

Title: DIALECTIC WHEELS AND CAUSAL NETWORKS FOR CONCEPT MAPPING,
DECISION MAKING, MORAL WISDOM GENERATION,
AND PERSONALITY IDENTIFICATION

CROSS-REFERENCE TO RELATED APPLICATION

N/A

FIELD OF THE INVENTION

[0001] The present invention relates generally to the concept-mapping and decision-making methods that can be used in analytical psychology, philosophy, Humanistic / Gestalt therapy, personal and scientific theory development, artificial intelligence, text and story generation, creation of artificial honesty and wisdom, computational ethics and morality.

BACKGROUND OF THE INVENTION

[0002] By way of background, the ability for people to determine if they are honest and truthful (to themselves) is the major prerequisite for a happy life. Often, people perceive a given problem or situation one-sidedly, struggling to see a big enough picture.

[0003] Understanding the causes of past failures and ways to a better future is perhaps the most important task of humanity. Often pragmatic thinking downplays the importance of moral wisdom. Yet, it can be restored through invoking proper attitudes and associations.

SUMMARY OF THE INVENTION

[0004] The subject matter disclosed and claimed herein, is a method configured to serve as a “decision-making wakeup call”, that expands people’s views through suggesting opposite opinions and the ways toward "win-win" situation. The method can be related to the ancient principles of Taoism and Aristotelean Golden Mean, as well as the modern concepts of complementarity in cognitive science. From philosophical perspective, the method suggests existence of the ‘Higher Truth’, as a “resonant synchronization” of opposing views

(thus augmenting various Theories of Truth). But from practical perspective, it requires lots of patience, thus calling for a proper visualization and automation.

[0005] The disclosed principles can be used for designing dialectical board games, computer games, mobile applications (e.g., wisdom generators, constructors of ‘deeper meanings’, strategies for fact-checking, decision-making, setting priorities, solving dilemmas, winning arguments, win-win deals, reconciling enemies), chat bots, text and story generators, building causal networks, visualizing inner values and beliefs, matching people, finding complementary products and services.

