

4. 2. Scientific links

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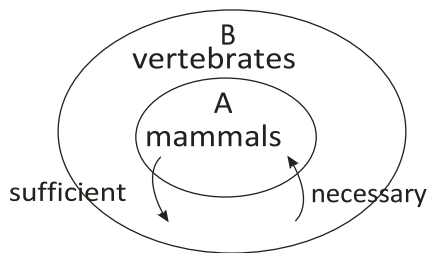
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4. 2. 1 Conditions doctrine

Bibl. st.: I.M. Bochenski, *Philosophical methods in modern science*, Utrecht / Antwerp, 1961, 140/143 (The conditions and its kinds). To explain is to state the reason in all cases of a given (phenomenon). In present-day sciences one very often limits that reason to a condition: for a phenomenon to be explained one always indicates at least one condition.

Classification. Bochenski sees it as follows.

1.1. Sufficient condition. "A living being,



if it is a mammal, it is at once a vertebrate". Thus, in addition to mammals, the collection of vertebrates includes, e.g., fish and birds. Being a mammal (A) is a sufficient condition for being a vertebrate animal

(B). The reverse is not true: not all vertebrates are mammals. We say that A is a sufficient condition of B only when

the statement 'if A then also B' is valid. It is sufficient in this case that A be given, so that with it B also be given. Formula: if the condition is given, then immediately the phenomenon is given. If mammal (A), then vertebrate (B).

1.2. Necessary condition. "All mammals are immediately vertebrates." The reason according to Bochenski is a law of concomitance (companion law) that states, "Being vertebrate (B) is a necessary condition of being mammalian (A)." However, being vertebrate is not sufficient. We say that B is a necessary condition of A only when the (inverse) statement holds: 'if B then also A'. For if B were not given, then also A would not occur. Without a collection of vertebrates, there are no mammals either. So B is the necessary condition of A. Formula: if phenomenon given, then immediately condition given.

Symbol shortening. Overview.

Sufficient condition. If A, then also B. If you are mammal, you are vertebrate anyway.

Necessary condition. If B, then also A. It is necessary to be vertebrate to be mammalian.

2. Sufficient and necessary condition. We say that A is sufficient and necessary condition of B only when both of the above conditions hold, i.e., if A, then B and at the same time: if B, then A. Or still: 'A then and only if B'. If and only if phenomenon given, then condition given. So the example above does not satisfy: The first condition 'If mammal, then vertebrate' satisfies, but the second condition: 'If vertebrate then, and only then mammal' is incorrect here. Symbol shortening. Sufficient and necessary condition. Only if B, then A. Or A only if B.

Ch. Lahr, *Logique*, 587, notes: Thus the earth's rotation of axis is a necessary condition to explain the alternation of day and night. However, it is insufficient: solar light is the cause: the rotation of the axis explains the alternation of day and night only insofar as, in our planetary system, a luminous sun is at work. Sunlight and rotation together are the necessary and sufficient reason for the alternation of day and night. If sunlight and axis rotation (A), then day and night (B). If day and night (B): then axis rotation and sunlight (A).

In the section 1.16.11, we considered ABC theory and neurotic and healthy judgment. Here Ellis and Sagarin stated, "At point B, the neurotic is deluding himself. Not the reality (the miscalculation A) alone (which is the necessary yet insufficient condition or stimulus) but the mostly unthinking (hiding, concealing and thus "untrue" premises (B) give rise to the neurosis (C). One can see: both reality (A) and untrue presuppositions (B) are the necessary and sufficient conditions for the emergence of neurosis (C).

Minimalism. K. Döhmann, *Die sprachliche Darstellung logischer Funktoren*, in: A. Menne / G. Frey, Hrsg., *Logik und Sprache*, Bern / Munich, 1974,47, cites A. Schopenhauer (1788/1860) in this regard. *In Parerga und Paralipomena* II: 23, he criticizes a number of writers who use "stipulate" ("make dependent on conditions") instead of "process" or "cause". By using that more abstract and indefinite term, they impoverish the information that "edit" or "cause" involves.

An explanation by conditions is called "minimalist" because those who explain by causes reflect more about reality than those who limit themselves to conditions. Which leads to the debate about the distinction between condition and cause.

Natural Sciences. Many explanations are phrased in terms of conditions as mentioned above. They are not causal ("causal") explanations. For example, the rotation of the earth's axis is a condition to the alternation of day and night; however, sunlight is the cause.

Other sciences. In many sciences it is not enough to limit reason to the mere condition. Consequence: in such sciences causal explanation prevails. Thus - says Bochenski - it seems to be in the biological sciences or in a human science such as sociology.

Conclusion. Conditions are "reasons. They illustrate the reason axiom that says, "Nothing is without reason." Whether it is a pure condition or a causal condition is secondary: both involve a phenomenon as not to be thought of without including its reason. The basic concept of logic - coherence - clearly asserts itself. In particular: the connection between a given or phenomenon and its conditions or causes and vice versa.

4. 2. 2 *Function*

According to van Dale, a function in its mathematical sense is a variable quantity that depends as such on one or more others. In broader usage, including non - mathematical, it means "dependent on. Bibl. st.: P. Foulquié / R. Saint-Jean, *Dict. de la langue philosophique*, PUF, 1969-2,283/285 (Fonction); R. Nadeau, *Voc. technique et analytique de l'épistémologie*, PUF, 1999, 269 (Fonction). Nadeau refers to E. Nagel, *The Structure of Science (Problems in the Logic of Scientific Explanation)*, New York, 1961: in biology and the human sciences, functionalists promise a lot o.g. "functional explanation" but exhibit disagreements partly o.g. a plurality of definitions of the term "function. Nagel distinguishes six! Which demonstrates the complexity of our subject. We limit ourselves to the following.

Definition. - Function is always relation. It exhibits mutual partial terms that act either as GG/GV or as GV/GG. They are "place" and "role. Sometimes there is "GG: place / GV: role", other times "GV: place / GG: role". - Model.- Charles is the refuge of all neighbors in need.- All neighbors in need are the place (for Charles' help) and he as refuge is the role (which is in its place with the neighbors in need).

Place is GG and role is GV: if emergency, then role sensible.- Model. - Charles is possible refuge but there are no neighbors in need.-.

The place is GV and the role is GG : if no need, then role meaningless.

Function. The term "function" exhibits two main meanings, the place for the role and the role. Both meanings are metonymically related. Now follow models.

Sociological. Functionalist theory on society dates back to E. Durkheim's *Règles de la méthode sociologique* (1895). He thinks in terms of "need/role." Need is the locus of role within society. Distress is dependence on role. On Charles the neighbor depends but at the same time she is the place for Charles as refuge. As dependent she is "function of" Karel. But as need and place for his role, she herself exhibits a "function," the refuge function. One can see that both functions are mutually definable.

Psychological. Processing reality keeps the psyché healthy. The health of the human soul depends on ("function of") (processing) reality performing a "function" or role. Yet reality finds its place in the "reality function" (the ability to process reality) peculiar to the psyché.

