5.2. Theory of interpretation
Philosophy. Hivo Antwerp
Introduction to philosophy (1981-1982)

Bibliographic Sample.

-- *J.H. Lambert* (1728/1777; Swiss mathematician), *Weg zur Gewiszheit und Zuverlässigkeit der menschlichen Erkenntnis*, Leipzig, 1747

1/ phenomeno.logy (doctrine of phenomena or phenomena),

2/ semiotics (doctrine of the designation of things and thoughts; sign theory);

3/ dianoölogy (doctrine of the laws of thought; *Anlage zur Architektonik* (fundamental theory of concepts or categories);

4/ alethiology (doctrine of aletheia, truth;

-- *J. Taminiaux, Le langage selon les Ecrits d' Iena*, in *Tijdschr. v. Philos*, jr. 31 (1969): 2 (June), pp. 363/377 (Hegel (1770/1831) claims (and describes how) that in sensory experience itself, from the outset, there is 'language' (sign system), which pronounces what the sensible is; this fits into Hegel's overall view that 'thinking' is the coming to full consciousness of the (unconscious and preconscious) life in the world ('new philosophy' de Waelhens would say);

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

-- *K.O. Apel, ed., C.S. Peirce, Schriften*, I (*Zur Entstehung des Pragmatismus*), Frankf. A.M. 1967; II (*Vom Pragmatismus zum Pragmatizismus*),

-- id., 1970; *E. Walther, ed., C. S. Peirce, Die Festigung der Uberzeugung und andere Schriften*, Baden/Baden, 1965;

-- *Kl. Oehler, ed., C.S. Peirce, Ueber die Klarheit unserer Gedanken*, Frankf. a. M., 1968; - Peirce is a great interpretive theorist);

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

-- *J. Kruithof, The meaning-giver* (*An introduction to the study of man as a signifying, appreciating and acting being*) Antwerp, 1968 ('n encyclopedic work (with o. m. interesting list of definitions):

"We call 'meaning-making' the activity of man in which, with the help of principles, he structures himself as a totality, situates himself in the environment in which he is placed, and, in the face of the development of this environment, orientates himself" (o.c.,505); here, "a broadly conceived steering science or cybernetics is starting point; remember that man is "a cognitive (Aristotle, Fichte), evaluative (Plato, Scheler) and active (Hegel, Marx, Peirce) being").

DU. 2.

(A) ***Doctrine of clarity (hermeneutics)***

Word meaning. The word 'denote' has become very common since +/- 1970. In the Middle Ages one spoke of 'dieden' and 'duden' (later: denote): both in 'diets' ('German') and in 'dieden' ('denote') there is a Germanic word meaning 'people' ('theudho'), so that 'diets' ('German') means 'people' and 'dieden' ('denote') means 'to make intelligible to the people'. "To make someone something 'diets'" is to make it intelligible to him, to make it 'clear' to him (cf. making someone wise and making someone something wise). Pointing out' and 'making wise', 'pointing out' (think of teaching) are related in meaning: 'pointing out' is 'pointing out'. There is 'indicate', 'signify' (to make known); there is 'indicate wrongly' ('for the worse').

'Hermeneutics'

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

1/ utterance (expressing or expressing what one thinks, feels within),

2/ Hermeneutics" is an old word: it is a science of interpretation and functioned as a higher science in explaining texts; theologians and exegetes of the Holy Scriptures practiced this science.) Hermeneutics' is an old word: it is a science of interpretation and functioned as a guiding science in explaining texts; theologians and exegetes of Scripture explained texts; lawyers explained legal texts: 'hermeneutics' was primarily an applicative (how to apply ancient Bible or law texts here and now?) and casuistic ('casus' is 'concrete case: how to apply texts to a concrete case?) activity.

F.D. Schleiermacher (1768/1834) was the first to broaden the meaning and turn it into a real epistemology or epistemology of knowledge: "to know" is "to interpret" (in his case very much connected with practical life and experience: one only understands a Bible text if one experiences it, makes it "true" in practice).

The German Historical School (F. von Savigy (1779/1861), its founder) sees in "hermeneutics," in turn, "a minute empathy with the past in order to know it.

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

'Interpretation theory' is a term that ties in with the other great master of interpretation theory, C.S.Peirce (1839/1914), who calls man an 'interpretant' (interpreter).

The matter itself is as old as mankind: all religions know 'interpretation' of oracles and signs (which are of transempirical origin and, as such, need 'interpretation', making intelligible.

Herakleitos of Ephesos (- 535/-465) conceives of nature as grifos, riddle, which must be deciphered. The (-proto) sophistry (with its emphasis on 'thesis' (positio, proposition, firmness) sees all knowing as signifying. Aristotle called his doctrine of judgment 'interpretive doctrine' (to judge is to interpret). So the matter is certainly not so new.

DU. 3.

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

To describe the structure of interpretation, two principles are needed :

(i) ***Husserl's conception of consciousness***

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

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

Notice that the ordinary word 'intention' is only one example of the conscious-mind reference: if I look at something consciously), then my 'attention is focused on' that something (that focus-on' is 'intentio'), without my having any further 'intentions' in the sense of (ulterior) goals);

(ii) the addition, i.e., the one-animal relation 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 at it); above all, and here it begins, "a sign is connected, associated with "n" given that is signified, indicated, added to it.

(iii) Well now, the fusion of two preceding points gives the structure of signification: S(ubj.)---=sign---=O(bj.). The reference is bearer of 'a sign by which it signifies, designates the object,-'a sign which it 'adds' to the object, the subject assigns 'a sign to the object, while turning towards it in a conscious way. 'Intentio' is at the same time 'addition'.

Typology.

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

(i) 'a mental sign, thought-sign (thought-sign' with Peirce), i.e. what we usually call 'a representation of the thing, the understanding (concept) of the object, the knowledge and thought content, intro- and retrospective (reflexive, in 'a return on our own intentio or reference (better: referredness) susceptible); not without an evaluative and practical note;

(ii) 'a linguistic or language sign, which is double, at least in our civilization:

a/ 'a speaking sign (sounds make up words and sentences) and

b/ 'a writing mark (which gives written language).

Symbolization.

With *E. Cassirer*, *Die Philosophie der symbolischen Formen* (I (*Die Spache*, 1923) II (*Das mythische Denken*), 1925), we can call the sign addition, briefly typified above, "symbolization(sprocess)," while we note, with Cassirer, in passing, how massively humans use and symbolize signs: money is economic sign; a signpost is an intersubjective sign that facilitates movement, etc.

DU. 4.

The triad 'perceptiorism /interpretationism / conceptionism'.

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

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

(ii) ***The conceptionist*** (conceptio, conceptualization) claims that our awareness of reality is indirect and that what shows itself in perception is subjectively created by our own inner life, especially by our faculty of understanding, which creates representations according to experiences;-it is clear that there is no immediate eviden-tion here, as the intuitionist (and the perceptionist in particular) claim.

(iii) ***The interpretationist*** (one thinks of J. Royce (1855/1916), who drew attention to C.S. Peirce) claims that our consciousness is both perceptual (and immediately intuitive or contemplative) and conceptual, but in an interpretive way:

a/ the contemplation contains 'a (thinking) sign, which is perceived (perceptual);
b/ this thinking sign comes to full awareness in its understanding (conceptual);

The interpretation differs in itself both from the perception and from the understanding (and the conceptualization), each taken separately: it shuttles between them, says W.-E. Hocking, or, rather, he says, interpretation includes both ánd perception ánd conception.

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

Cf. *W. Hocking, Les principes de la méthode en philosophie religieuse*, 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 purely abstract: in fact, our consciousness lives intersubjecively (from man to fellow man in 'Ich-Dubeziehunren (Buber)) and socially (in groups): there is, as Peirce says, 'an inter-pretending community.

DU.5.

Intersubjective and intergroup relations come thick and fast in so-called communication theory, i.e. ‘a typical specimen of “technical thinking” (cf. *K. Steinbuch, Menselijk en machinaal denken*, Utrecht/Antwerpen, 1964 (Dt: *Automat und Mensch*, Berlin, 1961), applicable to interpersonal relations.

Interaction (interacting, materially and energetically) and communication (interacting with ‘information’, informing;- ‘informing’) are characteristic of interpersonal relationships.

‘Signs of knowledge and thought’, ‘signs of speech and writing’ are information: they are in circulation, to speak with Lévi-Strauss (myths, money, women ‘circulate, like ‘messages within a society).

The technical model sees this, greatly abbreviated, as follows: = like ‘a telephone wire, so ‘communication’ connects the ‘sender’ who transmits, lives through, circulates ‘a sign’, - sign which is the bearer of ‘a message’ (‘information’); this circulation takes place in ‘a code’ (‘a sign system’);

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

The ‘receiver’, ‘the.encodes’, i.e. 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 scheme of thought, to cognitive “processes,” especially from the object that sends “a message” (sign, information) to the one who contacts the object (the subject), and, analogously, from one human being (transmitter) to another (receiver).

The ‘informational’ side (content) of the communication is analogous (similar) to the interpretation theory, explained above, with the difference that, above, one started from the consciousness as a point of reference to an object (Austrian School), while the ‘systems theory’ (the sender is one system, the receiver is a second, the channel a third) forms the starting point here.

Bibliographic Sample.

One applied one of the two schemata to the interpersonal conversation:

-- *L. A. Appley et al, Effective Communication*, Utrecht/Antwerp, 1967 (esp. V (*The Written Word*), o.c., pp. 315/353);

-- *H.P. Zelko, Modern discussion and meeting techniques*, Utrecht / Antwerp, 1964;

-- *W.Bingham /B. Moore /J. Gustad, Gesprekstechnieken* (*The interview in organization and business*), Utrecht / Antwerp, 1966 (a.o. on ‘counseling’);

-- *I.S. Lee, The psychology of conversation*, Utrecht/ Antwerp, 1968;

-- *Th. Staton, Instructional Methods*, Utrecht/ Antwerp, 1960; - books that highlight the pragma-tic aspect (see below).

