On a Class of Concepts

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Classically, in discussions concerning *polar opposites*,[1] interest is primarily directed towards common and lexicalized concepts—those for which corresponding words exist in the vocabulary of a given language. This approach tends to generate several disadvantages. One such disadvantage is that these concepts can vary from one language or culture to another. Another problem is that certain lexicalized concepts may carry nuances that are either meliorative or pejorative, with degrees of these nuances that are difficult to appreciate. Finally, according to semiotic analysis,[2] certain concepts are considered marked in relation to unmarked concepts, with the unmarked concepts conferring a kind of precedence or pre-eminence.

In my view, these disadvantages arise from the traditional focus on lexicalized concepts. The methodology implemented in the present study diverges from this approach. Here, concepts are constructed in an abstract manner, without consideration of whether they are lexicalized. Once these concepts are constructed, it can be verified whether some correspond to lexicalized concepts, while others do not align with any existing words in common language. This methodology, I believe, avoids the aforementioned disadvantages.

Finally, the construction described below will propose a taxonomy of concepts that serves as an alternative to the one based on the semiotic square proposed by Greimas.

1. Dualities

Let us consider the class of dualities, which consists of concepts corresponding to the intuition that these concepts:
(i) are distinct from one another;
(ii) are minimal or irreducible, i.e., cannot be reduced to simpler semantic elements;
(iii) present themselves in the form of pairs of dual concepts or contraries;
(iv) are predicates.
Each of the concepts composing a given duality will be termed a *pole*. I present here a list which is not exhaustive and may be supplemented if necessary. Consider the following enumeration of *dualities*:[3]

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[1] Or *polar contraries*.
[2] Cf. Jakobson (1983).
[3] Similarly, it would have been possible to define a more restricted class, including only half of the semantic poles, by retaining only one of the two dual predicates and constructing the others using the *contrary* relation. However, choosing either of the dual poles would have been arbitrary, and I preferred to avoid this. The following construction would have then resulted. Let Contrary be a semantic pole, and let α be any semantic pole, not necessarily distinct from Contrary. The concept resulting from the composition of Contrary and α is a *semantic pole*. It should also be noted that this type of construction would have led to:

Contrary ° Contrary = Identical.
Contrary ° Identical = Contrary.
Contrary^n = Identical (for *n* even).
Contrary^n = Contrary (for *n* odd).

In this context, it is worth noting that Contrary constitutes a specific case. If one seeks to build a minimal class of *canonical poles*, it is notable that Identical can be dispensed with, whereas Contrary cannot. This reveals an asymmetry. Specifically, Identical can be constructed using Contrary through the property of *involution*: Contrary ° Contrary = Identical. For other dualities, either of the concerned semantic poles can be chosen indifferently.

Analytic/Synthetic, Animate/Inanimate, Exceptional/Normal, Antecedent/Consequent, Existent/Inexistent, Absolute/Relative, Abstract/Concrete, Accessory/Principal, Active/Passive, Aleatory/Certain, Discrete/Continuous, Deterministic/Indeterministic, Positive/Negative, True/False, Total/Partial, Neutral/Polarized, Static/Dynamic, Unique/Multiple, Container/Contained, Innate/Acquired (Nature/Nurture), Beautiful/Ugly, Good/Evil, Temporal/Atemporal, Extended/Restricted, Precise/Vague, Finite/Infinite, Simple/Complex, Attracted/Repulsed, Equal/Different, Identical/Opposite, Superior/Inferior, Internal/External, Individual/Collective, Quantitative/Qualitative, Implicit/Explicit...[4]

At this step, it should be observed that certain poles present nuances that are either meliorative (*beautiful*, *good*, *true*), pejorative (*ugly*, *ill*, *false*), or simply neutral (*temporal*, *implicit*).

Let us denote by A/Ā a given duality. When words from common language are used to denote the duality, capital letters will be employed to distinguish the specific philosophical concepts discussed here from their ordinary counterparts. For example, the dualities Abstract/Concrete and True/False.

Lastly, it should be noted that several questions[5] immediately arise with regard to dualities: (i) Do dualities exist in a finite or infinite number? (ii) Is there a logical construction that allows for the enumeration of dualities?

2. Canonical poles

Starting from the class of *dualities*, we are now in a position to construct the class of *canonical poles*. Initially, the lexicalized concepts corresponding to each pole of a duality reveal a nuance[6] that is either meliorative, neutral, or pejorative. The class of canonical poles aligns with the intuition that, for each pole α of a given duality A/Ā, one can construct three concepts: a positive, a neutral, and a negative concept. Consequently, for a given duality A/Ā, one constructs six concepts, thus constituting the class of canonical poles. Intuitively, *positive canonical poles* correspond to the positive, meliorative form of α; *neutral canonical poles* correspond to the neutral, i.e., neither meliorative nor pejorative form of α; and *negative canonical poles* correspond to the negative, pejorative form of α. It should be noted that these six concepts are exclusively constructed using logical concepts. The only notion that escapes logical definition at this step is that of duality or base.