Biological. Green plants depend on chlorophyll through processing from the atmosphere. As is well known, chlorophyll, or leafy green, converts light energy into chemical energy needed for photosynthesis. Chlorophyll fulfills a need of green plants and thus these are "function of" chlorophyll. But biologists also speak of the "chlorophyll function" peculiar to green plants:

thanks to this "function," there is room for chlorophyll in green plants.

Mathematical. $x = f(y)$. The values of x depend on those of y and so are "function of" y . But the dependence of x is the locus for the role (function) that y plays in (the values of) x which itself exhibits a y function as the locus for y . One sees the mathematical mutuality of x and y .

Logistic. "X is the capital of Belgium" is a "propositional function," i.e., a function in the form of a proposition or statement (in this case with one variable, i.e., X). If the variable is filled in by an immutable, then the propositional function acquires truth value. For example, "Paris is the capital of Belgium" is a false statement and "Brussels is the capital of Belgium" is a true statement. The truth value of the statement depends on (and thus "function of") the (interpretation by an) immutable. Yet an immutable has its place in a judgment thanks to the changeable. That place is the truth function of the judgment.

Conclusion. To be a function of something (thus playing a function or role) is always at the same time to exhibit a function, i.e. to give a role (or function) a place! The concept of coherence is one of the basic concepts of natural logic. If A is related to B, then one can speak metonymically about B in terms of A and vice versa. Thus a role can be called a "function" and the openness to a role can likewise be called a "function."

Let us now dwell for a moment on the types of 'function' Nagel distinguished. 'Explanation' he defines as "the process by which certain classes of phenomena (certain phenomena) are denoted as coherent in the form of 'explicandum,' the fact to be explained, and 'explicans,' the explanatory fact. "The function of chlorophyll in plants consists in making them capable of photosynthesis." Behold a functional explanation. She seems to insinuate that one can explain the presence of chlorophyll in plants by the role (= function) that chlorophyll plays, i.e., to allow the plants to process photosynthesis. Nagel replaces this with "A necessary condition of editing photosynthesis in plants is the presence of chlorophyll." This is to avoid an "obscure" teleological explanation. We now go over the definitions of "function" that Nagel lists.

1. "The percent of suicides in a community is function of its social cohesion." Nagel. This involves dependence between at least two variable data, measurable or otherwise (correlation). The percent suicide is "function of" the social cohesion that plays the role for which life within the community prepares a place.

2. "Reproduction and respiration are vital functions of the organism." Nagel. "Function" here means "process. Similarly in, "Every kind of cultural institution performs a vital function in society." Note: The organism depends on (and thus "function of") reproduction and respiration playing a role for which the organism provides a place. Society depends on ("function of") cultural institutions that find a place ("cultural function") in it.

3. "One of the functions of the liver is to store sugar in the organism." "One of the functions of publishing scientific articles is to allow expert criticism." Nagel. 'Function' here means "the effects". Note: The organism in its need for sugar is dependent on ("function of") the liver which plays its part in this for which the sugar need in the organism provides a place ("sugar function"). An article needs ("is function of") expert criticism which fulfills that role for which a published article provides a place ("critical function").

4. "The function of the steering wheel of a car". "The function that consists in shivering when one is cold." Nagel. 'Function' here stands for 'contribution' to (chariot, having cold). Note: The steering wheel plays a role (function) for which the chariot accommodates (and thus exhibits a "steering function"). The shivering plays a role (function) of warning e.g. in having cold, a need of the organism, which gives place to the role.

5. "The function of an axe is to cut wood." Nagel. "Function" here is "use value. Note: Cutting wood depends on (and is a function of) an axe. The role of an axe is to cut wood, wood that has room for it (a 'function' of wood as amenable to cutting). For Nagel to speak in this way is really to give no explanation. Whereby one senses that he at least wants to avoid a purposiveness or purposiveness as an 'obscure' teleological explanation. In any case: anyone can observe that an axe can serve to cut wood. Which surely explains why people take an axe and cut wood with it! Talk about 'explaining'!

6. "The functioning of the stomach". "The functioning of the service of the post". Nagel. 'Function' as 'functioning' has been used here without mention of any result. Functioning is

stated in itself. Nagel argues that this meaning of 'function' in particular is recited by functionalists as hopeful. Hopefully - he says - they will make the effort to define it accurately and make it distinguishable from the other meanings. Note: 'Function' as 'functioning' is recited here in itself without indicating the place where such function belongs which is actually a non-functional meaning! Functioning is working, being in operation, i.e. a progression. Without a place and the role corresponding to that place, there is no functional statement anyway.

4. 2. 3 Functional laws

Bibl. st.: I.M. Bochenski, *Philosophical methods in modern science*, Utr./Antw., 1961 144vv.; R. Nadeau, *Voc. technique et analytique d'épistémologie*, PUF, 1999, 375 (Loi). J. Russ, *Dict. de philosophie*, Paris, 1996-2, 165s. (Loi), distinguishes ontological laws (such as the identity axiom), ethical laws (sexual abuse of children is universally unconscionable), political laws (all citizens are obliged to declare taxable goods and services) and scientific laws (water boils at 100° C. under normal conditions). We are talking about the latter here, although we emphasize that all types of laws are universally valid (unless statistical data falls under the "statistical" type of law).

Functional laws. Bochenski argues that such laws formulate conditions (sufficient, necessary and sufficient-and-necessary) in a more complicated form. The highly developed sciences (physics, psychology e.g.) try to formulate such laws. E.g., "For all physical bodies, their speed is a function of their falling time. The speed obtained by a falling body is indeed directly proportional to its fall time. In other words: the velocity depends on the falling time, which plays a role in the velocity that assigns that falling time a place (mutual coherence). The law applies to correlations and determines their frequency (quantitative aspect of correlations). GG a coherence; GV its frequency.

Model. C. Lamont, *Freedom of Choice Affirmed*, New York, 1967,50, cites E.A. Burtt, *Right Thinking (A Study of its Principles and Methods)*, New York, 1948, 304. Laws are expressed in "if, then" language: "For all starting systems in cars, if correctly manipulated, then the machine will start." In any determined system (e.g., mechanics or economics (insofar as it is subject to determinisms)), the sentence "The event A will occur" will have as its inevitable logical inference the sentence "The event B will occur." Shorter: "If event A, then (as a logical and therefore strictly predictable consequence) event B" . Insofar as this connection is necessary and thus general, it is lawful (as to frequency universal).

Functional. B is apparently "function of" (dependent on) A that plays a role in the occurrence of B (i.e. performs a "function" or influence). Role or function for which A, given coherence, holds a place open (showing that A exhibits a B function). If such mutual coherence is always present, the frequency is lawful, because valid for all uses of that coherence.