DRAWINGS

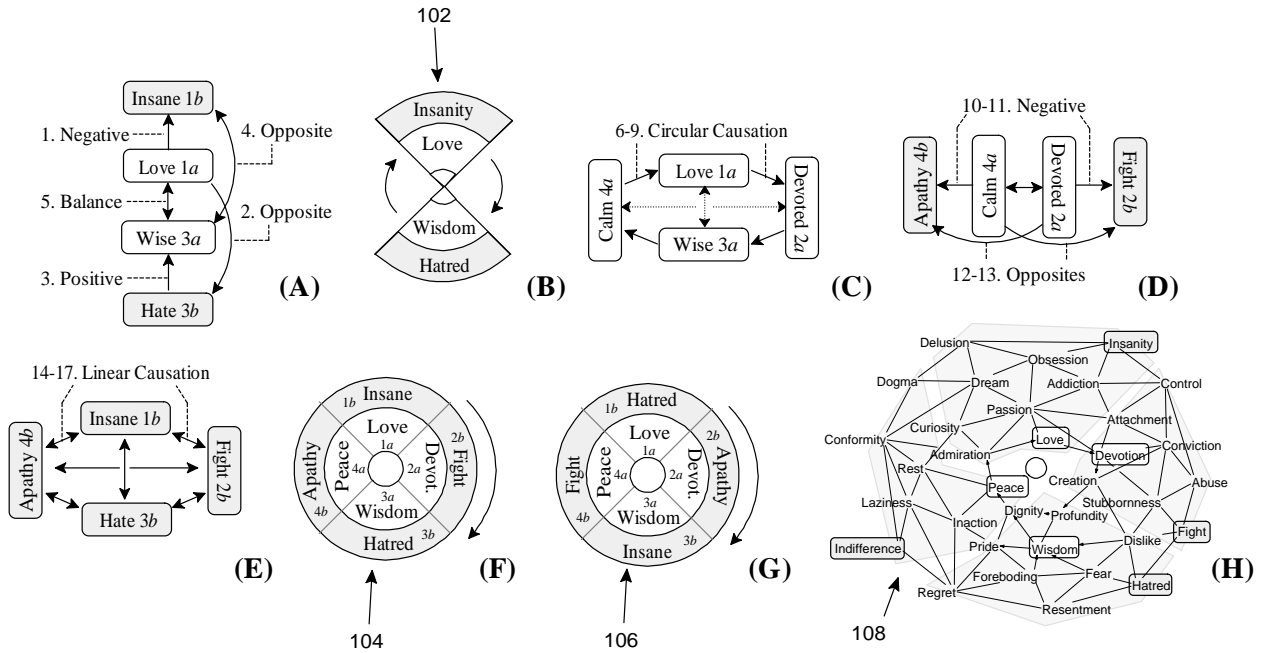


FIG. 1

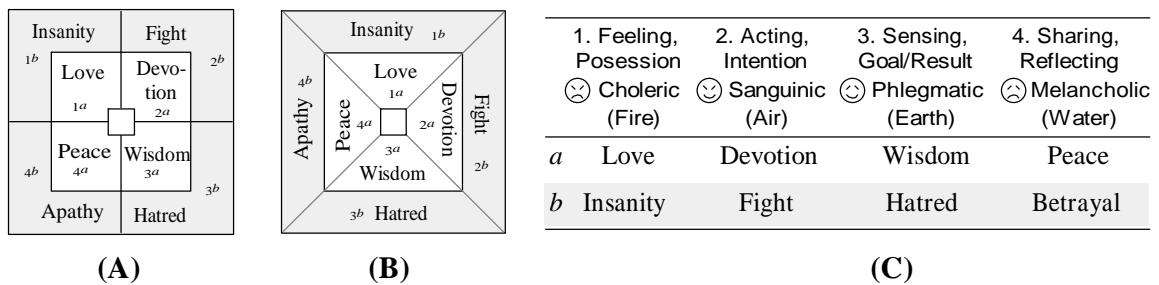


FIG. 2

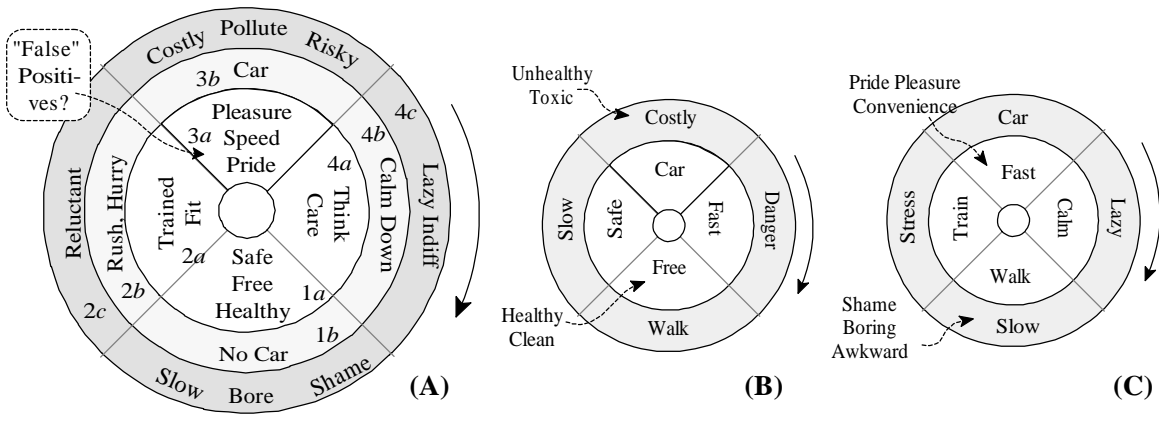


