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Research Paper

The (a, q) data modeling in probabilistic reasoning

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Abstract

This article considers a critical and experimental approach on the attributive and qualitative AI data modeling and data retrieval in computational probabilistic reasoning.
The mathematical correlation of X≈Y in the d=dx/dy differentiations and its point based locations and matrix based predictions in Markov Models, Bayesian fields, and Rete's algorithms, with the further development of non-linear 'human-type' reasoning in AI.
The new approach in the ternary system transition (decimal-binary) of Brusentsov-Bergman principle by its bound allocation in the 'mirror-based' system in tn-1… tn+1 powers, and hereon considers its further data retrieval for suitable matching and translation of probabilistic data differentiation.
The causation/probability matrix of this paper regards not only bound/free variable in x1, x2, x3, xn variables, but discovers and explains its further subsets in anXqn formula, where the supposition of d=X/Y regarded not as a mathematical placement of the variable X, but as its attributive (a) and qualitative (q) allocation in a certain value/relevance cell of the Probability Triangle of the ternary system. From where the automated differentiation retrieves only the most relevant/objective anXqn data cell, not the closest by the pre-set context, making the AI selections more assertive and preference based than linear.

Keywords: *probability reasoning, artificial intelligence, computational logic, cognitive selection, AI computation.*

1. Introduction

The schematic reasoning existent today values TRUE/FALSE operands in conduct differentiations may be simulated by the forms of mathematical differentiations and logical matching to create certain System Consistency (S cons) of logical Interpretation, however the differentiation of TRUE/FALSE reasoning may be simulated by the artificial Choice Selection in probability and causation of the machine thinking.
By correlating the numerical value of an attribute (a) and quality (q) to the Consistency of X we allocate its subsets (a, q) in the certain alphabet of transition from decimal-binary and vice versa (ternary principle).
Particular perception and particular experience could bear an (a, q) data allocated in the triangle of Data Allocation (See Triangle 2) in where the most referred choice would prioritized as the more probably solution, which makes it sometimes less logical and more 'human-like'.
Another 'human factor' trigger to simulate by the machine is the multiple abstraction modeling, so it would require the abstraction modeling and the modeling of the abstract Interpretation and Condition of it in the database of the AI.
The X, Y correlation of variables in any type of logical solutions need to be graded and sub-graded not only by the logical solution of exclusion, unison or cohesion, but also by the quality of being objectively logical and subjectively logical, so any human-like implications would bare a reasonable doubt of being credible, unlike the formal-logical execution.
The practical mathematical adaptation based from the Leibniz numerical system, computational logic of Boole, Quine, Church, the Lisp interpretations, computational causation/probability and the AI cognitive principles in works of Brusentsov, Bergman, Kreisel, Kort, Haigh, Marti, e.t.c.

2. Abstraction modeling in artificial reasoning

2.1. Abstract logic in mathematical applications

Alike in Bayesian probability we conflict not with frequency of referral and induce the (a, q) qualities as well. The (a, q) allocation and priority scale (Triangle 2) has no limits in order probability, however sifts the less referable options and no-referable options as ‘obsolete’ deterring such data to the last priority pool or complete exertion.
The mentioned [1] levels of:

- conjunction
- disjunction
- negation
- consensus
- recommendation
- ordering

As it was proposed a long time ago, the current problem remains the same: all researches pertain to the mathematical ordering and equation of probability merely on technical levels of their expertise, bolstering operands on operands of the same order and not providing the value of the operant itself.

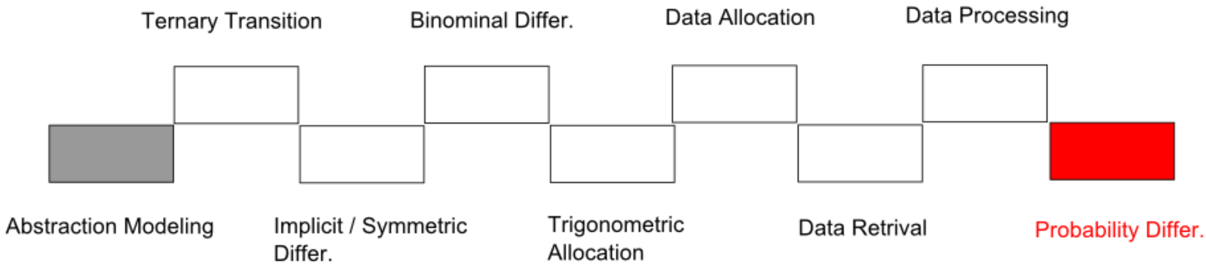


Fig. 1: The Sequence of (A, Q) Data Modeling.

What is exactly the X, Y, Z, or certain B in certain differentiation for a machine, not for a mathematician? What is the grade of probability of such derivative X, or if it is worthy at all to proceed to logical conjunction? The blind, machine-like operation cannot perceive every second the same object, making out the same calculations over and over again. In order to ascertain the fact of logic once, you need to have an artificial quality and an attribute, and that’s what (a, q) data storage and retrieval is in its brief principle.
Therefore, we get into the variables generalizations subdivided by their (a, q) grades of probabilities and causation, not functions. The likes of which we see in the Opinion Triangle (ibid p.7) concept as well has its own angles of limitations and needs to vary by the free operands of priority not bound variables or universal one.

2.2. Free and bound variables

The scope of quantification [2] presumes different types of variables and their solutions. In proceeding of IA ‘human-like’ reasoning would be the way of free variables existent in any subscales possible, in our case its (a, q) sub-variables of mathematical operands, however, the ordering (stacking) of the mathematical data preceded by the differentiation calculus.
$\forall x\ [P(x, y) \Leftrightarrow [(\exists x \exists z Q(x, y, z)) \Rightarrow R(x, y)]]$
In the example of:
IF $\forall x$=driver
THEN $\forall x$=aXq
In where we specify what kind of driver (a) and how many of them (q).

2.3. Categorical value

On whether it is applicable for AI to appeal to the formulistic logic or pure mathematical computation we shall decompile some principles of both fields of sciences separately.
Reduction to the mathematical (categorical) value considers a formal-logical or mathematical appeal of its value to its factual consistency, to its own definition and hence, for its further logical construction.
The method of comparative value based on the attributive consistency of the initial sample of cognition and its correlation with the unknown integer X by its internal and external consistency further on to be considered as (a,q) differentiation.
Hence, the mathematical differentiation of X and Y is a difference not made by a common inference, but by the inner (binary matrix, see p.20) consistency of X and Y, in where we do not presume the meaning of X and/or Y logically, but

merely their formal and qualitative consistency. The prediction/probability of X being Y or vice versa, nevertheless, could lead us into inference of what it may or might be IF or THEN X and Y arise or occur on the same alignment of deduction/induction or any general conclusion depicted by circles hereinafter.

2.4. The sequencing

The methodological understanding of certain conditioning, which in mathematical reasoning of law compiled of simultaneous and sequence based equations of x1, x2, x3 (by Kort) [3].
However, the concern of the numerical sequencing in the trigonometric function of positioning and artificial reasoning least probable with categorical (Fuzzy) logic.
In the event of the decimal-binary transition we presume only translation of one numerical value system to another (S cons – S $cons^2$), the sequence therefore is obsolete in human reasoning simulation, however the probability/causation grade and the choice selection is where the priority sequencing needs to be modified to the automated differentiation (implicit differentiation).
We consider certain categorical value of A related to its numerical counterpart of 0 and 1, both in binary and decimal (and in any other system). However, the grades of A being a 'driver' predicted by the matrix of causation/probability in 0 or 1 needs to be negotiated, automatically inferred by the AI on the grades of (a,q) probabilities of whether the certain A is better to have in $dx=A1^{21}$ and B in $dx= B2^5$, and so on.

2.5. Identification and fuzzy logic

The chronological identification of X1, X2, X3 in a certain numerical values represented by the grades of causation/probability for approximate reasoning (Fuzzy logic) requires certain identification inside the machine system as well.
While creating abstract forms of different levels, placing them into trigonometric triangle of priority selection we assign the prioritized choices to the artificial definitions of 'principle' and/or 'morals'. In where the lowest value of X provides the value of precision and objectiveness to the mentioned categories:
in Xq; e.g.: X=1
In where the unknown abstraction of X gains the qualitative (q) value of 1 (TRUTH) so it's no matter if the 'unknown' value of X is eventually 'good' or 'bad' in subjective understanding, but the differentiation is to be conditioned by 1 in objective logic. And from that point needs to continue chain triggering by conferring to the abstractions of different levels such as
$X1/Y2$ or $X4^n/Y6^n$, so on
In where different levels of abstractions have different values for subjective perception as well, which would make a basis for (a, q) automated differentiation and data retrieval.
The problematic aspect of the AI reasoning development in Fuzzy logic consistency relies on linear triangles [4] of the operands IF/THEN, in where the certain grades of the same abstraction differentiated by exclusion.
For example: IF 'hot' THEN 'not cold'. The solution of the linear exclusion or logical conjunction prevails only on the data coexistent with the pre-condition; however, any logical pre-condition is not graded as causation/probability of it and, therefore not reliable by a 'human-like' thinking.

2.6. Numerical consistency and observation

"How can conclusions at one level be related to conclusions at another level?" [5]. The self-reference or the mover of abstraction in the AI system needed to be equated mathematically from one form of conclusion to another and considered in the Interpretation transfer, or basic shift. And let us start from simple:
Abstraction → Form → Preconditioning = Processing
The form shift above, it could be graphically explained on the example of M. Minea [6], however the question is not in the graphical depiction and graphical interface, but the basis of reasonable selection of data. The criteria AI would prefer over another suitable option in probability. And here we logically presume the subjective Condition of the premise, or Consistency of the Pre-conditioning.

