

Course 3-2: Introduction to Interpretation Theory

Location:

3. Courses from 1981 to 1984

3.1. Epistemology 1981-1982 (EP1-EP30, 42p.)

3.2. Interpretation Theory, 1981-1982 (DU1-DU41, 68p.)

3.3. Logic, 1981-1982 (L01-L103, 145p.)

3.4. Methodology, 1981-1982 (ME1-ME15, 25p.)

3.5. Introduction to Hiero-analysis, 1981-1982 (HA1- HA169, 233p.)

3.6. Introduction to Greek Philosophy, 1982-1983 (GW1-GW235, 295p.)

3.7. Introduction to modern-contemporary thought , 83-84, (MHD1-MHD264, 301p.)

Note: *This course has been spaced larger than the text of the original course. References in the older version of this text therefore do not correspond to the current 'Word' pagination. For this reason, the original pagination is displayed each time with the letters 'DU'. They stand for 'Interpretation Theory' (in Dutch: DUIDIGLEER) and are derived from the old page number.*

Introduction: *Philosophy begins with our everyday beliefs in order to subsequently critically test and interpret them. Hermeneutics is an auxiliary science for interpreting texts, a test explanation. For Schleiermacher, knowing is empathizing with the text and interpreting it. Thus, hermeneutics becomes the method, not of the exact sciences, but of the humanities. In this way, religions already know the interpretation of rites. Interpretation is an encounter between a subject and an object, which finds its expression in a sign, a word, a gesture, and symbolization, a 'Gestalt', or even in an inspiration. Precisely because reality is knowable, man can orient himself within it by means of signs. That the interpretation of a sign is not always unambiguous goes without saying. All of this will be discussed and explained in this course.*

Course 3.2. Introduction to Philosophy: Theory of Interpretation

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Bibliographic sample.

-- *JH Lambert* (1728/1777; Swiss mathematician), *Weg zur Gewiszheit und Zuverlässigkeit der mensschlichen Erkenntnis* , Leipzig, 1747

1/ phenomenology (study of appearances or phenomena),

2/ semiotics (the study of the designation of things and thoughts; theory of signs);

3/ dianology (theory of the laws of thought; *Anlage zur Architektonik* (fundamental concepts or classification theory);

4/ alethiology (doctrine of aletheia, truth;

--*J. Taminiaux*, *Le langage selon les Ecrits d' Iena* , in *Tijdschr. v. Filos.* , jrg. 31 (1969): 2 (June), pp. 363/377 (Hegel (1770/1831) asserts (and describes how) that in sensory experience itself, from the very beginning, 'language' (system of signs) is present, which declares what the sensory is; this fits into Hegel's overall view that 'thinking' is the coming to full consciousness of (unconscious and preconscious) life in the world ('new philosophy' the Waelhens would say);

-- HB Gallie, *Peirce and Pragmatism* , New York, 1966 (pp. 84/108) critical Peirce's common sensism, contrary to Descartes, asserts that philosophy, like any kind of inquiry, ought to begin with our meaningful everyday beliefs, in order to then test them critically; pp. 109/137: the doctrine of signs);

-- KO Apel, ed., *CS Peirce, Schriften, I (Zur Entstehung des Pragmatismus)*, Frankf. AM 1967; II (*Vom Pragmatismus zum Pragmatizismus*),

-- id., 1970; E. Walther, ed., *CS Peirce, Die Festigung der Überzeugung und Andere Scriptures* , Baden/Baden, 1965;

-- Cl. Oehler, ed., *CS Peirce, Ueber die Klarheit unserer Gedanken* , Frankf. a. M., 1968; - Peirce is a major theorist of interpretation);

-- P. Ricoeur, *le conflit des interprétations (Essais d' hermeneutique)*, Paris, 1969 (Ricoeur starts from Cartesian reflexive philosophy (critical introspection and retrospection), situates a hermeneutics or theory of interpretation within it (Schleiermacher, Dilthey) and confronts it with **1/** structuralism, **2/** psychoanalysis and **3/** phenomenology (Husserl);

-- J. Kruithof, *De zingeveer (An introduction to the study of man as a signifying, appreciating, and acting being)* Antwerp, 1968 (an encyclopedic work (with around interesting list of definitions):

“We call 'meaning-making' the activity of man whereby, with the aid of principles, he structures himself as a totality, situates himself in the living environment in which he is placed, and orients himself in relation to the development of this environment” (oc,505); here a broadly conceived steering mechanism or cybernetics is the starting point; let us remember that man is a 'cognitive (Aristotle, Fichte), evaluative (Plato, Scheler) and active (Hegel, Marx, Peirce) being'.

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(A) Theory of Interpretation (hermeneutics) (2/)

Word meaning . The word to interpret has become very common since +/- 1970. In the Middle Ages, people spoke of 'dieden' and 'duden' (later: 'duiden'): and in 'dieten' ('German') and in 'dieden' ('duiden') lies a Germanic word meaning 'people' ('theudho'), so that 'diets' ('German') means vernacular and 'dieden' ('duiden') means 'to make understandable to the people'. "To make something 'diets' for someone" is to make it understandable to him, to make it 'clear' to him (cf. to make someone wise and to make someone wise). 'Duiden' and 'wijs maken', 'wijzen' (think of 'onderwijs') are semantically related: 'duiden op' is 'to point out'. There is 'aanduiden', 'beduiden' (to indicate); there is 'euvel draaien' ('to indicate for the bad').

'Hermeneutics'

'Hermeneutics' comes from the Greek 'hermèneutikè (technè' (art of interpretation): 'hermeneia, interpretatio, means:

1/ outpouring (speaking out or expressing what one thinks or feels inside),

2 / interpretation of a thought in the sense of 'explanation' and of translation, interpretation). 'Hermeneutics' is an old word: it is the science of interpretation and functioned as an auxiliary science in explaining texts; theologians and exegetes of Holy Scripture engaged in textual interpretation; jurists explained legal texts: 'hermeneutics' was primarily an application-oriented (how to apply old Bible or legal texts here and now?) and casuistic ('casus' means 'concrete case': how to apply texts to a concrete case?) activity.

FD Schleiermacher (1768/1834) is the first to broaden the meaning and turn it into a true epistemology or theory of knowledge: 'to know' is 'to interpret' (for him closely connected with practical life and experience: one understands a Bible text only if one experiences it, makes it 'true' in practice).

The German Historical School (F. von Savigny (1779/1861), the founder) sees in 'hermeneutics', in turn, a meticulous empathy with the past in order to know it.

End XIX-th e. (Dilthey), hermeneutics becomes the method of the so-called humanities or cultural sciences. (Cf. *H.Arvon, La phil. Allemande*, Paris, 1970, pp. 116/117).

'Interpretation theory' is a term associated with the other grand master of interpretation, CSPeirce (1839/1914), who calls man an 'interpretant'.

The matter itself is as old as humanity: all religions know of 'interpretations' of oracles and signs (which are of transempirical origin and, as such, require 'interpretation', a clarification).

Heraclitus of Ephesus (- 535/-465) conceives of nature as griphos, a riddle that must be deciphered. (-proto) Sophistics (with its emphasis on 'thesis' (positio, proposition, certainty)) views all knowledge as interpretation. Aristotle calls his doctrine of judgment 'theory of interpretation' (judging is interpreting). So the matter is certainly not that new.

DU3

(1). Structure description. (3/6)

To describe the structure of the interpretation, two starting points are necessary:

(i) Husserl's conception of consciousness

or rather Bolzano's and Brentano's conception of the structure of consciousness – sees what the medieval scholastics saw as central to (self-)awareness: 'intentio', reference; indeed, our consciousness is the encounter, the confrontation, of a subject that is conscious, and an object of which it is conscious:

S(subject)--- = 'intentio' (reference)--- = O(bject);

Note that the ordinary word 'intention' is only one example of the reference to consciousness: if I look at something (consciously), then it is an attention 'directed upon' that something (that 'direction upon' is 'intentio'), without me having any further 'intentions' in the sense of (ulterior) aims);

(ii) The addition, i.e., the unambiguous relationship between something and something else that is 'added' to it in the exclusive sense: if I give a witty answer to someone's question, then I 'add that answer to him' (I aim at him and not alongside him); above all, and this is where it begins, a sign is connected, associated with a given that is signified, indicated, or added to it by it.

(iii) Well then, the fusion of the two preceding points gives the structure of the interpretation: S(ubj.) --- = sign --- = O(bj.). The reference is the bearer of a sign by which it signifies, indicates, the object—a sign that it 'adds' to the object; the subject assigns a sign to the object, while turning towards the object in a conscious manner. 'Intentio' is simultaneously 'addition'.

Typology.

The subject, in its intentional relationship to the object, assigns two or three kinds of signs to that object:

(i) A mental sign, thought-sign ('thought-sign' in Peirce), which we usually consider a representation of the matter, the concept of the object, the content of knowledge and thought, introspective and retrospective (reflexive, susceptible to a return to our own intentio or reference (better: referredity)); not without an evaluative and practical note;

(ii) A linguistic or language sign that is double, at least in our civilization:

- a/** a speech mark (sounds make up words and sentences) and
- b/** a writing mark (what gives written language).

Symbolization

With E. Cassirer, **Die Philosophie der symbolischen Formen ** (I (*Die Sprache* , 1923) II (*Das mythische Denken*), 1925), we can call the addition of signs, briefly characterized above, 'symbolization (process)', while we note, with Cassirer, in passing how massively man uses and symbolizes signs: money is an economic sign; a signpost is an intersubjective sign that facilitates movement, etc.

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The triad 'perceptionism / interpretationism / conceptionism'.

The principle of ('necessary' and) 'sufficient' reason or 'ground' states that our consciousness accepts something as certain if it has either direct or indirect 'feeling' or 'contact' (of an intentional or attentive nature) with a given (the object).

(i) The perceptionist (perceptio = perception) claims that our intentional activity (our consciousness) directly contacts the data in experience; (sensory usually, but, in principle also the divining perception of the sensitive); this takes place in immediate perception or intuition; - Bolzano and the 'Austrian School' (Brentano, Stumpf, Meinong, Husserl), Gredt, Hamilton et al. are perceptionists, albeit with different emphases.

(ii) The conceptionist (conceptio, concept formation) claims that our awareness of the reality is indirect and that which reveals itself in perception is subjectively created by our own inner life, especially by our faculty of understanding, which creates representations guided by experiences; – it is clear that there is no immediate evidence present here, as the intuitionist (and the perceptionist in particular) claim.

(iii) The interpretationist (one need only think of J. Royce (1855/1916), who drew attention to C.S. Peirce claims that our consciousness is perceptive (and immediately intuitive or perceptual) and conceptual, but in an interpretive manner:

a/ the intuition contains a (mental) sign that is perceived (perceptive); **b/** this mental sign comes to full realization in its understanding (conceptive);

Interpretation or interpretation differs in itself from perception and from concept (and concept formation), each taken separately: it oscillates between them, says W.-E. Hocking, or, rather, he says, interpretation encompasses both perception and conception.

Hocking even adds that in what he calls 'reflexive dialectics' (i.e., in the verification or testing against 'perceived' reality), our concepts (which are interpretations stemming from observation) are confronted with reality; in other words, there is a pendulum movement, namely from observation to concept (interpretation) and from concept to observation (so-called 'reflexive dialectics').

Cf. W. Hocking, *Les principes de la méthode en philosophie redactée*, in *Revue de Métaphysique et de Morale*, 29 (1922): 4 (oct.- déc.), p.449.

Note: If we speak of S(ubject) in the singular, this is merely Abstractive: in fact, our consciousness lives intersubjectively (from human to fellow human in 'I-Double-Living' (Buber)) and socially (in a group context): there is, as Peirce says, an interpreting community.

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The intersubjective and intergroup relations are heavily emphasized in the so-called communication theory, which is a typical example of 'technical thinking' (cf. K. Steinbuch, *Human and Machine Thinking*, Utrecht/Antwerp, 1964 (German: *Automat und Mensch*, Berlin, 1961), applicable to interpersonal relationships.

Interaction (acting upon one another, materially and energetically) and communication (acting upon one another with 'information', informing; - 'enlightening') are characteristic of interpersonal relationships.

'Keywords and mental signs', 'spoken and written signs' are information: they are in circulation, to use Lévi-Strauss's words (myths, money, women 'circulate', as 'messages within a society').

