THE TRUTH GAME (Silvan Mühlemann, Geneva 2019)

I. DEFENDING AXIOMATIC-DEDUCTIVE SCIENCE ([1])

1. CHOOSING ONE'S AXIOMS: THE EPISTEMOLOGY OF HAPPINESS.

According to Karl Popper[2], science begins with falsifiable hypotheses. These hypotheses are, as explained by Ashish Dalela, chosen as a function of happiness they provide us. It is intuitively clear that happiness, not truth, is the highest goal in life.

> "To know the truth we must know the good, but to pick the good, we must *desire* that good. Ultimately, our cognition of truth depends on our desire. If that desire is modified, then the truths are modified. Similarly, happiness is produced only when the desires are fulfilled. Therefore, if you find the thing that you desire, then you have the double satisfaction of finding truth and goodness. Your brain tells you that you have found the truth, and your heart tells you that you have fulfilled your desire.
>
> If you tell a happy person that his ideas about the world are false, he will most likely ignore you, because he knows that since he is happy he must be doing something correctly, and consequently his beliefs must also be true. On the other hand, if you tell an unhappy person that he is suffering because of his false beliefs, and that he must change his beliefs in order to find happiness, he is more likely to listen to your arguments.
>
> In short, new knowledge doesn't come when you are happy, because there is complacency whereby one's current beliefs are accepted as true just because one is already happy and contented. New knowledge comes when one is unhappy and discontented; that's when you are prepared to change goals and revise assumptions. The greater the suffering, the greater is the preparedness to change one's assumptions" (**Ashish Dalela**, 2018; Source: https://www.ashishdalela.com/2018/02/24/the-epistemology-of-happiness/ 01/06/2019).

2. MODEL OF THE COGNITION PROCESSUS (MODUS PONENS/TOLLENS)

The modus ponens rule may be written in sequent notation as:	The modus tollens rule may be written in sequent notation as:
P (hypothesis in the form of an axiom)	NON-P (formally/materially inconsistent conclusion)
P → Q (hypothesis in the form of a rule of inference or definition)	Q → P (hypothesis in the form of a rule of inference or definition)
Q (conclusion)	NON-Q (elimination of a false premise)

3. FALSIFICATION/METADEDUCTION AS METHOD TO ELIMINATE FALSE PREMISES.

IF, by comparing our conclusions deduced from our hypotheses with the experience of reality, or with other hypotheses (axioms, definitions, deduction rules and theorems) we believe, such that we encounter inconsistencies (by modus tollens); then we become doubtful and unhappy and are going to search new premises to build our theories upon.

4. PROBABILITY THAT A FORMALLY/MATERIALLY CONSISTENT SYSTEM IS ARBITRARY.

We may neither prove that the non-tautological arithmetic assumptions (involving identity and/or causality) of a formally and materially consistent system are *necessary*, nor that they are *contingent*. We can conclude from this that our formally and materially consistent observations will permit us to predict causal connections correctly by a probability of 50%.
PROOF: According to the Tertium non datur, P is either P or Non-P. If P = P, then equivalence is tautological. Suppose that P = Non-P instead. Then it follows that = = ≠, thus P ≠ Non-P. Now suppose that P ≠ Non-P. Then, according to **G. Spencer-Brown**, the inverse statement P = Non-P is also provable. Therefore sometimes = = ≠ and sometimes = ≠ ≠ (**Ilexa Yardley**).

5. DEFINITION OF TRUTH IN A SOCIAL CONTEXT/COMMUNICATION SYSTEM

Knowledge is shared belief. Belief is the *adhesion of a subject to its verbal propositions* in a social context (**Paul Jorion**). Since it is in our material interest to dissimulate the truth (in order to become unpredictable), truth is only possible insofar man is an altruist being. The thesis of universal egoism is self-refuting because it cannot be expressed in language.