DU. 6.

Remark.

As one knows, the experimental psychologist was started in Leipzig in 1879 by J. Wundt, yet changed in its intro and retrospective method by two correctives:

(i) ***gestalt psychology*** (± 1920), which supplemented the purely introspective and retrospective method with external perception (processing into a gestalt proves the interpretive nature of perception, in passing);

(ii) ***behavioral psychology*** (behaviorism), which bracketed the mentalism of both previous schools and replaced it with external, observable behavior; this in two eras:

(ii) a. ***naive behaviorism*** (± 1930),

that applied the 'black-box method' ('a typical example of 'technical thinking': the electrical 'box' is the model, with its invisible content of connections) to the soul life of humans and animals:

P(rickle)--= (black box)-- = A(ntword), also S(timulus)-- = (black box)-- = R(esponse),

means the circulation of influences of a material and energetic nature on the human being (black box because of the 'inner processes', which are invisible) and the behaviours, with which the organism reacts to these stimuli, - behaviours, which are reflexive (one thinks of the nervous system);

(ii)b. ***neo-behaviorism*** (± 1940vv),

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 'interpretive' intermediate changes on the horizon. It is curious that, decades after 'n Peirce and 'n de Saussure, and notwithstanding the massive and massive presence of sign and symbol processes in humans and between humans, experimental psychology did not 'see' this!

Cognitive psychology (+/- 1930vv).

This one adds to the incentives also cognitive changeables, so that, finally - one would say - the P(rikkel) (stimulus), was a meaningful, meaningful stimulus. Informational psychology discovers, in the black box that is man, a whole series of "systems" - e.g. memory, decision-making ability, etc. - which valorize man as an interpreting being. -, which 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 the humanistic (internal processes directed at self-realisation) psychologies had already seen the interpretative character of the psyché of man (and animal) for a long time, albeit also hesitantly for lack of frame of mind in the style of Peirce or de Saussure, who had either semiotics or semiology, i. e. a theory of signs.i. a theory of signs, created a useful instrument.

DU. 7.

(2) *Drawing Theory.* (7/10)

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

Brief ‘n outline, ***bibliographic***.

-- *Collin Cherry, On Human Communication*, The MIT Press, Massachusets, 1957-1, 1966-2, “a solid book that gives the basic concepts.

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

-- *J.R. Pierce, Symbols and signals* (*Nature and workings of communication*), Utr./Antwerp, 1966 (the English title contains, in addition to the words ‘symbol’ and ‘signal’, the word ‘noise’, which means transmission reduction (disturbance) in communication: it has passed into the current language as ‘communication disorder’)

Two figures should be named separately

(cf. *B. Toussaint, Que est-ce que la sémiologie*, pp. 61/87):

F. de Saussure (1857/1913), with his *Cours de linguistique générale*, Paris, 1916, speaks of “semiology,” i.e., the science that studies the life of signs in the womb of social life (o.c., p. 31);

This semiology de Saussure sees as follows:

Basic science is psychology; it has a component, social psychology; it is concerned, among other things, with signs (and is, as such, semiology); it is the task of the linguist to determine what makes language a special system in the whole of the semiological facts” (o.c., p. 33);

In other words, linguistics is ‘a part of semiology, which also studies non-linguistic signs; the speaking phenomenon (‘langage’) decays into two aspects,

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

ii/ *the word* (‘parole’), which pronounces the speaking individual using language (langue) as an instrument; this second aspect, the ‘word’, de Saussure considers second-rate, as today’s structuralists still do (the ‘structure’ overwhelms the ‘individual’);

C.S. Peirce (1874/1914), with his ‘semiotics’ (cf. *M. Bense, Semiotik* (*Allgemeine Theorie der Zeichen*), Baden-Baden, 1967, which gives an overview of Peirce’s theory of signs), sees the sign as sage and scientist and as follows:

The sign is something that, in the eyes of the interpreter (signifier), is added to an object as a means of knowledge; rather, the sign (sign of knowledge and thought in the first place) is present in the object and emerges in the perception, which is at the same time interpretation, i.e. the grasping of the sign and its meaning (Peirce is a scholastic realist, i.e. the things themselves “are” in their “being” 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 one finds everywhere: if someone uses a sign, then that sign exhibits three dimensions:

DU. 8.

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 gets its ‘meaning’ in full; if you like, the mutual relations of the signs are object of the syntactic view of the sign; what one can also call: the system-technological view of the sign;

b/ *the semantic dimension:*

the sign ‘says’ something, i.e. has a meaning or thought and knowledge content; 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 ‘signifying’ side is the semantic side;

Here one can introduce a duality (Leibniz, Frege): a sign has ‘sense’ (Sinn), i.e. knowledge content (intensive), and ‘signification’ (Bedeutung)’ i.e. a number of objects, in which this knowledge content materializes (extensive); e.g. with the word ‘movie star’ I indicate all actual movie stars, while expressing the knowledge content;

c/ *the pragmatic dimension:*

The sign is always used by someone for himself and in his communication with others; e.g. I give the signal for the departure of the riders; - the significa is situated here: it is the doctrine of ‘acts of language’, by which one influences the other (‘act of language’ is taken broadly here, i.e. every use of words, but also every action that is ‘understood’ by the other (‘a gesture is a sign for another’) (cf. *B. stokvis, Psychologie der suggestie en autosuggestie* (*A signal-psychological explanation for psychologists and doctors*), Lochem, 1947 (with an introduction on significa and critique of concepts by G. Mannoury); Lady Welby was a pioneer in this field);

One could say that pragmatics studies the ‘effective’ aspect of the sign, as it is expressed both in the communication with others and already in the expression (i.e. the projection down outside).

Note ad b.

Under semantics, they briefly invoked semasiology ((word meaning explanation).

The sign (verbal or non-verbal) has many meanings: semasiology systematically orders their interrelationship. One often starts from the “etymological” or basic meaning, to address, from there, the “proper” and the “improper” or “transference” meanings; in the improper meanings then comes the distinction between metaphorical and metonymical meaning.

‘n Example: the word ‘head’ has an etymological meaning somewhere; in the actual sense, it is ‘a body part, which ‘controls’ the other ones, usually situated below it; in the metaphorical sense, ‘head’ means - metaphorically - ‘what occupies a controlling position’:

DU. 9.

E.g. the principal, the head of state, the head of a letter; in that case proportional analogy is at work (as head stands to limbs, so stands the schoolmaster to the rest of the school); 'head' means - metonymically - what is functional (concerning the relation independent/ dependent variable) 'head' is so e.g. "my head is not on it" (thanks to my head my mind is active; not here now); here attributive analogy is at work (the physical head is instrument (independent variable) vs. the mind action (dependent variable).

Other example: 'the light of the spirit', 'the flower of youth' (metaphorical); 'he lives by his work' (by the nutritional result of his labor); 'the whole city was excited' (the inhabitants of the city namely) (metonymical).

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 ad c.-

Under pragmatic point of view, mention should be made for a moment of rhetoric, which studies the "eloquent" use of (word) signs. Cf:

-- *J.S. Nirenberg, How to convince people?* , Utrecht/ Antwerp, 1967 (corporate rhetoric);

-- *M. Dweller/ G. Stuiveling, Modern eloquence* (*handbook of oral language control*), Amsterdam/Brussels, 1968;

-- *S. IJsseling, Rhetoric and philosophy* (*What happens when one speaks*?), Bilthoven, 1975 (see pp. 144/157 on metaphor, metonymy, yet strongly rhetorical this time (pragmatic) rather than semantic);

-- *G. Bouwmans, Paul to the Romans* (A Rhetorical Analysis of Rom. 1/8), Averbode, 1981 (ordained writers are also "eloquent pragmatists," as are all "proclaimers; for that matter);

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

id., *La révolution du language poétique*, Paris, 1974 (here rhetoric becomes ideology critique:

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

In other words, Kristeva, through rhetoric, engages in ideology criticism based on Marx (use of language with class struggle purposes) and Freud (The unconscious at work in rhetoric (pragmatics));

Of interest is *J. L. Austin, Performative Aeuszerungen*, in *A. Menne/G. Frey, Logik und Sprache,* Bern / Munich, 1974, S. 9/27 (the expression of states of mind ('I feel good') or decisions of will ('yes, I want') is 'operative'

DU. 10.

(in the language of the jurists, who call the text of ‘a will ‘operative’: ‘I convey to my brother ...’) or performative (‘signifying an operation’); 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 this sense they are ‘semana-lytic’ like Julia Kristeva.

One can see that one can practice the pragmatic-significant- rhetorical analysis of the sign in two directions: a work like *G. Vardaman, Effective Communication of Ideas*, New York, 1970, gives a methodology of effective communication in business, politics and the professions, while *M. Foucault, Microphysique du pouvoir, de la justice pénale, de la psychiatrie et de la médecine*, in German, Berlin, 1976, has the critique of effective communication.

For example. in 1937, journalists were ordered by the national-socialist authorities to use the word ‘propaganda’ to denote Nazi influence and ‘incitement’ to denote anti-Nazi influence; in 1941, Soviet soldiers were referred to as ‘Bolshevists’ and partisans as ‘bandits’: the methodical-pragmatist simply uses such techniques, while the critical-pragmatist (‘semanalyst’) dissects this usage as an object of reflection, more sensitive as the latter is to the semantic content of the (word) sign being used.

It should be noted that sign theory is sometimes referred to as “semasology” (do not confuse with “semasiology”) or semantology.

