3. 2 Three basic schemes

Content

3. 2. 1 Reasoning (deduction/reduction)

First scheme. With I. M. Bochenski, Philosophical methods in modern science, Utr./ Antw., 1961, 93/95, we distinguish - in the wake of 1. Lukasiewicz (1878/1956) - between deduction and reduction (Platonic: 'sunthesis' and 'analusis'). We explain.

Deduction. Schema. "If A, then B. Well, A. So B".

Completed. If all (cases), then at least one, happen all (cases).

Well, all (cases).

So at least one, happen all (cases).

Reduction. Diagram. "If A, then B. Well, B. So A".

Completed. If all (cases), then at least one, happen all (cases).

Well, at least one, happen all (cases).

So all (cases).

Deduction. One reasons from all cases (which is summative) to at least one, if not all cases. A deductive afterthought is a necessary derivation ("If all, then surely at least one of them"). It is said that deduction is "predictive" ("predictive"). Indeed: if (according to e.g. a physical law

under normal conditions) all water at sea level boils at 100° C, then it is predictable that this water and that water boil at that temperature.

Reduction. This one is twofold, generalizing and globalizing.

- ***Generalizing.*** If (according to observation, sampling) this water and that water boil at 100° C, then all water (which is summary or summative induction), then it seems likely that the rest (and thus all water) will also boil at 100° C.

One reasons from a number of tested cases to all (possible), in principle testable cases. From summative to amplificative (knowledge-expanding, "extrapolating") induction. The basis is similarity.

- ***Towards the whole, (globalizing)*** We need to expand the subject of the sentence with a conjunction to explain that.

Deductive:

All instances of water within this pond boiling at 100° C.

Well, this water is from this pond.

So it boils at 100° C.

Reductive globalizing.

This water boils at 100° C.

Well, all cases of water within this pond boil at 100° C.

So this water is from this pond.

One reasons about "this water with its 100° C." including "all instances of water with its 100° C in this pond" and ventures the hypothesis that this water comes from this pond purely by virtue of one and the same characteristic - boiling at 100° C. Tested is both boiling points (summative induction). Untested is the fact that - to be valid - only this one pond qualifies as the only entity within which there is water. In other words: the globalizing reduction is hypothetical and awaits further information. One has caught it: is deduction predictive with certainty, reduction offers only a guess.

Note: From GG and GV (= in Dutch : het gevraagde : what is asked) to SOL (solution). In both deduction and reduction, the two prepositions are the given (GG). The requested (sought) is an at least hypothetically (preferably necessarily) valid derivation (conclusion) that shows itself as GV in the subterm 'therefore'.

Phenomenology as the basis of logic. I.M. Bochenski, o.c., 174v., is looking for a philosophical method "which must have as its basis phenomenological analysis." We see this clearly in all cases when we define "phenomenology" as "representation of the given as given. What is required in reasoning (and thus logic) is to draw a logically valid conclusion from that given (observed and represented as correctly as possible). Yet there is no known reasoning that does not start from a given. Which means that logic always has a phenomenological basis. As - what Bochenski calls - "indirect knowledge" it always rests on direct knowledge", i.e. phenomenological description and formulation of the given. The prephrases are nothing but "direct knowledge." The post-sentence is "indirect knowledge."

Conclusion. Before reasoning, we watch keenly so that we first grasp the fact correctly!

3. 2. 2 Reasoning: some formulas

O.Willmann, *Abriss*, 93, mentions ancient proverbs with still valid value.

1. Modus ponens (assertive or affirmative mode) and ***Modus tollens*** (negative mode).

Modus ponens. If A, then B. Well, A. So B. Given the pair that makes up a conditional sentence, viz. "Condition, inference" ("If A, then B"). The affirmative reasoning in a hypothetical syllogism reads, "From the affirmation of the condition follows the affirmation of the inference" .

In other words, "If the preposition (condition) of valid reasoning is true, then the noun (inference) is true AND if in fact the preposition is true, then the noun is also true."

This is the structure of e.g. the syllogism that the tradition is called "Barbara" (cfr. 3.1.3.). Some examples:

If A,	"If all flowers are beautiful and if begonias are flowers,
than B .	then begonias are beautiful.
Well, A,	Well, all flowers are beautiful and begonias are flowers,

so B . so begonias are beautiful".

Or yet:

If A, "If all that possesses spirit, immediately possess freedom of will and if all men possess spirit,

than B . Then all people immediately possess freedom of will.

