements concerning preferences. Among these initial agreements, the starting points of the discussion, certain agreements are proper to very specific audiences, others characterise frequently types of audiences, and finally there might be universal agreements that will be accepted by any audience to which one can present an extended argument.

The initial points of agreement are studied unequally by P—O. They dedicate short paragraphs to the agreements about facts and about theories, but study in more detail the agreements about preferences and about value systems. We think that future work shall have to create a more balanced distribution of attention, but we shall for the time being follow their example and express our own first thesis with reference to initial agreement or preferences.

3.1. *Topica and Metaphor.*

P—O assert, p. 114 that «all audiences, whatever may be their nature, take into account certain «topoi», (principles for hierarchising values, that we are going to call principles of preference): «loci» of quality, quantity, order, existence, essence and person» (p. 114-115). The authors do not explain why all audience take at least some of these «topoi» into account, and thus we are entitled to ask: why is every audience characterised by the credit it attaches to certain of these topoi? Our answer is our first thesis: *every «topos» is a metaphor.*

Let us make this clear, by defining the most important *topoi*:

1. The *topos* of quantity: what is quantitatively superior, is to be preferred (this entails that what is used by more agents, or for more purposes or at more time points, is to be preferred, or what is believed by more persons or for more reasons is to be preferred).
2. The *topos* of quality: what is unique is to be preferred (this entails that the irreversible is to be preferred to the reversible, the improbable to the probable, the rare to the frequent, the unique truth to the many errors).
3. The *topos* of order: what is preceding something else in an order is to be preferred (the cause is to be preferred to the effect or the effect to the cause, the end to the means, the origin to the development).
4. The *topos* of essence: the typical is to be preferred to the atypical (this entails that the individual that corresponds most completely to its definition is to be preferred).

P—O do not define very clearly the essence of every different «*topos*» but we can take one example and work it out

«The whole is better than the part» (3)

This sentence is metaphorical

1. It is odd: the order of «preference» is an order of objects or events with reference to our action upon them; the order «whole-part» is an order of objects with reference to their intrinsic qualities. Saying that «the whole is better than the part» is thus to equate by our sentence a relational order with an intrinsic order.

2. It is used in a context that makes it clear that the speaker is competent to use the language, but (and here by the reasons why the «*topos*» is not seen as a metaphor, but rather as its opposite) it is also used in a context that makes it clear that the speaker does not consider his own usage as odd. (in contrast with the usual poetical metaphor).

3. The operation that makes the statement persuasive (that compels certain audiences to agree with the statements) is however an operation identical to the one we perform when we

interpret a metaphor: we either change the meaning of «preference» or the meaning of «whole and part» or both in such a way that the identification of one order (the preferential order) with another order (the part-whole order) can be derived.

In fact the topoi are all «dead metaphors» (like «the leg of a table» or «the root of the matter») and what we just did was «reviving» one of them.

All other «topoi» are similar in nature: they consist in the identification (unwarranted and unjustified) of one order with another (the order of preference is either identified with the inverse of the order of frequency, or with the order of causality, or with the order of finality, or with the order of necessity, or with the order of degree of personnality). In fact, all topoi are special cases of the third topos.

The attempts made by P—O to reduce the topoi to each other are themselves uses of metaphors. Again we take one significant example.

«The most frequent is unique and so must be preferred» (4)

We start out with an order on the object-level and establish frequency or uniqueness relative to the order of facts; then we change the level about which we are thinking and we order the classes of objects according to the number of elements they contain; if this order has a maximum, it is evidently unique according to the definition of maximum. Then we identify uniqueness on the second level with uniqueness on the first level (first oddity) and conclude that the maximum on this order is identical to the maximum on the preferential order (second oddity). The metaphor is believed and accepted only by means of a no longer conscious change in the meanings of the words used.

The reader will be aware of the fact that we can use these topoi to obtain radically opposite effects. When we compare P—O to other theoreticians of argument (Lorenzen, Hintikka, Hamblin) we see that P—O are complete empiricists: they are not concerned with valid reasons but only with reasons that are used in fact by certain audiences. This constitutes simultaneously their strength and their weakness; they are not

making strong presuppositions about their audiences, but they are neither guiding us as cynical Machiavellists (what argument can we use in front of what audience) nor as logicians (what argument is valid). Still they give us some important hints on pp. 129-30 from which we might derive a conjectural theory, if we add them to p. 114. The type of «topos» that can be used with good effect in front of a given audience depends upon the type of audience (p. 114: i.e. upon the initial beliefs of the audience), upon the type of purpose one wants to achieve (p. 129) and upon the type of objections one is going to encounter (also p. 129). If it is asserted that the use of «topoi» depends upon three different factors: a) initial belief state, b) purpose, c) probable counterattacks. The form of this dependence however is not further analysed.

Intuitively one might think a) that topoi using hierarchical order have more chance to succeed in front of audiences themselves characterised by strict hierarchical order, b) that the topos of essence has more chance to succeed in front of an audience that belongs to a stable group with fixed role patterns, c) that the topos of quality will only appeal to unstable or heterogeneous groups, d) while the topos of quantity seduces only groups with durable and clear majorities. This conjecture simply means the application of the following rule «an audience takes its own structure as metaphor for the structure of the world of values». The reader will remark that we did not use the other two factors of the rhetorical situation used by P—O: the purpose and the counterarguments. P—O in a particular instance suggest to apply the following rule «a rhetor uses those arguments the elements of which stand in relations that are metaphors for the relation existing between the initial state of beliefs and the state of beliefs aimed at». To counterarguments, (p. 60) they intuitively apply the following rule «The rhetor applies those arguments the form of which is opposed (the inverse image, the anti-metaphor) to the probable counter arguments». These assertions are empirical assertions to be proved or disproved by socio-psychological research; but we are mainly interested in their form: they con-

tain all in some more or less clear way themselves the concept of «metaphor».

We summarise the three assertions we made till now:

1. The various topoi to some of which each audience is sensitive, are based on dead metaphors. 2. The reduction of the various topoi to each other are based on dead metaphors. 3. The effectiveness conditions for the use of the various topoi in different argumentative situations are based on the use of metaphors by audiences and rhetors.

P—O also examine, although less systematically, the agreements proper to specific types of audiences (text-based or non text based audiences) or to concrete and particular audiences. If we wanted to be systematic we could point out that each of the techniques suggested again use metaphorical identifications. 1. If the rhetor pleads that one should continue in the future to hold a belief to which the audience has been committed in the past he uses the past as metaphor for the future. 2. If in the argumentum ad hominem, the rhetor pleads that the audience should accept a statement because not doing so would be in contradiction with its own beliefs, he takes the audience as metaphor for the standard of truth and falsity. As before, these different metaphors reflect certain necessities of the argumentative situation. But we can not, within the limits of an article, be too systematic. Having said something about the relation between the bases of argument and metaphors, we are now going to enter more deeply into our main topic by analysing the «argumentation technologies» described by P—O in the third and major part, of their treatise.

Here we think that our contention according to which rhetorics as exposed by P—O is in essence based on the use of metaphors has its strongest persuasive power.

P—O use in this third part the following basic divisions: arguments have either the intention to create relations between elements or to eliminate relations between elements (techniques of binding and of dissociation). Among the techniques of binding we find three different types: quasi-logical techni-

ques; techniques based on the structure of reality and techniques founding the structure of reality; We can see clearly the metaphorical structure of all three of these «technologies of binding or tying together». (to bind, to ty, to mirror applied to abstract entities are metaphorical words).

3.2. Our fourth thesis is: *the use of logical tautologies and of logical contradictions in argument is always metaphorical.*

P—O mention analytical sentences p. 292 and we can reformulate their analysis as follows:

1) When a speaker asserts «a=a» (a dime is a dime, a father is a father, a woman is a woman) he conveys no information at all and thus his statement is completely irrelevant for any communicative purpose.

2) Applying intuitively Grice's postulate of conversational relevance before it had even been formulated (p. 292) P—O discover that the audience concludes that in fact the two words that are repeated cannot have the same meaning in their first and second appearance.

3) and thus the audience feels that there must exist a hidden difference, and that once this hidden difference has been discovered (any dime has a non negligible monetary value, every biological progenitor has certain affective attitudes, every female of the human species has a tendency to be a mother) applying the rule that it should be at minimal distance, this difference is in a second move overcome by a re-identification (the subject is identified with the bearer of the predicate).

If the reader consults our analysis of metaphor he shall discover the very strong analogy between the quasi logical argument using analytical sentences and metaphors. The same occurs when contradictions are asserted. When the rhetor proclaims «a is beautiful and not beautiful» again telling his audience something that is of no informative value (think about «man is a shadow») the audience, assuming that he applies the conversational postulates anyway transforms this into «a part

of a is beautiful and another part is not, or from one point of view a is beautiful, and from another point of view it is not». This means that the audience behaves towards the statement as towards a metaphorical one. Even showing that an audience holds contradictory views is in fact compelling it to commit itself to such a sentence and thus compelling it to apply to its own commitments the technology of interpreting contradictions as metaphors that are derived from the conversational postulates. P—O could have derived everything they say about the creation and elimination of incompatibilities (by extending or contracting the field of application of rules and terms) from this remark about the interpretation of *prima facie* non informative contradictions.

