Courses 8-13. Elements of Cognitivism II

Location

8. Courses from 1996 to 2000

8.1. Elements of Logic, 1996-1997 (EL1-EL92, 115p.)
8.2. Elements of methodology, 1996-1997 (EM1-EM71, 101p.)
8.3. Elements of Philosophy of Religion 96-97, ERF1-ERF335, 396p.)
8.4. Introduction to New Age, 1998-1999, (NA1-NA151, 80 p.)
8.5. Elements of Logic, 1997-1998, (EL1-EL99, 133p.)
8.6. Elements of Ontology, 1997-1998 (HM1-HM24, 30 p.)
8.7. Cosmology, 1997-1998 (K1-K52, 62p.)
8.8. Theology, 1997-1998 (TH1-TH42, 50p.)
8.9. Man as a biological being, 1997-1998 (BW1-BW42, 52p.)
8.10. Man as an Immortal Soul, 1997-1998 (OZ1-OZ37, 37p.)
8.11. Elements of Philosophy of Culture, 1998-1999 (CF1-F58, 70p.)
8.12. Elements of Cognitivism I, 1999-2000 (COGN1-COGN52, 68p.)
8.13. Elem. of Cognitivism II, 1999-2000 (COGN2.1-COGN.2.130, 157p.)
8.14. Elements of Cognitivism III, 1999-2000 (COG3.1-COG3.58, 82p.)
8.15. Elements of Logistics, 1999-2000 (LOG1-LOG39, 49p.)
8.16. The social question as a cultural quality, 99-00 (SK1-SK100, 141p.)

Remark: *This course has been provided with larger spacing than the text of the original course. References in the older version of this text therefore do not correspond to the current pagination of 'Word'. For this reason, the original pagination is displayed each time with the letters 'COGN2'. They stand for 'Cognitivism, Course II', and are derived from the old page number.*

Introduction: *Upon the shutdown of the From pragmatics (the intended result of a statement) and semantics (the meaning or content intended in the statement), only syntax remains (the juxtaposition of meaningless and resultless symbols). That is the foundation of logistics, which essentially aims to be syntax regarding speech.*

Courses 8-13. Elements of Cognitivism II

Content: *Click on the text you wish to read.*

Course 8-13. Elements of Cognitivism II 1
Introduction (incl. 1). 4
1. The concept of 'cognition' (2.1) 8
2. Semiotic language analysis. (02/12) 9
2.1. Language object/ language / metalanguage (2/12) 9

2.2. Something about syntax (5) 12
2.3. Logical semantics (understood psychologically) (6/9) 13
2.4. Language use (something about pragmatics) (10) 18
3. Explanations regarding formalized logic. (13/17) 21
3.1. Calculating with symbols (13/15) 21
3.2. Classifications (16/17) 25
4. Neo-rhetorical criticism of logistics. (18/39) 27
4.1. Neo-rhetorical (18) 27
4.2. Metaphysical Critique of Logistic Thinking (19) 28
4.3. The difference between logic and logistics. (20/39) 29
5. Reductionism(s). (40/47) 53
5.1. Reductionism (40) 53
5.2. Biogenesis (41) 54
5.3. Causality (42/44) 55
5.4. Genetics (some basic concepts) (45/47) 58
6. Development of the cognitive sciences: (48/84) 62
6.1. Genesis (48) 62
6.2. Four sciences and a philosophy (49) 63
6.3. Metacognitive psychology (51) 64
6.4. Model concept (52). 65
6.5. Computational analysis in neuroscience (53) 66
6.6. Outline of a brain science model (54). 68
7. Neuro- or brain sciences. (55/63) 69
7.1. Brain (55/58) 69
7.2. Accountable conduct: neurologically substantiated (59/60) 74
7.3. “The illusion of free will” (61) 76
7.4. Language is more than merely physical sound (62) 77
7.5. A hypothesis (63) 78
8. Primitive and Ancient Medieval Cybernetics. (64/73) 79
8.1. Cybernetics (64/66) 80
8.2. Automatic machine/ computer (67/68) 83
8.3. Computer thinking : applied logic (69/70) 86
8.4. Chemical algorithm (71) 88
8.5. An approximate understanding of 'connectonism' (72) 89
8.6. Neuron network (73) 90
9. Artificial intelligence as requested. (74 /79) 91
9.1. Question about formalized language use (74) 92
9.2. Noam Chomsky's General Linguistics (75/77) 93
9.3. Language systems that result in inconsistencies (78) 96
9.4. Textual Science (rhetoric) (79) 97
10. Artificial intelligence (AI). (80/83) 98
10.1. Origin (80) 98

10.2. Artificial intelligence and language use (81) 100
10.3. Semantic networks (83) 101
10.4. How does self-awareness arise? (83) 102
11. Cognitive psychology (84/104) 103
11.1. Understanding with compassion but also causally. (84) 103
11.2. Cognitive and Information Processing Psychology (85) 104
11.3. The dog with a traumatic neurosis (86/87) 105
11.4. The birth of cognitive psychology (88) 108
11.5. Scanning (scrutinizing) the brain (89) 109
11.6. Placebo (90/94) 110
11.7. In-depth knowledge (95) 116
11.8. 'Aha moment' (cognitive) (96) 117
11.9. “I have lost my keys” (cognitivist) (97) 118
11.10. Cultural Psychology (99/101) 120
11.12. Psychology according to Maine de Biran (102/104) 123
12. Psychological intermezzo (105/113) 127
12.1. Cognition, Dewey on the thought process (105) 127
12.2. De Groot : objective research and 'forum' (106/107) 128
12.3. Ad De Groot on cognition (108) 130
12.4. Psychology of Non-perceptive Consciousness (109/110) 131
12.5. The human mind. And its brain. 133
12.6. The human mind as I (112/113) 135
13. Philosophy of Mind (114/130) 137
13.1. Return to the full reality of our mind. (144). 137
13.2. “I just don't think my brain (115) 138
13.3. The concept of 'spirit' interpreted contradictorily (116) 139
13.4. Metaphysics and 'Spirit' ('soul') (117) 140
13.5. Conceptual a priorism (Engel) (118) 141
13.6. Eliminativism (cognitive philosophy) (119) 142
13.7. 'Fundamentalist' creationism (120) 143
13.8. Science explained to the public (121) 145
13.9. 'Dionus' and 'God' (cognitivistically interpreted) (122) 146
13.10. Power and limits of introspection (123) 147
13.11. The unconscious explained by consciousness (124/125) 148
13.12. The 'unmanageable' concept of 'consciousness' (126) 150
13.13. Paranormal phenomena and cognitivism (127/128) 151
13.14. Normal, paranormal, abnormal 'spirit' (129) 153
13.15. Fractalism (130). 154

By way of introduction (incl. 1).

For a quarter of a century, the cognitive sciences have been revolutionizing our view of life. In the USA, they are taught at all universities. They disseminate thousands of publications. Experience, memory, intelligence, reasoning, and consciousness are central to them. It amounts to a kind of extensive 'psychology' explained logistically and physically—understand: the humanities and philosophy of the humanities. It is therefore one of the tasks of the Hivo to examine this more thoroughly.

A two-part pedestal . -- We are drawing this out.

Philosophy of the mind is the philosophical superstructure of a set of subjects.

Artificial intelligence	Cognitive psychology
Linguistics	Neuroscience or brain sciences

The lower section is twofold:

Logistics,	Physics, -- and related fields.

Note: It may be surprising that a materialistic way of thinking and its elaborations are discussed in such detail. For, within Christian Platonism, which represents “the great tradition,” this seems like a kind of contradiction.

But look: what is Platonism? A recommendation by *JB Store, *Quand le corps prend la relève** (*Stress, traumatismes* *), Paris, O. Jacob, begins with the following:

The mistake widespread among people today consists in wanting to address the healing of the body and that of the mind separately.

Thus wrote Plato, who lived from 427 to 347.

Cartesian dualism is attributed to Platon relatively regularly. That is a “mistake widespread among people today”. For Platonism, body and mind formed a unity, although the distinct essence of both was respected.

This makes it understandable that, certainly from a Platonic standpoint, the thorough study of a contemporary materialism that reduces or denies one of the two aspects of body and mind provokes no objection whatsoever. It is with this in mind that we study the following.

COGN2.INL.2

Terminological note .

Instead of 'logical' – unless it concerns traditional ('natural') logic – we almost always use 'logistical'. The reason: logistics is not logic. Whatever logisticians may say about it. Logic relies on (entire or partial) identity regarding data ('circumstances').

Logistics works with symbols, -- preferably in propositions. Instead of 'physical' - unless it concerns something other than the physical - we almost always use 'physical' by analogy with physicalism. In the great tradition, 'physical' is called anything that, according to nature (Gr.: fusis; Lat.: natura), is of something (whether it is physical or not).

'Cognition'. -- (01). - Some descriptions.

Semiotic language analysis . -- (02/12). -- Language object/ language/ metalanguage. --

Relations. -- **a.** Syntax (05). **b.** Semantics (06/09). **c.** Pragmatics (10/11). -- Constructionism (12).

Note: -- Upon the elimination of both pragmatics (the intended result of a preservation) and semantics (the meaning or content referred to in that assertion), only syntax remains (a concatenation of meaningless and resultless symbols). -- That is the foundation of logistics, which aims to be essential syntax regarding speech.

Logistics . -- (13/17).

Calculating with symbols (symbolic calculation) but in such a way that it proceeds in a formalized (axiomatic-deductive) structured manner (13/15). - Classifications (16/17).

Criticisms. -- (18/39).

Neo-rhetorical (18). Metaphysical (19). -- Logical (20/39). -- Materialist cognitivism is a logistic empiricism (positivism). - Natural or traditional (actually ontological) logic is regarded by logisticians as part of folk psychology (except perhaps in predicate logistics) and is therefore not interpreted (unless pre-scientific). Once again: where logic focuses on (total or partial (analogous)) identities regarding data, logistics focuses on symbols and their relations of a syntactic nature, preferably expressible in propositions.

Hypothetical sentences (22). Identity (23/24). Freedom from contradiction (25/26). The radical distinction between word (name) and term (27).

Distributive and collective concepts as a basis (28). Judgment (similarity or coherence model) (29). Generalization/generalization (30). Quantifiers (31/33). Relations as partial identities (34/35). Natural reasoning (36/39).

Logic differs from logistics on all those points. We believe there are ample reasons to uphold the distinction against all possible 'identifications' (which misunderstand both logic and logistics in their essence).

COGN2.INL.3

Reductionism(s). -- (40/47). -- As a reminder. -- A materialist asks himself whether: “How material (material) is something and how is it material?”. To be consistent, he would have to replace the term 'being' with 'matters': “Does anything matter?” (for: “Is there something?”) and “What matters that?” (for: “What is that?”).

Phenomenological . -- Is a phenomenon, i.e., that which shows itself directly, only that which shows itself materially. -- Logical. -- Is re-Logical. -- and only that which is materially a reason or basis (material explanation).

Physics (and science based on the physical method). Since for modern physics “nature” is practically (and also theoretically) “matter”, physics is “science” from a materialist standpoint. It is the infrastructure (foundation) of every true, hard science.

These matters (the essence and also, and especially, the limits of physics) were discussed in more detail in metaphysics (second year). Here is only what follows.

Edw. Wilson's reductionism (40). Biogenesis (41). Causality (including of conscience) and laws (42/44). Genetics (45/47)

Cognitive sciences . -- (48/54). -- Genesis (48). Four specialized sciences and a philosophy (49). Metacognitive psychology (50). Model concept (51). Computational analysis (52). Sketch (neuroscientific (53). —

Note : the model is decisive.

1. *Brain science.* -- Brain (55/58). Accountable behavior (59). Free will: illusion? (61). Language (62). Eccles' hypothesis (63).

2.1. *Computer* . -- (64/73). -- Cybernetics (64/66). Computer (67/68). Algorithmic thinking (69/70). Chemical algorithm (71). Something about connectionism (72). Neuron network (73).

2.2. Linguistics . -- (74/79). -- Question regarding formalized language use (74). Chomsky's linguistics (75/77). -- Inconsequent language phenomena (78). Text science (rhetoric) (79).

3. Artificial intelligence . -- (80/83). -- Origins (80). Machine language use (81). Semantic networks (82). -- R. Pentrose on consciousness thought of as machine (83).

4. ***Cognitive psychology*** . -- (84/104). -- Some samples are thematized. -- Causal understanding (84). Cognitive and information processing psychology (85). Traumatic neurosis in Pavlov's dog (86/87). -- Origin of cognitive psychology (Jer. Bruner) (88). Brain scanning (89). Placebo (90/94). Actual knowledge (95). “I have lost my keys” (96). Aha moment (97). Cognitive ergonomics (98). Cultural psychology (Bruner) (99/101). Maine de Biran (“I also exert myself physically”) (102/104).

COGN2.INL.4

Psychological Intermezzo . -- (105/113). -- J. Dewey on the thought process (105). De Groot (objective research / forum) (106/107). De Groot on cognition (108). Psychology of non-perceptive consciousness and cognition (109/110). Mind and brain (Würzburg School) (111). Mind as I (Würzburg School) (112/113). —

Note : -- This is just to show that current materialist cognitivists had predecessors in the cognitive field.

Philosophy of the Spirit . -- (114/130). -- It would be better to speak of 'philosophies of the spirit'! For if there is anything about which 'experts' (the current intelligentsia) are radically divided, it is spirit!

Return to “spirit fully” (Pols) (114). “I just don’t think with my brain” (P. Ricoeur) (115). Contradictory interpretations regarding spirit (Clifford Geertz) (116). Metaphysics and 'spirit' (117).

Conceptual a prioriism (Engel) (118). Eliminativism (119). Excursus: “fundamentalist creationism” (120). Dawkins' concept of 'science' (121). 'Dionysus' and 'god' (interpreted cognitively) (122). Introspection (power and limits) (123). The unconscious interpreted by consciousness (124/125). Consciousness (as an unmanageable concept (126). Paranormal phenomena (cognitivist) (127/128). Normal, paranormal, abnormal mind (129).-- Fractalism (130).

Note: One can see that there are a variety of 'packages' available to those wishing to engage in self-study. Therefore, there is no “actual treatise” (in the classical style of the great systematic philosophers). However, the sheets are samples and these have been placed on index cards. One can supplement them with other information that fits somewhere within one of the packages. One simply slides one's own cards in between the others.

October 12, 1999.
Deo trino et uno Mariaeque reginae
Universi gratias maximas.

COGN2.1

1. The concept of 'cognition' (2.1)

J.-Fr. Dortier, Les sciences humaines , Auxerre, 1998, 207, says that the “cognitive sciences” constitute a “dissimilar nebula”.

Specialized sciences (psychology, artificial intelligence theory, neuroscience, linguistics, “philosophy of mind”, not to mention genetics) with their sub-sciences compete with one another to come up with their 'models'.

The axioms also raise fundamental questions: brain scientists and computationists seem to reduce 'mind' and 'thinking' to the subhuman level.

Hence the difficulty in clearly defining the concept of 'cognition'. -- Nevertheless, an attempt.

J. van Meel, Cognitive Development in: *H. Duijker et al., Codex psychologicus* , Amsterdam/Brussels, 1981, 315/328, asserts that the object, the 'phenomenon' called 'cognition', amounts to “the higher mental processes” in the human psyche. This comes down to: the manner in which man (however defined) receives, processes, encodes (captures in symbols), and 'remembers' information (memory that stores and, if desired, makes it available for use again).

If “man” is defined as a type of (self-)active system (which is a systems-theory definition), within which many relatively independent subsystems (sensory perception, intellect, language ability, memory, volition, etc.) are situated, then man immediately exhibits a multitude of objects—phenomena, or better: sub-phenomena—for inquisitive scientists. Add to this social cognition: man develops information processing collectively, with fellow human beings.

H. Benesch, Atlas de la psychologie , Libr. Gén. Franc., 1995, defines it in much the same vein (pointing out that unconscious and subconscious cognitive processes, metacognition, and mentally disturbed intelligence are partly part of the phenomenon of 'cognition') – distinguishing between introspective methods (starting with the Würzburgians) and extrospective methods.

The latter comprise some seven sub-methods: brain waves, skin potential, muscle responses (micro-vibrations), heart responses (blood pressure), respiratory responses (frequency/volume), 'lie detector' (fingerprint responses), electroencephalogram, which can reveal aspects of 'cognition'.

COGN2.2

2. Semiotic language analysis. (02/12)

2.1. Language object/ language / metalanguage (2/12)

Bibl. st .: *IM Bochenski, Philosophical methods in modern science* , Utr./Antw., 1961, 45/89 (*The semiotic methods*).

Aristotle, following in the footsteps of the Protosophists and Plato, already incorporated semiotics into his theory of judgment. The background is: someone says something about something, expresses something (= judgment) to someone. -- Let us take: “It is sunny today”. As a sign, this statement exhibits a threefold aspect.

1. *Syntax.* -- The phonemes “het, is, vandaag, and zonne” stand in a well-defined relationship to one another in the Dutch code (language system). Syntax studies these mutual relationships.

Note -- Medical semiology (symptomatology) will, for example, derive a syndrome of symptoms from the components “very difficult concentration, difficulty speaking, poor sleep, nerve pain” as a whole (system) (perhaps someone who works with toxic substances). Syntax sees the syndrome.

2. *Semantics.* -- The phonemes “it, is, today, sunny” mean something. In other words: they refer to a domain of reality. In this case: the verifiable fact that the present is indeed sunny. This determines the truth value of the sentence.

3. *Pragmatics* . -- The sentence is part of a communication between, for

example, a man who says: “It is sunny today. Shouldn't we head out for a bit?” The language use or wordplay is to “incite,” “propose,” which influences his wife. The language use is then clearly performative or significant (creating an understanding).

The (sufficient) reason or basis of a sentence (judgment). -- The term 'reason' or 'basis' comes from justification theory (a branch of logic). -- Semiotically, the reason of a sentence is threefold.

1. *syntactically:* the sentence is what it should be, thanks to the correct mutual relationships of the phonemes;

2. *semantically:* the sentence is what it should be thanks to the truth (agreement with the referent) it contains:

3. *pragmatic* (significant): the sentence is law it must be, thanks to the truth-value in the service of a proposal (which is assumed to be sensible in the situation in which the sentence is spoken).

Let us remember that a text is a coherence of judgments, and that as such (requiring a three-part reasoning) it can be analyzed in this way.

COGN2.3

The language object and language and metalanguage.

Library st.: *I. Bochenski, Philosophical methods in modern science* , Utr./Antw., 1961, 72v. (Semantic steps).

Let us repeat: semiotics studies **a.** syntactically (concatenation), **b.** semantically (reference), **c.** pragmatically (result-oriented) everything that is a sign (symbol, signal).

1. *Presemantic.*

The object or given. -- An unnoticed girl. -- That is indeed the present but unnoticed given: that which one does not pay attention to, one does not speak about (neither with the inner word nor in language). Language therefore does not yet exist, for there is not even a phenomenon, that something that reveals itself. This is called the semantic zero stage.

2.1. *First semantic degree:* object language.

One becomes aware of the girl and says: “That girl is there.” -- Because there is a phenomenon, there is cause for language, for articulation. And

indeed, a language that literally clings to the object: the given enters the sign system.

2.2. *Second semantic degree:* metalinguistics.

It happens that we pay attention to our speech: the speech itself becomes a phenomenon (of awareness). Words are cited. In direct speech ("I just said: 'That girl is there.'") or indirect speech ("I just said that that girl is there"), I speak a language about language, a metalanguage. This is because attention is not paid (unless indirectly) to the object ("That girl there"), but rather to what is said about it.

Lying language.

When a liar speaks and indeed utters a lie, then, provided there is sufficient inner life, he hears the voice of his conscience: "What you just said is untrue." Or he expresses himself regarding his speech in this way: "What I am saying now is untrue." The liar is thoroughly pragmatic: semantics is subject to pragmatics. But his metalinguistics restores the right of semantics (the truth value).

As long as an outsider cannot verify "what he says," such language is undecidable regarding its truth value. Semantically undecidable. For both truth and falsehood may be involved.

Note -- Scientific language is first and foremost object language, yet theory about scientific language is metalanguage. -- Thus, linguistics is metalanguage as language about language. For example, there is logic and metalogic. After all, our consciousness exhibits a first and a second 'intentio' (paying attention, or attention).

COGN2.4

Relations as the basis of syntax.

Library st.: *J. Royce, Principles of Logic* , New York, 1961 (1912-1) 937/47 (*Relations*).

Royce (1855/1916) was an idealist, but under the influence of Peirce's pragmaticism. -- Logic, understand: logistics, is for him applied harmology (theory of order). In this, the observation of relationships naturally plays the leading role.

1. *Basic concept*

If there is one concept of the greatest importance in the entire theory of

order, it is expressed in the term 'relationship': “Without this concept we cannot take a single step forward in this matter” (oc, 38).

2. Definition .

However, if it comes down to defining 'relationship', there is only one way out: to use other terms that, in turn, presuppose that one already knows what 'relationship' is. Apparently, Royce realizes that one can say, for example: “A relationship is something like a given and at the same time another given and what is situated between those two (takes place, is realized, etc.)”. But then one has already presupposed what one wishes to define, namely the abstract relationship itself.

Method of application models.

However abstract “given 1” and “given 2” may be, they represent concrete data. To quote I. Kant: “Without concrete examples (applications), abstract definitions (rules) are empty. Without an abstract definition, concrete examples are blind.”

Royce, as a logistician, prefers an abstract definition. But look: if we say “someone’s father” is one applicative model of the concept of 'relationship' (a regulative model, that rule), then for the beginner in logic, the 'dead' concept of 'relationship' begins to 'live'.

Nevertheless, Royce's method, which states that relation is something that obeys the (abstract) formula ('function') 'xRy' (understand: x is related to y), is theoretically the best.

If 'syntax' is the study of relations, then we now have the pedestal, the concept of 'relation', before our eyes. This insight, however abstract, will allow us to see infinitely many 'application-based' models (examples, applications) of the one concept of 'relation'.

COGN2.5

2.2. Something about syntax (5)

Library st.: *M. Sergeant, Language and Logic* , Baarn, 1274, 9v.. -- Both the truth value and the use value of a language, or rather: a sign system S, are “bracketed”, so that we end up in full abstraction. Empty shells – symbols – and combinations thereof are the object.

Appl. model *-- I. Bochenski, *Wijsgerigemethoden in de moderne wetenschap** , *Utr. / Antw.*, 1961, 49, says: one can propose purely

conceived rules and, for example, invent a syntax, a system of symbols and combinations S, in which only P and x are accepted as symbols, -- together with the syntactic rule “P always stands for x”. What P and x might mean semantically or pragmatically is completely neglected.

Syntax . -- This refers to two aspects.

1. *Terms* . -- For example, one says: “A term – symbol, set of symbols – is determinable by means of – note the relationship – some other terms; or: “A term is reducible to some other terms); even though it is not determinable by means of those other terms”.

2. *Judgments* . -- One says, for example: “This judgment is incompatible with some others.” Or: “This judgment can be derived from this or that judgment.” Furthermore: “This judgment is independent of the other one.”

Note : In formal logic (Platon, Aristotle) – and also in speculative logic (Hegelian) – we will regularly encounter such ways of saying things, but filled (the empty shells of pure syntax are filled) with significant terms.

In doing so, Sergeant relies on *Rud. Carnap* (1891/1970; *Der logische Aufbau der Welt* (1928)), who wanted to make thought free of metaphysics.

1. *Descriptive syntax.*

Specimens of language are examined regarding the relationships between the constituents and the relevant rules.

2. *Pure, understand: axiomatic syntax.*

Rules are established, as in Bochenski's small model above, regarding terms and well-formed expressions in a system S. This concerns formation and combination, for example, the provability of a theorem or its derivability in S.

This 'rib cage' of linguistic usages is discussed in a padded form in formal and certainly in speculative logic.

COGN2.6

2.3. Logical semantics (understood psychologically) (6/9)

Library st.: *C. Sanders et al., The Cognitive Revolution in Psychology* , Kampen, 1989, 139ff.

The framework is the psychology of understanding, but in terms of natural

language use (and natural thinking). The intelligibility of language use for the listener is at stake.

1. *Truth.* -- *Alfr. Tarski, Logic, Semantic, Mathematics* , Oxford, 1956, defines 'truth' as follows: -- “My sister is there” is a sentence. Symbolizable in p. -- Now, “If and only if p, then p is true”.

Application: only if my sister is there now (current event), is that sentence true.

Note-- An application of the axiom of identity.

2. *Meaning* . -- Following *Rud. Carnap, *Introduction to Semantics and Formalization of Logic* *, Cambridge (Mass.), 1968, it is stated: “If the conditions (situation, 'context') under which a sentence is true are known (by the speaker and the listener), then what the sentence means (event, fact as actually true) is known”.

In other words: if the person who says “My sister is there” expresses a fact (event) that is true (actually true: at the moment of the statement), then the sentence is logically meaningful.

References. -- Library st.: *Gotl. Frege, Ueber Sinn und Bedeutung* , in: *Zeitschr. für Philosophie und philosophische Kritik* 100: 25/50.

The 'Sinn' of a sign expresses the conceptual content ('Vorstellung') associated with it; the 'Bedeutung' (reference) is the reality signified by the sign.

'Morning star' and 'evening star' differ in terms of 'Sinn' but refer to the same reality, the planet Venus.

1. *Intentional meaning.*

“The weather is nice: -- The meaning of that sentence is clarified by listing the elements that make up nice weather: virtually no wind, absence of rain, summery atmosphere, etc. When the listener understands those elements, he immediately understands all possible “nice weathers”, based on the context that the elements constitute nice weather.

2. *Extensional Meaning (size)*

It is a current fact that the weather is fine. We then say to a listener: “The weather is nice.” From this single instance of nice weather, we make clear to the listener what we (and immediately he/she) understand by this one piece of nice weather. That, too, is meaning (communicating and making grasped).

COGN2.7

The ontology of logical empiricism.

The Vienna Circle in particular (founded by M. Schlick in 1923) put forward a twofold axiom as logical empiricism: “If, and only if, it originates from sensory experience (perception, sensation) and can be expressed logically (read: logistically) in meaningful statements, is knowledge truly knowledge”.

Note: As *M. Apel, *Philosophisches Wörterbuch* *, Berlin, 1946, 65, states, empiricism is an old tradition that begins with the Stoics and the Epicureans but is strongly present in the modern Anglo-Saxon world (Fr. Bacon, especially J. Locke).

1. *Linguistic empiricism: well-formed propositions.*

Every language exhibits a grammar (syntax) based on conventions: “Iris is a beautiful girl” is well-formed, but “Iris plein langs” is not.

2. *Sensible, well-formed propositions* .

This refers to the phenomenology of the empiricists. -- Anything that is perceptible through the senses is truly a 'phenomenon' that reveals itself directly. The empiricist tests all statements against this.

If, and only if, well-formed judgments are testable ('verifiable') by the senses, do they make sense (are they meaningful or sensible). – “God exists” or “Egyptians worshipped the sacred cat in antiquity” are not, because 'God' or 'sacred' are unperceivable by the senses.

It is so clear that empiricism is engaging in ontology (metaphysics) in an aggressive manner with this. Or rather: very naively, for with its criterion (means of knowledge), it knows in advance that, even if there were an experience of God or an experience of the sacred—as religions claim—this would be tested exclusively on the basis of sensory experience, which is nowhere proven to be the only access to total reality, to being.

3. *Truly sensible propositions* .

Truth is reduced by empiricists to truth perceptible through the senses, such that statements like “God exists” or “Holy cat” do not even qualify as truth or falsehood. Hence, physics is a fundamental science.

It was precisely that double axiom—empiricism and logistics—that the logical empiricists attempted to 'found' even all specialized sciences as their unifying basis. Excluding all metaphysics, of course. In this way, the

specialized sciences were 'emancipated' from the grip of metaphysics.

COGN2.8

Language game theory (L. Wittgenstein), viewed semantically.

Ludwig Wittgenstein (1889/1951), known for his *Tractatus logico-philosophicus* (1921), written in the wake of B. Russell's courses he attended, radically turned against his first book with his *Philosophische Untersuchungen* (1953): he replaces Russellian atomism regarding world and language with a theory of language games.

Appl. model -- "I have seen the sun rise" is said by common sense. "The sun does not rise (but the earth rotates around its axis)", is the language of the physicist. "Today the sun has risen 47 times," says Le *Petit Prince* (by *A. de Saint-Exupery* (1943)), the language of a fairy tale.

In other words: only if one understands the three statements about the sunrise from the axioms specific to the three viewpoints (perspectives) that decide on the 'sense' (meaning), can one express an opinion on the reference, i.e., the reference to reality, and thus on its truth value (true / false).

Note: In medieval scholastic hermeneutics (the study of interpretation), it is said that one material object (sunrise) is susceptible to more than one formal object.

Life forms

Social life—Wittgenstein is fundamentally very sociologistic—exhibits a multitude of forms of life: producing goods (economy), the intelligentsia (sciences, arts), religions, and political activities. Each of these domains exhibits its own linguistic peculiarity, a language game that actually constitutes a distinct sector within the general language.

Truth as the stakes a small sector. (// Platon's "little man")

Wittgenstein believes that life is very little about the truth:

a. there is arithmetic, scientific language;

b. but there are commands, praying, singing, and lying that bracket the "objective truth" for something else.

He situates philosophy, particularly ontology, within everyday speech as a language game. Based on his axiom that traditional metaphysics cannot withstand physical-logical testing, he asserts that its language game is

substandard.

Note: If metaphysics cannot decisively prove its propositions, Wittgenstein is likewise unable to prove once and for all with his language-game theory that it is nonsense and therefore not susceptible to the attribution of truth.

COGN2.9

Something about semantics.

Library st.: *M. Sergeant, Language and Logic* , Baarn, 1974, 8v.

Semantics studies the relations between linguistic signs (as content) – they say something – and the objects and events (data) to which they refer – they say something about something –. They are signs "for something", where means "in place of". -- Relying on Rud. Carnap, *Introduction to Semantics* , Harvard Univ. Press, 1942-1, the author states the following,

a. *Descriptive semantics* .

She takes one or more examples of language usage and examines the truth value, inherent in terms and judgments, based on its rules. "Under what conditions, for example, is a sentence true?" is the question. The relations between the parts of speech (parts of the sentence) and the realities the sentence refers to are analyzed, for those realities determine the truth value of the sentence.

b. *Pure semantics.*

Understand: formalized (axiomatic-deductive) theory of meaning. An artificial system of symbols is introduced that is as abstract as possible (as syntactically mathematical as possible). This is regulated in three ways.

b.1. Formative rules determine what is acceptable as 'primitive' (initial, purely axiomatically presupposed) symbols and what as well-formed basic judgments.

b.2. Reference rules determine what can be considered directed towards reality (objects, events). -- For example: x1 denotes Anneke" or 'a' denotes the property "being intelligent".

b.3. Rules of truth decide what can be judged as 'true' or 'false'.

Note-- *P. Seuren, *Discourse Semantics* *, Oxford, 1985, analyzes the given statement A in terms of its meaning (semantic) within the statement system D (discourse). However, Seuren argues that the meaning of linguistic

utterances cannot be reduced to mere truth values.

Its study should either be supplemented or reduced to a broader view (of the grammar).

Indeed: take a sentence intended to be humorous, such as “The weather is nice to me today!” A purely syntactically formalized meta-language regarding this will struggle to “build in” the humor into “the system” of the relations between symbols.

COGN2.10

2.4. Language use (something about pragmatics) (10)

Library st.: *M. Sergeant, Language and Logic* , Baarn, 1974, As Ch. Lahr says: people in situations use language to express contents of consciousness. (Depending on the situations, we can distinguish 'language games', language uses, with L. Wittgenstein (1869/1951). We will briefly discuss the most striking ones. As pragmatics (significant).

1. *Auto*- implication

The one who speaks or writes is always involved in it in one way or another. In English: 'self-involvement'. Not only, as is sometimes claimed, in metaphysical (meaning: philosophical of life and the world), and especially religious speaking and writing, but in all linguistic expressions. One always puts something of oneself into language. Even the liar who seeks to conceal his inner self betrays himself.

2.1 . ***Determining*** .

(Also: positive or assertive; or didactic; -- English: constative). Thoughts, insofar as they are given, are expressed: “The sum of the angles of a triangle is equal to...” Or: “2 x 2 = 4.” Or: “It is raining”: Descriptive and narrative or reporting texts are assertive.

Note: Aristotle calls such a position 'apophansis' (hence: apophantic language). It is not merely a word.

2.2 . ***Arguing*** .

(Also discursive, argumentative). This use of language seeks to justify itself by articulating the (sufficient) reason or basis. Central to this is reasoning (“if, then”). In one word: language as a thinking instrument.

3.1. *Expressive* .

This use of language aims to express one's own inner feelings: “I am so happy!” Literature, especially poetic language, is expressive. “This little foot – and that little foot – went together to wait for the calves. – The calves walked in the corn.” Thus G. Gezelle.