(3) *Character typology.* (10/13)

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

a/1. the iconic (depicting) sign: it makes clear the actual, objective similarity between two pieces of data (such a map on which one depicts shape and height differences with lines and colors);

a/2. the indicative (indicative or heuristic) sign: it relies on apposition (adjacent) (see system concept) (e.g. a signpost, without depicting, indicates a city; thus the fever is a symptom of a disease: the doctors are called “semiology” the symptomatology or theory of symptoms of diseases); - here, both in the iconic and indicative sense, in objective relation;

b/ the symbolic or agreed-upon sign: it denotes, but by agreement among interpreters (so ‘smoke’ for the phenomenon of smoke, in French ‘fumée’, in German ‘Rauch’, so ‘2’ for two, etc.).

DU. 11.

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 'completely arbitrary' sign is the ideal sign. Cfr. 'sémiologie, sémiotique', in *G. Thinès/ A. Lempereur, Dictionnaire general des sciences humaines*, Paris, 1975, pp. 867s. for further explanation.

Symbol Theory.

Here the problem of word use 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 the science of religion. For the semiotic semiological scientist, there is "symbol" if there is

(i) is a reference (function), i.e. a reference from something to something else, and

(ii) an agreed character specific to that reference or reference. $E = mc^2$ refers to the energy present in a (moving) mass (certainly the symbols, taken separately, are conventional; something else is it with the structure of the formula: 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, "a symbol" is different:

(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 book's explanatory subtitle that something is 'stirring' here: A Study of the Symbolism of Reason, Rite and Art. In the 1953-5 edition (Mentor Book) she says, o.c., 1, that logics (and its use in mathematics, linguistics, as well as in the empirical sciences) has developed one type of 'symbol' as a revolutionary power, yet that 'analogical' thinking in myth and art has exposed 'another conception of 'symbol' (she refers, of course, to *E. Cassirer, Phil. der symbolischen Formen*, 1923/1929 (esp. bd. 2 (mythical thought)).

She says in *Philosophical Sketches* (*A Study of the Human mind in Relation to Feeling, explored through Art, Language, and Symhol*), 1962[1], 1964[2], that a new definition of 'symbol' is needed, because there are the 'scientific' (logistic) symbols, but there are also those more 'primitive' concepts, - a sound (the Indian 'aum' of the yogis e.g.), a landmark, an object (a relic e.g.) - which become 'symbolic' for someone without conscious attribution; thus in our dreams, myths, and events.a sound (the Indian "aum" of the yogis, for example), a sign, an object ("relic", for example), an event - which become "symbolic" for someone without conscious attribution; thus in our dreams, myths, art.

Bibliographic sample regarding extra-logistic symbol.

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

performed by the functionalist and structuralist ethnologists (Lévi-Strauss e.g.: both symbol hermeneutics impoverish (reduce) the content of the symbol) and "instaurative" hermeneutics (Jung, Bachelard, Ricoeur);

-- *J. Bril, Symbolisme et civilisation* (*Essai sur la efficacité anthropologique de l' imaginaire*), Lille/Paris, 1977 (defines, o.c., 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 understandably unknown yet felt to be certain; i.e. the familiarity or otherwise of that to which a sign refers does not make it a symbol);

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

-- *L.Knights/ B. Cottle, Metaphor and Symbol*, London, 1960 (including a contribution by *HH. Price, Paranormal Cognition and Symbol*, o.c., 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. Guénon, Symboles fondamentaux de la science sacrée*, Paris, 1962 (the work resembles a dictionary of overviews);

Further more specialized works:

-- *M. Eliade, Images et symboles* (*Essai sur le symbolisme magico-religieux*), Paris, 1952 (religious history: center, Indian symbols, binding god and buttons, shell);

-- *M. Meslin, Pour une science des religions*, Paris, 1973 (o.c., pp. 197/221: religious symbolism);

-- *B. Morel, Le signe sacré* (*Essai sur le sacrement comme signe et information de Dieu*), Paris, 1959 (sign theory explanation of the sacraments by 'a Protestant pastor);

-- *J. Cazenenve, Sociologie du rite*, Paris, 1971 (taboo, magic, and "sacrality" (sacré) are brought up: the rite, one does not forget, is a symbolic act);

-- *O. Fröbe-Kapteyn*, Hrsg; Eranos-Jahrbuch 1950 (Bd 19): *Mensch und Ritus*, Zurich, 1951 (eleven specialists speaking);

-- *M. Loeffler-Delachaux, le symbolisme des légendes*, Paris, 1950 (legends process symbols);

-- *G. Bachelard, L' eau et les rêves* (*Esai sur l' imagination de la matière*), Paris, 1942;

-- id., *L' air et les songes* (*Essai sur l' imagination du movement*), Paris, 1943

-- id., *La terre et les rêveries du repos*, Paris, 1948;

-- id., *La terre et les rêveries de la volonté*, Paris, 1948;

-- *CG. Jung, The Symbolism of the Mind* (*Studies in Psychical Phaenomenology*), Amsterdam, (after 1947) (on the mind in fairy tale, the spirit Mercury, Satan in the Old Testament, the Holy Three - unity depth psychologically).

DU. 13.

So that we can conclude, with J. Bril, that ‘a sign becomes ‘symbolic’ sign (in the more hermeneutic sense), when it refers to ‘mysterious’ reality (the religious and fantastic side of reality), to ‘transempirical (transcendental and extrasensory) reality, which, therefore, need not yet be called ‘irrational’ or ‘prelogical’, since the transempirical too has its logical structures.

(4) ***Language and thought.***

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

(i) materially, supposition is reflexive: the sign stands only for itself, without any meaning function; e.g. ‘man’ is a monosyllabic word (the word here is purely part of a sign system); the matter here is the sound, word-sound;

(ii) formally, supposition is significative: the matter (here the word-sound) stands for ‘a meaning; this is double:

(ii)a. logical: the word stands for a concept; here: ‘human’ means the knowing and thinking content (the notion or concept) ‘human’ (as e.g. living being gifted with ‘reason’ (intellect));

(ii)b. empirical or transempirical: the word denotes ‘a “thing” (“business” meaning) or reality., outside the mind; here: “human” refers to the concrete living human beings in flesh and bone, which are summed up in the logical term;

It is thus that ‘a word (material aspect) stands for (formal aspect ‘a concept (logical formal) and, through that concept, for the thing indicated by it ((trans)empirical formal); -- in doing so, the word may 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.

The working group Communication and Cognition at the University of Ghent, held a colloquium in 1973, about the relation between language and thinking with as central theme the Sapir-Worf hypothesis: the American anthropologists Sapir and Whorf claim that our way of thinking depends to a great extent on the use of language; well, this differs from culture to culture; consequently: our thinking, as differing from culture to culture, is ‘relative’. Sapir has sought to substantiate this by the study of language use among the Hopi Indians. Apart from the lack of sufficient inductive material to make this thesis true, there is the position of N. Chomsky, American linguist, who maintains that language does not exert a profound influence on the pure thinking of man, but only a superficial one, so that differences occur in mentality, but not fundamentally.

DU. 14.

Chomsky, by the way, also assumes Cartesian and Humboldtian principles, which emphasize the independent and creative in human thought (and speech). Nevertheless, we think we can conclude that the Sapir-Whorf hypothesis contains truth: all novelties (inventions, fashions, revolutions) change the language - which indicates the independent and creative side; - but the new modes of expression are always built into the previous linguistic coherence.

The contradiction; 'mentalism/ linguisticism'.

Another point of fundamental importance is the fact that some thinkers conceive of man's thinking as "mentalistic," i.e., as a process that is essentially to be situated in man - and specifically in his immaterial mind (thinking is a "mental" event), while 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 pure immaterial thinking (mentalism) and the material signs which constitute the language in which an earthly man necessarily thinks; on the contrary, man is a system which is both immaterial and material.

Bibliographic Sample.

-- *J. Fodor/ J. Katz, The Structure of Language* (*Readings in the Philosophy of Language*), Englewood Cliffs, N.J., 194 (language theory, grammar, semantics, language psy-chology, -by specialists);

-- *A. Martinet, Eléments de linguistique généralè*, Paris, 1967;

-- *G. Lepschy, Die strukturale Sprachwissenschaft* (*Eine Einführung*), Munich, 1969 (review);

-- *B. Tervoort, Psycholinguistics*, Utrecht/Antwerp, 1972 (child language, socio-linguistics, language pathology (hearing loss, deafblind));

M.e. Chomsky:

H.Verkuyl et al, Transformational linguistics, Utrecht/ Antwerp, 1973 (very broadly informative book, which also includes philosophy of language);

-- *A. Kraak/ W. Klooster, Syntax*, Antwerp, 1958 (Elaborated grammar in the style of Chomski 's transformational-generative conception of language);

-- *N. Chomsky, La linguistique cartésienne* (*suivi de La nature formelle du language*), Paris, 1969 more historical studies);

Language as a philosophical theme in Germany:

-- *H. Arvon, La philosophie allemande*, Paris, 1970 (apart from dialectics, philosophy of language since Hamann, hermeneutics, the Wienerkreis);

-- *G. Nuchelmans, Survey of analytic philosophy*, Utrecht/ Antwerp, 1969 (Cambridge language philosophy, logical positivism, circumferential language analysis).

DU. 15

(B)I. ***Clairvoyance***

The concept of clarity.

The vernacular already uses the words "unambiguous," "many-syllable. The relation between that which is said (the sign), and that which is meant by the saying (indicated) is central here. More precisely; there are three main types of clarity:

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

(ii)a. However, there are also one-multiple (one-meaningful) relations and multiple-multiple (many-meaningful) relations.

It should be noted that, in scholarly milieus, the one-one relation ('a point-by-point rendering in colloquial language) is also called 'one-one relation;' ('one-one relation' (B. RusselI)) or 'bi-univoke relation' (Couturat: 'relation bi-univoque', univook = univocal; here, therefore, 'twice univocal.