Even more important perhaps, in the economy of P—O's treatise, is the relation between metaphor and the rule of justice. «If one defends a rule when it is at one's own advantage, one can not refuse to apply the same when it goes against one's own interests». The claim is based on the fact that committing oneself to one application of the rule, one commits oneself also to all other application. This is not a deductive proof because — either the two applications are rigorously identical (and then nothing is obtained) or — they are non identical (and then one could always claim that the difference invalidates the rule). In fact every particular application of the rule of justice, in order to have a point, must simultaneously assert a difference, and claim it to be irrelevant. If the application of « $a=a$ » is a metaphor, the application of « $R(ab)$ entails $R(ac)$ » because b is equivalent to c (because b and c belong to the same natural class) is equally paradoxical, because the claim of pertinence of the equivalence class (and the symmetrical claim of irrelevance of the difference), presented as evident, is a paradox; it can never be evident without defense and it is presented as not needing a defense but as constituting itself the foundation of the conclusion to be arrived at. This mode of presentation is metaphorical.

The use of the argument by reciprocity can be reduced to the use of a particular analytical sentence. We know from logic that there cannot exist a relation R between a and b , if the

converse of R does not exist between b and a (example: there is no mother without a child). Saying this is not informative. So the hearer interprets this statement metaphorically and identifies the empty statement «every relation entails its converse to exist in the opposite order» as the informative but false statement «every relation entails its converse to exist in the same order». This interesting (though false) conclusion warrants then the example on p. 99 «when a mother is not a good mother, the child is not a good child». If the existence of converses is explicitly asserted, then the rule about the metaphorical interpretation of analytical sentences and about the replacement of non informative predicates by informative predicates at minimum distance allows us to behave as if all relations were symmetrical (who are indeed identical to their converses).

An interesting complication occurs when we look at the argument from transitivity. Why would the statement «If aRb exist, and bRc exist, then aRc exists» have any argumentative value? All of us know that not all relations are transitive and that it is false that the friends of our friends are our friends. If we apply the conversational postulates to the premise we understand more however. Let a speaker make the remark «John likes Peter and Peter likes Ann». This remark would be «pointless» (an irrelevant remark would have been made) if some statement could not be derived concerning the relations between John and Ann (the relations between all the other participants ly already before us anyway, in so far as the text throws any light upon them). So the first condition for the existence of the metaphor exists; the remark is odd. The remark is no longer odd however when the conclusion «John likes Ann» (or «John does not like Ann») is derived and when the relation is either treated as transitive or as anti-transitive. In fact however this means that a more general relation has been identified with one of its specifications, at minimal distance of it (to make the remark relevant). P—O imply as much when (p. 308) they claim that the R in their example is identified to an identity. (and identity naturally is always a transitive relation). We think that this is only a special case, of a much

more general mechanism generated by the conversational maxims.

The typical clash that announces the presence of metaphor is produced in this instance by the pointlessness of the remark made by the speaker if some consequence that can not logically be derived from it, is not taken for granted (by substituting one relation for another.)

We have seen the metaphorical use of identities and implication (in analysing $a = a$, or « p entails p »); we have seen the metaphorical use of negation and conjunction (by analysing contradictions). It is obvious that we shall also encounter the argumentative use of disjunction by analysing the argumentative use of the excluded third. Again, « p or not p » (not explicitly mentioned by P—O but underlying the use of dilemmas or divisions) has no informative value. It will be metaphorically interpreted when occurring in texts as having an informative value at minimal distance from the asserted one. One interpretation will be the following one: a) not p is replaced by a q , that is, in some order, in polar opposition to p and b) it is taken to be asserted that these two possibilities cover the whole field of possibilities (either I know all or nothing; either attack or retreat asf). If we introduce predicate logic, then we can introduce unions in the subject, and disjunctions in the predicate and the effect of introducing these logical operations on the argumentative value of the assertions can be looked at. P—O however never introduce any logical symbolism (and it is not the first time that we regret this) that would help them to classify their numerous examples. P—O analyse many more so-called «quasi-logical» arguments but we think that we have made our point sufficiently clearly to enable us to leave the analysis of these examples to the interested reader, who might, combining Grice with P—O develop even a systematic procedure for the generation of quasi-logical arguments.

3.3. We now present our fifth thesis: *the arguments based on the structure of reality are based on metaphors; but this time the whole theory of figures of speech will be needed* ⁽¹⁰⁾.

⁽¹⁰⁾ Gérard GENETTE: Figures (1, 2, 3) — Seuil, Paris.

Metaphor is to be combined with metonymy, irony, hyperbole and litotes. The point we are going to make remains however essentially the same: a) the persuasive force of P—O's argumentative techniques is due to the fact that they are interiorised «figures of speech» working not on the superficial level of expression but on the deep level of thinking, b) using all the time Grice's «conversational postulates» whose importance and force are documented by the fact that they explain finally (a feat P—O have been unable to perform since the first edition of their remarkable work) the «force» of their techniques.

We are going to comment upon a) relations of succession, b) relations of coexistence, c) relations of symbolism.

3.3.a. *Relations of Succession.*

We know from classical rhetoric that the attribution of properties of the cause to the effect or of properties of the effect to the cause are forms of metonymy. It is an unsolved problem why this transfer of properties by means of causal relations should be generally accepted by many audiences (this is attested by the fact that often the cause is named by the name of the effect or inversely). To understand let us again apply the conversational postulates. We encounter in a speech the assertion «x causes y». Certainly, if we were thoroughly systematic we could ask ourselves if the concept of «cause» itself is not a metaphor (a connexion that is used as a metaphor for an identity; such a radical point of view could explain much about the traditional controversies concerning the causal relation). Let us not depend completely however on a peculiar conception of causality, that, interesting as it is, cannot command general adhesion. Let us take the «causal relation» (not analysed by P—O) on its face value. Let us first note that x and y being qualitatively and spatiotemporally distinct events the fact of our bringing them together is an «odd» (surprising, sometimes semantically clashing statement). Why would a speaker

be allowed by the conversational postulates to mention this fact in the course of a conversation? The speaker is supposed to give at any moment true, and clear information that will be sufficient and not too elaborate to allow the conversation to reach its given purpose. In a conversation that is directed towards the preparation of direct action, knowledge of x-type occurrences, will be important for the production or prevention of y-type occurrences. If the conversation is not directed towards direct action, then the remark can have as only point the attracting of the attention towards a common property x and y share. For this reason the «rhetorical move» that transfers properties of the cause to the event or properties of the event towards the cause is in general successful. For exactly the same reason, metonymy is accepted as a rhetorical figure. Metonymy and the rhetorical use of causality derive from the same conversational postulates or maxims.

We can assert that the conversational maxims presuppose a conversational «principle of causality». If it is mentioned that a certain event did occur in the course of a conversation, then if the conversation is a goal directed action, there must be some purpose served, by the mentioning of this event. This purpose can only be to convey that the event stated is either the consequence of an earlier mentioned occurrence or the cause (or one among them) leading towards an event to be mentioned at a later time. We do not have to presuppose a universal agreement in all audiences on some principle of causality, believed for ontological reasons. The rationality of human intercourse already leads us towards not introducing events in our talk that are not further developments of earlier ones or preparations for future ones.

The pragmatic argument, examined at some length by P—O, is only a specific application of the «metonymic rationality» mentioned above. Here the property of the effect that is transferred to the cause, is its value. It is clear that the transfer of the value of the consequences to that of the cause is due to a conversational rationality maxim when we learn (p. 362) that the chain of causes and effects is not allowed to become arbitrarily long. The talk would not be perspicuous and of

maximal simplicity if the speaker had the intention to relate the effect to a far away cause. The limited extent of the human attention span must be taken into account. The fact that the pragmatic argument is transferring the value of the effects to that of their cause and not the value of the causes to that of their effect can only be derived from the fact that speech being, as all goal directed action, future directed will indeed draw the attention of the hearer to the evaluation of the past in terms of the future and not of the future in term of the past.

At this moment the reader might want to interrupt us to object that synecdoche, metonymy and metaphor are after all not identical figures of speech and of thought. We think we have made a case in favor of the intervention of metonymic rationality as a basis for the arguments from causality, but what is the relation between metaphor and metonymy? Gérard Genette has shown that we should not take the opposition between metaphor and metonymy as too centrally important; we could after all (it was already said) consider, in most contexts, the use of the causal relations as a metaphor. When it is claimed that John was the cause of Peter's suicide, it is in fact false that any action of John produced Peter's suicide, but we can overcome this typical «oddity» by showing that certain features of the history of Peter added to certain consequences of John's actions in fact made Peter's suicide inevitable. We have here the typical trend of thought to be encountered in every metaphorical interpretation.

The relationship between causes and effects, is one of the two major relations of succession considered by P—O. The other major type of this class is the relationship means-ends. We could refrain from commenting upon it, because we could consider the arguments about means and ends as simple reversals of the arguments about causes and effects (means are in general causes of the events, that are their ends). We cannot do this because the transfer of properties goes this time in the opposite direction: in general the properties of the ends are ascribed to the means (although counterarguments are perhaps more in evidence than in the case of transfer of properties from cause to effect). In fact, when we look at the situation

from the point of view of the conversational maxims we do indeed find that discourse, as a goal directed action, makes the mentioning in the content of discourse, of other goal directed actions, have a particular significance. Why indeed would it be «*relevant*» information, to mention that action A had as its purpose the result F? The only possible answer can be: to inculcate or disculpate the actor of A by means of referring to properties of F. It is thus after all a consequence of the same conversational maxim that allows the pragmatic argument to have any success.