3.2. *Performative*

This use of language aims to influence human situations by establishing understanding. “I order you to leave immediately!” “Holy Trinity, we beg you to save us from this painful situation.”

Note: Aristotle calls this mere 'fasis', meaning.

We will establish that, logically speaking, paying attention to language use is essential, because reasoning reflects language situations or 'language games' as forms of life (Wittgenstein).

COGN2.11

Logistics and magic and taboos.

Let us begin with an introduction.

H. Hempel, Variabilität und Disziplinierung des Denkens , Munich/Basel, 1967, 104/1307- Natural logic: “Something is or is not”. Variological (emphasizing becoming different) way of thinking: “Something is and it is not” and “Something is like this and otherwise”. Magical thinking: “Something is more than itself”. By 'itself', the author means “that something insofar as it reveals itself to Western man”.

This is how Hempel characterizes the three 'variants' of ways of thinking. -- He substantiates this with typically rationalist considerations (child mentality, primitive mentality, Renaissance magic, contemporary magic) and he seeks the 'more' in “invisible forces” (pc, 125). Hempel nowhere reveals the ethnocentric nature of Western interpretations of, for example, magic.

Avoidances.

*Gerh. Frey, *Logische Modelle der Tabu-Sprachen** , in: **A. Menne/ G. Frey*, ed. *Logik und Sprache** , Bern/ Munich, 143/158, interprets—or attempts to interpret—the ubiquitous taboos (avoidances) from the perspective of logistics and thus linguistically within the (linguistic) analytical tradition. -- “In which typical language forms do taboos manifest themselves?” Languages restrict free speech to what is not to be “avoided.”

a. *Earlier forms.*

Herodotus reports that Ionian women do not pronounce the names of their husbands. In some languages, one does not pronounce the name of a dangerous animal. -- Usually, unless the original custom falls into disuse, the reason is a sacred one (anything 'holy' can be dangerous).

b . ***Current forms.***

Wilh. Wundt (1833/1920) extends the age-old concept to the domain of sociology: our modern society also has things “that are not spoken about”. S. Freud (1856/1939) extends the concept of 'Taboo' to (depth) psychology: people with obsessive-compulsive disorder, for example, cannot “bring out” what bothers them (repression).

Following in Lukasiewicz's footsteps, Frey attempts to determine, in logistic symbols and their connections, which propositions express taboos. In doing so, he arrives at “the rejecting negation,” which 'rejects' certain propositions.

A language is thus divided into sentences that are not to be rejected and those that are to be rejected. Frey then specifies this in—for the uninitiated—extremely complex logistic formulas. One might wonder whether they shed so much light on the matter itself, namely, avoiding and that which is to be avoided.

COGN2.12

2.4. Constructionism (constructivism) (12)

Library st.: *M. Everard, Soul and Senses (On love and lust between women in the second half of the 18th century*), Groningen, 1994.

The book, apart from the fact that it is about lesbianism, is a plea for constructionism. “The 'essentialism/constructivism' debate has long since been decided in favor of the latter.” So what is 'constructionism'?

Constructionism

a. That is first of all a linguisticism: the name (the word) creates the phenomenon. In other words: there is, for example, no lesbianism as long as the word, the name, does not exist. 'Lingua', the language, establishes the reality which is nameless in itself. Linguisticism.

b. Communitarianism: the name is created by a community with its culture or, as is still said, by a way of life.

Differenti(ali)sme.

Hand in hand with construction goes

a. the absolute emphasis on all that is difference (and gap): the names that the groups or forms of life give to things that are in themselves meaningless are “Babylonian confusion”. They differ radically. This applies both synchronically (= from culture to culture; multiculturalism) and diachronically (= from cultural epoch to cultural epoch, historicity).

b. These differences (and gaps) arise both from the differences and gaps between the naming groups (and even individuals) and from the 'concrete' things assigned to those names, which differ so much from one another and 'are' so separated from one another that general names are fictions. In other words, there are no universal concepts. Only particular and singular ones.

Nominalism.

The collective name for differentialist constructivism is 'nominalism'. 'Nomen', name in Latin.

A. Foucault (1926/19B4).

Everard is a follower of Foucault, who argues that the term 'homosexual' is merely a construct. So much so that before the end of the 19th century, the moment when that term became common, there was no question of homosexuality. Language controls to such an extent what is attributed to realities!

Everard thinks the same way regarding the term “female homosexuality”: the phenomenon referred to by it did not exist in the 18th century because the word for it did not exist.

***Note**-- BU Hergemöller, homosexuelles alltagsleban im mittelalter* , in: *Zeitschrift für Sexualforschung* 5 (1992), 124, states that the term 'homosexual' as a general term is indeed usable for phenomena from before the 19th century.

COGN2.13

3. Explanations regarding formalized logic. (13/17)

3.1. Calculating with symbols (13/15)

IM Bochenski, History of contemporary European philosophy , Desclée de Brouwer, 1952, 270, writes:

“In fact, the founders of symbolic logic are not only not positivists but, on

the contrary, Platonists (G. Frege (1848/1925), AN Whitehead (1861/1947), B. *Russell* (1872/1970; at least when he co-authored Principia mathematica (1910/1913) with Whitehead *),* J. Lukasiewicz (1878/1955), Abraham Fränkel (1891/1965), H. Scholz (1884/1955; founder as a theologian of a Center for Logical Studies), etc.). It currently counts adherents in all schools." This should give pause for thought to those who claim that Platonism is no longer viable!

Three waves.

IM Bochenski (1902/1995), *Formale Logik* (1962-2), claimed that the history of 'logic' (which he understands primarily as formalized logic) counts three 'waves'.

1.-- ancient logic (fourth/third century BC);

2.-- Middle-aged logic (twelfth / thirteenth century);

3.-- the 'modern' formalized logic (since + 1850).

Between these periods—as Bochenski argues—there are long periods of 'neglect', indeed, of great unfamiliarity with 'logic'. Thus, of the modern period, he says: "The modern era since Descartes is so ignorant on the subject that any modern philosopher—with the exception of Leibniz (1646/1716) (who knew scholasticism well)—would have failed his first-year 'logic' exam".

Note: This typically formalistic language briefly reveals the self-assurance of some logisticians. They speak as if many a thinker who indeed lacks formalized logic were incapable of acting rigorously precisely for that reason. Which remains to be proven.

D. Nauta, Logica en model , Bussum, 1970, 22v., gives an overview of logistics, which he begins with *G. Boole, The mathematical Analysis of Logic* (Boole-algebra), G. Frege (Begriffschrift (1879)) and *G. Peano* (1895/1908: *Formulaire de mathématiques, a formalization of all mathematics*).

Nauta introduces metalogica with *L. Löwenheim* (1915: *Ueber Möglichkeiten im Relativkalkül*) – he places the cognitivist applications (computer science, neurology, linguistics) starting around 1950.

COGN2.14

Symbolic logic.

The logic applied—in most ordinates—is based on symbols that represent all data, such as images, numbers, and words, together with the reasoning rules. -- x, y, --E, >, =, --> etc. (*J-Fr. Dortier, Les sciences humaines* , Auxerre,

1998, 227).

Platonism.-- Briefly: in the Platonic tradition since antiquity, a symbol is called a 'lemma' (also known as prolèpsis), literally: foretelling. And the use of symbols is “the lemmatic-analytical method”. We will explain this using *O. Willmann, *Geschichte des Idealismus* *, III (*Der Idealismus der Neuzeit* *), Braunschweig, 1907-2 48ff.

a. *Plato.*-- Diogenes Laërtius III: 24 says: “Platon was the first to give the method of inquiry by means of 'analusis' (*note:* reductive reasoning) to Leodamas the Thasian”.

The 'strategy' consisted of entering the requested item as if it were already given (and thus known), and examining it on its terms (relationships). This second part is called 'analusis', analysis.

The characteristic feature is the pre-emption of the solution (as if the general relation was already the common relation). The full name should therefore be: “lemmatic-analytical method”. For the analysis only starts after the lemma, -- as the object of the analysis: namely, the analysis of the complex of relations in which it is contained.

b. *Francois Viète* (Vieta (1540/1603)).

Viète was familiar with the lemmatic-analytical method. He applied it and created algebraic calculus.

b.1. *Logistica numerosa* . -- The arithmetic of the medieval people knew the unknown (GV) and introduced it as 'remainder (the thing in question) and denoted it symbolically with 'r' -- NOTE.-- Later, Descartes would make it 'x'.

b.2. *Logistica speciosa* . -- *Viète* (*In analyticam artem isagoge*) introduced the following scheme:

idea (species)	2 + 3	a + b
universal non-surgical	private surgical	universal surgical

In other words: by starting from the Platonic idea (Lat.: species) and 'translating' (making editable) the nouns in numbers into letters (symbols), Viète opened the way to equations with unknowns (as lemmas) and immediately to algebraic analysis, analytical geometry, differential calculus,

and so on.

COGN2.15

Formalized logic.

One of the components of cognitivism is called “formal logic.” In cognitivist terminology, “formal” means “formalized,” i.e., developed according to the model of, for example, arithmetic, which we can all do.

IM Bochenski, himself a “formal logician”, says: “Formalism essentially consists in an extension of a method already known for centuries, namely arithmetic”. (*IM Bochenski, Philosophical Methods in Modern Science* , Utr./Antw., 1961, 5.

Incidentally: it is not surprising that the computer that 'thinks' in a formalized way is also called a 'calculator'.

Linguistic

Formalism strips all language—calculation language, for example—of all semantic content in order to work with empty syntactic 'shells' (symbols), i.e., to 'calculate'. What a or b, or even x or y, might mean, semantically speaking, is 'clashed' (placed in brackets). One works, as Bochenski says, with “blackened spots of paper”: he means the 'brackets' (connecting signs such as “---> “ (if, then)) and the 'eyes' (connected signs or symbols such as 'a'). This blackened paper, however, is 'processed' logically, i.e., according to syntactic rules to be established.

Conclusion -- Use of language that is as syntactic as possible.

Axiomatic-deductive.

Moreover, such language usage is provided with basic signs and basic connections: the axioms. These axioms govern the further elaboration of the entire “logistic system”. One point: that system must be free of 'paradoxes' (= contradictions) down to its ultimate consequences.

Note-- We refer to e.g.

-- *E. Agazzi, Modern Logic* (*A Survey*), Dordrecht, 1981 (historical, philosophical, and mathematical aspects of modern logistics and its applications; considered a standard work).

-- *W. de Pater/ R. Vergauwen, Logica* (*Formeel en informal*), Leuven/ Assen, 1992 (three parts: traditional logic; symbolic logic (incidentally: another name for 'formalized' logic); informal logic).

Note: The Association for Symbolic Logic advocates for a rearrangement in the pedagogical field: instead of “descending” from formalized logic to ordinary logic, this association proposes starting with informal (ordinary) logic and only then tackling formalized logic.

COGN2.16

3.2. Groups (16/17)

Logistics.

Library st. : *Phil. Thiry, Notions de logique* , Brussels, 1998-3. -- 'Logic' is a logic of objects and events insofar as these are expressed in valid (or invalid) reasoning (inferences), which are preferably expressed mathematically and symbolically, i.e., formalized. -- Classical logic (binary: true/false) comprises two parts.

1. *Propositional logic* .

Logic of unanalyzed sentences. Interpropositional logic. -- The smallest component is the sentence that expresses an event or a 'fact'. For example: “The flower is red”, “Angela is going up the mountain”. -- From such (minimal, called 'atomic') sentences, 'molecular' propositions are combined.

Note: It is the re-establishment of the logic of the compound judgments of the ancient Stoics (nominalist).

2. *Predicate logic.*

Logic of analyzed sentences. Intrapropositional logic. -- The smallest component is a single term within the proposition: 'bean', 'bag'. It concerns objects.

Incidentally: the proposition expresses a relationship between objects or sets of objects. -- The object is defined by situating it within a class of objects. For example: 'beans'; 'bags'. Logic then situates these classes between classes. -- Result: classification logic.

2.1 . ***Old predicate logic.***

From Aristotle to St. Thomas Aquinas to Leibniz. -- This is called “natural logic” because it is based on everyday language. It was elaborated in a remarkable way by Aristotle in his Organon.

2.2. *Modern predicate logic*

quant(tifica)tor logic.-- It re-establishes Aristotelian predicate logic,

developing it further by expressing it symbolically-mathematically. Which increases its accuracy.

3. *Non-classical logics.*

These are not binary (true or false). -- For example: modal logic (necessary/not necessary / necessary not). For example: multi-valued logic (besides true/false, also 'neutral'; as in the sentence “Anneke is going on a skiing holiday tomorrow” (one does not yet know if it will ever be 'true')). For example: degraded logics (e.g. Heyting). For example: chronological logics (“What once was, is now, will one day be”).

Like this: the normative logics (mandatory/ permitted/ prohibited).

COGN2.17

Traditional, symbolic, and informal logics.

Let us pause for a moment at the classification in W. *de Pater/ R. Vergauwen, Logica* (*Formeel en informaleel*), Leuven/ Assen, 1992.

1.-- *Traditional logic.*

This part includes: validity problems, interpretation problems ('reasonable' interpretations), definition of fallacies, and syllogistics.

Central to this is the process of abstraction regarding human reasoning: logic starts from the phenomenon, the fact that man (= all people, insofar as they are endowed with reason in its realization) reasons in order to extract 'abstract' – as one now likes to say 'formal' – rules from it.

Note: Hegel and his followers placed emphasis on that process of abstraction in connection with the concern to adhere to the concrete-singular or concrete-particular which they define as the object of reasoning, viewed from “the general”.

2.-- *Symbolic logic.*

The usefulness of formalization is discussed.

Note: What is “pursued abstraction” in a Hegelian perspective, -- removed even further from the concrete phenomenon as seen from the general.

Propositional logic, predicate logic, and class logic are explained, in which classical syllogistics naturally returns in a formalized form.

Note-- *IM Bochenski, Geschiedenis der hedendaagse Europese wijsbegeerte*

, DDB, 1952, divides somewhat differently: **a.** fundamental concepts; **b.1.** Logic of propositions (theorems), **b.2.** Logic of predicates and groups; **b.3.** Logic of relations.

Note: Apparently, the classification depends on the accents placed at the beginning.

3.-- *Informal logic.*

's *Topika* is taken as a guideline here. 'Informal' logic is referred to as "philosophy of ordinary language" and as 'theory of argumentation'. This section concludes with the theory of definitions.

Characteristic here is not: "From premises which (GG.) derive which conclusions (GV)", but rather: "Given conclusions (GG) presuppose which premises (GV). One sees the shift, following in Platon's footsteps; from what Platon calls 'sunthesis' (deduction) to what he calls 'analusis' (reduction).

Incidentally: this proves that Aristotle is wrongly identified with mere theory of deduction. Which, nevertheless, occurs frequently. The impression is that the authors had pedagogical concerns.

COGN2.18

4. Neo-rhetorical criticism of logistics. (18/39)

4.1. Neo-rhetorical (18)

Library st. : *Ch. Perelman, Rhetorica en argumentatie* , Baarn, 1979 (or.: *L'empire rhétorique* (*Rhétorique et argumentation*), Paris, 1977).

Ch. Perelman (1912/1964), formerly a professor at ULB, is the founder of neo-rhetoric (new theory of argumentation).

Logistic positivism.

Following in the footsteps of G. Frege, "logical positivism" primarily upholds two axioms.

a. Rational is only the language and reasoning specific to mathematical physics and related fields: only 'facts' (material facts) and axiomatically -deductive rigorities 'count' as valuable.

b. All value judgments are therefore irrational—characteristic of activists, philosophers, legal scholars, etc.—because they are not "material facts".

Perelman.

"La nouvelle rhétorique" states that even logistic mathematical thinking prioritizes natural thinking.

1. Purifying natural thinking and argumentation—persuading and convincing fellow human beings (and oneself)—of its ambiguous terms and the accompanying ambiguity (poly-interpretability) is pure pretension on the part of the logisticians. After all, they project their unambiguities onto natural language usage, as is common practice in, for example, our daily newspapers or in erudite books, even on a daily basis. To logisticians, ambiguity is an unforgivable weakness.

2. Logisticians are blind to the immeasurable and unmeasurable usability of all kinds of natural language usage. For a term—even a multifaceted one—is, once within natural language usage, always situated. The circumstances in which arguments are made are the context that usually provides sufficient information to exclude all irresponsible interpretations.

When speaking in everyday life, it is unnecessary to explicitly cite all axioms and all information, for these are evident from the whole in which one communicates. In the first place, this is the prevailing culture in which everyone is raised and lives. Whoever knows it understands exactly what is being said, even if it is logistically ambiguous.

Logistics is precisely contextless speaking: the symbols and their connections must 'valid' outside of any context.

Behold the main ideas of neo-rhetoric: they literally put logistics in its place: outside of any context!

COGN2.19

4.2. Metaphysical critique of logistic thinking (19)

Library st.: *L. Fleischhacker, Beyond Structure* (*The Power and the Limitations of mathematical Thought in Common Sense, Science and Philosophy*), Frankf.aM, 1995.

O. Heldring, in a review, situates the work he praised. -- Contemporary philosophizing seems to be dominated by the struggle surrounding the value of scientific, particularly natural scientific, thought.

1. A broad movement in our 20th century elevates natural science to the

guiding principle of thought pure and simple. One need only think of positivism, naturalism, and evolutionism.

This equates 'knowing' with “knowing mathematical structures” of reality. This manifests itself primarily in logistics and engineering.

2. A counter-current—if we think of postmodernism (Derrida, Lyotard et al.)—does not believe in the absolute truth of mathematical-scientific thinking.

For every 'structure' is replaceable by a new one from ever-new perspectives, such that every mathematical-scientific product of thought is itself due for revision,

Note: Contrary to what G. Frege once dreamed of—a single, absolutely true logistics—current logistics is a set of different, indeed, contradictory logisticss.

Cf. *O. Heldring* in Tijdschrift v. filos. 58 (1996): 2 (June), 397/400.

For a Derrida, even scientific and mathematical thinking—together with our entire Western tradition—is a long rhetoric, the defense of debatable propositions.

Library st.: *Theo de Boer et al., Modern French Philosophers* , Kampen/Kapellen, 1993. The work shows us the deconstructive interpreters at work (Foucault, Ricoeur, Irigaray, Baudrillart, Levinas, Derrida, Lyotard, Kristeva).

Fleischhacker situates mathematical thinking between our world of experience and metaphysics. He himself is mathematically trained and investigates the foundations of mathematics from a metaphysics that centers intellectual comprehensibility and the unity-in-multiplicity inherent in reality. In this way, he “literally puts mathematical thinking in its place”.

COGN2.20

4.3. The difference between logic and logistics. (20/39)

Library st.: *G. Jacoby, Die Ansprüche der Logistiker auf die Logik und ihre Geschichtschreibung* , Stuttgart, 1962.

Oc, 5, the author summarizes what *Bruno von Freytag* (known for his * *Logik** (* *Ihr System und ihr Verhältnis zur Logistik* *), Stuttgart, 1955-1, 1961-3) demonstrated at the congress of philosophers in Bremen (1950). Amidst a lively discussion with the internationally assembled logistics experts there, von Freytag thoroughly clarified the distinction between logic and logistics.

Logic does not claim to be logistics, whereas logistics often cherishes the pretension of being logic.

Systematics

1. Logistics is mathematics. Logic is philosophy. Both are different sciences from the point of view of foundations (axiomatics), problem formulations, goal, structure, and method: logistics is a specialized science; logic is the foundation of legitimate reasoning.

2. A subject is never definable by means of another: to date (1962), all attempts to define logistics as logic have failed.

3. The object of logistics is mathematical symbols and their connections, both logical and non-logical.

The object of logic is something entirely different: the philosophical fathoming of what is called 'logical'. Whereas in logic, symbols constitute merely abbreviated terms.

4. Only one logic exists. However, there are logistic calculi (calculation techniques) with objects such as propositions (sentences, judgments), predicates (phrases), relations, and modalities (necessary/non-necessary/necessarily not).

Logically speaking, such calculi are based on partly second-rate assumptions and partly false assumptions.

Historiography.

5. The history of logic unfolds differently from that of logistics.

6. Logistic historiography regarding logic acts as if a part of ancient logic (namely the Platonic-Aristotelian) and of medieval logic was actually already logistic.

7. The belief that logistics was “the ideal of all logicians” cannot be established anywhere. Logisticians understand the term “formal logic” (di logic of the form or concept) as if it coincided with “formalized logistics.” History shows this.

COGN2.21

8. The main tenets specific to the megarieker Filon of Megara (-380/-300) - especially regarding proposition logistics - were adopted by current logistics.

8. The main propositions

Note-- A conditional clause ('sun.èmmenon') is 'true' in three cases:

VZ = w / NZ = w;

VZ = o / NZ = w;

VZ = 0 / NZ = 0.

It is 'untrue' in one case:

VZ = w / NZ = o.-- Where VZ = antecedent clause, NZ = consequent clause, w = true, o = false).

Completed: “If it is daytime, then there is light”.

If the earth flies, then it exists;

If the earth flies, then it has wings

(three implications to which Filon attaches the property 'true').

“If the earth exists, then the earth flies” (VZ = w / NZ = O) represents a false entailment (implication).

Following in the footsteps of the Stoics, modern logistics experts have adopted that type of propositional logistics, along with the concept of 'implication'.

One sees that since Philon, people have been 'calculating' with truth values (instead of prioritizing the concept of 'logical' as Platon and Aristotle did).

Logistic propaganda.

9. All attacks against logic tested in the present work proved to be without sufficient reason or grounds. Many of those attacks by the logisticians amounted to logical misconceptions on the part of logistics.

Logic, on the other hand, if applied correctly, works flawlessly.

10. Likewise, all attacks tested in the present work on *Carl Prantl, *Geschichte der Logik im Abendlande* *, 4 vols., 1855/1870-1, Leipzig, 1927-2*, a work that invariably forms the basis of all research in this field, proved untenable.

Note: We refer to Jacoby's in-depth work for the proofs in detail. However, we will present here a few samples that clarify the fundamental difference between logic and logistics. We agree with Jacoby regarding his cardinal count: logistics is a method of dealing with truth values related to mathematics. It is best that it stays within its own domain and assigns logic its place within the totality of human insight and reasoning. Only under that condition can one treat one another with mutual understanding.

In any case, logistics is a break within traditional logical thinking, which,

incidentally, many logistics experts call “natural thinking” (immediately admitting that logistics displays something unnatural: it is artificial).

COGN2.22

Logic has hypothetical sentences as its object.

Library st.: *G. Jacoby, Die Ansprüche der Logistiker auf die Logik und ihre Geschichtschreibung* , Stuttgart, 1962, 59f..

To the Stoics, the logisticians attribute hypothetical reasoning that is the subject matter for their propositional calculus; to Aristotle, however, they attribute categorical reasoning which they incorporate into their predicate calculus.

Criticism.

1. Logistically, there is a difference between those two calculations.

2. Logically, it is completely different. There is no difference.

Categorical formulation.

All girls are beautiful. Well, Heidi is a girl. So Heidi is beautiful.

Hypothetical wording.

If all girls are beautiful and Heidi is a girl, then Heidi is beautiful.

Joh. Fr. Herbart (1776/1841) is cited by Jacoby.

“In logic, all categorically formulated judgments are in fact, insofar as they are logical, hypothetical judgments. A judgment, however, sheds its hypothetical essence as soon as it steps outside the domain of logic.”

Jacoby's reaction.

Quite right! For logic has “if, then” sentences as its object insofar as they contain either full (*note:* in a definition, for example), partial (analogous, i.e., partly identical and partly non-identical), or absent identities. -- That is the identifice of logic.

Distinguish.

That is the reason—according to Jacoby—why logic distinguishes purely hypothetical reasoning more sharply from mixed hypothetical reasoning. After all, logic limits itself to purely hypothetical sentences and reasonings.

In other words: it absolutely does not claim to be applied logic or epistemology or anything other than pure logic.

The mixed hypothetical reasonings in which a predicate expressly expresses a fact or given as true or false, or undecided or undecidable regarding truth or falsity, belong either to applied logic (methodology) or to some science or philosophy or rhetoric—thus, for example, to logistics (in its propositional logistics)—i.e., to something other than logic.

So much for a very important distinction between logic that for that reason cannot be logistics, and vice versa.

COGN2.23

Logic is identical.

Library st.: *G. Jacoby, Die Ansprüche der Logistiker auf die Logik und ihre Geschichtschreibung* , Stuttgart, 1962, 9ff.

It is well known: 'natural' logic, in all its variants throughout its history, exhibits a single structure: concept, judgment, reasoning. This is confirmed, for example, by *Jörgen Jörgensen, *A Teatise of Formal Logic *, New York/London/Copenhavn, 1931. -- The question arises: which axioms underlie this classification?

'Logically'.

Logic begins with the definition of the concept 'logical'.

This reads “(validly) derived” (from presuppositions) either definitively (deduction) or provisionally (reduction). That derivation is the act of a subject or I, a person, -- not of a machine unless by chance.

That same derivation relies on states—in ontological language: realities ('beings')—which exhibit either total identity (with themselves), partial identity (analogy) (with something else), or non-identity.

In other words: if the derivation as an act is the subjective aspect, the reason or basis for it is the objective aspect.

Identitive.

'Identitief' is “anything that has to do with total, partial, or absent identity”.

In other words: not identity per se, but its variants are central to everything called 'logical'. -- “All that is (so), is (so)” conveys total identity. “This flower resembles that flower” refers to partial identity. “This flower grew from the earth” likewise refers to partial identity. “2 + 2 is not equal to 5” represents non-identity.

Definability.

What was just mentioned is obvious. Proving this from presupposed sentences is nonsense.

Descriptions.

In truly traditional anthologies, 'identity' is called 'unity'. Something—being, reality—is totally one with itself, is partially one with something else, is not one with the opposite.

In the Latin of scholastic anthologies, this is known as “Ens et unum convertuntur” (All that is reality is somewhere one; – totally one, partially one, or not-one). For the sentence is a summarizing slogan that encompasses all its variants under the term 'one' (which is often 'forgotten').

COGN2.24

Common characteristic.

This concept, which plays a central role in set theory (concept of order), is another word for “partial identity or analogy”.

Thus: “This flower and that flower exhibit as a common characteristic ‘red petals’ such that they resemble each other”. From the point of view of ‘red petals’, they are one, or identical.

Or like this: “2 + 2 and 4 exhibit as a common property “the sum “1 + 1 + 1 + 1”“ (summing) and thus, as a summing of four units, they are identical or one. Yes, 'similar' (so interchangeable as a sum).

Note: One sees that a multiplicity is brought into unity on the basis of partial identities (analogies) or common properties. This explains why ancient thinkers conceived of both “multiplicity and unity” together as a pair of opposites, as a unity of opposites. In ancient Greek: sustoichia. Translated into Dutch: 'systechie'.

Criticizable 'definitions'.

G. Jacoby mentions a few.

H. Reichenbach. -- He states that “all that is equal to itself” is identical.

Jacoby. -- The term 'itself' already presupposes the identity to be defined. The term “equal to” is only considered valid for “something that is equal to something else”, not to itself!

Incidentally: the mathematical equality sign '=' does not indicate an identity with itself. In this way, a number of logics between 1880 and 1850 confuse “A = A” with the axiom of identity “A is A”. (“Whatever is so, is so”).

D. Hilbert/Ackermann, Grundzüge der basisschoolen Logik , Berlin, 1938-2, states: “x is identical with y insofar as (if and only if) every predicate (phrase) that fits x also fits y and vice versa”.

If a predicate fits more than one subject, this presupposes that more than one reality exhibits one or more common properties and is therefore analogous, but certainly not (totally) identical.

Decision.

These two examples clearly demonstrate how imprecisely logistics experts define, or rather attempt to define, a basic concept like 'identity' (with or without the variants). Their mania for using (mathematical-sounding) formulations at all costs works against them: they are missing the point!

COGN2.25

Logic: contradiction-free but not an axiomatic-deductive system .

Library st.: *G. Jacoby, Die Ansprüche der Logistiker auf die Logik und ihre Geschichtschreibung* , Stuttgart, 1962, 52/53.

An “axiomatic-deductive system” is a set of statements beginning with a finite number of axioms, together with derivation rules that lead to theorems derived from the axioms.

1. Logisticians claim that natural logic is an axiomatic-deductive system, namely as a small part of the total system of logistics, which understands itself as an axiomatically-deductively formalized system.

To which Jacoby replied: “Logic is a conclusive whole of statements but not an axiomatic-deductive system”. For according to, for example, H. Scholz, following in the footsteps of A. Tarski, a class of expressions K is deductively conclusive insofar as one does not stray outside the system K by deriving from the axioms. In other words: all derivations from K coincide with K. Well, logic is not this.

2.1. *Logic: both reductive and deductive.*

Library st.: *O.Willmann, Geschichte des Idealismus* , III (*Der Idealismus*

der Neuzeit), Braunschweig, 1907-2, 48ff..

Plato knew the two basic types of reasoning perfectly.

' ***Sunthesis',*** (deduction).

If all flowers are beautiful and if this lily is a flower, then this lily is beautiful.

'Analusis' (reduction).

If this lily is a flower and this lily is beautiful, then all flowers are beautiful.

This latter reasoning gave rise to the lemmatic-analytical method (lemma = provisional interpretation), of which Plato was considered the initiator in antiquity. And which, via Viète, culminates in modern analysis (mathematical, logistic).

2.2. *Understanding, -- judgment, reasoning.*

This sequence is purely didactic, but not logical.

There is a single axiom: “All that is, is”. This places full identity with its negates (analogous and absent) at the center.

The axiom of contradiction is merely an explanation of this. But it prevents contradiction within logic and its logic-faithful applications.

Note: Just like 'being', 'one' (= identity) is empty as a transcendental concept as long as nothing else is added to it. Consequently, nothing can be deduced from identity. As *Aristotle* clearly states in *Peri herm. 3*, in fine.

COGN2.26

The axiom of the "excluded middle".

Library st.: *G. Jacoby, Die Anspruche der Logistiker auf die Logik und ihre Geschichtschreibung* , Stuttgart, 1962, 55/61 (Aussagelogistik).

Combining propositions into a contradiction-free, symbol-based calculation system such that the correctness/incorrectness of the propositions thus combined depends solely on the combined system: that is what logistics aims for.

Logic, however, deals with propositions insofar as they contain identity and partial or absent identity.

The principle of the excluded third party.

Logisticians claimed that they had "overcome the principle of the excluded third". -To which Jacoby replied.

1. ***Something is (so) or is not (so)"***

Understood as: "every third party is excluded". For it concerns the full identity of that something.

Jacoby states: "No one denies that, for without it there is no unambiguous understanding" (oc, 58)7- The question arises: "What is it about then?".

2.1. ***Let us begin with a statement*** :

Purely logically, one can pretend. But then we end up, for example, in the world of the liar.

2.2 . ***Multivalued logistics.***

I. Bochenski, Formele Logik , Freiburg/Munich, 1956.

A proposition of which we do not know whether it is true or false might possibly have no well-defined value regarding truth or falsity.

One might hold the view that the proposition "I will be in Warsaw next year" is neither true nor false and has the third undefined value which we denote by the symbol '1/2'.

Jacoby. -- "The confusion between truth and ascertainability is resolved here" (ibid.). -- After all, in logic, 'true' means "that which is identical with the objective state of affairs (that which exists)". Contradictory to this is 'false' (because it is not identical with the state of affairs).

In that sense, logic is radically dualistic and in no case triple- or multi-valued.

Logically, however, there is, for example, 'true' (testable and therefore

decidable), 'false' (testable and therefore decidable), and a third 'value', namely “untestable and therefore undecidable”. But then one is no longer in the hypothetical sentences of logic, but in the testable-decidable propositions of logistics.

COGN2.27

Concept (term) and name or word.

Library st.: *Ch. Lahr, Logique* , Paris, 1933-27, 491ss.

Lahr is a 'natural' logician. Here is what emerges from his exposition.

1. Our concepts – as just stated – are the more or less correct present representation of 'incidents' (to use Jacoby's word once again).

Note: 'Presentation' according to the scholastic adage “Ens et verum convertuntur”. 'Verum', Latin for the Greek 'alèthes', means “that which reveals itself” (that which is directly given).

Practical: everything that exists is either totally correctly presented in the present, or partially or not presented in the present.

2. Our concepts are expressed in 'terms' (Lat.: 'termini'). This term means “all that is a linguistic sign”.

As Lahr emphasizes, one should not confuse 'term' (the total linguistic representation of a concept) and word;

Like this: “two girls” expresses the same concept in two words, and these two words together form a term.

Incidentally: an algorithm is a single term but consisting of many words and even signs of a non-linguistic nature (e.g. a geometric figure). As long as these represent the present concept.

For example, “greater than” is one term (concept) expressed in two words. Or again: “grown from the earth”: a concept (term) but four characters.

So much for the essentials regarding the concept/term.

Content/ scope

Latin: “comprehensio/extensio”.