The technical model views this, presented in a highly abbreviated form, as follows: = like a telephone wire, 'communication' connects the 'transmitter' who transmits, experiences, and puts into circulation a sign—a sign that carries a 'message' ('information'); this circulation takes place in a 'code' (a system of signs);

The interval between 'sender' and 'receiver' is bridged by 'encoding' (making it communicable in appropriate characters), so that the 'channel' (i.e., the path of transmission) facilitates the exchange of information—always think of the telephone wire;

The 'receiver' 'decodes', i.e., indicates, interprets, the signs, by listening and understanding the 'message'.

One can, indeed, just as Schleiermacher broadened text hermeneutics into a theory of knowledge, also transfer this technical theory of communication as a conceptual framework to cognitive 'processes', especially from the object that transmits a “message” (sign, information) to the one who contacts the object (the subject), and, analogously, from one human being (sender) to another (receiver).

The 'informational' aspect (content) of communication is analogous (similar) to the theory of interpretation set out above, with the difference that, above, one proceeded from consciousness as dependence on an object (Austrian School), whereas 'systems theory' (the sender is one system, the receiver is a second, the channel a third) forms the starting point here.

Bibliographic sample.

One of the two schemas has been applied to the interpersonal conversation:

-- LA Appley et al., *Effective Communication* , Utrecht/Antwerp, 1967 (on V (*The Written Word*), oc, pp. 315/353);

-- HP Zelko, *Modern Discussion and Meeting Techniques* , Utrecht/Antwerp, 1964;

-- W. Bingham / B. Moore / J. Gustad, *Conversation Techniques* (*The Interview in Organization and Business*), Utrecht Antwerp, 1966 (to discuss 'counseling');

-- IS Lee, *The Psychology of Conversation* , Utrecht/Antwerp, 1968;

-- Th. Staton, *Instruction Methods* , Utrecht/Antwerp, 1960; - books that highlight the pragmatic aspect (see further).

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Remark.

As is known, the experimental psychologist was started in Leipzig in 1879 by J. Wundt, but her introspective and retrospective methods were altered by two correctives:

(i) **Gestalt psychology** ($\pm$ 1920), which the purely introspective and retrospective method supplemented with the external perception (the processing into a gestalt proves the interpretive character of the perception, said in passing);

(ii) **behavioral psychology** (behaviorism), which the mentalism of both previous schools placed in parentheses and replaced by external, observable behavior; this in two parts:

(ii) a . **naive behaviorism** ($\pm$ 1930),

that applied the 'black box method' (a typical example of 'technical thinking': the electrical 'box' serves as a model, with its invisible contents of connections) to the inner life of man and animal:

$P(\text{stimulus}) \rightarrow (\text{black box}) \rightarrow A(\text{response})$, also $S(\text{timulus}) \rightarrow (\text{black box}) \rightarrow R(\text{esponse})$,

signifies the circulation of influences of a material and energetic nature on man (black box due to the 'inner processes', which are invisible) and the behaviors with which the organism reacts to those stimuli – behaviors that are reflexive (one need only think of the nervous system);

(ii)b. neo-behaviorism ($\pm$ 1940 onwards),

that, in the black box, introduced 'intermediate variables' (**a1.** motivation, **a2** . incentive (reward, punishment) and **b.** learning process): with the learning process, there was a hint of 'informational' and 'interpretative' intermediate variables on the horizon. It is remarkable that, decades after a Peirce and a de Saussure, and notwithstanding the massive and widespread presence of sign and symbol processes in and between humans, experimental psychology did not 'see' this!

Cognitive psychology (+/- 1930 onwards)

This adds cognitive variables to the incentives, so that, finally—one might say—the $P(\text{timbrick})$ was a meaningful, significant stimulus. Information psychology discovers, within the black box that is man, a whole series of 'systems'—such as memory, decision-making capacity, etc.—that valorize man as an interpretive being.

It goes without saying that the non-experimental psychologies—the depth psychological (internal conscious (and unconscious) processes), phenomenological (intentional processes with an 'eidos' or concept as content), and humanistic (internal processes geared towards self-realization) psychologies—had long recognized the interpretive character of the human (and animal) psyche, albeit somewhat hesitantly

due to a lack of a conceptual framework in the style of Peirce or de Saussure, who created a usable instrument with either semiotics or semiology, i.e., a theory of signs.

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(2) Sign theory. (7/10)

There are, of course, a whole host of theories.

Briefly an outline, **bibliographic** .

-- Collin Cherry, *On Human Communication* , The MIT Press, Massachusetts, 1957-1, 1966-2, a solid book that provides the basic concepts;

-- F. Balle/J. Padioleau, *Sociology de l'information (Textes fondamentaux)*, Paris, 1973;

-- JR Pierce, *Symbols and signals (Nature and functioning of communication)*, Utr./ Antwerp, 1966 (the English title contains, besides the words 'symbol' and 'signal', also the word 'noise', which means transmission reduction (interference) in communication: in current language it has come to be known as 'communication disorder')

Two figures must be mentioned separately

(cf. B. Toussaint, *Qu'est-ce que la semiologie* , pp. 61/87):

F. de Saussure (1857/1913), with z' n *Cours de linguistique generale*, Paris, 1916, speaks of 'semiology', i.e. the science that studies the life of signs within the womb of social life (oc, p. 31);

Saussure views this semiology as follows:

The basic science is psychology; it has a branch, social psychology; this deals, among other things, with signs (and is, as such, semiology);

it is the task of the linguist to determine what makes language a particular system within the totality of semiological facts” (oc, p. 33);

In other words, linguistics is a part of semiology, which also studies non-linguistic signs; the phenomenon of speech ('langage') breaks down into two aspects,

i/ the language ('langue'), which is essentially social and independent of the speaking individual,

ii/ the word ('parole'), which the speaking individual pronounces with the language (langue) as instrument; this second aspect, the 'word', Saussure regards as second-rate, as contemporary structuralists still do (the 'structure' overwhelms the 'individual');

CS Peirce (1874/1914), with his 'semiotics' (cf. *M.Bense, Semiotik (Allgemeine Theorie der Zeichen)*, Baden-Baden, 1967, which provides an overview of Peirce's theory of drawing), views the sign as a philosopher and scientist, as follows:

The sign is something that, in the eyes of the interpretant, is added to an object as a means of knowledge; better said: the sign (knowledge and thought sign in the first place) is present in the object and emerges in perception, which is simultaneously interpretation, that is, the grasping of the sign and its meaning (Peirce is a scholastic realist, for whom things themselves 'are' in their 'essence' in terms of thought content, 'ideal', 'sign').

-- C.W. Morris, *Foundations of the Theory of Signs*, in *International Encyclopedia of Unified Science*, I:2, Chicago, 1938, is more or less in Peirce's spirit; it is known for a tripartite division, which is found everywhere: if someone uses a sign, that sign exhibits three dimensions:

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a/ the syntactic dimension :

The sign always belongs to a 'system' of signs (a code, i.e., a set of symbols containing information), in which it only fully acquires its 'meaning'; if you will, the mutual relations of the signs are the object of the syntactic view of the sign; which one might also call: the system-technological view of the sign;

b/ the semantic dimension :

the sign 'says' something, it has a meaning or content of thought and knowledge; the relationship between the sign ('signifiant' - de Saussure), the 'signifying') and its meaning ('signifié' (de Saussure), the signified); a sign refers to something else, a reality; that 'significative' side is the semantic side;

Here one can introduce a duality (Leibniz, Frege): a sign has 'sense' (Sinn), i.e. cognitive content (intensive), and 'signification' (Bedeutung), i.e. a number of objects in which that cognitive content is realized (extensive); thus, for example, with the word 'film star' I refer to all actual film stars, while I pronounce the cognitive content;

c/ the pragmatic dimension :

The sign is consistently used by someone for themselves and in their communication with others; I, for example, give the signal for the departure of the runners; - the signification is situated here: it is the study of 'speech acts', by which one influences the other ('speech act' is taken broadly here, namely any use of words, but also any action that is 'understood' by the other (a gesture is a sign for another) (cf. *B. Stokvis, Psychology of Suggestion and Autosuggestion (A Significant-Psychological Exposition for Psychologists and Physicians)*, Lochem, 1947 (with introduction on signification and conceptual criticism by G. Mannoury); Lady Welby was a pioneer in this field);

One might say that pragmatics studies the 'effective' aspect of the sign, as it manifests itself both in communication with others and already in expression (i.e., the projection outwards).

Note regarding b.

From a semantic point of view, semasiology (explanation of word meaning) should be briefly mentioned.

The sign (verbal or non-verbal) has many meanings: semasiology systematically organizes their interrelationships. One often starts from the 'etymological' or basic meaning, in order to address, from there, the 'proper' and the 'non-proper' or 'figurative' meanings; within the non-proper meanings, the distinction between metaphorical and metonymic meaning then arises.

An example: the word 'head' has an etymological meaning somewhere; in its literal sense, it is a body part that 'controls' the other, usually situated beneath it; in the figurative sense, 'head' means – metaphorically – 'that which occupies a controlling position':

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For example, the headmaster, the head of state, the header of a letter; in that case, there is a proportional analogy involved (just as a head relates to limbs, so the school administrator relates to the rest of the school); 'head' means—metonymically—something functional (concerning the relationship between independent and dependent variable); 'head' is thus, for example, “my head isn't on it” (thanks to my head, my intellect is active; here it is not); here, attributive analogy is at work (the physical head is an instrument (independent variable) in relation to the functioning of the intellect (dependent variable)).

Another example: 'the light of the spirit', 'the flower of youth' (metaphorical); 'he lives off his work' (off the nutritional result of his labor); 'the whole city was excited' (i.e., the inhabitants of the city) (metonymic).

For the more specialized meaning of 'metaphor' and 'metonymy', see R. Barthes, *Recherches sémiologiques*, in *Communications*, 4, Paris, 1964, pp. 115/116 (since R. Jakobson, *Deux aspects du langage et deux types d'aphasie*, in *Temps Modernes*, 188 (1962): Janvier, pp. 853ss.).

Note regarding c.

From a pragmatic point of view, attention should be drawn to rhetoric, which studies the 'eloquent' use of (word) signs. Cf.:

-- JS Nirenberg, *How to Persuade People?* Utrecht/Antwerp, 1967 (business rhetoric);

--M. Dweller/ G. Stuiveling , *Modern Eloquence* (*handbook for oral language proficiency*), Amsterdam/Brussels, 1968;

-- S. IJsseling, *Rhetoric and Philosophy* (*What happens when people speak ?*), Bilthoven, 1975 (see pp. 144/157 regarding metaphor, metonymy, but strongly rhetorical this time (pragmatic) instead of semantic);

-- G. Bouwmans, *Paul to the Romans* (A rhetorical analysis of Rom. 1/8), Averbode,

1981 (ordained writers are also 'eloquent pragmatists', like all 'proclamation; moreover);

-- J. Kristeva, *Semiotikè* (*Recherches pour une sémanalyse*), Paris, 1969;

id., *La révolution du langage poétique* , Paris, 1974 (here rhetoric becomes ideology-criticism:

Semiotics (...) by addressing the question of ideology, becomes (...) semanalysis, a science of knowledge that renews materialistic gnoseology (theory of knowledge) in the sense that it originated from the fusion and recasting of three scientific types of reason: logical-linguistic, psychoanalysis, and historical and dialectical materialism:

Maw Kristeva engages in ideology critique, through rhetoric, drawing on Marx (language use with class struggle aims) and Freud (The unconscious at work in rhetoric (pragmatics));

Interesting is *JL Austin, Performative Aeuszerungen* , in *A. Menne/G. Frey, Logic und Language* , Bern/Munich, 1974, pp. 9/27 (the expression of states of mind ('I feel good')) or volitional decisions ('yes, I do') are 'operative'

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(in the language of jurists, who call the text of a will 'operative': 'I bequeath to my brother ...') or performative (signifying an action); poststructuralism also points to the rhetoric of language: R. Barthes ('language is fascist'), M. Foucault ('the microphysics of power' especially from a medical-psychiatric standpoint), J. Lacan ('the unconscious is the reason (articulation) of the other' especially psychoanalytic) (cf. G. Schiwy, *Les Nouveaux Philosophes* , Paris, 1979, pp. 23/48); in that sense they are semanalytic just like Julia Kristeva.