The global consideration of cause-effect and means-ends relation can also be combined with their decomposition into a series of intermediary relations of the same type. If the steps become smaller, the solidarity between their initial and their final states becomes stronger (this derives from the perspicuousness maxim of Grice). The fact of increasing solidarity can be used negatively to prevent even the occurrence of a small fragment of the sequence of bridge relations or positively to facilitate the passage because near-identity becomes a metaphor for identity and so the fact that nearly nothing has to be done, becomes an argument for doing something (the typical contradiction to be found in metaphor is here present in clear form). The directional argument of par. 66 is the negative version of this decomposition of our metonymies, and the «*transcending argument*» of par. 67 is the positive version of our decomposition, P—O *recognise on p. 391-394 the affinity between the theory of figures of speech and the arguments from succession when they mention the hyperbole and the litotes.*

Let us analyse two simple examples of these expressions: «He is My God» (6) and «Let us admit that I am not too ugly» (7).

The sentence (6) is odd: if the word «God» is taken in its usual sense the sentence is false. I certainly do not worship «him» as being an all knowing and all powerful creator. So I have to reinterpret (as I always have to do in the case of a

figure of speech) and in reinterpreting I have to use the principle of minimal distance. I shall then replace 6 by «He is a being that has more value for me than any other being». The relationship between 6 and the arguments drawn from the decomposition of causal or final relationships is the following one: the operation of considering «him» as an end with everything else taken as a means is presented as being infinitely repeatable (the same effect that seems to make a passage from means to ends irresistible). The affinity between hyperbole and metaphor is made clear when we look at another «hyperbolic» expression «Nothing will be that has not been». This expression (p. 392) is literally taken false and even in contradiction with the essence of time but it suggests that there are a large and undeterminate number of non specified equivalence classes, relevant to our discourse according to which the past can be taken equivalent to the future. When a person tells you «I am not ugly» the conversational maxim applied is to interpret this communication in such a way that it is purposeful and relevant. If the person were ugly, we should be able to see it; in a dichotomic classification of bodies and faces, «not being ugly» is equivalent to «being beautiful».

Taking into account the fact that in all discourse the speaker refrains from attributing admirable qualities to himself because of the adverse effects of such a procedure, we derive from this intuitive knowledge and from the fact that anyway by means of this statement our attention is attracted towards the interpretation of the esthetic merit of the other's appearance, that he or she means to say «I am beautiful» When I say to somebody who has committed an evident error «You are a genius», I state, p, by means of asserting not p. This I do by combining hyperboles and the intuitive knowledge about his behaviour I suppose to be common to myself and my audience. Whenever negations are used the reader should also think about the metaphorical reinterpretation of the excluded third.

I can interpret hyperbole, litotes and irony as metaphor or I can refrain from doing so. The issue is not very important. The reader will see that the use of conversational maxims is the basic feature that causes their rhetorical efficiency. The

reader will — so we hope — also see that we claim that by applying completely classical maxims of technological rationality to speech situations, we are able to explain the so-called «neither deductively formal, nor inductively formal», «rhetorical arguments» claimed by P—O to belong to a specific type of «rhetorical rationality». If we are right *their substantial empirical work is correct but their ideology is not needed*.

3.3.b. We are now going to examine the arguments taken from relations of coexistence. Here we have less need to refer to figures of speech different from metaphor. The categories used are clearly in major part metaphorical. P—O assert that the basic argument of this category consists in claiming that the properties of a person belong to the actions of this person, or that the properties of the action of a person belong to the person himself. When we read «X is a hero» knowing meanwhile that x is an elderly bachelor living in peaceful retirement, then we know that literally speaking this statement is false. Either we have to reinterpret «X» (and then X means some attitudes common to the retired gentleman and the young soldier that led his troops in battle) or we have to reinterpret «hero» (and then we have to take into account that this quiet person is just finishing a book he spent forty years writing). This multiple possibility of reinterpreting the subject or the predicate and the fact that we have to reinterpret in order to prevent the statement to be false is sufficient to show that a statement attributing such predicates to such subjects is a metaphorical statement. The transfer to actions of the properties of persons is not less metaphorical. «This is a good deed» (proclaimed by a speaker who espouses a system of ethics in which the value of an action is determined by the intentions of an action) is a statement that is literally false. The deed is here the representative of the person and ethical properties that only persons can possess (in this ethical view), are transferred to actions. Where could a better realisation of Max Black's «interactionist» viewpoint or metaphors be found than in this field where either the status of the person (the tenor) is modified by the properties of the action (the vehicle), or the status of the

action (the vehicle) is modified by the properties of the person (the tenor) ? For us «The defenders of Massada were heroes» is a statement of the same type as our «Man is a Shadow» and the different ways according to which we may handle the relationship between action and person show that these relations possess exactly the properties we discover in metaphors.

To take another example, used by Black «Man is a wolf» is only a metaphor because man *is not* a wolf and because, notwithstanding this contrast, a comparison of men with wolves throws light on the nature of both (in different directions, at different moments of the oscillatory process the interpretation of a metaphor consists in). By the same token, the person is both different from the sequence of his actions (Sartre's «man is his actions» comes as a revolutionary paradox) and still both action sequences and personality are revelators of each other. According to strict methodology the status of proper names and of definite descriptions («Simon Stevin», or «the philosopher of Abdera») should be brought in connection with the conversational maxims. It would lead us too far to attempt to do this here. Let us only say that the ease of the transfer will depend on different applications of the distance concept: if the hearer does not know much about the person, he will consider the person from the point of view of his actions; if the actions are ambiguous they will be interpreted by means of the person, if it is easier to make the preferred statement literally true, by modifying the characterisation of the person in function of the specific action, the action qualification will prevail over the person qualification; if the opposite decision causes less modifications, the opposite argument will bring more conviction. If literal truth can be reached with equal ease by means of both modifications (of action or person characteristics), the strength of the two types of argument will be equal. We can only assert all this, and we are fully aware that only a painstaking analysis of all examples offered, placed in various contexts, could bring proof. However we offer at least a hypothesis to explain why in some cases the argument action-person works in one direction, while in other cases it works in the opposite direction. P—O need such hypothesis to continue their work.

A special use of action-person interaction is to be found, as P—O remark, in the argument from authority (an assertion is true or should be believed, even without proof, because it is asserted by a given type of person). Certainly, the argument of authority, dangerous as its use may be, cannot be missed (because 90 % of everything we believe is believed by us on the authority of others). It can be weakened or strengthened by inductions (the number of times the authority in question has been right in analogous cases) but its basic force is only brought forward when we bring out its paradoxical quality. Let us consider. «This statement is true because it is asserted by Aristotle». Such an explicit assertion is certainly wrong; no authority warrants the truth of all claims he makes; truth is a relation between facts and statements not a relation between persons and statements. So either the person has to be reinterpreted (he does not speak in his own name only: he is inspired by a higher authority, or he speaks in the name of everybody, or he reflects in a clear and complete way the nature of facts) or the statement is to be reinterpreted (so that it reduces in the end to a manifestation of the intrinsic propensities of the authority itself (Christ does not reveal truths about nature but shows his own inner self)).

The typical oscillation of metaphor interpretation occurs also in this specific and important case of person-action interaction.

Negative confirmation of the metaphoric character of the relation between person and actions is to be found in par. 71, studying the technology of breaking up the relation between the action and the person. If indeed our claim is true then the techniques used to «kill» a metaphor (i.e.: to reduce it to a literal statement) must be exact replicas of the techniques used to rupture the connections between the properties of actions and persons by maximalising the stability, separateness and autonomy of the two poles. Looking at «Man is a Shadow» I can describe man in biological taxonomy and shadows in perspective geometry; looking at action I can use concepts like unimportant, irrelevant, external analogy or coincidence, corresponding to the techniques of claiming that an action was done under duress, in exceptional circumstances, by only

part of the self. As speech acts are also actions of persons, the theory of the interaction between actions and persons can also be applied to the theory of speech acts itself (to use a concept due to Austin and Searle that could not be used by P—O, writing earlier than these authors). It is interesting to note that the application of the theory of metaphore, according to us, a special case of the application of conversational maxims to sequences of speech acts, can also be applied to the theory of speech acts itself. Fruitful future applications are to be expected.

When I want to say that an inhabitant of Marseille is of a sunny disposition, I can say, «Marius is optimistic» taking a specific member of a group as representative of the group. Marius being non existent or dead, and his optimism being in doubt (if we remember the character brought to life by Raimu) this assertion is highly uncertain if not false. But, we interpret it in the by now well known way as metaphor and we convey to our audience the thought we wish to express. Groups and their members interact thus, either in virtue of the application of the «thought figure» (internal correspondent of the language figure) of «synecdochè» (part for whole— whole for part) or in virtue of an analogy between persons and groups, members and actions (itself a metaphorical state of affairs). P. 445, P—O themselves implicitly agree with us when they state «the different bounds of coexistence result ... from the *transposition* (= (L.A.): metaphor) of the action-person relationship» (p. 445).

As the reduction of different topoi to each other was done by means of metaphorical means, the reduction of different links of coexistence to each other is realised also by means of various metaphorical techniques.

Any reader consulting the earlier parts of this paper, will see that the reduction of the topoi to one basic topos is not unique; in the same way the reduction of the coexistence relations (either the relation action-person, best worked out by P—O, or the relation essence-manifestation, or the relation symbol—symbolised) is not unique. We want to attract attention to the concept of symbol because the relationship between metaphor and symbol is deep and important. When in a totemic

society, a person tells you «I am a bear», he is not claiming that he lives in forests and eats only honey (as the bears of our childhood are want to do), but he claims that he participates to a certain degree in the essence of a mythical bear, and that this participation induces in him various characteristics, common to his clan and its totem animal. Is this a simple metaphor? By no means a) we have a *synecdochè* (being part of), a metonymy (the clan member is a descendent of the original bear) and a *metaphor* (he is bear-like in consequence of the combination of the *synecdochè* and metonymy mentioned, applied not to the real but to the mythical, original, prototypic bear).