2.7. The data condition

The non-predictable condition in AI to the 'dynamic' static data application possible by the derivative functions of free variables explained by an observatory transition [7]:
Factual data → Observation → Set of goals
The prime numbers (Euclid's P_n) varies in the derivative (X, Y) accordingly and infinitely,
$\forall X_{pn} \in \equiv Y_{pn}$

However, need to be allocated and retrieved as a pre-set data of the certain logical meaning by the means of such (a, q) subsets:

$\forall Xan \equiv Yan$

$\forall X_{qn} \equiv Y_{qn}$

In the derivative meaning of abstraction IF P+1=q, THEN we reduce the meaning of N to 1, the objectiveness number for its simplicity of allocation and tagging in the AI storage.

We devise the value of X as of X in (a, q) probability/causation by the certain value of P_n graded as p1 p2 p3… pn, to the consent of the causation matrix, pre-set in AI abstraction by its developer.

In more practical value we ask ourselves, which (a, q) could be preset for an integer X before it gets differentiated mathematically?

In aXq, in where 9X is the certain level of attributive abstraction which could be deciphered into many mathematical differential as of P= -10000 or 1/-1000, in $N^{2, 3, 4}$, so on.

In $9^{2x-11}X$, or $6^{2\ xs+}4^{-65}X$, or any other high level differentiations we predict the consistency of 0 and 1 only.

2.8. The consistency

Numerical consistency and the letter follow-up by the chain reaction in sequential triggering of automated system differentiation and automated logical seclusion we get A,B,C,D,…1,2,3,4, levels of arithmetic conjunction into the sequence of logical operands IF/THEN; we exclude ‘B’ if it is not ‘C’, and ‘C’ if it does not confer with ‘F’, so on.

However, the numerical degree of certain ‘F’ and ‘B’ for practical reasoning in the subjective logical could only devise the philosophical rumination and mess, therefore needs to be stipulated by the developer on the levels of credible and probably information, and set of independent selections driven out of certain decisions of AI.

The consistency of a number is the definition and the consistency of the definition is the letter by the follow up of its cohesion and transfer unison:

A, 1, B, 2, C, 3, $D^{n=}X^{nx1}$

X1, X2, X3, = P^n

P_n = p1, p2, p3, p4, = Rn+1…n-1=Xn±1

$Xn\pm1=a^nXq^n\pm n1=1$

IF X=Y=1, THEN $1=1^{n-1}$

$$\frac{(n1 - n1)}{x^{n1}} = x^2\ x^{n1}$$

And we don’t confront the Bayesian logic by pre-setting the trigger of information in the sequence of objectiveness, X1, X2, XN, X-N.

2.9. Observation, or the (POMDP) system

The artificial observation system of non-determinist analysis, or the ‘blind observation’, requires a set of duality. While operating with IF/THEN we construe determinism as if it is a strict data. The fluctuation of the universal operant ∀, considers the consistency shift of S-S1 by the observer not by the formulistic pre-set.

While POMDP system considers reward (R) triggered for observation (as for the Result) the AI shall be triggered by the certain quality of satisfaction of credibility not an award of the successful programming.

The automated differentiation of numerical value of the variable (aXq) considers the logical Consistency shift from one trigonometric dimension (allocation) to another for quality and attributive discernment of aXq =1 OR 0.

Making the abstraction movement more natural and less ‘rewarded’ unlike the Markov model. As soon as the habitual observation considered as a solution the machine would ‘observe’ everything observable only IF there is a connection to the existent abstraction.

IF A=driver AND B=bus,

OBSERVE C and D allocation

Is B and/or D $\in$ Z?

IF not/ THEN match B $\in$ Y

IF yes/THEN observe Z.

If going by the rules of implication A→B, then observation is already rewarded for the AI in the implication.

Meanwhile, the example of the Lisp, which traverses the list of CAR → (ABC)[8] and does not remove the first item in the list but moves further to the expressions already implied the consistency of a ‘CAR’. However, the (a, q) of such expressions as A, B, C, → ABC listed only by the context of meaning, (car '(rose violet daisy buttercup)). In where the singularity mode evident in x,y,z but the grades of reward and quality are lacking in mathematical value.

3. The (a,q) data interpretation in al reasoning

Various transfer shifts form system 1 of numerical value to the system 2, transfer of decimal-binary and adaptability of such consistency to the general field of artificial reasoning in AI.

3.1. The list of equivalence and model transfer

A model of interoperation of formal systems by G. Kreisel explains transition from the model S_1 S_2 to Consistency ($Cons_1 \rightarrow Cons_2$) [9] applied to demonstrate provability logic in computable systems by defining its core; we presume the numerical (N) shift by abstract depiction.
Alike the Lisp principle of the data list of equivalence the data of concurrence in where (a' a') =TRUE we construe the graphical overlap in aXq=aXq±1 = (eq 'a 'a)
The consistency and its transition from one form of abstraction to another in reasoning model, in order to simulate the thought pattern of 'human-like' thinking, in abstraction modeling needs to be represented in the principle of linear $Cons_1 \rightarrow Cons_{2\ shift}$, in where the numerical value grades in x1 x2 x3….-x1, -x2, -x3 and where the consistency of S_1 does not overlap the consistency of S_2 as well.
Inducing the n± grade of X, X=Xn±1 we stipulate the adjacency or the relevancy of an abstract model in the 'side-by-side' correlations by A, B, C, = ABC, which would help us in the future to overcome the binary transition from 01 to 0, 1.
As soon as we do not occupy the same factual spot of the Consistency, but only having a consecutive adjacency to it would be chained in trigonometric order as x1 x2 x3 in descriptive systems and systems of interpretation such as Lisp.
Herein, the Formal depiction of such N transfers:

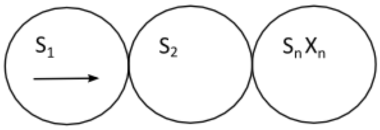


Fig. 2: The Linear Abstraction Transfer

As it was also proposed by Schwartz and Black [10] to have a closed chain configuration in where we have the following:

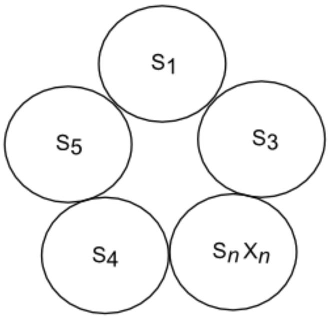


Fig. 3: The 'Closed Chain' Transfer

We state S as P (positive) in where proposed [11] that the R is a model of P as R ∈ P, and, therefore P is a degree of S (S^P) in where we construe the shift of P∈Rn+1=k1, k2, k^n of binary system as well, in where $S \subseteq K^n$ and in where P does not exclude R (P←R).
In the proposed model of S^P the transfer of one Conclusion based on a previous Conclusion would be mingled and interlaced into N^{th} interpretation of R only - linear identification only.

3.2. The sequence and the linear interpretation

The system sequence explanation is short – it's self-ordered. If we construe the sequence of p1 p2…k1 k2 etc, in certain formulas or numerical relations according to the differentiation or linear principles, the extension of computational logic would rather operate with categories of nt1 nt2… and its relevancies to the subject of ntX1, ntX2….
However, the dynamic data allocation in the System of Interpretation from Cons1 level to $Cons^N$, would be chained as k1, k2… kt1, kt2, kt^n as in ternary shift (decimal-binary shift).
IF $X=S_1 \rightarrow S_2$
THEN $X=S_2 \rightarrow S_3 \rightarrow S_N$
RETURN. Transition reversed

IF $S_1 \rightarrow S_2 = S_N$
THEN=$S_N \rightarrow X_N$

3.3. Anticipation model

In a certain X of unknown for machine reasoning would be rather not a puzzle, but a selection to find such X. The AI would consider it from different $Cons^N$ by (a, q) allocation in its database. However, the matching of the existent data with the 'incoming' data needs to be matched with the pre-set Anticipation Model (AM).
The current researches on the linear S Cons 1 → S Cons 2 would rather be schematic, but compliant with 'human-like' thinking in the allocation of (a, q) data.
So we allowed presuming that in many S $cons^N$ there are hypothetically N options of artificial thinking, and artificial solutions on conclusions, hence N types of conclusions may be made by a machine in bound variables.

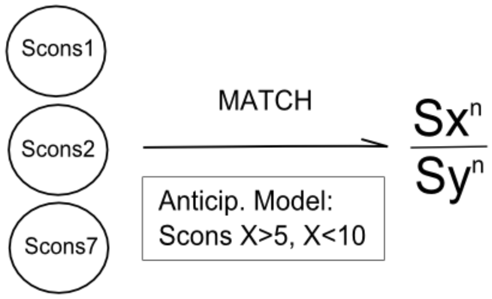


Fig. 4: AI Modeling Matching

The AM could rather be the model thinking in where the AI memory data would intersect S $cons^N$ in order to pre-set a 'stereotype'.
By selecting the consistency variants from Scons1-Scons7 we consider stipulation X>5 but X<10 in where, for example, S cons in 7 matches the requirement more than the other options.
We presume not only logical implication of A→B or wA→B with the consideration of t (time), but also the numerical differentiation of the variable consistency and its matching, d=X/Y.
In where the matching of int. and ext. time models [12] would rather be redundant for the AI at the moment of perception, and instead presumed for an internal meaning (X) first, before it could matched with the 'incoming' one (Y). The computation of the t itself could be basically alleviated to the sequencing model.