Collection theory (class logic) now allows us to define the notion of iso.rnorphism (and also "homo.morphism"): two or more sets (classes) are similar or isomorphic (or "conforming"), if

(i) there is 'a one - one agreement between its respective elements,

(ii) some structures ('forms'), i.e. coherences between elements, are preserved.

'n Example makes this clearer: Newton's law (F = my) and Ohm's law (V = RI) have the same formulaic structure (i.e. A = BC) and so they are conforming, similar, isomorphic. It is the 'form' or 'structure' notion that determines morphism.

Homomorphic' are two sets, if the elements and their relations are only one-more-ambiguous or one-more-unambiguous. In other words, the point-by-point representation is no longer there, but there is still sufficient similarity to be able to speak of clarity or pictorial reference.

An example: the circulatory system of an animal or human being (first term of the affinity) can be described (i.e. represented in a second term of the affinity):

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

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

(B)IA. ***Model theory.***

A1. ***Definition of the term "model".*** (15/21)

The word "display" is perhaps the best conversational word for "model," which satisfies the following conditions, viz:

DU. 16.

1/ one-unit clarity (addition) and

2/ well of structures among themselves (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-by-point representation is not symmetrical or reciprocal. E.g., at a certain time, in physics, hydrodynamics (fluid movement) was better developed than electricity theory: one could, as a 'suggestion' ('analogy'), still use ideas from hydrodynamics in electricity theory. From the moment one could design a 'representation' of an object of research (as an object, as a process or as a system), which at least to some extent represents, describes that object, then that 'representation' is a model.

The word "model" and related.

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

1/ 'Mode' means 'mode of being,' 'measure,' 'norm,' and

2/ 'modulus', as a diminutivum (diminutive) means 'reduced mode of being', 'measure', or 'norm'. The architects, in the days of Emperor Augustus, e.g., 'n Vitruvius, structural and military engineer, used that word. The French 'moule' and the English 'mould' come from it.

Meaning related:

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

It should be noted that 'a certain platonic ambiguity is always present in the meaning: all these words mean:

1/ representation of something by or in something else (similar to it),

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

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

"The classical problem of analogy (i.e., partial similarity by partial difference) ran, eventually, into the modern problem of the model" (*K. Bertels/ D. Nauta, Introduction to the Concept of Model*, Bussum, 1969, p. 6).

Indeed, antiquity (Plato: idea and its representation; Aristotle: analogy) and the middle ages (scholastic analogy) knew this problem very well. Now this notion of model is much more formalized (logistically and mathematically elaborated), but the logical core is the same. Cf. *Doede Nauta, Logic and model*, Bussum, 1970.

L.Von Bertalanffy, Robots, Men and Minds (*Psychology in Modern World*), New York, 1967, pp. 97/98, 98/101, says that "science" is the representation in appropriate comprehensible constructed entities ("things") such that empirical or experiential knowledge and comprehensible

refinement go hand in hand: where, in the past, man depicted his everyday "world" in conversational and simple "models," there now come, in science, "constructions," which become more and more "abstract," "general," and at once, "unimaginable" ("univisualizable").

Reason: the mathematical "formalism" that represents structures in abstract relations.

'Science', then, von Bertalanfy defines as follows: "an intelligible construction, which is the representation ('model') of some 'formal' and 'structural' relations, present in a (basically) unknown given 'x'". Science never gives, he says, an answer to the question of what reality really is: it only represents a set of relations and in such alien more1ike 'models'.

Lévy-Strauss, Anthropologie structurale, Paris, 1958, p. 306, says that the "structural" sciences (which mean the initially unconscious coherences in the empirical data) have as their object all that has systemic character (in this the structuralists go along with von Bertalanffy, except for the fact that the latter accepts "rank"):

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

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

Definitions.
"A model is a concrete representation (representation) of situations and entities (things) from nature and history." (*K. Bertels/ D. Nauta, Inl. to the Model Concept*, 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" (o.c. ib.).

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

"Models are theoretical constructions, which presuppose an exact (understand: isomorphic), complete and uncomplicated definition. They must therefore resemble reality in every respect that is important for the progress of the research. This resemblance to reality is necessary in order for the functioning of the model to become meaningful." (*J.M. Broekman, Structuralism* (Moscow/Prague/Paris), Amsterdam, 1973, pp. 11/12).
Thereby, for Lévy-Strauss, the actual "depth" of a given is exposed in such an abstract model (from beneath the "surface").

DU. 18.

Systems theory definitions

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

(i) Leo Apostle puts it as follows:

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

One thinks of the model of a house to be built: through the model one obtains information about the house (that looks like it), which is not yet built; this, to take an everyday pre-scientific example;

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

"We call 'model' 'a collection of elements that are abstract and ordered in such a way that they form a structure (coherence). This collection aims to represent the 'systematicity' (the systemic character) that the phenomena are supposed to exhibit. (...) One confronts two planes, the arrangement of the one serving as a sign of the other".

(iii) *E. W. Beth, Philosophy of Nature*, 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, which correspond to the quantitative laws in the phenomena to be explained."

One thinks of a reduced mechanical model of a car, for example, which one is going to construct in series. One thinks of hydrodynamic models for electrical phenomena: one spoke of 'current', 'current strength', 'current acceleration', 'current decay', etc. in hydrodynamics (the theory of fluid motion); these terms were transferred to the flow of electrons: heuristically this was valuable (the transfer provoked discoveries), but, obviously, the analogy was wrong on many points.

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

Typology.

There are many types of models. *K. Bertels/D. Nauta, Inl. to the Understanding of Models*, p. 114vv, attempts to determine groups of main types: the sciences distinguish three types of data:

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

DU. 19.

b1. ***comprehensible*** (conceptual) (number system, line and point system, pattern, drawing, 'gestalt', the periodic table of chemical elements (Mendelejeff), a piece or a whole theory, a physical-mathematical formula, etc.), which give an understanding of (concrete or) business data;

b2. ***formal***: the 'electron' is (ad a) first of all an objective (concrete) fact in nature; it is (ad b1) therefore an understandable 'element' within a theoretical atomic model; the word 'electron' becomes 'formal' if it is used as a generic name (i.e. even more abstract name than within the atomic model theory). - Thus, there are three types of models:

a. ***empirical*** (business, concrete);

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

b2 ***formal*** (i.e., purely formal, contentless symbolic), i.e., in a second degree of abstraction (that calculus, arithmetic, is with symbols).

Re a: the empirical models are checked by K. Bertels / D. Nauta, o.c., in two chapters :

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

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

Up to there 'an overview of the main types of 'model'.

Practical species theory.

Two groups of models are discussed here.

(1): There are:

a1. ***iconic models***, i.e. practically speaking physical images; e.g. a photograph of an event, an architectural model of a house (scale model); - here a change of scale plays a major role together with a change of matter: miniaturization (a miniaturized miniature car: toys often work in this way) and magnification (think of the atomium, which represents an iron atom greatly magnified);

a2. ***analogical models***, i.e., non-fully iconic (one-syllable) representations; e.g., a diagram of school attendance; the non-fully iconic ("analogical" is a bad name, since all models are fundamentally analogical) models are less correct than the full iconic models;

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

DU. 20.

The latter models are also called "algorithmic" models (*E. Beth, Nature Philosophy*, 52/53).

'Algorithm' here is 'a structure-like symbolization. $_2$HO is such an image for 'water' (H, O are arbitrary to some extent; the ratio;$_2$ HO reflects the chemical molecular structure).

Already the folk know this: 'a finch stroke count symbolizes: dash (upright) for one stroke of a finch; after four singing strokes one crosses out with the fifth dash (!, !!!, !!!, !!!!, ...).

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

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

The Italian 'profilare', design, shaping, and 'profilo', drawing, profile, are derived from Latin. Since the XVIIth century, in drawing, "profile" means side view; "shadow portrait" (silhouette) was also indicated by "profile"; the characteristic line of the face is shown to its best advantage in the profile; metaphorically one spoke of the profile of a city. In technology the word 'profile' was used to indicate a vertical section: in geology, for example, to indicate the structure of strata. Current psychology has transferred the term to personality: 'personality profile' ('psychological profile'), i.e. the set of characteristics specific to an individual (or even to a group of people). It can also be used in an anticipatory way: a still unknown person - at an appointment, for example - must answer to a set of characteristics (normative use of model).

Usually, however, the meaning is factual: A person without "images" is, sociologically speaking, a half-blind. Even if 'images' could be called 'surrogates for thinking', 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, The image one forms of the priest*, in *Streven*, XVII (1964): 7 (April), p. 664).

The profie1 or image that one designs of oneself, of others, of reality, is indeed, long before the intoxication of Model Theory, as it can be seen today, 'an extremely profound phenomenon, among other things because, in non-critical people, the model is eventually confused with reality itself: we see reality practically through the 'glasses' of our 'models'.

(2) ***There are "regulatory" and "applicative" models.***

This is a distributive distinction.

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

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

(ii) ***The applicative*** model (casuistic model) is non-unconventional: one thinks of G. Cantor, in 1883, who said that formulas of the axiomatic calculus (taking abstract, contentless, purely 'formal' or 'formal' symbols into account), for the time being at least, do not know any concrete application ('applicatio') in nature or in culture; semantically empty, they only need to be mutually 'coherent' (i. e. contradiction-free, not incongruous) (syntactically in order); - if afterwards one finds an application, then one calls this an (applicative) interpretation, a realization, a realization, a realization of the application.i. contradiction-free, not incongruous) (syntactically in order); - if afterwards one finds an application, then this is called an (applicative) interpretation, a realization, a 'model' of the abstract account.