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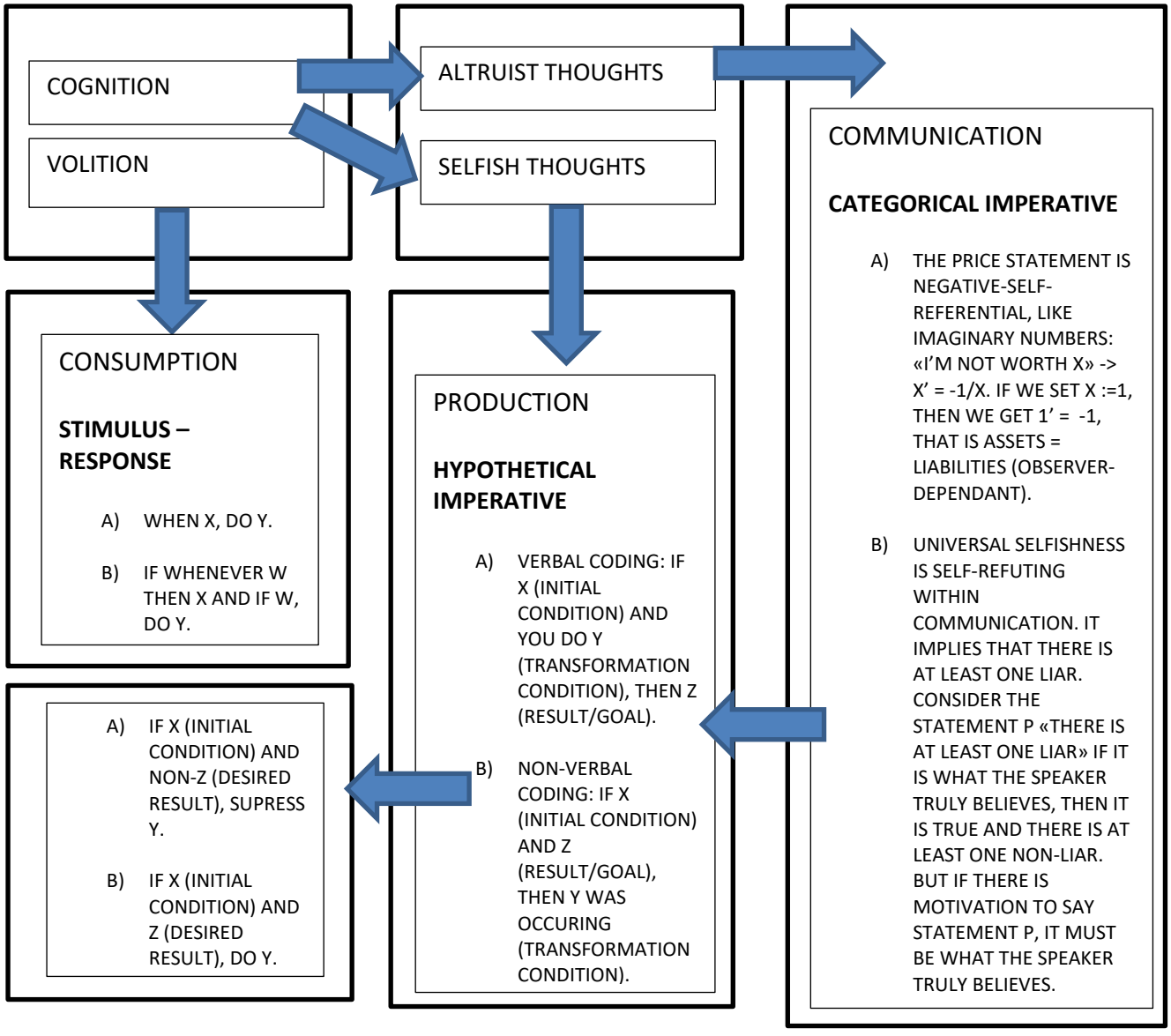
[1] Translation from french: *Conscience, aliénation et thermodynamique*. **Silvan Mühlemann,** Geneva 2019.
[2] **Karl R. Popper**. *The Logic of scientific discovery*. Basic Books Inclusive, New York 1959.

II. INSTINCT – CONSCIOUSNESS – LANGUAGE

TELEOLOGY: *"A spider conducts operations that resemble those of a weaver, and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality." – Karl Marx*

Not everything that exists is observable – observation is un-observable, the Ego is an observational blindspot, thus the notion "to apparently appear" is useless – and not everything that is observable is expressible in language. Thinking suppresses instincts and language supresses thought.

MECHANISM		**TELEOLOGY**
FACULTY OF JUDGEMENT	THEORETICAL REASON	PRACTICAL REASON
Law of Sufficient Reason	Pursuit of Happiness	Law of Non-Contradiction
DEDUCTION RULES	DEFINITIONS/AXIOMS	THEOREMS/CONSEQUENCES
Deductive/subjective validity	Material/objective consistency	Intersubjective consistency



III. NON-WELL-FOUNDED SETS AND THE ONTOLOGY OF COLLECTIVE INDIVIDUALS

As noted above, the expression "to apparently appear" is useless, because it has the same denotation as "to actually appear". There can be no doubt about the state of appearances. Whatever appears is a matter, not an appearance. Who says consciousness says content of consciousness? Because of that, according to Jean-Pierre Voyer, there are "holes of unperceivable things" in the world. The consciousness cannot perceive itself, since whatever I perceive has the form of an object whose subject is unknown. And when I try to think that second subject, I conceive of yet another object of an unknown subject, etc. ad infinitum. Trying to separate myself from other individuals, from the collective of individuals, is thus vain, because both entities are just objects. The mathematics of non-well-founded sets, that is, sets that contain themselves, is apt to model this situation:

> "A non-well-founded set is an extraordinary set in the sense of Mirimanoff.* Such a set has an infinite descending membership sequence; i.e. an infinite sequence of sets, consisting of an element of the set, an element of that element, an element of that element of that element and so on ad infinitum. What is extraordinary about such a set is that it would seem that it could never get formed; for in order to form the set we would first have to form its elements, and to form those elements we would have to have previously formed their elements and so on leading to an infinite regress." – **Peter Aczel**

Jean-Pierre Voyer uses the mathematical distinction between "well-founded" and "non-well-founded" sets to explain the different denotation of terms like 'the economy' (which is a collection of individuals) and terms like "the nation" (which is a collective individual). "A collection of individuals is nothing else than the referent of a list of names, which corresponds in reality to a catalogue. These are several objects. These objects are not integrated into a whole by the fact that they were put into a catalogue. Classifying facts as 'economic' doesn't imply that they are parts of a real object named 'economy'. They are only the elements of a set named 'class of economical facts". This is due to the foundation axiom which prevents the set of all sets of being conceivable. According to **Vincent Descombes**, modern common sense forgets about the distinctions of logicians and metaphysicians while it opposes the individual to the collective (and not to the abstract or the general).

> "The individual now is me (every one of us), vis-à-vis of the society, which is apprehended by two different, opposed aspects: either as an indefinite plurality of being like the ego (alter, the others) or as an antagonist threatening to take control of my prerogatives as a conscious and responsible subject. In that last case, one says voluntarily "the society", the defined article operating here as a totalization of the 'Not-Me' into a formidable Leviathan. If one restrains oneself to that vulgar usage of the word, it is not possible to talk about collective individuals without getting defensive reaction. When individuality is fixed to 'Me' and 'Other', the collective needs to stay a plurality. It is not allowed to be unifiable or integrated under the threat of being conceived as a monstrous organism, as a super-individual who has a superior consciousness than its members" (**V. Descombes**. *Les individus collectifs*. http://leuven.pagesperso-orange.fr/individus-collectifs.htm; 02.12.2018; Translation S.M.)

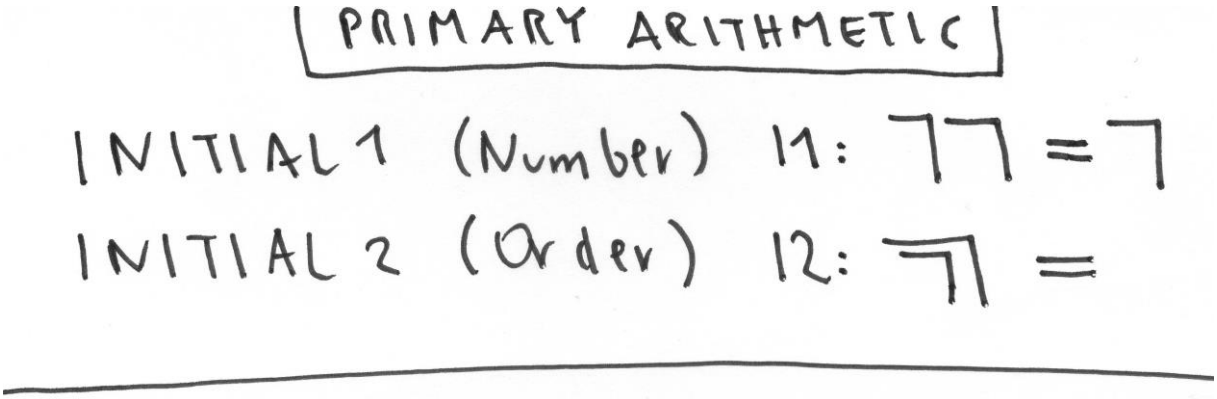
Vincent Descombes suggests that individuality and non-individuality are relative to the point of view adopted.

> "One cannot say about a state that it is an abstract being (the plurality of concrete citizens), or an individual in the absolute sense, outside of any context. A state may be considered isolated, by abstracting from its external environment. In that sense, this state has no other principal of individuation than that which is delivered by its members which are added to each other. Put differently, the state without its external environment cannot be identified apart from its citizens. On the other hand, the 'body of the people' becomes a simple being, an individual, in the context of external relations. That is to say that from the point of view of foreign policy, one doesn't need to conceive the collective or composited character of the state. It is the state as such which engages in an international convention, or negotiates, or makes war. So, from the exterior point of view, the state is not equivalent to the set of its citizens" (Ibid.).