Thus, “two girls” refers to two instances ('elements,' according to set theory) as a limited scope (actually a sample) to which the conceptual content 'girl' applies. Similarly, “Mathilde d' Udekem d'Acoz” refers to a young lady.

Similarly, “Prince Philip’s fiancée” refers to a young woman who has become engaged to him.

That both terms refer to the same person is nowhere apparent from their pure conceptual content. In Kant's terms: no 'analytical' judgments are possible that demonstrate the unity of the two terms. That unity is only clear—'phenomenon,' say the phenomenologists, or 'directly given'—if one investigates, outside of those terms, the correct state of affairs to which both terms refer. But that they both refer to the same person is, in Kant's terms, a 'synthetic' judgment, i.e., a proposition that is only possible through testing.

COGN2.28

Concepts: distributive/collective.
Library st.: *Ch. Lahr, Logique* , Paris, 1933-27, 492/494 and 499/500.

Natural logic works primarily with concepts (conceptual logic). These invariably exhibit a twofold aspect: content and scope. Let us now examine this, for judgment and reasoning illustrate this.

Example.
The concept of 'humanity' can be interpreted in two ways. - “All girls are beautiful” (distributive) and “All girls together constitute the one girls' world”. Towards 'humanity': “all people” and “humanity as a whole:

Platon offers the pair of opposites “all/whole” for this, and scholasticism “totum logicum/totum physicum” (a class (mathematically: set) and a system). This immediately presents us with two modes of thought: class theory and systems theory.

Scope.
The classification of scope can be viewed in two ways. The distributive classification considers all instances individually, while the collective classification considers all parts (aspects, subsystems) collectively. All instances form the class (all girls, all people). All parts form the system (the whole person (the whole girl) or all of humanity (girls' world)).

Plato.
*EW Beth, *De wijsbegeerte der wiskunde* *, *Antw./Nijmeg.*, 1944, 36/37, cites a Platonic text that clearly and unequivocally proves how Platon views the idea as both distributive and collective, -- in his *revision of Theaetetus* in * *Filebos* * 18b/d.

a. *Distributive* .

The Egyptian story says that Theuth classified the letters into vowels, consonants, and semi-vowels. “He called each of them and all of them together 'letters'.

b. *Collective* .

None of them can be 'learned' separately, “without all the others” (dichotomy, complementarity),-- in the belief that there is a connection that made them all one.

A science.

The idea 'letter' ('gramma') thus breaks down into two aspects and awakens in our mind as a twofold concept, a distributive and a collective concept. Only these two human concepts together are, in our meager mind, an 'image' (model, information) of the idea as Platon perceived it. Platon immediately assigned all this to a science—'grammatike'.

COGN2.29

Judgment structure.

Library st.: *K. Bertels/ D. Nauta, Introduction to the Model Concept* , Bussum, 1969, 28.

Leo Apostel's definition.

GG . -- The realities ('systems,' says the Apostle) O, the unknown, and B, the known given.

GV . -- “If B, the known, provides information about the unknown (= original), then B is a model (which provides information) of O”.

This information amounts to either total identity (O/B) in a definition of O, partial identity (O/B), or non-identity (O/B).

The judgment

In a judgment, the subject, as the original, requests information, and the predicate, as the model, provides that information.

1. *Metaphorical model.*

This relies on similarity, a type of partial identity. -- Just as the rooster leads the hens, so Johnny leads his mates. In that role, Johnny resembles the rooster.

Metaphorically: “Jantje is (is = resembles) the alpha male of the comrades”. One senses the distributive structure. -- 'Jantje' = original; “is the alpha male

…" = model.

2. *Metonymic model.*

This relies on coherence, another type of analogy (partial identity). -- Just as a cause causes its effect, so good nutrition causes health. Good nutrition is causally linked to health. -- metonymically: "Good nutrition is (is = is linked to) our health".

"Good nutrition" = original; "is our health" = model.

Note: All judgments are either metaphorical or metonymic regarding the information provided by the predicate. Both forms rely on partial identity. The definition is a special case: it entails total identity of subject and predicate.

Note: It is evident that the judgment theory of natural logic is not a logistic theory.

G. Jacoby rightly criticizes the fact that in logistics, actual factuality (called 'truth') plays such a dominant role. Truth values (true, false) fall outside logic (they come into play in applied logic) because conceptual contents are decisive, and not actual truth or falsehood. Indeed, no small difference.

Natural logic does not immediately aim to be epistemology: this branch of philosophy is interested in the actual truth of judgments, whereas logic focuses on the justifiable connection between the preceding clause(s) and the concluding clause or conclusion.

COGN2.30

Generalization/generalisation.

Library st.: *Ch. Peirce, Deduction, Induction and Hypothesis* , in: *Popular Science Monthly* 13 (1878): 470/482.

Peirce distinguishes three main syllogisms or deductive reasoning.

1. *Analytical conditional sentence.*

Deduction. -- Rg. -- All beans in this bag are white. -- Tp. -- Tp. --, these beans are from this bag. -- Rs. -- Therefore Rs. -- beans are white.

Note: The pure contents of the concepts, considered together, necessarily lead to a conclusion based on analytical grounds.

***Note*--** Rg = rule; Tp = application; Rs = result.

2. *Synthetic conditional sentences.*

Peirce calls them induction and hypothesis (abduction). We call them 'generalization' and 'generalisation'.

2.1. *Generalization* .

These beans are from this bag. Well, these beans are white. Therefore—unless testing shows otherwise—all beans in this bag are white.-- Since testing provides a definitive conclusion, the conditional sentence is 'synthetic' (in the Kantian sense).

2.2. *Generalization.*

All beans in this bag are white. Well, these beans are white. So – unless testing indicates otherwise – these beans are from this bag. -- Once again clearly 'synthetic' (requiring testing before a definitive conclusion can be established).

The correct interpretation.

The expression “this bag” is either distributive (and leads to generalization) or collective (and leads to generalization).

Note: Just as the term 'general' (universal) leads to 'generalization', so the term 'overall' (a thoroughly known word) leads to 'generalization'.

Peirce knows that “some logicians” equate both lines of reasoning, as it were. Nevertheless, he states that the generalization rests on the “cause/effect” relationship.

Criticism. -- In that case, he focuses on the hand gesture taking a portion of the beans out of the bag. Whereas the reasoning actually relies on the bag as a collective concept (and not, as in the generalization, on the bag as a distributive concept).

Conclusion. -- Natural logic does not stand or fall with concepts, but with either distributive or collective concepts. In other words: it is thoroughly Platonic. Platon clearly saw the “all/whole” pair at the time. Just as the scholastics clearly saw the “totum logicum” and the “totum physicum”.

COGN2.31

Quant(ificat)oren.

Library st.:

-- *K. Döhmann, Die sprachliche Darstellung der Quantifikatoren* , in: *A. Menne/ G.Frey, Hrsg., Logik und Sprache* , Bern / Munich, 1974.3 92/118;

-- *Chr. George, Polymorphisme du raisonnement humain* , Paris, 1997, 65/84 (*Le raisonnement avec des quantificateurs et des variables*).

Summary by logistics;

The Aristotelianizing logic of scholasticism is summarized by George as follows.

1. Scholasticism reduces every proposition to the schema “S is P” (= subject - copula (being) - predicate).

2. Scholasticism uses “the logical square” with regard to quantifiers.
All S are P/ No S are P and Some S are P/ Some S are not P.

Criticisms.

We will go over it briefly.

1.1. The “S is P” scheme does not fit, for example, “Aristotle speaks,” because ‘is’ or ‘to be’ is not present.

To which scholasticism states: whoever says “Aristotle speaks” situates that statement in reality (in scholasticism 'being') and thus says “Aristotle speaks” (understood as: This is how it is. For what is (so), is (so)”)”. The copula, in other words, may be explicitly stated or not, but it 'works' ontologically.

1.2. The “S is P” scheme is not suitable for expressing relations. To which scholasticism:

a. that diagram is a kind of summary;

b . “Aristotle is more famous than Philon” fits into that scheme if it is not logistically misinterpreted. For 'P' stands for an adjective or a noun as well as for a relationship. After all, “more famous than” is a single concept (and ipso facto a term) but expressible in a plural of words.

Incidentally: a relationship is a property of something insofar as it is conceived including something else to which it is related. Scholasticism thinks of Aristotle and Philon together (otherwise one sees no relationship whatsoever between the two). Then it says, “S (Aristotle) is (copula) more famous than Philon (P).” Whoever confuses words with terms misinterprets what scholasticism means (and projects non-scholastic into scholastic language).

2. A sentence like “Socrates is mortal” and one like “All humans are mortal” are logistically unequal, because the second sentence fits the logistics regarding class inclusion, while the first does not. That may be true in logistics, therefore, but not in logic.

COGN2.32

3. George reflects on the infamous “ontological proof of God”. Starting from the purely human concept of “perfect being” (by which one then means God), which entails factual existence as one of its characteristics, one concludes that that “perfect being” actually exists.

George claims that such evidence could appear convincing “for nearly two thousand years.”

Since I. Kant, this is the name given to the proof of God's existence first put forward by Anselm of Canterbury (1033/1109)—which is slightly less than two thousand years (!)—that attempts to 'prove' God's existence from the pure concept of "perfect being" without any other presupposition.

In fact, Anselm was speaking of “the absolutely greatest being” above which there can be no greater. Such a being that exists necessarily is greater than a being that might possibly exist “in our thinking” and immediately does not exist necessarily in nature. -- His contemporary Gaunilo: “If that holds true, then an island above which there is no greater exists, also necessarily in essence”!

In other words: even in the early Middle Ages, people were not so naive about this matter.

What is relevant to George, however, is that one must handle the verb 'to be' with great caution. According to George, logistics circumvents such difficulties by

a. the introduction of n-determinate predicates,

b. of propositional functions,

c. the reduction of the quantifiers to two: “for every x it holds that (universal quantifier: V)” and “at least one x exists such that (existential quantifier: 3).--

Note: “x is an integer” is a function that becomes a propositional function if the variable is replaced by, for example, 1: “1 is an integer” is a true proposition, whereas “1/2 is an integer” is a false proposition.

Also: the scholastic quantifier 'some' (“Some girls are beautiful”) is rethought in logistics to “at least one and perhaps all”.

Note: Which in natural logic leads to a paradoxical statement: “Some can therefore mean all in an extreme case”. For whoever states that 'some' is

replaced by “at least one and perhaps” must perhaps identify 'some' with 'all'.

We leave logistic 'logic' for what it is. Only this: it is not natural logic. That distinction must be respected.

COGN2.33

The scholastic position.
We will now briefly discuss that.

1. *Distributive / collective.*
Döhmann, ac, 98, establishes the strongly developed tendency of natural languages to distinguish between distributive and collective totality. -- The Platonic systemechy “all/whole (class/system)” elevates this on a strictly philosophical level.

2. *Quantity/quality.*
*G. Jacoby, *Die Ansprüche der logistiker auf die Logik und ihre Geschichtschreibung* *, Stuttgart, 1962, 60, states that in natural logic the quantity of the subject and the quality of the predicate are (whether or not) logically meaningful. With full, partial, and absent identity in the background.

3. *Logic square.*
Behold. Both distributive and collective.

A--All girls are beautiful.	The entire landscape is beautiful.
E--Not all girls are beautiful.	The entire landscape is not beautiful.
I--Not all girls are beautiful.	Not the entire landscape is beautiful
O--Not all girls are unpretentious.	Not the entire landscape is not Nice.

It can be seen that the “S is P” scheme appears in eight variants. For example, “All S are P” or “Not the entire landscape (not entirely S) is not beautiful (is not P).”

Note: Döhmann, ac, 97, states that in natural logic one regularly finds 'some' for “not all”. According to him, in natural languages this means “a small number; “in any case excluding “exactly one”.

That may be true for natural languages, but in scholastic logic, “some or a small number” is merely a sample of the total concept of “not-all” or “not-whole”. Besides (singular) “exactly one” or (particular) “a large number” or “almost all, almost whole”, in no case all; for then not-all would be identical with all.

Note: Döhmann, ac, 93, sees the quantifiers mapped in the modalities.

G. Jacoby, o c., 61, sees three strictly logical modalities:
necessary/ non-necessary (possible, not impossible)/ necessary not.
Depending on the full, partial, or absent identity reflected in those modalities.

Note: Jacoby repeats it regularly: “die Identität und ihre Verneinungen” (where 'Verneinungen' means the negate of total identity). With good reason.

COGN2.34

Logic regarding relations.
Library st.: *G. Jacoby, Die Ansprüche der Logistiker auf die Logik und ihre Geschichtschreibung* , Stuttgart, 1962, 53/55.

Steller begins with *V. Kraft, *Der Wiener Kreis* *, *Wien*, 1950, who asserts the following: --”The mathematical statements do not fit into the construction of the judgment as traditional logic conceives it, namely ‘subject/copula/predicate’”.

Reason: mathematical statements formulate relations. -- Statements that attribute a predicate to a subject apply to 'properties' and 'classes'. But relations that essentially consist of two or more involved data ('relata') cannot be properly expressed in this way.
To this day, logisticians whine about the so-called powerlessness of logic regarding relations. Let us take a look with Jacoby.

1. Jacoby's general response: “That is correct regarding classroom logistics. Not in logic that works with concepts.”

2. A number of applications. -- Mathematical and other examples. -- The mathematical expression “3 > 2”.

Logical: “The relation “greater than” has one application in the instance “3

> 2”” “3 > 2”. Therefore “2 < 3”.

Logical: “The relation “greater than” is reversible into “less than”. Well, “3 > 2” is one case of “greater than”. So “2 < 3”.

One sees this is a perfect natural-logical syllogism!

G. Klaus, Einführung in die formale Logik , Berlin, 1958, states:

Aristotelian logic is not suitable for a logistic reasoning such as “x is smaller than y and y is smaller than z. Therefore, x is smaller than z”.

Jacoby's logical response: “x and everything smaller is smaller than y and everything larger. Immediately, z is greater than y. Therefore, x is smaller than z”.

Note: One sees that the tradition indeed reasons in terms of relations.

G. Klaus states: “If point O lies between A and B (an interval), then it also lies between B and A”.

To which Jacoby replied: “Relata (involved data) within an interval (space) remain within that interval even if the endpoints are swapped”. Well, O lies between A and B. Therefore, upon swapping A and B into B and A, O remains between B and A”.

Once again from a universal rule to an application.

COGN2.35

Note: One can see that Klaus, where he states that only the mathematical concept of 'function' (also present in mathematical physics), together with combining inherent to algebra, can handle the aforementioned reasoning, demonstrates a misunderstanding of logic.

D. Hilbert. -- Logistical: “If there is a son, there is a father”.

Logical: “A son without a father is biologically impossible. Well, whenever there is a son, there is a father. So, “if there is a son, there is a father.” Hilbert’s statement is the logical consequence of a universal preposition that the logistician does not even mention.

Afterword

1. The logistic reasonings above are—coincidence or not—in fact “immediate reasonings” (supporting a quasi-universal evidence). In fact—logically, not logistically—they are 'enthymemes', i.e. reasonings that omit one or more statements—can omit them precisely because they state evidential

facts.

2. Again: “3 > 2” or “2 < 3”. -- More generally, “greater than” or “less than” are perfectly logical terms (concepts) but can be expressed in a plural of words or a plural of characters (:).

Logisticians confuse words with terms (concepts) within logic because they project their language use onto logical language use.

Add-on. - Following Peirce's syllogisms.

Deduction.

All the beans in this bag are smaller than those in that bag. Well, these beans are from this bag. So these beans are smaller than those in that bag.

Induction.

These beans are from this bag. Well, these beans are smaller than those in that bag. So all the beans in this bag are smaller than those from that bag.

Let us call this reasoning 'generalization'.

Hypothesis.

All the beans in this bag are smaller than those from that bag. Well, these beans are smaller than those in that bag. So these beans are from this bag.

Let us call this form of reasoning 'generalization', because one reasons from a part (of the beans) to the whole (here called a 'bag') of the beans, which are thus designated as a collective. Whereas in the generalization those same beans are designated as specimens of a class (set).

Who says there that logic cannot reason with relations?

COGN2.36

Reason logistically and logically.

Library st.: *D. Kayser, Logique,* in: O. *Houdé et al., eds., Vocabulaire de sciences cognitives* , Paris, 1998, 250/255. Subtitle: “artificial intelligence”. Which says enough. Here is how Kayser introduces it.

The adjective 'logical', insofar as intuition is at work, refers to “a certain common sense” that exhibits its own form of reasoning and its own 'rationality'.

The term 'logic' – used here (understand: logistics) – has little to do with the intuition mentioned. Technically speaking, logistics is therefore defined as

“an (artificial language usage ('langage'), a deductive system and a calculus (logistic processing) that is interested in truth value”.

Such logistics—we translate its 'logic' by what it actually represents—is an essential instrument in artificial intelligence, but also in other cognitive sciences (psychology, linguistics, philosophy of the humanities).

Note*-- *In other words: this text, the virtually literal translation of Kayser's French text, leaves no doubt about it: not natural logic, but logistics!

Note: The rest of the article is a summary of the most elementary elements of logistics. Starting—as it should be—with propositional logistics as (artificial) terminology.

I.-- *Natural language and logistics.*

Library st.: *K. Döhmann, Die sprachliche Darstellung logicaler Funktoren* , in: *Alb. Menne / Gerh. Frey, Hrsg., Logik un Sprache* , Bern/Munich, 28/56.

The work starts from logistics ('Logik', of course) to examine what can correspond to it in natural-logical language.

This concerns, first and foremost, the 'functors' (propositional signs).

Note: They represent functors or what in natural logic means 'identity' (full, partial, and absent).

p and p (negative) (affirmative sentence and negative sentence). Cf. 'wel' and 'niet;

p ^ q (conjunction of two propositions). Cf. our ordinary 'and'.

pvq (disjunction ('vel')). Cf. “both p or “.

pwq (radical disjunction ('aut')). Cf. “either or” (only one of the two, p or q).

p / q (exclusion).

COGN2.37

Cf. “at most one of the two: (implication, entailment). Cf. “if (true), then (true)”.

***Note*--** Cf. “no p without q” (thus “no roses without thorns”) or “always if p, then q” (sufficient condition, i.e. p is necessary and more than p is not necessary to have q) or “only if p, then q” (necessary condition, i.e. at least p is necessary to have q). In Latin: “conditio quacum semper” (sufficient

condition) and “conditio sineque non” (necessary condition).

Incidentally : this pair is – certainly in natural logic – of very important importance. Thanks to the distinction, many misunderstandings regarding causality can be avoided.

Difference between natural logic and logistics.

Döhmann clearly notes: “From p it follows q” is merely one application of the logistic implication.

Better expressed: merely a filling in of the “if, then” schema. After all, in that case, the contents of both p and q hold such that the content of p determines the content of q. That is the meaning of ordinary logical (naturally logical) derivation. 'Follows' means “follows substantively” (and thus naturally logically). The empty shell of logistics, however, can be filled in by non-substantive (coherent) fillings as well.

Note: Even in the case of non-identity, the truth value 'applies' to a certain extent in the logistic implication.

Modus ponendo ponens.

According to Döhmann: “From p ---> q and p (if p, then q and if p) it follows logistically q”. That implication holds in any case (whether or not there is a substantive connection between p and q).

p < --- > q (equivalence, mutual implication). Cf. “both or neither; (in any case not one alone)”.

A few more logistical functions follow.

What follows is a balance that cannot be summarized here. However, this: logistic language usage is not always the same as natural-logical language usage. Furthermore: natural-logical language is usually incapable of calculus (understand: artificial manipulation of symbols).

Note: The author forgets to mention that this is not the intention of the naturally logical language user either. If the latter deems this necessary, he knows perfectly well what to add to his natural logic to 'calculate'.

COGN2.38

II .-- *The bizarre nature of some logistic derivations* .

Library st. : *B.C. George, Polymorphisme du raisonnement humain* (*Une approche de la flexibilité de l'activité inférentelle*), Paris, 1997.

The work is an extensive account of numerous psychological studies into the factual—and thus usually naturally logical—reasoning of a number of subjects (quite a few Americans). Axiomatically, it is posited that logistics best masters valid forms of reasoning.

Hypotheses.

Some researchers adhere to the theory of 'formal' (meaning: formalized) rules regarding inference as the basis of factual reasoning.

Others subscribe to a theory of mental models. Still others prioritize a kind of connectionism.

The logistics psychologists are certainly at odds. Cf. oc, 36 and 40.

Those hypotheses, in our humble opinion, reveal a lack of insight into what natural logic actually is, based on a projection of logistics into logic. However, we move on to more concrete data.

Implicative logistics.

Oc, 47ss. George focuses on a set of 'inferences' (derivations). We cite the following two of them.

8. If France is located in Europe, then the sea is full of saltwater.

9. If elephants are pink, then 2+2 = 4.

W. Quine, Methods of Logic , New York, 1950, states—according to the author—that 8 seems 'strange', “for there is no uncertainty whatsoever—neither regarding the 'antecedent' nor regarding the 'consequent'—”.

(1) It is not customary to use a conditional sentence to express what is already unconditionally known (meaning: acknowledged as 'true', understood).

Note: The 'underlying' typical logistic theorem is that attention is paid solely to the (otherwise usually current) truth value of the shells to be filled in (insofar as the fillings 'instantiate' that truth value (provide an example of it)).

(2) It is equally unusual to use the conditional mood to 'connect' two propositions (by if, then) which apparently show no natural-logical connection. Or in logistic terminology: whose contents do not count.

Quine seems surprised that such a thing is 'unusual'!

COGN2.39

Experimental testing.

George refers to *B. Matalon, Etude génétique de l'implication* , in: *E. Beth et al., éds., Implication, formalization et logique naturelle* (*Etudes d'épistémologie génétique*), vol. 16, Paris, 1962.

Assessment

GG. -- Sentence 9 (If elephants ...) together with similarly structured sentences. A group of participants who are “des profanes” (literally 'uninitiated', i.e. in logistics).

GV. -- “What do you think of such statements?”

The pp.: “Absurd or false”. Which clearly demonstrates the acceptability of such sentences to the non-initiates! Actually, it is incomprehensible for psychologists to devise experiments regarding this: surely every normal person knows that those not logistically trained will react in the same way the test groups reacted! Or are the researchers so convinced of the logistics as is already present in the pp. without any logistic training?

George states: the pp.'s remarks regarding 9 confirm what Quine said. Quine: “What is at stake in reasoning such as 9 is less the conditions of truth than the pronounceability (how can one pronounce such a thing).”

Indeed: those not trained in logistics pay little or no attention to the degree of truth (and then certainly not the actual degree of truth) of the antecedent and consequent clause in themselves (outside of a natural-logical context) as fillings of empty shells; they do, however, pay attention to the sensibility, i.e., the natural-logical character of the derivation.

For them, they encounter incorrectly completed prefixes and concluding clauses in such sentences. Unless they were informed about what logistics experts mean by that!

Uninformed, they pay attention to the identities (here: partial identities) between the contents, just as all of natural logic has done for centuries.

The pp. state: “The color of elephants has nothing to do with numbers”.

To be pronounceable, a conditional sentence must:

a. contain uncertainty regarding the truth of the antecedent,

b. contain an uncertainty regarding the truth of the consequent that cancels out if the antecedent is true,

c. contain an understandable relationship between antecedent and consequent (or at least a relationship of possible intelligibility). But yes, as George admits, 9 piles up the bizarre.

COGN2.40

5. Reductionism(s). (40/47)

5.1. Reductionism (40)

D. van Dalen, Formal Logic (*An Informal Introduction*), Amsterdam/Utrecht), 1971, 7, states that “mathematics concerns itself with idealized objects that do not have the disturbing properties that objects in 'reality' simply possess”.

One of the purest forms of this idealized mathematics is the axiomatic method. This idealization entails 'consistency' (freedom from contradiction): no contradictions may be derived from previous axioms and theorems; “In daily life we encounter contradictions every day and an effective remedy has been found for this: “Just don't talk about it and nonchalantly look out the window”. (oc, 34).

Library st.: *B. Mols, The Holy Grail of the Sciences* , in: *Nature and Technology* 67 (1999): 7 (July), 50. -- Regarding *Edw. Wilson, The Foundation* (*On the Unity of Knowledge and Culture*), Amsterdam, 1998, Mols criticizes the sociobiologist Wilson for his reductive thinking.

a.1. Physics generates chemistry, which in turn generates biology.

a.2. The latter generates the humanities and social sciences. “As if all that were not radical enough, we distill human art and culture from human evolution and genetics” (according to Dols literally).

b. On that narrow basis which is ultimately physics, Wilson points out the development of our insights and our entire culture.

Reductionism

Axiomatics, ever since Aristotle, limits itself to a finite and as limited as possible number of axioms. It 'reduces' (simplifies)! In a 'reality' existing in mere imagination, such as mathematical entities are, this happens easily.

But 'deriving' (sic) all human reality from physics, even if only stepwise, “unfortunately makes no mention of either the practical or the fundamental

problems that Wilson's project with its radical reduction entails". Wilson simply does not talk about it and nonchalantly looks only through the window of his physics.

Whether that is consistent with the overall reality in which we live is not even a given for Wilson—let alone something to ask. Consequently, he does not even seek a solution.

COGN2.41

5.2. Biogenesis (41)

Library st.: *H. Priem, It Rains Life* (*Biological Cosmology*), in: *Nature and Technology* 67 (1999): 2 (Feb.), 68/77.

Here is what this professor of planetary geology (Utrecht) says.

1. ***'Life'*** can be described, not defined.

Note: Describe as provisionally define. The author is not (yet) ready for an essential definition.

2.1. ***Distinctiveness.***

Living matter differs from dead matter in that, as living beings, it organizes molecules. This manifests itself in the fact that life actively interacts with its environment, causing chemical mixtures (especially those containing hydrogen, carbon, nitrogen, and oxygen) to react in such a way that they form complex compounds. This also manifests itself in the fact that life copies itself.

2.2. ***Organisms*** .

The molecular organization takes the form of a dynamic (goal-oriented) system that opposes the environment by means of a membrane. However, this system is only quasi-closed, as it exchanges matter, energy, and information with the environment.

Thermodynamic.

Viewed from that branch of physics, living organisms differ from the environment, which is essentially 'disorder' (decaying matter and energy leading to heat death), by 'order(ing)'; this order being the result of ordering (organization). The proposer calls the living organisms "islands of order(ing)" amidst an ocean of disorder.

Biogenesis.

"How life originated is still an unsolved question." (Acts 68).

The established scenario states that the first life arose from a series of spontaneous chemical reactions within an environment of liquid water and with the input of energy (solar rays or, for example, volcanic heat).

In any case: all life (from bacteria to higher animals) organizes the same chemical reactions, the same molecules with the same structures. Despite all varying environments (and adaptations). This is called 'complexification'.

Extraterrestrial.

The opinion is growing, based on actual indications, that the chemical origin of life is largely extraterrestrial: from physical to biophysical cosmology!

COGN2.42

5.3. Causality (42/44)

Scenario.

The sun has long since risen in the morning and set in the evening. It was not until M. Kopernik (Copernicus) (1473/1543)—perhaps preceded by a Greek or even an Easterner—that the phenomenon was identified as the cause: the earth rotates daily on its axis and follows an orbit—annually—around the sun. That 'explains' sunrise and sunset.

Application of a rule: “That which is never drawn to attention, one never learns to pay attention to” and “That which one does not pay attention to, one experiences little or not at all”.

In other words: we know causality based on “intentional acts”. If these are absent, causal processes take place, but we do not even know it.

Library st.: *Ch. Lahr, Logique* , Paris, 1933-27, 591.

Baconian induction is one type of induction: from one or more samples regarding the "cause/effect" (D/D) relationship, one generalizes to all possible cases of "cause/effect". If proven, this is called a (natural) law.

Note: Please note that the relationship (partial identity) “cause/effect” is based not on similarity (a cause does not resemble its effect or vice versa) but on coherence.

Consequence: the dynamic system “cause/effect” is the actual object of induction.

Modernity.

Francis Bacon of Verulam (1561/1626), known for his groundbreaking

work **Novum organum* * (1620), wanted to see nature 'tortured' (model: the Inquisition) so that it would reveal its causal processes, -- with the ultimate goal of the subjugation of nature so that, based on insight into its causal processes, nature would become predictable. They are predictable if they prove to be lawful.

Who does not recognize the lifeblood of cognitivism in that? Cognitivism that thereby reveals itself as typically modern.

Indeed: an Anaxagoras of Klazomenai (-491/-428) is known in Greek antiquity for his physical and especially causal method. In that sense, he precedes Bacon. But the ancients were not as fixated on the torment and predictability of nature as moderns.

It was not until the late Middle Ages and the Renaissance that nature suffered due to inductive physics.

COGN2.43

Causality and conscience.
Let's start with a scenario.

One morning—on your way to work—you discover that your car 'refuses' to start. It has just come from the garage. The mechanic was formal: “Your car runs perfectly.” This event presents two aspects:

a . the causality of your vehicle is “at fault” this time (non-legal);

b . the reliability of your mechanic—who, as you now recall, does not shy away from unscrupulous behavior—is immediately also “at fault”.

In other words: both physical and ethical predictability reveal themselves in such situations—as they can actually be.

Library st.: *HJ Hampel, Variabilität und Disziplinierung des Denkens* , Munich/Basel, 1967, 17/21.

Steller lists the axioms of natural logic. In antiquity they were called 'archai' (Lat.: principia). Now they are called 'laws of thought'. Because they prove to be unprovable and yet constantly function as presuppositions in logic, we call them 'axioms'.

a.1. ***Identity.***

“Something is what it is.” “Something is as it is.” “If something exists, then it exists.” -- The identity expressed here is twofold: factual existence and mode

of being (essence).

Phenomenology. -- What reveals itself, reveals itself. What is given, is given. Ontological: “What is true, is true”.

Note: The Tarski equivalencies have their logical—non-logistic—basis here: “An apple is tastier than a pear, if and only if “an apple is tastier than a pear”. The verb 'is' speaks for itself. (*L. Horsten, Truth and semantic paradoxes* , in: *Our Alma Mater* 50 (1996): 2 (April), 342).

Hampel. -- “Every object is equal to itself.” This is the discursive interpretation. It means that a term, once defined, must remain equal to itself in the course of a discursus, an exposition.

In other words: do not assign new, unclear meanings to a term while you are engaged in an explanation.

That is a derivative of the logical axiom but not the axiom itself. One adheres to what one has indicated as the identity of a term as long as one uses that term.

COGN2.44

A dialectical interpretation of identity is found in Hegel.

Library st.: *G. Bolland, Hrsg., G. Hegel's Encyclopdie der philosophischen Wissenschaften* , Leiden, 1906, 156.

Like this: “The sentence “Everything is identical to itself” (A=A) is (...) nothing unless a statement of the abstract mind. (...)”. “A planet - is a planet”.

“Magnetism – is magnetism”: Hegel actually ridicules a piece of logic of his time in the name of his 'variology' (emphasizing variations as possible as synchronic and diachronic (changes, reversals into the opposite)).

But he forgets (suppresses, represses) that the continuous change which he situates at the heart of reality is experienced and thought by him as “being there.” “What becomes, changes, turns into its opposite, that becomes, changes, turns into its opposite.” That confrontation ('encounter'), if he respects becoming as a fact, compels him to the definition of identity as natural logic has formulated it for centuries.

a.2. *Contradiction* .

“Something cannot simultaneously be (so) and not be (so)”. It is either one or the other, the radical opposite.

a.3. *Exclusion of a third possibility* .

Something is (so) or it is not (so). A third possibility does not exist.

Note: These two axioms have no meaning of their own. They specify what the first axiom actually means: the identity of something is the identity of something and not (of) something else. What is meant is the total identity of something with itself, of course.

b. *Reason (grounds, explanation).*

Everything that is something has, either within itself or outside itself, a sufficient reason or foundation, such that it becomes understandable to the human being endowed with spirit (understanding, reason).

Predictability

People with a conscience respect these axioms. If they are not respected, then their behavior is unpredictable. What they cause within themselves and around them in our world lacks its inner—intentional—stability (which replaces the laws of physics).

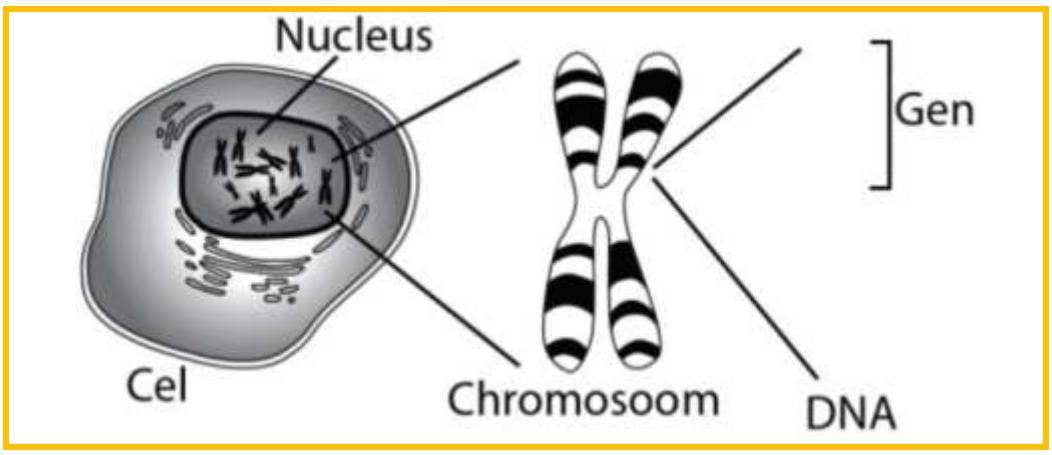
All true morality is the expression of that stability (immutability, intentional regularity). Thus, for example, the Decalogue in the Bible. Nature and humanity, if subject to their own 'law', are reliable, for they are causally predictable.