Some among us would be willing to defend that this combined use of all the figures our languages put at our disposal is the original use of them and that the more simple cases we did encounter until now in the course of our paper are only impoverished instances belonging to more abstract and less vivid speech. We are not going to enter in this controversy. The convergence of the ideas of myth, symbol, metaphor, metonymy and *synecdochè* has important consequences. If the cross is used as a symbol of either tragedy or convergence of both is then not an object used as a metaphor? Do we not have a non verbal language? The believer who dies with his hand on his crucifix, is he not by means of this gestual language, stating to himself «I trust in the one who died on the cross and my death is his death». This very real implicit statement is, when literally interpreted, false (his death is not Christ's dead, and his trust his not more than a mixture of hope and conjecture, used in the hour of need as help and stabilising agent). We would claim that ritual action is metaphoric action, that flag, moon, sun are metaphorical objects, that the same type of interpretation that we have to apply to verbal metaphors is also to be applied to non verbal metaphors (let us not forget Cassirer's interesting «Philosophie der Symbolischen Formen») These claims have to be defended and we defend them by an analogy. In the same way as the conversational maxims, applied to verbal interaction, affect statements that are either absurd or false, making them metaphorically meaningful, cooperative maxims (the conversational maxims are only special

cases of general cooperative maxims), apply to non linguistic collective actions that are not, *prima facie*, helping the group to reach its ends, and allow the members of the group to insert these regular though technically useless motions in the purposeful course of its operation (by ritualistic interpretation).

This important remark had to be made in order to stress the many connexions the theory of metaphor has with the theory of collective action in general.

There exist however verbal correspondents of metaphorical objects or actions, and these verbal correspondents we call «symbols» (the term «correspondents» is on purpose kept rather vague, we may mean by it instruments of these ritual actions, or representatives of these ritual objects). What are the conversational maxims that allow us to apply the properties of symbols to the things symbolised or the properties of the things symbolised to the symbols? The answer is to be found in the correspondence rules between conversational maxims and cooperative maxims, the ones giving metaphorical interpretations to «odd» statements, the others giving ritual significance to «useless» actions. Because a Christian when entering a church makes the sign of the cross and because of the ritual significances of this gesture we can claim «that the cross is holy» (in his community). He knows that a piece of wood is not entitled to particular respect (and this «is not holy» in a literal sense), but the ritual connection between cross and Christ leads him to come to his conclusion (expressing itself in action).

Is perhaps the person also the symbol of his actions? Is perhaps the action also the symbol of the person? A case could be made in favor of these conjectures but it is sufficient for us to have extended the field of application of our theory out of the linguistic sphere, guided always by maxims based on man's technological rationality.

3.4. We now wish to conclude our analyses of P—O's «technologies of linking» by commenting upon their account of «Connexions that establish the structure of reality».

This part of the Treatise will be rather important for our purpose because here P—O offer their own theory of metaphor,

based on analogy, and here our own central concept will have to be confronted with the analysis they offer for the same.

We start with some comments, about argumentation by example, by illustration, by model and anti-model.

The authors stress that they are not concerned with inductive logic and warn us not to understand their remarks as contributions to this important topic. We agree with them and we think that our own way of analysing their examples strengthens their remark. Let us examine the following statement «Big towns with a population of over five million give rise to a high criminality rate: look at New York». If the speaker having announced the principle, uses a particular case he is giving according to P—O an illustration; if he describes crime in New York and then concludes with his principle he argues by example (according by P—O). We consider the two cases together. We are playing the part of the hearer and we first ask our selves if there is a clash of rules, an oddity, a paradox, a contradiction. Certainly there are no such things in the description of New York, nor in the general rule. But there is some oddity in the connexion between the two. The metaphorical statement on which this type of reasoning is based can be paraphrased as «All big towns are New York». Having found the metaphorical basis of the reasoning and applying the maxims of conversation, we derive that the speaker has evidence about certain analogies (non specified) existing between New York and all big towns. We are more or less guided by him in discovering the analogies he has in mind. The oscillation typical for metaphorical interpretation will occur because when we compare successively different towns with New York either New York will determine the features of the other towns we are focusing upon or the towns compared will determine the type of properties of New York crime we investigate. Will the example convince? The conversational postulates make us believe that the speaker knows the truth, is willing to say the truth and is saying what he knows in a clear simple and relevant manner. We thus will engage in our process of comparison and will take. We only have to think about Max Weber's use of Brugge or Venise as examples of the commer-

cial town in the middle ages, or about sentences as «when you want to understand dictatorship, look at Hitler», a model for those in favor of «strong man» leadership, an anti-model for those fearing such types of government, to understand that the argument from models is an elaborate and precise use of metaphor. The model is not identical to what it is the model of, but what it is the model of can only be truly and intelligently described by using one or more models; the differences between the things modelised and the model are as important as the convergences; more than one model can be used; every model is characterised both by the fact that it can be elaborated and extended and by the fact that it has natural limits of application. All these features are shared by metaphors and models.

May Hesse⁽¹¹⁾ and many other recent writers have stressed that the use of models in sciences and the use of metaphors are intimately connected. We would consider that the scope of P—O's rhetorics would be enlarged and the importance of its use enhanced if their work could be combined with the work of Hesse's school. We also consider that the work of May Hesse and many others could be made more intelligible from a general point of view if the general principles of collaboration, coordination and conversation were to be applied to scientific collective action and scientific communication, in the same way as they have been applied to non technical intercourse, explaining why in both cases, same reasons have same effects.

Anyway the relationship between model and metaphor, the relationship of example, illustration and model are new arguments in favour of our general thesis.

Having made these remarks, we finally arrive at P—O's own study of analogy and metaphor. In the literature (we refer to Shibles summary of P—O's theory of metaphor⁽¹²⁾). Rather

⁽¹¹⁾ MAY HESSE: «*The Explanatory Function of Metaphor*,» (Int. Congr. Philos. of Science, Jerusalem meeting, 1964). May Hesse, *Models and Analogies in Science*, University of Notre Dame Press, 1966.

⁽¹²⁾ W. SHIBLES, *Metaphor*, (Language Dress, 1971) p. 222 «a rhetoric based on Thomistic thought. Metaphor is a condensed analogy» (comments on P—O).

inadequate statements are current about P—O's theory of metaphor. Shibbes qualifies their theory of metaphor as based on Aristotelian metaphysics, and identifies their view with a classical analogy theory of metaphor («x is metaphorically y» would mean «there exist an analogy between x and y» Taken abstractly this is a vacuously true statement for all x and y, and if a *specific* analogy is meant, too poor an analysis of metaphor results because the creativity and irreducibility of metaphorical language are not explained and the interaction between the reinterpretations of x and y not mentioned).

These inadequate references to P—O's views can be explained by the fact a) that Shibbes did not study very deeply P—O's analysis of analogy (a concept that embodies for P—O all the features a follower of I.A. Richards, such as Max Black and those who are guided by him, might ask for in the analysis of metaphor) and because P—O dedicate much more attention to analogy than to metaphor, b) neither P—O themselves nor any other person (the present writer included) did understand the pervasive presence (and thus the richness of content) of the concept of metaphor in the work of P—O, until our attention was drawn to it as the result of reflecting on metaphor as such.

With Kant, Whately and Cournot, P—O take (p. 500) the general formula of analogy to be «A stands to B, as C stands to D». A standard example would be «intelligence is blinded by evidence, as the eyes are blinded by the sun». In this example, we see obviously already the presence of a metaphorical relation: taken literally, intelligence can not be blinded by anything. So the general formula of P—O would use a metaphorical identity as follows: $R(ab) = R(cd)$ where both $R = S$ or $R \neq S$ is false or meaningless. When P—O make the suggestion to call A and B the «thème (= topic) and C and D the «phores» (= used analogies) they are obviously thinking about the distinction made by I. A. Richards for metaphors, between the tenor (the objects to which the metaphor refers) and the vehicle (the objects by means of which the metaphor refers

to its prime content). Because of the central importance for the theme of this article of their theory of analogy and metaphor, we are reading with attention even the details of their description. We notice a) that they define on p.500 analogy as a similarity of structure, b) and distinguish (p.501), analogy from mathematical proportionality (for them only a limiting case of the concept of analogy). The reason that makes them distinguish very clearly proportionality in mathematics from analogy in rhetorics is due (this is important in view of our topic) to the fact that for them the elements of the tenor (we are using the English equivalents of their French usage) belong to «other domains» (p.502) than the elements of the vehicle, no mathematical proportions being possible between elements of different domains. What however is a «domain»? When I say that matrices stand to series as surfaces stand to lines, I certainly am speaking about different domains. But the relation is strictly identical in both cases. When I am saying that New York stands to Antwerp as Betelgeuze stands to the sun I am again speaking about different domains (and this time they are even farther apart. The one belonging to geography, the other to astronomy) but the two relations are strictly identical (having a larger spatial extension). We are convinced that as long as P—O do not specify with more precision what are «different domains» they are not expressing the core of their conception of analogy.

The positive examples they mention (intelligence and light, love and animal behavior) convince us that the two relations of their formula must belong to different relational domains (even though they share certain relational properties). We do not find this remark in P—O's text: we believe however that they have this idea in mind. If this is correct, then the reader understands that the identity in the general formula « $R(ab) = S(cd)$ » can not have a literal, but must have a metaphorical meaning. If this is the case, then we must reverse P—O's treatment of metaphor and we *must define analogy by metaphor and not metaphor by analogy*.