Well, A, Well, everything that possesses spirit immediately possesses freedom of will AND all human beings possess spirit,

so B . so all people immediately possess freedom of will".

Now not hypothetically but stated categorically:

Phrase 1	MaP	All that possesses mind (M) possesses will (P)
Phrase 2 2	SaM	Well, all people(S) possess mind(M),
Conclusion	SaP	so all humans (S) possess freedom of will (P).

It seems obviousness itself, and yet, Wikipedia, the free encyclopedia on the Internet, lists (in 2011) as an example of a modus ponens:

Phrase 1. If democracy is the best form of state, then everyone should vote.

Phrase 2 Democracy is the best form of state.

Conclusion Everyone should vote.

This example is presented as a syllogism and explained as follows: "The reasoning has two premises. The first is the "if-then" or conditional statement, namely, that A implies B. The second premise is that A is true. From these two premises deduce that B is true".

Now what is given in phrase 1 of this example is not a preposition at all, but itself an incomplete syllogism whose phrase 2 is not mentioned and whose conclusion reads that everyone must go and vote. From the hypothesis that democracy is the best form of state, it is not logically deducible that everyone should vote. This presupposes that everyone chooses democracy. But this presupposition is omitted.

What must then pass as phrase 2 ("democracy is the best form of state"), is the repetition

The reasoning, fully and hypothetically articulated, reads:

If A,	If the best form of state is universal suffrage
	and if everyone chooses the best form of state,
then B	then everyone chooses universal suffrage.

And in its categorical sequel:

Well A	Well, universal suffrage is the best form of state.
	and everyone chooses the best form of state,
So B	So everyone elects everyone universal suffrage.

In syllogism form: (barbara)

Map	Phrase 1	The best form of state is universal suffrage
SaM	Phrase 2	Well everyone chooses the best form of state.
SaP	Conclusion	So everyone elects universal suffrage.

Illustrate the logical flaw in wikipedia's reasoning with a similar, and equally flawed example:

If flowers are beautiful,	then "X" is beautiful.
Well flowers are beautiful	So "X" is beautiful.

Concealed is what 'X' is. It cannot be deduced from the fact that flowers are beautiful that 'X' is beautiful. It becomes different when it is also added that 'X' refers to a flower, e.g. a begonia. Then we obtain the hypothetical articulation of the syllogism mentioned at the very top of this chapter.

It is surprising that the text in Wikipedia merges a part of the hypothetical wording with a part of the categorical wording, into an apparent syllogism, and thus instead of logically clarifying the theme, actually creates confusion.

Modus tollens. If A, then B. Well, not B. So not A. The negationist mode of reasoning in a hypothetical syllogism reads, "From the negation of the inference follows the negation of the condition." "If the preposition is true, then the postposition is true, and if in fact the inference (postposition) is not true, then the condition (preposition) is equally not true." This is the structure of the syllogism called "Celarent" (cfr. 3.1.3.):

If A,	If leguminous plants are not composites, and if the sunflower is a leguminous plant,
than B.	then the sunflower is not a composite.
Well, not B,	Well, the sunflower is a composite, so not A.
	so the sunflower is not a butterfly flower".

Categorically formulated:

Phrase 1	MeP	Composites (M) are not butterfly flower (P),
Phrase 2	SaM	Well, the sunflower (S) is a composite (M),
Conclusion	SeP	so the sunflower (S) is not a butterfly flower (P).

If A,	"If mammals are not fish and if whales are fish,
than B .	then whales are not mammals.
Well, not B	Well, whales are mammals, though,
so not A.	so whales are not fish".

Categorically formulated:

Phrase 1	MeP	Mammals (M) are not fish (P) ,
Phrase 2	SaM	Well, whales (S) are mammals (M),
Conclusion	SeP	so whales (S) are not fish (P).

Again, Wikipedia cites an incorrect example in which hypothetical and categorical are mixed up:

If there is a fire here, there is oxygen here.

There is no oxygen here.

Then there is no fire.

It is not logically inferable from the fact of fire that there is oxygen. This requires a second preposition that states that fire requires oxygen. Verify the reasoning fully and as Celarent:

If A	If oxygen deprivation does not give fire,
	And if there is a lack of oxygen here
Then B	Then there is no fire here.

Well, not B	Well, lack of oxygen does not produce a fire.
	And here is oxygen deprivation
So not A	So there is no fire here.