3.4. Query methods interpretation

How it is possible to move abstraction of Scons1 to $SconsX^n$ in actual application? Or if we presume a chain sequencing of X_n $Scons_n$ what and how would trigger the probability of selection of choosing Scons1 or Scons11 in certain X_n of abstract reasoning?
How a certain PROBABILITY is arises at a specific moment of the int. time or in the certain order? Let us consider the QUERY system to answer that.
For example, the notion of QUERY in Computable Probability Theory [13] and the measure of the countable space would hypothetically suffice to predetermine the Consistency of Interpretation in AI. In where schematically we presume:
Conditional Time → Consistency → Interpretation = Probability Application
However, such QUERY methods also could exist in uncountable spaces of S_n, X_n that would take an Interpretation transition from S_1 to S_2 infinitely. And in the solution of this problem Mr. Freer refers to Solomonoff induction in Sequence Prediction.
So, if we would mathematically presume the Sequence Prediction [14] of Solomonoff then the system wouldn't be self-cycled:
Conditional Time → Sequence Prediction → Consistency = Interpretation
The shift in binary system as:
IF $S_N \rightarrow X_N$
THEN $S_N = 1$ OR 0; $X_N = 1$ OR 0;
In where the 'IF' bears the probability value = 1 OR 0, THEN $S_N = 1$, AND $X_N = X_N$ in the numerical value grade from -1 to 9^9 ($X_N^{-1 \text{ to } 9(\text{in } 9)}$)
IF $S_N = 0$, THEN $X_N = X_N^x$
If it computed by Solomoff principle of differentiation then requires branch-out to different mathematical equations. And that is a half of a problem, even if executable then again, the attributive (a) and qualitative (q) identification of

what is "1" and what is "0" in the variable of X needs to be Interpreted in transition from one circle of S. Cons. 1 to S $Cons^2$ as reasoning not data storage.
We can't say that the listing [15] proposition is adjustable to the issue of this paper, because it considers only linear programming, therefore the (a, q) of bound variables in the dynamic data allocation would be irrelevant.
However, it was also proposed to distinguish the separate order queues in order to indicate active assertion (ibid 112), and hence, make the probability matching by the strongest argument.
The similar situation in non-linear programming we propose by the induction of aXq dynamic data allocation in the grid (see the Triangle 2) QUEUED only by the PRIORITY of data retrieval, but not by the ACTIVE ASSUMPTION, as soon the active assumption (in before any differentiation) is the static assumption on the list, and could be pre-conditioned faulty in advance.

4. The (a, q) in the subjective and objective recognition

4.1. Bayesian system and joint distribution

Subjective reasoning of AI precludes not only propositional logical or mathematical logic but principles reflected in Bayesian probability. Data arising from the hypothesis or even active assumption may preclude mistake, false, stereotypes and whatever else happens to the human brain while reasoning of uncertainty.
The Baysean system of P/H/D [16] of the knowledge before and after hypothesis actually compliant with the same principle of Consistency shift from Pre-conditioned knowledge to the Anticipated.
The problem of Bayesian theory still revolves around the actual question of how AI would apply the correct set of causes and solutions of its inferences. The generative model [I7] was depicted in a simple chain causation by Mr. Olshausen, however we would try to expand it and perfect it in more details.

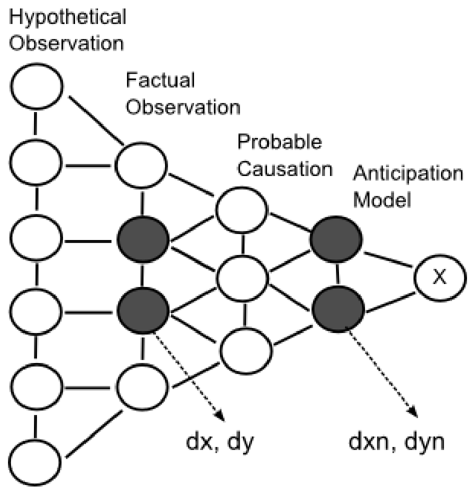


Fig. 5: The Causation Matrix Differentiation

The match or a mismatch of certain cell in such matrix of causation/probability would rather be more schematic and meticulous in development; however, the question of certain Xn, Yn, cells on (a, q) levels remains applicable.
If a certain cell of, let us say, 'Factual Observations' has an X in the (a,q) degree of a^2Xq^1 which is higher in 'objectiveness' than for example, the $a^{12}Xq^{11}$ in the 'Probable Causes', then the selection would proceed back to 'Factual Observation' cluster and vice versa. As an advance of variable computation existent in probability equation we presume the Xn, Xyn, Yn, Yxn substantiation of r!
IF XN, Xyn>0
THEN Yn = -1
Sub-leveling resolves the probability of subsets in x,y,z > or < 0.
$\frac{n}{r!(n-r)} = \frac{Xn}{X!(n-1)}$
The number of the possible outcomes predetermined by the Xn strictly.

4.2. The joint probability distribution

In the Bayesian nets P (x1, x2, x^n) $\prod_{t=1}^{n} Px_i$ = Parents (X_i)), a small change in the variable of x indications the angle ^ of variation of x, but not the variable in allocation of retrieval. We preclude, conclude and exclude the other elements that don't match preclusion. In the proposed [18] examples of Bayesian nets were used no subsets:
(A^F^G^H^J^K¬B¬C) = (A│F)(G│H)(J│K)P(¬B)P(¬C) so on, in conjunction of X it would be more like:

P (x1 x2, xn… y1, y2, yn), (X1^X2^X5^X4¬X3¬X6) = (A│F) (G│H) (J│K) P (¬B) P (¬C))
However, by adding the (a, q) subsets to X:
P(x1 1x1 2x2 3x3…a^nXq^n) (X1^1X1^2X2^3X3¬1X4¬1X2)
In computational differentiation (d):
IF X1=1X1 IN LINE1, THEN 1X4, 1X2 = FALSE
IF 1X4, 1X2=TRUE, THEN, 1X4 d 1X2 = x.

4.3. The transformation concept

The transformation concept of mathematical data in the example of AI facial recognition [19] sublimed by its 2d-3d combinations of human-factor emotions derives an idea of direct and indirect Input/Output of visual perception, in where we could stem out our probability of Subjective perception in the Objective meaning of AI by subjective selection of types.
The Block Diagram [20] by Mr. V. Bettadapura is the schematic interpretation of 1 leveled processing and digital pattern recognition; though it is outdated by recent IT changes, we would consider the model of it in two levels processing below:

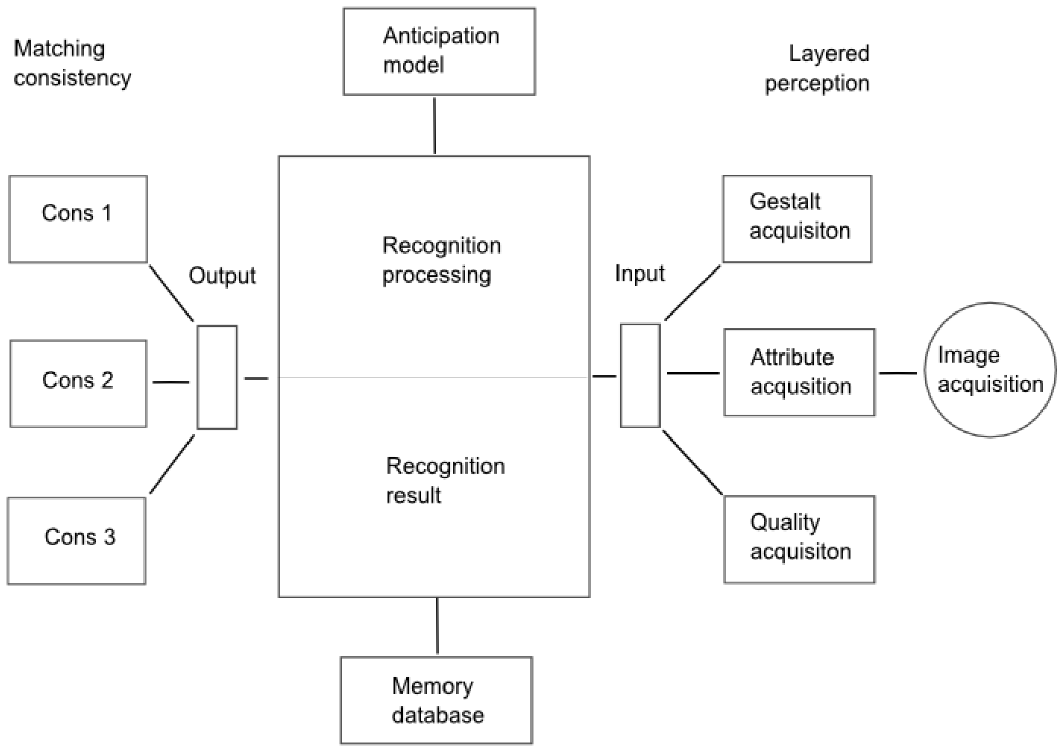


Fig. 6: The Image Perception Model

In here we consider the image perception as a data allocation and would rather split the Image Acquisition on 3 types of secular perception: Gestalt, (A) and (Q) than having one objective pattern.
The 2 levels of Recognition Processing would rather split 2d and 3d patterns into 2 different pools of matching. And whether it is abstract or facial recognition we receive reciprocal non-linear net of matching between the layers of Anticipation mode and the layers of Recognition Processing.

4.4. The problems to be solved

How could we predetermine the Anticipation mode in Causation Matrix and in the image/sentence recognition is the question of (a, q) matching of Anticipated (Preconditioned Cons) with (a, q) of Hypothetical or Perceptual reasoning/vision?
In a perception of a ‘dog’ in the AI’s hypothesis would combine (a, q) of a ‘dog’ by the (a, q) of the factual dog observed, also by its abstract implication and not by its literal coordination, transitive implication.
For example, in the sentence of: “Mr. Stevenson is a fury barking animal, he didn’t pay my bills!”
The match of literal (q) and (a) of Mr. Stevenson with (q) and (a) ‘hairy’, ‘barking’ would rather construe that ‘Mr. Stevenson didn’t pay the bills’ and that is why he is somehow related to a ‘dog’ in transitive meaning, rather than ‘Mr. Stevenson is a dog that can pay bills’

4.5. Notes

The role of the qualitative and attributive processing in the consideration of Consistency Interpretation and Choice Selection conducted not merely by mathematical equations but by the programming preset of System transfer and System Prediction (Solomonoff), basically presume the cybernetic biology in simulation of subjective perception, which is in fact present in the development of Image Acquisition.
The differentiation of subjective-objective reasoning/recognition in causation and object perception, inflicted in visual dependency of abstract levels to understand what is the object or the idea is, requires non-linear simulation of 2D simplifications in mathematical reasoning, q and a consistency of which would only simulate complicated human brain reasoning.