Note: We shall proceed and gather more evidence in this

direction as we learn more about their conceptions of analogy. It is strange that P—O who use an expression, explicitly occurring in *Principia Mathematica* II («similitude of structure») do not point out that this concept is much more general than the concept of «proportionality» (a structure is an equivalence class under isomorphism and similarity between structures is a mapping of a structure into another one). This concept is much more abstract and rich than that of proportionality in that a) instead of 2 members it may contain n members and b) instead of identity of relations it only needs projectibility of the relation R into «part» of the relation S . Using fuzzy relations and fuzzy maps we could even generalize it further. We think this to be a worthwhile path, but knowing P—O's anti-formalistic bias we are not going to pursue it.

A series of remarks made by P—O themselves will, so we hope, confirm our thesis as out the primacy of metaphor:

1) if an analogy, generally possessing four terms, only displays three terms (of the form: A stands to B as B stands to C), then the common term (p. 505) belonging to two different domains must necessarily be used in two different meanings (that, so we add, can only metaphorically be identified — first confirmation).

2) Another example leads to the same conclusion: «money, when put on the plate of a balance, causes sudden disequilibrium like money entering into a deliberation falsifies the decision» is an analogy of the form « A is to B , as A is to C »; one uses A again necessarily in a metaphorical sense (money in the sense of «heavy solid» and in the sense of «overwhelming influence» become identified).

3) between the terms of tenor and vehicle strong and asymmetrical interactions exist: «man runs after rewards like dogs after meat»: a) by the fact that the two situations are compared, one of them is devaluated (the fact that dogs run after meat is not always despicable, but in this context it becomes so), b) the tenor is coloured by this degraded vehicle, but, although less strongly the vehicle is also influenced by the tenor (if we adopt an interactionalistic view on metaphor). If

P—O's analogies are based on metaphors (as our analysis has shown) then this interaction between the two parts of an analogy is to be expected and can not be avoided. And it is the case. Let us also notice how clearly metaphorically the «running» is meant here (man do not «run» after rewards in the literal meaning of: displacing themselves in space with high velocity, and dogs do not necessarily «run» after meat: they jump, and bark and bite in order to obtain it).

4) in the case «A is to X, as B to C», where X is unknown, the analogy is used to determine X, but in general this determination is not possible in a unique way, so that the similarity of relations that exists is only attributed to tenor and vehicle in many different meanings, all of them important simultaneously or successively. As one of the most important uses of analogy is this one, and as any place in $R(ab) = S(cd)$ may be an unknown variable, this assertion gives to many contexts in which analogies occur an even more pronounced metaphorical character. Nowhere this effect is clearer than when two of the four terms are unknown, as in the «*analogia entis*» of the Schoolman «Gods wisdom is to his goodness, as the intelligences of man stands to his virtue». Here we can really only guess what the relation between the two unknowns might be, and given the incomparability of God and man, the similarity of the relation, between these extremely heterogeneous domains, is in the strongest sense of the word metaphorical.

5) as metaphors can be «developed» by bringing forward their multiple meanings, analogies can be «unfolded» and their use in argument is essentially due to this feature, according to P—O. The development of a metaphor can occur in many different ways: a) in $R(ab) = S(cd)$, other relations U and V can be shown to be entailed respectively by R and S, such that U and V are again identified (in a way that, according to us, but not explicitly according to P—O, can only be a metaphorical identification), b) in $R(ab) = S(cd)$, the analogy can be amended by modifying our conception of either ab, or of cd, and this amendment may either be a development or a refutation, c) one unique tenor can be compared to a multiplicity of vehicles (that are either again compared to each

other or left unrelated) and the metaphor can be reversed (the tenor becoming the vehicle, yielding sometimes an acceptable, sometimes an unacceptable statement but always a different statement).

This is the final confirmation of our point of view: if analogy were simply a non metaphorical similitude between relations in two different domains, the inversion would leave the meaning unmodified. But — this we stress now very much — the inversion does not leave the meaning unmodified though it does not necessarily destroy truth.

d) the analogy can be prolonged ($R(ab) = S(cd) = T(ef)$ asf. The same possibility exists for every metaphor. Here, as always where actual speech acts are concerned, the chain is not to become inordinately long.

The five points we just mentioned, all to be found in P—O but brought here together for our specific purpose and used in the service of our particular thesis, are already sufficient to make very plausible the analysis of analogy by metaphor instead of their analysis of metaphor by analogy. All the functions, to summarise, that according to the views of those methodologists who stress the fecundity of metaphor in science, are attributed to metaphors and only these (an important addition) are performed in P—O's analysis by analogies.

Our point of view would not be complete however if we did not connect the use of analogies with the conversational maxims.

We remind the reader of Grice's basic demands:

a) make your contribution to the conversation as informative (neither too much or not enough) as required for the conversation at that point

b) do not contribute anything that you do not believe and for which you could not offer adequate evidence.

c) make a contribution relevant for the purpose of the conversation

d) make your contribution as clear and precise (neither too much or not enough) as is required for the aim of the conversation.

If account is taken of all this, why should we be allowed in many cases (and in some cases even compelled) to speak in analogies?

If we know the type of relation between the elements of the tenor, why not state it directly without passing by the round about road leading through the relations in the vehicle? And if we do not know it, then we do not have adequate evidence to offer. If the analogy is to be relevant for the conversation, the hearer must be able to pick up the relation between the elements of the tenor that the speaker wants to suggest by means of his comparison with the vehicle. But if the hearer can pick up without delay or chance of error the type or relation meant, then it would have been possible for the speaker to speak in a clearer and more conspicuous way without comparison.

It thus seems to be the case that the conversational maxims are not respected by those who use analogical speech. Yet we claim they are. Under what circumstances can they be respected by this analogical speech? We think that only the following circumstances can justify this usage: (with reference to the conversational maxims) 1) The speaker believes that he knows the relation he wants to convey about the elements of the tenor but he simultaneously believes that there does not exist in his language (shared with the hearer) either any description or a simple enough description for this relation.

So he uses the reference to another relation in another domain (notice the two «anothers»), because the distance between the one he wants and the one he uses is minimal on the one side, and because he knows that there does not exist any chance for the hearer to really identify the relations on both sides in other words: only the metaphorical character of the analogy justifies the use of analogy as a speech act, 2) the speaker believes that there are many different relationships between the elements of the tenor and those of the vehicle, that are all equally important and interconnected and he cannot enumerate this multiplicity without losing the interconnexion between them he wants to make use of in the rest of his speech, 3) the speaker knows that there are many other rela-

tions between the tenor and further couples of objects and he wants to make use of these relations to illuminate the nature of the tenor later on, but he can only prepare the evocation of these multiple further relationships by means of something like the «middle terms» of a syllogism (in this case the vehicle), 4) as a special application of this last principle, the speaker knows that the further relations he wants to attract attention to, are to be found among the very elements he has just mentioned. It is for this reason that the following two relationships, that are by no means consequences of any mathematical or logical proportionality, are always possible consequences of the statement of the analogy: a) if A stands to B as C stands to D, then A stands to C as B stands to D, b) if A stands to B, as C stands to D, A stands to D as C stands to B.

P—O do not analyse at all the possibility of these conclusions that are however often mentioned in classical theory of mathematical proportionality (though not restricted to it). Our claim is that if we do not allow the argumentative force of these conclusions (not always the same in all contexts but always not zero) then we cannot even justify the use of the analogy, with reference to the conversational maxims, in the first place. The statement of the analogy itself must have informative value, in consequence of its own form, if not it could be replaced easily by another clearer and simpler formulation without analogy. The application of minimal distance to this requirement of extra informational value prepares precisely a deduction of these last consequences.

The expression in relation theoretical terms of their nature will convince our reader that these consequences are in no sense deductively necessary in virtue of the relational calculus:

1. $R(ab) = S(cd)$
2. In consequence there exists a U and V such that $U(ac) = V(bd)$.
3. In consequence there exists a W and a Z, such that $W(ac) = Z(cb)$.
4. In order to consider all possibilities we might even con-

sider permutations and get by doing this an even richer harvest.

Jean Blaise Grize⁽¹³⁾ in short remarks on the theory of proportionality, developed by Jean Piaget, has considered these various identities giving to the elements specific interpretations in terms of equivalence relations. This allows him to examine the cross-connexions neglected by P—O without however allowing him to reach the field of natural language. He is compelled to respect the limits of relational algebra, but not restricted to Boolean algebra.

By asking a very simple question: «why do the conversational maxims allow us to use the analogies that they seem at first sight to exclude?» we have shown both the necessity of the metaphorical interpretation of analogy (in natural dialogue; by no means in the formal and mathematical sciences where generalisations of the similitude of relations in the directions of fuzzy relations are, as we have mentioned, the natural representation of what is meant by analogy) and the possibility to infer from the analogy stated a number of consequences of high argumentative value. All these consequences remain for us metaphorical statements and in what sense we can use metaphors as premises or/and conclusions of reasoning that can be claimed to be valid? The beginning of an answer was sketched (we are allowed to infer from the metaphor the consequences that have to be presupposed to make the use of the analogy agree with the conversational maxims). The answer is by no means complete however: we have indicated several different circumstances in which we are allowed or compelled to use analogies in our communication. Each of these conditions is enough to make the statement legitimate; but in the different conditions not the same consequences can follow from the analogical statement. In particular the different force of conviction of statements (1, 2, 3 and 4) in different contexts has still to be examined.

⁽¹³⁾ Jean-Blaise GRIZE, *Epistémologie et Psychologie de la Fonction* (ch. III, par. 3: fonctions, structures et proportions, p. 182-191, P.U.F., 1968).