FIG. 3

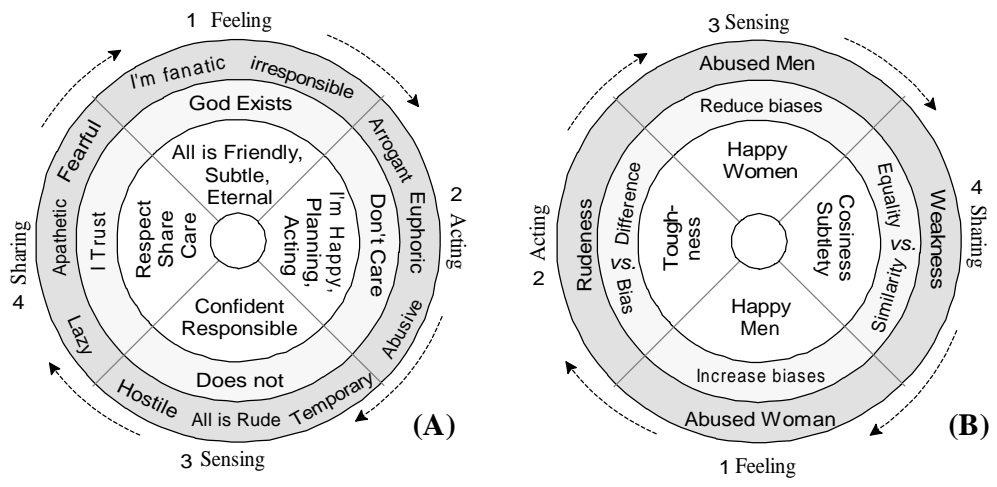


FIG. 4

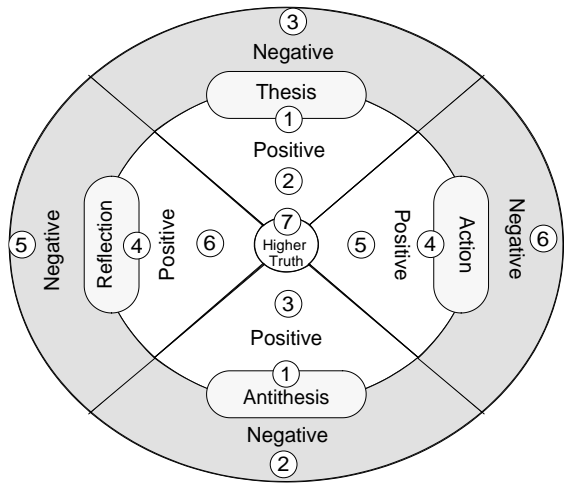


FIG. 5