COGN2.45

5.4. Genetics (some basic concepts) (45/47)

Genetics (a term introduced in 1906 by W. Bateson (1861/1928)) dates back to Greg Mendel (1822/1884). In 1873, Schneider discovered 'threads' in the cell nucleus during mitosis (cell division).

In 1882, E. Strasburger (1844/1922) and Al. Fleming (1881/1955) discovered that those threads carry the hereditary characteristics, the so-called “hereditary information”.



DNA .

A biochemical active substance (deoxyribonucleic acid) was discovered in 1946 (following in the footsteps of F. Griffith (1928)) by Avery, McLeod, and McCarthy. It is located on the chromosome. Each chromosome contains thousands of genes.

Gene (genes).

The gene is a small fragment of the DNA molecule. It determines the biological (e.g., anatomical and physiological) characteristics of the organism. -- The genome. This is the totality of the genes in a chromosome.

Human Genome Project.

Mapping of the human genome began in 1990. -- According to a current forecast, the eighty thousand (or approximately) genes and the estimated three billion connections within human DNA would be mapped in the course of 2000.

The work would not be finished until around 2002.

In *Het Volk* (29/06.1999, 35), project leader Fr. Collins (National Human Genome Research Institute, USA) states that the real work only begins then: how all those genes interact with one another still needs to be determined. Also: whether or not those genes cause diseases, for example. If all that information were to be put on paper in print, it would amount to “a volume of a thousand telephone books, each with a thousand pages.”

This is regarding genetics, for those who know a little too little about it.

COGN2.46

The homosexual attitude: genetic?

There is heated debate about the true nature of homosexuality, but what is certain is that it is an attitude: an inner turning away from the 'opposite'

sex; equally an inner attraction towards the 'own' sex.

Is it genetically determined?

Library st.; D. *Duboule ,* 1999, 37.- Duboule is professor of embryology at the University of Geneva.

1.-- ***1992.*** -- The *journal Science* publishes the hypothesis that Xq28 is a gene that 'correlates' with homosexuality.

Note: 'X' stands for “chromosome (that is only passed on via the mother)”; 'q' refers to the long arm of the chromosome (which also has a short arm); '28' is the number of an X strip.

“Finally! Homosexuality was thereby established as a genetic disease. Introspective experiences were instantly superfluous” (according to Denis Duboule).

2.-- ***1999.***

In April '99, Science publishes again. -- Any scientific result, if not repeatable, does not actually count as 'scientific'. However, the finding of the American who published the article in '92 was open to verification.

A Canadian working group investigated 52 pairs of homosexual brothers who, according to Science '92, were suspected of having inherited Xq28 from their mother.

However, the analysis of the genetic markers showed that no “meaningful correlation” (*note:* mutual relationship) existed.

Maw: “Even though the brothers are indeed homosexuals, Xq28 has nothing to do with it” (according to Duboule).

Attitudes such as homosexuality, shyness, or even experiencing charm involve—according to the embryologist—very many factors: perhaps genetic; in any case, environmental (cultural) factors.

The 'history' of Science exposes the danger of hastily 'geneticizing' complex behaviors (with attitudes at their heart). It gives scientific research a questionable image (visual impression). Meanwhile, genetics is more than that: thanks to its experiments, we have gained insight into most real genetic diseases.

COGN2.47

IQ: genetic or cultural?

Bible st. : A . *Jeanblanc, QI* . (*L'influence de l'environnement*), in: *Le Point* (Paris) 06.08.1999, 26.

Here is the law the writer says.

1. A study by the American Academy of Sciences shows that IQ is not an unchangeable genetic trait. If children (4/6) with a low IQ live in a socio-economic environment that pays attention to and stimulates them, they can show a clear improvement in cognitive performance.

2. M. Duyme and his colleagues (Inserm: genetic and medical epidemiology) followed 65 families who adopted a child with the following profile:

a. come from a culturally very backward social class;

b. consequences of temporary neglect or abuse;

c. an IQ below 85 (where the average for that age is noted as 100).

A later measurement of intellectual abilities at the time of adolescence showed an increase in performance. These were all the more evident the higher the socio-economic level of the fostering parents.

Such findings demonstrate the direct causality of the environment, namely as a cultural given, regarding IQ in early childhood. The latter is therefore not the sole decisive factor, as some still wish to maintain.

Anne Jeanblanc makes a very special note:

a. the backwardness regarding “spatial time achievements”—she mentions logical thinking and speed regarding position determination within space—is most easily overcome;

b. language impairments are less susceptible to being overcome.

It ***is therefore feasible:*** a child's fate turns into its opposite if it becomes the object of close monitoring and if it can count on educational and material assistance.

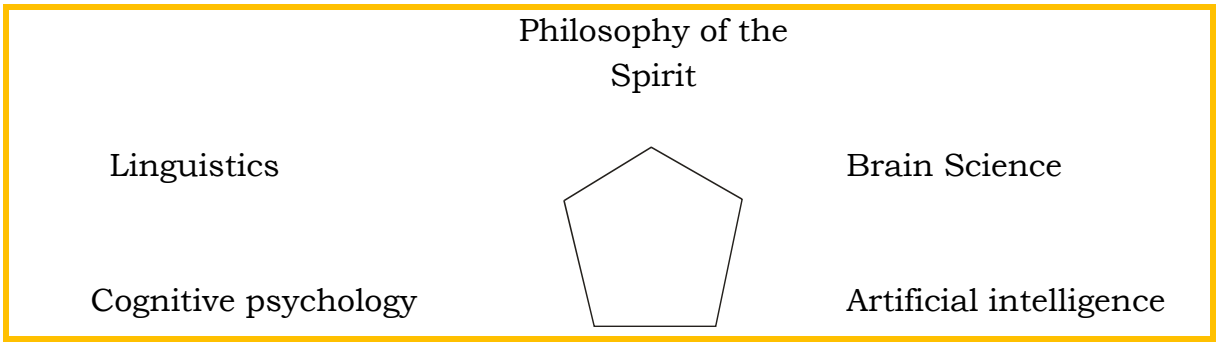
Behold the conclusion: let one not be too quick to say that “it is all a matter of genes”!

If this is true, then we are facing a counter-movement that puts a stop to the genetization of human attitudes and behaviors, including in the cognitive realm.

COGN2.48

6. Development of the cognitive sciences: (48/84)

6.1. Genesis (48)



Library st. : *J.Fr. Dortier, Les sciences humaines* , Auxerre, 1998, 206 ;

Above is the pentagon of cognitive subjects (four sciences and a philosophy).

1. ***1945/1955*** .

Main point: automatic machines and brains.

a. The computer, and immediately computer science, got off the ground with J. von Neumann and A. Turing.

b . Cybernetics is founded by Norb. Wiener.

c. Neurophysiology is developed by W. McCullough.

Note-- The Macy Conferences (1946/1953) in New York discuss systems theory and cybernetics, automata theory and brain sciences: J. von Neumann, W. McCullough, G.Bateson (anthropologist) are there.

2. ***1956/1979*** .

New cognitive insights.

a. AI (artificial intelligence) is discussed at a first seminar in Dortmouth (USA) by its four founders (HA Simon, A. Newell, J. McCarthy, M. Minsky). Simon and Newell present their first program for AI there.

b. Linguistics in its generative-transformational form was made public by N. Chomsky in 1957 (in a first version).

c. Cognitive psychology was founded by G. Miller and J. Bruner, psychology professors at Harvard University. In 1960, they founded the Harvard Center for Cognitive Studies.

3. *1980+.*

The Society for Cognitive Sciences is founded with its journal Cognitive Science. From the Anglo-Saxon countries, cognitivism or cognition spreads worldwide. Research centers, laboratories, education, journals!

Note: Dortier does not mention philosophy of the mind. Reference is made to *P. Engel, *Introduction à la philosophie de l' esprit** , Paris, 1994. Men like Davidson, Fodor, Dennett, and Dretske are at the forefront here. 'Mind' here stands for mental operations and the human capacity for them. The term has nothing, unless indirectly, to do with what we in Europe label as an immaterial being, nor with what we have called the humanities since W. Dilthey (unless in a radically re-established sense).

COGN2.49

6.2. Four sciences and a philosophy (49)

The concept of "cognitive sciences" ('cognitivism').

Library st. : *J.Fr. Dortier, Les sciences humaines* , Auxerre, 1998, 197/230. This concerns a brief overview.

1. *Computer Science.*

Computer science views "higher mental processes" as an application of "artificial intelligence" (AI). It translates them into an algorithm (sequence of steps) that are typical of the computer (computationism). H.A. Simon (1916/2001) constructed a general problem solver (GPS) in 1956, an ordinator that could handle not only calculations but also thinking operations (proof of mathematical theorems, chess, and the like).

2. *Psychology.*

Psychology reacts against the prevailing (neo-)behaviorism. Starting in 1950, G. Miller and J. Bruner (psychology professors at Harvard University) initiated cognitive psychology, which discovers thinking as grasping the given and the requested ("problem solving") and seeks to fathom the "black box" of inner life by questioning it (images, concepts, states of mind, attitudes to life, stereotypical behavior, symbols, -- logical connections).

3. *Linguistics*

Man encodes his mental operations in language, in order to use logistic language.

*N. Chomsky, *Syntactic Structures** (1957), with his generative language description and transformational analysis, opens the way out of behaviorist

linguistics. He sought in the depths of all actual languages the structures that govern them all. But his formalism encountered paradoxes (meaningless linguistic phenomena). -- Add to this as a second tendency: the method of automatic translation.

4. *Brain science*

"From the brain to the mind" (so it was called). Biology, with neuroanatomy, neurophysiology, neuroendocrinology, and neuropsychology, makes its entrance. Brain sciences, in particular (neurons, neural networks, brain centers, and the like), come to the forefront. -- Not to mention genetics, which attempts to use genes to get a grip on the higher functions of man.

5. *Philosophy of* Spirit

Analytical philosophy shifts from its linguistic concerns to

a . the connection "language/ mind (thinking)" and

b. the value of artificial intelligence. It exhibits computationism (H. Simon) and connectionism (W. McCullough (1896/1969), neurobiologist: neuron networks).

COGN2.50

(NOTE: This page does not seem to exist.)

COGN2.51

6.3. Metacognitive psychology (51)

Library st. : *Anne-Marie Melot, Métacognition* , in : *O. Houdé et al., éd., Vocabculaire des sciences cognitives* , Paris, 1998, 261/263.

The author defines: metacognition—cognition of cognition—encompasses all skills and activities that have the phenomenon of 'cognition' as their object and lend themselves immediately to mastering it (e.g., as an educator).

1970+.

The psychologist John Flavell studied metacognition in relation to intentional memorization in children.

Note: The metacognitive sciences also study problem-solving and text comprehension, social cognition, communicating with others, and persuading others.

An important school of thought studies "naive or folk psychology," with

which we all begin as children. Especially regarding children, children ought to learn to recognize the mental phenomena within themselves: memory images, insights, beliefs, ignorance, feelings, wishes, intentions, etc.

Two basic aspects.

According to Flavell, there are two.

A.-- *Sustainable metacognitive competence* (meta-knowledge).

That is the totality of the beliefs stored in long-term memory regarding people, tasks, and 'strategies'.

1. Persons. -- Cognitivistically understood: human beings insofar as they are “information processing systems”.

2. Tasks. -- Goals to be pursued and information to be acquired.

3. Strategies. -- The ready knowledge regarding the manner in which the stated goal is to be achieved in order to make progress.

B.-- *Transient metacognitive experiences* .

These are the conscious cognitive and affective experiences following the solution of a problem.

Scenario .

A child reads a text. Suddenly, he realizes that he does not understand the text (ignorance). He can then change his study strategy: for example, by seeking information elsewhere, breaking the text down into parts, etc.

Both – A and B – are naturally complementary.

Metacognitive sciences.

Besides psychology: artificial intelligence and educational science.

Researchers such as Ann Brown, Michael Pressley, and Wolfgang Schneider have shown that the ability to reflect on one's own cognitive life is trainable.

COGN2.52

6.4. Model concept (52).

Library st.: *01. Koenig, Modèle* (*Neurosciences*), in: *O. Houdé et al., éds., Vocabulaire de sciences cognitives* , Paris, 1998, 268s.

'Model' is the representation of a phenomenon (original).

Cognitive neuroscience primarily aims to construct cognitive models.

The fact is that, in fact, for example, language use or perception are not

global and undifferentiated processes, but rather a supersystem of subsystems that each, within that totality, handle their own processing.

The elaboration of a model therefore consists first and foremost in isolating those subsystems in terms of their functioning. In other words: the neuroscientific model is those subsystems and their integration.

Terms and Conditions

Even though such a model is a product of the mind, it must

a. be biologically acceptable and

b. computationally elaborated. For it must correspond with what we know about the functioning of our brains.

Computational.

The irreducible steps in the processing by the subsystems must correspond to the results of a computational analysis. This is a logistic analysis: it closely follows the various steps within the operation of the subsystems (whether biological or artificial). Only this logistic aspect provides a sufficient description of the model that is clear enough so that the model can eventually be tested in a computerized simulation (imitation).

Note-- So much for the neuroscientific model.

O. Houdé adds that in cognitive psychology, modeling aligns very closely with the neuroscientific method. Take tomography, for instance, which produces images based on functional magnetic resonance (a form of scanning). The same applies to electroencephalography.

D. Kayser discusses models in artificial intelligence in psychology so that a mathematical function, an algorithm, or simply accessible data serves as models.

Fr. Rastier speaks of linguistic models. However, these practically amount to some theory or other (theoretical model). For example, N. Chomsky's theory of propositions in language.

COGN2.53

6.5. Computational analysis in neuroscience (53)

Library st.: *O. König, Analyze computationell* e, in: *O.Houdé et al., éds., Vocabulaire de sciences cognitives* , Paris,1998, 42s.

Given a system, either biological or artificial, capable of performing tasks. Computational analysis is a logistic analysis of the required properties of such systems.

David Marr , in *Vision* (*A Computational Investigation into the Human Representation and Processing of Visual Information*), New York, 1982, is one of the pioneers.

Being.

It is a clear and explicit description of the various steps inherent in information processing.

So as for seeing: distinguishing the figure (foreground) from the background is one of the unavoidable steps that every system—biological (a human, for example) or artificial—must go through if it is to be able to recognize and identify an object by seeing.

Simulation.

Computational analysis is not computer simulation. However, the description of the steps within the information processing performed by computational analysis is sufficiently explicit to construct an artificial model that simulates human behavior (e.g., seeing an object). This is a key method within neuroscience.

Method.

This is the application of computational analysis. It is fundamental within brain science.

Subsystems

In particular, it is necessary to dedicate a subsystem within the information processing to each step described by the computational analysis.

Such subsystems are assembled into a coherent whole ("functional architecture"), within which the subsystems exchange information with one another.

Neuronal network.

Such a subsystem can be described as a network of neurons that work together to transform data (input) into a result (output).

Cognitive psychology, cognitive neuropsychology, neurophysiology, and neuro-images ("images of mind") provide experimental data that 'validate' the model of such a subsystem as a representation of reality.

COGN2.54

6.6. Outline of a brain science model (54).

Library st. : *A. Jeanblanc, Les zones cérébrales du désir* , in : *Le Point* (Paris) 13.03. 99.

A working group led by S. Stoléru (Inserm U 292) and members of the Center for Medical Studies and Research (based on the emission of positrons (positively charged electrons)) discovered five zones in the brain that function in erotic attitudes and behavior as subsystems that together constitute a neuro-model.

Sample.

Eight young men (21/25), in good health and right-handed, were shown a geographical documentary, a humorous scene, and a sex film. Each of the films lasted six minutes.

The model.

Five brain activities were found to contribute to the erotic experience. This is: five subsystems.

a. ***Attitude***

1. The area that substantiates the view responded.

2. The section substantiating emotional and motivational phenomena responded.

3. The third localization was that which corresponds to “primary and affective physiological responses” to a sexual stimulus.

4. Subsequently, the part of the brain that may be involved in the sensation men experience of the physiological changes associated with sexual desire plays a role.

b. ***Behavior*** .

An area upon which the fact that sexual arousal likely leads to an act depends reveals itself.

The researchers hope to gain a better understanding of disorders of sexual arousal—too little in some, too much in others—through such neuroscientific studies.

Note-- Here is a brief, very brief outline of a neuro-model.

But still, this.

(1) The correct reference (“What exactly does that five-part structure refer to?”).

Does this fully represent the entire phenomenon of “sexual arousal with or without the act”? After all, neuroscience approaches experiencing (mental, intentional experience) indirectly, via the brain systems (metonymic model). Whereas phenomenology attempts to construct a direct (metaphorical) model.

(2) As a sample, the number - eight - is very small and calls for larger numbers.

(3) However, the model is clearly open to testing by the research community and is in that sense scientific.

COGN2.55

7. Neuroscience or brain science. (55/63)

7.1. Brain (55/58)

According to *J.-Fr. Dortier, Les sciences humaines* , Auxerre, 1998, 213ss., the cognitive sciences developed around two poles: the ordinator and the brain. From computer science and neuroscience.

The latter are:

a. *neuroanatomy,* which studies the anatomy of the brain (from the cells to the major brain centers);

b. *neurophysiology and neurobiology* , which addresses the internal functioning of the brain (e.g. how a 'message' (information) is transmitted from one cell to another);

c. *neuroendocrinology* , which has the relationship between the nervous system and the endocrine system as its object (for example, the hypothalamus (below the thalamus) is one of the centers that controls body temperature or sexual maturation);--

d. *neuropsychology* , which accounts for the role of the brain in human behavior (consider aphasia, a speech impairment usually caused by brain damage).

R. Carter, Mapping the Mind (*Exploring the Human Brain*), Nature and Technology, 1998 (// *Mapping the Mind* (1998)), 10, says the following.

The human brain consists of a great many parts, each with its own role: converting sounds into language (speaking), noticing colors, registering fear,

recognizing an object, and seeing differences between data.

But this collection of 'parts' has not been fixed once and for all:

a. every brain is unique;

b. exceptionally sensitive to what is happening in the organism's environment;

c. in constant change.

The 'parts' interact with one another (typical of the system that is the brain).

Moreover, the roles played can change. A 'part' may not function due to a genetic defect. A 'part' can take over the role of another.

The factors are now known to be **a.** electrical impulses; **b.** chemical substances; **c** . mysterious 'fluctuations'. Among others. Perhaps the 'parts' and indeed the entire brain are subject to the influence of the universe (defined as space-time).

Decision.

“Our brains are probably so complex that they will succeed in understanding their own functioning,” one might say.

COGN2.56

The brain.

Library st. : *J.Fr. Dortier, Les sciences humaines* , Auxerre, 1998, 213/220 (*L'architecture du cerveau et ses Telefoonx d'organisation*).

1. *General overview.*

Steller distinguishes multiple discs.

a . ***Neurons*** .

The number is approximately one hundred billion. The anatomy (nucleus/axons/ndrites, synapses) is known. Information flows pass through the synapses. Unlike other biological cells, neurons do not renew themselves (except for neurogenesis in the centers for smell and memory, according to researchers).

Neuron network.

a. The genes, the interrelationships of neurons, and stimuli from the environment determine the structure-in-action'.

b. but the how of this remarkably dynamic system is “as good as a complete mystery” (oc, 215)7

Appl. mod.-- The interaction between a few thousand neurons forming the foundation of our concept formation (e.g. concepts such as 'kilometer', 'grandmother',-- 'freedom' (the latter an abstract concept)) and of our limb control (e.g. turning a blind eye) is “a total unknown”.

Note: This radical unfamiliarity of cognitive scientists should perhaps prompt them to great caution in the fields of mental psychology and the philosophy of the mind.

b.1. ***Neuron groups*** . The smallest discovered (VB Mouncastle after 1970) comprise about a hundred neurons (one mm wide). They are called 'columns' or 'modules'. They underpin mental activities such as orienting oneself or defining an object in terms of position, shape, and color.

b.2. ***Centers.*** For example, the language centers (left hemisphere). Similarly, the (pre)frontal cortex as the center for accountable behavior.

b.3. ***Halves*** . Especially since *R. Sperry* (*Brain Section and Mechanisms of Consciousness*), for which he received the 1981 Nobel Prize in Medicine. 2. Components. -- They are there. But they only function after a learning process.

Note: An animal raised in absolute darkness is blind and, after a certain age, irreversibly blind.

Conclusion -- Collective evolution (of all life forms), individual evolution (epigenesis), and cultural evolution jointly determine the structure of our brains. Thus concludes Dortier.

COGN2.57

A sample of our brain activity.

Library st.: *R. Carter, Mapping the Brain* , Nature and Technology, 1998, 14.

1. The ***cell network*** .

The brain exhibits two types of cells.

a. 9/10 glial cells.

Fairly simple in structure. Main role: to intactly safeguard the ordered coherence of the brain. Perhaps: a role in the electrical processes within the skull (amplifying, synchronizing).

b . 1/10 neurons.

The actual cerebral cells. Designed to exchange electrical signals with one another.

a/ Thin, long specimens with unbranched, winding runners towards the body ends.

b/ Star-shaped specimens extending in all directions.

c/ Specimens with a strongly branched crown,

2. *Electrical chain reaction* .

Each neuron is connected to at most 10,000 neighboring cells. -- The extensions establish contact: axons that conduct impulses from the cell body; dendrites that conduct incoming information. -- Axons and dendrites fit together in synapses (narrow gaps).

Each axon releases a neurotransmitter (a chemical substance) into the synaptic cleft so that the electrical signal is transmitted. This neurotransmitter stimulates the neighboring cell, causing it to emit a signal in turn.

This is how the chain reaction arises: the millions of interconnected neurons thus experience simultaneous activity.

The influences on our mind

This demonstrates the cognitive aspect. The immeasurable chain-reactive process—involving molecules and cells—controls, at least partially, the life of our mind. Most psychiatric therapies based on biological processes are interventions in that process.

Antidepressants (medicines aimed at depression and its symptoms) – such as the notorious Prozac – cause serotonin (a type of neurotransmitter) to remain in the synaptic cleft longer, so that more electrical signals can be exchanged between certain neurons.

Research is underway into medicines for the effects of stroke, dementia, and Parkinson's disease.

Note: Some researchers harbor the hope of finding “the secret of human consciousness” in the neural network. Perhaps! And if an explanation ever emerges from here, it will be a partial one; we have brains, but we are conscious with our minds.

COGN2.58

The two brain hemispheres.

Library st.: *R. Carter, Mapping the Brain* , *Nature and Technology* , 1998, 34ff. (The Great Dichotomy).

This is a sample to give a sense of how the mind (and philosophy of mind) can also be served by brain research.

1. ***The brain consists of two halves*** .

The continuous interaction between the two makes it “extraordinarily difficult” to accurately define the distinct roles of each. Nevertheless, research shows that the halves possess very distinct skills, so much so that—under normal circumstances—certain skills are always situated within one of them.

2.1. ***Normal.***

They are connected by a bundle of fibers that continuously ensures very precise information transfer. Indeed, the information flowing into one of them is available almost immediately to the other half. Their reactions are so reciprocal that, in the conscious mind, they substantiate an experience (perception/sensation) of the outside world within a single consciousness.

2.2. ***Divorced.***

In the event of a divorce, they show their own nature more strongly.

However: if one of them drops out at an early stage (the younger the better), the other half can take over the functioning of the absent one.

Note: This shows that life reorganizes itself to a certain extent to survive, to cope with 'life'.

Further explanation.

The left hemisphere is logical, analytical, exact, cheerful, time-sensitive. The right hemisphere is sensory, attuned to rather vague totalities, and dreamy—prone to all kinds of sadness (anxiety, grief, pessimism).

If the left hemisphere fails, for example due to a stroke, then, even if the situation turns out to be fairly good afterwards, the affected person is gloomy. If the right hemisphere fails, the affected individuals react optimistically to the point of complete indifference—in extreme cases refusing to address the negative aspects of their condition (for example, not even noticing their own blindness or paralysis (anosognosia)).

Peculiar: truly lived 'wit' (humor) requires both halves. But orientation, for example, prioritizes the right half.

Conclusion : how dependent the functioning of our mental life is on the brain!

COGN2.59

7.2. Accountable conduct: neurologically substantiated (59/60)

Library st.: *R. Carter, Mapping the Brain* , *Nature and Technology* , 1998, 27, 201.

The biological basis of accountable behavior is situated in the prefrontal cortex (cerebral cortex).

Wages. *According to J. Harlow, *Recovery from the Passage of an Iron Bar through the Head** (1868), Phineas Gage lost a large part of his anterior brain after the premature detonation of an explosive charge (a bar in the head). He survived, but was no longer the purposeful, hardworking railroad worker.

1. Animalistically passionate and strong (dangerous to women); at times thoroughly contrary.
2. Intellectually infantile. Full of plans. But capricious and procrastinating. Never taking his plans seriously.

In Gage's case, it became medically clear for the first time that insight into one's own behavior and conscientious control of it through free will have a neurological basis in the frontal lobes (front part of the brain).

Since Gage, numerous cases have been discovered. Yet his brain injury remains the most impressive. Most suffer from ordinary—more common—brain injuries such as a stroke. There are also quite a few cases of people who, due to brains that never fully developed, never exhibited higher mental activities.

JP .. -- JP was a boy with a normal IQ, but in his dealings with others he was radically impossible: he lied and cheated. He indulged in theft.
Harsh behavior: he once borrowed a glove, “shit in it” (sic), and returned it like that.
He was completely unfamiliar with sportsmanship.

Consequence . -- He was imprisoned or admitted to a psychiatric institution several times. The psychiatric diagnoses were: psychopath, manic, schizophrenic.

Neurologists determined at the age of twenty that his left frontal lobe had significantly shrunk and that the right one was missing. They followed JP until thirty years later: he was then still “without insight; without any fear; unaware of his total current and future life situation”.

Conclusion. - Blindly applying mere moral axioms without providing 'exceptions' for medically (especially neuroscientific) clear cases is purely axiomatic-deductive reasoning! Such that semantic nonsense is needed to falsify the moral system.

COGN2.60

Unisex?

Library st.: *R. Carter, Mapping the Brain* , *Nature and Technology* , 1998, 63ff.

The brain centers that help determine sexuality differ in men and women due to hormones. Behavior and environmental models may also play a role. However, the fundamental model is largely already determined by genes: they generate typical male and typical female behavior (oc, 72).

As you can see: it is not simple.

Typical male and typical female sexuality are underpinned by different parts of the hypothalamus (a group of nuclei (vesicle-shaped bodies) in the back of the head (midbrain)). From that perspective, unisex does not exist.

1. *Male.*

The medial preoptic area (in the hypothalamus) partly underpins sexual desire for a female partner. From there, signals travel to the cortex (cerebral cortex), resulting in continuous arousal and penile erection. -- More assertive type.

2. *Female* .

The ventromedial nucleus (a group of neurons that also underpins appetite) partly determines lordosis (the presentation of the genitals) in a sexual context.-- Submissive type.

The type and intensity of sexual behavior in both sexes are also partly determined by the action of adrenaline (adrenal hormone) and testosterone (testicular hormone).

Note: The medial preoptic center also picks up signals from two nuclei in the amygdala (in the vicinity of the hypothalamus), the corticomedial and the basolateral nucleus, both of which are involved in the development of assertive or even aggressive behavior. This may explain the convergence of sex and aggression in men.

Homosexuality.

Science , the well-known journal, published an article in 1991 by *S. LeVay* (Professor of Biology at the University of California), himself homosexual: the brains of a group of homosexual men who had died of AIDS differed from those of heterosexual men. The nuclei (hypothalamus) were much smaller and approximated female nuclei. It later turned out that the corpus callosum (midbrain) was also larger. -- A gene (as later revealed by D. Hamer) was also thought to play a role.

Behold some neurological insight into the sexuality that plays such an extensive role in humans.

COGN2.61

7.3. "The illusion of free will" (61)

Library st.: *R. Carter, Mapping the Brain, Nature and Technology* , 1998, 180ff.

Oc, 23: "The anterior cingulate cortex (in the upper forehead) is the seat of the 'I'." Oc, 191: "Consciousness is the product of brain activity, a property of the material world." As the author herself says: consciousness is not an insoluble mystery but apparently primarily neurologically researchable.

Note: The self-assured tone seems to insinuate that consciousness, outside of neurology, has never been (finitely) investigated! This does not prevent the statement in oc, 181: "Answers that provide conclusive evidence regarding the correct relationship between 'neurology and the study of consciousness' have not yet been found."

Note: Something that should call for great caution. Incidentally, Carter's statements are not very logically coherent.

Appl. mod..

Oc, 191. -- "Hysterically paralyzed" people are paralyzed somewhere while the affected organ is intact and the connection to the brain is undamaged.

A woman hysterically paralyzed in one of her legs was examined using PET (positron emission tomography) while she unsuccessfully attempted to move the leg. The scans (images) showed the frontal lobe (front of the brain) glowing with every attempt. In other words: the normal automatic domino effect from the volitional center in the frontal lobe to the premotor cortex, which processes the movement, appeared to be interrupted. Her free will did not control that mechanism. -- So much for a model of the dependence of the ego as free will on the neurons. --

Note-- Incidentally : is the totality of that paralysis completely settled with that? In other words: what exactly is proven by this?

The illusion of free will.

Our established moral and also our judicial code (understand: axiomatics) states: "Each of us possesses an independent mind." "The mind in the apparatus that controls our actions." Carter calls this (Cartesian) dualism, because the mind is too independent of the body.

She seems to be neglecting

a. the presence of psychiatrists and neurologists at courts of appeal and

b. the fact that, for example, ecclesiastical moral handbooks begin by distinguishing "act of a man" ("actus hominis") from "human act" ("actus humanus"), for centuries! Free will is not "en bloc" but gradatim, moreover, and was not invented to be able to punish people!

COGN2.62

7.4. Language is more than mere physical sound (62)

Library st. : *Alb. Ducrocq, L'esprit et la neuroscience* (*Lumières sur le phénomène de conscience*), Lattès, 1999.

Ducrocq is a pioneer (or inventor of computer tools (electric typewriters)) in the field of industrial informatics. He says:

"The unanimity regarding the necessity of studying the phenomenon of 'consciousness' will perhaps be regarded as the quintessential event of the 20th century." (Oc, 7).

The phenomenon of 'consciousness'.

Ducrocq outlines his position: "Without consciousness, we would not even know that we exist. Without consciousness, we would not even suspect the existence of an external world. Of the immeasurable universe, consciousness offers us this fantastic subjective concept: a kind of inverted universe within

which we situate ourselves at the center." (Ibid.).

Even neuroscientific.

We will not delve into the wealth of relevant information in the work here. However, let me state this: neuroscience reveals to us "a factor" in the brain that cannot be reduced to physical-chemical processes. Ducrocq raises the question of "an immaterial or living principle" that is supposedly active in the brain. Nevertheless, we cite a text that proves to be instructive.

Language is not sounds.

Oc, 266ss..-- There Ducrocq speaks of consciousness and automatic actions (what we do repeatedly, we do 'automatically' over time) and, by extension, of "the sounds of a language".

1. *Helsinki* .

Under the supervision of a certain Risto Näätänen, Finns listened to Finnish phonemes as well as Estonian ones. Within the latter, there is a sound 'ô' (1311 Hz) that is unknown in Finnish. The brain images revealed that Finns respond differently to 'ô'.

2. *Milan*

Italians—unfamiliar with Japanese—first listen to a Japanese text and then the reversed recording.

Result .

In both cases, the Italians didn't understand a word of it. But their brain images were not the same.

In other words—according to Ducrocq—it is as if a sequence of sounds influences the brain differently depending on whether or not it represents real 'sense' ('information'). -- As he says: language is more than physical sounds.

COGN2.63

7.5. A hypothesis (63)

Library st.: *J. Eccles,Comment la conscience fotografie le cerveau* , Paris, 1997 (or.: How the Self Controls the Brain , Berlin/Heidelberg/New York, 1994).

Eccles (b. 1903), Nobel Prize in Medicine 1963, is an experimental neurophysiologist. The problem addressed: "If the self controls the brain, how can this be reconciled with physics?"