Conclusion: in the course of the XIXth century, from science, two types of "model" emerged, - one from the empirical sciences and one from the formal sciences.

Example of 'applicative' model:
If $x = y^2$, then 2^2, 4^2, 5.5^2 is each time 'an 'interpretation', 'realization', 'model' of the universal formula. In other words, the regulative model moves in the universal, the applicative model in the private or singular.

That the word "model" was used for the two types, however, is due to form similarity: the regulatory models summarize common properties of a set of cases, applications, that confirm the general "rule.

The famous mid-century principle of economics or thrift (Petrus Aureolus (Pierre de Auriol, +1322: "The grounds for explaining something are to limit it as much as possible" (minimization); later: William of Ockham (+1350)) is in operation in the regulatory models: they summarize, in a readily manageable and manipulable form, 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 (i. e. fundamental concepts) are empty; without categories experience is blind).
Indeed, without "rules" the "applications" are blind; without "applications" the "rules" are empty: without regulatory models the applicative models are blind; without applicative models the regulatory ones are empty.

'To show a cube (contemplative: applicative) is to be blind without 'explanation', (minimal theory); the mere notion of a cube is empty.

DU. 22.

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 science in the modern-technical sense:

"Information is 'a name for the content of what is exchanged with the external world, whenever we attune ourselves to that external 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, puts us, in another way, on the road to defining 'information': in response to a given (object), a 'searching' ('information-sensitive') interpreter (subject) is faced with the question of 'information', insightful data, which clarify the given, make it more understandable. In this 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.form.ing', 'emmorphosis', informatio, information; notice that the disordered is the starting point;

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

b. the physical meaning: 'information' is the transmission or transfer of 'a structure' (which intertwines the Aristotelian and the communication-theoretic meanings). For example, Royaumont's Colloquium stipulates that information is "a transfer of structures from one 'place' to another."

With L. Apostel, we could give a model-theoretic definition:

If 'a known system can be exploited to acquire, 'an unknown system, 'information', and if, then, that known system is 'model' precisely because of that, then model is information.

Indeed, all that is model of 'a reality, is information (intelligence) regarding (the structure of) that reality.

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

a/ the definition in common language: information as 'news' is information, reporting, from an observer to a curious person (see above Vandamme's questioner) about that in which the latter is interested (i.e. his questions);

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

DU. 23.

The thinking framework of recent information theory is communication theory.

The reference system (i.e. the whole in which something is situated) is the communication circuit (the communication circulation), in which something (‘an object’) is inserted (as a relay (‘relay’ here is that which receives a signal (sign, message) and amplifies it, transmits it again)).

The object is a (bundle of) message(s), i.e. information(s), circulating from sender to receiver. These message(s) make up a set of improbabilities (otherwise there would be no ‘news’). In order to make that improbability (news, information) as clear (intelligible) as possible, ‘redundancy’ (redundancy) is needed, i.e. an excess of ‘sign’ (coding). Behold, in simple terms, the main concepts of the doctrine of communication.

Application.

M. Spiro, Des étoiles qui ne devraient pas exister, in *La Recherche*, 125 (Sept. 1981), pp. 991/997, speaks in probabilistic terms: one establishes the existence of stars that, at least according to well-defined views (models), should not exist (that are ‘improbable’ (in overstatement: ‘impossible’)). Establishing this in reality is ‘news’ to astronomers: after all, it does not fit into their (thinking) framework.

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

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

This brings us, at once, briefly to informatics. *H. Plorin, Informatica*, in *Onze Alma Mater*; 1973: 1, p. 49/56 says that the word, since 1964, has been in use in Dutch (the Académie Française accepted the word ‘informatique’ in 1966). Informatique is

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

(ii) that operation consists in the transformation into ‘a language’ (i.e., a sign system), which is easily manageable by automatic machines, which transmit and handle (‘data processing’) the signs that make up the language. With this we are in the automation. The ‘ordinator’ is that device which handles information, in discrete (discontinuous) form (in this sense, computer science is ‘ordinator theory’). Cf:

DU. 24.

-- *M. Ponte/ P. Braillard, L' Informatique*, Paris, 1969;

-- *F.Raymond, les principes des ordinateurs*, Paris, 1969.

-- *T. Blackburn/ H. Xhite, Comprendre les ordinatuers*, Verviers, 1969

(As an aside, there are two computational devices, the analogical computer (again, 'n 'analogical' applied here in a special sense) and the numerical computer (i.e. 'ordinator', - word introduced by I.B.M.); o.c., 28ss.);

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

-- *J. von Neumann, The nervous system as computer*, Rotterrdam, 1966 (nervous system and calculator are somewhere analogous);

Tome: *H. Jans, Opmars van de 'chips'*, in *Streven*, 48 (1981): April, p. 619/ 635 (the evolution from macrocomputer to microprocessor: the basis is the miniaturization of automation thanks to microelectronics, as a result of which a microprocessor - chip comes down to a minicomputer so that one speaks of the "third industrial revolution").

Conclusion: Already in July 1974, when, for the first time, graduates in Leuven obtained the title 'engineer in computer sciences', Prof. L. Buyst pointed out that storing, retrieving, comparing and adapting information (and that means again and again 'models (of structures)') became 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. p. 5/6) Cfr. E. *Baudet et al, Mens en computer* (*Automation, industrial and cultural revolution*) Utrecht/ Antwerp, 1963.

(B)IB. ***Ambiguity doctrine.***

B1. ***The notion of ambiguity;***

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

The mid-century scholastics expressed this scheme as follows:

a. there is the 'obiectum materiale', the material object, - where 'material' actually means 'loopy', 'reflexive, reciprocal (don't confuse with 'reciprocal': think of 'a reciprocal, i.e. recurrent in itself (concerning subject acting)) verb):

Example: this tree here, i.e. 'a businesslike, concrete fact;

b. if need be, there is a plural of 'obiecta formalia', formal or formal objects; 'forma' here (in the antique-medieval sense) means mental content, knowledge value, model, 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:

DU. 25.

b1. the arborist views the tree as the result of what scientific arboriculture calls "growth control," i.e., the manipulation of the growth factors (cf. independent change agents), which "control" the growth process (cf. dependent change agents);- biological;

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

b3. the engaged couple put themselves under that tree because it gives lover and greenery, as well as "atmosphere" for their hours in love; - "celebrating" (celebrating), playful;

b4. the landscape painter seeks to "thickly highlight" the "beautiful", possibly the grandiose (large-scale beautiful) or the graceful (small-scale beautiful), aesthetically - artistically;

b5. the dendrologist (to dendron = the tree) or arborist looks at the tree 'scientifically', as a biological system, with inner structure, similar to that of its peers (distributive), and interacting with the environment (the surrounding 'systems' (collective): external structure); - professional science.

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

Other example:

V. Carels, Reaction in scientific jargon, in De nieuwe Gids (18.07.1964), gives the ambiguity in semasiological form. The theory of meaning gives, she says, to the term "reaction" (defiance) the following description: "an action (work) that evokes another action, a backlash, a response. to a certain stimulus.

Vernacular language: a person's response is the attunement of their behavior to a stimulus.

Mechanical: 'A reaction is the response of a physical to a force that works, acts.

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

Physiological: the response of an organ with a particular function (olfactory organ, for example) to a stimulus.

Psychological: man's response either in his soul life (introspective) or in his (external) behavior (behavioral) to a situation (stimulus).

Medical: the response either of the organism (physiological especially) or of the psyché to a medical test (in syphilis, for example, The Wassermann reaction).

Agogic: the response that those involved in the parenting process 'parents, teachers, children, adults) make to a pedagogical or andragogical 'situation'. The context decides

the meaning; i.e., that the "system" or living whole in which a term is used is semasiologically decisive for the variant of meaning, the living whole of interpretation - here a plurality of sciences.

Until now, the objective 'over-determination', i.e. the fact that the object itself exhibits more than one structure in itself, which is exposed thanks to a plurality of perspectives or approaches (methods, points of view), has been the explanation of ambiguity.

B2. ***The same concept of "plurality" psychodiagnostically.***

One can develop an analogous scheme:

O(bject) = S(timulus) --- = I(nterpretation) = A(n answer), = R(eaction).

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

However, if we write:

O(bject) = S(timulus) -- -= (black box = subject) --- = A(n answer),

then the diagnostic or internalizing power of the subject exposing the ambiguity comes out more purely.

Take a paradigm or textbook example:

A teacher gives an essay assignment to twenty students about, say, summer beauty. It is a fact, established countless times, that each student individually will produce something personal - call it 'subjective' but without any pejorative connotation. Schematic:

a singular of theme --- = a plural of drafting,

As an application of the scheme:

'n singular of S(timulus) --= 'n plural of A(n answer),

The 'encounter' - to use an existential word for the scheme 'o ---= A' - is at the same time interpretive, but then interpretive as auto-implicative ('self-involving' is also what people like to say in the language-analytical midst): while interpreting, the interpretive exposes himself in a kind of psychological test (it cannot be called a test in the actual sense, because the experimental character is too weak) or psychodiagnosticum. Aristotle would have said at the time: "everyone 'poiei' (makes) something else out 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 act as 'signs', among others and especially in the pragmatic sense);

DU. 27.

b. attribution or assessment of someone or something - interpretation - according to subjective condition(s) such that, which is peculiar to the interpreting subject

To the object being imputed. Introjection' would also be a good word, but then seen from the inside out instead of from the outside in, as the psychoanalysts see it (which is then about the counterpart of projection). The motives, i.e. unconscious motives and insights, which determine the projection can be diverse:

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

(ii) ***religious projection:*** the religious subject ascribes to the sacred (a.o. god and gods etc.) what is his own (existence, - feelings, thoughts, other properties): L.Feuerbach (1804/1872) K. Marx (1818/1883) and other left-hegelians (and their followers to this day) have tried to 'explain' (if one can use this distinguished word with 'science' connotation here; which does not mean that some religion is indeed so explainable) all possible religion with this simple scheme;

(iii) ***psychoanalytic projection:*** the subject to be psychoanalyzed is subject to (for his educational thinking and - morality) unbearable and reprehensible representations and feelings - e.g. he desires, against his will, a woman he 'may' (morally) or 'can' (practically) not desire; as a mechanism of whitewashing or (self)defence, at work in his inner being - motive - he ascribes these 'indescribable' inner processes to someone or something situated outside him (especially, here the desired woman herself, who is, so to say, herself either the cause (mild cause) or (full) cause, in his eyes, of the desire active in him with its representations: "the pot blames the kettle for seeing black" is the vernacular way of formulating commonsensically this profound psychoanalytic idea.