We had to look closely into the concept of analogy, because here both the centrality of the concept of metaphor and the usefulness of the conversational maxims could be illustrated. Our treatment of metaphor to the contrary can be paradoxically brief. In our introduction we have already sketched, what our theory of metaphor should be. It is for this reason obvious that the description of metaphor given by P—O cannot be taken over by us. They tell us, p. 535 «metaphor... is a condensed analogy, resulting from the fusion of one element of the vehicle with one element of the tenor». This definition could easily be understood (and has been understood by many readers) as a rather trite repetition of the analogy-theory of metaphor (it stands as such refuted by the same arguments that refute this classical position). However, read in the light of P—O's theory of analogy, it is to the contrary another expression of the interaction theory of metaphor (they are indeed right when they quote Richard's work as the basis of their opinion). They consider the argumentative function of metaphor to be the strengthening of analogies and the mobilisation of a multiplicity of simultaneous analogies. (p. 537). When the formula of analogy is « $R(ab) = S(cd)$ » then the formula of metaphor is « $a = c$ », an expression that can be explained not only by means of R and S but in general, when the metaphor is useful, strong, and rich, by many different analogies effective together. P—O, should, so we think, basically agree with our view on metaphor as expressed in the first paragraph of this article. Their own work does not however explain, as we believe to have done, the operations of the mind of the reader confronted with this basic and puzzling linguistic phenomenon.

3.5. This brings to their end our remarks about the technology of linking and tying together, as described by P—O. We now are going to follow them in the study of the technology of dissociation of concepts. Our basic assertion here will be that in dissociation the same mechanism is at work as in linking. Old metaphors are destroyed, old identifications or syntheses are overcome by means of the metaphorical creation of new metaphors.

Let us look at P—O's basic example, coming to us from Des-

cartes: «The stick, under the water, is both straight for the hand and bent for the eye». A paradoxical identification occurs «What is straight, is bent». This obviously cannot give us any information. So we are again in front of the same situation we encounter in, seemingly uninformative contradictions (studied under the heading of «quasi-logical arguments». What are we going to do ? We are going to replace this metaphor by another. The stick appears bent, but in reality is straight». We create the couple «appearance-reality» where the contradictory appearance is but the «*expression*» (notice this metaphorical term) of the underlying, non contradictory reality. The sensory datum is the vehicle, the «real state of affairs» is the tenor. The dissociation is described as the creation of a couple of opposed terms (term I / Term II) that are related by a hierarchical relation (as are tenor and vehicle in every metaphor). We repeat: we start with a paradoxical identification that does not bear information as such, and we create a clear and informative situation by creating a new, and less violent metaphorical relation (the one existing between the terms of the couple appearances-reality) in which the earlier contradiction remains preserved but dominated by the construction of term II. It is typical that, in the same way as no unique solution of a metaphor exist (the expression could not have a justifiable function, given the conversational maxims, if there were a unique solution) the dissociations described here are never unique. The incompatibility of Descartes can as well be solved by another dissociation, the one opposing part to whole (having exactly the same properties as the dissociation of appearance and reality).

We suggest as a worthwhile exercise to look at the list of dissociating couples mentioned by P—O on pages 562-563 of their treatise and to discover in Fontanier's (¹⁴) very complete taxonomy of classical tropes, the tropes corresponding to every couple. It will encourage the reader to make the attempt — to see that it is obvious many of the oppositions we met earlier, in the study of linking technology reappear here once more, barely disguised. The similitude is so strong that we have indeed our doubts about the importance of the distinction be-

specific domain of persuasive communication). We discover some «constitutive rules, prerequisites for the very possibility between a technology of identification and of dissociation. To us they are irreversibly connected: we agree with P—O's assertion to the same effect (p. 565). The crucial assimilation of dissociation to metaphor is found in P—O's text itself (p. 572) «It is possible to interpret every analogy as a dissociation, in which the term II would be the tenor, the different possible vehicles being the term I». When one relates this text to the assertion to be found on p. 540, according to which every analogy may become a metaphor, we think our point is convincingly made, by means of assertions of P—O themselves. We do not believe that we have to follow in detail the technology of reversing metaphors (even so strong a couple as appearance/reality can be reversed by means of couples like ideal/real or as given/constructed; the possibility to apply the dissociating operation repeatedly and to create in II another opposition I/II is simply a consequence of the possibility to develop analogies and does not need new explanations).

We conclude here our attempt to show that *P—O's theory can be systematised and completed, by means of a combination of the theory of metaphor with the theory of Grice's conversational maxims.*

A word of comment is in order at this point. We consider our discussion as one of the many repetitions of the debate between Hume and Kant. P—O are close to Hume; they give an enumeration of innumerable arguments, and their extreme desire not to take sides brings them close to complete empiricism and scepticism. The introduction of rationality — we have said this before and repeat it again — by means of a fictional universal audience does not really allow to make a difference between persuading and convincing. Power (so we feel) remains supreme; rhetorical violence is not in essence different from the violence of the kiss or of the blow. We to the contrary repeat simply Kant's move against Hume (in the more

(14) Pierre FONTANIER, *Les Figures du Discours*, Flammarion, 1977, éd. G. Genette.

of discussion and argument» (the conversational maxims) and we derive, without needing any specific or new «rhetorical» rationality, the convincing or non convincing character of the arguments studied, from the technology (technological rationality of the most classical type) needed to implement these constitutive rules in particular situations. We are not naive enough to believe for one moment that this is the end of the matter. P—O's countermove (if they want to continue the discussion) would be to attack our conversational maxims, to demand their justification, to point out that they are neither clear nor unique and eventually to offer a taxonomy of different variations of our conversational maxims in force in different empirical situations. We in return would have to construct a general system of conversational maxims of different types. And so the unending battle between Hume and Kant continues, the two great ones being represented in 1978, and in the domain of rhetorics, by P—O and ourselves. In a pessimistic mood one might conclude «life is but a tale, told by an idiot, full of sound and fury, signifying nothing»; in a more optimistic mood one might to the contrary believe that the differentiation of the old points of view and their application in many different subfields of human endeavour brings them closer to clarity and perhaps to partial solution ⁽¹⁵⁾.

5. *Towards a Formal Theory of Metaphor*

In the earlier part of this paper we have shown that the theory of persuasive communication can be better understood by means of the theory of metaphor. However, our theory of metaphor is until now mainly a part of pragmatics (Grice's and Searle's theories of speech acts). We want to show very briefly in this last part of our paper (another publication, to appear later will be dedicated to this very topic) that a formal theory of metaphor is forthcoming. We shall make three remarks.

⁽¹⁵⁾ E. DE GEEST, *Persuasieve Communicatie*, unpublished M. A. Thesis R.U.G., 1978.

a) continuing certain suggestions made by Teun Van DyK⁽¹⁶⁾ we can offer a semantical theory of metaphor using classical theory of models and modal logic.

b) continuing work to be published soon by Jonathan Brojdo⁽¹⁷⁾, we can suggest the possibility of an algebraical theory of metaphor.

c) continuing work done by Henri Wermus⁽¹⁸⁾ we can arrive at a theory of metaphorical deduction, using specific operations on the set of intensional meanings of terms.

All these approaches can be unified by a system theoretical theory of metaphor, generalising approaches of Solomon Marcus.

These indications can only be very brief because our article is already long, and because we can anyway not elaborate our proposals to a sufficient extent. Why do we wish to make these suggestions then? Our aim is essentially philosophical. We have already announced that on one side, we claim that rhetorics is closer to general poetics than Perelman, who does not see the relevance for his aim of work similar to that of the «Rhétorique Générale» of Dubois did believe. This seems to overstress the literary and artistic side of rhetorics. But quite to the contrary (our use of the conversational maxims will have shown the reader that for us poetry is not emotional irrationality but a different type of rationality) we claim, that a formal metatheory of rhetorics is possible (and even needed to clarify the critical concept of rhetorics, metaphor). This last statements is the one we want briefly to defend in this concluding section. It is as essential for our aim as the earlier developments. In two earlier publications about P—O's work we have tried to make these points over and over again. This is a new — and we hope more convincing — attempt, to draw together rhetoricians, logicians and mathematicians.

⁽¹⁶⁾ Teun VAN DYK, *Poetics*, 4. Formal Semantics of Metaphorical Discourse, p. 173-198.

⁽¹⁷⁾ Jonathan BROJDO, *Unpublished lecture at R.U.G.* spring 1978.

⁽¹⁸⁾ Henri WERMUS, *Metaphor and Deduction* (oral conversation) — Work to be published in *Dialectica* at some later date.

In fact, once more, we want to try to overcome the chasm between Socrates and Protagoras, Plato and Isocrates (in this showing our deep affinity with $P \rightarrow O$, but using other methods than they have used and not willing either to minimalise the distance, nor to accept the separation.)

1. *Semantics and Metaphor.*

We are not using the specific characteristics of Van Dyk's proposal (using Thomason's «sortal semantics») but we take from him the basic idea a) that metaphorical sentences are true or false, b) that truth and falsity in literary (and also rhetorical) contexts must be evaluated with respect to a set of possible worlds, c) for which the Kripka accessibility relation is defined and d) for which moreover distances among possible worlds are defined (one possible world may be «nearer» to a second one than to a third. The Lewis-distances must be used) e) moreover we suppose that we have at our disposal a relevant implication (that could be an amendment of Anderson-Belnap's entailment), f) and finally we presuppose that we do not only define distance functions for possible worlds but also distance functions for constants and n -ary ($n = 1, 2 \dots$) predicates. These distance functions can be defined on the basis of distance functions on possible worlds; the distance between two individual constants is the distance between the set of possible worlds in which one of the constants exists and the other does not exist; the distance between two predicates is the distance between the set of possible worlds in which one is not empty and another empty. The distance between two sets is either the distance between these members of the sets that are at minimal distance of each other, or the average of the distances, taken per pair between all elements of the first set and all elements of the second set.