5. The simulation of logical perception or rete algorithm

From prediction, hypothesis and probability we believe to acquire the levels of logical reasoning of different levels, even though the computational leveling and sub-leveling alone would not solve the problem of reasoning simulation, we consider to attribute some functions to its interactive automation, conducted not only by the visual dependency (layered Gestalt recognition), but by the separate mathematical (a, q) equations.
Considering the qualitative (a, q) consistency of a factual visual object perceived by AI, we get through the abstract inversion, which comprises its attributes as a mere fact of that all A's are A's and not B's, and so on. However, the semantic work of the Rete's principle could be layered further to specify the (a, q) not by its type only; but by its PREFERENCE!

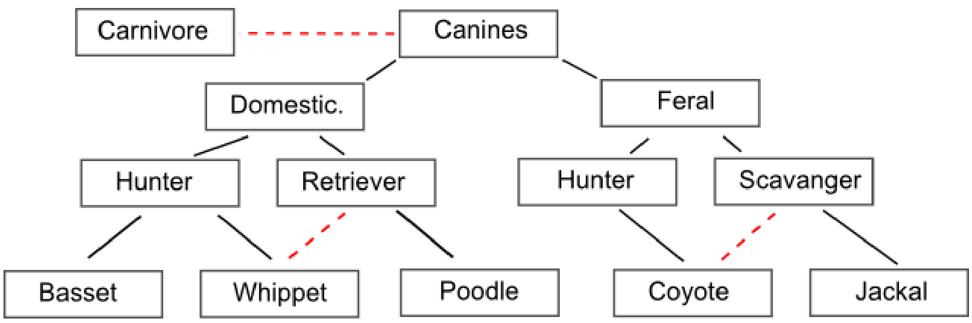


Fig. 7: Semantic Network 1. Example

So, if we would guess that the Poodle is more likely retriever than hunter, wouldn't that be stereotyped in the machine as well? Yes, before proven the opposite.

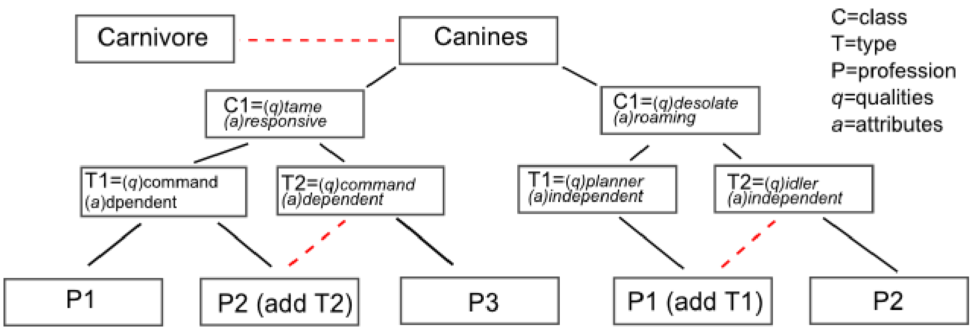


Fig. 8: Semantic Network 2. Example

So we could infer by exclusion, IF P=2 and 3, THEN P1=T1 =C1= Domesticated.

5.1. Logical selection in AI reasoning

The logical type selection and levels of computation require reproach from linear understanding to the non-linear application as well.
In abstract reasoning or in the reasoning of the Semantic Networks we judge the physical condition of A as of any real object and of its (a, q) types consistencies we get to the formal-logical condition:
Object → Formal Recognition → Attributive differentiation → Condition = the Fact
The logical question is whether it is reasonable to consider the Condition of the formal-logical referral as a Consistency of it, or as a sequence/consequence of (a, q) differentiation? We presume that the Rete's principle is a subject to expand

from the ‘Preference leveling’ to the direct assertion by the definitions of the Forms and (a, q)’s of the AI data, even before it evolves from schematic abstraction to graphical interface of 2d/3d recognition.
Object → Form → Attribution = Condition,
Condition → Assertion = Result
It means that the visualization of the machine reasoning would rather be a sheathing of the pre-computed data in the logical perception and not the cognition.

5.2. Numerical sequencing

The sequencing of semantics in binary or in any numerical system requires transfer and reason for such transfer.
If we presume that the machine mainly operates in binary, then we would probably perceive its translation as:
HUNTER = 01101000 01110101 01101110 01110100 01100101 01110010
However, the ‘motivation’ of the machine-thinking is strictly limited by the Anticipation Mode, and by its Consistency of (a, q)’s. So, what requires a machine to transfer from the binary or semantic network to any other numerical sequencing?

5.3. Differentiation

We state that the machine Anticipates, Considers, and Selects, however, the basis of provability logic requires inter-disciplinary sequence of perception in where a word perceived as a word, but parsed but its binary consistency, then chased after by the semantic network of selection:
Sequencing → Binary application → Differentiation → Multiple choice selection = (a, q) Value of Selection
For example, if ‘1’ is the physical quality (q) (degree) of volition, then we suppose to have its counterpart of attribute (a), (intensity) of volition in ‘2’, the inner X and the external consistency X as the shape of it – the form.
1X2 via nqXna
Hunter (q) = (a) Scavenger
X=Coyote, Fox, ADD Raven, so on.
The degree of volition is the degree of multiple choice of subjective reasoning, meanwhile, the intensity of volition could be an indicator of how many TRIES the machine applied before it made a RIGHT choice:
Data Acquisition → Perception → Choice Selection → Logical Conclusion → Alternation → Ascertaining = Application
A provable requirement of logic not always coincides with the antecedent because it is fully dependent on valid proposition. In where the most valid proposition is always updated numerically, while behind and under the inner perception (consciousness) of Bayesian fields, Markov’s volitions or Rete’s algorithms packed into the differentiations and binary transitions we see the (a)ttributive (q)ualities of what is ‘right’ and ‘wrong’.

5.4. Cycling or sequencing?

Choice selection and Anticipation Mode retreat the probability of IF/THEN multiple times if so required, the cycled logic would rather repeat itself and the sequence may even leave the main premise behind its original condition. Another intellectual problem is - whether it is possible to combine cycling after sequencing, so the machine won’t be chaotically sporadic in complex equations?
The antecedent model allows presuming it possible:
Antecedent about past → consequent about future [21].
In this case, the development of temporal logic (Fisher-Wooldridge) in temporal pool of data and of its consequent parsing required:
Preset Integer → Differentiation → Sequencing = Multiple Choice Selection;
Multiple Choice Selection → Logical Selection → Mathematical Differentiation = Data Appropriation
The axiomatic and propositional pacing of the basics of the AI reasoning, however, implies the sequential calculation of IF/THEN, whereas the cyclic logic defines and functions in the closed logical surface by multiple restatement of IS/NOT:
#1 IS D is a sequence of C?
#2 IF C IS succeeding D then YES
#3 IF C IS prior to D THEN C = X
#4 IS C in a sequence?
#5 IF sequence THEN BACK to #1
By defining the S cons. of ‘D’ and ‘C’, we define that ‘C’ succeeds ‘D’ and ‘D’ precedes ‘C’, so there is a chance of that they’re either conjured, either completely different objects. The machine reasoning would rather require a stipulation on whether ‘C’ is an anXqn data or not.
And if it’s known, then what (a)’s and (q)’s in particular it has in correlation to its counterpart, in order to establish that ‘C’ is a part of ‘D’ and ‘F’ might become a part of ‘C’ and ‘D’ as well on the base of logical precedent and analogy.

5.5. Notes

Cycled mathematical differentiation and composition of reasoning based on its operational propositional calculus [22] and predicaments have to be bridled by sequential argumentation and selection pattern of Causation Matrix in details; however we apply theoretical and methodological specificity of current developments.
Hereinafter, we attempt more practical, mathematical explanation of (a, q) data differentiation and modeling.

6. Mathematical application of (a, q) differentiations in AI reasoning

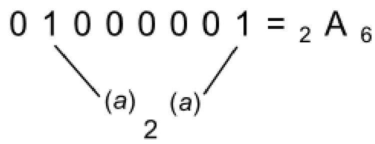
In this part of the research we evolve from the abstraction modeling to the precise application of sentence recognition in artificial reasoning, in where the sentence structuring in AI relied not merely on abstract or practical logics, but also on mathematical pre-sets, differentiations and equations.

6.1. The (a, q) differentiation of mathematical reasoning

In the example of contra-positive equation of p – Lp [23] in where we consider that IF a person is not guilty THEN innocent is a certain requirement of advocacy. In where judging by the contra-positive inversion we could also presume that and the guilty and innocent for the AI is contradictory, hence not logically equal.
The logical and mathematical equations need to be 'unbiased' in the decision–making by giving to a degree of guilty and innocent same initial validity in numerical value of anXqn:
Guilty = 1 Innocent = 1
Guilty = anX1
Innocent = anY1
IF anX1 = 1
THEN anY1 = O
For example, if the degree of anX1 = 1 (guilty) could be 5X1 = 1 and the degree of anY1 = O (innocent) 9Y1 then we differentiate the validity scale of guilty in 5X1 and innocent in 9Y1.
The scale of validity and objectiveness would be the final result on how the mathematical reasoning matches the current understanding of laws by human logic.