For a given duality A/Ā, we have thus the following canonical poles: $\{A^+, A^0, A^-, \bar{A}^+, \bar{A}^0, \bar{A}^-\}$, that we can also denote respectively by (A/Ā, 1, 1), (A/Ā, 1, 0), (A/Ā, 1, -1), (A/Ā, -1, 1), (A/Ā, -1, 0), (A/Ā, -1, -1).

A capital letter for the first letter of a *canonical pole* will be used to distinguish it from the corresponding lexicalized concept. If one wishes to refer accurately to a canonical pole when the usual language lacks such a concept or appears ambiguous, one can choose a lexicalized concept and add an exponent corresponding to the chosen neutral or polarized state. To highlight that one refers explicitly to a canonical pole – positive, neutral, or negative – the notations A^+, A^0, and A^- will be used. For example, we have the concepts Unite^+, Unite^0, Unite^-, etc., where Unite^+ = Solid, Undivided, Coherent, and Unite^- = Monolithic^-. Similarly, Rational^0 designates the neutral concept corresponding to the term 'rational' in common language, which has a slightly positive nuance. In the same way, Irrational^0 designates the corresponding neutral state, whereas the common word 'irrational' has a pejorative nuance. The same method will be applied when the corresponding lexicalized word proves ambiguous. A distinctive feature of this construction is that it begins by constructing the concepts logically and then aligns them with the concepts of common language, insofar as these latter do exist.

The constituents of a *canonical pole* are:
- a *duality* (or *base*) A/Ā
- a *contrary component* $c \in \{-1, 1\}$
- a *canonical polarity* $p \in \{-1, 0, 1\}$

A *canonical pole* presents the form: (A/Ā, *c*, *p*).

Furthermore, it is worth distinguishing, at the level of each duality A/Ā, the following derived classes:
- the *positive canonical poles*: A^+, $\bar{A}^+$

[4] It should be noted that one could have distinguished here between *unary* and *binary* poles, considering them as predicates. However, a priori, such a distinction does not prove very useful for the continuation of the construction.

[5] In what follows, questions related to the different classes are only mentioned. It goes without saying that they require an in-depth treatment that extends well beyond the scope of the present study.

[6] With varying degrees of nuance.

- the *neutral canonical poles*: A^0, $\bar{A}^0$
- the *negative canonical poles*: A^-, $\bar{A}^-$
- the *canonical matrix* consisting of the 6 canonical poles: $\{A^+, A^0, A^-, \bar{A}^+, \bar{A}^0, \bar{A}^-\}$. The six concepts constituting the canonical matrix can also be represented as a 3 x 2 matrix.

Let also α be a canonical pole, one will denote by $\sim\alpha$ its *complement*, semantically corresponding to *non*-α. We have thus the following complements: $\sim A^+$, $\sim A^0$, $\sim A^-$, $\sim\bar{A}^+$, $\sim\bar{A}^0$, $\sim\bar{A}^-$. The notion of a complement entails the definition of a universe of reference U. Our concern will be thus with the complement of a given canonical pole in regard to the corresponding matrix[7]. It follows then that: $\sim A^+ = \{A^0, A^-, \bar{A}^+, \bar{A}^0, \bar{A}^-\}$. And a definition of comparable nature for the complements of the other concepts of the matrix ensues.

It should be noted lastly that the following questions arise regarding canonical poles. The construction of the matrix of the canonical poles of the Positive/Negative duality: {Positive$^+$, Positive^0, Positive$^-$, Negative$^+$, Negative^0, Negative$^-$} ensues. However, do such concepts as Positive^0, Negative^0 and especially Positive$^-$, Negative$^+$ exist (i) without contradiction?

Similarly, at the level of the Neutral/Polarized duality, the construction of the matrix {Neutral$^+$, Neutral^0, Neutral$^-$, Polarized$^+$, Polarized^0, Polarized$^-$} ensues. But do Neutral$^+$, Neutral$^-$ exist (ii) without contradiction? Likewise, does Polarized^0 exist without contradiction?

This leads to the general question: does any neutral canonical pole admit (iii) without contradiction a corresponding positive and negative concept? Is there a general rule for all dualities or does each duality have specific cases?

3. Relations between the canonical poles

Among the combinations of relations existing between the 6 canonical poles (A^+, A^0, A^-, $\bar{A}^+$, $\bar{A}^0$, $\bar{A}^-$) of a given duality A/Ā, the following relations are particularly noteworthy (in addition to the *identity* relation, denoted by I).