Law in itself and situated. "One bitterly cold morning I manipulated the starting system of my car (event A) to start the rig (event B) yet the battery would not work because of zero temperature." Normal course. If A, then B. Laws are articulated "within themselves" and do not take into account other, accidental (non-normal) courses that cut across the coherence they formulate. In total physical reality, it happens that A merges with C, a course not foreseen in the abstract wording. "In itself" should start the engine. "In fact," situated, it does not start! C does not belong to the normal state of A. Consequence: B does not follow. Short: "If A-C, then no B". Functional laws in manuals isolate coherence from actual reality, "from full life." Consequence: in fact the universal law decays into a statistical law articulating a (general) rule with (individual) exceptions.

Note: Even non-science laws exhibit "if, then"-language. If child pornography, then criminal (ethical). If taxable income, then declaration mandatory (political). The universality then reads "For all people of conscience, if child pornography, then punishable" or "For all citizens of the state, if taxable income, then mandatory reporting." One sees that a consistency is taken by its (universal) frequency - and so by its similarity in all cases - and so articulated in a law.

4. 2. 4 Causal theory

Bibl.st.: I.M. Bochenski, *Philosophical methods in modern science*, Utr./Antw., 1961, 142v. (Causal explanation); O. Houdé et al., *Vocabulaire de sciences cognitives (Neuroscience, psychologie, intelligence artificielle, linguistique et philosophie)*, PUF, 1998, 69/72

(Causalité). By way of introduction. Dictionaries do not agree on "phenomenalism" and "phenomenalism. When we purge from them what makes sense, the following emerges. 'Phenomenalism' includes two kinds: (1) those who limit our knowing to what reality assumed to exist in itself shows to our consciousness and its experiences; (2) those who limit our knowing to what our consciousness and its experiences directly grasps with the elimination anyway of any reality in itself. The latter is then called "phenomenalism" which is thus a kind of phenomenalism that some call "conscientism."

Definition. Houdé et al., show us a multitude of definitions (within cognitivism) beyond our framework here. We adhere to Bochenski's ontological definition: "Reality A, e.g. Mathilde cuts bread, if only she in given circumstances as

'agent' (cause) causes the reality (existence and mode of being) of B,-e.g. sliced bread- to exist, is the ontological cause of B."

D. Hume (1711/1776). In his *A Treatise on Human Nature* (1739/1740), the connection "cause/effect" is the main question. One can express his definition as follows: "A condition, if it (1) is in well-defined connection with a sequel as regards space and (2) precedes the sequel as regards time or is at least contemporaneous with it, is a cause." According to Hume as a phenomenist, that connection in our minds is the product of "habit": we denote post hoc (subsequent) as propter hoc (because of it). We do not see causes causing effects but only phenomena following phenomena.

Consequence. Many methodologists drop such "causation" and reduce the term "cause" to "mere condition."

Bochenski's critique. Such definition is neither precise nor clear. Above all, he emphasizes that in fact not only human scientists such as psychologists or historians but also natural scientists very often think of an ontological cause in their explanations. So e.g. geologists who state unequivocally that e.g. geotectonic processes give rise to mountains in the ontological sense.

Note: The phenomenological definition clearly has phenomenological value: methodically, a description of the phenomenon of "causation by something of something else" can be the introduction to a phenomenology of causation.

Cognitivism, by reintroducing all that is mental into its naturalistic psychology, has made central the essence of causing by mental phenomena and namely causing physical phenomena by our psyché. For example, external behavior is caused by our psyché. This is evident, for example, when someone says to you "Look to the right" upon which you, in the opinion that was said "Look to the left", look to the left. The influence of the one who says "Look to the right" is destroyed by your opinion - your mental state - which determined your external and therefore physically perceptible behavior. Your psyché made the physical fact exist!

Note: A. Michotte, *La perception de la causalité*, Louvain, 1946, posed the problem of the perception of causation. Mathilde cuts the bread into slices of bread. Jan looks at it and "sees them cause sliced bread." The mean mind, reflected in what cognitivists dismiss as "folk psychology," has no problem with that. But a phenomenism "sees" only the sequence "Mathilde cuts bread"/ "sliced bread. The latter follows in time Mathilde's effort and is spatially not far from it, but whether it is an actual consequence of Mathilde's effort is "unobservable" and thus at best "probable"!

4. 2. 5 Sequence, condition, cause

Bibl. st.: Ch. Lahr, *Cours*, 583/591 (*L'expérimentation*); I.M. Bochenski, *Philosophical methods in modern science*, Utr./Antw., 1961, 149/155 (*The methods of Mill*).

Definition. An artificial creation of phenomena, if it takes place within well-defined conditions, controlled by the experimenter, in the light of a hypothesis to be tested, is a trial or experiment. (Lahr, o.c., 583). The experimental method transcends the merely "empirical" precisely because the former is controlled by the inquisitive.

Francis Bacon of Verulam (1561/1626), known for his *Novum organum scientiarum* (New Instrument of Thought in the Sciences), published in 1620, and John Stuart Mill (1806/1873), known for his *A System of Logic (Rationative and Inductive)*, published in 1843, established rules regarding experimentation, which Bochenski, o.c., 149; notes are obsolete and no longer applied in science as Mill indicated. Which does not mean that they have no value, of course. Yet within the scope of this work an exposition of them would lead us too far. What we do retain, however, is the following.

Condition / fixed condition / necessary condition / sufficient condition / cause. Lahr sees it this way. L. Pasteur (1822/1895; founder of microbiology) tested W. Harvey's (1578/1657) axiom "Omne vivens ex ovo" (Every living being arises from an egg). Pasteur wanted to prove that if microorganisms are in the air, then living organisms arise in a liquid. The experiment involved - in short - (a) completely sealing off the liquid from the air, (b) bringing it into contact only with completely pure air (free of any microorganism), (c) bringing it into contact with air containing varying doses of microorganisms. Only in the latter case did living organisms arise.

Lahr defines. Even though every cause is a fixed (ever-present) condition, not every fixed condition is a cause. A fixed condition can be a necessary condition (*conditio sine qua non*) or

a mere accompanying phenomenon. For example, the brain is a fixed condition of mental life but that does not make it the cause of it.

To illustrate. Daylight is invariably followed by night. That is pure succession. The axis rotation of the earth is a condition of (the appearing and disappearing) daylight. But the sunlight as a light source within the solar system is cause of daylight. For without the sunlight no daylight.

For an experiment to be decisive, a phenomenon (e.g., life from liquid or daylight) must be stripped of all its conditions except just one which is then the sufficient (*conditio quacum semper*) and necessary (*conditio sine qua non*) condition of the phenomenon being tested for its cause:.

So much for a theory in a nutshell regarding experimentation that may in fact face very many problems. Lahr quotes Pasteur: "In experimental sciences doubt is called for as long as the facts do not call for a thesis. (. ..). All possibilities must be exhausted until our minds cannot advocate any other proposition."

4. 2. 6 "*Cum hoc; ergo propter hoc*"

Latin for: "with this; therefore by this". It is erroneously inferred from the simultaneous occurrence of two events that they relate as cause and effect.