B3. ***The concept of plurality and the Bible.***

The point of departure here is the judgment of God (ordinal, ordalie). This is a legal diagnostic: the accused or suspect is subjected to a test so that either his guilt or innocence becomes clear. The revealing power at work in such a process is either natural-magical (the immanent power of words, actions, materials) or evocative-magical (spirits, 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* (about a woman suspected of adultery).

DU. 28.

One does not deceive oneself: also the New Testament knows this judgment of God: in *1 Cor 11: 27/32 Paul* speaks about the unworthy approach to the Eucharist and says: "He who eats and drinks, eats and drinks himself 'a judgment, if he does not judge the body (by contrast: of the Lord in the Eucharist) according to its value."

More than that, God's judgment is very broad. All human actions suffer the consequences of their moral quality: "Do not be deceived: God is not to be trifled with. Whatever man sows, he will also reap: whoever sows in the flesh (i.e. in poor, sinful humanity), will reap corruption from the flesh; but whoever sows in the spirit (i.e. in God's life-giving power at work in man), will reap eternal life from the spirit". (*Gal. 6: 7/8*).

One sees again and again the shifting at work, one time by means of ritual (or magic) acts, another time by means of living action itself. In other words, the judgment of God (ritual) is in the conspicuous what the judgment1 of God is in the inconspicuous.

The structure is clear: one and the same ritual act leads to more than one result (depending on the moral disposition of the subject involved); seemingly one and the same earthly life leads to more than one result (as a consequence of the inner attitude towards God). God places man in situations which have diagnostic value: this indicates the ambiguity of his action.

Here the structure is steering:

Good or bad attitude --- = life or rite --- = 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 wrong, "punishes" himself.

Jesus himself emphasized this ambiguity. Thus in *Mk 8: 27/30*: to the one question of who Jesus is, people give more than one answer (some say "John the Baptist," others "Elijah," others "some prophet," - Peter "the Christ" (cf. Lk 9: 7/9).

So in *Mk 4: 1/20:* the one person and the one work of Christ (the seed) is destroyed in some by Satan, loosed in others by tribulation or persecution, suffocated in others by the cares of the world, the delusion of riches and the lusts for everything else,

With a final type of hearers of the Good News, that same reality is processed and fulfilled thirty-, sixty-, a hundredfold.

So too in Mt *25: 1/13* (the same task is worked out differently by the stupid bridesmaids than by the wise ones); *25: 14/30* (talents are used differently); *5: 31/46* (the same fellow human being in need becomes a "neighbor" to some, a "stranger" to others).

Du. 29.

B4. *Philosophical ambiguity processing.*

We begin with an applicative model of the philosophical rule: A man, forty, murders an underage girl, in a fit of rage.

a. *Informative view:* the journalist speaks of a murder case, the statistician of a previously infrequent crime;

b. *(meta)physical view*:

b1. preconstitutive: (religious) the traditional theologian speaks of sin against God; (extra-natural) the occultist mentions occult evil or demonia or even satanism;

b2. constitutive:

(i) *medical:* the doctor sees disease in it;

(ii) *psychological:* the ordinary human connoisseur sees human weakness in it; the movement-bound psychiatrist sees his thinking model in it:

a/ Freudian (the Oidipus complex, created when the libido (life drive) clashes (conflict situation) with the ueber-ich (the lust counteracting conscience rules imposed by the culture), begets aggression);

b/ adlerian (the inferiority complex, spawned by the clash between assertiveness and community norms, begets inhibition, disappointment (frustration) and aggression);

c/ jungian (the Cinderella complex, begotten by the clash of the life's urge and its 'ideal' with the 'harsh' reality, leads to the impression that the ideal is unattainable and to be dramatized as a 'disaster', - which evokes aggression);

(iii) *sociological:* the ordinary survey sociologist concludes to unsocial behavior; the new-left psychiatrist sees the socio-critical as the effect of the deforming influence of the capitalist social structures, while the neo-structuralist psychiatrist sees it, equally socio-critical, as the effect of the "fascist" language structures, which have inwardly degraded the murderer.

c. ethical-political view:

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

c2. *political:*

(i) legal: the judge sees in it a criminal manslaughter with aggravating circumstances; - one lawyer speaks of sexual self-defense, reprehensible but understandable, while the opposing lawyer speaks of an annoying depraved injustice against an innocent person;

(ii) socio-ideological: the feminist sees in it yet another sign of the subjection of "woman" to male phallocracy; - the liberal denotes it as an insane abuse of the in itself valid principle of individual freedom; the personalist as an Assault on the Dignity of the Human Person in a social context,

the solidarist as a crime against the intersubjective order of the free community of persons; the communist Marxist protests against the rest of the double standard of the bourgeoisie, which threatens the socialist "collectivity"; the right-wing Fascist considers it an attack on the inviolable order of his state and the citizens connected to it;

(iii) ***agogic***: the educator, resp. educator considers it a fatal educational error, which strongly poses the re-education problem; the anti-authoritarian educator sees in it a fatal reaction against an authoritarian system (and father figures), which breeds "submissives", who, however, afterwards, show criminal motives.

We now refer to EP(istemology), p. 26, where the basic scheme of traditional and complete philosophy is briefly mentioned: on the basis of the above ambiguity scheme, but ordered philosophically, its eminent value and, at once, of the philosophical attitude now appears.

Multi - and interdisciplinary approach or method.

'Disciplina' (learning subject, professional science) gives rise, linguistically, to multi- or many-disciplinary and to inter- or between-disciplinary. One has this in two forms:

There is one main science with many auxiliary sciences;

For example, *I.M. Bochenski, Philosophical Methods in Modern Science,* Utr./ Antw., 1961, underscores that logic (which he understands as logistic)

(i) uses knowledge-theoretic (epistemological) terms (true/false; direct/indirect knowing, etc.),

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

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

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

There are several specialists, who, equally, produce their input:

Thus *E. Baudet et al, Man and computer* (*automation, industrial and cultural revolution*), Utr./ Antw., 1963; - mechanics, machine technology, geometry, combinatorics (chess system), psychology, physiology (nervous system knowledge), futurology (future possibilities knowledge), culturology, history science, philosophy of culture, - they all come into play, equally (not main or auxiliary science).

This avoids all the -isms (technicism, psychologism, sociologism, linguisticism, biologism, and all the "triumphalisms") of professional scientists.

DU. 31.

One can thus see the difference between ontology and multi- or interdisciplinary method:

a/ The ontology is always main science with respect to the subject sciences (either specialist-equivalent (model 2 on page 30 supra) or subordinate (model 1 on page 30: main science with auxiliary sciences) and these subject sciences are auxiliary sciences;

b/ the ontology collects and systematizes the auxiliary sciences

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

b2/ this scheme in turn has its coherence from the ontology, i.e. theory of being, but as follows:

= the (meta)physical treats being in the framework and system of 'being' in itself ('material', i.e. reflexive, in its identity, identitive);

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

(i) *informative*

a/ Knowledge theoretic: being as 'true' and/or 'false', i.e. corresponding to (our) capacity to know, intelligible;

b/ logical: being as one and/or many, i.e. collectible and systematizable;

(ii) *ethical-political,*

i.e., as valuable and/or unvaluable; i.e., as corresponding to (our) true-devotion (axiological, evaluative); - and this in two main ways:

(i) personal-human (and then this is the ethical or moral position);

(ii) co-human-social (and this has been called 'political' since the ancient Greeks, because 'polis' was the social context in which the oldest Greeks lived co-human-socially, - something which in the Hellenistic-Roman period is better called 'imperial' (i.e. in imperial context) or, much better 'ecumenical' (the word 'oikoumené', as denoting the entire known (and unknown) inhabited world of the time, denotes the universally human), which is basically planetary or, as it is sometimes said, is called 'global' (encompassing the globus or globe)).

In terms of clarity, ontology means that, however it may have a formal object, as distinguished from all other formal objects or views of the professional sciences, it always keeps the material object as its formal object in view, i.e. the identity of being in its context. That viewpoint is never (not even) that of the (most elaborate) 'unity-science' - however much it 'unifies' all possible auxiliary sciences (unity-science!) under the heading of e.g. the theory of systems of recent years (this is only 'one/many'-designation, but not an identity-science like ontology).

DU. 32.

(B)IC. ***Informatics.***

We have seen that sign , resp. model has informative value; i.e. the sign (model) informs about that for which the 'model' stands. The question, for the ontologist, now arises: what 'is' sign (model) as information and in itself (i.e. identitive, looping, reflexive)?

For, on what the sign (model) actually "is" depends, apparently, its informational value.

We already know N. Wiener's answer 'information' is neither matter nor energy, but something separate, which is comparable and connectable with matter and energy, but never 'is' matter and energy without reason. And Wiener explicitly mentions the materialists (and he should mention the energetists!), who identify all reality ('being', 'being') with either matter or energy.

The triad 'matter - energy - information'.