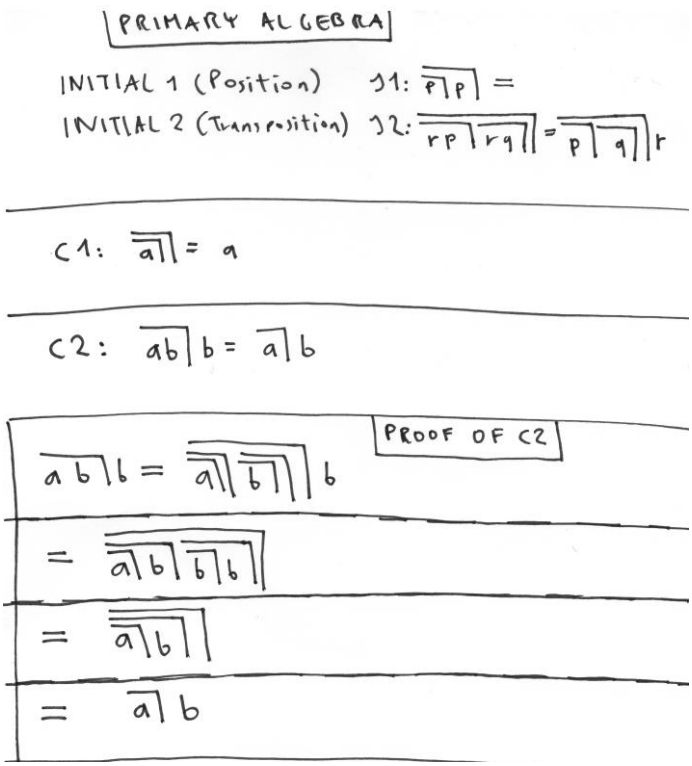
With this theoretical equipment, we are prepared to reevaluate the status of quantum physics and special relativity theory. It is observers who *distinguish* one object from another. The world contains no distinctions.

> „Double-slit, partial reflexion and polarization experiments reveal the only one option to understand Nature and reality without contradictions: These experiments are showing unambiguously that there must happen a division process - but it can`t be a mechanical division, a splitting. Thus the only one option is a *non-mechanical* and therefore *holistic division or branching process*. We are forced to this conclusion because of the interference condition, which is also known as „superposition postulate" in quantum mechanics. It is experimentally well founded and demands the simultaneous passage of both slits, or ways. These experiments are showing further that the emitted light quantum, or matter structure, comes to effect - if it comes to effect - ever point-like local as a *whole* light quantum, electron, atom, or molecule. This is the absorption condition. It tells us that in effective events the conservation of energy is fulfilled. But that condition shows us something more which has not been recognized until today: The absorption condition fulfils also Einstein's definition of simultaneity, which is defined by the *simultaneous incident of two light rays at the absorption point*, the point of the „observer" in Einstein's Special Relativity! These two light rays are now our two branches, which have to be reunited to enable local and holistic absorption events!" Source. **Mario Wingert**. *The New Copenhagen Interpretation of Quantum Physics*; 12.12.18 http://www.anatomy-of-emptiness.de/projekt01/media/futureconcepts/The-new-Copenhagen-Interpretation-2012---Molecular-Physics-without-Atoms.pdf

IV. DIGRESSIONS ON GEORGE SPENCER-BROWN



"The first initial allows changes in the number of marks which are positioned side by side, therefore it's indicated by "number". The second initial describes that marks that are written within each other may be sublated respectively introduced. It allows to eliminate and create marks – that is, it allows for the creation of levels – thus it is called "order". All calculations of the indication calculus are based on these initials, and the calculation is developed by finding and distinguishing general patterns of calculation. Since we distinguished the direction in which an equivalence sign is read, the initials are each describing calculation operations: It is possible to condensate two crosses written side by side to one cross, and it is also possible to affirm one cross, such that two crosses are written side by side; further it is possible to eliminate two crosses written within each other respectively to compensate the non-marked state with two crosses, such that two crosses written within each other appear. Based on these four forms, the indication calculus can be built." (**Felix Lau**. *Die Form der Paradoxie*, Systemische Forschung im Carl-Auer Verlag, Heidelberg 2012 (2005) Translation S.M).
C = Consequence, I = Initial of Arithmetic, J = Initial of Algebra, (a, b, p, q, r) = variables