With *K. Popper* , the epistemologist, *Eccles wrote *The Self and Its Brain **, Berlin, 1977. Both advocate an interactionist dualism.

1. The ego, spirit, as being of divine origin and immediately immortal, differs fundamentally (in origin and functioning) from the brain, the result of centuries and centuries of biological evolution (dualism).

2. However, both interact within the unity of man (interactionism).

Regarding Popper's position, see *R. Puccetti, Popper and the mind-body problem* , in: *Gr. Currie/Al. Musgrave, eds., Popper and the Human Sciences* , Dordrecht, 1985, 45/55.

Explanation.

Eccles takes into account both the microphysical structures of nerve cells and the calculations (not without probability) of equally or even more microphysical quantum physics. In other words, it takes place in the realm of "the infinitely small".

The interface where the 'self' (I, mind) and the brain are actively in touch with one another (oc, 29 and 195) is the human neocortex (the prefrontal lobes, at the very front of the brain, which represent a large amount of "gray matter"). There—according to Eccles—a modular organization generates a pattern of neural activity such that the self comes into interaction with the brain.

Note: Eccles' exposition is, however, of such a technical nature that we will not reproduce it here, of course.

Note: On April 18/19, 1986, the Higher Institute of Philosophy organized an interdisciplinary symposium on the "mind/body problem". Eccles, with O. Creutzfeldt and J. Szentagothai, was there.

It was remarkable that Prof. Lindenmayer (Utrecht) raised the question of whether, if the 'soul', in interaction with the body, could not also interact with other realities (e.g. in a paranormal way).

COGN2.64

8. Primitive and Ancient Medieval Cybernetics. (64/73)

8.1. Cybernetics (64/66)

Let us begin with the Bible.

*H. Peels, *De wraak van God** (*The meaning of the root NQM and the function of the NQM texts in the context of Old Testament divine revelation*), Zoetermeer, 1992, states that in 59 texts NQM means “reparation after deviation;”. In 85% God is the subject of NQM.

In other words: NQM means “judgment of God” (God’s intervention)—something the old catechism still recognized in the term “sin crying out for vengeance, understand: provoking reparation” (which involved transgression).

Herodotus

G. Daniëls, *Religious-historical study on Herodotus* , Antwerp/Nijmegen, 1946, sets out what Herodotus of Halicarnassus (-484/-425) calls 'kuklos' (Latin: cycle, loop):

a. many things (animals, people) start small and grow in an orderly manner;

b. sometimes, however, they reach a state of 'hubris', transgression, deviation (disorder);

c . This is followed, in Herodotus's faithful interpretation, by a divine restoration (which, if necessary, means complete ruin) of the order.

Aristotle.

O. Willmann noted at the time that in his *Politika* v: 5, speaking about constitutions, Aristotle structures an analogous 'kuklos', course, as follows:

a. 'telos', goal (direction), objective, the order;

b. 'par.ek.basis', deviation (disorder);

c 'ep.an.orthosis' (or also: rhuthmosis), restoration (order).

The latter is reminiscent of the often misunderstood “panta rhei” (usually poorly translated as “everything flows”) of Heraclitus of Ephesus (-535/-465), which means: “Everything proceeds in a spiral”.

*EW Beth, *Natuurphilosophie** , Gorinchem, 1948, 35ff., brings up this “order/disorder/reordering”. The cosmic harmony (of opposites: order/disorder/reordering) governed equally the inanimate, the living, and the human, indeed, also the divine nature. He refers to *H. Kelsen, *Die Entstehung des Kausalgesetzes aus dem Vergeltungsprinzip* *, in: * *Erkenntnis* 8* (1939), who knew that structure.

For ancient Egypt *, WB Kristensen et al., *Ancient and Modern Cosmology*,* Amsterdam, 1941, confirms the same structure in an analogous manner.

Moreover, he views them as the basis of religions throughout the ancient world.

Plato not say in Timaeus 32 , “All those things become the cause of diseases (sanctions) when the blood does not feed on food and drink (order) but receives its 'weight' from wrong things (disorder), contrary to the laws of nature”?

COGN2.65

Steering thinking,

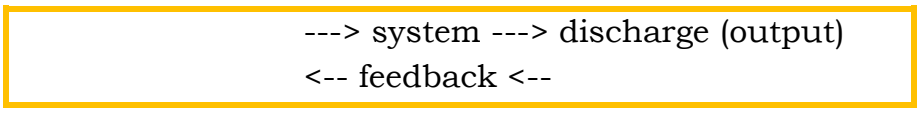
Norbert Wiener .

As a mathematician, Wiener (1894/1964) met A. Rosenblueth, a neurophysiologist, and became acquainted with his activities under the supervision of W. Weaver (automatic machines). This led to Wiener's book , **Cybernetics* *, published in Paris in 1948.

Wiener defines control science as “the theory concerning feedback”. In other words: the concept of 'feedback'.

Visual model.

Library st.: *D. Ellis/ Fr. Ludwig, Systems Philosophy* , Englewood Cliffs, NJ, 1962, gives the following diagram: input



Consider, for example, a very simple model of a “dynamic system”: a coffee grinder: the input is the whole coffee beans; the discharge is the ground coffee, the output.

Matter/ energy/ information.

Ellis/Ludwig distinguish three types of dynamic systems. The first process (uptake/outtake) matter (a coffee grinder, a meat grinder), the second process energy (a heating device), the third—and these are particularly interesting—process information (converted into material symbols (a computer)).

Feedback

*A. Virieux-Reymond, *L'épistemologie* *, Paris, 1966, 66s., defines 'feedback' as a 'recurring' cause (to its starting point). Indeed, the “feedback” causes, but taking the goal into account. In the event of a deviation from the goal to be achieved, the feedbacking cause returns to the starting point and corrects the

deviation. Diagram: -- Goal-oriented: ---> deviating: ---> feedbacking (corrective)

Self-regulating system, -- A system in which feedback is built in.

J. Piaget, Structuralism , Paris, 1968. -- Piaget states: a cybernetic system is **a** . a totality (system), **b.** endowed with self-regulation ('autoreglage'), **c** . which controls ('regulates') the transformations ('transformations'). Quasi-closed system. -- This self-regulation presupposes that the system is open (susceptible to input), but not simply open, and is therefore quasi-closed because it is also regulating itself.

Mathematical describability . - Goal/ deviation/ recovery is an ancient concept.

*J. von Neumann, *Hetspieren als computer** , Rotterdam, 1986, xix, states: alongside general mathematical methods, logical (logistic) and statistical methods are employed in cybernetics.

COGN2.66

Self-regulating systems.

L. von Bertalanffy, Robots, Men and Minds, New York, 1967, distinguishes probes that are partly identical and partly non-identical.

1. *Inorganic.*

The 'regulator' is that part of a machine that keeps its speed (functioning) stable: pendulum (timepiece), balance wheel (watch), governor/flywheel (steam engine). J. Watt (1736/1819) invented the latter: a signal (information) that controls the stable speed of the steam engine is incorporated into the machine.

If the speed deviates for any reason, the machine, acting as a self-regulating unit, adjusts the speed via feedback up to the set target speed.

In other words, goal/ deviation/ correction (feedback).

2. *Organic.*

The feedback mechanism, built into life, triggers homeostasis if a deviation occurs in “le milieu intérieur”, the internal state of the organism (Cl. Bernard (1812/1878)), such that internally (not without co-regulation of external influences, of course (quasi-closed system)) acidity, water balance, body temperature, the entire metabolism, and so on remain stable (except for non-life-threatening deviations).

In other words: goal/ deviation/ recovery.

3. *Organic.*

Feedback regulates the reflex in response to external influences causing anomaly (not without such internal influences). Fr. Magendie (1783/1855; neurologist) defined 'reflex' as that activity caused by a stimulus (disturbance) that propagates via the posterior or dorsal nervous system, from where it is reflected (restored) via the anterior or ventral nerve roots to its origin (the cause of the disturbance (abnormality)). There, it weakens the initial disturbance, causes it to cease, or even reverse it.

In other words: goal/ deviation/ recovery.

4. *Intentional.*

A. Ellis/ E. Sagarin, Nymphomania (*A Study on the Hypersexual Woman*), Amsterdam, 1965, frl. 208ff., sets out the ABC theory of personality.

(A) A setback disrupts the psychological balance of

(B) a subject who is neurotic, who was already previously in an abnormal state, (

(C) so that the behavior comes across as 'disturbed'.

The feedback arises either from (B) itself, the subject with its common sense (= feedback insight), or from therapists who (B) bring the subject back to “common sense”.

COGN2.67

8.2. Automatic machine/ computer (67/68)

Let us start from a model, the automatic washing machine, to understand the original, the 'calculator'.

1. *The washing machine* .

In an automatic washing machine, we have one type of dynamic system: the washing machine processes matter, the laundry. But it is 'informed'. In such a way that an algorithm is at work.

Algorithm.

An algorithm is a complete enumeration. That is to say: a summary. It captures the total scope of a concept—here: handling laundry—in an ordered series of actions that collectively constitute the essence, the content of the concept. In other words: it is a definition.

Washing algorithm

An algorithm comprises an initial action, a set of intermediate actions, and a final action. Let us say: a series of 'instructions' (commands) that determine

a process.

Order .

With a substructure, infrastructure, as a starting point:

a. place the clothes to be washed in the drum; switch on the power; put the washing powder in the compartment; open the water supply.

b. Depending on the nature of the laundry, an appropriate program is entered (in the built-in microprocessor – which is a chip that is logistically structured and has memory: if you will, a miniature computer): a button is pressed that includes one of the washing programs. The machine executes this program. The wastewater is discharged.

c. The clean laundry is removed from the drum.

2. *The computer* .

There is an analogy, this partial identity/partial non-identity, between a washing machine and a computer.

Analogy. -- The computer operates according to the structure just mentioned: input of information (instructions) / processing according to a program / output.

Difference. -- The washing machine is largely pre-programmed. The computer is much less pre-programmed: whoever uses it can enter a program themselves to a certain extent, programming a given and a requested (task) for the solution.

Note: The degree of automation is clearly visible. In any case: logic, particularly in the form of logistics, is commonplace in machines, automatic machines, and computers.

COGN2.68

The computer.

Library st .:

-- *P. Heinckiens, Programming is more than typing* , in: *Eos* 6 (1989), 9 (Sept.), 69/73;

-- *E. De Corte/ L. Verschaffel, Learning to program* (*Vehicle for skills* ?), in *: Onze Alma Mater* 1990: 1 (Feb.), 4/35.

Definition. -- An ordinator is a device that processes data (information)

encoded in material symbols, in the form of an algorithm (sequence of goal-directed actions).

Computer system

Two larger sections.

1. The computer itself (at the front of the keyboard).

2. The background is peripherals.

As a dynamic system, the coordinator displays the keyboard as the input machine, while the monitor (with, for example, the screen) and the printer are the output machines. --Fiskette.

This is the disk on which the information is stored (the data carrier). Immediately we have the memory: the floppy disk as a storage location for data.

The floppy disk is both an input and output unit. In other words: input, memory, and output are the three functions of the floppy disk.

Equipment/ software . -- Hardware (material)/ software (logic).

a. Equipment is the totality of the material components: electromechanical and electronic parts, cables and circuits for electrical power supply and interconnections; -- a central memory and auxiliary memories; -- input and output devices for the data (information).

b. Software is the totality of the programs and the associated documentation material (manuals, flowcharts for computer operation).

Both together.

Ph. Davis/ R. Hersh, L'univers mathématigue , Paris, 1982, 365/369 (*Modèles mathématiques, ordinateurs et platonisme*), points out that actual computer 'calculation' (computer work) encompasses both aspects: only when both equipment and software are in perfect order can “the absolute truth” be expected from the computer. -- The authors emphasize “which is far from always the case”.

This brief description is not intended as an introduction to computers: it aims to demonstrate that the computer is a dynamic system that receives, processes (according to pre-given axioms), and outputs information. It is therefore, in medieval terms, “a totum physicum movens”: a physical whole that moves.

COGN2.69

8.3. Computer thinking: applied logic (69/70)

1.1. ***Five aspects.***

According to Dr. Klingen (Helmholtz-Gymnasium, Bonn), computer science comprises five aspects.

1. Insight into the use of the equipment.

2.1. Insight into the core of the thought process, the algorithm.

2.2. Understanding how to structure the information (data).

2.3. Insight into application to concrete cases (application models).

3. Insight into protecting data against intrusion.

1.2. ***Object/ subject.***

De Corte/ Verschaffel. -- Learning to program is translating a concept in terms of content and scope into a series of operations.

a. ***Object.***

GG. -- A legal matter, e.g. a murder. -- Let us think of colonialists confronted with 'native' law.

GV. -- Solve it with the computer. Familiarize yourself with the relevant case law (summative induction: sample by sample). Once this is known, program it based on summative deduction. In other words: do justice to the totality of the issue. — We call that 'cognition'.

b. ***Subject.***

De Corte/Verschaffel call this 'metacognition'. The 'mind' of the programmer is reflected in the algorithm. Whoever instructs the machine with bias (stubborn, orthodox (dogmatizing), preference-seeking, as Ch. Peirce calls it) does injustice to the thing (object). Objectivity—as Peirce says: scientificity—befits the programming subject.

2.1 . ***Computer terrorism.***

*J. Ellul, *Le bluff technologique* *, Paris, 1988, states that there is a danger that if one is entirely 'molded' in the computer way of thinking, one becomes closed off to other forms of thought.

2.2 . " ***It does not always have to be programmable'.***

Prof. Weizenbaum, MIT, criticizes what was considered a duty at a number of American universities: "every student his computer." He emphatically wants to prevent a subject from being viewed solely from the axiom: "It must be programmable." We call this "axiomatic induction": one takes samples from a (total) reality only insofar as these samples align with the axiom of programmability.

Note: Traditional logic, especially when actualized, can learn a great deal from, for example, cognitivism (logistics), but is fundamentally broader in orientation.

COGN2.70

The essence of Programming.

'Programming', algorithm, is mapping a task (GG+GV) into a logically correct sequence of 'elementary' (irreducible) actions ('steps') that are understandable to the type of computer.

“Algorithmic thinking is the hard core of computer science.” (*H. Haers/ H. Jans, Computer Science and Computers in Education,* in: Streven 1984: July, 928/940).

'Programming' (forming an algorithm) involves preparing the programming to begin with pen and paper at the table, before deploying the device. This involves defining the task entirely and only the entire task (complete enumeration or classification) in the mind (cognition) by dividing it into steps. That means:

a. summative induction (from each step individually to all steps collectively) in preparation for

b. summative deduction (getting the series of steps down on paper in sequence).

That is “logically correct”.

Structures.

These are programming methods (actually definitions).

a. *Iterative definition.*

Monotonous repetition. -- Model: a, a, a, a, ..-- The command (instruction) is repeated.

Appl. mod..- GV. -- To retrieve a list (= summative induction) of twenty names from the computer's memory: one presses “enter a name” twenty times.

b. *Sequential definition.*

Non-monotonous sequence. -- Model: first a then b, further c, etc.

Appl. mod ..-- ***GV. --*** Translate coffee making into an algorithm. -- Initial action: I go to the coffee machine. Intermediate actions: take the pot; walk to the tap; fill the pot with water. Etc.

Note: It is clearly evident here that one must first know the order based on summative induction before programming it logically correctly. c. Selective definition. -- Plural of choices from which to choose.-- Model: “If GV, then yes; if not, then no; Or vice versa.

Applicable mod.: Pension calculation. -- “Does the beneficiary belong to one of the categories: worker, employee, self-employed, yes or no? “Has the beneficiary had a full or incomplete career, yes or no?” (...).

Note: The computer stands or falls with the completeness of the data, i.e.—we repeat ad nauseam—with summation (preparatory inductive and subsequently programming deductive summation). Only the totality of the data and the requested data guarantees the computer.

COGN2.71

8.4. Chemical algorithm (71)

Library st.: *B. Faringa/ R. Kellogg, Factoring* (Nobel Prize in Chemistry 1990), in: *Natuur en Techniek* 58 (1990): 12 (Dec.), 832/839.

1.1. ***Synthesis.***

E. Corey (with twenty collaborators) worked on the 'production' (synthesis) from final elements (often compounds containing carbons) – in computer language: bottom-up – of gibberellic acid, a complex plant hormone. This served as a preliminary stage to the manipulation of biological characteristics.

1.2. ***Retrosynthesis***

Corey developed the method.

1. Analysis. -- He broke down complex structures into indivisible elements. In computer language: top-down.

2. Production. -- He resynthesizes.

Role of the computer.

The LHASA (Logical Heuristics Applied to Synthetic Analysis) is a computer widely used in universities and industrial laboratories (for drug research).

Note: Corey has been applying that method at Harvard University since 1959. It was precisely that computer logic regarding synthesis that was one of the main reasons for his 1990 Nobel Prize.

2. Total ***synthesis***

The production of natural substances (organic compounds of natural

origin) – starting from simple molecular elements – is called 'total synthesis'. The atoms that make up a hormone or an antibiotic, their mutual interactions, the functional (role-playing) groups within them, and the spatial structures all play a role in total synthesis.

Algorithmic

Appl. mod.: Corey thus synthesized ginkgolide-B, a complex compound found in the ginkgo biloba (the well-known Chinese tree of life). This was done by step-by-step a. decomposing (decomposition) into 'synthones' (non-decomposable elements) and b. resynthesizing by combining in thirty-seven steps.

One recognizes the structure of the rhetorical synthesis abstractly sketched above.

Note: One can thus see that the algorithmic method, known to all kitchen specialists (their prescriptions are algorithms), is finding an unexpected application in the (bio)chemical field, but not without the computer as a means of controlling very complex algorithms. That is its 'power'!

COGN2.72

8.5. An approximate understanding of 'connectonism' (72)

Library st.: *B. Cadet, Psychologie cognitive* , Paris, 1998, 73/83.

Cognitivism has variants that sometimes come across more as counter-models. The model building ('modélisation') of computationism (computer-oriented model) differs quite a bit from that of connectionism.-- To avoid getting lost in hyper-sophisticated details, here is an approach.

Jointly capturing problem situations.

Cadet refers to *E. Bonabeau/ G. Theraulaz, Intelligence collective* , Paris, 1975.

Some animal groups attune their collective behavior to the changing situations in their environment, yet it is striking that any “central organism” (whatever that may be) or any “leading figure” is absent.

1. Clearly, such group reactions are 'intelligent'.

2. But that 'intelligence' is clearly 'collective' insofar as it is not concentrated in any member of the group or any subgroup whatsoever.

At most, one finds some 'specialization' (concentration of intelligence) in

certain individuals in such communities. Let us think of the worker and guard bees in a beehive.

The animal 'analysis' (the grasping) of the situational problem (e.g., a foreign insect invading the nest), together with the 'intelligent' responses, apparently spring from an information exchange process between the individual (insofar as this term applies here) members.

Conclusion

On closer inspection, it is clear: there is indeed an information processing process.

The 'intelligent'.

The group, i.e. the members-in-interaction, “floats to the surface” (*note:* out of the swamp of information details). What is called 'émergence' in French. The group controls the situation, in other words: Distributive structure.

The group collective stands or falls with the individuals who each understand the situation (partially or wholly?). In other words: the information is distributed among the individuals. 'De-individualized' nonetheless.

Note: Connectionism is also called 'neuromimetic'. The group members resemble the neurons that, each individually but within a network, underpin our perceptions/sensations or our knowledge.

Steller refers to a pioneer: *K.S. Lashley* (*In Search of the Engram* , in: *Psychological Mechanisms in Animal Behavior* , London, 1950), a text that did not resonate until thirty years later.

COGN2.73

8.6. Neuron network (73)

Since 1960 (especially since 1985), computer scientists (USA, Japan, Switzerland, among others) have been experimenting with a new selective type of ordinates.

1. *Model* .

The human brain consists of neurons and neuronal centers, collectively a neural network of some one hundred billion neurons in constant interaction. They help process what mental activities have to process, if only by providing substantiation.

2. *Original.*

Whereas the established computer has a program (microprocessor), the neuronal network simulating coordinator does not. In the absence of the classical program, only a set of elements remains—artificial neuronal simulations—which interact via electrical currents with a sensitivity threshold susceptible to fluctuations.

Appl. mod..

They instruct that new type of computer to “Look up the word cookie in a text”. -- The computer reacts somewhat like a human: “If (the more) a word resembles what is being searched for ('cookie'), then (the more) the network gets excited (electrically, of course). Until it lands on 'cookie'.

Proprietary algorithm.

Computer people are used to the algorithms, but the typical algorithm of the neural network has its own selective definition (and comes across as peculiar at first).

Robotics.

'Robot' (Czech) used to mean 'artificial human'. Now it means 'work machine'. Robots that artificially 'look' (at 'cookie', for example) or process words are served by the new type of operative.

Man and machine

Cedos, Cerveau humain (“ *Maman, enco un miscui* ”), in: *Journ.d.Genève* 10.12.1990, has the following observation in this regard. -- A 'two-year-old baby recognizes in the blink of an eye a 'cookie' ('miscui' = 'biscuit') that barely shows its edge in the wrapper.

Incidentally: a dog too! – So far, even the most powerful computer hasn't succeeded in that. Explanation: A baby (a dog) requires only a minimum of perceptual data (mind as intentionality). A computer always requires the full perceptual data because it only has that dose of mind that its creators put into it.

In other words: intentional systems transcend the meager data of perception, if necessary—thanks to 'flair'. With what? With 'spirit' (even a dog has something of that 'flair').

COGN2.74

9. Artificial intelligence as requested. (74 /79)

9.1. Question about formalized language use (74)

Library st.: F. Bellotti, Congo prodigieux , Paris, 1956, 81.

Scenario. -- Former Belgian Congo. A Bakumu appears before a Belgian judge after a murder. Dead calm, proud of his killing, he is brought before the court: “I was acting in a state of legitimate self-defense.” The judge: “But according to witnesses, you started first.” Accused: “But he had two spears with him.” The same answer keeps returning.

The judge ends this monotonous debate and, believing he is delivering a just verdict, says through the interpreter and his Negro-African helpers: 'Hanging'. The interpreter translates. Those present, African judges, and even the accused clearly agree, nodding their heads. At the end, however, the interpreter asks the judge: “Everyone agrees. Your verdict is just. But how to hang a dead person?”

The judge postpones the verdict and hastily asks the governor for advice: “But surely that is settled! To approach a Bakumu with two spears is to say to him: ‘I have come to kill you (in a duel).’ The accused was therefore in the right. Acquit him.” Thus spoke the governor.

The general concept of “criminal offence” Oc, 82 **.**

1. A code of laws, if it is a genuine system of agreed-upon rules of law, is the elaboration of the axiom: “By sf (criminal offense), the general characteristic by which all criminal offenses are recognizable, these and those (singular, particular applications) shall be recognizable as punishable.” So much for the content of the concept. Now for the scope of the concept.

2. It is impossible to question all experts (chiefs, mages) in such a way that a complete list (inventory) of all possible science fiction emerges. For they confine themselves to acting on a case-by-case basis in accordance with customary law ('tradition').

*According to D. Kayser, *Logique*,* in: *O. Houdé, *Vocabulaire de sciences cognitives* *, Paris, 1998, 250, formalized logic (logistics) is an essential part (instrument) of artificial intelligence (as with other cognitive sciences (linguistics, psychology, philosophy)) and, based on the Congolese case, one understands the need for a formalized legal code as a kind of proof machine, in which one needs to set the algorithm in motion as a completely mechanical activity to deduce each case individually. Without traditions.

COGN2.75

9.2. Noam Chomsky's General Linguistics (75/77)

Library st.: *P. Wesly, Noam Chomsky* , in: *C. Bertels/ E. Petersma eds., Philosophers of the 20th Century* , Assen/ Amsterdam, 1972, 225/235.

Syntactic Structures by Chomsky, a professor at MIT since 1955, was published by Mouton, The Hague. Later, **Aspects of the Theory of Syntax ** (1965) was published. Two books. Worldwide fame!

Chomsky reacts against traditional grammars, which provide quite a few rules but **a.** lack any (or at least not much) coherence and **b.** contain many exceptions. Chomsky's syntactic-logistic treatment aims to thoroughly remedy precisely this: rules that 'apply' outside of any existential context, like mathematical rules. -- We review the main points with the author.

Transformational rules.

The sentences—propositions—of a language are variants of the same core or basic sentence.—A brief example.

1. ***Transformation rules*** .

Let us take “You see her” as the core sentence. From there, the basic sequence can be 'generated' (“generative grammar”) by transforming it as follows (“transformational grammar”). The derived sentences read, for example:

(1) “You do not see her” (negative transformation); “Do you see her?” (question transformation); “She is seen by you” (passive transformation;

(2) combinations (conjunctions) such as “You and I see her” or “She is not seen by you”.

The syntactic analysis of the core sentence itself.

Up until now, semantic content still applies too much. It must become merely “empty shells”.

To do this, symbols must be entered. For example, 'sentence' (Z). Rewriting rules are then applied to this. For example, “rewrite as” (rule) “nominal phrase + verbal phrase”.

Abbreviated: Z = nom. fr. + verb fr. Similarly: “rewrite as” (rule) “verbal phrase = verb + nominal phrase”.

Thus, the purely syntactic structure (“the empty shells waiting for fillings

(semantic contents)") that we superficially encountered in the sentence "You see her" is exposed.

Note: Chomsky's strongly 'new' linguistics is not so new in its core rewriting, for Plato already speaks of the sentence as 'onoma', Latin: nomen, usually 'noun', and 'rhema', Latin: verbum. Which proves that this structure had already been emerging to some extent for quite some time.

COGN2.76

Further analysis.

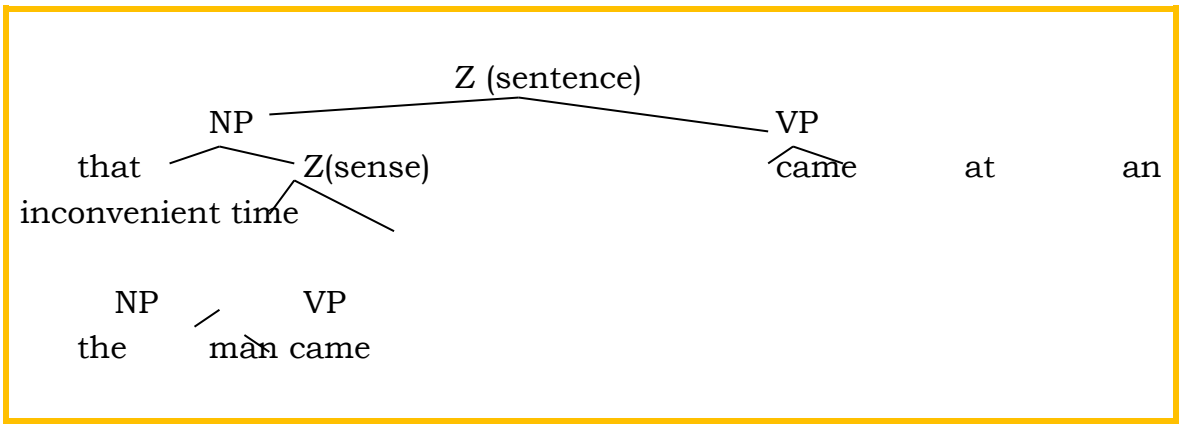
Chomsky splits further. -- *N. Chomsky, A Transformational Approach to Syntax* , in: *J.Fodor/ J. Katz, eds., The Structure of Language* (*Readings in the Philosophy of Language*), Englewood Cliffs (NJ), 1964, 211/245), gives an example.

"Z (sentence) = (can be rewritten as) NP (noun phrase; nominal phrase) + VP (verb phrase: verbal phrase)". That is the basic structure.

He then focuses on "NP" in the case of "That the man came, came at an inconvenient time". The constituents of NP are: 'that' (introduction to a sentence) + 'the' (article) + 'man' (noun) + 'came' (verb).

In other words: the subject (NP) is itself a Z (sentence).

The scheme that Chomsky diagrammatically elaborates is what follows.



Note: This method is strongly reminiscent of the traditional 'sentence analysis' in the Greco-Latin humanities. However, it is syntactic (not semantic).

Chomsky briefly mentions another type: "To err is human". NP (to err) + VP (is human). His article continues in this vein. -- Here we merely wish to

illustrate an idea.

But note this: he says that if one identifies a sentence with, for example, the diagram above as a structure (empty shells), one then 'mechanically' knows that we are dealing with a sentence. That demonstrates the purely syntactic and the anticipation of artificial intelligence.

2. *Morphophonemic rules.*

Once the syntactic structure reveals itself, the moment arrives when the sequence of symbols can now be transformed by other rules, the morphophonemic rules. For example: “You see her” or “That the man came was inconvenient”.

Wesly emphasizes this: the order of application of these rules is “of the utmost importance”. To obtain, for example, “Do you smoke?”, we must first subject the sequence of elements “you + smoking” to the question transformation and only then to the morphophonemic rules: “You + smoking = smoking + you = smokes + you?”.

COGN2.77

Ambiguous sentences.

Let's take practical examples.

(1) *He hates begging.*

Can mean: “He hates it when people come begging”.

That gives structurally: “NP + VP = NP + (NP (people) + VP (comes begging)),

(2) *He hates begging.*

Can mean: “He hates having to beg”.

Structural: “NP + VP = NP + (NP (he) + VP (must beg))).

Or if more follows.

(1) I expected that Ineke would go. -- In the subordinate clause, 'Ineke' is the subject of “would go”. So: “NP + VP = NP + (NP (Ineke) + VP (would go)):

(2) I advised Ineke to go. -- Here 'Ineke' is first of all the indirect object of “advised on” and at the same time the 'implied' subject of “would go”.

Structural: “NP + VP = NP + (NP (Ineke) + VP (would go))”.

Wesly: (1) and (2) differ in 'deep structure', di in the not so striking structure.

Note: All this was daily practice in the Greco-Latin humanities at the time. But without much “structural theory.” Rather, with the “common sense” or “folk psychology” regarding grammatical reasoning, so despised by rationalists (and especially logisticians). And based on very traditional grammar.

Depth and surface structure.

For every unambiguous sentence, there is a deep structure in which the meaning of that sentence is established based on rules regarding semantics (filling in blanks).

For every sentence, there is also a surface structure in which the sounding out, the conversion into sounds, is determined on the basis of phonological (phonetic) rules (vocabulary).

Chomsky calls this “the semantic and the phonological components”.

However, he distinguishes a third component, the syntactic: this first 'generates' the deep structure and then, through transformations (question, negation transformations, etc.), the surface structure.

In other words: the coupled depth and surface structure exists first, and it receives a semantic and phonetic interpretation (filling in).

Chomsky outlines the common language ability – competence – in this way. He calls the practical applications 'performance'.

COGN2.78

9.3. Language systems that result in inconsistencies (78)

Fellow speakers sometimes have a hard time: current spelling features both 'tekst' and 'context(ueel)', both 'kritisch' and 'criticus', 'elektrisch' and 'dialectisch'; 'klerikaal' and 'radicaal'. Thus, one can speak of “a radical clerical”.

The question arises: “From which (formal, indeed, formalized) rules (axioms) is that spelling derived?”

Library st. : *J. Fr. Dortier, Les sciences humaines* , Auxerre, 1998, 82s.. *Noam Chomsky (b. 1928) developed his Syntactic Structures (1957-1)* at MIT .

'Syntax' in his use of language is a recursive mechanism such that an infinite number of sentences can be formed from a basic pattern.

Thus: “Anneke sells an ice cream” is an 'instance' (application) of “empty

houses" with the form "Z(in): "Subject + Prefix + Non-Specific": The latter exposes a deep structure that comes to the surface in our everyday sentences.

Infinite wealth.

The basic form of the sentence, a commonplace, is the common place from which all sentences bubble up thanks to permutations (each time other sentences). For example: "Lise tormented her little sister". "Jef hit Jan". That is 'generating' sentences (hence the term "transformational-generative grammar").

Formalism:

To put it bluntly: "Working with empty houses that one fills in". More learnedly: "semantically interpreting the syntactic structures" (by filling in). Dortier notes that Chomsky's logistic language machine gets bogged down in "semantic nonsense" -- contradictions, paradoxes.

For example, "Anneke sells an ice cream" is syntactically very correct but semantically 'nonsense'.

Steeds Dortier: despite all improvements to his syntax, Chomsky has not succeeded in eliminating all inconsistencies.

Rule with exceptions.

The semantic nonsense exposes the weak points of the axiomatic-deductive system. An axiomatics is a conceptual content that reveals the corresponding conceptual scope in the derivations.

Languages are historically (cultural-historically) evolved 'systems' with very great internal coherence (freedom from contradiction), but reconstructing them rationally and rationalistically is a difficult task. To put it in Hegelian terms: in semantic nonsense, formal systems reveal their 'finitude'.

COGN2.79

9.4. Textual Science (rhetoric) (79)

Library st.: *T. van Dijk, Textual Studies* (*An Interdisciplinary Introduction*), Utr. / Antw., 1978.