It is evident that the pragmatic-signific-rhetorical analysis of the sign can be practiced in two directions: a work such as *G. Vardaman, *Effective Communication of Ideas** , New York, 1970, provides a methodology for effective communication in the business world, politics, and professions, while *M. Foucault, *Microphysique du pouvoir, de la justice penale, de la psychiatry and Medicine* , in German, Berlin, 1976, the critique of effective has communication

For example, in 1937, journalists received orders from the National Socialist authorities to use the word 'propaganda' to denote pro-Nazi influence and 'hetze' (incitement) to represent anti-Nazi influence; in 1941, Soviet soldiers were referred to as 'Bolsheviks' and partisans as 'bandits': the methodical-pragmatist simply employs such techniques, while the critical-pragmatist ('semanalyst') dissects this usage as an object of reflection, being more sensitive to the semantic content of the (word) sign being used.

It should be noted that sign theory is sometimes referred to by the words 'semasology' (not to be confused with 'semasiology') or 'semantology'.

(3) Character typology. (10/13)

R. Jakobson, *À la recherche du langage*, in Diogène, 1965, notes that, like de Saussure, Peirce distinguishes between natural and agreed (conventional) signs. Peirce distinguishes, indeed,

a/1. the iconic (representational) sign: it clarifies the factual, objective likeness between two pieces of data (such as a map on which shape and height differences are depicted with lines and colors);

a/2. the indicative (indicative or heuristic) sign: it relies on adjoining property (adjacent property) (see system concept) (for example, a signpost indicates a city without depicting it; likewise, fever is a symptom of a disease: doctors call 'semiology' the symptomatology or study of diseases); - here, in both the iconic and the indicative sense, in an objective relationship;

b/ the symbolic or agreed sign: it indicates, but on the basis of agreement under interpreters (such as 'smoke' for the phenomenon of smoke, in French 'fumée', in German 'Rauch', such as '2' for two, etc.).

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Well, according to Peirce, the 'ideal' sign is that sign which unites the three functions (iconic, indicative, and symbolic), whereas for de Saussure the merely 'symbolic' (in Peirce's language) or 'entirely arbitrary' sign is the ideal sign. Cf. 'sémiologie, sémiotique', in G. Thinès/ A. Lempereur, *Dictionnaire général des sciences humaines*, Paris, 1975, pp. 867s. for further explanation.

Symbol theory

Here the problem of word usage arises, on the one hand, in the semiotic-semiological sciences (logistics, mathematics, linguistics), and, on the other hand, in the hermeneutic, depth psychological, and humanistic psychologies, as well as in religious studies. For the semiotic-semiological scientist, there is a 'symbol' if there

- (i) a reference (function) is, which is a reference from something to something else, and
- (ii) an agreed character specific to that reference or reference. For example, $E = mc^2$ refers to the energy present in a (moving) mass (certainly the symbols, taken separately, are conventional; the structure of the formula is a different matter: this can be tested by experiment (e.g. the deviation of a light beam in the vicinity of a large mass)).

For the other category of scientists, the situation is different regarding a 'symbol':

- (i) The reference is there, of course,
- (ii) but the random nature is present, yet not absolute.

Susanne Langer, *Philosophy in a New Key*, New York, 1942 ¹, already shows in the explanatory subtitle of the book that is 'stirring things up' here: A study of the symbolism of reason, ritual, and art. In the 1953-5 edition (Mentor Book), she states, op. cit., 1, that logistics (and its use in mathematics, linguistics, as well as in the empirical sciences) has developed one type of 'symbol' as a revolutionary power, but that 'analogical' thinking in myth and art has revealed a different conception of 'symbol' (she refers, of course, to E. Cassirer, *Philosophy of Symbolic Forms*, 1923/1929 (especially vol. 2 (mythical thinking))).

She says in *Philosophical Sketches (A Study of the Human mind in Relation to Feeling, explored through Art, Language, and Symbol)*, 1962 ¹, 1964 ², that a new definition of a 'symbol' is not necessary, for there are the 'scientific' (logistic) symbols, yet there are also those more 'primitive' symbols—a sound (the Indian 'aum' of the yogis, for example), a mark, an object (a relic, for example), an event—which become 'symbolic' for someone without conscious attribution; thus in our dreams, myths, and art.

Bibliographic sample regarding extra-logistic symbol.

-- G. Durand, *L'imagination symbolique*, Paris, 1964 (foundational work regarding the distinction between 'reductive' hermeneutics (Freud's psychoanalysis of the 'symbols' in the neurotic; the analysis of the 'symbols' in the primitives

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carried out by the functionalist and structuralist ethnologists (Lévi-Strauss, for example): both symbolic hermeneutics impoverish (reduce) the content of the symbol) and 'instaurative' hermeneutika (Jung, Bachelard, Ricoeur);

-- J. Bril, *Symbolisme et civilization (Essai sur l'efficacité anthropologique de l'imaginaire)*, Lille/Paris, 1977 (defines, oc, 68ss., symbol as follows:

(i) the (ordinary) sign is a physical object that is socially recognized and that corresponds to known realities;

(ii) the 'symbol' is a physical object that, collectively speaking, is subjective and corresponds to realities that are conceptually unknown yet nevertheless felt as certain; in other words, the familiarity or lack thereof of that to which a sign refers does not make it a symbol or not);

-- R. Alleau, *De la nature des symboles* , Paris, 1958 (distinction between symbol and synthetic);

-- L. Knights/ B. Cottle, *Metaphor and Symbol* , London, 1960 (with a contribution by H.H. Price, *Paranormal Cognition and Symbol* , oc, 78/94-);

-- J. Chevalier/ A. Gheerbrant/ N. Berlewi, *Dictionnaire des symboles (Mythes, rêves, coutumes, gestes, formes, figures, couleurs, nombres)*, Paris, 1969 (844 pp. information with introduction by Chevalier);

-- R. Guenon, *Symboles fondamentaux de la science sacrée* , Paris, 1962 (the work is similar to a dictionary with overviews);

Furthermore, more specialized works:

- *M. Eliade, Images et symbols (Essai sur le symbolisme magico-religieux)*, Paris, 1952 (religious history: center, Native American symbols, binding god and knots, shell);
- *M. Meslin, Pour une science des religions*, Paris, 1973 (oc, pp. 197/221 : the religious symbolism);
- *B. Morel, Le signe sacré (Essai sur le sacrement comme signe et information de Dieu)*, Paris, 1959 (sign-theoretical explanation of the sacraments by a Protestant minister);
- *J. Cazenenne, Sociologie du rite*, Paris, 1971 (taboo, magic and 'sacrality' (sacred) become brought up: the rite, let it not be forgotten, is a symbolic act);
- *O. Fröbe-Kapteyn*, Hrsg; *Eranos-Jahrbuch 1950 (Bd 19): Mensch und Ritus*, Zurich, 1951 (eleven specialists have their say);
- *M. Loeffler-Delachaux, le symbolisme des légendes*, Paris, 1950 (processing legends symbols);
- *G. Bachelard, L'eau et les rêves (Essai sur l'imagination de la matière)*, Paris, 1942;
- *id., L' air et les songes (Essai sur l' imagination du mouvement)*, Paris, 1943
- *id., La terre et les rêveries du repos*, Paris, 1948 ;
- *id., La terre et les rêveries de la volonté*, Paris, 1948 ;
- *C.G. Jung, The Symbolism of the Mind (Studies on Psychic Phenomenology)*, Amsterdam, (after 1947) (on the spirit in the fairy tale, the spirit Mercury, Satan in the Old Testament, the Holy Trinity from a depth-psychological perspective).

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- Thus we can conclude, with J. Bril, that a sign becomes a 'symbolic' sign (in the more hermeneutical sense) when it refers to a 'mysterious' reality (the religious and fantastic side of reality), to a

transempirical (supersensual and extrasensory) reality, which, therefore, need not yet be called 'irrational' or 'prelogical', since the transempirical also has its logical structures.

(4) Language and thinking (13/14)

The old 'suppositio' theory gives us a first structural insight into language, for 'suppositio' (supposition) means 'representation', 'substitution', 'standing for or in place of'. Well, the linguistic sign is such a case of supposition:

(i) From a material perspective, the assumption is reflexive: the sign stands solely for itself, without any semantic function; thus, for example, 'mens' is a monosyllabic word (the word here is purely part of a system of signs); the matter here is the sound, the word sound;

(ii) Formally speaking, the assumption is significant: the matter (here the word sound) stands for a meaning; this is twofold:

(ii) a. logical: the word stands for a concept; here: 'man' signifies the content of knowledge and thought (the notion or concept) 'human' (as e.g. a living being endowed with 'reason' (intellect));

(ii) b. empirical or transempirical: the word stands for a 'case' ('commercial' meaning) or reality, outside the mind; here: "man" refers to the concrete living people in flesh and bone, who are summarized in the logical concept;

Thus, a word (material aspect) stands for (formal aspect) a concept (logical formal) and, via that concept, for the thing indicated by it ((trans)empirical formal); -- in this context, the word can mean 'simple' (and then it means general things) or 'personal' (better: singular) (and then it means individual things). Cf. G. Jacoby, *Die Ansprüche der Logistiker auf die Logik*, Stuttgart, 1962, S.111.

The Sapir-Whorf hypothesis.

In 1973, the Communication and Cognition working group at Ghent University held a colloquium on the relationship between language and thought, with the Sapir-Whorf hypothesis as its central theme: the American anthropologists Sapir and Whorf assert that our way of thinking depends to a large extent on language use. However, this differs from culture to culture; consequently, our thinking, being different from culture to culture, is 'relative'. Sapir attempted to substantiate this through the study of language use among the Hopi Indians. Apart from the lack of sufficient inductive material to substantiate that thesis, there is the position of N. Chomsky, an American linguist, who maintains that language exerts no profound influence on the pure thought of man, but only a superficial one, so that differences occur in mentality, but not fundamentally.

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Chomsky, incidentally, also starts from Cartesian and Humbolddian premises, which emphasize the independent and creative aspects of human thought (and speech). Nevertheless, we believe we may conclude that the Sapir-Whorf hypothesis contains truth: all novelties (inventions, fashions, revolutions) change language—which points to the independent and creative side; yet the new modes of expression are always incorporated into the previous linguistic context.

The contrast: 'mentalism/linguisticism'.

Another point of fundamental importance is the fact that some thinkers conceive of human thought 'mentalistically', i.e., as a process essentially situated within man—specifically in his immaterial spirit (thinking is a 'mental' event), whereas other thinkers deny any interiority and immateriality and identify thinking with 'language':

Speaking within the possibilities of a language system is essentially identical with thinking. This is, of course, a subtle form of materialism. This does not mean that there is no mutual interaction between purely immaterial thinking (mentalism) and the material signs that constitute the language in which an earthly human necessarily thinks; quite the contrary, man is a system that is both immaterial and material.

Bibliographic sample.

- J. Fodor/ J.Katz, *The Structure of Language* (*Readings in the Philosophy of Language*), Englewood Cliffs, NJ, 194 (language theory, grammar, semantics, language psychology, - with the help of specialists);
- A. Martinet, *Eléments de linguistique generalè* , Paris, 1967 ;
- G. Lepschy, *Die strukturelle Sprachwissenschaft* (*Eine Einführung*), Munich, 1969 (clear);
- B. Tervoort, *Psycholinguistics* , Utrecht/Antwerp, 1972 (child language, sociolinguistics, language pathology (hearing loss, deaf-blindness));

Regarding Chomsky:

- H. Verkuyl et al., Transformational Linguistics* , Utrecht/Antwerp, 1973 (very broad informative book, which also incorporates philosophy of language);
- A. Kraak/ W. Klooster, *Syntax* , Antwerp, 1958 (Developed grammar in the style of Chomsky's transformational-generative conception of language);
- N. Chomsky, *La linguistique cartésienne* (*suivi de La nature formelle du langage*), Paris, 1969 (more historical studies);

Language as a philosophical theme in Germany:

- H. Arvon, *La philosophie allemande* , Paris, 1970 (in addition to dialectics, philosophy of language since Hamann, hermeneutics, the Vienna Circle);

-- G. Nuchelmans, *Overview of Analytical Philosophy*, Utrecht/Antwerp, 1969 (Cambridge philosophy of language, logical positivism, colloquial language analysis).

