

Text, Duality and the Bidirectional Semantic Knowledge: An Epistemic-Mathematical Model for Semantics

Noury Bakrim

Professor (Académie de Poitiers – France)

Corresponding authors

Noury Bakrim, Professor (Académie de Poitiers – France).

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Abstract

In this article, we present an epistemic-mathematical duality frame for universality-to-text and text-into-text semantics from our approach with focus on the nature of semantic knowledge implying hypotheses and results of computational brain dimensions of the latter. Thus, starting from a space mathematical organization of language on the linguistic object, especially duality of self-expansion/self-reduction, a threefold attempt enables the following: First, we rely on axiomatic frames of abstract semantic algebra and its representation-induction model. Secondly, by means of demonstration, a test along with two major components is proposed in which the first component verifies SOP (conceptual)/POS (compositional) logical-semantic implications of syntax-semantic duality: a model of state/term absorption is applied (XConceptual compositional).

Furthermore, we present a graph model of duality based on perfect elimination ordering PEO between conceptual and compositional dualities endowed with polarity and reversibility. Moreover, a model of participational duality entails an experimental/empirical framework through conversational interactions. From diplo/haplo-arguments, cognitive duality of intelligibility/comprehension yields an epistemic function from Conceptual Wholes and Conceptual absorption/inversion specified by Labeled or regressive Constatives Lco and interpretive primitives IP (through Gamma function). Lastly, a debate on semantic holism and duality suggests a dual oriented holism of the bidirectional text OTO.

Keywords: Semantic Duality, the One-Text-Object, Absorption/Inversion, Cognitive Duality, Semantic knowledge

Introduction

“Duality and language”, is a debate that could bear a justifying relevance within Mathematics and somehow within source attempts on the margin of linguistics, toward a dealing with hierarchy and space organization. However, without clear, and somewhat “internal homework” from the ends of linguistics in which it can be problematized, hypothesized, proven and/or falsified, especially the role of X_{act}^{fact} and epi^{meta} , the epistemic mathematical space would be in vain, a waste of historical time for both interests.

Starting from an understanding of our ROAL-hypothesis, in its mathematical form, a first definition of duality (from Atiyah and others) can be stated in the following form: “duality in mathematics is not a theorem, but a principle” [1-3]. Moreover, from our space model, we define duality as the relation

between the textual object (epi^{meta}) and its semantic, semiotic, translational (interpretological), discursive duals in which the relation between the primal and the dual suggests the following hypothetical properties.

Duality and Self-Expanding/Self-Reducing Spaces

Beyond the question of immanence as discussed elsewhere, including the difficulty for linguistics to emerge as a modern science, we have defined, in different manifestations of the ROAL-model, the relevance of the space, especially the space enabled by the language manifold M_{act}^{fact} and beyond the internal, external algebra of number and epistemic-mathematical spaces, a space can be thought of from Bakrim as the following outlined model [2,4,5].

Self-reduction/self-expansion hyperbolic behavior of number spaces and inference labeling, functions (polarity, directionality, signature); point out duality of sub-spaces, dimensions, operations, recursions and demonstrations [6]. Defining thus

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duality as the relation between the discrete and the continuous, is but only another statement on language and space links.

- **Theorems and generalizations**
- **Objects (evaluations, characterizations, classes and types)**
- **Structures and operations**
- **Projections**
- **Events**

Bidirectionality

Secondly, duality of the linguistic object (or the text in its non-ergodic configured form) from bidirectionality enables from epistemic-mathematical viewpoint to first hypothesize and deal with complex-real properties in the sense of the reciprocal bijective function:

$$(\text{type} \rightarrow \text{object}) \leftrightarrow (\text{observable constants} \rightarrow \text{function})$$

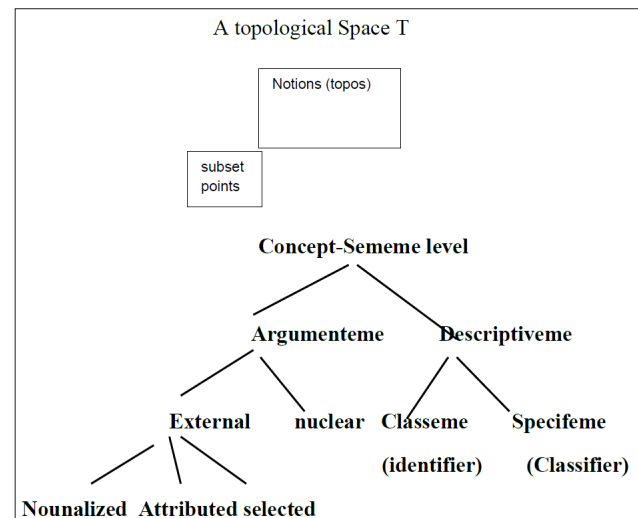
On the associative field of sourcehood, actehood, targethood (with fixed coordinates) especially holomorphic duality with its consideration of differentiation/integration within algebraic polynomial frame being the form mode of the non-lexical text object (or the One-Text-Object) [7]. Nonetheless, if one can speak of a frame textual duality whenever text is involved – which, by the same way, implies investigating internal dualities of the configured text in the sense we have been clarifying so far – “external dualities” and primal-dual relation would rather guide us toward the subject we are tackling in the present article.