Two canonical poles $\alpha_1(A/\bar{A}, c_1, p_1)$ and $\alpha_2(A/\bar{A}, c_2, p_2)$ of a given duality are dual or *antinomical* or opposites if their contrary components are opposite and their polarities are opposite[8].

Two canonical poles $\alpha_1(A/\bar{A}, c_1, p_1)$ and $\alpha_2(A/\bar{A}, c_2, p_2)$ of a given duality are *complementary* if their contrary components are opposite and their polarities are equal[9].

Two canonical poles α_1 $(A/\bar{A}, c_1, p_1)$ et $\alpha_2(A/\bar{A}, c_2, p_2)$ of a given duality are *corollary* if their contrary components are equal and their polarities are opposite[10].

Two canonical poles α_1 $(A/\bar{A}, c_1, p_1)$ and $\alpha_2(A/\bar{A}, c_2, p_2)$ of a given duality are *connex* if their contrary components are equal and the absolute value of the difference in their polarities is equal to 1 [11].

Two canonical poles α_1 $(A/\bar{A}, c_1, p_1)$ and $\alpha_2(A/\bar{A}, c_2, p_2)$ of a given duality are *anti-connex* if their contrary components are opposite and the absolute value of the difference in their polarities is equal to 1.[12]

7 When defined with regard to a dual pair, the complement of the pole α of a given duality identifies itself with the corresponding dual pole.

8 Formally $c_1 = -c_2, p_1 = -p_2 \rightarrow \alpha_1(A/\bar{A}, c_1, p_1) = \neg\alpha_2(A/\bar{A}, c_2, p_2)$.

9 Formally $c_1 = -c_2, p_1 = p_2 \rightarrow \alpha_1(A/\bar{A}, c_1, p_1) = \phi\alpha_2(A/\bar{A}, c_2, p_2)$.

10 Formally $c_1 = c_2, p_1 = -p_2 \rightarrow \alpha_1(A/\bar{A}, c_1, p_1) = \chi\alpha_2(A/\bar{A}, c_2, p_2)$.

11 Formally $c_1 = c_2, |p_1 - p_2| = 1 \rightarrow \alpha_1(A/\bar{A}, c_1, p_1) = \gamma\alpha_2(A/\bar{A}, c_2, p_2)$.

12 Formally $c_1 = -c_2, |p_1 - p_2| = 1 \rightarrow \alpha_1(A/\bar{A}, c_1, p_1) = \beta\alpha_2(A/\bar{A}, c_2, p_2)$. We then have the following properties with respect to the aforementioned relations. The relation of identity constitutes a relation of equivalence. Antinomy, complementarity and corollarity are symmetrical, anti-reflexive, non-associative, and involutive.

The operation of composition on the relations {*identity*, *corollarity*, *antinomy*, *complementarity*} defines an *abelian group* of order 4. With $G = \{I, \chi, \neg, \varphi\}$ (Figure 1):

∘	I	χ	¬	φ
I	I	χ	¬	φ
χ	χ	I	φ	¬
¬	¬	φ	I	χ
φ	φ	¬	χ	I

The following questions arise concerning the relations between the canonical poles.

(i) First, does there exist one or several canonical poles that are their own opposites? A priori, this is not possible without contradiction for a positive pole or a negative pole. However, the question remains open for a neutral pole.

(ii) Similarly, does there exist one or several canonical poles that are their own complementaries? Two further questions then arise: Does there exist a positive canonical pole that is its own complementary? Additionally, does there exist a negative canonical pole that is its own complementary?

Questions (i) and (ii) can be formulated in a more general way. Let R be a relation such that R $\in$ {I, χ, $\neg$, φ, γ, β}.

(iii) Does there exist one or several canonical poles α verifying $\alpha = R\alpha$?

4. Degrees of duality

One constructs the class of *degrees of duality*, from the intuition that there is a *continuous* succession of concepts from A^+ to $\bar{A}^-$, from A^0 to $\bar{A}^0$ and from A^- to $\bar{A}^+$. The continuous component of a *degree of duality* corresponds to a *degree* in the corresponding dual pair. The approach by degree is underpinned by the intuition that there is a continuous and regular succession of degrees, from a *canonical pole* A^p to its contrary $\bar{A}^{-p}$.[13] Therefore, one is led to distinguish 3 classes of *degrees of duality*: (i) from A^+ to $\bar{A}^-$ (ii) from A^0 to $\bar{A}^0$ (iii) from A^- to $\bar{A}^+$.

A *degree of duality* presents the following components:

- a *dual pair* $A^p/\bar{A}^{-p}$ (corresponding to one of the 3 cases: $A^+/\bar{A}^-$, $A^0/\bar{A}^0$ or $A^-/\bar{A}^+$)
- a *degree* $d \in [-1; 1]$ in this *duality*

A degree of duality α has thus the form: $\alpha(A^+/\bar{A}^-, d)$, $\alpha(A^0/\bar{A}^0, d)$ or $\alpha(A^-/\bar{A}^+, d)$.