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(B)I. Interpretation theory

The concept of 'clarity'.

Colloquial language already uses the words 'unambiguous' and 'multi-ambiguous'. The relationship between what is said (the sign) and what is meant (indicated) by the statement is central here. More precisely, there are three main types of ambiguity:

(i) the addition is a one-to-one relationship between two data referring to each other (sign; signified):

(ii)a. there are, however, also ambiguous relations and more ambiguous relations (multi-ambiguous) relationships.

It should be noted that, in scientific circles, the **een éenduidige relatie** (a point-by-point representation in colloquial language) is also referred to as 'one-one relation' ('one-one relation' (B. Russell)) or 'bi-univoke relatie' (Couturat: 'relation bi-univoke', univoke = single; here it is thus called 'twice single').

From a set-theoretic (class-logical) perspective, we can now define the concept of 'isomorphism' (and also 'homomorphism'): two or more sets (classes) are similar or isomorphic (or 'conform') if

(i) there is a one-to-one correspondence between its respective elements,

(ii) some structures ('forms'), which relate between elements, have been preserved.

An example makes this clearer: Newton's law ($F = ma$) and Ohm's law ($V = RI$) have the same formula structure (namely $A = BC$) and therefore

they are conformal, similar, isomorphic. It is the 'form' or 'structure concept' that determines the morphism.

Two sets are 'homomorphic' if the elements and their connections are merely unambiguous or multi-ambiguous. In other words, the point-by-point representation no longer exists, but there is still sufficient similarity to speak of ambiguity or representational reference.

an example: the vascular system of an animal or human (first term of the ambiguity relationship) can be described (represented in a second term of ambiguity relationship):

(a) Aristotle - in good faith - thought of an irrigation system (where the liquid flows away in an irrigating manner);

(b) Harvey, however, aims more precisely: he spoke of blood circulation (where there is no longer any outflow, since a much more closed system representation serves as a means of description). Harvey's representation is more accurate (more isomorphic) than that of Aristotle.

(B)IA. Model theory.

A1. Definition of the concept 'model'. (15/21)

The word 'rendering' is perhaps the best colloquial word for 'model' that meets the following conditions, namely:

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- 1/** unambiguity (addition) and
- 2/** mutual conformity of structures (conformity),
- 3/** and this as a means of interpretation.

Isomorphic models are, of course, the most useful, but homomorphic models also remain useful, even if the point-for-point representation is not symmetrical or reciprocal. For example, at a given moment in physics, hydrodynamics (fluid motion) was better developed than the

theory of electricity: one could, as a 'suggestion' ('analogy'), still use concepts from hydrodynamics in the theory of electricity.

From the moment it became possible to construct a 'representation' of an object of investigation (as an object, as a process, or as a system) that at least partially represents or describes that object, then that 'representation' is a model.

The word 'model' and related terms.

'Model' has come to us from the Latin 'modulus' via the Italian 'modello':

1/ 'mode' means way of being, 'mate', 'norm', and

2/ 'modulus', as diminutive (diminutive). diminished mode of being, buddy, or 'standard'. Architects, in the days of Emperor Augustus, such as Vitruvius, a structural engineer and military engineer, used that word. The French 'moule' and the English 'mould' derive from it.

Related in meaning are:

image, likeness, picture, reflection, mirror image, icon, -- metaphor (see above) example, textbook example or paradigm; -- scheme, matrix, mold, pattern; -- copy, facsimile; -- homomorphism, homology (homologation of a certificate, for example;) etc.

It should be noted that a certain Platonic duality is always present in the meaning: all those words mean:

1/ representation of something by or in something else (that resembles it),

2/ ideal representation or model (1 is factual, 2 is normative).

The intoxication with which the word 'model' has now become a buzzword, especially in scientific circles, should not deceive:

“The classical problem of analogy (i.e., partial similarity in partial difference) ultimately led to the modern problem of the model” (K.

Bertels/ D. Nauta, Introduction to the model concept , Bussum, 1969, p. 6).

Indeed, antiquity (Plato: idea and its representation; Aristotle: analogy) and the Middle Ages (scholastic analogy) were very familiar with this problem. Nowadays, this concept of a model is much more formalized (logistically and mathematically elaborated), but the logical core is the same. Cf. *Doede Nauta, Logica en model* , Bussum, 1970.

L. Von Bertalanffy, Robots, Men and Minds (Psychology in the Modern World) , New York, 1967, 97/98, 98/101, states that 'science' is the representation in appropriately conceptually constructed entities ('things') such that empirical or experiential knowledge and conceptual

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refinement goes hand in hand: whereas, in the past, man represented his daily 'world' in colloquial and simple 'models', now, in science, 'constructions' emerge that become increasingly 'abstract', 'general', and at the same time 'unvisualizable'.

Reason: the mathematical 'formalism' that represents structures in abstract relationships.

Von Bertalanffy therefore defines 'science' as follows: “a conceptual construction, which is the representation ('model') of certain 'formal' and 'structural' relations, present in a (fundamentally) unknown given 'x'”. Science never, he says, provides an answer to the question of what reality really is: it only represents a set of relations and in 'models' that are so alien to life.

Lévy-Strauss, Anthropologie structurale , Paris, 1958, p. 306, says that the structural sciences (which refer to the initially unconscious connections in the empirical data) have as their object everything that has a systemic character (in this the structuralists agree with von Bertalanffy, except for the fact that the latter accepts a hierarchy):

Any set of things such that the change of one element brings about the change of all other elements is a 'system'; however, the construction of 'models' applies as a method: here, however, one type of model is dominant, namely transformation groups.

*J. Hill/ A. Kerber, *Models, Methods and Analytical Procedures in Education Research**, Detroit, 1967, is, in the field of educational science, the application of the scientific ideal just outlined by von Bertalanffy and Lévi-Strauss (especially pp. 14/20: **Models, Structures and Function**).

Definitions.

“A model is a concrete representation of situations and entities (things) from nature and history.” (*K. Bertels/ D. Nauta, Introduction to the Concept of the Model* , 13) .

If symbolization is at work, then a model is “a concrete representation of situations and entities from nature or history in a collection: symbols” (oc ib.).

It is therefore not surprising that a Lévi-Strauss (like von Bertalanffy) points out the constructed character and cites J. von Neumann and O. Morgenstern (1944):

“Models are theoretical constructs that presuppose an exact (understand: isomorphic), complete, and uncomplicated definition. They must therefore resemble reality in every respect that is important for the course of the research. This resemblance to reality is necessary for the functioning of the model to acquire meaning.” (*JM Broekman, Structuralism* (Moscow/ Prague/ Paris), Amsterdam, 1973, pp. 11/12).

Moreover, for Lévy-Strauss, the actual 'depth' of a given subject is exposed in such an abstract model (from beneath the 'surface').

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Systems-theoretical definitions

Cf. von Bertalanffy and Lévi-Strauss *supra* – read as follows:

(i) Leo Apostel says it as follows:

“If one has an unknown system 'O' and, at the same time, a system 'B' independent of that system 'O', which is known, and if one utilizes the known system 'B' to obtain information about 'O' through 'B', then 'B' is a model of 'O'”. (*K. Bertels / D. Nauta, Introduction to the model concept* , 28);

Consider the scale model of a house to be built: through the model, one obtains information about the house that cannot yet be seen (and which resembles it); this, to take an everyday pre-scientific example;

(ii) GG Granger, *Science, philosophie, idéologies* , in *Tijdschr. v. Fil .* , 29 (1967): 4 (Dec.), p. 771/772, says:

“We call a 'model' a collection of elements that are abstract and arranged in such a way that they form a structure (cohesion). This collection aims to represent the 'systematicity' (the systemic character) that the phenomena are supposed to exhibit. (...) One confronts two planes, whereby the ordering of the one serves as a sign of the other.”

(iii) EW Beth, *Natural Philosophy* , Gorinchem, 1948, p. 20, indicates one type of system models:

“The mechanical-constructive method (...) consists in the construction of a (usually fictitious) mechanical system, a so-called 'model', whose behavior exhibits certain quantitative regularities that correspond to the quantitative laws in the phenomena to be explained”.

Consider a scaled-down mechanical model of a car, for example, which is constructed in a series. Consider hydrodynamic models for electrical phenomena: in hydrodynamics (the study of fluid motion), one spoke of 'current', 'current intensity', 'acceleration', 'current decay', etc.; these terms were transferred to the flow of electrons: heuristically this was valuable (the transfer led to discoveries), but, evidently, the analogy was wrong on many points.

Consider biologism (organicism, vitalism) regarding the functioning of society: one proceeds from a biological organism (with cell growth, metabolism, uptake and release of substances, etc.); this is transferred to social phenomena (which is heuristically valuable, but, given the difference, has very limited applicability). Cf. also G. Thinès / A. Lempereur, *Dict. general d. sciences hum .*, Paris, 1975, pp. 603/607.

Typology.

There are many types of models. K. Bertels/D. Nauta, **Inleiding tot het modelbegrip**, pp. 114ff., attempts to define groups of main types: the sciences distinguish three types of data:

a. concrete (crystal, cell, soul life, social green, enterprise, etc., which one business could be called data;

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b1. conceptual (conceptual) (number system, line and point system, pattern, drawing, 'gestalt', the periodic table of chemical elements (Mendeleev), a part or an entire theory, a physical-mathematical formula, etc.), which provide a concept of (concrete or) factual data;

b2. formal: the 'electron' is (ad a) first of all a factual (concrete) given in nature; the is (ad b1) therefore a conceptual 'element' within a theoretical atomic model; the word 'electron' becomes 'formal' if it is used as a common noun (an even more abstract name than within atomic model theory). Thus, there are three types of models:

a. empirical (businesslike, concrete);

b1 . conceptual (conceptual), i.e. in a first degree of abstraction;

b2 formal (the purely formal, contentless symbolic), the in a second degree of abstraction (that is calculus, calculation, with symbols).

Ad a: the empirical models are examined by K. Bertels/ D. Nauta, oc, in two chapters:

(i) models in the natural sciences (and their applications (physics, microphysics, mechanics, astronomy, chemistry; - biochemistry, biology);

(ii) models in the humanities (called 'social': economics, linguistics, sociology, ethnology (cultural anthropology; - history).

That concludes an overview of the main types of 'model'.

Practical species identification.

Two groups of models are discussed here.

(1): There are:

a1 . iconic models , which are practically speaking physical images; such as a photo of a manifestation, an architectural model of a house (maquette); - here changes in scale play a major role together with changes in material: miniaturization (a scaled-down miniature car: toys often work this way) and enlargement (think of the Atomium, which depicts an iron atom greatly enlarged);

a2. analogical models , i.e. not fully iconic (unambiguous) representations; e.g. a diagram of school attendance; the not fully iconic ('analogical' is a bad name, because all models are fundamentally analogical) models are less accurate than the fully iconic models;

b. symbolic models , i.e. agreed, conventionally introduced elements (e.g. E , m , c^2) are combined in such a way that they represent a structure (here: $E=mc^2$, where the 'measure' of the energy is the product of the mass times the square of the speed of light): such concepts (conceptual) models are exact in principle.

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These latter models are also called 'algorithmic' models (*E. Beth, Natural Philosophy* , 52/53).

'Algorithm' here is a structure-preserving symbolization. H₂O is such a representation for 'water' (H, O are arbitrary to a certain extent; the ratio; H₂O reflects the chemical molecular structure).

Even the common man knows this: a finch song count symbolizes: a dash (upright) for one song of a finch; after four song songs, one crosses out with the fifth dash (!, !!, !!!, !!!!, ...).

What is called, in sociology and social criticism, a profile sketch, is, in its own way, also such a symbolic model: one formulates specific characteristics of a person with words into a coherent whole that typifies (characterizes) that person.

Linguistically, it should be noted that 'filum' (Latin) means 'thread', but – semasiologically – also 'line', 'form' (shape, form).

The Italian 'profilare', design, to shape, and 'profilo', drawing, profile, are derived from Latin. Since the 17th century, in drawing, 'profile' has meant a side view; 'shadow portrait' (silhouette) was also referred to by 'profile'; the characteristic line of sight is fully realized in the profile; figuratively, one spoke of the profile of a city. In engineering, 'profile' became the word to denote a vertical cross-section: in geology, for example, to indicate the structure of the geological layers.