In syllogism form:

MeP	Phrase 1	Oxygen deficiency (M) does not give fire (P)
SaM	Phrase 2	Well, here (S) is oxygen deprivation (M),
SaP	Conclusion	So here (S) is no fire (P).

2. Disjunctive reasoning. Structure formulas also apply here.

Modus ponendo tollens. If A is either B or C and if A is in fact C, then A is not B. Applied: "If viruses are either inorganic or organic and they are in fact or-organic, then they are not inorganic." In a disjunctive syllogism ("either... or") the affirmation of one member of the disjunction has the negation of the other member as its inference.

Modus tollendo ponens. If A is either B or C and if in fact A is not C, then A is B. In a disjunctive syllogism, the negation of one member of the disjunction has the affirmation of the other member as its inference. "If bacteria are either vegetable or animal and they are in fact not animal, then they are vegetable."

For example, anyone who wants to solve the following problem will notice that this requires constant disjunctive reasoning. Given are three boxes of cookies with a label on each

box. The labels state: cookies with chocolate, cookies with sugar, and finally a mixture of the previous cookies. It is further given that the label on each box is wrong. It has been asked from which box or boxes one must take a cookie in order to label all boxes with the correct label. Those who think it all through logically will find that one cookie taken from the box containing the mixture is sufficient to give three boxes their correct label.

Up to there some formulas that are structural formulas. We have kept them in the hypothetical wording because, after all, logic as logic and not knowledge theory focuses on hypothetical sentences. 'Structure' here means "abstract or summary structure" such that an infinite wealth of 'fill-ins' is possible. They are incidentally offered in symbol-shortened language, which brings the abstract - summarizing into focus.

3. 2. 3 Reasoning (deduction / generalization / globalization)

Second scheme. We now first give the three-part argument as formulated by Ch. Peirce (1839/1914).

Deduction. 1. All the beans in this bag are white.
2. Well, this bean is from this bag.
3. So this bean is white.

Induction. 2. This bean is from this bag.
3. Well, this bean is white.
1. So all the beans in this bag are white.

Abduction. 3. This bean is white.
1. Well, all the beans in this bag are white.
2. So this bean is out of this bag.

Note: Behold Peirce's terms. We replace them with other terms.

Deduction. All the pears on this tree are ripe.

Well, this pear is from this tree.

So this pear is ripe.

Generalization. This pear is from this tree.

Well, this pear is ripe.

So all the pears from this tree are ripe.

Globalization. This pear is ripe.

Well, all the pears on this tree are ripe.

So this pear is from this tree.

Notes. Peirce himself confused abduction with causal explanation. Consequence: he distinguished "inductive sciences" and "abductive sciences." F. Korichel / J. Sallantin, *Abduction*, in: D. Lecourt, dir., *Dict. d' histoire et philosophie des sciences*, PUF, 1999, 1/4, elaborate on the true nature of "abduction. Misled by Peirce's confusion between abduction and causal explanation, there are those who try to explain his abduction as a kind of deduction (Hempel); others try to see in it an application of probability theory (Gärdenfors) because Peirce's abduction contains a conjecture (varying from weak to strong probability). Still others introduce a kind of "revision theory. Conclusion: an endless confusion.

Our definition. Both generalization and globalization are hypothetical reasoning.

One compares a prepositional phrase like "All the pears are ripe" with our prepositional phrase "All the pears of this tree are ripe." The difference is in the subject which with "all the pears" remains within similarity, whereas with "all the pears of this tree" it includes both similarity and coherence. Peirce's causal coherence is only precisely one kind of coherence. The "abduction" as he expresses it in his example is general. His explanation of it is not! This proves once again that the basic concepts of logic are truly fundamental.

Hypothesis. How a Hempel can attempt to see in Peirce's abduction a deduction is astonishing. The generalization is hypothetical because it is not because this one pear is ripe that all (other) pears on the tree are ripe. The globalization is hypothetical because, until it is made out that in the whole environment ("the universe in question" some say) only the one tree

is there, one is not sure if this one pear is his! In this sense, the probability theory definition of abduction goes in the right direction but it does not capture the very essence of globalization. Essentially, it's about gaining an understanding of the whole. Where generalizing concerns the collection, it is about globalization toward gaining an understanding of the whole

Applicability. Give an example.