On the other hand, let us define a *neutral point* a concept pertaining to the class of *degrees of duality*, whose degree is equal to 0. Let us denote such a concept by α^0, which is thus of the form $(A^p/\bar{A}^{-p}, 0)$ with $d[\alpha^0] = 0$. Semantically, a neutral point α^0 corresponds to a concept that satisfies the following definition: *neither* A^p *nor* $\bar{A}^{-p}$. For example, (True/False, 0) corresponds to the definition: *neither True nor False*. Similarly, (Vague/Precise, 0) corresponds to the definition: *neither Vague nor Precise*. Lastly, when considering the Neutral/Polarized and Positive/Negative dualities, one has: Neutral^0 = (Negative^0/Positive^0, 0) = (Neutral^0/Polarized^0, 1).

It is worth noting that this construction does not imply that the neutral point thus constructed is the unique concept which corresponds to the definition *neither* A^p *nor* $\bar{A}^{-p}$. On the contrary, it will appear that several concepts, and even hierarchies of concepts, can correspond to this latter definition.

The following property of neutral points then ensues, for a given duality A/Ā: $\alpha(A^+/\bar{A}^-, 0) = \alpha(A^0/\bar{A}^0, 0) = \alpha(A^-/\bar{A}^+, 0)$.

At this point, it is worth also taking into account the following derived classes:

- a discrete and truncated class, constructed from the degrees of duality, including only those concepts whose degree of duality is such that $d \in \{-1, -0.5, 0, 0.5, 1\}$.
- the class of the degrees of complementarity, corollarity, and other related concepts. The class of the *degrees of duality* corresponds to the relation of *antinomy*. However, it is worth considering, in a general manner, as many classes as there are relations between the canonical poles of the same duality. This approach leads to as many classes of a comparable nature for the other relations, corresponding respectively to degrees of *complementarity*, *corollarity*, *connexity* and *anti-connexity*.

It is worth noting the following questions with regard to degrees of duality and neutral points.

(i) Does there exist one (or several) canonical pole which is its own neutral point? A priori, it is only possible for a neutral pole.

(ii) Does any duality A/Ā admit a neutral point or trichotomic zero? This question can be referred to as the *problem of the general trichotomy*. Is it a general rule[14] or are there exceptions? It seems a priori that the Abstract/Concrete duality does not admit a neutral point. The same appears to be true for the

[13] This construction of concepts can be regarded as an application of *degree theory*. Cf. in particular Fine (1975), Peacocke (1981). However, the present theory is not characterized by a preferential choice of degree theory but considers it simply as one of the methods for the construction of concepts.

[14] Some common trichotomies are: {*past*, *present*, *future*}, {*right*, *center*, *left*}, {*high*, *center*, *low*}, {*positive*, *neutral*, *negative*}.

Finite/Infinite or the Precise/Vague duality. Intuitively, these latter dualities do not admit an intermediate state.

(iii) Does the concept corresponding to the neutral point (Neutral^0/Polarized^0, 0) and responding to the definition: *neither neutral nor polarized* exist without contradiction in the present construction?

5. Relations between the canonical poles of a different duality: includers

It is also worth considering the relation of *includer* for the canonical poles. Consider the following pairs of dual canonical poles: A^+ and $\bar{A}^+$, A^0 and $\bar{A}^0$, A^- and $\bar{A}^-$. We have then the following definitions: a *positive includer*, α^+ is a concept such that it is itself a positive canonical pole and corresponds to the definition $\alpha^+ = A^+ \vee \bar{A}^+$. A *neutral includer*, α^0 is a neutral canonical pole such that $\alpha^0 = A^0 \vee \bar{A}^0$. A *negative includer*, α^- is a negative canonical pole such that $\alpha^- = A^- \vee \bar{A}^-$. Given these definitions, it is clear the includer is assimilated here to the minimum includer. Examples: Determinate^0 is an includer for True^0/False^0, and Determinate^0 is also a pole for the Determinate^0/Indeterminate^0 duality. Similarly, Polarized^0 is an includer for Positive^0/Negative^0.

More generally, one has the relation of n-includer ($n > 1$) when considering the hierarchy of (n + 1) matrices. Evidently, there is also the reciprocal relation of *includer* and n-includer.