Modern psychology has transferred the term to personality: 'personality profile' ('psychological profile'), i.e., the collection of characteristics specific to an individual (or even to a group of people). It can also be used foreshadowing: a person who is still unknown—for example, during an appointment—must correspond to a set of traits (normative use of a model).

Usually, however, the meaning is factual: A person without 'images' is, sociologically speaking, half-blind. Even though one might call 'images' 'substitutes for thought', man needs them because he has a fundamental need for the simplest possible explanation of the events around him, for the sake of the stability and transparency of life.” (G. Deelen, *Het beeld dat men zich van de principes vorm* , in *Streven* , XVII (1964): 7 (April), p. 664).

The profile or image that one constructs of oneself, of others, and of reality is indeed, long before the intoxication of Model Theory as it can be seen today, an extremely profound phenomenon, because, among uncritical people, the model is eventually confused with reality itself: we see reality practically through the 'lens' of our 'models'.

(2) *There are 'regulative' and 'application' models.* This is a distributive distinction.

(i) *The regulative or* normative model originated in the empirical sciences: J.C. Maxwell, in 1863/1864, designed without resorting to an empirical model

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in the ordinary sense, i.e. a visual model, a series of formulas of a mathematical nature, i.e. an abstract model for electrical and magnetic phenomena (Faraday et al.); it had explanatory value (explanatory model); one need only think of Nils Bohr with his atomic model (nucleus, electrons): regulative models are universally valid.

(ii) *The applicative* model (casuistic model) is not universal: one need only think of G. Cantor, in 1883, who stated that formulas of axiomatic calculus (accounting with abstract, contentless, purely 'formal' or 'formal' symbols), at least for the time being, have no concrete application ('applicatio') in nature or in culture; being semantically empty, they need only be mutually 'coherent' (i.e., free from contradiction, not unrhymed) (syntactically sound); - if an application is subsequently found, it is called an (applicative) interpretation, a realization, a 'model' of abstract calculus.

Conclusion: in the course of the 19th century, from the perspective of science, two types of 'model' originated, - one from the empirical sciences and one from the formal sciences.

Example of an 'application-based' model:

If $x = y^2$, then 2^2 , 4^2 , 5.5^2 are each time an 'interpretation', 'realization', or 'model' of the universal formula. In other words, the regulative model moves within the universal, the application model within the particular or singular.

However, the fact that the word 'model' was used for the two types is due to the similarity of form: the regulative models summarize common properties of a set of cases or applications that confirm the general 'rule'.

The famous medieval principle of economy or parsimony (Petrus Aureolus (Pierre de Auriol, +1322: "The grounds for explaining something are to be limited as much as possible" (minimization); later: William of Ockham (+1350)) is at work in the regulative models: they summarize, in a form that is easy to handle and manipulate, the structure of, in principle, an unlimited number of applications or cases.

Immanuel Kant (1724/1804) - in his *Ueber den Gemeinspruch: 'Das mag in der Theorie Richtig sein, taugt aber nicht für die Praxis'*, Frankfurt, 1968, says: "Ohne Erfahrung sind die Kategorien leer; ohne Kategorien ist die Erfahrung blind" (Without experience the categories (ie basic concepts) are empty; without categories experience is blind).

Indeed, without 'rules' the 'applications' are blind; without 'applications' the 'rules' are empty: without regulative models the application models are blind; without application models the regulative ones are empty.

Showing a cube (visually: applicative) is blind without 'explanation' (minimal theory); the mere concept of 'cube' is empty.

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A2. Model as 'information'.

C. Van Peursen/ C. Bertels/ D. Nauta, Information (An interdisciplinary study), Utrecht/ Antwerp, 1968, p. 225, gives the

definition of N. Wiener, the father of steering in the modern technical sense:

“Information is a name for the content of what is exchanged with the outside world, whenever we attune ourselves to that outside world and make our attunement to it a felt experience”.

F. Vandamme, The problem of interpreting questions on a preliminary to the logic of questions , in *Philosophica Gandensia* , New Series, 10 (1972), pp. 43/54, put us, on another one A way to define 'information': in response to a given object, the question for 'information' arises for a 'searching' ('information-sensitive') interpreter (subject), insightful data that clarify the given information, making it more understandable. In that sense, 'information' is the answer to a question;

D. Huisman/A. Verger, La philosophie contemporaine en cent textes choisis , Paris, 1973, p.

174, notes three meanings:

a1. the Aristotelian meaning: a formless substance (matter) takes shape thanks to 'in.vorm.ing', 'emmorfosis', informio, information; note that disorder forms the starting point;

a2. the communication-theoretical meaning: 'information' is message transmission, passing on of news;

b. the physical meaning: 'information' is the transmission or transfer of a structure (what the Aristotelian and communication-theoretical meanings interact). Thus, Royaumont's Colloquium defines information as “a transfer of structures from one 'place' to another”.

With L. Apostel, we could provide a model-theoretical definition:

If a known system can be utilized to acquire 'information' from an unknown system, and if, precisely because of that, that known system serves as a 'model', then the model is information.

Indeed, anything that is a model of a reality is information (insight) concerning (the structure of) that reality.

We note, with *C. Van Peursen et al., Informatie* , 9/10, that there are fundamentally two definitions of 'information' as the transmission of a message (structure possibly):

a/ the colloquial definition: information as 'news' is information, reporting, of an observer to a curious person (see Vandamme's questioner above) concerning that in which the latter is interested (namely his questions);

b/ the logistic-mathematical view: information is a kind of improbability (if such that: news); information theory is therefore a part of (negative) probability theory.

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The conceptual framework of recent information theory is communication theory.

The frame of reference (i.e., the whole in which something is situated) is the communication circuit (the communication loop), into which something (an object) is fitted (like a relay ('relay' here is that which receives a signal (sign, message), amplifies it, and transmits it again)).

The object is a (bundle of) message(s), i.e. information(s), that are in circulation ('circulate') from sender to receiver. These message(s) constitute a set of improbabilities (otherwise there would be no 'news'). To convey that improbability (news, information) as clearly (intelligibly) as possible, 'redundancy' (excess) is necessary, namely an excess of 'sign' (encoding). Behold, in simple terms, the main concepts of communication theory.

Application.

M. Spiro, Des étoiles qui ne devraient pas exister , in *La Recherche* , 125 (Sept. 1981), pp. 991/997 speaks in terms of probability theory: the

existence of stars is established that, at least according to specific views (models), should not exist (that are 'unlikely' (in the form of overstatement: 'impossible')). Establishing this in reality is 'news' for astronomers: after all, it does not fit into their conceptual framework.

The conceptual framework of information theory is, secondly, cybernetics (steering science), from which information theory grew (cf. A. Moles, *Objet, méthode et axiomatique de la cybernétique*, in *Le dossier de la cybernétique*, Marabout, 1968, pp. 47/61).

After all, control machines are information-processing machines – cf. N. Wiener (1894/1964), *Cybernetics*, 1948. Wiener emphasized this: “Information is information, not matter or energy. No materialism that does not accept this can survive today.”

This brings us, immediately, briefly to computer science. H. Plorin, **Informatica**, in **Onze Alma Mater**; 1973: 1, pp. 49/56 states that the word has been in use in Dutch since 1964 (the Académie Française adopted the word 'informatique' in 1966). Informatica is

(i) the science of the reasoned processing of data ('data') and information (here understood as the content of human **1/** knowledge and **2/** communication in social, economic, and technical fields);

(ii) That operation consists in the conversion into a 'language' (i.e., a sign system) that is easily handled by automatic machines which transmit and process the signs that the language ('data processing'). With this, we are in the realm of automation. The 'ordinator' is that device which processes information in discrete (discontinuous) form (in that sense, computer science is 'ordinator theory'). Cf.:

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- M. Ponte/ P. Braillard, *L'Informatique*, Paris, 1969 ;
-- F. Raymond, *les redacties des ordinateurs*, Paris, 1969.
-- T. Blackburn/ H. Xhite, *Comprendre les ordinatuers*, Verviers, 1969

(Incidentally: there are two calculating machines, the analog computer (again an 'analogical' applied here in a special sense) and the numerical computer (di 'ordinator', - word introduced by IBM); oc, 28ss.);

-- I. Adler, *La language électronique (Les principes et ses applications dans les ordinateurs)*, Verviers, 1962 (strongly logistical-algebraic); - in the applicative sense:

-- J. von Neumann, *The Nervous System as a Computer*, Rotterdam, 1966 (nervous system and calculators are analogous in some ways);

Bonus: H. Jans, *March of the 'chips'*, in *Streven*, 48 (1981): April, pp. 619/635 (the evolution from macrocomputer to microprocessor: the basis is the miniaturization of automation thanks to microelectronics, whereby a microprocessor - chip amounts to a minicomputer, so that one speaks of the 'third industrial revolution').

Conclusion: As early as July 1974, when, for the first time, graduates in Leuven received the title Regarding those who obtained an 'engineer in computer science' degree, Prof. L. Buyst pointed out that the storage, retrieval, comparison, and modification of information (and this repeatedly means 'models (of structures)) was becoming an increasingly important problem. Given the instrumental role of the computer in this 'informatic' activity, what is called 'computer appreciation', i.e., the correct insight into the possibilities and limitations of computer science and its equipment, is a necessity. (Cf. *Alumni Leuven*, 5 (1974): Sept. pp. 5/6) Cfr. E. Baudet et al., *Man and Computer (Automation, Industrial and Cultural Revolution)* Utrecht/Antwerp, 1963.

(B)IB. Theory of ambiguity (24/)

B1. The concept of 'ambiguity' (24/26)

Multifaceted or ambiguous is a case of homomorphism: 1 O(bject): interpretation 1; interpretation 2. In other words, for one O(bject) to be interpreted, there are more than one interpretations; a singular

regarding the object gives rise to a plural of so-called subjective interpretations.

The medieval scholastics expressed this scheme as follows:

a. there is the 'obiectum materiale', the material object, - whereby material actually means 'loop-shaped', 'reflexive, reciprocal (not to be confused with 'mutual': think of a reciprocal verb, which returns to itself (regarding the subject that acts)))

Example: this tree here, this is a factual, concrete fact;

b. there is, if necessary, a plural of 'obiecta formalia', formal objects; 'Forma' here means (in the ancient-medieval sense) conceptual content, cognitive value, model; for example: the deictic (= indicative or demonstrative) form – 'this tree here and now' – gives rise, once it becomes extra-material, i.e. relative, to a series of interpretations.

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b1. the nurseryman views the tree as the result of what scientific tree nursery called 'growth control', i.e. the manipulation of the growth factors (cf. independent variables) that 'steer' the growth process (cf. dependent variables); - biological;

b2 . the timber merchant sees merchandise in it and the 'profitable' object in the tree; - commercial, utilitarian; - economic;

b3 . The engaged couple sits under that tree because it has foliage and greenery, as well as 'realm' gives for his romantic moments; - 'celebrating', playful;

b4. the landscape painter attempts the 'clean', possibly the grandiose (large-scale clean) or to “emphasize” the graceful (small-scale beauty, aesthetically - artistically;

b5 . The dendrologist (to dendron = the tree) or tree expert examines the tree. 'scientific', as a biological system, with an internal structure comparable to that of its conspecifics (distributive), and interacting with

the environment (the surrounding 'systems' (collective): external structure); - specialized scientific.

One sees what the formal object is: it is the 'meaning' that can be attached to the material object taken in itself; it is the interpretation or meaning.

Another example:

V. Carels, *Response in scientific jargon* , in De nieuwe Gids (18.07.1964), gives the Represents ambiguity in semasiological form. Semantic theory, it states, gives the following description to the term 'reaction' (counter-action): an action (work) that elicits another action, a reciprocal effect, an answer to a specific stimulus.

Colloquialisms: a person's reaction is the adjustment of their behavior to a stimulus.

Mechanical: a reaction is the response of a physical given to an acting force, takes effect.

Chemical : chemistry is the science of all reactions that occur in nature occurring in the realm of molecular structure, one might say; there is a continuous interaction of one 'substance' on another, which responds ('reacts') chemically to it in a chemical 'process' (which can be neutralizing, homo- or heterogeneous, etc.).

Physiological: the response of an organ with a specific function (e.g., the olfactory organ) to a stimulus

Psychological : the answer of man, either in his inner life (introspective) or in his (external) behavior in response to a situation (stimulus).