External Duality of the Text: A Semantic Dual of the Object

In the past versions of the model, we have dealt with two forms of duality. c-1) Notion-concept duality: relying on our metalinguistic representation framework, the form in which we have expressed the link between semic concepts (features) and notions (enunciatively representable) of morphodynamic-continuous utterances was stone duality between Boolean semic spaces and topological spaces of notions, especially from the case of property-features duality [1]. The definition of the notion we have adopted derives from Culioli: “A notion can be defined as a complex bundle of structured physico-cultural properties and should not be equated with lexical labels or actual items. Notions are representations and should be treated as such; they epitomize properties (the term is used here in a very extensive and loose way) derived from interaction between persons and persons, persons and objects, biological constraints, technical activity, etc. It should be obvious that notions have a status of predicable entities and could be described as unfragmented solid wholes; but they are apprehended through occurrences, i.e distinguished through separate events, broken down into units (actually localized in the physical world, or imaginary) with variable properties. Through a process of abstraction, we thus pass from phenomenal occurrences to abstract occurrences” [8]. Originally aiming at an explanatory frame for structure utterance conjecture, stone duality enabled a frame in which Cartesian set products of Classeme.Specifeme (figure.1 below) define under Catersian Product Union (from unbounded merge, from the past version of the model), on boundaries of linear / nonlinear

(Euclidean/Non-Euclidean) Manifold (with a closed-open Set).

In which Stone duality has been formulated as a Stone-function for Boolean embedding homeomorphism assigning a topological space to a topological algebra (within its subsets) along with its continuous map



(previous State of the ROAL-hypothesis)

$$X \xrightarrow{f} Y \text{ for } (\text{Top}^{\text{op}} \rightarrow \text{Boo}) \text{ any } Y \xleftarrow{f} X$$

$$\text{In } \text{Top}^{\text{op}}, S f : S(Y) \longrightarrow S(X), S f(Z) = f^{-}[Z] \text{ (Adamek et al, 2005)}$$

Allowing us to build the map of classeme X specifeme on notion boundary along with other operations of attraction (to occurrences) [9]. However, our focus herein will be a new rereading of the status of semantics within the frame of duality. We leave, at this level, the question of linguistic / text-linguistic, semiotic duality to another dealing.

A Mathematical Approach Toward Semantic Dualities: Semantics

The above-mentioned elements on ‘enunciation’ from Culioli’s account and viewpoint will lead us, in a kind of opening matter to this section, to Benveniste’s aim and desideratum enabling a separate semantic level

« Il faut dès lors admettre que la langue comporte deux domaines distincts, dont chacun demande son propre appareil conceptuel. Pour celui que nous appelons sémiotique, la théorie saussurienne du signe linguistique servira de base à la recherche. Le domaine sémantique, par contre, doit être reconnu comme séparé. Il aura besoin d’un appareil nouveau de concepts et de définitions »¹ [10].

However, drawing on this first frame question: “Is semantics a text level? If so, like other text levels, is it algebraically recursive?”, a question that will generate our actual axiomatic dimension from the actual state of the model; especially its epistemic-mathematical dimensions for language, itself in dialog with theoretical elements from the non-lexical, textual type

¹“We should, therefore, admit that language contains two distinct domains, in which each domain requires its own conceptual device. For the one we call semiotics, the Saussurian theory of the linguistic sign will serve as a basis of the research whereas the semantic domain should be reckoned as a separate one, in need of a new device of concepts and definitions” (Individual translation)

(types should be understood in terms of epistemic-mathematical type theory, especially through the style of Homotopy Type Theory and its univalent foundations) [11].

Axiomatic elements on text-semantics/semantic duality:

- a 1:** Text acts are formal types, they cannot be considered in some semantic mode of text demonstration”
- a 2:** Facts are broken down to probing facts X_{act}^{PF} and semantic facts X_{act}^{SF} (PF/SF : probing and semantic facts).
- a 3:** Duality implies an epistemic-mathematical formula of the type $X_{Compositional}^{conceptual}$ whose principle is the representation between an abstract and a sub-algebra.
- a 4:** semantic algebra is a universal algebra in which the demonstration depends on the following sub-axiomatic elements.
- a 5:** being the operation of the semantic algebra SA not finitary, the set of its sub-algebras representing it can be infinite [12]
- a 6:** Any semantic algebra SA is sub-directly irreducible by its representation²
- a 7:** Semantic Algebra is only distributive by its distributive representation lattice (n-1) congruent to the operations of the SA
- a 8:** If Semantic Algebra is a direct product $\prod_i Sa$, then its subdirect representation depends on all its factors of Sa without being the whole product, therefore any induced projection on the subdirect product is surjective $\prod_i Sa > \prod_i Sai$
- a 9:** The representation of semantics* is a graph-oriented representation in which conceptual inferential rules are vertex-based spaces of some abstract algebra representation
- a 10:** any given semantics on text is a relation between primal and dual levels of compositionality and conceptuality.
- a 11:** the abstract algebra is endowed with logical operators and logical Boolean algebras since its operations are different from its sub-directly irreducible operations