Let us also consider the following derived classes:

- *matricial includers*: These consist of concepts that include the set of canonical poles of the same duality. They are defined as follows: $\alpha^0 = A^+ \vee A^0 \vee A^- \vee \bar{A}^+ \vee \bar{A}^0 \vee \bar{A}^-$.
- *mixed* includers: These consist of concepts defined as either $\alpha_1 = A^+ \vee \bar{A}^-$ or $\alpha_2 = A^- \vee \bar{A}^+$

It is also worth considering the *types of relations* existing between the canonical poles of different dualities. Let A and E be two matrices whose canonical poles are respectively $\{A^+, A^0, A^-, \bar{A}^+, \bar{A}^0, \bar{A}^-\}$ and $\{E^+, E^0, E^-, \bar{E}^+, \bar{E}^0, \bar{E}^-\}$, with E being an includer for A/Ā. This means that $E^+ = A^+ \vee \bar{A}^+$, $E^0 = A^0 \vee \bar{A}^0$ and $E^- = A^- \vee \bar{A}^-$. The relations defined between the canonical poles of the same matrix can then be extended to relations of a similar nature between two matrices that exhibit the properties of A and E. We then have the relations of 2-*antinomy*, 2-*complementarity*, 2-*corollarity*, 2-connexity, 2-*anti-connexity*[15]. For example, A^0 is 2-contrary (or trichotomic contrary) to $\bar{E}^0$, 2-connex (or trichotomic connex) to E^+ and E^- and 2-anti-connex (or trichotomic anti-connex) to $\bar{E}^+$ and $\bar{E}^-$. Similarly, A^+ and $\bar{A}^+$ are 2-contrary to $\bar{E}^-$, 2-complementary to $\bar{E}^+$, 2-corollary to E^-, 2-connex to E^0 and 2-anti-connex to $\bar{E}^0$, etc.

Let us also consider the following *property* of neutral points and includers. Let A and E be two matrices, such that one of the neutral poles of E is an includer for the neutral dual pair of A: $E^0 = A^0 \vee \bar{A}^0$. We then have the following property: the canonical pole $\bar{E}^0$ for the matrix E is a neutral point for the duality $A^0/\bar{A}^0$. Thus, the neutral point for the duality $A^0/\bar{A}^0$ is the dual of the includer E^0 of A^0 and $\bar{A}^0$. Example: Determinate^0 = True^0 $\vee$ False^0. Here, the neutral point for the True/False duality corresponds to the definition: *neither True nor False*. Thus, we have (True^0/False^0, 0) = (Determinate^0/Indeterminate^0, -1).

This property can be generalized to a hierarchy of matrices $A_1, A_2, A_3, ..., A_n$, such that one of the poles α_2 of A_2 of polarity p is an includer for a dual pair of A_1, and that one of the poles α_3 of A_3 is an includer for a dual pair of A_2, ..., such that one of the poles α_n of A_n is an includer for a dual pair of A_{n-1}. This leads to an infinite construction of concepts.

One also notes the emergence of a hierarchy, beyond the sole neutral point of a given duality. It consists of the hierarchy of neutral points of order n, constructed in the following way from the dual canonical poles A_0 and $\bar{A}_0$:

- A_0, $\bar{A}_0$
- A_1 = neither A_0 nor $\bar{A}_0$
- A_{21} = neither A_0 nor A_1
- A_{22} = neither $\bar{A}_0$ nor A_1
- A_{31} = neither A_0 nor A_{21}
- A_{32} = neither A_0 nor A_{22}
- A_{33} = neither A_0 nor A_{21}
- A_{34} = neither $\bar{A}_0$ nor A_{22}
- ...

[15] There is a straightforward generalization of this construction to n matrices ($n > 1$), incorporating the relations of n-antinomy, n-complementarity, n-corollarity, n-connexity, and n-anti-connexity.

One can also consider the emergence of this hierarchy under the following form[16]:

- A_0, $\bar{A}_0$
- A_1 = neither A_0 nor $\bar{A}_0$
- A_2 = neither A_0 nor $\bar{A}_0$ nor A_1
- A_3 = neither A_0 nor $\bar{A}_0$ nor A_1 nor A_2
- A_4 = neither A_0 nor $\bar{A}_0$ nor A_1 nor A_2 nor A_3
- A_5 = neither A_0 nor $\bar{A}_0$ nor A_1 nor A_2 nor A_3 nor A_4
- ...

Classically, one constructs this infinite hierarchy for True/False by considering I_1 (Indeterminate), I_2, etc. It should be noted that in this construction, no mention is made of the includer (Determinate) of True/False. Nor is there mention of the hierarchy of includers.

The notion of a *complement* of a canonical pole α corresponds semantically to *non*-α. One has the concept of a 2-complement of a canonical pole α, defined with regard to a universe of reference U that consists of the 2-matrix of α. Thus, for example, one has: $\sim A^+ = \{A^0, A^-, \bar{A}^+, \bar{A}^0, \bar{A}^-, \bar{E}^+, \bar{E}^0, \bar{E}^-\}$. Additionally, $\sim A^+ = \{\bar{A}^+, E^0, E^-, \bar{E}^+, \bar{E}^0, \bar{E}^-\}$, etc. More generally, one then has the notion of an *n*-complement ($n > 0$) of a canonical pole with regard to the corresponding *n*-matrix.