Medical: the response of either the organism (primarily physiological) or the psyche to a medical test (for syphilis, for example, the Wassermann reaction).

Pedagogical: the answer that those involved in the upbringing process (parents, teachers, children, adults) on a pedagogical or andragogical 'situation'. The context decides on

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the meaning; i.e. that the 'system' or living whole in which a term is used is semasiologically decisive for the meaning variant, the living interpretive whole—here a multitude of sciences.

Until now, objective 'overdetermination'—that is, the fact that the object itself exhibits more than one structure in itself, revealed through a multitude of perspectives or approaches (methods, viewpoints)—was considered the explanation for the ambiguity.

B2. The same concept of 'ambiguity' psychodagnostically (26/27)

One can develop an analogous scheme:

$O(bject) = p(reaction) \text{ --- } = D(statement) = A(response) = R(reaction).$

Cf. p. 6 supra. Until then, the structure that we just called 'O' ---= D(uiding) 1 or D(uiding) 2 ... remains.

However, if we write:

$O(bject) = P(rickle) \text{ -- } = (black\ box = subject) \text{ --- } = A(response),$

then the diagnostic power of ambiguity, revealing the inner self of the subject, manifests itself more purely.

Let us take a paradigm or textbook example:

A teacher assigns an essay to twenty students about, for example, the splendor of summer. It is a fact established countless times that

every student individually will produce something personal—call it 'subjective,' yet without a single pejorative connotation. Schematically:

a singular of theme = a plural of essays,

As an application of the scheme:

a singular of P(rikkel) --= a plural of A(ntwoorden).

The 'encounter'—to use an existential word for the schema 'o ---= A'—is simultaneously interpretive, but interpretive in the sense of auto-implicative ('self-involving' is also a term often used in linguistic analytical circles): in interpreting, the interpreter reveals himself in a kind of psychological experiment (it cannot be called a test in the true sense, because its experimental character is too weak) or psycho-diagnostic. Aristotle would have said, in his time: "everyone 'poiei' (makes) something else of it"; now we say: "everyone projects something else into it".

It should be noted that, psychologically speaking, 'projection' has two meanings:

a. expression or externalization of inner states and processes in external behavior, - gesture, words (which then function as a 'sign', for and especially in the pragmatic sense);

b. attribution or assessment of someone or something - interpretation - according to subjective state(s) such that which is characteristic of the indicating subject

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Attribution is made to the object in question. 'Introjection' would also be a good word, but viewed from the inside out rather than from the outside in, as psychoanalysts understand it (which is essentially the counterpart of projection). The drives, i.e., unconscious motives and insights, that determine the projection can be diverse:

(i) **existence projection** : *E de Condillac* (1715/1780), *Traité des sensations* , speaks of the fact that the subject, as an intellectual being, projects his inner experience outside himself into the external world, such that that inner reality acquires a (false) existence, an autonomy or independence, in his eyes, through that operation;

(ii) **religious projection**: the religious subject attributes to the sacred (to God and gods, etc.) to what is his own (existence, feelings, thoughts, other attributes): L. Feuerbach (1804/1872), K. Marx (1818/1883), and other Left Hegelians (and their followers to this day) have attempted to 'explain' all possible religions with this simple schema (if one can use this distinguished word with a 'scientific' connotation here; which does not mean that some religions are explainable in this way);

(iii) **psychoanalytic projection**: the subject to be psychoanalyzed is subject to (for his educational thinking and—morality) unbearable and reprehensible ideas and feelings—e.g., he desires, against his will, a woman whom he 'may' (morally) or 'cannot' (practically) desire; as a whitewashing or (self-)defense mechanism at work within him—a driving force—he attributes these 'unnameable' inner processes to someone or something situated outside of him (especially, here, the desired woman herself, who is supposedly either the occasion (soft cause) or the (full) cause, in his eyes, of the desire active within him with its ideas: “the pot calling the kettle black” is the popular way of formulating this profound psychoanalytic idea in a commonsensic manner.

B3. The concept of 'ambiguity' and the Bible (27/31)

The starting point here is divine judgment (ordal, ordalie). This is a legal diagnostic tool: the accused or suspect is subjected to a trial ('test') so that either his guilt or his innocence becomes clear. The revealing power at work in such a procedure is either natural-magical (the immanent power of words, actions, and materials) or evocative-magical (spirits and deities intervene with their power, whether or not mixed with the natural-magical power). The 'classic' or textbook example of divine judgment in the Bible is *Num. 5:11/31* (concerning a woman suspected of adultery) .

Let no one deceive oneself: the New Testament also knows this divine judgment: in *1 Corinthians 11:27-32*, *Paul* speaks of approaching the Eucharist unworthily and says: “Whoever eats and drinks, eats and drinks judgment upon himself, if he does not judge the body (understood as: of the Lord in the Eucharist) according to its worth.”

Moreover: God's judgment is very broad. All human actions undergo the consequences. of his moral quality: “Do not be deceived: God is not mocked. Whatever a man sows, that he shall also reap: whoever sows in the flesh (i.e., in wretched, sinful humanity) shall reap destruction from the flesh; but whoever sows in the spirit (i.e., in God's life-giving power at work in man) shall reap eternal life from the spirit.” (*Gal. 6:7/8*).

Time and again, one sees the sifting at work, sometimes by means of ritual (or magical) acts, at other times by means of living action itself. In other words, divine judgment (ritual) is in the conspicuous what the judgment of God is in the un conspicuous.

The structure is clear: the same ritual act results in more than one outcome (depending on the moral disposition of the subject involved); seemingly the same earthly life results in more than one outcome (as a consequence of the inner attitude towards God). God places man in situations that have diagnostic value: this points to the ambiguity of His actions.

Here is the steering structure:

Good or bad attitude --- = life or ritual --- = good or bad result (for the person concerned: feedback). This has long been called the law of immanent sanction. He who acts well prepares himself a good result; he who acts wrongly 'punishes' himself.

Jesus himself emphasized that ambiguity. For instance in *Mark 8:27/30*: to the one question of who Jesus is, people give more than one

answer (some say 'John the Baptist', others 'Elijah', still others 'some prophet or other', - Peter 'the Christ' (cf. Luke 9:7/9)).

Thus in *Mark 4:1/20*: the one person and the one work of Christ (the seed) is destroyed in one by Satan, released in another as a result of tribulation or persecution, and choked in others by the cares of the world, the deceit of riches, and the desires for all other things,

For a final type of listener to the good news, that same reality is processed and realized thirty-, sixty-, or a hundredfold.

Likewise in *Mt 25:1/13* (the same task is carried out differently by the foolish bridesmaids than by the wise); *25:14/30* (the talents are used differently); *5:31/46* (the same fellow man in need becomes a 'neighbor' to one, and a 'stranger' to another).

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B4. Philosophical processing of ambiguity (29/31)

Let us begin with an appliqué model of the philosophical rule: a man, forty, murders a minor girl in a fit of rage.

a. Viewed for information: the journalist speaks of a murder case, the statistician of an earlier infrequent crime;

b. viewed (meta)physically :

b1. preconstitutive: (religious) the traditional theologian speaks of sin against God; (supernatural) the occultist speaks of occult evil or demonism or even Satan;

b2. constitutive:

(i) medical: the doctor sees illness in it;

(ii) psychological: the ordinary observer of human nature sees human weakness in it; the The school of thought-bound psychiatrist sees his conceptual model in it:

a/ Freudian (the Oedipus complex, arising from a clash between the libido (life drive) (conflict situation) with the superego (the rules of conscience counteracting pleasure imposed by culture), provokes aggression);

b/ Adlerian (the inferiority complex, stemming from the clash between need for recognition and community norms, causes inhibition, disappointment (frustration) and aggression);

c/ Jungian (the Cinderella complex, conceived by the clash of the life force and his 'Ideal' with the 'harsh' reality leads to the impression that the ideal is unattainable and can be dramatized as a 'disaster' - which provokes aggression);

(iii) sociological: the ordinary survey sociologist concludes that there is antisocial behavior; the The new-left psychiatrist views the social critique as an effect of the distorting influence of capitalist societal structures, while the neo-structuralist psychiatrist, equally socially critical, views it as the effect of 'fascist' language structures that have inwardly degraded the murderer.

c. from an ethical-political perspective:

c1. ethical: the moralist (ethicist) sees immoral ((unscrupulous) behavior (sin) in it; the secularized theologian labels it as a crime against humanity;

c2. political :

(i) legal: the judge views it as punishable manslaughter with aggravating circumstances; - one lawyer speaks of sexual self-defense, reprehensible yet understandable, while the opposing lawyer speaks of egregiously depraved injustice against an innocent person;

(ii) socio-ideological: the feminist sees it as yet another sign of the subjugation of 'the woman' to male phallocracy; the liberal labels it as an insane abuse of the inherently valid principle of individual freedom;

the personalist as an Attack on the dignity of the human person in a societal context,

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the solidarist views it as a crime against the intersubjective ordering of a community of free persons; the communist Marxist protests against the remainder of the double standards of the bourgeoisie, which pose a threat to socialist 'collectivity'; the right-wing fascist regards it as an attack on the inviolable order of his state and the citizens connected within it;

(iii) agogic : the educator or educationalist considers it an educational error with fatal consequences. outcome, which strongly highlights the problem of re-education; the anti-authoritarian educator sees it as a fatal reaction against an authoritarian system (and father figures) that breeds 'submissives' who, however, subsequently exhibit criminal motives.

We now refer to EP (epistemology), p. 26, where the fundamental schema of traditional and complete philosophy is briefly mentioned: on the basis of the above schema of ambiguity, but philosophically ordered, its eminent value and, immediately, that of the philosophical attitude become apparent.

Multi- and interdisciplinary approach or method.

Linguistically, 'Disciplina' (subject of study, specialized science) gives rise to multi- or multidisciplinary and to inter- or interdisciplinary. This exists in two forms:

There is one principal science with many auxiliary sciences;

Thus, IM Bochenski underscores , **Wijsgerigemethoden in de moderne wetenschap**, **Utr./Antw.**, 1961, that logic (which he understands as logistics)

(i) uses epistemological terms (true/false; direct/indirect knowledge,

etc.),

(ii) introduces psychological terms (psychic, knowing, state, property, act, object, subject, activity, etc.);

(iii) also uses semiotic words (signs, symbols, language, pronunciation, name, etc.);

(iv) yes, ontological language also speaks (things, substance, properties, relations, essence, existence, matter connection, etc.);

There are several specialists who, on equal footing, produce their input:

See *E. Baudet et al., *Man and Computer* (automation, industrial and cultural revolution *)*, Utrecht/Antwerp, 1963; - mechanics, machine technology, geometry, combinatorics (chess system), psychology, physiology (knowledge of the nervous system), futurology (knowledge of future possibilities), cultural science, historical science, cultural philosophy, - they are all covered equally (neither as primary nor auxiliary sciences).

This avoids all -isms (technicism, psychologism, sociology, linguisticism, biologism, and all 'triumphalisms') of specialist scientists.

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This is how the difference between ontology and a multi- or interdisciplinary method becomes clear:

a/ ontology is always the principal science in relation to the specialized sciences (either equivalent to specialist (model 2 on p. 30 supra) or subordinate (model 1 on p. 30: principal science with auxiliary sciences) and these specialized sciences are auxiliary sciences;

b/ ontology collects and systematizes the auxiliary sciences

b1/ according to the scheme above on pages 29/30 that has been common since the Pythagoreans in the West;

b2/ this schema in turn derives its coherence from ontology, the study of being, but then as follows:

= the (meta)physics treats being within the framework and system of 'being' in itself ('material', di reflexive, in its identity, identitive);

= the other divisions treat that same being in its coherence of being according to the subjective approaches developed by classical philosophical thought:

(i) *informative*

a/ epistemological: being as 'Where' and/or 'false', ie corresponding to (us) cognitive ability, intelligent;

b/ logical: being as one and/or many, which is collectible and systematizable;

(ii) *ethical-political,*

di As valuable and/or worthless; in other words, as corresponding to (our) capacity for appreciation (axiological, evaluative); - and this in two main ways:

(i) personal-compassionate (and then this is the ethical or moral standpoint);

(ii) compassionate-social (and since the ancient Greeks this has been called 'political', because 'Polis' was the social context in which the earliest Greeks lived in a humane—social—something that in the Hellenistic-Roman period was better called 'imperial' (i.e., in the context of the empire) or, even better, 'ecumenical' (the word 'oikoumené', as a designation for the entire known (and unknown) inhabited world of that time, indicates the universally human), which is in principle planetary or, as is sometimes said, 'global' (encompassing the globus or globe)).