Ch. Lahr, *Cours*, 700, formulates an inductive fallacy, "Non causa; pro causa" ("To interpret what is not a cause as the cause). Thus e.g., prior phenomenon denote as the cause. The classic formula reads, "Post hoc. Ergo propter hoc". (There after. So therefore"). Thus: The more police you see appearing in the street (post hoc), the more protesters you can expect. So the appearance of the police is the cause of the demonstration (Ergo propter hoc).

Scenario. Bibl. st.: A. Crisinel, *Le prion sous haute surveillance*, in: *Le Temps* (Geneva) 12. 06.2001,4. It deals with the livestock-associated variant of the natural prion, a protein, and the question of whether its ingestion by humans causes the new, human variant of Creutzfeldt-Jakob disease.

March 1996. In England one describes the first case of the new human ailment. Early June 2001; In the United Kingdom, case 105 is diagnosed on 04.06.01 (with 2 in France and 1 in Ireland).

Hypothesis. Ingestion of contaminated food (brain, spine, etc.) is suspected to be the "cause. Reason: the correlation in time (simultaneity) and in space (United Kingdom) of livestock disease and human disease.

Confrontation with the phenomenist definition of 'cause'. I.M. Bochenski, *Philosophical Methods in Modern Science*, Utr./Antw., 1961, 143, outlines the definition of the phenomenists as follows: "A sufficient condition, if it is connected in time (by prior or simultaneous appearance) and in space (by some 'proximity') with a phenomenon, is the cause of it."

In many highly developed sciences (including physics) - says Bochenski - one limits contact with a phenomenon to its purely sensory aspect because the "protocol statements" (the statements that describe the facts before interpreting them) are limited to the purely sensory. Consequence: so that what transcends the phenomenal (toward, e.g., the ontological cause) is not practically, if not methodically or even theoretically, done justice to.

Well, how within such definition does "cum hoc" (the mere phenomenal coexistence in time and space) from "propter hoc" (the factor that makes the phenomenon to be explained - here: the human form of Creutzfeldt-Jakob - exist) stand out with certainty?

The simultaneity in space (United Kingdom) and time (taking into account the incubation period of the ailment) prompts researchers to hypothesize, Platonic: a "lemma" in need of further "analysis. Nothing more.

4. 2. 7 Storytelling

Let us begin with a definition. A description, if it describes a diachronic fact (course, process) as an object, is a story. Narrative is also called "dietetics," "narratology" (narratiek, narrativiek). There are recent theories about stories that seek to describe, among other things, "narrative structures," i.e. the components of the story as a system (in terms of "setting," "plot," "complication" and the like). We adhere to a traditional diachronic scheme which, incidentally, dates back to antiquity and remains uncluttered and unsought.

The object. Sometimes people argue that 'actions' are the object. And then of "persons. Preferable are lapses of both inorganic and living nature. A storm or an earthquake can be narrated as can a meeting of two lovers!

The minimal form. At a minimum, a progression includes a sequence of "the before" and "the after." Or a "before" and an "after. Does the preceding herald the sequel, then it is a "before. Does it denote what gives rise to the sequel, then it is called "the cause." Immediately we emphasize the relationship between the two components: from merely chronological over predictive to causal. Which depends on the type of cause that the preceding salvages regarding the sequel. In the fairy tale, this is more often than not absolute coincidence.

Structure. One can outline the mode of interlocking (structure) of a story as follows. A sequence (and thus a story) consists essentially of "nodes," i.e. encounters or convergences of sequences. This explains the following structure.

Pre-knot (Gr.: enthesi). The pre-node gives the beginning of the story, i.e. the first and often the main course. Thus: "Daisy came up the road. The spring flowers hardly attracted her attention. She thought intensely and tensely of the encounter". That is the course of Daisy.

Knot (Gr.: desis). The second node emerges and "crosses" the first. Thus: "A chariot approached her". This is a second course, viz. from her friend. Follows then -we summarize- a conversation with the one getting out of the wagon, Jan. This one wants to break off the relationship for good.

Cover (Gr.: peripeteia (peripetia)). Thus: "Look, Daisy, that's my decision. I'm sorry for you, but it won't go on like this". The two expires, that of Daisy and that of Jan separate.

Dissolution (Gr.: lysis). After Jan's stance, "the ways diverge." Thus: "Jan got back into his carriage and waved once more. Daisy was near collapse". Those are the last words of the story.

The fairy tale. According to a traditional definition, a fairy tale is a narrative whose object is an imagined course of events (i.e., the "fairy tale"). Thus "Little Red Riding Hood and the Wolf. It differs from the (large-scale) epic and the (small-scale) saga in that the latter texts have

a "historical core" and thus are only partially imagined. Well-known are 1. Grimm (1785/1863) and W. Grimm (1786/1859) for their romantically conceived *Kinder- und Hausmärchen* (1812/1815) as well as Vlad. Propp (1895/1970) for his structural work *Morphology of the Fairy Tale*.

The connection "previous / sequel". In our story about Daisy and Jan, the connection is "not - imagined. In any case, the reason or ground of what continues is in the preceding (which is e.g. cause such as: "It won't go on like this" (Jan) causes "Daisy was near collapse"). Not always so in the fairy tale! Thus: "Suddenly out of nowhere a gnome arose" or "From the beautiful pearl a fairy arose". It is striking that from no point of view the preceding (the nothingness; the beautiful pearl) contains the reason or ground of the sequel (a gnome; a fairy). In this, we represent "absolute coincidence." That is: nonsense! For one can articulate such processes with the inner, the spoken or written word but in themselves they are contradictory and thus radically unreal, impossible.

Opm.- "God creates, resp. created everything out of nothing."- The Biblical book of Genesis 1: 1 says, "In the beginning God created the heavens and the earth." The term "heaven and earth" means "the orderly universe as a result of God's creation." The Hebrew verb "bara" is exclusively pronounced of God as creator. In *Hebrews 11:3* it reads, "By faith we see that the 'aiones' (understand: the universe times) are ordered by the word of God." One paid attention to the Biblical meaning of "word" : it means more than our term "word" so that "word" can even mean "caused to happen.

Well, one does hear it claimed, "God created everything out of nothing."- To speak this way is to employ the language of fairy tales for something that is anything but fairy tale. For in doing so, the unsuspecting hearer thinks that God creates "out of (pure) nothing." In logical language, this would mean that no reason existed beforehand to justify the creation of everything. This would then be akin to "Out of nothing a fairy arose." In fairy language this makes sense for reasons of aesthetic impression, although logically - according to the reason axiom - it is nonsense. So how do we logically understand the expression "God created everything out of nothing" as a correct representation of reality? If we add to the sentence and say "God created everything out of nothing outside himself," then one is beyond fairy tale language because a sufficient reason has been articulated, namely, God's infinite reality richness that precedes his act of creation. From that brimming reality that is God, he makes everything exist, i.e. he causes everything.

4. 2. 8 Narrativism

Definition. "Narrativism," if influenced by constructivism (representationism), holds that "objective historiography" is fundamentally a writing of literary texts, such that it lacks direct contact (essentialism, presentationism) with what happened. This does not seem so simple to J. Heers, *Gilles de Rais*, Paris, 1994. Steller is a specialist in the Middle Ages.