6.2. Binary devaluation and re-adaptation

Before proceeding into differentiation of anXqn in probability/causation matrixes of logic we would have mathematically pre-set the system for certain pattern of recognition at certain numerical levels.
The adaptability of the sign with an integer and qualitative description of such mathematical integer is problematic, because the abstraction modeling coexists in the Consistency of mathematical reasoning.
For example:
All A's are letters including A1, A2, A3, etc.
Whereas: A (logical category) 1, 2, 3 (its attributes)
All A's are letters even in A1, A2, A3, decimal combinations
Whereas, the attributive consistency of any decimal (binary) number preceding the letter is a qualitative attribute of the letter and the opposite:
A= 01000001, and 01000001= A,



6.3. Mathematical preset of decimal differentiation

In case of getting closer to the decimal system we presume that the logical differentiation of machine REASONING (not pattern recognition, not computer processing, not any type of machine calculation) in simulation of 'human-like' reasoning would rather be applicable to the simplified mathematical-programming equations of (a, q) consistency and their correlations.
In the example of decimal pre-set of A, 1 A2, A, 3 above us proceeds to:
A3 $\nsucc$ A1, but 3 > 1
By analogue [24] or material implication [25] we presume:
A3 = A1,

In where we have A3=A1 as an equality by type but not quality or/and attributive consistency. The differentiation of A type to its particles of binary system will help us understand the logical matter of any logical statement at its best degree of credibility and bias.
In all of the data concerning the (a, q) recognition and retrieval from binary to decimal (and vice versa) it is required to have a matrix of attributive consistency.
For example, the table of decimal (a, q) equation in where the 9^{th} grade of decimal number is the maximum grade:

Table 1: The Binary-Decimal (A, Q) Transfer:

Decimal (e.g.)	Binary	A	Q	AnXqn	Decimal Differ-ion.
1	00110001	3	5	3X5	-
234	001100100011001100110100	10	14	10X14	1X4
1695	00110001001101100011100100110101	15	17	15X17	5X7

6.4. The (x, y) differentiation of (a, q)

In alphabetical selection and type generalization in where the most commonly used verbs of operational language could be used in cohesion of phrases and expressions commonly used in law. For example, the phrase "I strongly believe".
I = 1, strongly = 1, believe – 9, interpreted as 9 grades of assumption versus certainty of 1+1, 2<9, 2X9. Linear data pool of syntax example:

Table 2: The 9 Grades of Assumption in Binary-Decimal Dx/Dy

Syntax	Log. Interpret.	Decimal = Binary = anXqn	dx dy; x=y	Differ. (d)
I'm sure	Definition/Fact	1-3 (123) = 001100010011001000110011= 10X14 (1X4)	1X4; 1-3Y^n	dX(1×4) dY$(1\times2\times3)^n$
I'm pretty sure	Assertion	3-4 (34)= 0011001100110100= 7X9	7X9; 3-4Y^n	dX(7×9) dY$(3\times4)^n$
I think I'm sure	Presumption	4-7 (4567)= 00110100001101010011011000110111= 16X16 (6X6)	6X6; 4-7Y^n	dX(6×6) dY$(4\times5\times6)^n$
I think I might be sure	Assumption	7-9 (789) = 001101110011100000111001 = 12X12 (2X2)	2X2; 7-9Y^n	dX(1×4) dY$(1\times2\times3)^n$
I believe I'm sure	Anticipation	9-0 (90) = 0011100100110000 = 6X10 (6X1)	6X1; 9Y^n	dX(1×4) dY$(123)^n$

The dx, dy differentiation is created to depict a pattern of recognition based on the multisystem level of binary and decimal translation.

6.5. What if to stay only decimal?

Evaluating dx only by its decimal value with no transfer from binary via dx, dy complications and just by the use of linear simplifications of the 9 grade probability matrix we would get to another differentiation of X and Y but in programming fields. So, the programming would implement more logic of IF/THEN instead of having just numerical values.
For example, "I'm sure" vs "I'm pretty sure", I'm = 1, sure = 1, pretty = 6. We have differentiation of 2 and 8, or we could decipher into 2Xnq contra 2Y6.
X=2; Y=2Y6
D=X/YN=x
And if we would get the result of 2X5 contra 2Y6 we would probably see the greater and lesser number in q straight away (5<6) so the probability matrix would rather say 5 is more objective than 6 and so on.
However, if the machine would doubt itself into self-consciousness, would it rather take those (a, q)'s back to the binary system to investigate the source abstraction/object recognition?
In getting back to the abstraction modeling:
d=dx X2 dy Y (2x6)
d=x2/y12
d=xy10
10=1010 (binary)

7. The probability and its selection

Whether to apply implicit or symbolic differentiation or any other type is a matter of specialized approach and different level competency in many precise sciences. We regret not having such competence and therefore, apply to more schematic and propositional, rather to say, instigating methods of abstract formulation of our ideas in AI research development.
Therefore, the next step for us is to understand that the mathematic (dx) differentiations is rather pertinent to its own kind of 'space' meanwhile the cycled logics and abstraction modeling is more constrictive and limited, just like the patterns of 'human-like' reasoning.

And hence, requires the Subjective and Objective perception/reasoning simulation transferred from the high levels of math equations to the simplistic tenants of choice selection and probability.

7.1. Subjective and objective differentiations

The mixture of dx/dy calculus in AI abstraction modeling would rather be transferred into derivatives of variables system than functioning independently, it means the abstract meaning of probability in AI choice selection would be modeled alike the system of assumption grade indicated above (See Table 1).
However, the logical preset and the mathematical differentiation in Sum selections of programming are merely commutative and dx/dy d. of them is still simulated.
We presume the data abstraction of multiple choice differentiations by its decimal value of (a, q) in the context of aXq and aYq:

7.1.1. Binary summation (X=Y)

OBJ = X; SUB = Y
Xqn = (1, 2, 4, 5, n), Yan = (1, 2, 4, 5, n)
The (a, q) grade in a pre-set of subjective data (SUB) and objective (OBJ):
IF OBJ qn = 1 THEN OBJ an = 4
THEN 1X4 = TRUE
In equation to:
IF SUB qn = 1
THEN an = 1, 2, 3, 4, 5, 6, 7, 8, 9, OR, n
We get:
1Yqn, (q) = float
Summating SUB to OBJ:
1X4 + 1Yqn = 2X4
SUBJ Xq = 4
Where 4(q) is the coefficient of the objective probability in SUB reasoning, then:
IF OBJ 2X = SUB 2Y
THEN OBJ a = SUB q
Which means that the SUB (a) probability matches OBJ (a) from 4-10 and excludes selection of 1, 2, 3. As in percentile probability it's roughly 60% out of 100%. Thus, we only get the coefficient of the subjective choice selection = 60%.

7.1.2. binary-decimal differentiation (dx, dy)

OBJ q = X; SUBq1=y
q=X; A=y
dx dy = q1 THEN
d =x1 y1-9
d=x1/y(1×2×3×4×5×6×7×8×9)
y=362,880=01011000100110000000=6Y14=6Y4
Yq=4
What if the SUBq doesn't match OBJq in binary decimal transition? Then we would differentiate between SUBq and OBJq first and then SUBa and OBJa and try to negotiate the medium range of it.

7.2. The (a, q) probability score

The coefficient probability of 60% needs to be matched with the coefficient of probability of another statement to make sure they have similar degrees.
For example, if the statement of a liar varies as 60-20-99-12-1-60-99, then we would see an unstable pattern of a preset argumentation, in where the speaker manipulates the facts and certainties of '12', '9' and hearsays '99' to make sure his subjective proposal '60' would be at good stake of being credible '1'.

Table 3: The Probability Result Matrix:

Value (1-99)	Probability	Value (1-100%)	Grades of Probability %
1-29	Dn^{1-3}	1-30%	Definition 100-70%
29-39	An^{3-4}	30-40%	Assertion 70-60%
39-69	Sn^{4-7}	40-70%	Supposition 60-30%
Etc.			

For example, parsing the phrase, "I know it", on the (a, q) probability:

$d=Dn^{1\text{-}3}=Xn$
IF n=2 $^{(}$20%) THEN
Dn^2 = 80%
THEN $an^{1\text{-}9}D2$
The definition (D) is valid in (2), in probability makes 80% and that is to be differentiated further on in $na^{1\text{-}9}$ to find an attributive quality and the foundation of it.
While interpreting the 9D2 being objectively valid in (2), but based on the traditional or customary understanding of (9), so on. We differentiation the (a, q) data by its PREFERENCE not by its consistency.

8. Automatic differentiation

8.1. Symbolic and implicit modeling

For object perception we would construe an artificial space by the means of trigonometric preconditioning [26], which considers sin/cos alignment in abstraction. Basically any perception of AI could be contracted to the symbolic differentiation of dx dy, the problem however, is that the mathematical reasoning could rely on differentiation that yet exists with before any subjective associations.
Abstraction Modeling → Logical Pre-conditioning → Mathematical Differentiation → Trigonometric Differentiation

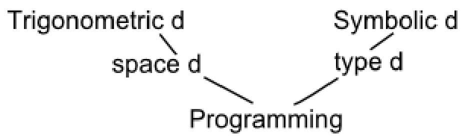


Fig. 9: The Consolation of the Different Layers of Differentiations

The problem is the Expression analysis time with the delay [27], perhaps, because it uses the model of the reversed R-R^n which is real number value and in f=dx/dy the differentiation makes no sense whatsoever. If we are going to discover the (facial) expression recognition by graphical application of the AI we would rather construe the logical model set of what expression is and then its types by dx/dy instead.
The Product Evaluation [28] conducted by symbolic differentiation, could easily link for abstraction model differentiation in object perception in contrary to the R-Rn shift of the Microsoft research; however, the symbolic differentiation has to be set and done by deciphering the abstraction in simplified value of logic (decimal system):
By Griewank: $X_{n+1}=X_1$
While the calculus regarded as positive integer or negative the Microsoft research stems out of the natural numbers of R-Rn+1. We presume that the symbolic differentiation of probability/causation could be founded on the premises of the f=Xn which does not confer with the substantiation on positive (+) or negative (–) numbers of R, rather extending the N to the X power of the probability matrix, limiting the calculus to the extension of decimal value.
Which basically means that on the developer level it has to be set on the automatic differentiation that would circle around for a while and in the case of FAILs in computation would rather limit itself with abstract assumptions and modeling, more of the human type reasoning?
The Preset of $\sum X_{n+1} + Xn = X1$
In Where in object perception $X = Y$ or $X \subset Y$
In case of abstraction modeling we presume each part of X and each part of Y as separate (see illustration 1) in here the subset or junction of 2 or more models differentiates modal space symbolically.
In where f=dx/dy is $d=aXq_{(n+1)}=aYq_{(n+1)}$

8.2. The (a, q) differentiation of the symbolic differentiation modeling

In the symbolic differentiation of the X, Y, Z… X1, X2, X3…. integers, if the X=X1 and Y=Y1 then we get the similar consistency in equation, X1=Y1, as soon as its binary $(1)_2 = (1)_{10}$, so we presume the (a, q) equilibrium of $X = Y$ or $X \subset Y$.
We presume that defining an object merely by its external consistency is not sufficient; therefore, the internal attribute of an object (object-object) defines its qualitative consistency numerically in correlation to physical appearance.
The conjunction of abstract models into one definition of an object by the Scons 1→ Scons 2 and so on, defines the ⊂ of Y in interpretation of decimal value of symbolic differentiation modeling
For example:
Reeled Wheels → Scoop → Diesel Supply = Tractor or ⊂ Tractor ≠ Bicycle
The (a, q) of an object modeling by its counterparts in conjunction prevail in (+) or (⊂) of the logical predicament and in the Anticipation Model of AI.
The symbolic differentiation f=dx/dy of $X = Y$ or $X \subset Y$ conditions well to programming such abstractions.