The following questions arise concerning includers:

(i) For certain concepts, does there exist a unique maximum includer, or do we have an infinite number of constructions for each duality? Regarding the True/False duality in particular, the analysis of semantic paradoxes has necessitated a logic based on an infinite number of truth-values[17].

(ii) Does any duality admit a neutral includer? Some dualities appear not to admit an includer; this is notably the case for the Abstract/Concrete or Finite/Infinite duality. Abstract seems to constitute a maximum element. While one can formally construct a concept that corresponds to *neither Abstract nor Concrete*, such a concept appears semantically challenging to justify.

(iii) Does there exist a canonical pole that is its own minimum includer?

(iv) Does there exist a canonical pole that is its own non-minimum includer? This problem can be reformulated equivalently as follows: at a given level, do we encounter a canonical pole that has already appeared elsewhere in the structure? This would imply a structure containing a loop. In particular, do we encounter one of the poles from the first duality?

6. Canonical principles

Let α be a *canonical pole*. Intuitively, the class of *canonical principles* corresponds to concepts defined as follows: *principles corresponding to what is* α. Examples include: Precise $\rightarrow$ Precision; Relative $\rightarrow$ Relativity; Temporal $\rightarrow$ Temporality. Canonical principles are 0-ary predicates, whereas canonical poles are *n*-ary predicates ($n > 0$). Lexicalized concepts corresponding to canonical principles often feature the suffix *-ity* (or *-itude*) added to the radical corresponding to a canonical pole. For instance: Relativity^0, Beauty$^+$, Activity^0, Passivity^0, Neutrality^0, Simplicity^0, Temporality^0, etc. Examples of canonical principles include:

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16 One can assimilate the two described hierarchies into a single hierarchy by proceeding with the following assimilation:

- $A_2 = A_{21}$ or A_{22}
- $A_3 = A_{31}$ or A_{32} or A_{33} or A_{34}
- $A_4 = A_{41}$ or A_{42} or A_{43} or A_{44} or A_{45} or A_{46} or A_{47} or A_{48}
- ...

17 *Infinite-valued logics*. Cf. Rescher (1969).

Analysis^0/Synthesis^0, [Animate^0]/[Inanimate^0], [Exceptional^0]/Normality^0, [Antecedent^0]/[Consequent^0], Existence^0/Inexistence^0, Absolute^0/Relativity^0, Abstraction^0/[Concrete], [Accessory^0]/[Principal^0], Activity^0/Passivity^0, [Random^0]/Certainty^0, [Discrete^0]/[Continuous^0], Determinism^0/Indeterminism^0, [Positive^0]/[Negative^0], Truth^0/Falsity^0, Attraction^0/Repulsion^0, Neutrality^0/Polarization^0, [Static^0]/Dynamic^0, Unicity^0/Multiplicity^0, Contenance^0/[Containing^0], Innate^0/Acquired^0, Beauty$^+$/Ugliness$^-$, Good$^+$/Evil$^-$, Identity^0/Contrary^0, Superiority^0/Inferiority^0, Extension^0/Restriction^0, Precision^0/Vagueness^0, Finitude^0/Infinitude^0, Simplicity^0/Complexity^0, [Internal^0]/[External^0], Equality^0/Difference^0, Whole^0/Part^0, Temporality^0/Atemporality^0, Individuality^0/Collectivity^0, Quantity^0/Quality^0, [Implicit^0]/[Explicit^0], ...

It should be noted that several canonical principles are not lexicalized. For clarity, we will denote a canonical principle as positive, neutral, or negative using the notations A^+, A^0, A^-, respectively. Alternatively, following the notation of α as a canonical pole, α-*ity* (or α-*itude*) represents a canonical principle. Hence, we may use notations such as Abstract^0-*ity*, Absolute^0-*ity*, Acessory^0-*ity*, etc., or as shown above [Abstract^0], [Absolute^0], etc.

The constituents of these canonical principles correspond to those of the class of canonical poles.

It is worth finally distinguishing the following derived classes:

- *positive canonical principles*
- *neutral canonical principles*
- *negative canonical principles*
- *polarized canonical principles*

with some obvious definitions[18].

7. Meta-principles

Let α^0 denote a neutral canonical principle[19]. The class of *meta-principles* corresponds to a disposition of the mind directed towards α^0, an interest in relation to α^0. Intuitively, a meta-principle represents a viewpoint, perspective, or orientation of the human mind. Thus, attraction to Abstraction^0, interest in Acquired^0, a propensity to adopt the viewpoint of Unity^0, etc. constitute *meta-principles*. It should be noted that this framework allows for the construction of concepts that are not lexicalized. This approach enhances comprehensiveness and contributes to a richer semantics.