As the author himself states, oc, 16, contemporary textual scholarship is a re-establishment of the rhetoric introduced since the ancient Greeks, which represents the communication of a message to a recipient. – However, let us first consider a practical chapter.

Scientific article.

Oc, 161ff. -- The author adopts a type, namely the experimental report.

1. *Observation* . -- E.g., a language user is unable to repeat a text that has been read once, -- a text of five pages.

2. *Hypothesis formation.* Also called 'induction' (de Groot). -- An explanation is formulated, e.g., in terms of a general property of information processing in memory.

3. *Deduction of tests.* - From the assumption, one derives a number of predictions (regarding regularities in language usage) in order to test them.

4. *Assessment* . -- It is an experiment. In doing so, attention is paid to the subjects, the design of the experiment, the experimental conditions, its execution, and the results.

5. *Value judgment* (evaluation). - The result is discussed regarding the acceptance or rejection of the hypothetical explanation.

Note-- See *A. de Groot, Methodology* (*Foundations of Research and Thinking in the Behavioral Sciences*), The Hague, 1961, 29ff. (The cycle of empirical-scientific research).

Textual science and cognitive psychology.

Oc 16v.. -- Grammar outlines ideal language usage. Psycholinguistics and cognitive psychology focus on actual language usage. Cf. Chomsky's competence and performance.

Thus: the well-defined cognitive states and processes in language use, the rules and 'strategies' employed therein, and how language use can be learned. All of this regarding reading texts, composing texts, and evaluating texts.

If you like: input and output. -- How one learns to read texts and how one learns to compose them oneself. All this, according to van Dijk, within the framework of information processing psychology.

COGN2.80

10. Artificial intelligence (AI). (80/83)

10.1. History of origin (80)

Library st.: *J.Fr. Dortier, Les sciences humaines* , Auxerre, 1998, 220/ 230.

Together with the steller, we outline the history of its origins.

1956.-- University of Dartmouth (USA).-- J. McCarthy, mathematician, organizes a seminar on AI (a name he coined). Present: H. Simon (Nobel Prize in Economics) and All. Newell with their Logic Theorist (a program that enables proofs of mathematical theorems (the first AI program)); also: M. Minsky (mathematician) and C.L. Shannon (the founder of information theory).

New design. -- The coordinators of that time were lightning-fast calculators endowed with an astonishing memory.

AI is something else: imitating human intelligence (with its 'strategies' such as perceiving, understanding human language, reasoning, learning, composing music, etc.) as perfectly as possible.

1.-- 1956+. -- Simon and Newell design the General Problem Solver (GPS), McCarthy LISP (still in use). Chess programs emerge.

2.-- 1970+.-- Robotics emerges. “Expert systems” are designed (Dendral, Mycin). The first programs for understanding natural languages (Shrdlu (T.Winograd), Eliza) take shape.

1970.-- Artificial Intelligence publishes its first issue. In other words: the birth of organized AI operations.

Some basic concepts. -- To clarify.

a . ***Strong/weak AI.*** -- The proponents of strong AI want 'a lot', nothing less than the simulation (imitation) of the mechanisms of human intelligence. The others limit their objectives to pragmatic domains: practical tasks.

b. ***Expert system*** . -- That is the name for a computer program that allows
a/ to assess a situation (with strangers)
b/ so that a rational decision becomes possible. In other words: doing mechanically what an expert would otherwise do with his 'mind'.

Like this: one first takes stock of what a doctor determines based on a number of symptoms (= summative induction) and prescribes as therapy; that is then fed into the “expert system”.

c. ***Fuzzy logic.*** L. Zadeh (1960+) introduces the concept of a “fuzzy set”

(an element can belong to a set with 0 to 1 probability).

COGN2.81

10.2. Artificial intelligence and language use (81)

Library st. : *J.-Fr. Dortier, Les sciences humaines* , Auxerre, 1998, 22 3 ss..

The computer processing of language use—think of automatic translation—creates problems.

a.1. The first automatic translation machines – from 1950 – relied on word-for-word translation. -- But that already creates problems. -- “The girl walks in the sand” is easily translated mechanically word-for-word: “La fille court dans le sable”. But what happens to “The weather is nice”?

Lexicographically, in Dutch, “weather” means:
1/ m.: a castrated ram;
2/ v.: defense (think of weather.power);
3 / m./o.: callus;
4/ o.: atmospheric conditions;
5/ o.: farmlands between two ditches;
6/ adverbial: again.

Unless the computer has a semantic network at its disposal and, moreover, the 'competence', the expertise, to choose from those six possible meanings, it will make errors.

The human 'mind' grasps the (semantic) meanings by understanding interaction including the verbal context, the factual circumstances, and the intersubjective communication. This means that, as Hegel repeatedly emphasized in his time, the human mind does not understand 'abstractly' (understand in Hegelian terminology: not without the context).

How can the machine do that? Unless in very limited domains suitable for computer processing.

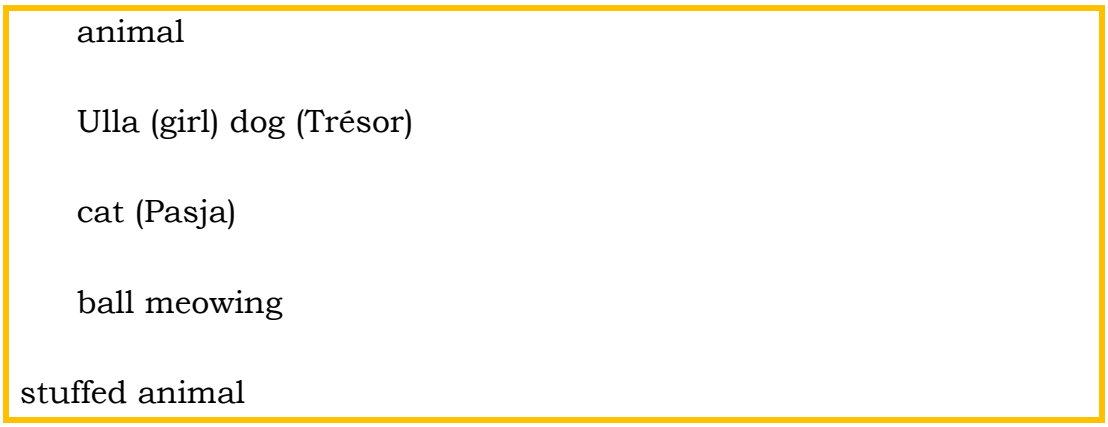
a.2. Meanings of feeling. -- If I say “It is nice weather today” with the intention of saying the opposite, how can the stupid computer grasp that humor? If I say “It is nice weather today” with the intention of expressing my satisfaction, how can the mindless, because emotionless, computer grasp that?

Note: Let the psychologist *Phil Johnson-Laird (The Computer and the Mind* , FontaPress 1988) claim that “semantic networks are the foundation of most computer science theories and of most psychologies of meaning; the strong point of machines is the syntax of symbols, but consequently their weakness regarding semantics.”

COGN2.82

10.3. Semantic networks (83)

AI has difficulties with language use. In this connection, let us briefly elaborate on “semantic networks”, as outlined by *J.Fr. Dortier, Les sciences humaines , Auxerre, 1998, 224.*



Semantic (referring to actual things) networks represent the meanings of a conceptual content insofar as it relates to a collection of data.

The semantic graph above illustrates this. The nouns above fill in the 'labels' (also: nodes). The spaces in between make way for the relationships, called 'links' ('links').

For example: “Ulla likes an animal”. “Trésor is an animal”. “Ulla plays with the ball”. “Pasha is an animal”. “Pasha plays with the ball”. “Pasha is a stuffed animal”. “Trésor does not like the cat”. “The cat meows”. Etc. This forms a mini-system.

The schedule.

When one examines the table of meanings ('insights'), then what follows,

1. The possible meanings are virtually limitless (holistic aspect) in number. In which contexts can the 'labels' (nodes) not occur? In which contexts do the relationships not fit?

2. Immediately there is 'emergence', the appearance of new insights. For example:

a. ***reasoning*** : “If Pasha is a cat and cats meow, then Pasha meows”;

b. ***new links*** “Trésor plays with Ulla”; “Ulla hears the cat meowing”.

Connectionists see in such a network an image of the neural network that is our brain. With reservations:

a. the possible relationships quickly necessitate taking into account an enormous amount of data;

b. a subset of the relations requires reservation: “The dog does not like the cat” is not a universally valid statement (there are cats that get along well with dogs; -- which betrays semantic nonsense, rooted in blind faith in the universal sense).

COGN2.83

10.4. How does self-awareness arise? (83)

Roger Penrose's opinion regarding (the origin of) (self-)consciousness

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R. Penrose , Professor of Mathematics at the University of Oxford, in a short article entitled “ *Can a computer ever truly understand?”* in: *R. Carter, Mapping the Brain* , *Nature and Technology* , 1998, 203, writes the following.

Conception (comprehension) and the brain.

“There is a specific element in the brain where understanding arises.” He believes: “understanding that encompasses (self-)consciousness.”

His reasoning .

Microtubules, extremely fine tubes found particularly widespread in nerve cells, could lead to a “stable quantum state” in brain cells such that the activity of brain cells throughout the cerebellum (*note:* the small brain at the back of the head at the bottom) is concentrated and “thereby consciousness becomes possible”.

Note-- Quantum state . -- This is a reference to Max Planck's quantum theory, formulated around 1900, the fact that energy in the microphysical realm consists of 'energy grains', extremely small, separated (insofar as that is possible) doses of energy.

The distinction between cause and part of the cause.

The concentration, purely biological-cerebral, of brain activity: is it alone and in itself sufficient to create consciousness, or is it merely a partial cause, indeed, merely a trigger? It could be that our conscious mind needs a brain (and an entire body) to function in order to act within the cosmos, but in such a way that it does not simply coincide with that brain (and that entire body). Penrose does not even ask that question.

Explanations.

Penrose believes the following.

1. The coordinators made so far do not possess much or even any capacity for understanding (intelligence). Thus says the vast majority of scientists.

2. The computers or computer-controlled robots to be made in the near future will – in the opinion of many scientists – possess true intelligence and will therefore be aware of what they are doing.

For Penrose considers 'understanding', including 'artificial intelligence or understanding', to be non-existent (he believes that first contact with a phenomenon) is "a first step towards the understanding of a phenomenon". In doing so, he speaks as if consciousness were merely phenomenological.

COGN2.84

11. Cognitive psychology (84/104)

11.1. Understanding with compassion but also causally. (84)

JP Van Bendeghem, On the originality of the Vienna Circle , in: *The Owl of Minerva* (Ghent) vol. 15, no. 3 (1999: spring), 188, writes:

There are far more similarities between logical empiricism (logistics and natural science as the ideal of knowledge) and phenomenology (E. Husserl) than is usually thought. He notes that Kurt Gödel (1906/1978: logistician), at home within the limits of formalizing a consistent system, devoted himself in the latter part of his life to the work of Edmund Husserl (1859/1938; founder of phenomenology).

With this background, we consider a possible merging of hermeneutic second-person psychology with, for example, the natural scientific approach—in the form of detached third-person psychology.

Library st.: *KO Apel, Szientistik, Hermeneutik, Ideologiekritik* , in: *KO Apel et al., Hermeneutik und Ideologiekritik* , Frankf.aM, 1971, 39.

Apel advocates for the complementarity of “Szientistik/Hermeneutik”.

Scenario. -- A doctor friend is on a house call. He listens to his patient with great friendliness and empathy. That is hermeneutics.

But suddenly it becomes clear to him: what his patient says has its cause in a repressed 'x'. From then on, he analyzes his patient as a bearer of 'symptoms' of which the latter is unaware. That is 'scientistic'.

Note: Someone likes you. You respond to this suspiciously. Until you realize that, despite all their affection, that person is talkative and talks too much about you, etc. At that moment, you view that person “objectively detached,” and your empathy and sympathy become colored.

From 'hermeneutic', your attitude—your intentionality or mental inwardness—becomes 'scientistic'. Apel extends this to, for example, the attitude of a historian towards the time he studies: despite all empathy and sympathy, he will at a certain moment view that time (society, figure) with “critical detachment.” This does not prevent a certain sympathy from persisting.

Note: Cognitivism is the hard science of the inner life, -- regarding the immediate fellow man, the 'neighbor' in Biblical terminology: a little 'hermeneutics' (phenomenology) surely wouldn't hurt to reconcile 'cognitive' and 'fellow human'!

COGN2.85

11.2. Cognitive and information processing psychology (85)

Let us begin with a very brief outline of what preceded both psychologies. For they are correctives to existing one-sided psychologies whose results are not denied.

A.1. ***Naive behaviorism.***

The phenomenon of 'behavior' (reacting, insofar as observable and even measurable, to impressions) is reduced (unilaterally) to “impressions (stimuli) automatically followed by answers (responses)”:

The schedule.

Impressions (A) -- Black box (B) -- Answer (C)

Psychoreflexology.

I. Pavlov (1849/1936), Nobel Prize winner for research into conditioned reflexes, established that stimuli (initiating impressions), such as being presented with food or smelling food, or events associated with both (the steps of the person presenting food), are automatically followed by physiological responses (salivation, gastric juice secretion).

He also identified inhibitory impressions (anti-stimuli).

A.2. *Neo-behaviorism.*

This introduces "intermediate elements" between A (impression) and C (answer). These are: **a.** motives and drivers (D),

b. incentives (the previous reinforcing elements: e.g. the presence of fellow human beings) (K) (Kurt Lewin) ,

c. habits" (H) These variables present within inner life are, in the view of behavioral psychology, perceived indirectly (e.g. from knowing that someone is starving, one decides on an intensified drive; via equipment). -- One sees that the X (black box) is being filled.

B.1. *Cognitive psychology.*

The black box is being further expanded! Except for the automatic reflexes and the intermediate variables, it is assumed:

(A) meaningful situation;

(B) intellectual-rational interpretations, (which appear complex and involve purposeful behavior ('intention'));

(C) meaningful behavior.

B.2 . ***Information Processing Psychology*** (philosophy of the mind).

"Study of Mind" (the study of the person as 'mind').

Diagram: **(A)** all kinds of information;

(B) a system of mental processes (especially memory and decision;

(**C)** reaction attesting to 'mind' (human mind). Anyone wishing to know details about this should read, for example, *C. Sanders et al., The Cognitive Revolution in Psychology* , Kampen, 1989.

COGN2.86

11.3. The dog with a traumatic neurosis (86/87)

Library st.: *Tr. Braatoy, From the Practice of a Psychiatrist* , Utrecht, 1939.

Dr. med. Braatoy was a Norwegian psychiatrist. The excerpt is situated within a short chapter on "traumatic neurosis," i.e., "the nervous state" following a shocking phenomenon (an accident, for example).

Diagram .

(A) A harmful situation

(B) leaves its mark on the soul

(C) such that the behavior is suppressed under (A). - This behavior manifests itself when analogous situations actualize the traumatizing shock.

Pavlov's traumatically neurotic dog.

The story begins with the “harmful situation”.

1924.-- Petrograd (Leningrad) is ravaged by a severe flood. Pavlov's laboratory was reached. “There was a violent storm”. Rising water masses with waves. Cracking and falling trees.

The test animals swam under supervision in small groups from the kennel to the laboratory, where they were confined in mixed groups. Unusual for dogs placed throughout the facility: not a single quarrel was observed. Not even a fight. -- Afterwards, they were led back to the kennel.

(1) Some behaved normally.

(2) Others, however, behaved unusually. Such a “strong and healthy dog” whose reactions were extremely successful. For example, he previously reacted to a purring – the strongest sound in the experiments – with the strongest discharges. -- One week after the disaster, that dog was placed in the experimental room as he was accustomed to.

1.-- ***Cognition and information processing.***

The animal was extraordinarily restless, and all conditioned reflexes were practically absent. He, who had previously attacked food very quickly, now did not even want to touch it. When it was presented, he even turned his head away. This lasted for three days.

Note-- This shows that memory had become fixed in (B), the inner life of the dog. The decision not to eat food worked this memory out in his (C) behavior.

2.-- ***Incentive***

During the experiment, the experimenter positioned himself inside the room with the dog. “In the first test, all reflexes (about ten) were immediately restored. The dog ate eagerly.” If the experimenter was no longer present, this was sufficient to reactivate all abnormal behavior.

Note: The presence of a familiar person had an encouraging (incentive) effect.

3.-- ***The loud humming sound.***

Only after eleven days was the loud purring sound reintroduced: “All other conditioned impressions were processed almost perfectly. But the dog did not eat, was restless, and stared at the ground.”

4.-- ***Incentive***

The presence of the experimenter is reintroduced: “Gradually, and with setbacks, the dog regains his old form.” He only appears to be fully fine after a 'treatment' of 47 days. Two months, then, after the disaster!

5.-- ***New experiment.***

a. The hand responds to a series of stimuli as before, with a distinct salivary response that, as usual, varies according to the intensity of the impressions. In addition, it enjoys eating.

b. But suddenly, a stream of water is let flow silently under the door of the room until a puddle forms by the dog.

Analogous situation.

The dog jumps up quickly, stares restlessly at the floor, tries to pull himself free, and breathes heavily. -- When experimented with impressions, he responds only with increased excitement. He refuses to eat.

Note: The (A), the disaster, has left behind in (B) the inner life of the dog a memory which causes him to react (voluntary act) in (C).

Commentary.

Braatoy, as an experimented psychiatrist, states: “Animals and humans can be exposed to intense impressions that so unbalance them that they, for a short or long time, note -- via (B) -- lack the nuanced control of their nervous system. Such a condition is seen in dogs immediately after the flood.”

“But nervous health—this is how Braatoy expresses the undisturbed psychic life—will also depend on the relationship between the shocking events and past impressions.”

His decision .

The dog's reaction at the puddle, not so shocking in itself but recalling the disaster (which is history), is incomprehensible until one knows the 'prehistory' (the disaster).

In other words: earlier impressions, especially heavy ones, continue to 'mark' (in (B)) and manifest themselves with other reactions in (C).

In that case, (A) is the current and the past traumatizing event.

Caregivers of all kinds would apparently do well to keep Pavlov's story in mind as an informative hypothesis (or even an axiom).

COGN2.88

11.4. The birth of cognitive psychology (88)

Library st. :

-- *J.Fr. Dortier, Les sciences humaines* , Auxerre, 1998, 204 ;

-- *M. Huteau, Les conceptions cognitives de la personnalité* , Paris, 1985, 193ss. (*Le "new-look" perceptif*).

Dortier pauses briefly at what he calls "the famous experience of Jerome Bruner," Professor of Psychology at Harvard University, regarding "categorization" (ranking, classifying phenomena according to characteristics within the same comprehensive concept).

Note: It is immediately clear that the Mannheim School, particularly with O. Selz, was already on the same wavelength. Dortier does not hesitate to label Bruner the father of cognitive psychology.

Early 1950s.

Participants were asked to 'categorize' (arrange) cards of various shapes and colors. In doing so, Bruner experimentally discovered, through psychology, the appropriate mental 'strategies' (methods) applied by the participant in the ordering process.

Appl. model

A reference map is entered. Subsequently, the test subject looks for those maps that show common characteristics as seen from the reference map. This is called 'focusing' (convergence).

Appl. model

According to Huteau, one distinguishes

a. formal 'determinants' (influencing factors) in perception/awareness (stimuli with special properties; perceptual and sensational capacities (receiving organs, transmission mechanisms, centers)), which attracted the attention of researchers up to and including 1940 and

b functional determinants (acquired experiences, needs, attitudes to life ('attitudes'), values, feelings), more specific to the personality of the pp..

The latter have attracted the attention of the research community since 1940. See Murphy (1942). This view of personality, which already reveals itself in perception/awareness, is called the “new-look”.

'Scanning' (literally: feeling out) is one of the appropriate methods:

1. the expectations (for the experiment),

2. the processing of the data,

3. The value judgments are explored as means to fathom the expectations ('hypotheses') of the parties.

Cfr *J. Bruner/J. Goodman / C. Austin, The Study of Thinking* (1956).

Needless to say, focusing on conscious thought processes, typical of cognitivism, was quite different from the behaviorists' mere focus on the automatic responses to stimuli.

COGN2.89

11.5. Scanning (scrutinizing) the brain (89)

Library st.: *R. Carter, Mapping the Brain, Nature and Technology* , 1998, 26. -- For those completely unfamiliar with 'scanning' (scrutinizing, palpating) our body, here is an outline of the methods.

1. *Single* .

MRI. -- Magnetic Resonance Imaging.

Another name: NMR (nuclear magnetic resonance scanning). The scanning is performed using atoms in the brain aligned by magnetism, which are bombarded with radio waves. The nuclei of the atoms then emit radio signals according to tissue type.

CT **--** A computer-guided tomography (cross-sectional image) program converts that information (signals) into 3-dimensional anatomical images.

That applies to every part of the body. Applied to the brain, this produces a grayscale brain image, but in such a way that every part is clearly visible.

fMRI. -- Functional MRI.

An elaboration of the previous point. The brain regions with the most oxygen are visualized (which reveals the greatest brain activity). The energy required for the neurons to transmit impulses is supplied by glucose and oxygen delivered via the blood. When a brain area is activated, these substances flow there. Based on this, fMRI visualizes the regions with the most oxygen.

Of all scanning techniques, fMRI yields the best results, but it is extremely expensive. Researchers often have to share a device with clinical physicians who need it more.

PET. -- Positron - emission tomography.

An older technique. Similar to fMRI: the brain regions with the most activity become visible in beautiful, colored images – but fainter than those of MRI or fMRI. -- Disadvantage: to achieve the goal, a radioactive marker is injected.

Note-- Other techniques: NIRS (near-infrared spectroscopy), EEG (electroencephalography), MEG (magnetoencephalography).

2. *Multiple* .

This is called “multimodal scanning”. It is becoming increasingly common because it is a combination of two or more of the techniques mentioned above. Which naturally provides a more complete 'picture' of what is at work in the brain.

COGN2.90

11.6. Placebo (90/94)

Library st.: *Sandra Blakeslee, Guérir grâce aux Placebos* , in: *Le Temps* (Geneva) 16.02.99, 40 (trans. *New York Times Syndicate*).

We dwell so extensively on the placebo effect because it illustrates particularly clearly how it is caused by 'mind' and 'mental life'.

Scenarii.

Let us begin with 'stories'. -- Many doctors know the history.

1957 -- M. Wright had been given up for dead by the doctors in Long Beach, California, as a severe cancer patient. With tumors the size of an orange, he had only a few days left to live. However, he learns that scientists had discovered Krebiozen, a horse serum, against cancer.

He begged him to administer it. Dr. Philip West, his doctor, eventually gave in: on a Friday afternoon, he received the much-desired injection. The following Monday, a stunned doctor found his patient up from bed, laughing with the nurses.

His minutes: “The tumors had melted away like snow in the sun.”

Two months later, M. Wright read medical articles claiming it was a quack remedy. He relapsed immediately. “Do not believe what you have read in the newspapers,” said West, who then administered a dose of—what he called—“a new, twice as strong and improved version of the 'medicine'.”

It was actually water, but the tumors disappeared again. M. Wright radiated health for two months.

When he read a report that was definitive this time, stating that Krebiozen was “nothing true,” he died two days later.

At the University of Tulane (New Orleans), Dr. Eileen Palace uses a placebo to induce sexual arousal in women who claim they cannot reach orgasm. They are connected to a biofeedback device that—so she is told—measures blood flow to the vagina, a sign of genuine arousal.

Next, she is shown sexual stimuli that cause arousal in most women. However, these women are deceived by releasing a false biofeedback signal for thirty seconds, according to which the blood in their vagina has increased. Almost immediately, they experience genuine arousal.

Note-- Reread both texts paying attention to the propositional attitudes that are the real cause.

COGN2.91

A Japanese study involved thirteen participants who were allergic to poisonous sumac. Their arms were rubbed with a harmless plant leaf, while it was claimed to be poisonous sumac. All thirteen developed a rash where the harmless plant had touched the skin. Only two participants reacted to the poisonous leaves.

During a recent study, antidepressants were tested. This shows that both placebos and real medicines have practically the same effect. “If you expect to be better off, then you will feel better.”

Thus stated I. Kirsch, psychiatrist at the University of Connecticut, but his discoveries met with great doubt in the medical world.

On the island of Coche (Venezuela)—to test the effectiveness of placebos rather than medicines—asthmatic children were made to inhale vanilla twice daily, as well as a dose of medication that affects breathing. Later, the pure

scent of vanilla increased their breathing 33% more than the medication would have achieved. -- So much for a few stories.

Interpretations.

How should those facts be interpreted?

I . ***Medical*** .

a. Doctors familiar with the history of M. Wright dismiss it as “one of those bizarre stories that natural scientific medicine cannot explain”. After all, the very notion that a patient’s conviction can make a fatal disease disappear is bizarre.

b. However, contemporary scientists are beginning to take the power of the placebo effect seriously and are discovering the biological mechanisms that cause the quasi-miraculous effects of the placebo.

Studies continuously confirm the importance of “these lies that heal” (as Anne Harrington, historian of science at Harvard University, puts it).

a. As real medicines, they can cause secondary effects (itching, diarrhea, nausea).

b . They can also change the heart rhythm, blood pressure, digestion, erection, and skin quality.

One can deal with these facts in one way or another: neglect them or investigate them. Only this latter interpretation is the scientific one.

COGN2.92

After all, the fact of placebos touches upon the universality claimed by the medical sciences: whoever neglects their healing effect limits himself to particular statements on the matter. Well, science clearly prefers universal truths.

Brain images.

Brain images—according to S. Blakeslee—expose a multitude of mechanisms that cause an idea, a 'belief', or a desire to cause changes in the structure of cells, tissues, and organs.

Brain images show that, for example, perception is largely not caused by information from the outside world, but by what the brain expects to happen based on previous experiences.

Digression.-- For the convenience of those who know too little about such brain images, the sketch of one of them. -- ***Bibl. st.:*** *Peter Mosbauer's interesting magazine* (Munich) 04.1999, 78. -- Observation with two aspects.

A sensory experience of the eyes is classified by the cerebellum (1) as a branch or stick (2). -- The cerebrum (3) interprets it as a snake (4): the person freezes. - Conversely, an injection from a doctor (5) would make a paralyzed person walk again.

(6). -- Please note: this is not a photo but a sketch that suggests what is happening.

Cognitive neuropsychology.

Such scenarios are beginning to be understood from the perspective of a new field within cognitive neuropsychology, namely anticipation theory. This field focuses on what our brain thinks regarding the immediate future.

(1). ***Conditioning***

Just like Pavlovian theory—think of the dog that salivates at the mere sound of the bell—anticipation involves a learning process based on association.

According to Irving Kirsch, medical treatments play the role of conditioning stimuli over the course of life. In this way, the doctor's white clothing, the nurses' voices, the smell of disinfectant, or a syringe acquire meaning.

COGN2.93

As in the past learning process, these things produce the expectation that the symptoms will be alleviated. After all, every tablet, capsule, or injection was associated with active ingredients to such an extent that, in retrospect, a pill without an active ingredient can have a therapeutic effect.

(2). ***Anticipation.***

Such conditioning shows how preconceptions come about. However, the strength and durability of the placebo effects are not explained by it.

Such reactions, after all, occur almost instantaneously—apparently in an unconscious manner. Thus, they are firmly connected to the brain.

1. ***The outside world*** is full of ambiguous things such that reactive preconceptions are powerful. -- A long and thin thing observed in dim light could be a stick or a snake. But perhaps taking the time to test it is imprudent. Thus, people have developed a mechanism such that they anticipate what will occur, -- a mechanism that accelerates perception to the detriment of accuracy.

2. The inner world is likewise full of ambiguous things. Consequence: if one provides someone with a product that causes a surge of adrenaline, the latter interprets that impulse as either anger, feeling comfortable, or nothing at all. This is according to what one had told him/her that he/she would perceive.

Dr. Kirsch: Placebos possess 55 to 60% of the effectiveness of active pain medications such as aspirin or codeine. Incidentally, placebos can also be inhibited by the drug naloxone, which also inhibits morphine.

Statements.

1. There was a time when many scientists thought that placebos are capable of 'working' by releasing endorphins (*note: some neurons secrete this active substance; it has an effect similar to that of morphine).*

2. According to Kirsch, that is not the only explanation. For placebos do not always work globally (over the entire body), but also very locally.

Note: Kirsch's explanation as given by Blakeslee is not very clear for those already familiar with the 'placebo' phenomenon. But perhaps it is just a sketch.

COGN2.94

Note-- 'Explain' can have the following meanings:

a. starting from presupposed axioms (e.g. those of materialistic cognitivism) which, although unproven, are nevertheless posited, formulate a

set of propositions that at least give the appearance of 'explaining' the given. Well-educated intellectuals are highly skilled in this.

b. From the given, describe the given phenomenologically in a faithful manner and, if necessary, logically transcend it so that the given or phenomenon is better understood. -- The difference between the two types is enormous.

II. *Alternative.*

Blakeslee adds a short note to her argument.

Opponents of alternative medicine claim that the placebo effect is the basis of her results.

When conventional therapies fail to cure chronic or poorly understood ailments, there is the acupuncturist, the homeopath, or the chiropractor who closes the gap with their powerful system of persuasion.

"Why not?"

Thus says Dan Molderman, physician-anthropologist at the University of Michigan in Dearborn. “As long as someone who ‘heals’ succeeds in stimulating a patient’s immune system. It matters little whether the healer wears a white doctor’s coat or walks around with (Native American) feathers on his head.”

Note: That is pragmatic language, the language that does not favor theory in healing but rather the result that saves the suffering of humanity. Molderman is, moreover, an anthropologist who is in the immediate temptation to transcend every Western (especially rationalist or materialist) ethnocentrism. So far—sometimes briefly interrupted by an ultra-short comment—is Blakeslee’s argument. It is read just about everywhere.

Note: Not a word about the phenomenon of 'suggestion'. Anyone who, for example, picks up *Charles Baudouin 's* (1890/1963) **Psychologie de la suggestion et de l'autosuggestion *, *Neuchâtel/Paris*, 1924-4 (a book still worth reading), or who reads J. Lerède's *Qu'est-ce que la suggestologie* ?*, *Toulouse*, 1980*, encounters a world of which our Blakeslee offers us not even a hint. Coincidentally, both authors can boast a serious, result-oriented practice. Without much cognitivism.

We conclude with the impression that the cognitive world is, at times, a very closed world after all.

COGN2.95

11.7. In-depth knowledge (95)

Library st. : *Annick Weil-Barras et al., L'homme cognitif* , Paris, 1999-5, 448s. (*La connaissance en acte*).

Scenario .

GG . -- Adding 3 to 6. -- Children essentially start from 6 and add 3 to it. Without being able to apply it explicitly, they apply 'commutativity' regarding numbers in a sum context.

GV . -- Is there such a thing as implicit yet actual knowledge? “En acte” reads 'metterdaad'.

Children who, before calculating with a sum, are unable to say that 6 + 3 “equals to” 3 + 6, do not exhibit the same knowledge as the aforementioned children.

G. Vergnaud, L'enfant, la mathématique et la réalite , Berne, 1981, argues that those children (of the scenario), although they first think of 6 and then of 3 (as numbers to be added), have nevertheless not acquired the concept of 'commutativity'.

He prefers to speak of “théorème en acte,” literally: “thesis in deed” or “connaissance en acte” (knowledge in deed, actual knowledge). Children who recognize the equivalence of addition starting from the first given number and of addition starting from the largest number demonstrate (insight into) commutativity in deed. Nothing more.

Vergnaud demonstrated that actual knowledge can serve as the basis for more than actual knowledge, namely explicit knowledge. This becomes an 'object' and an immediate prelude to the construction of other knowledge.

Disagreement.

Some psychologists believe that all knowledge of a subject can be traced back to explicit knowledge, and thus that a subject that says nothing about it possesses no knowledge at all. Knowledge is either explicit or not.

Other psychologists believe that, in order to understand human behavior, one must posit a number of cognitive invariants that play a role in the behavior, even though subjects cannot say anything about them.

Some of these speak of “unconscious cognition” or “the cognitive

unconscious". With the understanding—says A. Weil-Barras—that in this case it is not the unconscious that Freud was referring to.

COGN2.96

11.8. 'Aha moment' (cognitive) (96)

Library st.: *B.Cadet, Psychologie cognitive* , Paris, 1998, 208/210 (*L' insight selon les gestaltistes*).

Steller—not without cognitivist wonder—notes that even before cognitivism, psychologists were engaged in the study of problem situations. -- Indeed: the gestalt psychologists, following in the footsteps of *Chr. Ehrenfels' *Über Gestaltqualiäten* * (1890), searched for a 'Gestalt' (total solution) in the course of a struggle with a given and a demand. Cognitives call that gestalt 'insight' (insight, -- here: sudden insight).

Rivaling with the gestalt psychologists

Rivaling the gestalt psychologists, cognitivists design something that resembles it.