8.3. The logical conjunction of symbolic differentiation

Another supposition of the object perception based merely on mathematical assumption not by its symbolic data.
If two or more objects of XYZ (tractors, trucks, and other diesel powered engines), are combined in one subtype of $X_{n+1}{}^{n}$ then the decimal ∑ would lead us to the logical conjunction of A∧B as well in the depiction of:

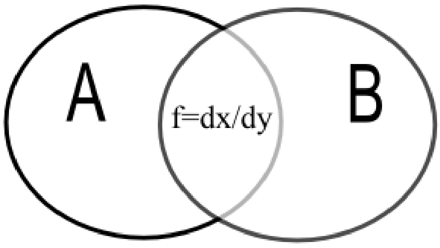


Fig. 10: The Logical Conjunction in Dx/Dy

A∧B f=dx/dy∩dx/dy
In where the A∧B conjunction is subsequent to the intersection of symbolic differentiation (f=dx/dy).
In decimal conjunction:
(q)X2(a) + (q) X4(a) = 2X6∧2Y6
The external (q) in quantity = 2, internal (a) = 4, presumes that 2 similar shapes of X (circles) has f difference in shapes of $2 \leq 4$ or $2 \subset 4$ in dx/dy.
Whether it is to adjunct an X to Y or Z, the machine would specify its (a, q) in f=dx/dy, however, whether the X and Y are the parts of each other or separate entities, decides the adjunction of the type specification by X_{n+1} in Markov Models and Bayesian Logic fields.

8.4. The decimal value of (a, q) in f=dx/dy

By defining an inner attributive value of an object we specify its external attribute. We equate both integers by consolidating the artificial perception by its abstract preset and by the dx/dy differentiations in numerous logical combinations of Xn+1.
However, in the demonstration of (q)X2(a) + (q)X4(a) = 2X6∧2Y6, the decimal value of (a, q) of $2 \leq 4$ that specifies XY is a supplement of binary matrix explained above (See Table 2), therefore, it makes more sense to specify its trigonometric spacing for the AI in before the technical equations.
The decimal value of f=dx/dy in where Xn+1 presume such conjunction (A∧B) as infinite only in the alignment of the positive values (+) as of the default ones:
f= (d1, d2, d3, d4, d5, d^n)
dx /dy= (A,B,C,D,E,F,G,X_{n+1})
What leads us to understand the Microsoft's Research on $R \rightarrow R^1$ transfer is what we've explained in abstraction modeling of Scons→Scons2 shift of abstraction in graphical mode.

8.5. The vector placement of automatic differentiation

The vector placement of derivatives (trigonometric placement of the automated differentiation) in the equation proposed by Mr. Neidinger gives us an object oriented approach of the Xn integer placement in cos/sin spaces, proposes to use standard linear differentiation in the MATLAB 1×2 [29], which basically calculates the following:
if X=3 then 2×X+X+X+7 is 16, [30].
And where 16 is supposed to be the differentiation of [16,3], in the MATLAB.
We presume the mathematical application of trigonometric differentiation in visual formation of abstraction modeling by the following:
d1= if f(x) = sin 16, then $f^1(x)$ = cos 16
d2=if f(x) = sin 3, then $f^1(x)$ = cos 3
Lim f(x) = sin x^{16}/cos y^3

$$\frac{(-\sin x)\sin x - \cos y \times \cos y}{\cos^2 x}$$

The Lim of its trigonometric depiction is set to bind the frame of visual perception in 'human-type' depiction for AI, unlike the abstract infinity of the $R \rightarrow R^n$.

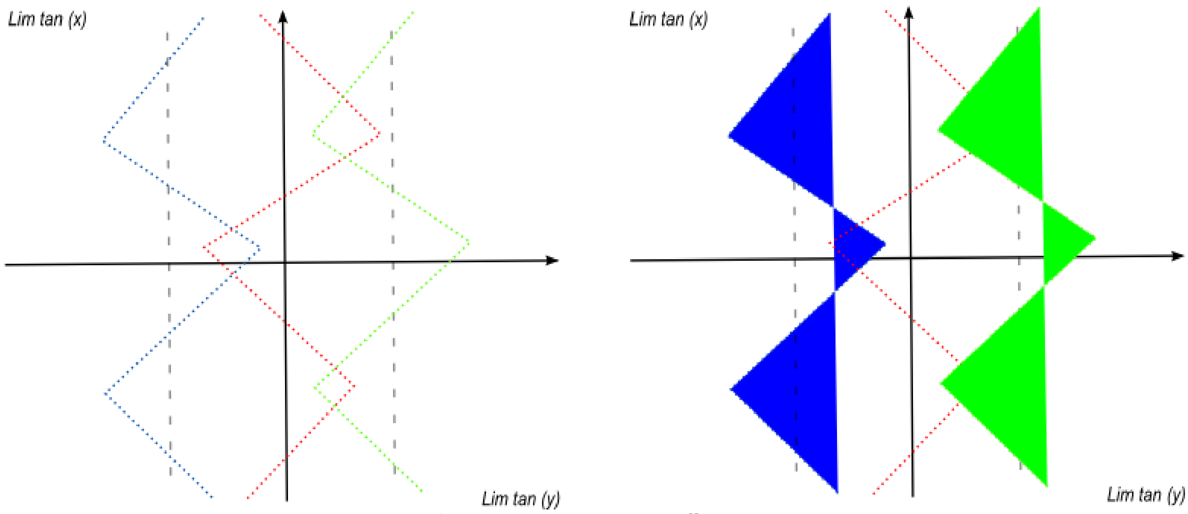


Fig. 11: Trigonometric Data Allocation

Probable solution:

$$\frac{(\sin x + \sin x)^2 \times (\cos y \times \cos y)^2}{(\cos x)^2}$$

$= \tan x (\tan x^2)$?

Our goal is to achieve the inverse and reverse tangents of trigonometric modeling of certain data allocation of reasoning. The understanding of trigonometric $f(x)=dx/dy$ would rather be more effective in 3d depiction. However, our course is to define and design, the direction, the mathematical perception of AI that would work independently and via automated differentiation.

8.6. Further differentiation assumptions

The certain allocation on the vector of d = cos/sin=tan positioning would specify the symmetry of reason modeling and data depiction in AI; however the 'human-type' reasoning contains assumptions on the level of suppositions and reckoning.

In consideration of $f(x) = \sin x/\cos y$ or $f(x) = \sin x/\cos x$ we consider X for its (a, q) on the level of X decimal-binary application to the trigonometric positioning.

In order to make the AI system compatible both in trigonometric and binary applications it would require the understanding of d (sinx x) in fx = dx/dy and vice versa. Regarding the mathematical point precision (or point of X,Y,Z etc), the development of multiple level allocations is required.

For example, from trigonometric differentiations we know that:

$$\frac{d (\sin x)}{dx} = \cos x;$$

As soon as the (a, q) may occur not only in 2d surface, we presume the following:

$$\text{Cos } x \text{ m f } (xn+1) = \frac{d (\sin x)}{dx} = \cos x$$

The cos X allocation in the triangle of the 2d field, meanwhile the aXq would specify it's (a, q) (tensor) in 3d, 4d, etc

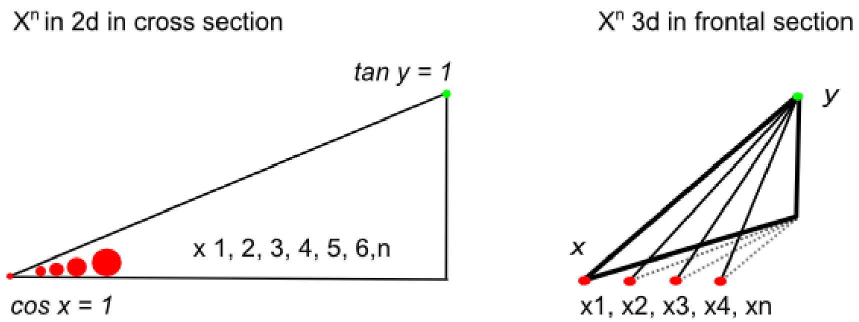


Fig. 12: The Xn Trigonometric Allocation

While judging the allocation of dx/dy trigonometrically, its mathematical application could discover, perhaps more 'narrow' split of allocation for the AI.

8.7. Hidden Markova models in (a, q) modeling

Another example of the sentence retrieval by its differentiation and product model was proposed in the Phrase Model [31] and considers the POS model with vectors j, i, which is an analog of x, y. It considers the angle (Θ) of sentence by its x, y and the recall of such positioning.

The attributive (a, q) differentiation of m (i, j) we present as X (a, q) in decimal with no Lim in ordering, therefore the Θ could be the variable itself.

The arg max used in Hidden Markov Models basically is arg max = f(x) = dx/dy, the differentiation of the max x and y grades (values). We consider such aspect by the use of the 9 grades of causation/probability matrix in sentence structuring and recognition as well.