1. 'Spectacle History'. Before 1902, few historians took an interest in Gilles de Rais (1404 /1440) but since an anticlerical libel in 1902 that presents him as the victim of bishop (Nantes) and duke (Brittany), what la Société de historiens médiévistes calls "histoire-spectacle" instead of "histoire savante" arises that relies on real research, facts and interpretations that are in line with the facts.

2. Historical novel. Heers has every sympathy for the historical novel, even if it offers inaccuracies, anachronisms, erroneous interpretations, fictions, and in this he opposes Th. Gautier (1811/1872) who rejected W. Scott (1771/1832) - who introduced the historical novel. Heers' reason: "For once, a novel is not history but, if well written, reading pleasure."

This is how he understands G. Prouteau, *Gilles de Rais ou la gueule du loup*, Paris, 1992. Spectacle history does not even have the value of the historical novel. It has served since 1902 "revisionist objectives" that baselessly "revise" history.

3. History. Heers outlines at the end of his work (o.c., 216) the historical Gilles with as bluebeard (cruelty to women): "As for his crimes, there is no doubt about his guilt. From certain points of view he was sick, at once sexually deviant and ascending in his obsessions or his dreams, perhaps undermined by alcohol, fascinated by murder, atrocities, blood. But as for greed for money?". Thinking errors. Steller cites.

1. Facts. Rulers set the record straight: Gilles was condemned by two courts, the ecclesiastical one of the diocese of Nantes (which was not, as is claimed in spectacle history, that of the Inquisition) and the civil one that sentenced him to death. "What was, that was! What was not, that was not!". A mere effort to read the documents is enough to know.

2. Argumentum ad hominem. In any case: malicious intentions of judges - if there were any - in no way prove that Gilles was an innocent: even malicious judges can gather information about real crimes. Thus o.c., 12. The argumentum ad hominem refers to the judges, not to the

guilt or innocence of the accused. The latter is the question to which the argument does not answer.

3. Deceptive equivalences. To claim that Gilles was "the first Vendéen" to stand up for his region can only surprise and hurt those who held the Vendée uprising as a noble ideal. To claim that the 1440 trial was "the first Stalinist trial in Europe" is to make equivocations and a guilty oblivion, while remaining conspicuously silent about the horrors of the Soviet "purges" under Stalin. Throughout his trial, Gilles de Rais enjoyed guarantees that an accused in the USSR would never have expected.

Conclusion. There is, according to Heers, a minimal and essential objectivity possible and real concerning the past, however scarce its witness remains. This implies that spectacle history, historical novel and scientifically sound historiography are three distinct literary genres that differ profoundly in terms of representation of what once was. The constructivism hidden in some narrativism refutes itself: if we have no contact with the past, how do extreme narrativists prove their claim to have one so that they can judge that historiography has none? If historiography is only 'construction,' how do they escape construction in terms of history? Only if they are so much better informed about the past!

4. 2. 9 Coincidence as zero explanation

Bibl. st.: C. Lamont, *Freedom of Choice Affirmed*, New York, 1967, 56/96 (Contingency in a Pluralistic World). Steller addresses the aspect of "contingency" in total reality.

Model. Course 1. The Titanic departs from Southampton on 10.04.1912. From its normal course, its sinking on 14.04.12 is not deducible (predictable). **Course 2.** An iceberg departs from the north. From its normal course its collision with the Titanic is not deducible. Lamont cites G. Williams (Univ. of Toledo), a determinist: "It seems very evident to me that the encounter was jointly caused by natural forces in the two expires. It was one hundred percent predetermined. It was accidental only because no one foresaw it". In other words, Williams views the two lapses including each other. From that global point of view, the collision is deducible. Coincidence exists only because one views only one course insofar as it is "normal" (without any encounter with another course that is steering - causing an "anomaly").

Coincidence (contingency). "Coincidence does not do anything! It is the name we give to a kind of occurrence" (o.c., 66). I.e.: we must not "personify" such occurrence as if it were a

power beyond both expired. Conclusion. Both lapses have their sufficient reasons and so, if those reasons are known, they are derivable from them. Here they are first and foremost physical except for one aspect, namely the crew's neglect of the temperature drop around icebergs, which prevented them from undoing the approaching anomaly by feedback. The ignorance and neglect of the iceberg drift creates the surprise that in itself was not surprising, if one looks globally (integrally) at the twin events. In summary: multifaceted - objectively predictable; unifaceted - cognitive coincidence.

Coincidence as zero explanation. Model. The expired in a fairy tale know no reason axiom: from nothing a stone arises; from a stone a fairy arises. In both cases, no conclusive reason! But in a fairy tale such irrationalism creates aesthetic pleasure. Original. He who states, e.g., that the universe arose "out of nothing," o.g., by chance, declares without adequate reason. Whoever states that from pure inorganic matter life arises, explains without adequate reason.

Note: If the Bible states that God created the universe "out of nothing," then that figure of speech means that He created it "out of nothing outside of Him," i.e. His overflowing reality. Whoever declares something outside the fairy tale without adequate reason does not reach beyond fairy tale thinking because he introduces chance into a course as its final word without situating it within a global (integral) frame of thought.

Facts. Science resigns itself to "the facts." But it does not simply resign itself to "the facts": its curiosity falls silent only if the conclusive reason for "the facts" is known. Even if it begins with the impression that "the facts" are due to chance, its rationality never resigns itself to pure chance as the final word on "the facts."

Zero statement, then, is not chance - which has its reason in one-sided knowledge - but rather chance as the last word, pure chance.

Lamont notes that Democritus, M. Aurelius, Spinoza, Hegel, B. Russell in their ontology (reality theory) see all lapses as necessities "within the ordered regularity of all events" (as A. Einstein puts it). He also notes that Aristotle, Epicurus, W. James, H. Bergson, J. Dewey interpret chance as "more than a mere word," i.e., something existing outside our minds. Lamont agrees with the latter, to account for the human freedom that can intervene in a course such that this course has a deviation forced upon it. Which does not prevent the altered course from preserving its conclusive reasons and our free intervention in it from likewise having its conclusive reasons such that both courses are not purely accidental but "provided with reasons"

and thus somewhere deducible, if not physically determined then biologically, psychologically, sociologically or however understandable and in this sense predictable and rational. That is a matter of reason axiom.

4. 2. 10 Teleological reason

Bibl. st.: R. Nadeau, *Voc. technique et analytique de l'épistémologie*, PUF, 1999,52 (*Cause matérielle, efficiente, formelle, final. Aristote*). The term "aitia," usually translated by "cause" in our language, we translate by "reason," because "cause" now means "reason of realization. Aristotle's paradigm is the making of an image. 1. The maker is the reason for the realization what we would now call "the cause." 2. The substance from which the image is made is the "material cause." 3. The (geometric) form given to matter by the maker is what Aristotle calls "the formal reason." 4. The purpose-e.g., through the image honoring the goddess Athena-is "the purpose reason." "Reason" means "what makes intelligible": creator, substance, form and purpose make the course of the image's realization intelligible under a multitude of aspects.