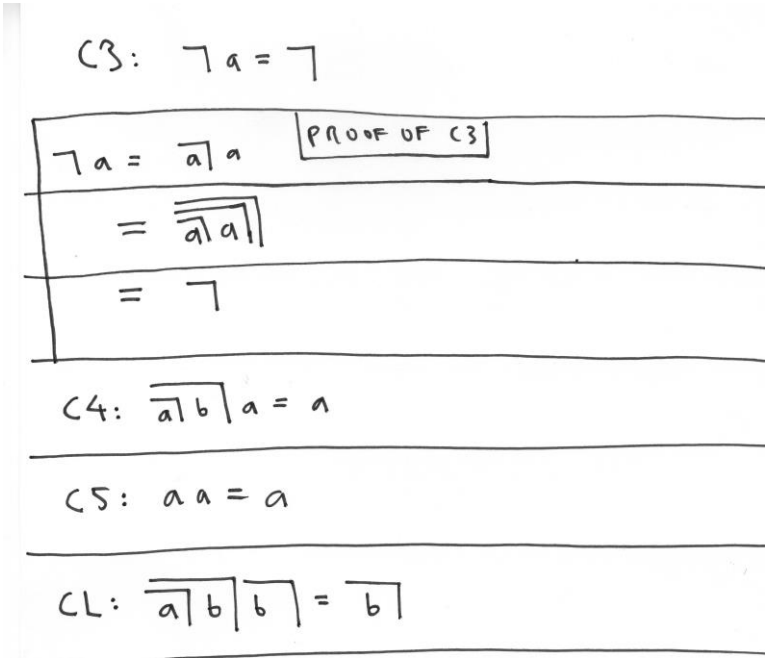


„In his text, Spencer-Brown continues to calculate also with variable (indeterminate) partial expressions. He finds (and proves) the theorems of invariance (form of position) and variance (Form of Transposition), which are used as initials by the primary algebra".

"Theorem 8 (Invariance) is proven by replacing the variable p by the two possible meanings (the marked and the unmarked state), which results both in the unmarked state.

"Theorem 9 (Variance). By replacing r with the unmarked state, there is an immediate identity of both sides of the equations. Is r the marked state, the partial expressions 'pr' and 'qr' result in the marked space. After Initial 2, the inner crosses are sublated, such that on the left side there is only the marked state (…) The right side of the ninth theorem must be the marked state, if r is marked. Thus it is proven that the ninth theorem is valid for any occupation of the variable." Ibid. p.74-75

With the second consequence (C2), another consequence C3 may be demonstrated (Ibid. p.79-80):

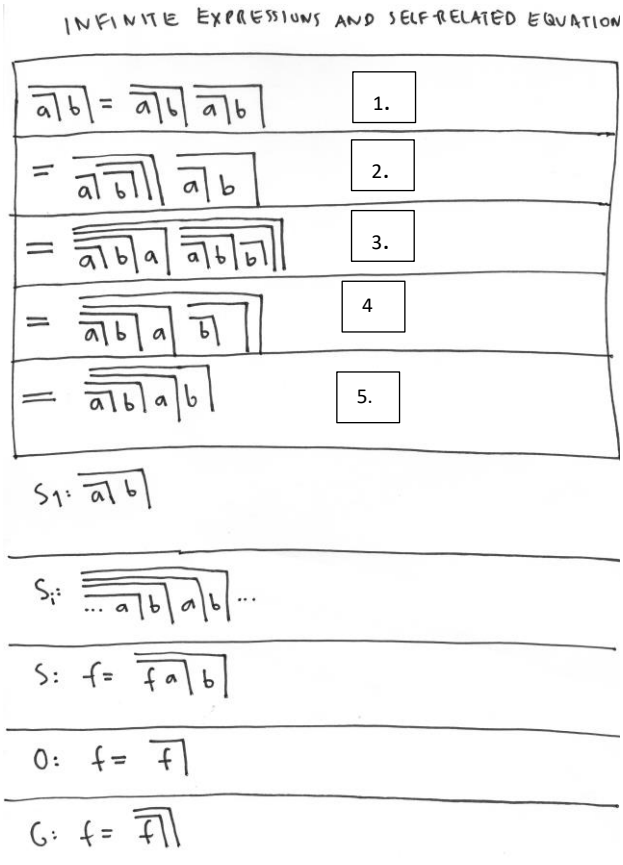


Proof of C4: C2, C2, J1.

Proof of C5: C1, C4.

Proof of CL: C1, J2, C5, C1, C4.

„We can start a succession of returning commands, to transform an initial expression into other, equivalent expressions which differ only in their length: One after another, a and b are separated by a distinction. With the exposition of a step sequence of equivalent expressions, Spencer-Brown shows that the expression S1 may be transformed in a way as to create expressions which are built in the same form; such that a and b, separated by a cross, are exchanged for each other in a fluctuating way" (ibid., p.89)



1. C5 is applied, which states that any expression may be written twice, side by side.
2. With consequence C1, the b of the first partial expression is posited under two crosses.
3. According to Initial J2, the right partial expression may be written under the two crosses who are posited inside the left partial expression.
4. With CL, the right partial expression within the cross most on the outside is being simplified.
5. After consequence C1, the two crosses which contain b may be canceled. This expression is called S_2.

"Because of the specific, repeated pattern of the endless sequence of expressions, we may represent an infinite expression (…) Because of its special form, S_1 = the equation S (…)
From there, we get the (negative) self-referential 'oscillator' function O and the self-referential "memory" function G" (Ibid.p.91f)

In such a way, any distinction *between* A ≠ B, B ≠ A may be transformed into a paradox where A = B and B = A.