Deduction.	All data within our experience is material.
	Well, this fact is within our experience.
	So it's material.
Reduction	
1. Generalization.	This fact is within our experience.
(induction)	Well, it is material.
	So all the data within our experience is material.
2. Globalization.	This fact is material.
(abduction or	Well, all the data within our experience is material.
Hypothesis)	So this fact is within our experience.

This is how, for example, a kind of materialism judges. Thus any system of thought, once it expresses its axioms, can be tested against our triad, for every system of thought includes deductions (from axioms first), generalizations (from inductive sampling) and globalization (from situating data within some whole).

3. 2. 4 The concept of logical modality.

The word "modality" has more than one meaning in language. Its common characteristic is "reservation" ("stipulation," "restriction"). Psychological modality. - The police seek and find the perpetrator of a crime. To the question : "Were ye in Haarlem yesterday in the main street?" the man replies, "I was certainly not there." The proviso reads, "As long as thou dost not prove it in black and white, I will not confess the truth."

As an aside: every lie exhibits that restriction! Legal: So in a text like, "The contract (the legal act etc.) is valid to the extent ("subject to the condition of")". The restriction can be an additional agreement or simply a condition.

Note: 1. A conditional sentence, in other words, is always present (pronounced or not). 2. In Hegelian language, the term "modality" means something like "mode of appearance" or "form. Thus Hegel sees the comprehensive idea (the essence of overall reality) becoming history in its many 'modalities' (forms) in the course of all that ever was, now is, ever will be (more concretely: in the course of the history of the universe and culture). Hegel calls the description of that all-embracing process 'phenomenology' .

Logical modalities. G. Jacoby, *Die Anspruche der Logistiker auf die Logik und ihre Geschichtschreibung*, Stuttgart, 1962, 61/64, says that, strictly speaking, natural logic has only the following differential: Necessary / not necessary (possible) / necessarily not (impossible). We explain briefly.

1. Within the judgment. "A is (necessarily) A" (A is necessarily totally identical with itself). "A and B are (non-necessarily, possibly) identical" (A and B are possibly part-identical or analogous). "A and non-A are (necessarily) non-identical" (A and non-A are contradictory or inconsistent). Note: We meet here the three-part basic structure of identitive logic (totally-identical/part-identical/ totally-not-identical).

2. Within reasoning. What Plato called "sunthesis" (deduction) and "analusis" (reduction) differ under modal point of view.

- Deduction. If A, then B. Well, A therefore B.

If A is the sufficient reason of B, then, if A is given, then B is necessarily given.

- Reduction. If A, then B. Well, B so A.

If A is the sufficient reason of B and B is given, then perhaps (possibly) A is given along with it.

3. 2. 5 Deduction and reduction modalities

Natural logic exhibits three modalities: necessary/non-necessary/necessary not. Thus G. Jacoby, *Die Ansprüche der Logistiker auf die Logik und ihre Geschichtschreibung,* Stuttgart, 1962. Do we now verify this regarding reasoning certainty.

- ***Deduction***. Paradigm. If all the flowers of this plant are white and these flowers are of this plant, then these flowers are white.

Proportional. Just as a universal collection stands to its private collection, so all the flowers of this plant stand to these flowers of this plant. Note: "private" here is to be understood in the logical sense of "precisely one or more or even all of the specimens.

The derivation (basic notion), if from a universal set to one of its private sets (added notion), is necessary and thus deductive ('a-priori') (defined notion).

- ***Similarity reduction.*** Paradigm. If these flowers are of this plant and these flowers are white, then all the flowers of this plant are white.

Generalization with caveat, viz. "unless the rest of the flowers of this plant are not all white." Proportional. As a private collection stands to its universal collection, so these flowers stand to all the flowers of its collection.

The derivation (basic concept), as long as not the whole set (summative induction) has been tested (as white) (added concept), is non-necessary and thus reductive ('a posteriori') and immediately refutable (defined concept).

- ***Coherence reduction.*** Paradigm. If these flowers are white and all the flowers of this plant are white, then these white flowers are from this plant.

Globalization with caveats, i.e., "as long as the entire context, i.e., beyond this plant, has not been tested for the presence of other plants with white flowers."

Proportional. As a part stands to its whole, so these white flowers stand to its whole of which they are a part.

The derivation (basic concept), as long as the whole environment (summative induction) has not been tested for the presence of other plants with white flowers (added concept), is not necessary and thus reductive ('a posteriori') and immediately refutable (defined concept).