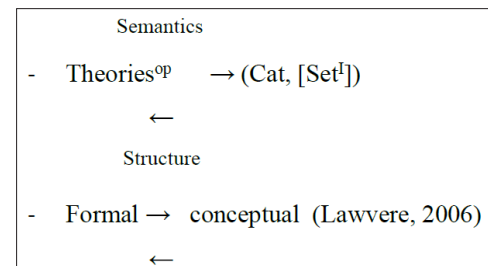
Antitony/Monotony and Polarity within and with Semantics

Considering interpretation from edge/vertex relevance between semantics/text and semantics/Semantics along with Galois connection consideration, axiom 10 will be our focus in this section [13]. The need for abstract entities can be partly defined from what we have already singled out: a universal verifiability graph for semantics within our typed universality dimensions can be gauged by the debate on intension/extension in semantics a debate we will be taking up in a second section. However, type-theoretic considerations of predicate cardinality (concretion / abstraction) strengthen our purpose of distinguishing conceptual and compositional algebras.

Before any further elaboration, we regard number algebra and set space algebra as a relevant starting point, in which the asymmetry of demonstration is replaced by isomorphic maps of representation and induction. Some elements on duality and induction, first. Natural number induction or other verifiable

properties imply functor adjointness between structure/form and theories/Semantics in the following Lawverian sense

Considering that our preceding distribution entails also the distinction between conceptual “operation” and compositional which defines by the same a boundary between semiotic and semiological duality (Expression – content / content – expression) along with our purpose herein [4]. We, then, assign these proving tests to a better framing of connection duality. To test these properties, we will scrutinize the following elements on external/internal duality.



Tests of Semantic Duality

From test trivialization (text rule applicability) rules of the ROAL model, in respect of bidirectional formal symbols, we won't be dealing with “notional semantic hypotheses or “utterance notionalities” (notions from énonciation/énoncé or uttering/utterer couples).

The Conversational Text³

Speaker Turns 1: Man tasga ra d nekk yilad ?
Which side will we be passing by now?

Speaker Turns 2: tasga n uzelmad
The left one

From the bidirectional text typing and Semantic selectional rules, the following associative principle

$X_{probing\ rule} \rightarrow (Y_{selectional\ rule} \rightarrow Z_{probing\ rule})$, where X Y Z are categorical arguments

$(Cat_{actant}^{probing\ x} \rightarrow Cat_{actant}^{selectional\ R_x}) \rightarrow Cat_{actant}^{probing\ y}$

We define the uncurrying type applicability

$Specifier^R(Sub) \rightarrow (v^* \rightarrow comp^{R,O})$ of dependency / agreement

In other terms, the non-lexical applicability of the polynomial typing with epistemic statemarking (from Taylor Series differentiation) [15]. Moreover, from the double interpretation principles (actant/actor), our account will be a twofold frame in which graph theory and algebra will be taken into consideration. From the hypothesis that thematicity $Act^{role} \rightarrow (predicate \rightarrow Act^{role})$ would replicate syntax parting ways with our purpose of duality.

Test 1 from the algebraic frame:

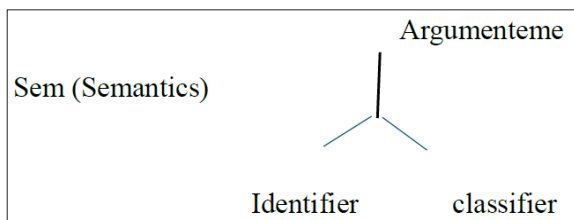
As per our axiomatic dimension, the link between our epistemic

²From Birkhoff's theorem: “any Algebra A with finitary operation is isomorphic with a subdirect union of irreducible algebras” * In the sense given below by the model to universal semantics.

³We define the conversational object as the immediate, language-individuated, event-based object with a participational (pragmatic) dimension of language (not a particulate one). We insist on this empirical condition to stress the distinction between lambda-individuated semantics (lexicon-based) of individual languages and text bidirectional levels. However, it should be emphasized that, trivialization or the type mathematical-epistemic text actfact is the result of epistemic states on different dimension that we can call “relevance”. In sum, text and types between XYZ (w) field and the qualia on rotating angles xyz fields of source – effectuator-target (the individuated structure of the Real or Action Cognition Emotion). In this case, tashelhiyt conversation is proposed.

mathematical considerations of the text and the theoretic dimension of abstract algebra is relevant to this approach. Interms of algebraic interpretation of the abstract semantic/conceptual (theoretic), product space will be tested.