V. MATHEMATICS, ECONOMICS, INDETERMINACY AND CREATIVITY

Economic actors are like observers in quantum physics and this is also where imaginary numbers come into play. The statement "This commodity is worth ten pounds" is equivalent to its own negation "This commodity is not worth ten pounds" – if we assume that there is sufficient reason to sell. This implies that price statements are like complex numbers with an imaginary part: **x' = -1/x**.

If we substitute 1 for x, we get the equation 1' = - 1, which corresponds to the relationship between assets and liabilities in accounting. Adding +1 on both sides, we get 2' = 0, which can be further reduced to 1' = 0, i. E. the presence of marks on one side is equal to the absence of a mark.
The imaginary state is possibly "marked", possibly "non-marked", depending on the observer, but every act of buying and selling ties and binds together the marked with the non-marked state. That's why equivalence within commodity exchange doesn't reduce to proportionality in the classic sense. That's why Maxwell's equations have imaginary solutions, complementary to the real ones.

At the dawn of modernity, mathematics has entered a new era, namely with the invention of calculus, imaginary numbers and logarithm – and economic thinking, that is, our thoughts about monetary value, have co-evolved with it. Material worth makes place for abstract value of a debt-based currency, which is – since at least the abolition of the gold standard – purely conventional; not in the sense laws are conventions though, but rather in the sense of mathematical convention. The conventional moment of mathematics – paradoxically – is the **creative** moment of mathematics in opposition to its purely logical aspects. That's how logarithms have been established: not through logical deduction, but through *conjecture*, *falsification* and *compatibility* with other conventions. In other words: logarithm is logically *underdetermined*, just like imaginary numbers are. Calculus, also, is logically underdetermined, because once you've differentiated an equation, information is lost.

Then of course, in the twentieth century, three famous limits to mathematical proof were revealed.

> The first, devised by Bertrand Russell, indicated that informalreasoning in mathematics can yield contradictions, and it led to the creation of formal systems. The second,attributed to Epimenides, was adapted by Gödel to show that even within a formal system there are true statements that are unprovable. The third leads to the demonstration that a specific number cannot be proved random (**Gregory Chaitin**. *Randomness*).

Necessity and randomness make thus place for *probabilistic notions*. The principle of *indifference* with regards to a lack of knowledge has been proven to be useful. According to Kurt Gödel himself:

> The following disjunctive conclusion is inevitable: Either mathematics is incompletable in this sense, that its evident axioms can never be comprised in a finite rule, that is to say, the human mind (even within the realm of pure mathematics) infinitely surpasses the powers of any finite machine, or else there exist absolutely unsolvable diophantine problems (**Kurt Gödel**. (1995). *Collected Works III*. New York: Oxford University Press).

In other words, either the mechanist, reductionist, atomist world view must be rejected, or everything is contingent and there is no knowledge (because reality is unpredictable). But Walrasian economics is built on the *conjunction* of selfishness (logical atomism) and knowledge.

> The hardcore propositions of microeconomics are given with: "HC1 economic agents have preferences over outcomes; HC2 agents individually optimize subject to constraints; HC3 agent choice is manifest in interrelated markets; HC4 agents have full relevant knowledge; HC5 observable outcomes are coordinated, and must be discussed with reference to equilibrium states." (Weintraub) This axiom set contains a lot of NONENTITIES, a fact that did not escape the mathematicians: "Walras approached Poincaré for his approval. ... But Poincaré was devoutly committed to applied mathematics and did not fail to notice that utility is a nonmeasurable magnitude. He also wondered about the premises of Walras's mathematics: It might be reasonable, as a first approximation, to regard men as completely self-interested, but the assumption of perfect foreknowledge 'perhaps requires a certain reserve'." (**Egmont Kakarot-Handtke; http://axecorg.blogspot.com; June 25, 2019**)

Today we can know that *particular usefulness* and *general usefulness* are connected/separated through the complex number 'price'; this contradiction is real and poses the threat of one-sided capital accumulation (maximalization of 'general usefulness') and thus growing social *inequality*.

VI. THE FUNCTIONING OF THE HUMAN BRAIN AND SOCIAL CLASSES

Consciousness is distinct from (mechanistic) conditioning because of the inclusion of a teleological moment. According to Elisabeth Dägling, there are two types of human brains, which cause humans to think in different patterns and, according to me, also affect the type of communication. The dominant brain is *processus-oriented*, the recessive brain is *schematism-oriented* (in the sense of Eske Bockelmann). The dominant brain codes knowledge *spatially,* the recessive brain codes knowledge *verbally*. The dominant brain sees the processus of communication as a means to an end (to accumulate wealth), the recessive brain sees it – like living – as an end in itself. The dominant brain lives in the future, the recessive brain lives in the present. This has the following economic consequences: the *dissaving* of the household sector (in a given time period), which represents people with the recessive brain, is equal to the *profit* of the business sector, which is constituted by the class of people with the dominant brain. Considering that capitalism only ends when the growth of public and private debt ends (according to Egmont Kakarot-Handtke), this would indicate that capitalism as such cannot be ended, but at least it can be made transparent. However, the *justification problem* of what gives money its value cannot be solved in the dominant approach.