According to Nadeau, the creator as a cause of realization is a real "agent" (something that causes something to exist). In other words: it is about real causation. The intended goal ('cause of purpose') is not always the object of a conscious act of will but can just as easily be the product of a purposeful natural process, such as the fall of a stone (which, as soon as it begins to fall, directs itself toward a goal) or the transformation of a caterpillar into a butterfly. Nadeau underscores that Aristotle is thus a teleologist (adherent of purposeful or at least goal-directed processes) but not an "animist" (adherent of animated forms of goal attainment).

Note: Under Plato's influence, Aristotle's foursome is supplemented by an "exemplary (tonal) reason": in his mind, the maker of the image has a "model" that governs as a norm the making of the image. Note: This is a psychologization of what Plato meant by "idea" (the idea according to him exists objectively in advance as a general norm). This responds to Aristotle's formal reason.

Teleological explanation. I.M. Bochenski, *Philosophical Methods in Modern Science*, Utr. / Antw., 1961, 143v., observes that purpose as the reason for a present phenomenon is highly controversial but yet is employed again and again as an explanation. Thus the astonishing structure of certain flowers. The present course of the flower that ends in fertilization is already brought about by the future course. The course is such that already in the present (place) the goal (role) that is due to the present takes effect. The present is dependent on (and thus "function

of") the future which performs a function (role) for which the present provides a place ("function"). This is the functional view of intentional or purposeful expiration.

Thinking in terms of time. - Bochenski. The end point not yet reached is already workable before it is actual. "How can something that does not yet exist already have explanatory value before it exists?". The question is whether this is the right question! The present is function of future that plays a role for which the present provides a place (function). Behold the basic structure. Anyone who thinks the present and the future apart by speaking in terms of moments after each other in time must prove that he is representing reality perfectly correctly.

Two unproven propositions.

1. No one has proved in a universally acceptable way that a function or role (effect, causation) of what is upon us has no place in our present. That explains why people keep declaring from a purpose.

2. No one has proved in a universally acceptable way that some consciousness (in the form of purposive consciousness) that governs the separate existence of future and present is non-existent. It could be that precisely something like a consciousness already now from what is to come determines the present. It must be proved that this conception is contradictory.

The fear of animism. Prevailing naturalism, which at all costs wants to eliminate spirit, consciousness or whatever in that sense as a reason (explanation), suffers from the two not universally acceptable proven propositions as well as from thinking in terms of time moments that exist radically apart. The latter is also not universally acceptably proven.

4. 2. 11 Antique Steering

Bibl. st.: E.W. Beth, *Philosophy of Nature*, Gorinchem, 1948, 35w. Steller talks about ancient cybernetics. We summarize.

Definition. The conceptual content of 'steering' can be formulated as follows: "A course, if it normally achieves its goal (order), but deviates incidentally (disorder) and is susceptible to repair (restored order), is steering" . The scope of the concept, in the wake of H. Kelsen, *Die Entstehung des Kausalgesetzes aus dem Vergeltungsprinzip*, in: *Erkenntnis* 8 (1939), is described by Beth as the order "order/disorder/restored order" that applies to inanimate, living

and human nature. Note: Curiously, Beth does not mention the deities. In any case they too are governed by that order. More so as Plato says in his *Critias* 109c, they co-govern: "Deities drove and directed all that is mortal." Note: W.B. Kristensen et al, *Antique and Modern Cosmology*, Amsterdam, 1941, confirms the same regarding ancient Egypt.

Cosmic harmony. 'Harmony' means "(happy) union." According to Beth, Heracleitos of Ephesus (-535/-465) left us a fragment that reads, "All human laws feed on the one divine law" . According to Beth, that sentence is the articulation of cosmic harmony which includes 1. the normal (natural) course, ordered according to norms or purposeful structure; 2. at some point an abnormal course (deviation) occurs; 3. this is followed - necessarily - by the restoration of the normal course.

Herodotus of Halicarnassus (-484/-425; the father of land and ethnology). G. Daniëls, *Religious historical study of Herodotus*, Antwerp/Nijmegen, 1946, summarizes Herodotus' steering in the term "kuklos," cycles. Circuits are at work in all of reality. Extent: many things (e.g., animals, states). Content: 1. many things start small and grow orderly; 2. occasionally they show deviation - called 'hubris', crossing borders -; 3. followed by restoration of order (which if necessary - in case of stubbornness takes the form of complete ruin). Although Herodotus was an enlightened mind, he remained deeply religious: he thought that this order or cycle was divine.

Plato. In his *Timaeus* 32, Plato says in the wake of the same cybernetic tradition, "All these things become cause of disease if the blood does not feed itself from food and drink (order) but from wrong things gets its weight (outworking) (disorder) against the laws of nature." Note: Laws of nature are the expression of cosmic harmony.

Aristotle. In his *Politica*, v: 5, Aristotle talks about constitutions as forms of cosmic harmony. These include

1. purposefulness of the course of societies governed by constitutions ("telos," purpose);
2. eventual anomaly ("parekbasis") occurs;
3. it is restored thanks to "epanorthosis" (a rectification afterwards) or also "rhythmosis" (restoration of normalcy). So much for some ancient texts expressing steering insight.

Note: The Bible honors as the basic scheme of sacred history (salvation history) : 1. paradise (order); 2. fall (primal sin) as disorder; 3. redemption (restored order). This scheme is familiar to other religions as well. The disorder, seen from the purposive and normal course, is a coincidence because it is not deducible (not predictable) from the purposive and normal course in itself. For it is caused by a concurrence with another - disturbing course and is deducible and immediately logically understandable only from both together. The peculiarity of cybernetics now is that it does foresee coincidences and defends itself against them by a counter-causal capability that undoes the causation of deviation, even though it cannot completely prevent these coincidences. Steering immediately involves "as far as practicable leaving nothing to chance".

4. 2. 12 Cybernetics

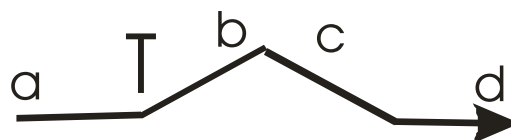
Bibl. st.: D. Ellis / Fr. Ludwig, *Systems Philosophy*, Englewood Cliffs (N.J.), 1962. We sketch in connection with teleological explanation.

1948. Norbert Wiener (1894/1964; mathematician) participated in the creation of defense systems during World War II (1939/1945), he dealt with communication and control problems. He broadened his research to include neurophysiology, biochemical control mechanisms and ordinator. He founded steering science.

Wiener's meeting as a mathematician with A. Rosenblueth, neurophysiologist, and his activities under W. Weaver (automation) led to the publication of his *Cybernetics* in Paris in 1948.

Ancient control science (cybernetics) has as its object a course insofar as it is "controllable," i.e. capable of controlling coincidences.