On a Manifold Mfactact, an abstract algebra is a direct product represented by a sub-direct product which is not a whole-dual of the latter (with homomorphism). Let this abstract algebra be the set of universal verifiability (Higher order cognome with higher brain-mathematical properties) of induced argumenteme typing products from



In terms of Boolean algebra of the Argumenteme, we consider for this test the sum of disjunctive product terms. The non-holistic duality is replaced by Boolean junction operators $\wedge, \vee$ enabling also negation/assertion couples of conceptual Argumenteme variables $\bar{x}, \neg x, \vdash A$. Abstract modal Algebra, its lattice representation and modal operators (possibility, necessity ...) will not form the core demonstration outlined herein [16].

SOP Sub-Test (Conceptual) : Variable-Term Absorption/State Forward

Therefore, let a sum of products be both canonical and non-canonical (in both forms), let this disjunctive form of SOP (sum of products) be noted [17].

$$SOP(x) = \bigvee_{k=1}^N P_k(\bar{x}) \text{ with conjunctive product terms } P_k(\bar{x}) = \bigwedge_{i \in s} x_i$$

indexing i-states of terms from a four normal SOP forms : DNF (Disjunctive normal form), CNF (Conjunctive Normal Form), Antivalence Normal Form (ANF) and Equivalence Normal Form (ENF) with Boolean function mapping (n-values)

$$F: \{0,1\}^n \rightarrow \{0,1\}$$

We focus herein on the first test basing on a second hypothesis of orthogonality inspired by the above-mentioned reference in which two terms are disjoint of at least one variable (the function can be said orthogonal) [15]. Under Boolean differentiation, orthogonality can be defined in the following sense (orthonormal/orthogonal basis) [1].

Under Boolean Function Differentiation

$$D_x \begin{cases} 1 \text{ if } x \text{ changes its value} \\ 0 \text{ if } x \text{ remains constant} \end{cases}$$

Is the differentiation of the variable x from:

$$D_x = \bar{x} \oplus x^* \text{ with (exclusive - or) therefore,}$$

$$Df = f(\bar{x}) \oplus f(x \oplus d \bar{x}) \quad [18].$$

Applying the sub-function of orthogonality we obtain:

$$dSOP(\bar{x}) = \bigvee_{k=1}^N P_k(\bar{x}) \text{ with } P_i(\bar{x}) \wedge P_j(\bar{x}) = 0 \text{ (Orthogonal)}$$

First applying: variable-term absorption / state forward (N-1), (i = k + 1)

$$\begin{aligned} \text{Let } dSOP(\bar{x}) &= \bigvee_{k=1}^{N-1} (\bigoplus_{i=k+1}^N) \\ &= (P_1(\bar{x}) \bigoplus \dots \bigoplus P_N(\bar{x})) \vee \dots \vee \\ &((P_{N-1}(\bar{x}) \bigoplus P_N(\bar{x})) \vee P_N(\bar{x})) \end{aligned}$$

By absorption, the reduction implies smaller product terms by larger product terms (with higher number of variables).

Thus, applied on our consideration, a being an argumenteme variable,

$$\begin{aligned} &\dots \vee a_1 a_2 a_3 \vee \bar{a}_1 \bar{a}_2 \bar{a}_3 \dots \vee a_1 \text{ absorption } \vee a_1 \vee \dots \vee A_1 \\ &\text{being the absorption/product term. Redundancy elements of} \\ &\text{argumenteme applies secondly to redundancy} \\ &\dots \vee \bar{a}_2 \bar{a}_3 \vee a_3 \vee \bar{a}_2 \bar{a}_3 \text{ reduction of redundancy } \vee \dots \end{aligned}$$

POS Sub-Test (Product of Sums) (Compositional): State Absorption/Variable-Term Forward

Working on the reduced sub-direct product, POS is performed. Considering text semantics as an evaluation of the argumentemes, a reduction form of the POS implies an absorption of the discrete Boolean representation of actor 1 – predicate / actor 2 – predicate. The interest of the CNP (Conjunctive Normal Form) is to evaluate the absorptions of the Argumenteme as typing elements increasing the predicates of orthogonality by taking them as an input and returning an output with reduced states of factors i, j of dSOP by externally reducing conjunctive states/externally increasing disjunction evaluating thus internal patterns of disjunction.