> «In the year 1978, MacLeod, Hunt & Mathews, found out, in their study about individual differences for the verification of sentence-image-relations, that there are two different groups which are distinct in their way of processing information. MacLeod et al. designated the participants of the two groups as verbal respectively spectively spatial coders and the groups as 'well-fit' and 'poorly fit' groups (E. Dägling, 2016)"."The expressions 'functional' and 'predicative' were introduced by Inge Schwank, professor for didactics of mathematics. She designated with them two ways, in which humans think. If their thinking is predicatively structured, then they think in states, concepts and relations. If their thinking is functionally structured, then they think in processes, procedures and effects. The distinction can be shown with the following task, it is modelled after professor Inge Schwanks "QuaDipf"-tasks. (QuaDIPF = Qualitatives Diagnose-Instrument Prädikativ Funktional[3]».

«The picture shows three bows which are placed side to side and three circles related to the bows. This picture can be described in two ways: If the thinking is predicatively structured, then one sees that the circle next to the bow on the left is on its left side, the circle next to the bow in the middle is above the bow and the circle next to the bow on the right is on its right side. Thus attention is focussed on the concerning state and the relation of each circle to the bow next to it: left, above, right. If the thinking is functionally structured, one recognizes a movement, a procedure: the circle rolls from the left side, above and then to the right side of the bow. Attention is therefore focussed on a procedure, namely how the circle on the left side is transferred to the right side of the bow. With this description, we have one of the problems before us that makes it so difficult for the predicative persons to comprehend the thinking and behaviour of functional persons. Whereasthe predicative description is evident to all humans –left, above, right –and it is possible to point the fingers at it, for many predicative persons, the movement is not recognizable. (Ibid.)»[4]

[3] Translation S.M: „Die Begriffe funktional und prädikativ wurden von Inge Schwank, Professorin für Didaktik der Mathematik eingeführt. Sie bezeichnet damit zwei Arten, in denen Menschen denken. Wenn ihr Denken prädikativ strukturiert ist, dann denken sie in Zuständen, Begriffen und Beziehungen. Ist ihr Denken funktional strukturiert, dann denken sie in Prozessen, Abläufen und in Wirkungsweisen. Der Unterschied lässt sich an folgender Aufgabe zeigen, sie ist den von Frau Schwank entwickelten "QuaDIPF" -Aufgaben nachempfunden (QuaDIPF = Qualitatives Diagnose-Instrument Prädikativ Funktional)(...)." (**Elisabeth Dägling**. Source: http://www.integrationstheorie-und-adhs.de/27.01.2016)

EPILOGUE

As **Ken Kubota** (2017) suggested[5], the formal correctness of Gödel's incompleteness theorems depends on the acceptance of **Alfred Tarski**'s semantical concept of truth. It seems to me that, despite Gödel's highly technical argument, this fact makes the very notion of *Incompleteness* as well as *Quantum Incertitude* vulnerable. The Crux of Tarski's argument is the distinction between different levels of language in order to avoid meaningless propositions (which would make communication an *end in itself and* vindicate Hegelian holism, i.E. «The whole is the truth»[6]). It can then be argued that physics (1), mathematics (2) and linguistics (3) have entirely different objects : reality (1), thought (2) and language (3). But Tarski's approach, as highlighted in the so-called "Enigma of Anscombes", immediately makes communication impossible, because "I cannot tell you the name of anything, since, if I told you the name of something, what I'd actually say is *the name of that name* and not *the name itself*"[7]. This shows that in our everyday communication we rather use the axiom of nominal self-reference: *names – also – are what they refer to*; «A» is an occurrence of A.

ANNEX I. The conception of non-hierarchical logic (inspired by Joseph Mitterer, 2011). Law of Identity {A} := {A} → {A} := A → {A is A} := A is A. [*= signifying "is not defined as"]

(i) {A} *= A. Initial hypothesis: The name (or class or set) "A" is not defined as the entity "A" designated by the name "A".

(ii) ({A}:={A})*= (A:={A}) .The name (or class or set) that is defined as the name "A" (occurrence 1) is not defined as the entity "A" that is defined as the name "A " (occurrence 2).

(iii) {A} *= {A}. The name (or class or set) "A " (occurrence 1) is not equal to the name "A" (occurrence 2). *Ex contradictione sequitur quod libet*.

ANNEX 2. THE LAW OF VALUE ACCORDING TO EGMONT KAKAROT-HANDTKE[8].