A model. The diagram herewith depicts the sub-concepts that comprise the steering system.



'a' stands for the normal, i.e., goal-directed course; 'T' stands for coincidence that affects the goal-directedness and causes the deviation, 'b', 'c' stands for recovery operation, the direct result of adjustment; 'd' refers to the recovered goal-directedness.

Take another model:



This clearly visualizes the looping of feedback or recovery.

Coincidence: In T, a coincidence is symbolized. If one knows only a, the normal purposefulness, T is an unforeseen occurrence (it does not essentially belong to a and is not deducible from it).

An extremely simple model of a dynamic system is the traditional coffee grinder: the input is the unground coffee beans; the output is the ground beans.

The cybernetic. - The typically steerable consists in both foreseeing and recovering negative coincidences. In other words: there is a goal-directed course that deviates due to a negative coincidence but the steering reflex is such that the goal-directedness is restored. One can see: the theory of coincidence is here reduced to part of a theory concerning the recovery of (negative) coincidences.

The scope. - The conceptual content of steering is very large: there are e.g. the purely physical processes that exhibit the characteristic, the plant world knows this very well: an acorn that falls in the grass, is stepped on by someone with its foot, will advance a little crookedly in the spring but it recovers somewhat from the deviation; there is steering in the animal world: a tiger jumps on a prey animal that performs an evasive movement surprising to him but while jumping he updates his purposeful jump; a man rides his bicycle to work, suddenly sees a stone in front of him and dodges it and rides on purpose.

Ascending. - It is safe to say that the whole of nature, including man, has to cope with negative events in an unpredictable way, at least gradually. Coping with these surprises presupposes a steering corrective that is, as it were, built in so that one survives each time. Or in other words: the initial given and demanded is more or less unforeseeably negatively modified and becomes a new task that forces one to cope if one wants to be "real".

Feedback. Wiener defines cybernetics as the theory of feedback. Specifically, (a) a goal-oriented system (order) (b) may incur deviations (disorder) (c) but, if adjusted, is in need of feedback ("feed back") (restored order).

Self-regulating systems. Bibl. st.: J. Piaget, *Le structuralisme*, Paris, 1978. Steering science posits a 'dynamic' (moving) system with the following characteristics: (a) it is a totality (coherent whole), (b) provided with a self-regulation ('autoréglage') (c) which directs its transformations ('transformations').

Quasi-closed systems. Self-regulation posits that such systems are on the one hand "open," i.e., subject to, susceptible to outside influences (conditions) yet remain sufficiently "closed" to sustain themselves. Piaget: "une certaine fermeture" a "quasi-closed systems".

Mathematical descriptibility. That aspect in particular resurrects traditional steering science.

John von Neumann, *The nervous system as a computer*, Rotterdam, 1986, xix, says that the mathematical aspect - in addition to general mathematical methods - employs logical and statistical methods.

Matter / energy / information. A processing system can process matter (a meat grinder), energy (a heating appliance) or information (a computer).

Behold some insight into targeting systems.

4. 2. 13 Self-regulation

Let us state the following with A. Virieux-Reymond, *L'épistémologie*, PUF, 1966. Scientific language proceeds by intervening the reasons advocated by Aristotle, among others: the formal (so in gestalt theory), the purposive (so in biology).

Yet the causal reason - "cause" for short - is that reason which is rather used for explanation (for example, the presence of an acid is called "the cause" of the fact that litmus paper turns red). Since the emergence of cybernetics, the concept

'feedback' made its appearance - one could define feedback as "recurrent or recurring cause." Such reason for explanation is at once cause, for it gives rise to consequences, and target reason, for it targets consequences that lie in the future.

With AN. Kolmogoroff (1903/1987; mathematician), one can say that a system, if it receives, stores and exploits information (data, dates) in order to employ them for direction and

regulation, is a steering system (in Didgène 1965 July-Sept., 138). Do we dwell on models which, as L. von Bertalanffy, *Robots, Men and Minds*, New York, 1967, puts it, can be purely mechanical, biological, psychological and sociological.

1. Regulator. That part of a device that makes its progression regular is a "regulator" or "regulator. Thus the pendulum in the wall clock, the "agitation" in the clockwork, the governor and the flywheel in the steam engine. J. Watt (1736/1819) is famous for the latter: a signal indicating the speed of the steam engine is transmitted to a component amplifying a force in such a way that if the machine runs faster, then the steam supply is reduced. Consequence: the goal is achieved because the speed remains unchanged. The controller, to control the speed, feeds back information (signal).

2. Homeostasis. Homeostasis self-regulates in response to internal influences. "Le milieu intérieur" (Cl. Bernard (1812/1878)) is kept unchanged, e.g., in the body the acidity, the water equilibrium, the temperature, the metabolism. Cf. G. Pask, *Introduction to cybernetics*, Utrecht/Antwerp, 1965, 10/12.

3. Reflex. The reflex responds self-regulating to external influences. Fr. Magendie (1783/1855; French physiologist and neurologist) defined in 1817 "reflex" as an action caused by disturbance which propagates itself - via the dorsal or posterior nervous system - to be reflected from there - via the anterior or ventral nerve roots - to its starting point (the source of the disturbance). There the disturbance weakens, ceases or even turns into its opposite. By the way, the reflex or involuntary reaction to a nerve stimulus was experimentally studied by I.P. Pavlov (reflexology) at the beginning of the XX century.

4. Lifeline. A. Adler (1870/1937), known for his "individual (depth) psychology" with its emphasis on the assertiveness, sought that which makes the individual what he is. He found that in the predominant "ideal" he called "Leitlinie," the life plan that "directs" the soul's life. Analogously, J.Hillman, *The Soul's Code*, New York, 1996, states that every single person exhibits a purposeful soul structure. The one who deviates from it - for many reasons - enters a kind of crisis that is the signal for a restoration of the life line. As an aside, the ABC theory of personality as set forth in A Ellis / E. Sagarin, *Nymphomania (A Study of the Hypersexual Woman)*, Amsterdam, 1965, presupposes an analogous basic concept, i.e. man's destiny as it is intuitively grasped by common sense and as she shows a deviation from that destiny e.g. in the neurotic reaction to the frustrations of life. Both proposers treat - especially cognitively - in such a way that the deviation is repaired.

Conclusion. Teleological explanation may raise reservations among many scientists, it is, if one is not influenced by axioms, obvious after many data.

4. 2. 14 Statistical laws

Bibl. st.: I.M. Bochenski, *Philosophical methods in modern science*, Utr./Antw.,1961, 145v.. Paradigm. For all (universal set) people, if they smoke, they cause 87.6% (private set) of all cases of lung cancer.

Law. Basic formula of a law is "if A, then necessarily B." From the course of A, B is deducible or predictable, whether conditional, functional or causal correlations hold (as Bochenski says).

Note: "Private" here means "neither 0 % nor 100 %" (which would imply universal and not statistical induction). But one can interpret 0 % and 100 % as borderline cases of statistical percent, of course.