Applying the surjective principle between conceptual and compositional semantics or (SOP $\rightarrow$ POS) where

$$POS = \prod_k SOP \text{ in which } k_{pos} < i_{sop}$$

This reduction of conceptual productivity by compositional productivity can be parsed in the following pattern

$$\begin{aligned} &\rightarrow (\text{argumenteme} \wedge \text{argumenteme})_1 \dots \dots \dots \\ &\rightarrow (\text{actor1} \vee \text{actor2} \vee \dots \dots \dots)_1 \wedge \dots \dots \dots \end{aligned}$$

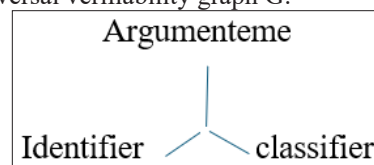
In which case, the first test yields the following polarity bidirectional formula

$$X_{\text{conceptual}} \leftarrow \text{compositional} \rightarrow$$

In terms of epistemization, the semantic duality model proposed herein implies inversely modal evaluation at the intersection of text/event grounding in the non-aprioristic verifiability of the Argumenteme graph

Test 2 Semantic Internal Duality from the Graph Theoretical Frame

From the universal verifiability graph G:

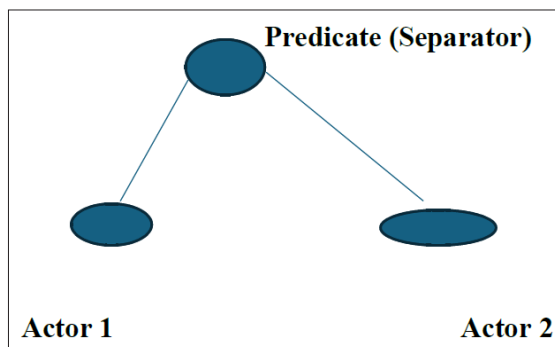


We consider from intersection graph theorem, the following definition [19].

“Suppose $S = \{S_1, S_2, \dots\}$ be a set of sets. Draw a vertex (v_i) for each set S_i and two vertices v_i and v_j are joined by an edge if the corresponding sets have a non-empty intersection, i.e. the edge is given by $E = \{(v_i, v_j) : S_i \cap S_j \neq \emptyset\}$

This first definition of intersection is important for our test. It points out vertex-relevance for semantics, especially when introducing other properties of intersection graph such as spanning/gap properties focusing on vertex adjacency properties making this graph test closer to the algebraic one with emphasis on graph-specificity, both in the epistemic and logical-mathematical sense.

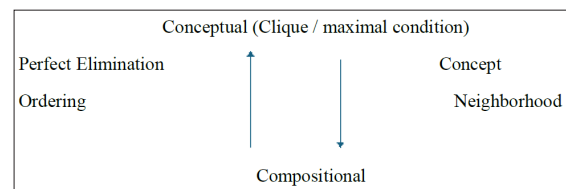
Now, let $G_s(E, V)$ be a semantic graph for epi^{meta} text, endowed with connectomic/cognomic relevance (in a neurolinguistic perspective), the second test is the inverse dual of the first if a chordal graph with simplicial and the two non-adjacent graphs are distinguished by a separator on compositional “cycles”⁴ in the following form



Let it be endowed by a perfect elimination ordering (PEO) within the semantic text graph STG, then its ordering implies a clique (Neighborhoods in induced subgraphs G (concepts), in the sense that a vertex $v \in V$ can be said simplicial (triangulated) iff $N(v)$ (or its neighborhood) is a clique in G such that a Perfect Elimination Ordering of $V \setminus \{v\}$ induces an evaporation function from compositional to conceptual semantics whose argument is the following : if the chordal composition graph of STG (Semantic Text Graph) then for all ordering $i \in \{1, 2, 3, 4, 5\}$ a neighborhood elimination ordering is performed in which [20].

$$N_i[v_j] \subseteq N_i[V_k]V_j, V_k \in N_i[V_j] \text{ and } -j < k$$

Having defined cliques whose adjacency is formed by every pair of vertices in STG with maximal condition on cliques (maximum cardinality). Therefore, a compositional and conceptual graph are dual by virtue of Elimination



A first Statement

We consider from the first test $X^{\text{Conceptual}}_{\text{compositional}}$ polarity +/- and reversibility of concept by compositionality, and the second test on graph-like (graph-neural-like connection) that the internal semantic duality of $X^{\text{Conceptual}}_{\text{compositional}}$ yields another debate on external duality of both syntax/semantics and utterance/notional domains.

Semantic Duality, Participational Semantic, Pragmatics and Holism

One of the consequences of this debate is the status of participation. From $X^{\text{Conceptual}}_{\text{compositional}}$, being an internal duality, an external duality afferent to the text for form reasons is the semantic implication of participational pragmatics with regard to the distinction between particulate and participational directions on some field (on States of World) [21]. Before dealing with the status of holism, especially with the textual configuration hypothesis of holism, and the implications of absorption in contrast to syntax/form recursion, we scrutiny herein the inversion of participational arguments into particulate (particle-borne) bidirectional arguments.

Participational Arguments, Bidirectional Text: A First Epistemic Observation for Semantics

In an approach that distinguishes the textual object and its semantic individuation event, texts are lexicon-free objects on epi^{meta} and $X^{\text{Conceptual}}_{\text{compositional}}$. Regarding cognitive couples of participations (intelligibility / comprehension), the status of the relation between truth (truth-conditionality) and other semantic levels such as modality, fixity (semantic blocks in TBS accounts *théorie des blocs sémantiques*) and relevance optimality lead us to a debate on semantic knowledge predicates [22]. The framework suggested below targets the observational status of semantics within the field in that it models bidirectionality from experimental viewpoints.