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

Until the fifties, one continued with a dyad, namely matter and energy, both clarified by mathematical-logical formulas (which, basically, represented the information in matter and energy).

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

(i) kinetic theory (molecules in continuous motion),

(ii) the atomistic (which conceives of the molecule as 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) (o.c., 25/47)) - Inspired by ancient atomistics, Gassendi (1592/1655) laid the groundwork for this modern atomism.

= The second conception seeks to reduce all physical phenomena, starting from the mechanical concept of 'energy' ('work', i. e. force that moves), to forms of energy. The kinetic conception of matter set out on its way: 'movement' (kinèsis) is the cog of matter; yet, in addition to mechanical energy, one discovered thermal or heat energy, chemical energy, etc.

Over time, it became clear that energy was transformable or transformable. Thus, the material universe appeared as a multiplicity of energy forms and energy transformations (o.c., 11/24), especially since Helmholtz (1848), who drew attention to the intimate connection that links heat, electricity, magnetism, light, chemical affinity with mechanical forces. This gave rise to modern energetics (itself designed after ancient 'dynamist' examples (one thinks of Herklaitos of Ephesus).

DU. 33.

Cf. *F. Michaud, Energétique générale*, Paris, 1921, who defines this theory as the science of the general properties of energy and offers it as the common frame of all physical sciences, in that it clarifies the nature of the physical concepts and constitutes a real physical 'theory'. See also *A. Dastre, La vie et la mort*, Paris, 1920 (pp. 54/92: *l énergie en général*, - 'n kort traktaat van algemene energetica (met historiek)).

As Ch. Brunhold, o.c., 8, observes, both conceptions of matter, the atomistic and the energetistic, merge to a certain extent: *H. van Praag, Informatie en energie* (*Bouwstenen van een nieuwe wereldbeeld*), Bussum, 1970) reduces all physical phenomena to the duality 'information-energy', - this in contrast to Et. Vermeersch, who starts from the duality 'matter/energy/information'; the reason is that matter (atomistically conceived) is itself a form of energy;

J. Fast, Energy from atomic nuclei, Maastricht, 1980, shows, extensively and according to the latest state of affairs, that, indeed, the atom ((and especially its nucleus: one thinks of nuclear reactions, nuclear bonding and nuclear fission, radioactivity, nuclear fusion, nuclear radiation sources, activation analysis, radionuclides) 'is' energetic. Cf. also *A. Arès/ J. Marcoux, Structure de la matière*, Montréal, 1971 (one sees that such a handbook for physicalists uses both atomic and energetic concepts).

With regard to the relation between matter and energy, on the one hand, and life, on the other, cf. *A. Dastre, La vie et la mort*, Paris, 1920, - which remains "historically" interesting;

J. Fast, Matter and life (*The coherence of the natural sciences*), Maastricht, 1972 esp. pp. 1/28: the unity of matter; equivalence of mass and energy; from there, the author talks about the foundations of chemistry; about carbon chemistry and biochemistry; about the energy sources of life as well as heredity and evolution.

Since computer science, of course, next to atomistics and energetics, information theory has become a third model of thought in physics. Cfr. higher pp. 22/24.

The essence of information.

The problem is posed by *D. Nauta, Logic and Model*, Bussum, 1970, p. 254vv: there the question is asked whether "sets" (G. Cantor) exist.

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

The other tendencies, the intuitionist (which constructs it) and the formalist (which conceives of it functionally) make it a product of man's "gathering activity": man invents it.

DU. 34.

K Bertels/ D.Nauta, Introduction to the Concept of Models, Bussum, 1969, pp. 145/166, discusses thinking in models and claims, o.c., 153, that

"the model, a1s such, does not occur in reality (against model realism), but that it is suggested by reality (against so-called model idealism, understand: model constructivism or model formalism)."

"The model stands, as a communication medium, in between man and the world. With the model it is like with the blue line on the map: it does not occur in the world itself, but symbolically represents a river in the world. If the rivers of the world did not have any structural relationship, the word 'river' would not exist" (ibid.). The authors say (p. 145) that they are model nominalists, - position, which they propose as a middle ground between model realism and model idealism.

On page 258 of his *Logic and Model, D. Nauta* says that, in the Middle Ages, the same disagreements existed concerning the relation between 'language' and 'reality', namely in the form of the universality problem: 'the' triangle, 'the' house, etc. existed independently of man for the conceptual or universal realists.

Indeed, Plato as a preconstitutive conceptual realist (also called hyper- or ultra-realism) claimed that, somewhere in a purely knowing and thinking content sphere, the abstract or general (universal) concepts existed, before their concrete realizations (this house here and now, that triangle there and then, etc.) existed; later platonism placed this sphere in an all things and processes thinking deity.

Aristotle was also a conceptual realist but claimed that the universal concepts did not exist before their realizations, but in them: in this house here and now the human mind meets 'the' house without more;

In this triangle there the mind meets 'the' triangle in its general content of knowledge and thought. This is called constitutive conceptualism or universal realism: the general belongs to the very constitution or nature of concrete individual being. So that for Plato(nists) there is both pre-constitutive and constitutive realism, while for Aristotle there is only constitutive realism concerning concepts.

Against this Nauta places the conceptualists, who conceive of the concepts as constructions of the human mind, and the concept nominalists, who do not even conceive of the concepts as comprehensible (conceptual) realities in the human mind, but as mere names (nomina), i.e. labels that stand for realities that should correspond to them.

If these last two opinions are true, one does not understand how the same laws are, e.g., experimentally established in nature, and this independently of our operations or, rather, following those assertions, exposed:

Surely one speaks again and again of the discoveries of the laws of nature in an inductive manner. Even when the formulas were first invented as hypotheses, they are still, in time, 'confirmed'. So we can really establish a core of conceptual realism: up to a certain point our concepts have real value.

Of course, - and this is the truth share of the conceptualists and even of 'a well-understood nominalism - we, humans, 'construct' our concepts (at least to some extent, because the 'absolute' invention and creativity simply does not exist (there is always 'a minimum of reality in the construction itself)).

In this conceptualist sense, the chapters of *C. van Peursen C. Bertels/ D. Nauta, Information* (*An Interdisciplinary Study*), Utr./Antw., 1968, are understandable:

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

(ii) a. ***Information and Technology*** (see above pp. 22/24 : computer science);

(ii)b. ***information and culture*** (in syntactic, semantic and pragmatic terms).

On p. 176, theorists assume that matter and energy exchange occur throughout the cosmos, while 'life' and, of course, humanity, apart from those material and energetic processes, also know 'informational' processes. This means that, according to this view, information (collection, sign, model) does not belong to the very constitution or being nature of all being, but only to the communication of living and human beings.

This view is, in our opinion, too narrow: with C.S. Peirce and with 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 'idealist' not in the 'modern Cartesian sense, but in the antique-medieval (Platonizing, Aristotelian) sense. 'Idealism' in the antique-medieval sense means that reality, apart from being material and energetic, is always at the same time 'sign' or 'idea'.

Reality is 'intelligible', 'understandable', '*thinkable and knowable*' in itself. Because it is so, constitutive, in itself, man can orient himself in it with signs of knowledge and thought, with models.

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

Because reality in itself is "true" (in the ontic sense, i.e., intrinsic), one can arrive at truth, i.e., at agreement (one - univocity) with reality.

DU. 36..

(*B)II *Clarity theory (clarity theory).

Introduction.

So far, we have always talked about clarity and intelligibility. The question remains whether and to what extent reality is 'clear' or", better, 'explicable'. Not in itself, but in its being accessible or not to man. This leads us to the principle of (necessary and/or) sufficient 'reason' or 'ground' in the epistemological sense or, as one says since ancient Stoa, the principle of a necessary and sufficient 'criterion', i.e. means of distinction or discrimination, namely, to distinguish the true from the false. In order to know, with certainty, whether something is true or false, one must have a sufficient reason or criterion that makes the matter 'clear'.

IIA. ***The fact of ambiguity and its understanding.***

(a)1. ***Applicable models***. (36/38)

In several areas, making out the (objective) truth is not or at least not easy (ascertainable or inferable).

Physical.

Causality or causation, by Fr. Bacon, central to natural science, was easily understood deterministically:

"In the same conditions, the same causes have the same consequences" (relation between independent changeables and dependent changeables, if the rest is neutral). Such a universe is therefore predictable (deductive), in that, once the causes are known, the effects always follow.

I. Kant even defined all of nature as "the existence of things insofar as it is determined by laws." This is the deterministic "rationalism" which, since Galileo and Descartes has been so widespread in the West.

But in nuclear physics there is a minimal indeterminism: a simple material picture or model of the processes within the atom is impossible; only matrix - arithmetic (A.Cayley (1821/1895) founded this type of mathematics in the mid XIXth century) can design a 'picture' or model that does justice to the facts.

Reason: the conditions under which one approaches the intra-atomic processes, modify (indeed destroy) those processes themselves. If one wants to determine the right place of an electron, then one reduces its energy.

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

Biological.

In biology, phenomenologically, i. e. when one proceeds phenomenon-describing or 'behavioral', one always has a phenotype concerning heredity (Mendel): the appearance or mode of appearance does not always correspond to the actual or genotype (the genes).

DU. 37

The method founded Mendel: patient analysis of crosses reveals the genotype.

Biologically, it should be noted very briefly that physicians call an ailment "idiopathic" when it arises, as it were, naturally, spontaneously (idio = entirely peculiar to the patient), "without obvious causes. Here, too, the 'analysis will have to try to clarify.

Humanities.