The curve positioning and the trigonometric data allocation from the results of the sentence structuring of AI is the automated process of the (a, q) supposition and preference in the model of IF/THEN exclusions. The conjecture, or the AI reasoning of guessing of any X^n variables we devise in the guessing of the Xn+n, the same manner Markov model does and confers with binominal equations as well.

8.8. The point based location of ANXQN

The decimal grade of assumption/probability in X (a, q) would be geometrically presented as a depiction of proof in the example of 2X5.

In where 5 geometrically elapses 2, and postulates the dominant (a, q) in nXn+1.

For example, in a^nXq^n of 7X1 we have the objective quality of '1', while its internal attribute construes the '7', making a logical point of 'idea' or of 'hearsay'. In trigonometric depiction simplified to binary as the evaluation of 7>1, geometrically we perceive the postulate of '1' as smaller one but in factual as the point precision – the objectiveness.

If '1' has no fluctuations and alterations in space in opposite to 7 which has 7 points, then we would regard that the Xa^n = 1 as a stemming of cos/sin x. In correlation we construe the d=Xa^n = 1/ Ya^n = 1 as well.

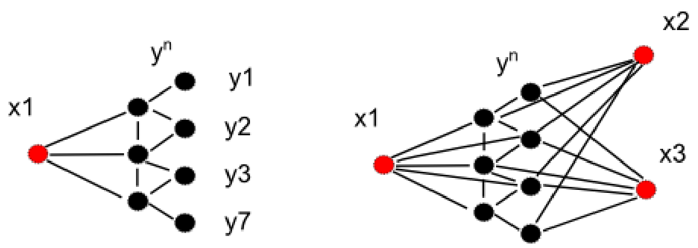


Fig. 13: The Bond Variable Allocation

Automated space differentiation in (a, q) data modeling developed as variable of dx/dy is actual only in mathematical equation of x1,x2,x3,x^n. However, the approach of not defining the value of X, but only complicating into the value of its spiral consistency in trigonometric point location and decimal-binary transition and differentiation would suggest to AI to have a non-linear parsing of X.

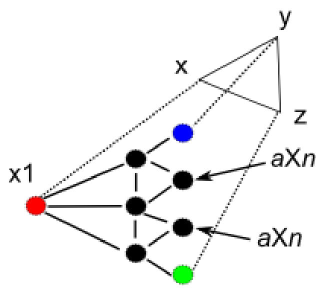


Fig. 14: The Axn Appropriation

It would be no longer regarded as an X variable, but as an X of an X with its a and q (sub x and sub y) making it a differentiation inside of the differentiation, where the machine would decide IF it is worthy to process a certain task or just to proceed to another X^n in the queue modeling.

9. Binominal differentiation and positive n+ (a, q) data retrieval

9.1. Binomial differentiation

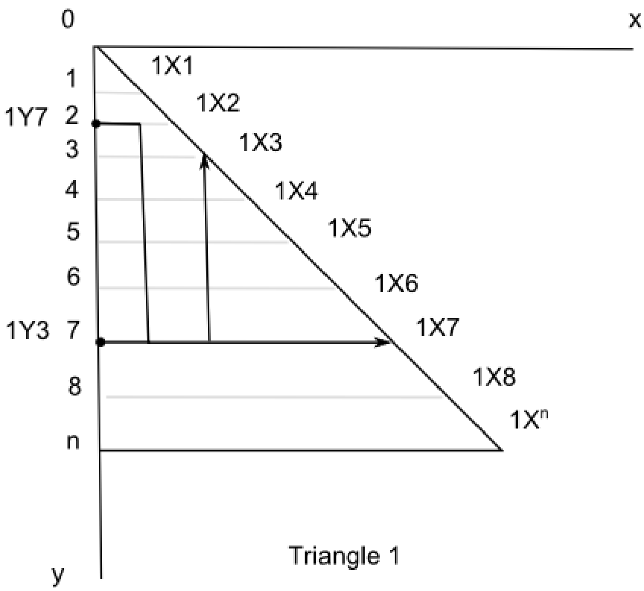
Another type of triangle spread in trigonometry is the Pascal's triangle bijection. The gradual numerical spread of n(n-1)… (n-k+1) chooses k in any n. In our case we devote a^n q^n retrieved by the integer X subsequently for further AI processing.
If we receive identities of a sentence or structure by n1, n2, n3, then we would presume the variation of its variables (x, y) simultaneously with them.
Proposed in Mathematical Foundations [32] of binomial differentiation of x^k the sequence of positive numbers and its derivatives looks the following:

$$\mathbf{R=\sum_{r=0}^{R} n + r - 1\, Cr = {}^{n+R}C_R}$$

In where we propose that the numerical value in summation could have a variable of ${}^{n+r-1}Cr$ instead of (n-1), so we would presume that n is the variable X and it is differentiable. Here, in ${}^{Xn+n-1}Cr$, would rather lead us to ${}^{Xn1}Cr$.
So from the equation of:
$R=\sum_{r=0}^{R} n + r - 1\, Cr = {}^{n+R}C_R$
We get:
$R=\sum {}^{Xn+n-1}Cr={}^{Xn+R}XC_R$
${}^{Xn+R}XC_R$ demonstrates that the variable Xn could be variable only in +R as a suffix to it, and therefore, any derivative order of (n-r) would become (n+r), so the a^n/q^n, attributive data would summate the Xn's as for positive numbers only.
The recurrence theorem [33] of (–n × –n × n+1 × n+1…) has proved that the recurrence of both –n and n+ identical in summation.
Therefore, by simply allocating the (a, q) integers in Xn of binomial expression we expand $(x+y)^n$ to the expanded summation of it.
The infinite summation of positive numbers $\sum_{r=0}^{R} n + 1$ and it's further (a, q) data retrieval would help us to allocate certain positive numbers not only in trigonometric order, but also by its (a, q) positive number.
By having in the result any decimal number from 1-0 we would consider its transfer to the binary and hence to the allocation of any artificial probability/causation matrix indicated above.

9.2. Positive integral summation and its trigonometric allocation

The possibility of data retrieval in conduct of mathematical exertion of positive numbers from the binominal nk/-nk or/and dx/dy differentiation formations in trigonometric allocations of user interface of AI still requires of a high-end level cohesion and adaption in both: programming and mathematical application.
However, the symmetry of the binominal theory and the sporadic dx/dy allocation in different AI spacetimes and considers the difference of two completely different mathematical principles. It plays a role of unison in trigonometric asymmetry and abstract symmetry of both functions.
The (n+1 n-k) principle in coordination of a triangle basis and its internal summation re-orders the binary stipulation in order to store data by its numerical consistency occurrence.
The trigonometric allocation of numerical occurrence of n→aXq:

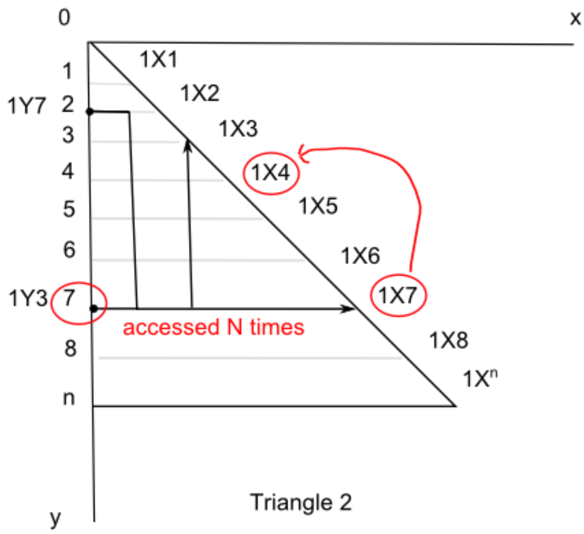


Triangle. 1: The Trigonometric Allocation of N→Axq

But instead of getting from any sequence of n to k according to the binominal theory, we get from n to (a,q) of Xn.
While dx/dy differentiation is the perfect example of data retrieval and its further differentiation in the example of two and more probabilities in the machine thinking, the AI would consider the qXa with the certain grade of (a, q) variables, matching the probability matrix.
By stipulating the Yn → Xn (a, q) referral, we ascertain the numerical probability of certain X in the trigonometric positioning.

9.3. Data retrieval

The data allocation in such triangle matrix requires initial allocation and fragment allocation of the (a.q) in the example of the Fragment Priority [34], we consider the number of queries accessed to the certain cell. In other words, if the machine accessed the same cell of data in the triangle more than one time, we would consider RETRIVAL for further dx/dy processing.
The work also considers the Cost Matrix [35] intersection of S1→S2, which we've mentioned as Scons1→Scons2 transfer, and it could be seen from the triangle of binominal allocation that the cross-reference of from X to Y also considered graphically as cos x → sin y as well.
The priority of access and its frequency of referral may, probably move a cell from the lower decimal value to the higher one.



Triangle. 2: The Trigonometric Selection/Retrieval of N→Axq

In the stemming of data of N- n_t+1, [36] the number of documents (n_t) and the number of occurrences (tf_{td}) query the probability of the access result.

The proportion of data, time and occurrence presume the coefficient of summation probability we have mentioned before.
Data × Time+1/Occurrence N
Or any other implications of n (n-1)… (n-k+1) pertinent to it.