Library st.: *N.R.Maier, Reasoning in Human, II* (*The Sollusion of a Problem and its Appearance in Consciousness*), in: *Journal of Comparative Psy* . 12 (1931): 181/194. What normally presents itself as something that happens to you, people like Maier attempt to cause 'experimentally'. See here.

Scenario.

Room. Two cords hanging from the ceiling. -- The subject must tie them together, but they are hung too far apart, so that one spreads one's arms in vain to grasp them both. There are, however, a number of objects in the room: a chair, clothespins, sheets of paper, nails, etc.

Solutions. -- Many test subjects try in vain to use the chair. -- The solution. -- The clothespins attached to one of the cords tighten the cord by their weight. The cords can be made to swing. Meanwhile, the test subjects grasp the free cord with one hand and the other with the other, because thanks to the swinging (moving back and forth), the cords come within reach. They tie them.

Rivaling with the gestalt psychologists

Note: The control of natural phenomena is so deeply ingrained in the minds of cognitivists that they wish to force an "Aha-Erlebnis" (think of Archimedes in his bath: 'Heurèka' ("I have found it") or Newton seeing the

apple fall) as it were 'analytically', i.e., in calculated phases.

This is in contrast to a true insight (as the Gestaltists intended it) which comes across in this way, like a fortunate fate. Incidentally, the Gestaltists viewed insight as an element within the 'productive', that is, the producing of something new by thinking (and not as a form or element of 'reproductive' thinking).

COGN2.97

11.9. "I have lost my keys" (cognitivist) (97)

Library st. : *J.Fr. Dortier, Les sciences humaines* , Auxerre, 1998, 299.

The ***GG*** . -- "I have lost my keys".

The ***GV*** -- Which 'strategies' (search and find methods) are available to me? In other words: which solution methods are available to me?

a.1. I methodically go through each part of my entire life domain separately. This is how I find the keys.

Note-- Summative induction.

a.2 . I methodically go through every part of my living area but do not find the keys.

Conclusion: My summative induction was incomplete: someone stole them, for example, and took them outside my living area.

b.1 I search in those places where I 'think' they are: my pockets, under the table at my desk, wherever else I usually live.

The summative induction then applies only to the sites that, according to my superficial thinking, are probable.

b.2 . I search in that place where I clearly or not remember having had them on me.

That is then a summative induction of extremely small scale: I search the entire room or, for example, where, according to my recollection (memory), I was certain I still had them.

Summering.

Here again, for the umpteenth time, it becomes apparent how frequently our cognition operates summatively, scanning entire sets and entire connections (systems) sample after sample. Which amounts to an algorithm, a goal-directed series of actions.

Cognitivistic.

Let us now listen to the cognitivism on the matter.

a. The first two methods—'strategies'—are called 'algorithmic', relying on a comprehensive inventory of possibilities. The methods are called 'infallible' but are burdened with loss of time and energy.

b. The last two methods are called 'heuristic', i.e., “supported by probabilities”. These are called 'fallible' but executable without loss of time or energy. 'More efficient' than the previous ones.

According to Dortier, AI programs are constructed heuristically. A chess program does not operate 'algorithmically' but 'heuristically': not all possible moves are covered. In other words, the device mimics human cognition. Therefore, this method is 'fallible' but without loss of time or energy. Just like the human being!

COGN2.98

11.10. Cognitive ergonomics (98)

Library st.: *J.-L. Roulin et al., Psychologie cognitive* , Rosny, 1998, 420/ 422.

The author of this section defines artificial intelligence as “artificial systems” (programs for coordinators) that demonstrate a certain intelligence or simulate intelligent behavior.

Expert systems are computer programs that exhibit the intelligent behavior of an expert (e.g., a geologist, doctor, or agricultural engineer).

Cognitive ergonomics.

'Ergonomics' is the name of the discipline that adapts the machine and its properties to the human working with it. “Cognitive ergonomics” is one branch of cognitive psychology that designs information infrastructure (tools), expert systems, and complex workplaces.

When dealing with the "machine/human" interaction, cognitive ergonomics employs both its own concepts and those of cognitive psychology to develop ergonomic interfaces.

Scenario.

In aeronautics, for example, the technical reliability of the aircraft is naturally of utmost importance. However, most aviation disasters are not due to technical or mechanical failures, but to human error.

Consequence: everything is done to reduce the frequency of human errors.

Twofold

1. The causes thereof are identified and analyzed.

2. The material circumstances leading thereto are changed.

Mastering the dashboard (instrument panel) is an extremely complex activity, and steering is highly automated. In addition, pilots face the difficulty of operating the dashboard correctly and properly handling its automatic aspects.

Interface

'Interface'. An ergonomic interface is an information system that is easily handled by the human interacting with the machine. A psychological study is necessary to improve the “pilot/dashboard” interface. Creating ergonomic dashboards presupposes a precise understanding of the pilot's reasoning during the critical phases of his work.

Therefore, the handbook covers this after observation, learning process, memory, and language use in the chapter “reasoning and problem-solving”.

COGN2.99

11.10. Cultural Psychology (99/101)

Library st.: *Jer. Bruner, ...Car la culture donne forme à l'esprit* (*De la révolution cognitive à la psychology culturelle*), Chêne-Bourg/Genève, 1997 (or.: *Acts of Meaning* , Harvard Univ. press, 1991), 146s..

Bruner, then a professor of psychology at Harvard University, founded cognitive psychology with others in the early 1950s.

He is now a professor of psychology at the University of New York. In the work mentioned, he categorically takes a stand against the biologizing—let us say, naturalizing—psychology that what he once helped found has since become. In that psychology, the ordinator serves as a model for the brain, and through the brain, for all that constitutes intentional (psychic, mental) life. We listen to his overview.

1. ***The so-called cognitive revolution.***

Initially—understood as Bruner did—“the construction of meaning” (*note:* the interpretation that ordinary people give to themselves, their fellow men, and the world) was central. Over time, however, that cognitive revolution degenerated into a kind of opposite, namely information processing and computation (*note:* the computer as an example). Bruner calls this “my great reproach”.

2. Folk psychology.

As psychologists, we ought to take into account folk psychology, an essential characteristic of man as a human being. This is the result of the culture on the basis of which the ordinary person organizes his viewpoint regarding himself, others, and the world in which he lives.

Bruner emphasizes

"Folk psychology" is an essential foundation not only of the meaning that man as an individual gives to what manifests itself in and around him, but also of culture as human cohesion. It is precisely to give shape to our presuppositions and convictions that we establish our institutions (*note:* let us think here, for example, of all educational institutions), but in turn, "folk psychology" evolves by reacting to these institutions once they have been founded.

Incidentally: what exactly is "folk psychology"? It is most certainly a collection of logical propositions. But it is rather living stories. To this end, it draws from an inexhaustible narrative culture, full of life stories, fairy tales, myths, and literary types.

COGN2.100

Note -- Narrativism

Oc, 120, Bruner says: "In the late seventies and early eighties, the concept of 'self' (*note:* 'I'), conceived as a narrative being that recounts 'histories', takes root: the 'I' tells histories that contain a theory concerning the 'I' as one of the components of those histories."

In other words: according to Bruner, literatology – 'literary studies', particularly regarding narrative cognition – provoked the split within psychology.

By 'histories', Bruner—with others—understands primarily autobiographical stories: we all tell our lives and listen to what others tell about theirs. We do this incessantly. Cf. oc, 122.

Note: According to Bruner's narrativist theory, the 'I' or the person would be merely the one who tells such stories about himself and who listens to such stories from others.

In other words: every ontological definition of the 'I' or the person as itself, identical at the very basis of its histories, is called into question. Which is

highly debatable.

A hasty portrait.

Oc, 136/145 Bruner naturally tells a concise portrait of the Goodhertz family (George, his wife Rose, the son Carl and the like).

Note: This can be compared to the story of " *The Bjorndal Family* " (Trygve Gulbransen) from Scandinavian literature. Indeed: one empathizes, and the mental lives of the members of that family are laid bare throughout the story.

Note: It is known that modern Hegelians distinguish not two but three 'logics': logistics, natural logic, and speculative logic.

Well, according to *G. Bolland, *Hegel's kleine Logik* *, I, Leiden, 1899, at 185, a concept is the inner essence of something, including its histories. This 'historicism' or better 'mobilism' (thinking sensitive to change) emerges in the background of Bruner's 'narrativisme'.

For example, Hegel himself cites the concept of "Julius Caesar": whoever utters that word (not abstractly alien to life, but simultaneously 'thinking' of the real, living (and now dead) Julius Caesar of history) grasps the flow of his life histories with the 'soul' (the 'I') that 'shows itself' uninterruptedly in those histories. That is the speculative 'concept of "Julius Caesar".

COGN2.101

Note: Why would human caregivers—from the simplest helper to the most specialized specialist—time and again first call upon an 'anamnesis', that is, the story of "how the problem or problems came about", unless to get a clearer view of both the problems and the person—the 'self'—in and behind those problems?

3. *Cultural awareness*

The ability to share the same culture with others and to utilize its stories—that is, the sense of culture—manifests itself in the fact that young people—by possessing an innate gift and immediately by the fact that they are 'thrown' into a culture by being born—come to participate in culture by using its language and its stories in vivo (*note:* within the living organism of the culture).

Incidentally : Bruner puts forward the hypothesis that the structure of grammar might well have sprung from a protolinguistic (*note:* representing

the prelude to a truly scientific linguistics) sense of all things storytelling.

4. *The cultural-historical self.*

By “constructing meaning” (*note:* interpreting), people become what they are. Not as isolated selves, but by responding on the basis of their culture, that is, its history, according to the circumstances that have developed historically—or culturally-historically, that is—and continue to evolve ever further.

The definition of 'cultural psychology'.

Bruner, for example, rejects neither biology nor economics. But he adds “the spirit” (mental life) and daily existence to it. Which is, ultimately, folk psychology. -- In doing so, cultural-historical psychology makes an essential appeal to the hermeneutic (interpretative, explanatory) method that was established precisely to study cultural history.

In other words: purely causal (natural scientific) explanations cannot give final meaning to being human. There is not exactly one type of 'explanation' regarding the human being, and in particular of mental life ('soul'). Besides physics and biology or economics, there is, for example, cultural history.

Note: There, somewhat explained, is the overview Bruner provides of his cultural psychology. There is a sense of German influence (Dilthey et al.).

COGN2.102

11.12. Psychology according to Maine de Biran (102/104)

*B. Halda, *La pensée de Maine de Biran* *, Paris/Montreal, 1970, 62, asserts that Maine de Biran (1766/1824) espoused a psychology that can be called experimental. “Psychology is indeed a science concerning inner facts of a particular kind. These facts are inherent to man. They are as old as man himself. What matters is that one establishes them and formulates them clearly (...). (* *Journal intime* *, I, 229). -- Let us listen to a few texts.

Library st. : *Maine de Biran, Mémoire sur les perceptions obscures* , Paris, 1920.

The Biran was a thinker-psychologist but knowledgeable about the sciences of his time, -- without passively submitting to them.

The primal couple.

In this way, the Biran articulates the essence of his psychology and of his entire philosophy (“first philosophy”). He outlines what he calls “the truly very

first and original duality" as follows:

The original effort ("l' effort primitif") and the inertia of the muscles ("l' inertie musculaire") are the two correlative and essentially inseparable elements: the resistance of the muscles, which is the target of the effort, is situated within a space in which the self directly perceives the contraction or the movement as a consequence of which it is the cause.

Decisive.

As long as one does not prioritize that duality, one can express many propositions about "subject/object" and about their relationship, but in such a way that such a "first philosophy" is without foundation, that "hangs in the air". (Oc, 49).

Note--- It is clear that the Biran understands by inner facts primarily "a particular kind", namely the confrontation of "effort of will/resistance (of the body and matter)".

With this, he sits right in the middle of our problem. After all, no neuroscientific claim can refute that primal experience, namely the one that we, by willing, encounter resistance and that we overcome it, at least partially—that we cause, merely by willing, to perform, for example, a muscle movement.

The concept of 'effort', exertion in a battle with the resistance of body and matter, is central and is irrefutable not only as an experience but as a causation.

COGN2.103

"Cum hoc; ergo propter hoc".

This adage from natural logic guards against confusing 'cohesion' with "causal cohesion". Our brains are connected to our mental life. But whether they are thereby the sole cause of it, as cognitivism suggests, is another matter.

Moreover, the saying also refers to the "total identity" of the brain and mental life. That follows even less from the coherence, which is, incidentally, undeniable.

Empathize.

Cognitivists reproach the mental for being subjective. -- Fine. But under

the influence of cognitivist literature, environment, and technical achievements, one can empathize with the fact—if it is a true fact, of course—that one not only possesses genes or, above all, a brain (brains), but *is* them, as it were, with one's self. One can go as far as what the Biran describes brilliantly and repeatedly emphasizes, namely, that we make an effort with our will against resisting data which causes, and which, when we do not want to, does not cause, are 'experienced' as a deceptive impression of a 'subjective' nature.

When we see artists empathize with the most improbable things, it sheds light on the empathy of non-artists.

To touch.

Oc, 57,-- The Biran connects with the observation of everything that is hard or offers resistance, as Th. Reid (1710/1796; Scottish commonsenist) interprets it.

According to the Biran, Reid insufficiently distinguishes touch sensations (cold/warm; rough/soft) from what the Biran describes as follows.

When one directly perceives the effect of a living force that opposes our will, we acquire an understanding of that force as opposing our force. Immediately, in that direct perception, we enter into true contact with what is outside of us.

Note -- It is clear: Biran's psychology stands or falls with the confrontation between “willpower/resistance”. Instead of R. Descartes’ “I think; therefore I am,” one could say with Biran: “I will in the form of an effort; therefore I am.” If one now knows that the resistance is primarily the body and matter, then Biran situates the mental—willfully exerting—life in the very heart of bodily existence in a material world. Far from a philosophy “floating in the air.”

COGN2.104

Reflect.

De Biran's thinking is more than mere psychology and his introspection is more than introspection: it is reflective philosophy. Here is how he briefly characterizes it.

If reflection is limited to what takes place within us without including what takes place outside of us, then that is not the idea of 'reflection'.

1. If, however, one defines that type of direct perception/sensation as the

activation of the capacity to exert oneself itself, then one can define something like true perception/sensation.

2. If, moreover, one establishes that such perceiving/awareness is inextricably linked to the awareness of being a self, then that is the true definition of 'reflecting'.

Attention.

What has just been said is evident in the way paying attention to something is discussed.

Attention is something essential for life. Well, paying attention to something usually requires an effort of will. In addition to acting hastily, absentmindedness plays tricks on us.

Attentiveness is uninterrupted attention that mobilizes all our faculties (experiencing, reflecting). Cf. Halda, oc, 100.

Well then, reflection to the serious degree is essentially attention and attentively making an effort with the will.

The Biran's temperament.

The purely psychological and the strictly moral (conscientious) easily merge among the Biran.

As Halda, oc, 99, says: Fichte said to Reinhold that his temperament explained his philosophizing. The Biran realized this truth like no other.

The moral influences the physical to a certain extent. The will and emotional life act upon and react to the life or organic functions (*note:* the biological), at least insofar as these are modified by the soul as the cause. This does not prevent the body from having its own laws, which are often opposed to those of the spirit.

That, of all things, is what the Biran has had to endure for almost its entire life:

setbacks, injustice, ingratitude, betrayal, -- not to mention his fragile temperament (sensitivity, inactivity), -- indeed, his weak constitution has forced the Biran, if he wanted to uphold his conscience and not fall short of others, to constantly exert himself with his will and with his muscles.

COGN2.105

12. Psychological intermezzo (105/113)

12.1. Cognition, Dewey on the thought process (105)

Bibl. st *.: Fr. S. Rombouts, Psychologie der schoolvakken* , Tilburg, 1951 154ff. (Thinking processes in problem-solving).

To make the current concept of 'cognition' accessible, we begin with a simple model. J. Dewey (1859/1952). According to Rombouts, Dewey (School and Society (189)), from his pragmatism, describes the thought process as follows.

1.1 . ***GG:*** A difficulty (A) together with the first reaction (hesitating). Immediately sensing the GV: “Which solution”. (C).

1.2. ***GV*** . -- Persevering the confrontation with the difficult phenomenon. 'Analysis', i.e. seeking out relationships within and outside the GG. Until one finds “the knot”. (A).

2.1. ***GV.*** -- Based on past experiences (what 'history' is) (information) (B) and as a result of the 'analysis' one designs a set of difficult solutions as a result of an acquired global insight, with a view to the best. ().

2.2. -- ***GV*** . Deduction of inferences from the best solution. (C).

3. ***GV*** . -- Decision (If A and B, then C) and execution of the deductions. (C).

Immediately thereafter, Rombouts provides an application model.

GG . -- Jan gave a fifth of his marbles to his little brother. He kept twenty for himself.

GV. -- How much did Jan have left? According to the author, the concept of the “fifth part” is central to working out the solution in the mind of the schoolchild. In other words: that is Dewey's 'knot'. Then he sees the next steps (algorithm).

a. ***The thought process.*** Relationships emerge around the node.

1. Subtraction relationship. -- The whole sum (summative induction) minus one fifth.

2. Equality relation. -- Four-fifths equals twenty marbles.

3. Partial relation. --Four-fifths of twenty marbles.

4. Multiplication relationship. -- Five times five.

b. ***Putting it to the test*** .

25 marbles minus 5 = 20.

Syllogistic.

VZ 1. -- Every sum is 5/5. (axiom, summative deduction) This is 5 x 1/5.

VZ 2. (rule of three) -- Well, 1/5 is 5 marbles.

NZ -- So 5 x 5 = 25 marbles.

The entirety of the thinking process appears computational to us: the sequence (algorithm) of steps proves it. Nevertheless, there is a holistic moment (2.1. GV), namely, at a given moment the child reaches a global insight.

Among cognitivists, a debate is currently underway: the former view the computer as the epitome; the latter the global insight into the connections of data.

COGN2.106

12.2. De Groot: objective research and 'forum' (106/107)

Library st.:

-- *AD de Groot, Methodology* (*Foundations of research and thinking in the behavioral sciences*), 1961-1;

-- *P. Wouters, Predicting* , in: *Nature and Technology* 60 (1992): 9 (Sept.), 710/716.

Prof. de Groot is known for his dual opinion regarding “scientific truth”.

1. ***The cycle of empirical scientific research*** .

Methodology 29/31 . -- The method, borrowed from physics (the natural sciences), encompasses as general observation and as general 'induction' (hypothesis formation), deduction of testable derivatives, testing, and value judgment.

2. ***The (gamma)scientific 'forum'*** .

Methodology 27/28 . - 'Forum' in Rome was once the marketplace of popular assemblies. Now it means “a gathering where experts propose topics to provoke discussion”.

De Groot: the research results (cycle) are discussed and tested by experts in the field. Together—just as in the natural sciences (physics first and foremost)—they constitute a forum that is not infallible but is capable, over time, of correcting errors.

Above all, that group, the research community, should—somewhat like an ecclesiastical council—be the possessor of the fundamental knowledge on which all experts agree with complete consensus.

De Groot does not see that working for the behavioral sciences (psychology, for example).

Behold the two main conditions of true scientific progress regarding “scientific truth”.

A kind of contradiction.

Wouters. -- The convergence of **a.** the strict emphasis on 'rationality' (understand: the empirical cycle) and **b.** the decisive role of the forum amounts to unifying “two opposing worlds”.

De Groot himself refers to this as “his pragmatic solution”.

Paradox.

Since de Groot's forum theory is not accepted, except sporadically, and also since the proof, regarding the gamma sciences (which aspire to be alpha sciences using beta scientific methods), that the forum theory actually guarantees more progress than other epistemologies, has not been provided, the forum theory itself is not “scientifically true”.

COGN2.107

While—according to de Groot—in physics “scientific truth” only emerges from the empirical cycle of investigations on the basis of the forum, every individual and every group (school) parrots one another.

Significant definitions.

Here, de Groot aligns himself with the significa that emerged around 1900, originating from Lady Welby. He particularly advocates the significal conceptual analysis of G. Mannoury (1867/1956). This human-scientific (psychological, sociological, cultural) research into human means of understanding.

The social scientists are talking past each other because they employ entirely different definitions of key concepts (*note:* axiomatic concepts). -- With the term 'anxiety', for example, the behaviorist thinks of externally observable (and even measurable) behavior that, through characteristics that are observable and measurable, betrays something inwardly experienced. The Freudian psychoanalyst thinks of 'anxiety' in terms of conscious experiences that he attempts to experience ('understand') in order to detect potential unconscious and subconscious factors.

Both subscribe to different definitions that are merely analogous and not totally identical.

Proposal.

From a significant standpoint—creating understanding—de Groot proposes using everyday language as a starting point. In this way, the dictionary providing everyday definitions can supply the 'agreement

definitions'. As a basis at the service of all social scientists.

Afterwards, the various individual researchers and the schools can put forward their own definitions. On that shared background of understanding. -- In any case, only then can they truly form a forum and discuss.

Which is not happening now.

Thus De Groot word for word. -- One can see that De Groot still lives off his contacts with the Significa movement, which he became acquainted with before the Second World War at the International School for Philosophy in Amersfoort (now Leusden).

De Groot has received “not a single positive reaction” to his forum theory (understood significantly), which he has emphasized since 1971.

Note: Within the framework of formal-logical definitional theory, De Groot's stance is perfectly justified. He immediately actualizes dialogical induction, characteristic of Socrates and Platon.

COGN2.108

12.3. Ad De Groot on cognition (108)

Library st.: *P. Wouters, Predicting* , in: *Nature and Technology* 60 (1992): 9 (Sept.), 710/716.

On the one hand, De Groot is in favor of empirically testable science (he dismisses graphology and purely 'empathic' psychology each in their own way). On the other hand, he considers limiting psychology to measurable behavior without theories of consciousness to be a “misplaced imitation of physics”.

The method of thinking aloud.

We know what “thinking aloud” is. Through speaking aloud, the inner thought process becomes a public phenomenon susceptible to empirical research.

This method is the theme of de Groot's dissertation: *Het denken van de schaker* (1946). He was an experienced chess player himself. From 1936, he investigated his own thinking while playing chess. From 1938, he experimentally investigated chess as a thought process (with test subjects).

He found a whole series of theories (including the theory that describes chess as merely a form of calculation) to be 'unreal'. He experimented for years.

Otto Selz.

In 1942, he discovered *O. Selz* , known for his “difficult books” (**Über die Gesetze des geordneten Denkverlaufs* * (1913); * *Die Gesetze der produktiven and reproduktiven Geistestätigkeit* *). He began reading them with suspicion (incidentally: Selz fled to the Netherlands after Hitler's rise to power (1933)). But de Groot quickly became a great admirer of Selz's method. By adapting Selz's theory, de Groot was able to distinguish phases in the cognitive process.

1. Inexperienced chess players think correctly, but due to a lack of experience—the exercises in chess—they lose a lot of time. Experienced chess players immediately see the decisive moves. The shortening stands out.

2. Progressive deepening. -- A set of possible moves is evaluated by thinking only one move ahead. The best chances are then calculated to 'prove' the best possible one with an even deeper analysis.

In other words: unlike many computer programs (computationism), not every move is analyzed with equal depth. Experience—practice—makes intuitive choosing possible (without having to go through the entire algorithm). That is one of the most important differences between the human and the machine chess player.

COGN2.109

12.4. Psychology of Non-perceptive Consciousness (109/110)

Otto Selz: Thinking psychological method.

Library st.:

-- *B. Palland et al., Textbook of Psychology* , Groningen/ Jakarta, 1954, 371/396;

-- *P. Lindworsky, Experimental Psychology* , Antwerp, 1935-5;

-- *Fr. Z. Rombouts, General Psychology* , Tilburg, 1957-2, 129/133.

The Würzburg, Cologne, Mannheim, and Amsterdam trend, in which Otto Selz situates himself, is called “the psychology of non-perceptive consciousness”.

'Non-perceptual' means 'non-sensory-perceptual'! For phenomenologists since Husserl speak of a purely intellectual intuition.

The method is 'cognitive' in the sense that, although it proceeds introspectively and retrospectively, it has made this method experimental. The object par excellence: thinking and willing as the higher phenomena of consciousness.

The method.

The core is the “GG/GV” pair. Psychologically trained participants are presented with trigger words (GG) with the task (GV) of responding to them using distributive and/or collective concepts.

Like this, for example: **a.** assignment: the whole; **b** . trigger word: a branch.

-

Note -- The answer indicating the reaction time (which proved to be of lesser significance). Here, the answer is: a tree, for example. Or again: **a.** instruction: the set; **b.** trigger word: a tiger. Answer: a predator.

It is evident that similarity and coherence are decisive.

This was followed by a statement in which the participant briefly or at length describes his inner experience immediately after observing the task. The emphasis lay on the question of whether individual or schematic representations of a non-abstract nature had played a role in finding the answer.

Note -- The provocative word as a phenomenon and the instruction as a requested response were written on loose sheets using a typewriter. At the beginning, the sheets were covered with cardboard of equal dimensions, the center of which was fixed by the page.

After a warning signal, the experimenter pulled away the covering cardboard with the word 'now', while simultaneously starting the 'stopwatch' (a timepiece that makes no ticking sound) with his other hand—so as not to make the participants unnecessarily nervous with the ticking: the participants were urged to “take their time” to think. It was not about speed, but about intellectual effort.

COGN2.110

Appl. mod. -- “By “productive thinking” we understand (...) “thinking in the service of specific tasks; which is essentially an act of the will”. (*J. Lindworsky, Experimental Psychology* , Antwerp, 1935-5, 280). Cf. *O. Selz, On the Psychology of Productive Thinking and Irritation* (1922).

In other words: thinking in the true sense is goal-oriented. Following (A) a GG, a trigger word, an instruction is expected via (B), the thinking faculty, (C). There is no question of blindly operating 'association' and 'reproduction' (unless in lower thought-responses).

Assignment: the whole.

Provocative word: incandescent mantle.

Statement: "As soon as I had read the trigger word, which I understood without worrying too much about the meaning, the word 'lamp' was already there too. – Immediately thereafter I saw some visual fragments of a lamp against which I tested whether the solution was correct. That test consisted of seeing a mantle inside the lamp. The image was only very fragmentary and appeared only after the solution. – Then I reacted."

Note: The sensory-perceptual representation (image) "light bulb in lamp" thus had the role of verification, after thought had found the assignment. The generalization was 'seen' in retrospect.

A. Willwoll, a student of K. Bühler, the child psychologist, established that "sensory images" also have an inhibitory effect on the thought process.

Assignment: collection.

Provocative words: landing area, stair landing.

Statement: "At first I had the impression that it was difficult to make anything of those words. Then it struck me that there must be something in common after all. At the same time, I had a clearly defined image of a landing place with people disembarking and a staircase landing without people on it. I constantly had the image of a movement before me and I thought that I could only seek and find the concept encompassing both in that direction. Throughout the entire course, images surfaced of the landing of a ship in which I myself had landed. They were as vivid as in a painting, so that I clung to them throughout the entire course. (...). The visual moment was so strong that I had to tear myself away from it by force to arrive at the concept."

Note: The participant was a writer, accustomed to seeing everything in images: "I do not like to analyze my images, but prefer to let them work on me as a whole," said the lady. This shows that image-bound people—children, for example—can be hindered in their thought process, lose sight of the visual whole, and immediately abandon the visual whole. Willwoll: "The image, if and only if it has been placed in the service of the visual whole beforehand, becomes an aid to thinking." Which Selz had always emphasized.

COGN2.111

12.5. The human mind. And its brain.

Library st.: *B. Palland et al., Textbook of Psychology* , Groningen/Djakarta, 1954-5, 375ff..

It is known that the brain, in particular, plays a major role in the functioning of thinking. This is established after brain surgery on patients who are not too old. -- Frohn (Würzburg School) examined the cognitive abilities of 12-14-year-old deaf-mute children.

1. *Little story.*

"Hansje. -- Hansje placed Father's hat on his head and took Father's walking stick in his hand: "Farewell, Mother! I am going far, far away now" (said Hansje).

Reproductive answer.

For example: "Father's hat was long. Father's hat weighed on the head. The storm, the air, father's hat gone. Father's hat was dirty. Little Hans wiped father's hat off."

One sees: such children are not businesslike. The phenomenon does not penetrate unless it serves as a pretext for fantasizing. They react with representations (images) of a sensory—visual nature, not with (abstract) concepts.

2. *Provocative word.* -- Two methods.

a. *Sequence formation* . -- Stimulus word: butterfly.

Answer: "The butterfly flies around. The butterfly sits on the flower. The butterfly has four legs. The butterfly has two wings."

There is more than just singular images (the butterfly). A vaguely general schema (a concept that is not yet abstract) dominates the answer. Which nevertheless already points to a sense of coherence.

b. *Free combination* .

Trigger word: church.

Answer : "The boy walked into the church. The boy talked about the boy." Any coherence is completely lacking here. The presented phenomenon of 'church' barely makes sense.

3. *Five words* . -- Provocative words: thief, ladder, window, money, clock.

Answer : "The thief has stolen many eggs and money. The roofer places the ladder on the roof. The roofer wants to repair the roof because it shows an opening. Mother polishes the windows. The windows are clean. The man works in the factory. (...). The children read the words, and one sees what they pull out of their 'tube'! The coherence of the words almost completely escaped them. Only loose images of memory come to the surface.

Note -- Deaf-mute children, if treated methodically (they are taught to pay attention to similarity and coherence), make leaps and bounds in progress. Palland refers to *Dr. A. Nanninga-Boon, *Het denken van het doofstomme kind* (The Thinking of the Deaf-mute Child), Groningen* , 1934, a work dealing with the woman's four-year-old son.

COGN2.112

12.6. The human mind as I (112/113)

Library st.: *B*

-- *Palland et al., Textbook of Psychology* , Groningen/Djakarta, 1954-5, 373v.;

-- *S. Rombouts, General Psychology* , Tilburg, 1957- 2;

-- *J. Lindworsky, Experimental Psychology* , Antwerp, 1935-5, 302/305.

Osw. Külpe (Würzburg school).

Külpe (+1915) experimentally investigated higher consciousness phenomena by means of thinking aloud. (A) A thinking assignment (e.g. “part of”, “example of”) is presented as a stimulus to (B) a well-trained person (distinguishing between singular representations and vague-schematic representations of abstract concepts) who (C) immediately after the execution of the assignment reports on the experienced consciousness phenomena (especially the triad of “singular/ particular/ universal” contents of consciousness).

1912.-- O. Külpe gives a lecture: “ *Ueber die moderne Psychologie des Denkens* ”. -- Here is how he situates the self as an actively thinking subject.

a.1 . ***Non-sensory contents of consciousness.***

Naturally, there are individual impressions ('visual' images or representations) in the foreground of our conscious life: for example, when the subject thinks of a “part of” a tree, he visualizes the tree in bloom at his own house, or he vaguely recalls a diagram of “the tree” in a botany textbook.

But—and Külpe underscored this—there are “non-perceptible” (understand: not sensorially perceptible) contents of consciousness in our mind, for our mind 'sees' (intellectual intuition) connections of similarity and coherence without any question of sensory images or vague schemas. The sensory contents play at most a subordinate role.

a.2. ***Problem-solving scheme***

Thinking is experienced by the test subject as grasping a task (GG and

GV): the stimulus is not merely itself; it is a stimulus for the active ordering of data; it is a task, an assignment. Not a mere reproduction of what exists.

Not merely blind association of, for example, purely representations of a sensory-perceptive nature: the connections of similarity and coherence are sensorially unperceptible. But our mind as mind “does perceive them”. In what phenomenologists call “intellectual intuition or insight”.

COGN2.113

b. ***Our mind as I.***

The responses to the thought stimuli are experienced by the participants as acts, actions, of an active self, that is, the person they are endowed with self-awareness.

Note: The test subjects, precisely because they are introspective (understand: by paying attention to themselves while answering thoughtfully (reflective)), experience themselves as their own witnesses to their activities.

Reception

The reception demonstrates it: the Cologne School (Lindworsky, Frohn), the Mannheim School (especially O. Selz (first in Bonn then in Mannheim)), and the Amsterdam School (Kohnstamm) further developed this achievement, which ultimately conceives of 'I' as 'person'.

Lindworsky on the self.

This distinguishes at least three contexts of the term 'I' in language usage.

1. “My name is Anke Sorgeloos. I live in Leiden. I …”.

Lindworszky labels that usage of words as 'societal', The identity card!

2. “I am an emotional person: I love cocooning. In the evenings with my husband and my children. Cozy.”

That is the 'use of personality language'! 'I' insofar as it is a whole of characteristics, including cocooning.

3. “I think that the whole that fits with 'branch' is the tree.” That is the 'pure' self. Thus Lindworsky. He means—he says—the subject of psychic acts.

Note: It would be better to speak of the 'thinking' I.

Note-- *G. Bolland, Hrsg., G. A. Gabler's Kritik des Bewusstseins* , Leiden, 1901, 56 (*Anmerkung*).