Cognitive role (informative scope). In deduction, further summative induction in view of the modality 'necessary' is superfluous because all that is called 'universal' is summative by definition. In reduction, however, further summative induction (testing of the unexamined (the rest of the whole set; the rest of the whole context)) in view of the modality 'necessary' is a necessity. The deduction, though necessarily valid and thus certain (that is its value), does not actually learn anything. The reduction, though non-necessary and thus uncertain but probable, incites to total testing ánd immediately to learning (that is its value).

Immediately it appears that the Aristotelian or summative induction concerning universality and necessity of derivation is decisive.

3. 2. 6 Induction as generalization or globalization

Induction - 'epagogè', inductio - is a reasoning that concludes, based on at least one sample either from a set (at least one specimen) or from a system (at least one part), to a common property that can be confirmed or refuted in further samples. In this sense, it is reductive reasoning because it culminates in a hypothesis.

1. Generalization. The basis is similarity. Summative induction: a learning method succeeds with one group of learners. Amplificative induction: ceteris paribus (under identic conditions) it may succeed with other groups. This is the hypothesis. Summative induction: out of 24 students, the inspector interviews 4. Differential: 2 good; 1 less; 1 poor. Knowledge-expanding induction: he can generalize according to that differential to all 24. Which is hypothetical.

2. Globalization. Basis: coherence. Summative induction: an economist studies economic life on the Meir, a street in Antwerp. Amplifying induction: he globalizes to the whole of Antwerp. Although with gaps, he gains some insight into the whole of Antwerp's economy, but it remains highly hypothetical. Summative induction: in a medical laboratory one analyzes the blood sample of a sick person. Amplificative induction: one obtains some information about the whole state of health of the person in question, but with reservations.

Historical research. Bibl. st.: I.M. Bochenski, *Philosophical methods in modern science*, Utrecht / Antwerp, 1961, 169v. (Historical explanation). Historical science as an explanatory (indicating the reason) science practices a type of globalization that is the diachronic globalization. Let us take the emergence of the French Revolution. We call that fact "C. As Bochenski says, a genetic explanation is the requested: "How did C come about?" Symbol shortening: "If A (the reason), then C." That would be a kind of causal explanation. But human history is not that simple because humans are interpretive beings. Thus, "If A ánd B (interpretation), then C". If the states under the principality and its interpretation by contemporaries (e.g. the Encyclopedists) are known (GG), then the emergence of the French revolution (GV) is understandable. That is a humanities schema.

Induction occurs as soon as at least one sample is taken. For example, one checks the interpretations of the Encyclopedists one by one (which constitutes as many samples). In this sense, the science of history is inductive. Viewed more broadly, if one investigates other revolutions for their conditions of origin, then one commits induction: from at least one sample one summarizes (summative induction) and generalizes (amplificative induction).

Bochenski talks about experimental induction concerning historical science. That would mean investigating the emergence of historical facts experimentally - as in e.g. physics - on the basis of samples! "No use can be made of experiment since it deals with past individual phenomena" (according to the author). The much-praised repeatability of natural phenomena does not exist in the realm of human history, which consists of unique, unrepeatable data. Hence the historian's radical dependence on his documentation, which repeatedly risks making incomplete the fact studied accessible.

3. 2. 7 Reasoning (inclusion/exclusion/partial inclusion)

Third schema. Aristotle in Analytica 1: 1: 4/6 gives a triad of syllogisms which we now explain, using O. Willmann's interpretations.

1. Containment.

The abstract reads, "All M is P. Well, all S is M. So all S is P."

S denotes a subset of M and also of P. We recognize in this the barbarasyllogism.

Phrase 1	MaP	All on inflection substantially corresponding languages (M) are related (P).
Phrase 2	SaM	Well, Latin, Greek, Sanskrit, German are concerning Inflection substantially corresponding languages
Conclusion	SaP	So these four languages are related.

Note: Scholastics pay attention to this inclusion not by its scope as above but by its content: "Nota notae est nota rei ipsius." Translated, "A feature of a feature (of the case) is a feature of the case itself.

2. Exclusion.

The abstract: " No M is P, well then all S is M, so no S is P". We recognize in this the Celarentsyllogism (cfr. 3.1.3.)

Phrase 1	MeP	No relatedness (M) declares agreement on inflection (P).
Phrase 2	SaM	Well, Latin, Greek, Sanskrit and German (S) exhibit on inflectional agreement (P).
Conclusion	SeP	So no relatedness (S) states such agreement on inflection between those four languages (P).