(1) AXIOM 1: **Yw = WL**. Wage = wage rate * hours of work
(2) AXIOM 2: **O = RL**. Output = productivity * hours of work
(3) AXIOM 3: **C = PX**. Consumption expenditures = price * demanded quantity
(4) Condition 4: **X = O**. *Market Clearing*
(5) Condition 5: **C = Yw**. *Budget balancing*
(6) From (3), (4) and (5): **Yw = PO**
(7) From (6): **P = Yw/O**
(8) From (1), (2) and (7): **P = W/R**
(9) From (8): **W/P= R.** ***LAW OF VALUE:*** Real salary = productivity

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[5] "In summary, although some presentations of Goedel's First Incompleteness Theorem fail, this doesn't seem to apply to Goedel's original proof, nor does it apply to the formalized (mechanized) proofs provided by Russell O'Connor (in Coq) and others. The result of the formal proof can be interpreted in the sense that there is a formula (having the form of a sentence) that is neither provable nor refutable, but calling this "incompleteness" depends on a specific philosophical view, the semantic approach (model theory). If one doesn't share the semantic view, Goedel's theorem, although it seems formally correct, doesn't have the philosophical relevance often associated with it". **Kubota, Ken.** *Corrections of and amendments to prior publications on Goedel's First Incompleteness Theorem*. Source: https://sourceforge.net/p/hol/mailman/message/35207290; 29.03.2017

[6] Consider the statement «Everything is true» which must then be true. It implies that everything is untrue.

[7] Expl: In «Snow is white» is true, Tarski sees the expression «Snow is white» as the name of a determined proposition, whereas the medieval philosophers would have seen an occurence of the proposition itself, understood in a certain function, the Suppositio Materialis. **C. Panaccio**, 2017; For a critic of Tarski and Gödel's position concerning language/meta-language, see also **Anscombe**, 1981; **Treiber**, 2014; **Tydecks**, 2019.

[8] **Kakarot-Handtke, Egmont [2]**. *Basics of Value Theory*. http://axecorg.blogspot.com/2019/02/basics-ofvalue-theory.html; 23/05/2019

ANNEX 3: TO BE OR NOT TO BE? THE PARADOX OF IDENTITY, MONEY AND LANGUAGE

For any particular object, equivalence means either being itself or not being itself, i.E. being exchangable for something general (property, money). The predicative (substantial) thinking (in the sense of E. Cassirer) reduces everything to tautology, the functional (relational) thinking reduces everything to paradox.

P = P or P = NON-P?

a) equivalence means: The particular is the particular (A is A, as Aristotle would have it) or
b) equivalence means: The particular is not the particular (:= the particular is the general).

Everything is either contradictious or non-contradictious, but to draw any conclusions from these assumptions, the Law of Contradiction and/or the Law of the Excluded middle must be ignored. Therefore, a system sufficiently complex to contain arithmetic is either incomplete or inconsistent (K. Gödel).

If the particular is the particular, that is, if equivalence is tautological, then my knowledge about the world remains constant, and communication is impossible. If the particular is the general, then I cannot know whether information about the world is true, and communication is an end in itself (i.E. meaningless).

PROOF

Assume that the particular is the general (paraconsistent logic, negative dialectic):

1. **P = NON-P** (Law of Contradiction not respected, Tertium non Datur respected.)
2. THUS = = ≠
3. THUS ≠ ≠ ≠, ≠ = =, = ≠ = (These are equivalent, non-identical rules of 2.)
4. **P ≠ *NON-P*** (by the Rule = = ≠ from 1)
5. (P = NON-P) = (NOT-(P=NON-P)) (from 4 and/or *Substitution of (1) with an equivalent expression, P becomes (P=NON-P) and NON-P becomes (NOT-(P=NON-P)).*
6. (P ≠ NON-P) = (NOT-(P=NON-P)) = (by the Rule ≠ = = from 5) : *Non-Equivalence is equivalence.*
7. **P = NON-P ↔ P ≠ NON-P**

Now assume that the particular is not the general (intuitionist logic, positive dialectic):

8. **P ≠ NON-P** (Law of Contradiction respected, Tertium non Datur not respected.)
9. THUS = ≠ ≠
10. THUS = = =, ≠ ≠ =, ≠ = ≠, (These are equivalent, non-identical rules of 9.)
11. THUS **P = P** (by the Rule = ≠ ≠ from 8)
12. THUS (by the Rule = ≠ ≠ from 11): *If two expressions are identical with each other, they are not non-identical with each other. (Because of the Law of Contradiction, this transformation is valid).*

    P = NOT(NON-P) ↔ P ≠ NOT(NON-P)

13. THUS (by the Rule = = = from 12): Substitution of NOT(NON-P) with NON-P. *If an expression is not non-identical with another expression, it is nevertheless non-identical with the expression "is not non-identical with another expression". (Because of the non-validity of the Tertium Non Datur.)*

    P ≠ P

14. **P = P ↔ P ≠ P**

Q.E.D.

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