Except these last concepts that are trivial additions all the concepts we need are current in philosophical logic.

We define the evaluation function of the metaphorical sentence « $P(a)$ » as follows:

$V(P(a))$ is T (true) = (def)

1. $P(a)$ is either semantically meaningless, or contradictory, or false, or occurs in a context C that becomes semantically incoherent when $P(a)$ is added to it, and is semantically coherent otherwise (the concept of «semantical coherence» is different from the concept of «contradictoriness»; it is proposed by Irena Bellert to replace the concept of «irrelevant in a certain context»). Comment: Van Dyk uses as his first condition a much more limited one («sortal incorrectness») ⁽¹⁹⁾.

2. There exist many different predicates P' , P'' , ... such that they ly in the semantical neighborhood of P (such that their predicate distance with respect to P is not larger than a given distance, d). Comment: Van Dyk is satisfied with at least one predicate P' .

3. There exist many different constants a' , a'' , ... that ly in the semantical neighborhood of a . Comment: Van Dyk does not mention conditions about constants.

4. For each couple of constants and predicates taken from the sequence a , a' , a'' ... and P , P' , P'' ... there exists at least one combination that makes the expression « $P^j(a^k)$ » (where $j = 0, 1$... and $k = 0, 1$... and the indices indicate the number of accents) true in some possible world accessible from the «real world» (for convenience we do not speak about the differences between the set of possible worlds of speaker and hearer). Comment: a) the fourth condition is an evident generalisation of Van Dyk's who only considers one predicate P' and one constant: a itself) The generalisation is introduced to take into account partly the semantical translation of Black-Richards' interactional view on metaphor.

5. The truth cases of $B^j(a^k)$ are such that there exists a true relevant implication, an intensional entailment between some contexts in which $B^j(a^k)$ occurs and $P(a)$ in such a way that $P(a)$ is the antecedent of the entailment, and $P^j(a^k)$ the consequent. Comment: Van Dyk asks that such an entailment exists between $P(a)$ and his $P'(a)$ itself. The reasons for this require-

⁽¹⁹⁾ See note 16.

ment are evident: «Man is a shadow» is true only if «being a shadow» entails «(we take only one case) «being the copy of something else» (and not inversely) and «Man is the copy of something else» is true.

6. Moreover: $P^j(a^k)$ must in each case be such that there does not exist a predicate different from it, entailing it and equally entailed by $P(a)$. One consequence of this is that none of the $P^j(a^k)$ entail each other. In other words: the possible worlds in which the $P^j(a^k)$ are true must be at minimal distances from the «real world» (of speaker hearer, supposedly unique and identical, for simplicity's sake and only provisionally). Comment: Van Dyck officially does not have such a requirement, even though he hints at its necessity.

7. The predicates belonging to the $P^j(i)$ list must be essential predicates, in the following sense: the natural classification of kinds in the possible worlds adopted must be such that all individuals of the natural kind to which the a' considered belongs, must with necessity either have P^j or non P^j .

Comment: this is the only place where we introduce into our «logical tool kit» an extra instrument, akin to Van Fraassen's sortal logic adopted by Van Dyck. We do not introduce this system as such however; we only presuppose that some basic classification in natural kinds exists for the possible worlds considered.

8. Not only must there exist a common predicate of more abstract nature entailed both by the predicate of the initial metaphorical sentence and by the predicate of the interpretation, but also there must exist a more concrete predicate (in general describing the form or gestalt of a perception or of an image) that is entailed both by the initial predicate and the interpreting predicate (without entailing them). This has as a consequence the following requirement: a second series of $Q^j(c^k)$ must exist satisfying 2, 3 and 4, the reversal of 5, and the reversal of 6. «Man is a shadow» is true only if the sensorial or imaginative characteristic of weakness, unresistance, unsubstantiality, fading are entailing disjunctions to which belong both «being a man» and «being a shadow». Comment: Van Dyck does not introduce a requirement of this type that is

admittedly difficult to formulate in a non contradictory way, but that is needed to explain the vividness, created by metaphor.

This list is on the one side not complete (our complete theory of metaphor has to introduce stronger interactions between the different interpreting predicates, taking care always to leave them maximally independent, and it also has to introduce epistemic or doxastic alternative worlds to the possible worlds of S and H, expressing that H, during the time span of metaphor interpretation continually oscillates between doxastic alternative worlds in which certain of the $P^i(a^k)$ are true and others in which they are false). This entails the combination of Von Wright's T operator with Hintikka's B and K in the definition of the truth conditions of a metaphorical sentence. The introduction of the H and the S leads us already back to pragmatics however, though, by means of a modified Kripke semantics, we keep within the limits of a pragmatics as close as possible to semantics. On the other side requirements can be weakened and must be weakened in various directions (many valued logical truth conditions and fuzzy truth conditions or incomplete truth evaluations can be used, and for certain types of metaphors the demands have to be only partially applied (for «he is a fox» for instance). We only wanted to show that adequate modifications and generalisations of Van Dyk's very interesting attempt may bring us to the conclusion that the full force of a pragmatic theory of metaphor (considering metaphor as a special type of speech act, executed within the domain of Grice's postulates) is not at all in contradiction with a semantical analysis of metaphor. We deem it important to stress the compatibility between a pragmatic and a semantic theory of metaphor, because one of our students, Miss Beatrice de Clippeleir⁽²⁰⁾, in an interesting MA thesis on metaphor (prepared in 1977-1978) has seen fit to reject Van Dyk's attempt because she adhered to the more pragmatic views of Dorothy Mack⁽²¹⁾. It is shown here, so we

⁽²⁰⁾ Beatrice DE CLIPPELEIR, *Metafoorthoorien* — unpublished M. A. thesis, 1978, R.U.G.

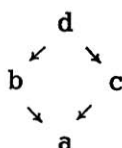
⁽²¹⁾ Dorothy MACK, *Metaphoring as Speech Act*, (Poetics 4, 221-256).

hope, that such a move is not necessary. We also want to remark that Jonathan Cohen's and Avishai Margalit's⁽²²⁾ views on metaphor, entailing as they do in its first version, an ordering of the predicates of a according to Carnap's inductive logic and in its second version an analogous ordering according to Cohen's inductive logic are not far from the attempt we make here. We do not introduce inductive logic, but our conditions are inspired by similar aspirations, and can be combined with theirs.

2) An algebraic theory of metaphor.

The remarks that follow are only a very inadequate description of some very promising ideas put forward in mimeo and presented orally at Ghent University by Jonathan Brojdo, from Rochester University. Any errors must be attributed to us, and the author is certainly not responsible for our way of putting things much too simply. However we are certain that all the ideas of this section, however inadequately we may express them, are due to him. It is because we think that they contain brilliant promise, especially in the study of persuasive communication in general and of metaphor in particular that we refer to them here.

Let us consider a graph G . In general this graph provides information about the elements contained in it. For instance, in the simple example we take over from Brojdo:



G completely determines the points a and d (and thus contains maximal information about them, that we can equalize to I) G however, because of the possibility of the symmetry mapping, only determines partly b and c . The information given by G about b and c is only one half. We take G to be a directed graph

⁽²²⁾ L. J. COHEN, A. MARGALIT, *The Role of Inductive Reasoning in the Interpretation of Metaphor*, *Synthese* 21, 469-487.

gory of species of organisms). Whatever may be the classification theory adopted (and we do not wish to deny that this (if not our remark would be false, as in a non directed graph d can also be mapped on a) We can calculate the average internal information of a structure, represented by a graph, as proportional to the average information given by the structure about its elements.

Having defined this important internal property of structures, let us now consider a set of structures, or if one wants to visualise, a set of graphs. We call this set (G). We presuppose as known the concepts of subgraph and the concept of one-one mapping. Let us now consider the passive isomorphism content of a graph G_1 (J. Brojdo) to be the number of graphs of (G) on which G_1 can be mapped as a subgraph. We define the active isomorphism content of G_1 by the number of structures that can be mapped on G_1 as subgraphs of it.

Let us suppose that a measure of the complexity of a mapping exists (as a subcase for instance of the complexity measures of relations proposed by Nelson Goodman).

We define a mapping to be homogeneous if the mapping is one of points to points, vertices to vertices. We define it to be heterogeneous if points are mapped on sets of points or inversely.

One basic theorem of Brojdo shows that if one wants to maximalize both the active and passive isomorphism content of a G_i in a (G) set, then the mappings considered must be heterogenous mappings. For Brojdo scientific explanation, scientific model building, reduction of theories to other theories, and the theory of metaphor are special applications of this general theory of structures.

Let us consider with him an example he gave in conversation. «Death is an insect». We consider the meaning of both «death» and «insect» as semantic fields, containing many elements, represented by points in a graph. The meaning of a word is thus a structured set, a system.

The semantic field of «*insect*» may contain: something small, inaudible, living in the dark, divided in articulate parts, having an external skeleton, moving according to certain patterns,

destroying in certain ways the solid structures it attacks, evoking certain emotional reactions, having multi facet eyes. These «semantic markers» (if we are allowed to introduce once more this unpopular term) are not atoms in an aggregate but entertain relations of strict or probabilistic entailment. Moreover combinations of these predicates may be formed and put into logical relations with each other. The vertices of the graph would be entailment relations between simple and complex predicates belonging to this group. The semantic field of «death» may contain: its unexpectedness, its destructiveness, its absurdity, its leading to decomposition, its continual unfelt presence in life, its starting at the moment of birth.