Note: Scholastics articulate instead of the scope as above the content: "Nota repugnans notae repugnat rei ipsi." Translated: "A feature that does not belong to a feature of the case does not belong to the case itself.

3. Partial Inclusion.

The abstract: Every M is P, well every M is an S, so some S are P. We recognize in this the Daraptisyllogism (cfr. 3.1.3.)

Phrase 1	MaP	Each buttercup (M) has yellow flowers (P),
Phrase 2	MaS	Well, each buttercup (M) is a plant (S),
Conclusion	SiP	so some plants (S) have yellow flowers (P).

And also :

Phrase 1	MaP	Whales (M) live in the water (P),
Phrase 2	MaS	Well, whales (M) are mammals (S),
Conclusion	SiP	so some mammals (S) live in the water (P).

Note: Scholastics formulate instead of extent the content : "Quae conveniunt in uno tertio, conveniunt inter se. Quae repugnant in uno tertio, repugnant inter se". Translated: "What agrees as to a third party also agrees among themselves. What does not agree concerning a third party also does not agree among themselves". "What" means "characteristics. Indeed: a partial inclusion includes another partial inclusion such that the after sentence may read, "So some mammals (S) live in water (P)."

4. Galenic syllogism. Willmann mentions a fourth type of closing speech (3.1.1). It comes from Galenus of Pergamon (129/201), an Aristotelian. The abstract schema: "All A are B. Well, all B are C. So some C are A." One compares with the scheme of containment under number 1 above: "All A are B . Well, all C are A. So all C are B".

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Filling in by Willmann : All cattle are animals with cloven hooves. Well, all animals with cloven hooves are mammals. So some mammals are cattle.

So much for a look at a piece of Aristotelian syllogistics and its continuation later on into scholasticism. Immediately we see that one can reason on the basis of concept sizes - compared with each other - and on the basis of concept contents - compared with each other. Immediately we see how the comparative or comparative method governs all reasoning again and again: concepts, if compared, lead to judgments (of an original one asserts a model); two judgments as prepositions, if compared, lead to some afterthought. As a result, classical logic is the analysis of concepts and judgments as prepositions of reasoning.

3.2.8. This chapter summarized:

- A first schema distinguishes between deduction and reduction. The scheme of deduction is, "If A, then B. Well, A. So B." The deduction is necessary. The reduction:

"If A, then B. Well, B. So A." The reduction is twofold, generalizing and generalizing. The basis of generalization is similarity; the basis of generalization is coherence. Logic always has a phenomenological basis. The prepositional phrases give direct knowledge, the postpositional indirect knowledge.

Some structural formulas:

Modus ponens. If A, then B. Well, A. So B. The syllogism named "Barbara" has that structure.

Modus tollens. If A, then B. Well, not B. So not A. This is the structure of the syllogism called "Celarent.

Modus ponendo tollens. If A is either B or C and if in fact A is C, then A is not B. Modus tollendo ponens. If A is either B or C and if in fact A is not C, then A is B.

- *A second diagram gives the three-part reasoning deduction, induction or generalization and abduction or generalization as formulated by Ch. Peirce. Peirce mistakenly saw in abduction only a causal explanation.*

The many meanings of the word "modality" share the common property of "reservation. Logic knows as modalities: Necessary/not necessary/necessary not.

Within judgment, identity is total, partial or nonexistent. Reasoning has the modalities deductive and reductive. In deduction, derivation is necessary, yet deduction brings nothing new. In similarity reduction, the derivation is necessary only after the whole set has been tested. The basis is similarity. The coherence reduction also leaves the derivation unnecessary as long as the whole system has not been checked. The basis is coherence. Both reductions encourage learning. Thus, history science practices a type of generalization over time.

- *A third scheme presents a triad of syllogisms.*

The scheme of inclusion, as a barabarasyllgism is: "All M is P. Well, all S is M. So all S is P". The schema of exclusion, as a celarentsyllogism is: " No M is P, well then all S is M, so no S is P". Finally, the scheme of partial inclusion is: Every M is P, well every M is an S, so some S is P. We recognize in this the Daraptisyllogism.

Finally, Willmann mentions "All A are B. Well, all B are C. So some C are A." One notices that in classical logic the comparative method, with its analysis of. concepts and judgments, governs all reasoning.