9.4. The Brusentsov-bergman ternary principle and its allocation

As for the conclusion of a brief supposition on the positive integral summation and allocation we would try to construe the graph of the data transfer from decimal to binary as soon as we know that the AI programming involves binary applications of programming, so we can't rely merely on mathematical and trigonometric differentiations lest it would make the research merely abstract and theoretical.
The programming levels in cope with mathematical differentiation types (implicit, symbolic, binominal) acquire specificity of decimal R/N matching, regarding only its numerical preconditioning and integral (x.y,z, etc) solutions. The allocation of data of aXq in the temporary memory of AI needs to 'translate' the 'results' of such complicated differentiation into the binary language by the proposed 'Mirror Reflection' principle, which we would try to elaborate.
Although, existing software packages of such transfer mainly common in software/gaming industries and based on user (human) interfaces perceptions, which would rather have a schematic version of 'brain data pool' for AI.
As for the model of the existing presumption we refer to the closest solutions reflected in the works of Mr. Stakhov as Brusentsov-Bergman ternary principle [37], which is as well based on the principles of natural property numbers, mentioned previously.
The sequence of natural numbers of a_{-1}, a_{-2}…a-m in the trigonometric alignment reflected, according to the Brusentsov-Bergman , in the weight of t^{-1} t-^{2}…. t^{-m} of negative powers in where the t^{i} used as a summation of bits.
We've covered the similar principle of binominal R= n(n-1)… (n-k+1), however, with no representation of binary. As soon as, any classical mathematical differentiation does not consider bits, we'd rather simplify the allocation of such data transfer from decimal → binary (and vice versa) with the cognitive simulation of binary value $1=0^{n}$ in decimal in where any natural positive number $R_{n=0}=1+n^{ti}$.
We take the t^{i} as for the 'golden representation' principle t= $\frac{1+\sqrt{5}}{2}$=10 (Ibid 223) and proceed from binominal principle R= n (n-1)… (n-k+1) from binary to the following conjecture of bits:
$R_{n=0}=1+n^{ti}$
nt= $\frac{1+\sqrt{5}}{2}=10n^{t}$
$10n^{t=}$ R/t^{ir}
In where: R=0 i^{r}=0, 0
In where the maxim for of binary and decimal would be positive (in 0 and 0, 0)

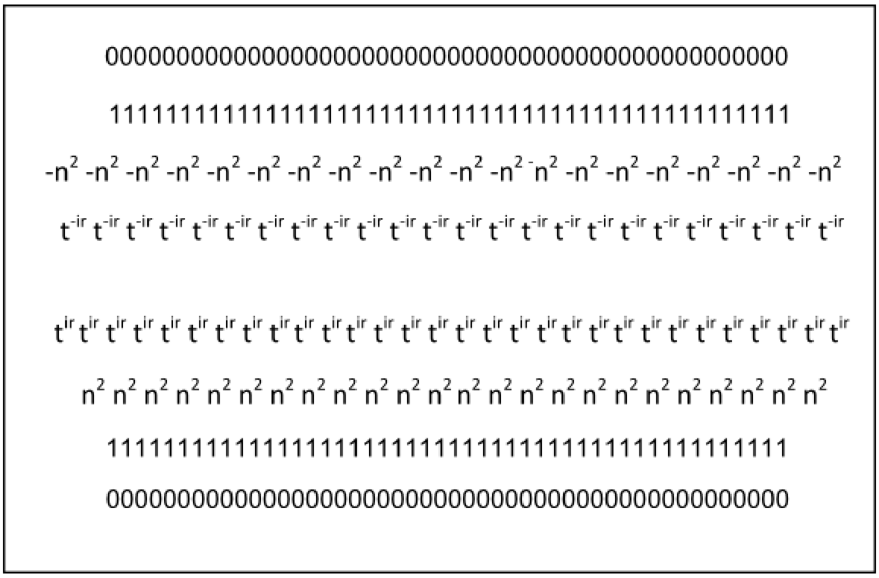


Fig. 15: The Binary-Decimal Transfer Allocation

10. The (a, q) probability processing in aXq reasoning

10.1. Direct differentiation

By taking recourse from abstraction modeling we briefly covered complex differentiations and trigonometric allocations of derivatives, trying to adapt aXq to the existing mathematical principles, as well as proposing our own models and solutions. However, the basis of AI reasoning of data allocation and its retrieval crucially relies on the strict and Fuzzy logics of programming.

In abstract reasoning equation with no trigonometric allocation, we would subdivide (a, q) on SUB and OBJ data allocation and retrieval on the mere basis of its preference and grade which makes it possible to simulate the independent AI reasoning in detour to the implicit.

If X=Y

Go to X

$X \subseteq a^n, q^n = Y \text{ u } a^n, q^n$

If $Xa^n > Ya^n$, then Y

IF $\sum a^n Xq^n > \sum a^n Yq^n$ then Y

We presume the lesser (a) of one derivative (X) as the value of objectivity prevailing over other (Y) in the AI choice. Meanwhile, the (q), quantity component is subsidiary to (a), in other words $q \subseteq a$.

IF aXq=aYq

THEN $Xq \subseteq a+1 < aYq$

We remember, that we quantify the numerical value of (a, q) in binary transfer (See Table 2. The 9 grades of assumption in Binary-Decimal dx, dy.)

We see that the binary data translated into the decimal would define the # of (a, q) according to the matrix of probability/causation, based on the abstract models of TRUE/FALSE operands, however, it is still troublesome to pertain such sporadic data to the factual data in actual speech and voice recognition of AI.

Let us assume that the pool of data of AI already pre-set on two or more choices as probable solutions, however, one of them is the objective reasoning of data, e.g. OBJ 1X2 and the other one is based on hearsays, but also logically TRUE, e.g. SUB 1X7.

How would we rule out the probability of likeness? We assume the linear behavior of (a.q) differentiation in the non-linear situation:

IF OBJ 1X2 = 1

AND IF SUB 1X7 = 0

THEN 1X2 + 1X7 = SUB 2X9 in subjective pool of data

1X7 – 1X2 = SUB

X5 the value, of subjective perception.

9 - 5 = 2

9/2 = 4.5, the probability of assumption.

For example, ascertaining the qualitative description of assumption:

Quality of TRUE = 1-4, ASSUMPTION = 4-8, FALSE = 8-10

IF OBJ 1X2 = SUB 2X5

THEN 1X2+2X5 = 3X7 (SUB pool of data)

2X5 - 1X2 = 1X3 (SUB coefficient)

SUB a (7-3) + SUB C. q(3-1) = 6

The statement of that OBJ. 1X2= SUBJ. 2X5 = 6, which stands as an ‘assumption’.

In this case we presume that the OBJ (a, q) of 1X2 is probably too weak/strong to be subjectively presumed or perceived as 2X5. The subject is either ‘delusional’, either too ‘assumptive’.

The allocation of the results in the trigonometric allocation by the use o binominal equation of positive numbers intends to grade the level of importance as in the Graph #2.

10.2. Direct implication

The aXq direct implication:

IF $X \Rightarrow Y$

THEN $X \subset Y$

THEN Xa > Ya (Y is more OBJ)

BUT qX < Yq (X more SUB)

The logic is the quantity (q) of X prevails over (q) Y, but the attribute (a) of sentence is hidden in Y.

10.3. Indirect implication

The aXq indirect implication:

IF $X \approx Y$

THEN $X \cup Y$

IF $Xa^n \geq Ya^n$, then X and/or Y

IF $\sum a^n Xq^n \geq \sum a^n Yq^n$ then Y
Mediates X to Y however does not exclude X.

11. Main results

1) We logically prove that the probability/causation in abstraction modeling had to be reviewed from the linear interpretation to its sub-set differentiation of X, therefore presume the temporal data allocation by priority/preference differentiation and not by the direct logical ‘relevance’. As of demonstration of it such data allocation may be interpreted in computational logic e.g. in Lisp programming (the list of context meanings) by alternating the methodology on non-linear and non-context based assumptions and differentiations based on (a, q) of different level variables (x,y,z, etc)
2) The decimal-binary differentiation of aXq in computable and applicable data to the probability matrix, applicable to the binary allocation by its numerical consistency and implicit summation of 0 and 1. The variation of X to the decimal ‘X’ grading possible for differentiation of similar conduct in bond and free variables by the implicit and symbolic differentiations in mathematics.
3) We prove that the trigonometric allocation of the aXq data and its grades are applicable for abstract depiction in the Priority Triangle systems. In where the point based system could lead the binominal allocation of aXq of different variables of n(n-1)… (n-k+1).
4) The abstract methodology of numerical consistency of derivative order used by a linear pre-condition IF/THEN is applicant to the matter of SUB/OBJ data allocation in where the similar aXq and aYq are not in reciprocal exclusion, but convalescent.
5) The advance of (a, q) sub-sets in differentiation is probable for dx/dy differentiations of bound/free variables and implies the different approach in the existent mathematical or computational differentiation that subsets the variable ‘X’, not by ‘x’ of ‘unknown’, but by the degree of two probabilities of its allocation/retrieval in the AI. Coding the factual data in the sets of x1, x2, x3,… y1, y2, y3, deferrable on more or less obsolete grades of factuality/probability.

12. Conclusion

The numerical value of TRUE is construed as an abstract tangent, numerical value and differentiation in decimal/binary languages of computational logic may not puzzle or confuse a researcher with its ‘hybrid’ approach, however operates strictly on the mathematical premises of dx/dy.
The mathematical transition from S1 to S2 takes sporadic differentiation that defines only the shift from one logical definition to another, however, does not constitute the reasoning or the meaning of a certain logical word/sentence at all.
The causation/probability matrix shift if matched mathematically to the f(x) = dx/dy differentiation could lead to a first order logic, but would never be applicable in the dynamic situations of high order logics, therefore, it has to be adherent to the causation/probability matrix of dynamic order allocation, we’ve tried to demonstrate in Triangle 2 briefly.
The $R_{n=o}$ in binominal differentiations in the sequence of binary of n+1…n-1 in the (a, q) data allocation/retrieval, is efficient and practical on the ternary fields of Brusentsov-Bergman binary-decimal transitions, as soon as both theories presume the equivalent of the data storage in t^i
The (a, q), differentiation, in general comprises two levels of sub-derivatives of X and Y, in where the (a) of the logical sentence, or any binary-decimal number, quantifies as the ‘meaning’ grade in the probability/causation matrix and defines the objectives of (q) grading of it.
The $a^n Xq^n$ grading computation helps us to shift from the merely mathematical dx/dy to the non-linear interpretation over the similar/multiple request of, IF X=Y THEN x1, x2,… y1, y1… z1, z2,...
And it is our duty to continue the research on the recent developments of Markov Models and Bayesian fields in computational logics further on, in order increase and develop the practical solutions of AI reasoning.

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