The metaphor of Emily Dickinson is *apt* because it maps *many* features of the death-structure, on *many* features of the insect structure by means of a *simple* map.

Brojdo is — to our knowledge — the first to put forward a definition for the utility of metaphors and models in general. He wants this utility to be measured by the self information content of the structure into which the G_1 is mapped (in this example for instance it would be the self information of the «insect» structure). The analogy between explanation and metaphor would be mathematically explained by their common mathematical structure. The *cost* of a metaphor would be the complexity of the map.

The reader might agree that this proposal has mathematical elegance but he might not be willing to follow Brojdo because he doubts if such an approach can be concretely applied to texts. We do not think so because we find in Solomon Marcus «Poetische mathematik» ⁽²³⁾ an analysis of metaphor introducing graphs and distances that is not identical to Brojdo's (it is basically simpler and — we think — less adequate) but that leads most naturally to this new approach. Marcus introduces for the words present in a text classification trees (for instance: «death» would belong in the categorical classification tree to the category of processes, concerning organisms, and of a concrete type; being an insect would belong to the cate-

(23) Solomon MARCUS, *Mathematische Poetik*, Athenäum Verlag, 1973.

choice is of great importance because it is equivalent to the acceptance of a logical system of categories) we can define on it the semantical distance of two words by different measures: let C_1 and C_2 be two concepts or categories on levels i and j respectively. Let $m(C_1, C_2)$ be the greatest natural number k such that C_1 and C_2 are homogeneous with respect to level k (i.e.: they are dominated both by a node on level k). Then the degree of heterogeneity of C_1 and C_2 is (Marcus, p. 181) $e(C_1, C_2) = \min(i, j) - m(C_1, C_2)$ (where $\min(i, j)$ is the smallest of the two level ranks i and j). The syntactical distance between two terms is trivially measured by the number of words lying between them. Other measures of semantical distance may be considered a) the simple graph distance (the length of the smallest path of the graph linking one concept to another) and b) the difference in degree of generality (the simple difference between the levels on which two terms are to be found). Marcus proposal as to a theory of tropes or figures is the following one: «many poetical figures consist in the bringing into each other's syntactical vicinity of certain categories of high degree of heterogeneity» (p. 181). This is only a more subtle rephrasing of our first condition for the existence of metaphoric speech acts. The exact relationship between Brojdo's proposal and Marcus proposal is the following: a) both represent a meaning by a graph. Marcus makes a supplementary restriction however: the graph representing the meaning of a word a is a subgraph of a general classification tree (Brojdo is neither restricted to trees nor to subgraphs of such a common graphs) and the graph representing the meaning of another word h is again a subgraph of the same (in general, dichotomic) classification tree. Moreover the structures representing meanings are all homogeneous structures in Marcus and the relationships between the elements of the meanings are everywhere the same. All these restrictions present in Marcus make his theory easier to handle, and, in a certain sense, a good testing ground. In one respect, it must however be corrected immediately: the relation between syntactical distance and semantical distance as the determining feature of the degree of poetical tropologicality is not adequate. The

type of syntactical relation present has to play an important role (Death is an insect», «death, like an insect», «death, in a way an insect» are to a different degree metaphorical and still the syntactical distances between the two terms is very closely the same). Marcus' proposal has thus anyway to be enriched by an element absent in it, namely the type of syntactical relation considered. We lack this feature in his work entirely. On the other side, Brojdo can certainly be said to introduce distances (for instance the complexity of maps, even though it is not certain that all the Fréchet properties would be true for such a distance. But many other unfamiliar distances have been considered by Karl Menger). The major problem for both Marcus' and Brojdo is the adequacy of the semantical analysis of the words of the metaphorical expression. In both cases all the results are heavily dependent upon the ways and means to make this analysis operational. It must be said in favor of Brojdo's insight however that he does not behave, as Chomsky (and Marcus following him) tends to do, towards meanings as towards non structured set of categories. For him meanings are in se structured. His theory has to be applied to many examples before we can evaluate it adequately however. Our present paper, when we combine our analysis of Perelman with our description of Brojdo-Marcus would lead to the following proposal: «Show that the forms of persuasive communication used in given types of contexts, are, in Brojdo's sense, metaphors of relatively low cost and of relatively large utility». A second proposal to which we come also naturally when combining our semantical description of metaphor with Perelman's work is: show that the forms of persuasive communication used in given contexts realise in these contexts the eight semantical conditions imposed on true metaphors (with perhaps specific and privileged values for distances, numbers and types of sets of possible worlds, on j and k, on entailment). The problem to compare our generalisation of Van Dyk with Brojdo becomes finally immediately of central importance.

We can not leave this topic here however before mentioning that the Richards-Black tradition, makes us notice an intrinsic limitation in both Marcus' and Brojdo's analysis: a) the struc-

ture of the maps mapping one graph on another graph is not considered; it would be natural to consider this structure also, b) if we do so, it would also be natural to consider the maps mapping the maps between the graphs on the graphs themselves. Here we clearly reach category theory as necessary for the analysis of metaphors in poetry and science, c) finally the subdivision into elements of both the first and the second part of a metaphorical expression is considered to be given and we do not consider sequences of different subdivisions, ordered by some temporal relation, itself connected to the types of mappings introduced. These considerations would be continuations of Brojdo-Marcus insights in the direction of category theory, but under the continuous guidance of such two strongly anti formalist thinkers as Richards and Black. This move would certainly be in the direction of the trend of thought we pursue in the present paper. Moreover some part of the path to be run through is already under study. It has been our good fortune to hear a short introduction to the formal theory of metaphor, to be published soon by Henri Wermus from Geneva University.

We can only represent here inadequately what we understood. We cannot refrain from doing so however because in one direction, Wermus introduces an important complement to Brojdo's approach. When we attribute a predicate to a subject, in natural language Wermus considers the set of different meanings of this predicate as a structured whole (in the same sense, we think, as Brojdo). However he does not consider this whole as given once and for all. He defines a family of operators on sets of meanings (and we ourselves might add that these sets of meanings are to be completed by the set of concepts not belonging to the meaning but regularly sociolinguistically associated with it), among which we find a) the operation focusing wiping out (temporary forgetting), mixing, differentiating and others, all proposed by Wermus. When two predicates that are usually not brought together (for instance «Life is death») are connected, we bring into conscience a) the awareness of the common features of the two meaning sets, b) the awareness of the different features and c) the awareness of the relationship

between the communality and the divergence and of the operations needed to constitute these two subsets (intersection and symmetrical difference) as distinct entities (we stress this last feature more than did Wermus in our conversation). When this occurs in function of the contexts, the purposes of speech, the texts and the entailments of our natural logic, different operations are applied to the meaning structures, modifying them as such.

This representation of metaphor as a modification of the meaning and association field of the terms connected by means of operations could easily be brought into relationship with Brojdo's algebraic and our semantic model of metaphoric speech. Here we are only indicating this possibility worked out elsewhere. The usefulness of Wermus approach or Brojdo's and of ours (as formal simulations of metaphorical speech acts) for the analysis of persuasive communication would derive mainly — so we think — from the execution of Wermus project, consisting in the construction of a theory of *metaphorical deduction*. Let us take two examples to make our intentions clear and let us then conclude our paper.

Let us compare «He is bear and he is an angel» (a compound metaphor bringing together metaphors taken from two different domains) and the two following mini-deductions «Life is death and death is an insect, so life is an insect» and «life is death, and death is eternal, so life is eternal». We think it would be possible to develop a concept of validity for metaphorical deduction (in fact this is Wermus' aim, though he did not have the occasion to explain us how he tries to reach it), and we think it possible to define the conditions under which metaphors could be combined by means of conjunctions, disjunctions, implications and other logical connections. The real point of introducing our logical simulations of metaphor is to arrive at such a theory, that untill now seemed far out of reach but that in the light of what we learned in the course of this paper can be seen as a distinct possibility.

With this tantalising hint we take leave from our reader.

Conclusion

This paper was written with a very definite intention (we explained it briefly in the introduction) but we do not think it useless to state it once more at the end. We did try to stress both the affinities between rhetorics and poetics, and the affinities between poetics and mathematics, in order to find evaluation criteria for persuasive communication and in order to explain the effectiveness and ineffectiveness of given types of arguments in given contexts. By executing these unorthodox moves it was our intention — and it was a too ambitious one — to show that the formal logic inspired by Scholasticism and the rhetorics inspired by Aristotle, revived in Renaissance Logic, could be unified in one whole. We hope that doing this, we can convince our contemporaries that P—O's treatise establishing the study of persuasive communication as a synthetic and empirical science, and Lorenzen-Hintikka's schematical and formal theory of games and debates, should be brought in interaction. P—O's endeavour should not be an alternative to the mainstream of logical research but should take its rightful place in the center. We are neither willing to reject the Aristotle of the Analytics, nor the one of the Topics and the Rhetorics; we are neither willing to reject Medieval Logic nor to reject Renaissance logic; we are neither willing to reject Lorenzen-Hintikka's formal rhetorics, nor to reject Perelman's empirical rhetorics. But we are not willing either to believe that these endeavours can simply peacefully coexist. Let us face it; they reject each other in clear and definite ways. We from our point of view, reject their mutual rejections and we hope, in this paper to have shown a path towards their reunion in the future.

R.U.G.

Leo APOSTEL