From the perspective of clarity theory, ontology boils down to this: however much it possesses a formal object, distinguished from all other formal objects or viewpoints of the specialized sciences, it nevertheless always keeps the material object in mind as the formal object, i.e., the identity of being in the context of being. That viewpoint is never (nor) that of the (most elaborated) 'unity science'—however primarily scientific it may 'unify' all possible auxiliary sciences (unity science!) under the heading of, for example, the systems theory of recent years (this is merely a 'one/many' interpretation, but not an identity science like ontology).

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(B)IC. Information Science (32/35)

We have seen that sign, or model, respectively, has informative value; in other words, the sign (model) sheds light on that for which the 'model' stands. The question now arises for the ontologist: what 'is' sign (model) as information and in itself (di identitive, loop-shaped, reflexive)?

For the informative value of the sign (model) apparently depends on what it actually 'is'. We already know N. Wiener's answer: 'information' is neither matter nor energy, but something distinct that is indeed comparable to and connectable with matter and energy, but never simply 'is' matter and energy. And Wiener explicitly mentions the materialists (and he ought to include the energists!), who identify all reality ('being', 'existence') with either matter or energy.

The triad 'matter - energy - information'.

The background is formed by modern physics. *Ch. Brunhold, Histoire abrégée des theories physiques concernant la matière et l' energie* , Paris, 1952.

Until the 1950s, people continued with a dyad, namely matter and energy, both clarified by mathematical-logistic formulas (which, essentially, represented the information in the matter and the energy).

= The first view seeks to reduce all physical phenomena to mechanical actions and reactions between particles (in four phases:

- (i) the kinetic theory (molecules in continuous motion),
- (ii) atomistics (which views the molecule as being composed of atoms),

- (iii) the intra-atomic theory (the atom is a nucleus, which is positive, surrounded by negative electrons),

- (iv) nuclear physics (the atomic nucleus itself is composed of even smaller particles) (oc, 25/47)) - Inspired by ancient atomism, Gassendi (1592/1655) laid the foundation for this modern atomism.

= The second view seeks to reduce all physical phenomena, starting from the mechanical concept of 'energy' ('work', the force that moves), to forms of energy. The kinetic conception of matter set the way: 'motion' (kinesis) is the gears of matter; however, besides mechanical energy, thermal or heat energy, chemical energy, etc., were discovered.

In time it became clear that energy was convertible or susceptible to transformation. Thus, the material universe appeared as a multitude of energy forms and energy transformations (oc, 11/24), especially since Helmholtz (1848), who drew attention to the intimate bond connecting heat, electricity, magnetism, light, and chemical affinity with mechanical forces. This gave rise to modern energy science (itself designed after ancient 'dynamistic' examples (one need only think of Herklaitos of Ephesus)).

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Cf. *F. Michaud, Énergétique générale*, Paris, 1921, who defines this theory as the science of the general properties of energy and presents it as the common framework of all physical sciences, in that it clarifies the

nature of physical concepts and constitutes a genuine physical 'theory'. See also A. Dastre, *La vie et la mort* , Paris, 1920 (pp. 54/92: *l'énergie en général* , - a short treatise on general energetics (with history)).

As Ch. Brunhold, op. cit., 8, notes, both conceptions of matter, the atomistic and the energetic, overlap to a certain extent: H. van Praag, *Information and energy (Building blocks of a new worldview)*, Bussum, 1970) reduces all physical phenomena to duality 'information-energy' , - this in contrast to Et. Vermeersch, who proceeds from the tripartite nature of 'matter/energy/information'; the reason is that matter (understood atomistically) is itself a form of energy;

J. Fast, *Energy from Atomic Nuclei* , Maastricht, 1980, shows, extensively and according to the most recent state of affairs, to the fact that, indeed, the atom ((and especially its nucleus: one need only think of nuclear reactions, nuclear bonding and nuclear fission, radioactivity, nuclear fusion, nuclear radiation sources, activation analysis, radionuclides) energetically 'is'. Cf. also A. Arès/ J. Marcoux, *Structure de la matière* , Montreal, 1971 (one sees it as such a handbook for physicists and atomic and energetic uses concepts).

Regarding the relationship between matter and energy, on the one hand, and life, on the other, cf. A. Dastre, *La vie et la mort* , Paris, 1920, - that historical still remains interesting;

J. Fast, *Matter and Life (The Cohesion of the Natural Sciences)*, Maastricht, 1972, especially p. 1/28: the unity of matter; equivalence of mass and energy; from there, the author discusses the foundations of chemistry; carbon chemistry and biochemistry; the energy sources of life, as well as heredity and evolution.

Since the advent of computer science, naturally, alongside atomistics and energy science, information theory has become a third conceptual model in physics. Cf. above, pp. 22/24.

The essence of information.

The problem is posed by *D. Nauta, Logica en model* , Bussum, 1970, pp. 254ff.: there the question is asked whether 'sets' (G. Cantor) exist.

Cantor and the other logicians claim that sets exist in themselves, independent of man (and his operations of sets); man discovers them, as A. Fraenkel says.

The other tendencies, the intuitionist (which constructs them) and the formalist (which interprets them functionally), turn them into a product of man's 'collecting activity': man invents them.

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K Bertels/ D. Nauta , Introduction to the Model Concept , Bussum, 1969, pp. 145/166, discusses the think in models and claims, oc, 153, that

“the model, as such, does not occur in reality (as opposed to model realism), but that it is suggested by reality (as opposed to so-called model idealism, understand: model constructivism or model formalism)”.

“The model, as a medium of communication, stands between man and world. With the model it is just like with the blue line on the map: it does not itself appear in the world, but symbolically represents a river in the world. If the rivers in the world showed no structural kinship whatsoever, the word 'river' would not exist.” (ibid.). The authors state (p. 145) that they are model nominalists—a position they propose as a middle ground between model realism and model idealism.

On page 258 of his * *Logica en model**, *D. Nauta* states that, in the Middle Ages, the same differences of opinion existed regarding the relationship between 'language' and 'reality', namely in the form of the problem of universals: 'the' triangle, 'the' house, etc., existed independently of man for the conceptual or universal realists.

Indeed, Plato, as a pre-constitutive conceptual realist (also called hyper- or ultra-realism), asserted that, somewhere in a sphere of purely

knowledge and thought, abstract or general (universal) concepts existed before their concrete realizations (this house here and now, that triangle there and then, etc.); later, Platonism placed this sphere within a deity that pre-thinks all things and processes.

Aristotle was also a conceptual realist, yet he asserted that universal concepts did not exist before their realizations, but rather within them: in this house here and now, the human intellect encounters 'the' house simply;

In this triangle, the mind encounters 'the' triangle in its general content of knowledge and thought. This is called constitutive conceptual or universal realism: the general belongs to the constitution or nature itself of the concrete individual being. Thus, for Plato(nists), there is both preconstitutive and constitutive realism, whereas for Aristotle there is only constitutive realism regarding concepts.

In contrast, Nauta places the conceptualists, who view concepts as constructions of the human mind, and the concept-nominalists, who do not even conceive of concepts as conceptual realities in the human mind, but merely as names (*nomina*), or labels that stand for realities supposed to correspond to them.

If these last two opinions are true, one fails to understand how the same regularities are, for example, experimentally established in nature, and revealed independently of our operations or, rather, on the basis of those assertions .

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Time and again, people speak of the inductive discoveries of the laws of nature. Even when the formulas were initially invented as hypotheses, they are nevertheless 'confirmed' in due time. A core of conceptual realism can therefore truly be established: to a certain extent, our concepts have reality value.

Of course—and that is the truth of the conceptualists and even of a well-understood nominalism—we humans 'construct' our concepts (at

least to a certain extent, for 'absolute' invention and creativity simply do not exist (there is always a minimum of reality in the construction itself)).

In that conceptual-realistic sense, the chapters of *C. van Peursen are C. Bertels/ D. Nauta, Information (An interdisciplinary study)*, Utr./Antw., 1968, understandable:

(i) information and life (in biology, the concept of information plays an increasing role);

(ii) a. Information and technology (see above p. 22/24 : computer science);

(ii)b. information and culture (in a syntactic, semantic, and pragmatic sense).

On page 176, the authors assume that the exchange of matter and energy occurs throughout the cosmos, whereas 'life' and, of course, humanity, in addition to those material and energetic processes, also possess 'informative' processes. This means that, according to this view, information (collection, sign, model) does not belong to the very constitution or essential nature of all being, but only to the communication of living and human beings.

This view is, oh, too narrow: with C.S. Peirce and O. Willmann, we are convinced that the constitution or nature of things and processes itself already 'is' either a 'sign' (model, information), or – to speak with Willmann and the Platonic tradition (and also the Aristotelian) – 'is' an 'idea', a content of thought and knowledge in itself.

When one conceives of reality itself as 'idea', as ideal reality, then one is an 'idealist' not in the 'modern Cartesian' sense, but in the ancient-medieval (Platonizing, Aristotelizing) sense. 'Idealism' in the ancient-medieval sense means that reality, besides being material and energetic, is always simultaneously a 'sign' or 'idea'.

Reality is 'intelligible', 'comprehensible', ' *thinkable and knowable* ' in itself. Because it is so, constitutively, in itself, man can orient himself within it with signs and ideas, with models.

Because reality is 'idea' and 'model', intrinsically, it makes sense—this result—to seek the structure of reality with reason and understanding in logic and mathematics, in empirical science, in all orderly and 'sensible' activity.

Because reality is 'true' in itself (in the ontological sense, i.e. intrinsic), one can arrive at truth, i.e. correspondence (oneness - unambiguity) with reality.

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(B)II Clarity theory (claribility theory) (36/)

Introduction.

Up until now, we have consistently discussed interpretation and clarity. The question remains whether and to what extent reality is 'clear' or, better, 'interpretable'. Not in itself, but in its accessibility or inaccessibility to man. This leads us to the principle of (necessary and/or) sufficient 'reason' or 'ground' in the epistemological sense or, as has been said since the ancient Stoics, the principle of a necessary and sufficient 'criterion', that means of distinction or discrimination, namely, to distinguish the true from the false. To know, with certainty, whether something is true or not, one must have a sufficient reason or criterion that makes the matter 'interpretable' (clear).

IIA. The fact of indistinctness and its concept (36/39).

(a)1. Applicative models . (36/38)

In various fields, determining the (objective) truth is not, or at least not easily, (establishable or derivable).

Physical.

Causality, placed at the center of natural science by Fr. Bacon, was easily interpreted deterministically:

“Under the same conditions, the same causes have the same effects” (relationship between independent variables and dependent variables, if the rest is neutral). Such a universe is therefore predictable (deductive), because, once the causes are known, the effects always follow.

I. Kant even defined the whole of nature as “the existence of things insofar as it is determined by laws”. That is the deterministic 'rationalism' that has been so widespread in the West since Galileo and Descartes.

However, in the field of nuclear physics, there is minimal indeterminism: a simple material image or model of the processes within the atom is impossible; only matrix calculation (A. Cayley (1821/1895) founded this type of mathematics in the mid-19th century) can design an 'image' or model that does justice to the facts.

Reason: the conditions under which intraatomic processes are approached are changing (yes) destroy) those processes themselves. If one wants to determine the exact position of an electron, its energy decreases, for example.

Heisenberg (1901/1976), Nobel Prize winner, called this the 'uncertainty principle'. -- The so-called wave mechanics—in the field of microphysics—with its probability-calculating method is an answer to this: instead of 'absolute' determinism, one has here a 'statistical' determinism.

Organic.

In biology, phenomenologically—that is, when working in a phenomenon-descriptive or 'behavioral' manner—one always has a phenotype regarding heredity (Mendel): the appearance or mode of presentation does not always correspond to the actual genotype (the genes).

Mendel founded the method: through patient analysis of crosses, the genotype is revealed.

From a biological perspective, it should be briefly noted that physicians call an ailment 'idiopathic' when it arises, as it were, of its own accord, spontaneously (idio = entirely characteristic of the patient), 'without clear causes'. Here, too, the 'analysis' will have to attempt to clarify.