Here the applications are many. They can be categorized into two classes:

a/ either deliberately obscures man:

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

= lawyers, diplomats do this professionally (one thinks of sophistry and rhetoric, which build ruse or "strategy" (as one now likes to say "military") into speech) ;

b/ or man obscures unconsciously: rightly people like M. Heidegger have spoken about 'not wanting to know' and J.-F. Sartre about 'bad faith', not only in the conscious sense but also in the unconscious sense; after all, man hides from himself, to begin with and from others, what 'logically' (as understood by society or the environment) and 'morally' (also as understood by the established order) cannot get through;

S. Freud, on the basis of the dream interpretation in particular, designed a two-, three-part scheme, which sheds a harsh light on ambiguity:

(i) (by omission the nightdream condenses the 'text' (i.e. the scenario or history of the dream); by condensation, after all, the history is shortened, because data are 'weakened', i.e. those dream elements that, because of their illogical and especially their immoral content, must not be exposed) This also happens in conscious lying: questioned by the master about his part in the fall of a flowerpot, Johnny simply conceals his role in the event: he censors his story or 'text';

(ii) by confusion the night dream obscures, i.e., by merging, what exists apart in reality; this occurs doubly:

(ii)a. by shifting: what is adjacent (what is not far from it, what is adjacent), is simply 'made guilty'; -- in the deliberate lying this also takes place: Johnny shifts his share in the incident to a comrade who was standing right next to it; so much for the contiguous elements of the 'text';

(ii)b. by inversion: that which is the opposite is simply confused with its counterpart, so that the nightdream manipulates the event in such a way that the dream history insinuates just the opposite of what it, actually, wants to say,

DU. 38.

for “whoever understands him ‘well’, i.e., ‘interprets’ (in the sharpest sense of the word); -- in conscious lying: Jantje insistently claims that “it ‘wasn’t’ him”.

It should be noted in passing that what is called ‘occult’ evil also hides itself in the threefold manner mentioned above: as a result, people who call themselves ‘rational’ never ‘see’ that type of evil! Thus, for example, the effect of the cast lottery ticket remains

(i) simply omit and think that “there is nothing” (omission);

(ii)a. by shift difficult to discover (e.g., someone feels pain in his back, but the occult or subtle cause is located in the legs);

(ii)b. by inversion as improbable as it is large (e.g., the supervampire-extinct believes that he is “in particularly good shape lately” (he feels good as never before), just at the time when “evil” slyly (“strategically”) strikes).

(a)2. ***Regulatory model.***

We can now try to structure the “ruse” of nature and man into a differential: things or processes are:

Equal	unequal (other)
Really equal/ seemingly equal	Really different/ seemingly different
Pseudo right	
Quasi equal	

And by means of:

(i) omission: in place of A comes ‘ ‘;

(ii)a. shift: instead of A comes A’.

(ii)b. reversal: in place of A comes not A.

The word ‘mystery’ or ‘secret’ can be interpreted in this sense as schematically indicated above: something becomes ‘mysterious’ or ‘mysterious’ to the extent that it strongly affects the person concerned personally and, at the same time, when the scheme 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 for the time being unknowable that is unexistential (i.e. that does not personally ‘touch’, ‘engage’) and ‘mystery’ that unknown resp. unknowable that touches someone existentially, i.e. in his ‘existence or personal engagement in ‘an actual situation. Of course, the word ‘secret’ has - semasiologically - a system of meanings which can be reduced to three classes:

(i) the pure knowledge sociological: ‘n angle of class logic is ‘mystery’ for those who do not know formalized reasoning; the ‘profound’ lacanian psychoanalysis is unreadable even for ordinary psychoanalysts.

DU. 39.

(ii) the purely epistemological: the unknown, indeed the unknowable (at least for the time being); so e.g., ‘koan’ (Zen Buddhist question);

(iii) The “sacred”:

a/ ‘a rite for “initiates”, (initiatory meaning);

b/ a supernatural reality, as e.g. the “mystery” of the Holy Trinity, or a simply extra-natural reality (e.g. original sin, “predestination” (one thinks of Bossuet or Pascal, who discussed this));

It is not surprising, then, that *R. Otto* characterized *The Holy*, in its most general sense in religious science (and theology), as “mysterium tremendum and fascinans,” the mysterious that at once existentially repels and attracts.

(b). *‘Surface/depth’,*

This leads us to the notion (the presently so used (and abused) scheme) of “surface/depth,” which appears in passing: the surface looks or does not look easily discernible; the depth is hidden behind that surface, which may or may not look easily (looked);

Lévi-Strauss, for example, rails against phenomenology, only because it wants to stick to the showing or the ‘phenomenon’ either methodically (and every sensible scientist does this) or responsibly (because in the phenomenological attention, paid to the phenomenon in its possibly undetermined way of appearing, the phenomenon itself gradually shows itself in a more obvious way;- which is also to be justified from case to case);

The Marxist analysis of social data, the psychoanalysis of depth psychic data and, in its way, geology, i.e., the blotting out of deeper layers of the earth, serve Lévi-Strauss as compelling models: “the truth is always hidden,” he says. One wonders where a man like Lévi-Strauss got this prejudice. One can be so interpretationist that one always looks for it in some ‘depth’. Reality is mysterious and ambiguous, yet not for the sake of it.

Which does not mean that, in its way, phenomenology, in its refusal to go beyond phenomena to a hidden structure, commits a major fallacy: Lévi-Strauss is right, when (where it is appropriate, - and this happens regularly), behind the empirical data, he looks for ‘structures’ (in his case of mainly logistical-mathematical and combinatorial nature; - which is also one-sided, because there are also ‘structures’ of what Husserl and the phenomenologists call ‘eidetic’ (understandable (and not symbol-calculating) nature).

What stands behind this debate between structuralists and phenomenologists is what already the ancient skeptics pointed out sharply, namely, that the absolutely certain is only the “phenomenon,” i.e., that which is immediately given; what exceeds it is always more or less “unclear.

DU. 40.

IIB. ***The clarification methodology.***

The skeptic is not the one who "doubts everything"; no, the skeptic is a phenomenalist, i.e., he sticks - in "n'epochè" or suspension of judgment concerning the transphenomenal - strictly to what shows itself immediately (the phenomenon, the phenomenal, the phenomenon as such, the phenomena, sometimes also simplistically called "the sober facts"). The rest he 'doubts', - he puts in brackets (Einklammerung).

One can see that the so-called delimitation problem (i.e., delineating the certain (clear) against the uncertain (unclear)) ends up, in the phenomenistic skeptic, in a convenient dichotomy (complementation):

(1) there is the immediately apparent, which everyone perceives (public aspect) and which in this sense is "universal" (i.e., immediately accessible to everyone);
(2) there is "the rest," i.e., the unclear (and immediately "questionable").

It should be noted that the phenomenist, i.e., the one who categorically asserts that, apart from phenomena, there is nothing else 'is', is an 'ideologue' (and this is a side-ideologue, i.e., the phenomenist speaks authoritatively and dogmatically about whether or not the trans-phenomenal 'is).

Immediately it is clear that - to return for a moment to the quarrel between structuralists and phenomenologists (hermeneuticists) - structuralism starts out skeptical, but breaks through the phenomena in the direction of 'structures' (which are logistically and mathematically 'calculable' (in a formalized sense if possible), whereas (hermeneutic) phenomenology also starts out skeptical, but breaks through the same phenomena in the direction of 'eidetic' surveying of structures (i. e. intuitively clarifying the eidos or concept), and this on the basis of ordinary logic (called 'merely comprehensible' logic by the formalizers not without contempt; about which the formalists are not so much in favor of a 'purely understandable' logic), and in order to be able to 'understand' the phenomena.i. intuitively clarify the eidos or concept), and this on the basis of ordinary logic (called by the formalizers not without contempt 'merely comprehensible' logic; about which in logic 'a word).

Criteriological clarification.

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

(i) The empirical criteria or epistemological grounds for certainty he divides into
a/ direct, which includes sensory experience, and
b/ indirect, including human testimony (with its authority argument), one could add, but in a sharpened form, the experimental proof (which Farges develops less), namely concerning direct and indirect empirical knowledge (the indirectness of the experimental method is in the working hypothesis guiding the experiment);

DU. 41.

(ii) the non-empirical criteria, in turn, also expire in two classes:

(ii)a. the logical criteria: these are either 'direct' contemplative, and then it is about the 'understanding' (about which in logic) or 'indirect' reasoning or at least formulating ('discursive' says the scholastic tradition), and then it is about judgment and reasoning (cfr. logic);

In parallel, one should add, to this conceptual logical approach of Farges, today, the formalized form of logical thinking: directly there is the abstract symbol (the letters of logistics and mathematics); the calculation, which, using processing symbols, processes and manipulates those symbols according to axiomata and processing rules, is rather the "indirect" aspect;

(ii)b. the transempirical criteria: these are again either direct, i.e. in the 'clear' perceptive or 'sensitive' experience (one thinks of the contemplation of God of the Catholic mystics and of the foresight of future events by the prophets), or indirect, i.e. in the 'revelations' of all kinds (one thinks of the so-called 'revelation spiritism', which receives 'messages' (and believes in authority arguments); one thinks of the Mosaic and the Christian revelations (in the Bible)). One may think of the Mosaic and Christian revelations (in the Bible), which are based on the authority of e.g. Moses and the prophets, sages, apocalyptists or on that of Jesus, the incarnate second person of the Holy Trinity).

This recalls what *I.M. Bochenski, Philosophical Methods in Modern Science*, Utr./ Antw., 1961, pp. 74/81, says about the ('semantic') verifiability or testability of statements, i.e. the possibility of showing that 'an assertion ('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, earthly 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 approximate speed of light of 300,000 km/sec, on the other hand, is;

c/ the logical verification: if 'an assertion is non-incongruent or non-contradictory with the system of assertions in which it appears (axiomatic system), then this assertion is 'logically' possible

d/ the transempirical verification: transempirical realities have very specific criteria, about which scientists are silent.