Structure. Out of the total of people born alive, "so many" die in their "so many" years of life. Out of the total of 1,000 French people, 138 die in their 47th year of life.

One sees above the rule and below the application. This means that statistical laws do not speak of singulars (specimens) but of sets and subsets.

Indeterminism. Such laws are called "indeterministic" insofar as they do not pronounce on individuals. The percent, although expressed in exact figures, expresses only a probability concerning individual cases: from the fact that out of 1000 French people, 138 die with certainty in their 47th year of life, one cannot deduce that "this French woman will die in her 47th year of life."

Law concretely. If A, then necessarily B. That is law. But do we specify by paying attention to the course that issues from A with necessity on B. Then it reads as follows. For all physical bodies, if (as soon as) one lets go of them, they come to earth with necessity. However, specifically, the course includes a beginning, an intermediate course and an end. Well, between the letting go (beginning) and the touching of the earth, in fact, lapses may intervene which cause deviations which cannot be deduced from the normal course of the fall. Or still: for all humans, if they smoke they cause 87.6% of all cases of lung cancer. Yes, if no strange course deviates the normal course, expressed in statistical law. In the meantime, since the start of

smoking until the expiration, a lot of other gradients are at work in the health of the person concerned, such as a life that takes place mainly outdoors (which reduces the damage of the smoke) or a rock-hard resistance and the like more. Those "factors" or better: "lapses" (for one sees but clearly if one examines "factors" in their "course") are like a dog in (the course of) a skittles game: they are coincidences with the nature of what is called "fates" (object of the fates).

C. Lamont, *Freedom of Choice Affirmed*, New York, 1967, cites W. Groen, *Determinism, Fatalism and Historical Materialism*, in: *Journal of Philosophy* 1939: Nov., 627, cites. This says what follows. 1. For all determined systems - mechanical, economic and the like, if A occurs, B necessarily follows. 2. But in the physical world this is not inevitable because a system C, which is independent of system A, can cause A to deviate in its course. (O.c., 50).

Lamont continues (o.c., 50f). "Science in general gave more and more as its objective, to achieve absolute truth concerning fact-finding and expressed scientific discoveries, predictions and laws in terms of varied degrees of probability. This penchant for probabilism (Opm.: limiting oneself to probable statements) extended to the "if, then" formulas cited as the domain of determinism" .

St. P. Lamprecht, *Nature and History*, New York, 1950, 114, is quoted, o.c., 61: the term 'if' is as conclusive metaphysically as the term 'then'! "The term 'if' involves the recognition of the coincidence that precedes the 'then' as a necessary consequence." -'If'!

4. 2. 15 This chapter summarized:

To explain a given is to state the reason for it. In current sciences, one very often limits that reason to a condition.

We say that A is sufficient condition of B only when the statement "if A then also B" is valid. Or: if the condition is given, then immediately the phenomenon is given. If mammal, then vertebrate. We say that B is a necessary condition of A only when the (reverse) statement is valid: 'if B then also A'. It is necessary to be vertebrate in order to be mammalian.

We say that A is sufficient and necessary condition of B only when both of the above conditions hold, i.e., if A, then B AND simultaneously: if B, then A.

Or still: 'A then and only then if B'.

A declaration o.g. conditions is called "minimalist" because whoever declares o.g. causes, reflects more on reality than those who limit themselves to conditions.

In the natural sciences, "explanations" are sometimes phrased in terms of conditions and not causation. One notes: nothing is without cause, the connection between a given or phenomenon and its conditions or causes makes itself felt.

A function is variable quantity that depends on one or more others. Function is always relation. The partial terms are "place" and "role. Both meanings are metonymically related. To be function of something is always to exhibit a function at the same time. If A is related to B, then one can speak metonymically about B in terms of A and vice versa.

One can distinguish, with Nagel, different types of "function.

Bochenski argues that functional laws formulate conditions in a more complicated form. Among others, physics and psychology attempt to formulate such laws.

Laws are expressed in "if, then" language: "If event A, then event B." Functional laws isolate coherence from actual reality. Universal law thus decays into a statistical law: a rule with exceptions. An unforeseen course can disrupt the normal course.

Bochenski's defines a cause ontologically as, "Reality A, if only it in given circumstances as a cause causes the reality of B to exist, is the ontological cause of B." Hume as a phenomenist argues that we interpret post hoc (afterward) as propter hoc (because of it). We see only phenomena that follow phenomena. Bochenski criticizes this, saying that both human and natural scientists think of an ontological cause in their explanations.

Regarding condition and cause, Lahr states: Even though every cause is a fixed condition, not every fixed condition is a cause. A fixed condition may be a necessary condition (conditio sine qua non) or a mere accompanying phenomenon.

Anyone who infers from the simultaneous occurrence of two events that they relate as cause and effect is indicating pure sense. What transcends the phenomenal fails if not methodically or even theoretically. The simultaneity in space and

time can lead to a hypothesis in need of further "analysis.

The object of a story is to describe a diachronic fact. The term

'Expires' is preferable to 'actions.' Lapses can be either organic or inorganic. A progression includes at least a sequence of "the preceding" and "the following." A sequence consists of "nodes," i.e. encounters or confluences of sequences of sequences: a preliminary node, a second node that crosses the first, a turning point and a denouement. A fairy tale differs

from a sequence in that the preceding one does not contain the ground of the sequel. 'Narrativism,' argues that historiography sometimes lacks direct contact with reality. Such can lead to spectacle history, which does not rely on facts and serious research. Even the historical novel could pay more attention to the pleasure of reading than to the representation of historical facts. Heers and many others believe that a minimal and essential objectivity is possible and real with regard to the past.

Coincidence exists because our limited knowledge only considers one course of events in isolation. While in real life many sequences must be considered including each other. Our unfamiliarity with the interplay of so many events means that a lot of things come to us as coincidence. Science does not regard the facts it investigates as a coincidence, but seeks the reasons for them. These reasons get the last word, not coincidence.

Speaking of realization reason, Aristotle uses the example of making an image: The maker is the cause, the substance is the material reason, the form the substance takes is the formal reason, and the goal to be made is the purpose reason. Plato adds the objective idea.

Bochenski observes that purpose as the reason for a present phenomenon is highly controversial yet is used again and again as an explanation. The question is whether thinking present and future apart accurately reflects reality. Not to give such a place is an unproven premise. The same applies to the denial of a form of consciousness that determines now what is yet to come.

Stewardship implies that an anomalous course, can be remedied. This immediately implies leaving nothing to chance as far as possible. Ancient Greek culture and the Bible have it as a basic scheme. We find it extensively in cybernetics and in many self-regulating systems, in mechanics, biology, physiology and psychology. Apparently, following the indications of many data, teleological explanations are obvious.

The Fundamental Formula of a law is "if A, then necessarily B." Statistical laws do not speak of singulars but of sets and subsets. They are called "indeterministic. For determined systems, if A occurs, then B necessarily follows. However, in the physical world this is not inevitable because a system C, which is independent of system A, can cause A to deviate in its course.