The Experimental Modelling of Bidirectionality

We should emphasize that accounts such as Semantic Optimality from the general Optimality Theory frame are in potential dialogue with our elements [23]. However, we sensitively differ from the participational approach of speaker's perspective (semantic input from optimized syntax), whereas hearer's perspective optimizes interpretation from syntactic input) [24].

The conversational text is an entropic frame of information at the intersection of λ -individuation (events and occurrences) and text algorithms with a duality model. It doesn't rely on an inter-individual frame⁵. Under the assumption of self-reduction

⁴Distinguishing this notion of graph cycle from form cycles

⁵We have elsewhere introduced the frame of dialogical-monological genetic hypothesis [2,4]. The link of this debate to Bakhtine's dialogism and its biological theoretical sources, to Ducrot and Anscombre's Polyphony and the Danish francophone theory of Scapoline (*Théorie Scandinave de La Polyphonie Linguistique*) has been emphasized from the above-mentioned references.

and self-expansion, intelligibility and comprehension are hypothesized from dialogic Diplo-arguments (endowed with computational ploydy)^{6,7} on the field, that is to say; arguments from argument inferences

with identity polymorphic function changing its arguments in a permutative way $I_p: A \rightarrow B \rightarrow C, C \rightarrow B \rightarrow A \dots$ within truth dialogism [11].

Some mathematical implications of semantic dialogism and diplo-arguments will be spared herein, especially the most important fact of fixed/rotating planes and Euler angles within stable/changing coordinate on a manifold field allowing for both intersubjectivity and polyphony in the sense of multiplicity and explicit participants on one side and implicit condition of feature properties of the field [7,25].

Therefore, duality exponentiation from the *One-Textual-Object* yields first formulas of:

$Act^{fact}: \text{syntax}^{semantics} / \text{internal duality}, X^{concept}_{composition}: \text{actor}^{argument}$

Furthermore, we would like to pinpoint a common zone of interest between complex coordinate space $\mathbb{C}^n$ (with its valued numbers and its imaginary part) and the empirical bifurcation of imaginary and real functions from Euler identity: $e^{i\theta} = \cos \theta + i \sin \theta$ within the frame of complex particle model [26]. Nonetheless, the very sense of this reflection are the game theoretic assumptions -whose participational relevance is enlighting-in which we include Botvinnik's mathematical model of imaginary/real chessboard representation with tangible/intangible values (positional and transformational actants) relying mainly on Shannon's number. Secondly, a speaker turn function can be conceived as a swap function with its plane inversion. Thus, the interpretation of event/non-event in which a discrete binomial distribution occurs arises (thinking in Touchard polynomials including exponential variables) from linear-complex bidirectionality from the text within the participational event (non inter-individual, non-communicational, non-communitarian and non-behavioral participation). Under vector basis norm on Euler angles, we define a periodicity being the inner product of $e_n(t)$ and $e_m(t)$ when $n \neq m$ (no event)

The orthogonal frame :

$$E_n(t) = e^{2\pi i n t}$$

$$\text{In } L^2[0,1]$$

$$\begin{aligned} (e_n, e_m) &= \int_0^1 e^{2\pi i n t} e^{2\pi i m t} dt = \int_0^1 e^{2\pi i (n+m)t} dt = \int_0^1 e^{2\pi i (n-m)t} dt = \\ &= \frac{1}{2\pi i (n-m)} [e^{2\pi i (n-m)t}]_0^1 \\ &= \frac{1}{2\pi i (n-m)} (e^{2\pi i (n-m)} - e^0) = \frac{1}{2\pi i (n-m)} (1 - 1) = 0 \end{aligned}$$

The orthonormal frame :

$$\int_0^1 e^{2\pi i n t} e^{2\pi i m t} dt = \int_0^1 e^{2\pi i (n+m)t} dt = \int_0^1 e^{2\pi i (n-m)t} dt = \int_0^1 1 dt = 1 \quad (\text{When } n = m \text{ or event representation})$$

[1,27].

However, two frames on participational/textual semantics arise:

1. The dynamic frame with the fixed argument (elliptical curves) implying projection and birational mapping
2. The rotative frame on angles and random bivariate selection on source, target, effectuator dimensions of the Real (the empirical one in which complexity applies)

Semantizing/Depragmatizing

Beyond the information nucleus and its path finding and ontic space-time ordering, the wh-question and independently from Chomskyan and minimalistic accounts, the lexicon-free frame of the One-Text-Object (OTO) induces within the internal duality (semantics-Semantics); a depragmatization of the implicature/explicature and pragmatic impact calculus [20]. Depragmatizing herein means the distinction between semantic and communicational properties

- Implicature loci

Man tasga ra d nekk yilad ? (Where are we going now)

↓ ↓

Telos locus intentional locus

- Explicature locus

azelmađ / (left)