Let α^0 be a neutral canonical principle. Let us also denote by $\alpha^{\psi p}$ a meta-principle ($p \in \{-1, 0, 1\}$). Specifically, $\alpha^{\psi+}$ denotes a *positive* meta-principle, $\alpha^{\psi 0}$ denotes a *neutral* meta-principle, and $\alpha^{\psi-}$ denotes a *negative* meta-principle. For a given duality, we enumerate the meta-principles as follows: $\{A^{\psi+}, A^{\psi 0}, A^{\psi-}, \bar{A}^{\psi+}, \bar{A}^{\psi 0}, \bar{A}^{\psi-}\}$. Moreover, we denote by α-*ism* a meta-principle. For example: Unite $\rightarrow$ Unite-ism. This framework encompasses Internalism, Externalism, Relativism, Absolutism, etc., which correspond particularly to dispositions of the mind. Capital letters distinguish meta-principles from lexicalized concepts and from corresponding philosophical doctrines, which often differ significantly in meaning. Classical terms may be used when available to designate corresponding meta-principles; for instance, All-*ism* corresponds to Holism.

One can designate *Ultra*-α-*ism* or *Hyper*-α-*ism* as the concept corresponding to $\alpha^{\psi-}$. This latter form denotes an exclusive, excessive, exaggerated use of the viewpoint corresponding to a given principle. For example, Externalism$^-$ = Hyper-externalism.

The constituents of the meta-principles are as follows:

- a *polarity* $p \in \{-1, 0, 1\}$
- a *neutral canonical principle* composed of:
    - a *duality* (or *base*) $A/\bar{A}$
    - a *contrary component* $c \in \{-1, 1\}$

18 Furthermore, it should be noted that other concepts can also be constructed in this manner. Let α be a canonical pole. We then have the classes of concepts responding to the following definition: *to render* α (Example: Unite $\rightarrow$ Unify; Different $\rightarrow$ Differentiate); the *action of rendering* α (Unite $\rightarrow$ Unification; Different $\rightarrow$ Differentiation); *that it is possible to render* α (Unite $\rightarrow$ Unitable; Different $\rightarrow$ Differentiable), etc. However, these concepts are not of interest in the present context.

19 It should be observed that we could alternatively have taken a canonical principle as the basis for defining the meta-principles, without distinguishing whether it is positive, neutral, or negative. However, it seems that such a definition would have engendered more complexity without providing genuine semantic value.

- a *neutral polarity* $q = 0$

The *positive*, *neutral*, *negative canonical meta-principles* respectively take the forms $\alpha((A/\bar{A}, c, 0), 1)$, $\alpha((A/\bar{A}, c, 0), 0)$, $\alpha((A/\bar{A}, c, 0), -1)$.

Among the canonical meta-principles of the same duality, the same relationships apply as for the canonical poles.

Lastly, there are derived classes consisting of:

- the *positive meta-principles* ($p > 0$)
- the *neutral meta-principles* ($p = 0$)
- the *negative meta-principles* ($p < 0$)
- the *polarized meta-principles* which include the *positive* and *negative meta-principles*
- the *matrix* of the canonical meta-principles, consisting of 6 meta-principles applicable to a given duality$\{A^{\psi+}, A^{\psi 0}, A^{\psi-}, \bar{A}^{\psi+}, \bar{A}^{\psi 0}, \bar{A}^{\psi-}\}$.
- the *degrees of canonical meta-principles*. Intuitively, such concepts exhibit varying degrees of positivity or negativity. Here, polarity is regarded here as a *degree of polarity*. These concepts are such that $p \in [-1; 1]$.
- the class of *behavioral principles*. The class of *behavioral principles* constitutes an extension of meta-principles, intuitively understood as dispositions of the human mind. Unlike meta-principles, which describe broad human tendencies, behavioral principles aim to delineate specific behavioral tendencies.[20]. Among the lexicalized concepts corresponding to *behavioral principles*, one can mention: *courage*, *prudence*, *pessimism*, *rationality*, *avarice*, *fidelity*, *tendency to analysis*, *instability*, *objectivity*, *pragmatism*, etc. A preliminary analysis reveals three categories among these concepts:

(i) concepts with a meliorative nuance, such as *courage*, *objectivity*, *pragmatism.*

(ii) concepts with a pejorative or unfavorable connotation, such as *cowardice*, *avarice*, *instability.*

(iii) concepts that neither inherently praise nor criticize, like *tendency to analysis*[21].

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20 This particular class, however, would require a much finer analysis than the one summarily presented here. I am only concerned here with showing that many concepts pertaining to this category can be the subject of a classification whose structure follows the meta-principles.