Human sciences.

The applications here are numerous. They can be divided into two classes:

a/ or man deliberately clarifies:

= Flatterers, hypocrites (think of Jesus' diatribe against the Pharisees with their hypocritical behavior) do this personally;

= lawyers and diplomats do this professionally (one need only think of sophistry and rhetoric, which incorporate the cunning or 'strategy' (as one now likes to say 'militarily') into speech);

b/ or man unconsciously clarifies: people like M. Heidegger are right to have spoken of 'not wanting to have known' and J.-F. Sartre of 'bad faith', not only in the conscious sense but in the unconsidered sense; man, after all, conceals from himself, to begin with, and from others, what cannot pass 'logically' (as society or the environment understands it) and 'morally' (likewise as the established order wishes to understand it);

S. Freud, primarily in response to dream interpretation, devised a two- or three-part schema that sheds a harsh light on elucidation:

(i) (by omission, the night dream condenses the 'text' (i.e., the scenario or the history of the dream); by collapsing (condensation), indeed, the history is shortened, because details 'vanish,' namely those

dream elements which, due to their illogical and especially their immoral content, must not be exposed; -- which also occurs in conscious lying: questioned by the master about his part in a flowerpot falling, Little Johnny simply conceals his role in the event: he censors his story or 'text';

(ii) through confusion the night dream clarifies, which by causing to flow together what exists apart in reality; this occurs in two ways:

(ii)a. by displacement: what is adjacent (what is not far from it, what borders on it) becomes simply 'convicted'; -- in the deliberate lying this also occurs: Johnny shifts his share of the incident onto a comrade standing right next to him; so much for the contiguous elements of the 'text';

(ii)b. by inversion: that which is the opposite is simply confused with its n counterpart, whereby the night dream modifies the event in such a way that the dream history insinuates precisely the opposite of what it actually wants to say,

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for 'whoever understands him 'well', interprets him (in the sharpest sense of the word); -- in conscious lying: Little Johnny emphatically claims that "it wasn't him".

Incidentally, it should be pointed out that what is called 'occult' evil likewise conceals itself in the three-part manner mentioned above: as a result of which people calling themselves 'rational' never actually get to 'see' that type of evil! Thus, for example, the effect of the cast remains

(i) simply omitted and people think that "there is nothing" (omission);

(ii)a. difficult to detect due to displacement (for example, someone feels pain in their back, but the occult or subtle cause is situated in the legs);

(ii)b. by reversal as improbable as it is large (so e.g. believes the by a supervampire sucked out that he is “doing particularly well lately” (he feels better than ever), precisely at the moment when 'evil' strikes slyly ('strategically').

(a)2. Regulatory model.

We can now attempt to structure the 'trick' of nature and man into a differential:

things or processes are:

Directly	unequal (otherwise)
Truly equal/	seemingly really different / seemingly
equal	different
Pseudo equal	
Almost equal	

And specifically by means of:

- (i)** omission: instead of A nothing comes;
- (ii)a.** shift: instead of A comes B'.
- (ii)b** . reversal: instead of A comes not-A.

The word 'mystery' or 'secret' can be interpreted in the sense schematically indicated above: something becomes 'mysterious' or 'mysterious' to the extent that it concerns the person involved strongly personally and, at the same time, when the schema above is applicable. This is the piece of truth that the Catholic existentialist G. Marcel (1894/1973) saw when he called 'problem' that unknown and provisionally unknowable that is nonexistential (i.e., that which does not personally 'touch' or 'concern'), and 'mystery' that unknown, or unknowable, that touches someone existentially, i.e., in his 'existence' or personal engagement in a factual situation. Naturally, the word 'secret' —semasiologically—has a system of meanings that can be reduced to three classes:

(i) the purely epistemological: a corner of class logistics is 'mystery' to those unfamiliar with formalized reasoning; 'profound' Lacanian psychoanalysis is unreadable, even for ordinary psychoanalysts.

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- i. simply omitted and people think that "there is nothing" (omission);
- (ii)a. difficult to detect due to displacement (for example, someone feels pain in their back, but the occult or subtle cause is located in the legs);
- (ii)b. by reversal as improbable as it is great (for example, the one sucked dry by a super-vampire believes that he is "doing particularly well lately" (he feels better than ever), precisely at the moment when 'evil' strikes slyly ('strategically')).

(a)2. Regulatory model (38/39)

We can now attempt to structure the 'trick' of nature and man into a differential:

things or processes are:

Directly	unequal (otherwise)
Truly equal/ seemingly equal	really different / seemingly different
Pseudo equal	
Almost equal	

And specifically by means of:

- (i) omission: instead of A nothing comes;
- (ii)a. shift: instead of A comes B'.

(ii)b. reversal: instead of A comes not-A.

The word 'mystery' or 'secret' can be interpreted in the sense schematically indicated above: something becomes 'mysterious' or 'mysterious' to the extent that it concerns the person involved strongly personally and, at the same time, when the schema above is applicable. This is the piece of truth that the Catholic existentialist G. Marcel (1894/1973) saw when he called 'problem' that unknown and provisionally unknowable that is nonexistential (i.e., that which does not personally 'touch' or 'concern'), and 'mystery' that unknown, or unknowable, that touches someone existentially, i.e., in his 'existence' or personal engagement in a factual situation. Naturally, the word 'secret'—semasiologically—has a system of meanings that can be reduced to three classes:

- i. the purely epistemological: a corner of class logistics is 'mystery' to those unfamiliar with formalized reasoning; 'profound' Lacanian psychoanalysis is unreadable, even for ordinary psychoanalysts.

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(ii) the purely epistemological: the unknown, indeed, the unknowable (at least provisionally); such as a 'koan' (Zen Buddhist question);

(iii) the 'sacred':

a/ a rite for 'initiates', (initiatory meaning);

b/ a supernatural reality, such as e.g. the 'mystery' of the Holy Trinity, or a ordinary supernatural reality (such as original sin, 'predestination' (one need only think of Bossuet or Pascal, who addressed this));

It is therefore not surprising that *R. Otto Het 'Saint'* , in its most general sense in religious studies (and theology), was characterized as 'mysterium tremendum et fascinans', the mysterious that simultaneously repels and attracts existentially.

(b). 'Surface/ depth',

This leads us to the concept (the schema currently used (and misused) as such) of 'surface/depth', which occurs indiscriminately: the surface appears easily discernible or not; the depth is hidden behind that surface, whether or not it appears easy;

Lévi-Strauss, for example, rails against phenomenology solely because it wishes to adhere to the manifesting or the 'phenomenon', either methodically (and every sensible scientist does so) or justifiably (because in the phenomenological attention paid to the phenomenon in its possibly unidentified mode of appearance, the phenomenon itself gradually reveals itself in a more observable manner; - which is equally justifiable on a case-by-case basis);

The Marxist analysis of social data, the psychoanalysis of depth-psychic data, and, in its own way, geology—that is, the uncovering of deeper layers of the earth—serve as a compelling model for Lévi-Strauss: “truth is always hidden,” he says. One wonders where a man like Lévi-Strauss obtained this prejudice. One can proceed in such an interpretationist manner that one constantly seeks it in one 'depth' or another. Reality is mysterious and unclear, yet not arbitrarily.

Which does not mean that, in its own way, phenomenology commits a monumental error in its refusal to transcend phenomena towards a hidden structure: Lévi-Strauss is right when he seeks (where appropriate—and this occurs regularly) behind the empirical data 'structures' (in his case primarily of a logistic-mathematical and combinatorial nature; which is also one-sided, for there are also 'structures' of what Husserl and the phenomenologists call 'eidetic' (understand: conceptual (and not symbol-calculating) nature).

What underlies this debate between structuralists and phenomenologists is what the ancient skeptics already sharply observed, namely that absolute certainty is merely the 'phenomenon', that which is immediately given; what transcends that is always more or less 'unclear'.

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IIB. The clarification methodology (40/41)

The skeptic is not the one who “doubts everything”; no, the skeptic is a phenomenalist, for he adheres—in an 'epoché' or suspension of judgment regarding the transphenomenal—strictly to that which reveals itself immediately (the phenomenon, the phenomenal, the occurrence as such, the phenomena, sometimes also simplistically called 'the sober facts'). He 'doubts' the rest—he brackets the rest (Einklammerung).

One sees that the so-called demarcation problem (namely the demarcation of the certain (indistinctive) against the uncertain (indistinct)) results, for the phenomenal skeptic, in a simple dichotomy (complementation):

- (1)** there is the immediately apparent, which everyone perceives (public aspect) and which is in that sense 'universal' (namely immediately accessible to everyone);
- (2)** there is 'the rest', i.e. the unclear (and immediately the 'doubtful').

It should be noted that the phenomenaist, that is, the one who categorically asserts that, apart from the phenomena, nothing else 'is', is an 'ideologist' (and indeed an ideologist of being, that is, the phenomenaist pronounces authoritatively and dogmatically on the 'existence' or non-existence of the trans-phenomenal).

It is immediately clear that—to return briefly to the dispute between structuralists and phenomenologists (hermeneuticians)—structuralism begins skeptically, but breaks through phenomena in the direction of 'structures' (which are logistically-mathematically 'computable' (in a formalized sense if possible), whereas (hermeneutic) phenomenology likewise begins skeptically, yet breaks through the same phenomena in the direction of an 'eidetic' contemplation of structures (thus intuitively clarifying the eidos or concept), and this by means of ordinary logic (called by the formalizers not without contempt 'merely conceptual logic'; of which there is a word in logic).

Criteriaological clarification.

A. Farges, *La crise de la certitude* (Etudes des bases de la connaissance et de la croyance), Paris, 1907, - still a very useful work, notwithstanding its age it distinguishes the following criteria or instruments of certainty, which allow one to break through the merely phenomenal approach of the skeptic:

(i) He divides the empirical criteria or grounds of epistemological certainty into **a/** direct, under which sensory experience falls, and **b/** indirect, under which human testimony (with its argument from authority); one could add experimental proof here, albeit in a sharpened form (which Farges develops less), namely regarding direct and indirect empirical knowledge (the indirectness of the experimental method lies in the working hypothesis that guides the experiment); the non-empirical criteria, in turn, also fall into two classes:

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(ii)a. the logical criteria: these are either direct visually, and then it is about the 'understanding' (about which in logic) either reasoning 'indirectly' or in any case formulating ('discursive' says the scholastic tradition), and then it concerns judgment and reasoning (cf. logic);

Parallel to this, one would have to add the formalized form of logical thinking to Farges's conceptual-logical approach today: directly there is the abstract symbol (the letters of logistics and mathematics); calculation, which, making use of operation symbols, processes and manipulates those symbols according to axioms and operation rules, is rather the 'indirect' aspect;

(ii)b. the transempirical criteria: these are again - either directly, namely in the 'bright' - perceptive or 'sensitive' experience (one need only think of the contemplation of God by the Catholic mystics and the foresight of future events by the prophets) - either indirectly, namely in 'revelations' of all kinds (one need only think of so-called revelatory spiritualism, which receives 'messages' (and believes, relying on arguments from authority); one need only think of the Mosaic and Christian revelations (in the Bible), which rest on the authority of, for

example, Moses and the prophets, sages, apocalypticists, or on that of Jesus, the incarnate second person of the Holy Trinity).

This is reminiscent of what *I.M. Bochenski*, **Wijsgerigemethoden in de moderne wetenschap**, * Utr./Antw.*, 1961, pp. 74/81, says about the ('semantic') verifiability or testability of statements, i.e., the possibility of demonstrating that a statement (a concept, a symbol) is true or false.

With H. Reichenbach (of the Berliner Kreis), Bochenski distinguishes four criteria or grounds for assurance:

a/ the technical: the temperature of the Sun's core is not technically verifiable; reason: Our technology (with its instrumentation) cannot handle this; on the other hand, terrestrial temperatures – in nuclear reactors, for example – can be 'technically' verified;

b/ physical verification: a speed of more than 350.00 km/sec is physically impossible; the speed of light of approximately 300,000 km/sec. on the other hand, yes;

c/ logical verification: if a statement is not absurd or non-contradictory with the system of statements in which it appears (axiomatic system), then this statement is 'logically' possible

d/ transempirical verification: transempirical realities have their own distinct criteria, about which scientists are silent.