In the sense of text bidirectionality without wh-question realm and beyond utterance space-time markers belonging to event ergodic configuration on text axes, internal duality can be understood in descending/ascending dualities of act/fact exponentiation, on which a polarity heuristic

Internal Semantic Duality (Semantic-Semantic) and its Text Polarity

On the One-Text-Object (OTO), grounding in the above-mentioned Boolean frame, we obtain a second epistemic function: $f(x) : x^{Conceptual}_{compositional} !$ relying on factorial relevance. Conceptual wholes (on identifiers and classifiers) and compositional absorption and inversion (a cognitive hypothesis). We then secondly specify from the epistemic function, labeled constatives or regressive constatives (semantic properties of the interaction) in the following sense

⁶Mathematically, our hypothesis grounds in number theory and prime/natural number interactions: From the relation between wholes and units in the sense where wholes are made up of units. A first model of ploydy can be written as the description from even number formula, $2k$ in which 2 is the diploid marker and k is a whole operator $\sum_{k=1}^{2k} (k=1)$

⁷We therefore infer from $2k$ which is inducing the generalization of odd/even function of natural power spaces to dialogical Swap function whose application implies the participational shift of arguments in conversation. Let a random natural variable be defined in which primality (prime/non-prime randomness) will be considered enabling to generate Wu (Wholes of units), then we obtain the following distribution on natural numbers for Ploidy $P(K, X) = .$ Now, from number space to probability space (form Set to Prob in the category sense of the term), given (Ω, f, P) and $\Omega \rightarrow \mathbb{C} (\Omega, f, p)$, we rewrite our expression $2k + i x'$ through Real/imaginary parts and three simplified values

$P(z) = 1/4, z = 1 + i,$

$P(z) = 1/4; z = 1 - i,$

$P(z) = 1/2; z = 2$

Labeled Constatives

- 1- $Lco_n Lco_{n-1} Lco_{n-2} \dots Lco_1$
- 2- $L'co_n L'co_{n-1} L'co_{n-2} \dots L'co_1$
- 3-

From Gamma-function

$$\Gamma(n) = \Gamma(n-1) !$$

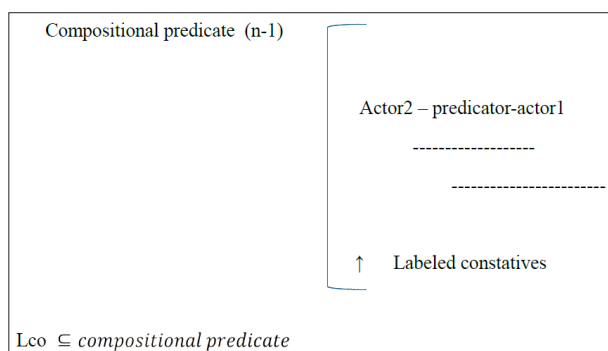
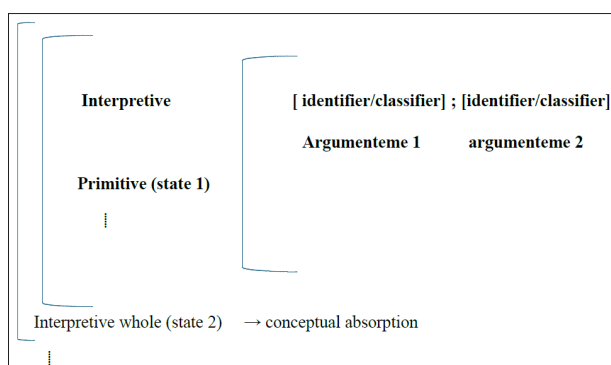
$$\Gamma(x) = x \Gamma(x-1)$$

Where the interpolation and the integral yield interesting properties for semantic analytic functions, pinpointing and hypothesizing a computability for the primitive inductive meaning of the tensor $IO = x(x+1) / 1+1$ [28]. The symbol-form digit predicates of computable semantics are another debate created between epistemic-mathematical and semantic-logical models, we will be defining it later. From the integral form of Beta function, we define a general principle of intelligible states with multivariate case :

Let the reverse Beta function be multivariate and denote the regressive compositional principle, $B(\alpha_n, \alpha_{n-1}, \dots, \alpha_1) = \Gamma(\alpha_n) \Gamma(\alpha_{n-1}) \dots \Gamma(\alpha_1) / \Gamma(\alpha_n + \alpha_{n-1} + \dots + \alpha_1)$. Through Pascal's identity endowed with transitioning induction (k-1) from the kth coefficient of the $(x_1 + x_2 + \dots + x_p)^n$ expansion in symbolic characters of the text, we define an absorption scheme for interpretive primitives IP and primitive wholes with increasing intelligible state from

$$\binom{n-1}{k_1-1, k_2, \dots, k_p} + \binom{n-1}{k_1, k_2-1, \dots, k_p} + \binom{n-1}{k_1, k_2, \dots, k_p-1} = \binom{n}{k_1, k_2, \dots, k_p} \quad [29].$$