Bolland distinguishes “the pure self” in Hegelian usage. He defines:

a . every naturally given and concrete 'I' - I, you, she, he - encompasses

manifold contents of consciousness;

b. to arrive at the abstract 'pure' self “I need only say (of myself) 'I' in such a way that I leave out all contents” (abstract from it).

In other words: thinking must also disappear!

Lindworsky, -- Steller characterizes 'I' as the global subject that is, moreover, also marked by identity throughout the acts and phases of life. -- He specifies: our experiences of the self are manifold! I dream. I was once hypnotized. While I sleep. I am living through an identity crisis.

I once suffered from incipient depersonalization. Admitted to a psychiatric hospital and cared for, they said that I exhibited “more than one personality.”

In other words: language use in which 'I' occurs is fodder for many discussions about 'the' I.

COGN2.114

13. Philosophy of Mind (114/130)

13.1. Return to the full reality of our mind. (144).

Library st.: *Edw. Pols, Mind Regained* , Ithaca (NY)/ London, 1998.

The work starts from the denial of the full reality of our mind.

Two main causes. -- The teller sees it as follows.

1. *Philosophical misconception* .

Especially since Descartes, the prevailing view is that our mind does not directly know reality (and act upon it).

Note: Typical modern nominalism posits that our mind does not, first and foremost, know reality as it is given, but rather its own inner products of knowledge and thought ('contents'). The external world, for example, is given only indirectly.

Steller has also published a work, Radical *Realism* . (*Direct Knowing in Science and Philosophy*), Ithaca (NY), 1992, which testifies to his realism.

In doing so, he actualizes—expressly for the other reason—Platon and Aristotle, in a “first philosophy” (practical metaphysics), as Aristotle calls it.

2. *Misconception regarding causality.*

Modernity reduces causality to mere physical causality.

The natural sciences, and cognitivism in particular, employ a reconstruction that fits their perspective. Originally, however, full causality is

more than that reconstruction.

Pols fully acknowledges the value of cognitive sciences (neuroscience, for example). And indeed, as an achievement of the human mind! It is precisely in that achievement that one finds the opportunity to lose sight of the causal influence of our mind on ourselves and the world! Focusing unilaterally on the products of that causality.

Common sense.

Convinced of the cognitive achievements, Pols consciously transcends the pre-scientific stage in popular understanding.

But also convinced of what constitutes the full richness of that same intellect, he deems it a necessity to integrate the insights present therein into the full knowledge of our mind of itself. For although our mind is partly determined by the brain as a foundation, it is causally active "at the top" (and not as a product from below) of a universe that has both physical and non-physical causes.

COGN2.115

13.2. "I just don't think my brain (115)

Library st.: *M. Hunyadi, Mon cerveau ne pense pas* (*Défi aux neurosciences*), in: *Le Temps* (Geneva) 18.04.98.

Regarding the book *Jean-Pierre Changeux/Paul Ricoeur, *Ce qui nous fait penser** (**Nature et le règle* *). Hunyadi is scathing: the neurosciences seem indifferent to what is happening outside of them (e.g., in philosophy). They completely appropriate the explanation of the human mind because they analyze the brain. They therefore believe that they have the final word regarding all psychological phenomena.

Unyielding.

a. Against that closed nature of the neurosciences, the true dialogue of the book stands out in a stark manner, even though there is a gap.

b. However, Ricoeur is unyielding towards Changeux's radically reductionist position. He distinguishes very strongly between the neuronal and the psychic. The share of brain activity is not the same as the share of lived experience ("le vécu").

In other words: far from denying the biological, Ricoeur assumes it along with the neuroscientists, but he has a keen eye for the irreducible (that which

cannot be reduced to physics, chemistry, and biology) of our inner experiences.

To put it bluntly: “If I know the functioning of my brain better, do I thereby already know myself better?”

'Body'.

Ricoeur: Neurology describes the body only insofar as the natural sciences understand something of it. They do not grasp the body as it is experienced in psychic life.

'To live',

Life as the biologist knows it does not simply coincide with life as we experience it: for instance, a violent movement of neurons is not the same as the intoxication of being in love. For the brain: that consists of neurons, neuronal connections, a neurosystem. The mental: that is knowing, feeling, acting, etc.

In the end, Hunyadi seems to refer to a third position that attempts to reconcile the two irreconcilabilities. This is possible if one abandons the ideology of cognitivism in favor of the “hard science” clearly contained within it, as A. Lange already proposed last century.

COGN2.116

13.3. The concept of 'spirit' interpreted contradictorily (116)

Library st.: *J. Scher, ed., Theories of Mind* , New York/London, 1962.

Thirty-five intellectuals (almost all professors) make their contribution.

1. Mind as brain (physiologists, biochemists, behavioral psychologists of a behaviorist persuasion).

2. Mind as 'participation' (mind as humanly, psychiatrically, and cybernetically involved parties see it).

3. Mind as method.

Behold the three parts of this folio.

We draw attention to *Cliff. Geertz* (professor of anthropology Univ. Cticago), *The Growth of Culture and the Evolution of Mind* , oc, 713/740.

In the history of behavioral scientists, the term 'mind' has provoked a contradictory interpretation.

a.1. *Spirit as reprehensible.*

Those who practice behavioral sciences using the methods of physics dismiss terms such as “insight, understanding, conceptual thinking, image, concept, feeling, reflection, fantasy, -- consciousness, etc.” as 'mentalistic,' burdened and laden with all the sins of the subjective character of consciousness.

Consciousness, after all, escapes the grasp of physics and its humanistic derivatives almost entirely. It is not “materially tangible.” Too fleeting.

a.2. *Spirit as a fundamental concept.*

For those who—in addition to the physical standpoint—also adopt a biological ('organic') and, even more so, a human standpoint, the term 'spirit' serves as a cautionary concept. They emphasize the far-reaching consequences for the physicalist standpoint, both theoretically and methodologically.

They emphasize the boundedness, the radical finitude of physics and, if one reaches the higher concept of 'man', even of biology, in order to understand a phenomenon such as 'consciousness' and 'spirit' as they are.

b. *Spirit as an extraordinarily useful concept.*

Geertz: there is no substitute for that term! He laments the state of affairs at the time—with a few exceptions, 'spirit' did not function at all as a scientific concept but as a rhetorical flag—even when, as in some scientific circles (!), the term 'spirit' was banned. The term served as a pretext: to accuse of mechanics (physicism) or subjectivism. He asks to be scientifically interpreted.

COGN2.117

13.4. Metaphysics and 'Spirit' ('soul') (117)

Let us begin by defining. -- There is a prevailing metaphysical and an anti-metaphysical view.

Spirit understood metaphysically. Dictionaries (Lalande, Foulguié - Saint Jean) initially recognize a limited concept of 'spirit' as life force (ethereal energy). Usually, however, 'spirit' means the following.

1. *Spirit as the soul (principle of life).* Thus, one can say of God, the angels and the demons, and the souls of the dead that they are 'spirit'.

2. *Spirit as a faculty of the soul.* Our soul grasps, values, and wills reality (ontological) and situates itself (philosophical psychology), the cosmos (philosophical cosmology), and divinity (philosophical theology) within total

reality.

In other words: metaphysics is only possible because our mind (soul) is attuned to what has just been outlined.

In this sense, spirit distinguishes itself from matter (spiritless reality) and from 'nature' (spiritless totality).

Note: The Pauline Biblical contrast “spirit/flesh” distinguishes “God’s life force” and “life force alienated from God”.

Spiritualism

Spirit, with an emphasis on immateriality, is the basis of spiritualism, distinct from materialism. One branch of this is called the “philosophie de l' esprit” of Louis Lavelle (1883/1951) and René Lesenne (1882/1954), who sought to understand spirit from the spirit itself.

Spirit understood a- and antimetaphysically.

Library st.: *P. Engel, Introduction à la philosophie de l'esprit* , Paris, 1994.

Mental activities, preferably expressed in sentences (linguistics), such as “I perceive.” “You have remembered it.” “My mind tells me that…” “I am aware that I am the cause of your discomfort.” “I feel pain,” and so on, have been called 'mind' since 1950. And this is done in such a way that this type of 'mind' (intentionality) is understood not from within itself, but from that which is non-mind, i.e., physically (physicalism) or biologically (functionalism—a form of physicalism). 'Mind' then becomes 'neuronic activity' or even 'information processing,' analogous to the computer machine.

The apparent intention is to banish age-old metaphysics as 'thinking' alien to reality and replace it with logistics, artificial intelligence (coordinator work), neurology, and linguistics.

COGN2.118

13.5. Conceptual a priorism (Engel) (118)

Library st. : *P. Engel, Introduction à la philosophie de l'esprit* , Paris, 1994.

Steller pauses briefly at an interpretation of mental phenomena—which he considers exaggerated. In doing so, he evidently has Malcolm (*N. Malcolm, Dreaming* , London, 1960) in mind.

Applicable model

The a priori conceptual method asks, for example, whether one can harbor

the intention to do something without the conviction that one is capable of doing it, or without the desire to do it.

a. If someone desires to do A and B, it does not follow that he desires to do both A and B.

b. However, if someone intends to do A and harbors the intention to do B, then it follows—always according to the a priori conceptual way of thinking—that he harbors the intention to do both A and B.

In this way, the method attempts to distinguish the concept or notion of 'intention' from the concepts of 'conviction', 'desire', 'act of will', and 'deed', and thus to create order in our mental phenomena.

Dreams.

In *Dreaming, Norman Malcolm* argues that, even if we perceive our dreams to actually amount to 'configurations' (images) in the neurons within our brains—as neurological interpretation suggests—'configurations' (images) in the neurons within our brains, we should not abandon our simple understanding of 'dreams'.

The reason: that 'ordinary' concept rests on self-evident truths, namely our introspective (and retrospective) experiences of dreams as well as those of fellow human beings (let us say: common sense) and the behaviors that spring from them. This is not refuted by any neuroscientific facts whatsoever, which are, after all, not our lived dreams but something else.

Note: The fact that Malcolm clings to the lived dream leads Engel to apply the term 'aprioric', in the sense of “sustainable from scientific facts, insensitive”.

What Engel omits, however, is that Malcolm emphasizes the phenomenological pedestal of both the 'ordinary' concept of 'dreams' and... scientific, primarily neuroscientific, research: what would neuroscientists do if at least one person did not know lived dreams? They would have no awareness of them and would not even speak of them—let alone investigate them neuroscientifically!

COGN2.119

13.6. Eliminativism (cognitive philosophy) (119)

Library st. : *P. Engel, Introduction à la philosophie de l'esprit* , Paris, 1994.

Steller outlines eliminativism as follows. With *P.S. Churchland,*

**Neurophilosophy* *, MIT, 1986, it is called 'neurophilosophy'.

Radical elimination. -- Based on the 'cognitive' sciences—logistics, linguistics, artificial intelligence, cognitive psychology, neuroscience—as the only valid source of knowledge, it is asserted that the psychology of the common sense ("folk psychology"), with its introspective and retrospective methods and the concepts derived from them—e.g., the concept of 'consciousness'—can be radically 'eliminated'.

Cognition. -- The concept of 'cognition' (knowledge, -- usually 'information') is axiomatically posited as the common object of the said specialized sciences, with the hope of arriving at a general science.

Thus says Pascal Engel, according to whom emerging materialism—called "scientific materialism" (in the non-Marxist sense)—is the philosophy behind that cognitivism.

Exclusivism. -- Engel relies on it: cognitivism is exclusive. -- Thus, it radically excludes any creationism or any paranormology. In other words: neither the sacred in the form of creationism nor the paranormal actually exist.

Note: 'Creationism' has two main meanings. The axiom is that a transcendent (transcending all finitude) deity—e.g., Yahweh or the Holy Trinity (Biblical)—creates the universe and its (sacred) history. In this sense, 'creationism' stands in opposition to pantheism (the deity is identical with: 'immanent' to the world) and dualism (a deity and a counter-deity are at work).

Incidentally: 'creationism' also means the axiom that the universe, and in particular its life forms, were created from the very beginning as we know them now (a- and anti-evolutionary creationism).

'Paranormology' (usually called 'parapsychology') posits that, besides physical phenomena, there also exist undeniable non-physical phenomena that are 'paranormal' and that require both an essence and an explanation of their own, if one does not wish to, for example, project physical axioms onto such phenomena.

COGN2.120

13.7. 'Fundamentalist' creationism (120)

That American cognitivists fiercely oppose their creationists becomes understandable if one knows that it concerns unscientific creationism.

Library st.: *St. J. Gould, Dorothy, It's Really Oz* (*A pro-creationist decision in Kansas is more than a blow against Darwin*), in: *Time* 23.08.1999.

The Kansas Board of Education voted (6 for/4 against) that, starting in public schools from 2000, the theory of evolution may be explained but will no longer be required on assessments. -- The six in favor are apparently unscientific creationists.

1. ***1920+.*** -- Several American states outright banned the theory of evolution in education. It was not until 1968 that the Supreme Court condemned this as unconstitutional (freedom of speech).

2. ***1975+.*** -- In Arkansas and Louisiana, the Board of Education argued that if the theory of evolution was taught, the Bible story—interpreted unscientifically—should receive the same amount of exposition time. The Supreme Court rejected this in 1987.

3. ***1999+*** .-- The decision in Kansas does not ban the theory of evolution and drops the requirement of Biblical atonement, but in doing so, it circumvents the law.

The unscientific argument.

The large-scale evolutionary process was and is not directly observed as such: it is not a fact.

Science – according to Gould – is twofold:

a. determination of data (facts) and

b. logical reasoning. Earth science, ancient history, etc., do not rely on current eyewitnesses! But are genuinely scientifically valid.

The theory of evolution resembles this: it is even supported by such a large number of data ('facts') – the witness remains of evolution – and by such a large number of arguments that evolution amounts to a 'fact'.

Compare with a scientific creationist, *Vlad Soloviev* (1853/1900), who wrote in his * *La justification du bien** , *Paris, 1939, 192*: “One cannot deny evolution: it is a fact.” However, he was fiercely critical of what a number of evolutionists add to the scientific achievements regarding evolution.

COGN2.121

13.8. Science explained to the public (121)

Library st.: *P. Bastiaansen, Richard Dawkins' Broom* , in: *Nature and Technology* (Beek) 67 (1999): 5 (May), 48/50.

Steller reflects on *R. Dawkins, Unweaving the Rainbow* (*Science, Delusion and the Appetite for Wonder*), New York, 1998. Dawkins was a zoologist but now teaches “Public Understanding of Science” at Oxford:

1. *J. Keats* (1785/1821; English poet) reproached I. Newton (1642/1727), who demonstrated with glass that white light was rainbow-colored, for thereby 'murdering' its beauty.

Dawkins chooses Newton: he reviews the entire science of nature—especially insofar as it breaks down matter by means of spectroscopy (the unraveling of electromagnetic waves emitted by matter)—“from the quasars (discovered in 1960: “quasi-stellar radio source”) in the universe to a urine trail from a swinging elephant penis” (ac, 49).

2. *Dawkins criticism.*

Dawkins mercilessly dissects **a.** religious believers, **b.** New Age (astrology, faith healers, Gaia followers, psychics) as forms of infantile humanity—fallen behind in the course of evolution.

In other words: anyone who assumes that there is more between heaven and earth than what the purely physical sciences 'see'. His work is intended as “the broom” that sweeps all non-scientific or even anti-scientific viewpoints of the past (from the infantile primitives) and present off the table.

2.1. *Bastiaansen* .

Steller finds the book brilliantly written. For example, where he refutes the resistance of lawyers to DNA tests: the fact that experts disagree regarding the valuation in this matter does not justify any doubt about the value of DNA tests!

2.2. *Bastiaansen* .

What Bastiaansen does not accept is that Dawkins does not even seriously address questions outside the natural sciences. For example, the problem of (the meaning of) death. “He becomes dogmatic and orthodox (*note:* starting from dogmatic certainties), lacks tolerance and respect, and above all lacks self-reflection.

In other words: he is irritating because of the “Oxford tone”.

Note: It is not only Dawkins who suffers from that Oxfordian lack of awareness of the limitations of the natural sciences, however valid they may

be.

COGN2.122

13.9. 'Dionus' and 'God' (cognitivistically interpreted) (122)

Library st. : *B.C. George, Polymorphisme du raisonnement humain* , Paris, 1997, 48.

Steller connects to a proposition: “If Dionysus is in need of celebration, then he drinks wine.” His commentary: this statement refers to an imaginary being. Nevertheless, one can attribute conditions of truth to it by relying on what is usually asserted about the imaginary world to which Dionysus belongs.

Note: What does George understand by 'usually'? The mentality of religious specialists? The modern rationalist mentality? Or both? What is intentionally certain is that a number of people, in the past and perhaps also now, in Greece 'believe' in mythical beings (regarding Dionysus), 'expect' something from them, indeed, in rites that bear witness to those inner states through outward 'behavior'. That would then be the psychological standpoint upon which the cognitivist can further elaborate in his typical manner.

Incidentally: what constitutes a myth is, to this day, a highly debated matter, even among myth analysts.

The belief in God (Oc, 142.)

George. -- “One can *imagine* that faith in God is strengthened by all religious practices to which one feels obliged for reasons of faith in God, such that, if God did not exist, such practices would be meaningless. Likewise, one can *imagine* that faith in God justifies these practices.” Note that the term '(oneself) imagine' is italicized.

Cognitivists, when dealing with non-physical realities, like to use terms such as 'imagined' and “imagining” (the latter as a method).

This exposes a key characteristic of cognitivism: one judges intentional—and certainly non-modern intentional—realities not on the basis of direct participation in that about which one wishes to acquire 'cognition,' but rather on the basis of radical—and, moreover, fundamentally purely physical—detachment.

As if the essential nature of the object to be 'known' could not provoke any scientific response other than that of a physicist towards a purely physical

object. Would that not be cognitive dissonance?

COGN2.123

13.10. Power and limits of introspection (123)

Library st.: *G Rey, Introspection* , in: *O. Houdé et al., éds., Vocabulaire de sciences cognitives* , Paris, 1998, 221s..

Steller states upfront: “Everyone seems to immediately know the essence regarding what is thought or felt at every moment.”

Note: Rey is cautious: he says 'seems' ('paraît'). With good reason, for many people, even normal ones, nowadays do not know what is going on inside them and realize this in a painful way. But that is enough.

S. Freud. -- Descartes' confidence in (self-)consciousness was already updated by the Cartesian G. Leibniz. Yet it is Freud—according to Rey—who “gave scientific credibility to such a hypothesis, which states that unconscious processes operate within us.” This is now a commonplace in linguistics (*note:* who does not think of the structuralists in this context?) and in cognitive psychology. The latter posits that most cognitive processes underlying intelligent behavior are, being unconscious, inaccessible to introspection.

Experimental data.

Rich. Nisbett and *Tim. Wilson* , in *On Telling More than We can Know* , in: Psychological Review 84 (1977): 231/259, experimented.

Scenario. -- ***GG*** . -- Different pairs of stockings that are in fact identical.

GV.1 . -- Choose a pair. The participants choose the pair on the right.

GV.2. -- “Why do you choose this pair?” The test subjects come up with a series of 'reflections' which can be proven not to be the true explanation.

GV.3 . --"Why do you choose right?". The test subjects emphatically deny that their seating arrangement plays a role.

Conclusion. -- They choose “under the influence” of unconscious factors and processes.

Reception. -- These data elicited many reactions. The most methodical is *Lars Ericsson/Herb. Simon, Protocol Analysis* (*Verbal Reports as Data*), MIT Press, 1993. They attempted to construct a detailed computational theory regarding introspective mechanisms.

Note: What exactly do the Aisbett/Wilson experiments prove? For, if all possible reductionists and eliminativists were not aware of themselves and their environment and could not “look inward”, how could they ever search for an 'explanation' thereof situated outside of consciousness and introspection in a (self-)conscious manner?

COGN2.124

13.11. The unconscious interpreted by consciousness (124/125)

Library st. : *Ol. Perrin, Comment Freud, en inventant l'inconscient, nous a rendu très compliques* , in: *Le Temps* (Geneva) 12.07.1999.

In 1896, S. Freud (1856/1939) introduced the term 'psychoanalysis'. Based on two striking presuppositions:

a. the patients then labeled as 'hysterical' prove to Freud that 'psychic' encompasses more than 'conscious';

b. he himself applies his psychoanalysis to himself to expose the unconscious side of his psychic life.

1. *A few samples.*

The signs of the unconscious in man are central. And immediately their interpretation (which makes Freud a hermeneutician). We list a few, with Perrin.

(1). *Post-hypnotic command* .

Freud hypnotizes people and gives them a command to carry out while in that hypnotic state, after the hypnosis is complete. Once awakened, the people carry this out without being aware that they ever received such a command while in hypnosis. They act from the unconscious.

(2). *Free association.*

This later replaces hypnosis. Axiom: some psychic phenomena—e.g., an inexplicable anxiety—point to other psychic phenomena that do not manifest themselves, at least for the time being (they are not (yet) a 'phenomenon'). As long as the conscious inner life “stands guard,” one does not become aware of it, e.g., for reasons of shame (something that applied to all things sexuality in Freud’s puritanical era, for example). The sense of honor “stands guard.”

(3). *Dream, witticisms (humor), slips of the tongue* .

In time, Freud will seek the signs of the unconscious primarily in dreams—his own, for example.

2. *Therapeutic* results

Hysterical patients at the time refuted established medicine (psychiatry, neurology) because they showed no 'organic' damage whatsoever that could be exposed by the physical medicine of those days.

In such cases, this revealed the limitations of the axioms! They acted like a straitjacket that did not even seriously consider purely 'psychic' phenomena. Such was the 'gaze' of the physicians trapped within physics as the quintessential 'science'.

COGN2.125

Until then, hysterical patients were suspected (*note:* this is still the case among some contemporaries today) of simulating ("playing a comedy")—in order to make themselves look interesting.

Following in the footsteps of J.-M. Charcot (1825/1893; La Salpêtriere), Freud believed that, fundamentally, provided they received proper guidance, they were best informed about the factors (unconscious, of course) that disturbed them. Freud derived the healing from the patients themselves.

Consciousness.

Perrin relies on *Fr. Roustang, *Introduction à la psychanalyse* *. -- Apparently, the conscious inner life appeared 'weak'. For it was controlled by unconscious factors (summarizable, according to Freud, in the 'libido', the deeper feelings of pleasure).

Twofold triumph of consciousness.

a. For reasons of an 'embarrassing' nature, consciousness represses 'things' that it cannot simply process (they are, for example, shameful). That repression—however unconscious—clearly shows that our conscious inner life has 'power' over troublesome elements.

b. Freud's discovery, psychoanalysis, rests precisely on that control by consciousness—the patients know “deep down” (in a repressed manner) that they once repressed—to make the patients aware that they once resorted to repression.

In other words: the conscious intervention of the psychoanalyst effectively forces the consciousness of the treated individuals to once again consciously face the harsh reality and not repress it further.

Fr. Roustang. -- If the unconscious serves as an explanation for what mere consciousness— *note:* without psychoanalytic intervention—cannot see, because cannot process, then psychoanalysis inevitably reinforces the 'pretension' of consciousness.

Conclusion. -- One should therefore not be too quick to claim that "psychoanalysis" has 'dethroned' consciousness—as the modern West placed it at the center.

On closer inspection, it is actually the opposite. Even though Freud himself described his psychoanalysis as the 'humiliation' of (the Western concept of) consciousness, according to Roustang the opposite is true.

COGN2.126

13.12. The 'unmanageable' concept of 'consciousness' (126)

discusses this in *De taal van hetbewustzijn* in: *Onze Alma Mater* (Leuven) 53 (1999): 2 (May), 166/203.

Steller connects with the German physiologist Em. Du Bois-Reymond (1818/1896), who wrote in 1872:

a. that one not only does not know what consciousness is and

b. that we will never know.

At least from the material observations.

Similar sentiments are heard in cognitive circles.

Droste states that Dubois-Reymond is the first to harbor doubts about the how and the what of consciousness. From a materialist perspective, that may well be correct. But look: *G. Bolland, ed., GA Gabler's Kritik des Bewusstseins* (*Eine Vorschule zu Hegel's Wissenschaft der Logik*), Leiden, 1901, iii, states that Gabler's work appeared in 1827 in the wake of *Hegel's Phänomenologie des Geistes* (1807). Hegelians, although more than saturated with the concept of 'consciousness', are far from uncritical on the matter. Even for believers in consciousness, consciousness poses both definitional and explanatory problems. But so far so good.

The method.

What consciousness is cannot be explained or learned before or outside of consciousness. For it exists solely in its course and in the knowing concerning itself! Only the complete method, emerging from consciousness itself and through the method residing within and fitting to the concept of

'consciousness', ought to apply the exposition concerning what consciousness entails. -- Behold the method.

In layman's terms:

as soon as one is aware of oneself and of the environment, one can—by examining it more closely—through the reflective method that examines itself as a conscious being in the very course of conscious life—begin to know more than in fact what consciousness is and even what it could be, in its possibilities.

Even more down-to-earth: as soon as one is not unconscious, one can begin to think about what consciousness is.

But natural scientists, or cognitivists for that matter, approach consciousness through what it is not. That is the paradoxical method. Scientifically and methodologically, that is possible. But if one wishes to rebuild an entire culture upon that basis, then such a 'science' exceeds its own limits. In Hegel's terms: it forgets its finitude.

COGN2.127

13.13. Paranormal phenomena and cognitivism (127/128)

Eliminative cognitivism as background.

A follower of eliminative materialism clings without scruples to the dogma of scientism (*note:* idolization of specialized sciences) and declares that “common sense” is seriously ill.

This radical stance harks back to the position of Paul Feyerabend (1924/1994; anarchist epistemologist) and Richard Rorty (1931/2007) in the early 1960s.

For contemporary elaboration (...) see *Patricia Churchland, Neurophilosophy* (*Towards a Unified Science of the Mind-Brain*), MIT Press, 1986, II, and her husband *Paul M.Churchland, A Neurocomputational Perspective* (*The Nature of Mind and the Structure of Science*), MIT Press, 1989, 1-6.

Science – in particular computational neurobiology – is the only source of knowledge.” (*S. Cuypers, Dusty Minds* (*On Materialism*), in: *Journal of Philosophy* . 56 (1994): 4 (Dec.), 701)

Steller adds that even in materialist circles, the Churchland thesis is fiercely debated.

Let us now specify regarding **a.** paranormal phenomena and **b.** conscious

phenomena.

The unbridgeable chasm.

Library st.:

-- *P. Engel, Introduction à la philosophie de l'esprit* , Paris, 1994, 56pp.. This refers to:

-- *Paul Churchland, Eliminative Materialism and Propositional Attitudes* , in: *Journal of Philos* . 1979;

-- *Patricia Churchland, Neurophilosophy* (1986).

Thesis. -- Folk psychology is indeed a theory, as J. Fodor asserts. But this is only in its form, which mimics that of the true mental sciences. -- For "common sense" applies the propositions of folk psychology to articulate the laws of behavior, and does so with predictive value. Here it is.

(Vx) (VK) (Vm). -- In lawful form: (x has a mass m) and (x experiences a force k) --(x experiences an acceleration k/m). -- That is the epitome of physics.

(V = applies to all.) (Vx)(VP) --- Law-like: (x hopes that p) and (x discovers that p) --- (X is satisfied that p). -- That is the folk psychological model.

Fundamental difference. -- Physics usually explains numerical values. Folk belief explains actions in the form of propositions and their contents.

COGN2.128

Critique of the Churchlands

Thesis: "Such laws of folk psychology are false". Reason: it prioritizes all kinds of 'entities' that are nothing in themselves.

1. That the words used for that purpose 'refer' (point to) nothing is particularly evident in terms such as 'witch' or "diabolical possession". -- Things that common sense—centuries ago or even now (?)—attributed to certain persons.

2.-- That other terms such as 'belief' (conviction) or 'intention' likewise refer to nothing is also evident, although such entities live on to this day.

Argumentation.

Current neurophysiology—according to the Churchlands—proves that such intentional states do not exist. There exists only: neurons, synapses—

material configurations within the brain.

Note: The artery of the argument: an unbridgeable gap exists between the popular vocabulary of intentions and the vocabulary of neurophysiology. Well, the neurosciences are the only ones that truly have the right to speak of cognition.

Angel.

Such reasoning resembles that of the dualists, who claim that such an unbridgeable gap proves that the mental will never prove identifiable with the brain.

Identity theory reduces the mental to the cerebral (reductionism). Eliminativism reduces nothing because intentional life is nothing.

Conclusion.

The Churchlands state: popular belief regarding psychic phenomena is a degenerate scientific program because it has not evolved for centuries. It must be replaced by “hard science.” “Hard science” is neuroscience.

Note: The Churchlands hold a special view regarding scientific progress. Folk psychology, for example, and neuroscience are mutually incomparable ('incommensurable') and relate to one another as alchemy relates to modern chemistry or logistics to modern physics. An abyss yawns between those worlds.

Note: Eliminativism is also advocated by *S. Stich, *From Folk Psychology to Cognitive Science* *, MIT Press, 1983.

COGN2.129

13.14. Normal, paranormal, abnormal 'spirit' (129)

Let us start with a sample: *Kay Redfield Jamison, De l'exaltation à la depression* (*Confession d' une psychiatre maniaco-depressive*), Paris, 1997 (// *An Unquiet Mind* , NY, 1995).

The author is a professor of psychiatry at the School of Medicine of Johns Hopkins University. The psychosis began when she was fourteen (1961). Gradually. “I was 16 or 17 when I realized that my impulses and eccentricities were exhausting those around me and that all the more so because, after long weeks of megalomania and sleepless nights, my thoughts were degenerating into genuine and disturbing pessimism” (oc,41). She had three good friends—“handsome boys”—two of whom had manic-depressives in the family and the

third had a mother who committed suicide. “All three on their way to manic-depressive states”.

The syndrome.

Throughout the entire book, she goes through the syndrome intermittently. Here at the beginning.

a. Manic: “Himmelhoch jauchzend”. - “I was running around in all directions. (...). Bursting with plans and overflowing enthusiasm. (...). Went out night after night. Was active all night. (...). I felt absolutely fantastic”.

b. Depressed: “Driven to death”. -- Then suddenly: “After that, the foundation of my life and of my mind gave way. (...). My thoughts became eccentric. I read and reread the same text only to find that I retained nothing of it. (...). I woke up this morning dead tired. (...). Obsessed with death.” (Oc, 42/44).

Continuously taking lithium.

Taking a rest. Then going to work hyperactively again. -- The curious thing that should make us all think: the author claims—and she knows the intellectual mainstream perfectly—that “there are so many professors who are manic-depressive” at higher institutions. What exactly is 'mind', spirit, in these people who perhaps, in moments of clarity, write texts of genius (the author says so), afterwards plunge into the depths of the disturbed mind?

M.V. Kline, director of the Institute for Research in Hypnais (Valhalla, NY), cites *W. James* in his article: *Mind* (*A Descriptive Operational Definition*), in: *J. Scher, ed., Theories of Mind,* NY/London, 1962, 661/673. James posed the question of 'mind' when boundary experiences—drunkenness, drug use, nitrous oxide sufferers, -- Kline adds: dreams, hallucinations, hypnosis, and the like occur.

Most Holy Trinity. 17.09.1999

COGN2.130

13.15. Fractalism (130).

Library st. : *J.C1. Chirollet, Philosophie et société d'information* (*Pour une philosophie fractaliste*), Paris, 1999.

Steller is criticizing the established French academic philosophers who do not take our information society into account, or do not do so sufficiently. If they are not already radical or opposed to it. -- He compares this to the

objections to the emerging printing press in the 15th century, which, in retrospect, was a boon for philosophy as well.

The fractal as an example.

The term 'fractal' (from the Latin 'fractus', broken) was introduced by the mathematician *Benoît Mandelbrot* in his *Les objets fractals* (*Forme, hasard et dimensions*), Paris, 1975-1; 1995-4.

Simply put: geometric configurations (planar or three-dimensional) become intertwined instead of distinguishable; irregular instead of regular; multiple and opaque instead of singular and transparent. -- Behold the model. Now for the original.

Fractalism.

Chirollet actually meant philosophia perennis, the philosophy that presents itself as eternal.

Just as geometrically everything that is form is analyzed time and again from a different perspective in almighty mathematics, such that geometric forms exhibit flows, irregularities, and deviations of all kinds from all that was classical design, and are susceptible only to very provisional analyses, so too is the reality that philosophy studies. In a never-ending opacity—due to boundless unraveling, one after another, down to insignificant details—the philosophy of the information age need not lose itself. The contemporary thinker would have to 'absorb' the deluge of information of all kinds time and again in order to “keep up”.

The only thing philosophizing should do is “mettre en forme,” take care of the shaping of such a chaotic, complex, and opaque given.

Behold, in short, but as accurately as possible, one of the reinterpretations awaiting “eternal philosophy,” if Chirollet is indeed correct. Yet perhaps what he envisions is the umpteenth interpretation of the all-encompassing concept—Platonic: idea—“eternal philosophy.” And there is no break, but a continuation based on Re-establishment.