21 One can consider the following necessarily partial enumeration corresponding to the *behavioral principles*, in the order (A^+), (A^0), (A^-), $(\bar{A}^+)$, $(\bar{A}^0)$, $(\bar{A}^-)$:

firmness, propensity to repress, severity, leniency, propensity to forgive, laxism
defense, refusal, violence, pacifism, acceptance, weakness
pride, self-esteem, hyper-self-esteem, modesty, withdrawal of the ego, undervaluation of self
expansion, search of quantity, excess, perfectionism, search of quality, hyper-selectivity
delicacy, sensitivity, sentimentality, coolness, impassibility, coldness
objectivity, to be neutral being, impersonality, to be partisan, parti pris
uprightness, to act in a direct way, brusqueness, tact, to act in an indirect way, to flee the difficulties
combativeness, disposition to attack, aggressiveness, protection, disposition to defense, tendency to retreat
receptivity, belief, credulity, incredulity, doubt, excessive skepticism
expansion, oriented towards oneself, selfishness, altruism, oriented towards others, to render dependent
sense of economy, propensity to saving, avarice, generosity, propensity to expenditure, prodigality
mobility, tendency to displacement, instability, stability, tendency to stay at the same place, sedentariness
logical, rationality, hyper-materialism, imagination, irrationality, inconsistency
sense of humour, propensity to play, lightness, serious, propensity to the serious activity, hyper-serious
capacity of abstraction, disposition to the abstract, dogmatism, pragmatism, disposition to the concrete, prosaicness
audacity, tendency to risk, temerity, prudence, tendency to avoid the risks, cowardice
discretion, to keep for oneself, inhibition, opening, to make public, indiscretion
optimism, to apprehend the advantages, happy optimism, mistrust, to see the disadvantages, pessimism
sense of the collective, to act like the others, conformism, originality, to demarcate oneself from others, eccentricity
resolution, tendency to keep an opinion, pertinacity, flexibility of spirit, tendency to change opinion, fickleness
idealism, tendency to apprehend the objectives, quixotism, realism, tendency to apprehend the means, prosaicness
taste of freedom, to be freed, indiscipline, obedience, to subject oneself to a rule, servility
reflexion, interiorization, inhibition, sociability, exteriorisation, off-handednes
spontaneousness, tendency to react immediately, precipitation, calm, tendency to differ one's reaction, slowness
eclecticism, multidisciplinarity, dispersion, expertise, mono-disciplinarity, bulk-heading

Similar to meta-principles, behavioral principles can be categorized by their evaluative *degrees*. For instance *coward* is more negatively charged compared to *apprehensive*, while *bravery* holds a more positive connotation than mere *courage*.

Conclusion

The concepts formulated within the framework of the present theory must be distinguished in several respects from those generated through the application of the *semiotic square* as described by Greimas (1977, p. 25). The semiotic square posits four concepts: S1, S2, ~S1, ~S2. However, it primarily relies on two lexicalized concepts, S1 and S2, which form a dual pair. Notably, it does not differentiate these dual concepts as positive, neutral, or negative. In contrast, the present theory delineates six concepts, whether lexicalized or not.

Furthermore, the present analysis diverges from the semiotic square in its definition of complement-negation. While the semiotic square includes non-S1 and non-S2 as complement-negations, in our context, negation is defined relative to a reference universe U, which may be defined according to the corresponding matrix, or to the 2-matrix..., to the *n*-matrix. Each canonical pole thus establishes a hierarchy of concepts corresponding to non-S1 and non-S2.

Thus, the taxonomy of concepts presented here differs significantly from Greimas's conception. Derived from dualities and logical concepts, our theory offers the advantage of applying to both lexicalized and non-lexicalized concepts, and of transcending culturally-bound definitions of concepts. In this context, the classification described above provides an alternative to Greimas's semiotic square.

References

FINE, Kit (1975). Vagueness, Truth and Logic. *Synthese* 30: 265-300
GREIMAS, A. J. (1977). Elements of a Narrative Grammar, *Diacritics* 7: 23-40
JAKOBSON, Roman (1983). *Dialogues*, Cambridge MA: MIT Press
PEACOCKE, C. A. B. (1981). Are Vague Predicates Incoherent?. *Synthese* 46: 121-141
RESCHER, Nicholas (1969). *Many-Valued Logic*, New York: McGraw Hill

revival, propensity to change, rupture, safeguarding of the assets, propensity to maintenance, conservatism
motivation, passion, fanaticism, moderation, reason, tepidity
width of sights, tendency to synthesis, overflight, precision, tendency to analysis, to lose oneself in the details
availability, propensity to leisure, idleness, activity, propensity to work, overactivity
firmness, tendency not to yield, intransigence, diplomacy, tendency to make concessions, weakness
causticity, tendency to criticism, denigration, valorization, tendency to underline qualities, angelism
authority, propensity to command, authoritarianism, docility, propensity to obey, servility
love, tendency to be attracted, exaggerate affection, tendency to know to take one's distances, repulsion, hatred
conquest, greed, bulimia, sobriety, to have the minimum, denudement