The marking process is an additional heuristic in which relevance (the linguistic sense of it) of the semantic observable can be optimized henceforth on our bidirectional text

Regressive Epistemic Principle of Labeled Constatives Lco**Absorbing principle of increasing intelligible states****Semantic Holism in the Horizon of External/Internal Duality**

The discussion of text holism in the sense of OTO (One-Text-Object) configuration as a text unit introduces a second debate on both pragmatic, semantic relevance and text bidirectionality. In other terms, why would holism not be feasible without both? We previously pinpointed the open dimension of semantic complexity in which concomitant levels of modality, fuzziness, fixity, multiple possibility and event are observable throughout or without lexicalism (lexical unitarization and individuation). Nonetheless, there are two theoretical underpinnings to duality frame on semantic holism which will be elaborated on below. Furthermore, we should precise that we do focus here on computable models whereby we study semantic duality rather than logical-mathematical models of primitive-computable elements on form-symbol analytical languages, especially primitive-computable elements.

Relevance Theory and Other Approaches

We draw for the present discussion on a frame of Optimality Theory which advocates for a non-transparent frame of interpretation where syntax and semantics imply a free interpretation hypothesis, mainly relying on deriving interpretations through syntax (without a LF from conceptual-intensional interface) in which optimality means perceptual calculus and ranking whenever interpretation is restricted (a multifaceted interpretation including discourse levels) [22,30]. In this very view, multiple forms of duality ground not only in OTO (our framework) but rather in a phagocytosis of the unified object.

Furthermore, this view highlights two major issues that contrast with our elements, namely

The absence of the distinction between lexical/typological individuation and the unified object

It conflicts with the cognitive results of Relevance Theory in which a certain relative form of semantic holism has been proven.

Independently from the compositional classical reference, oriented under the pressure of syntax to sequential / cyclic meaning primitives, a double form of duality implies rather distinguishing cognitive strategies from (their connectionist frame seems to rather point out a certain event-decision making (outcomes) ranking from text algorithms) from the manifolded/ space object of language in which semantic individually occurs, due particularly to the dual oriented holism of the text.

In general, interpretation¹; in its behavioral hermeneutic act -along with decidability elements- contrasts with the other components of semantics that are neither inherent to a linguistic individual nor inherent to the knowledge object of the text (semantic knowledge as an objective dual). This very dimension of hermeneutic decidability, as an outcome of cognitive and behavioral strategies advocates for a non-textual semantic knowledge negotiated with different components without the semantic invariant of bidirectionality.

⁸The hierarchical model of sémantique interpretative which draws on structural semantics (the belief that semantics is a form) confirms this tendency to derive interpretation from micro-meso-macro frames or from lexical semantic features to genres/discourses without the frame of cognitive pragmatics [32-34].

Nonetheless, if we look at Relevance Theory, especially its semantic dimension beyond the communicative framework- and through the lens of its founders and independently from its absent and explicit duality, it indicates an orientation toward a parallel balance, although lacking clear bidirectionality which could enable focusing on a certain unified text object. In particular; inferential scalability strategies of relevance pinpoint a cognitive hyperbolism of interactions through interpretation.

“Relevance theory treats the identification of explicit content as equally inferential, and equally guided by the Communicative Principle of Relevance, as the recovery of implicatures” [31].

Therefore, is there any status of a holistic account from both relevance theory and external/internal duality?

Non-textual holism of relevance theoretic strategies can be noticed or even evidenced from both discussion and results throughout literature. However, the semantic-pragmatic duality can be understood within bidirectional text formulas in the above-mentioned sense. We may, therefore, thanks to a real distinction of the symptomatic multiplicity of the available meaning notions, extend the scope of the inquiry to new directions, especially in the experimental realm. New subjects such as physics of semantic knowledge representation, cognome/connectome neural laws or semantic knowledge representation could be the consequence of this joint research action.

A Synthetic Conclusion: Semantic Knowledge

Dualities such as, linguistic-semantic, linguistic-semiotic, linguistic translational (interpretological) and linguistic-discursive belong to an area of inquiry where the One-Text-Object (OTO) is taken to be a primal object. From the perspective of the ROAL, especially its epistemic-mathematical modeling, semantics can be rewritten as semantics-for-linguistics where the abstract algebraic frame such as demonstrated by Boolean and Graph theory tests, proves being valuable typing for semantic knowledge. Semantic Knowledge Hypothesis widens consideration on linguistic knowledge (knowing acts/knowable facts) stating (unlike the model of the LF or Logical Form) that a text is a plane within manifolded reasoning spaces: an external, meta-formal dual and internal constative interpretive vary somehow from the eponym pragmatic notion. This very epistemic turn taken with duality, also its difficulty, relies on both ontic-ontological observation in respect of Language of the Thought LOT but precisely on bidirectionality being the cognitive principle of a holistic propositional principle at the intersection of universality, individuation and the act of conversation within the modeled/observed field.

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