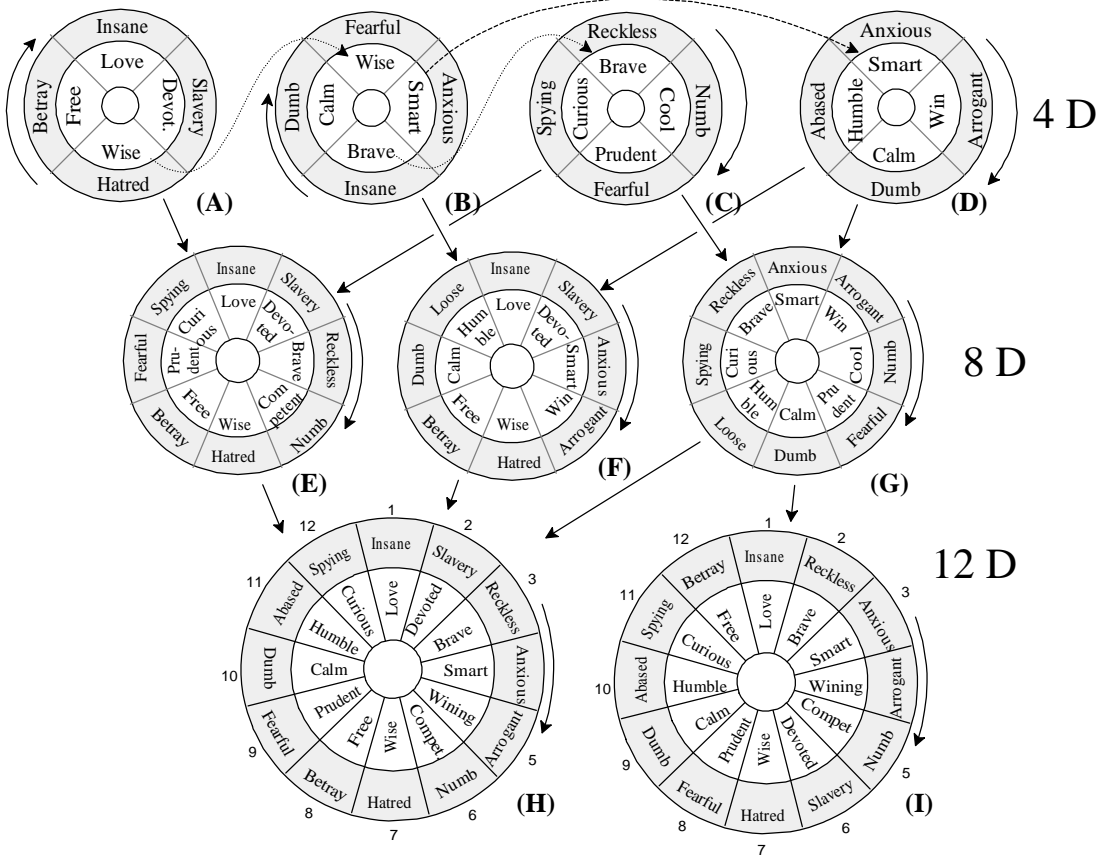


FIG. 6

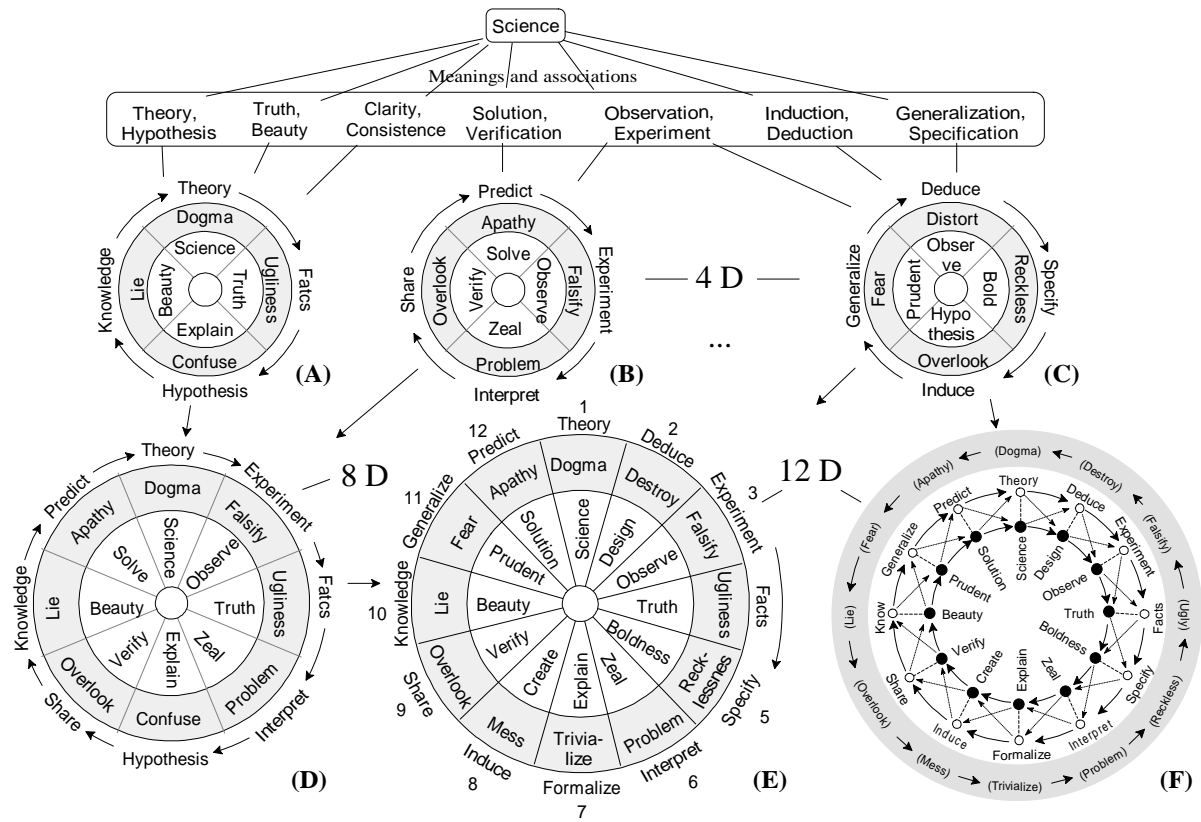


FIG. 7

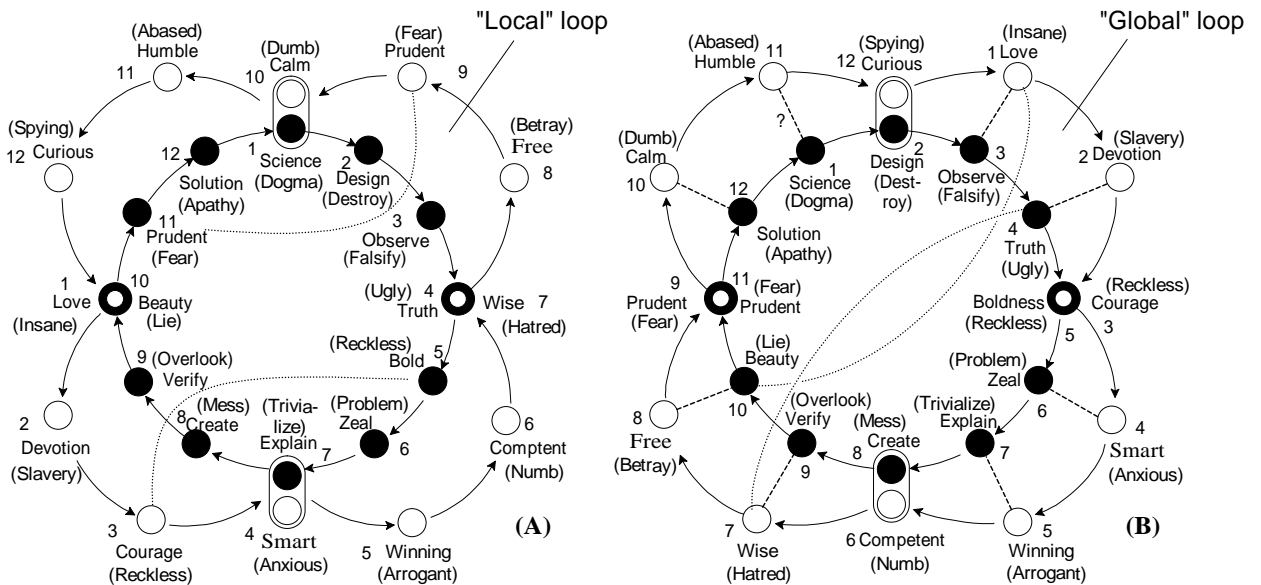


FIG. 8

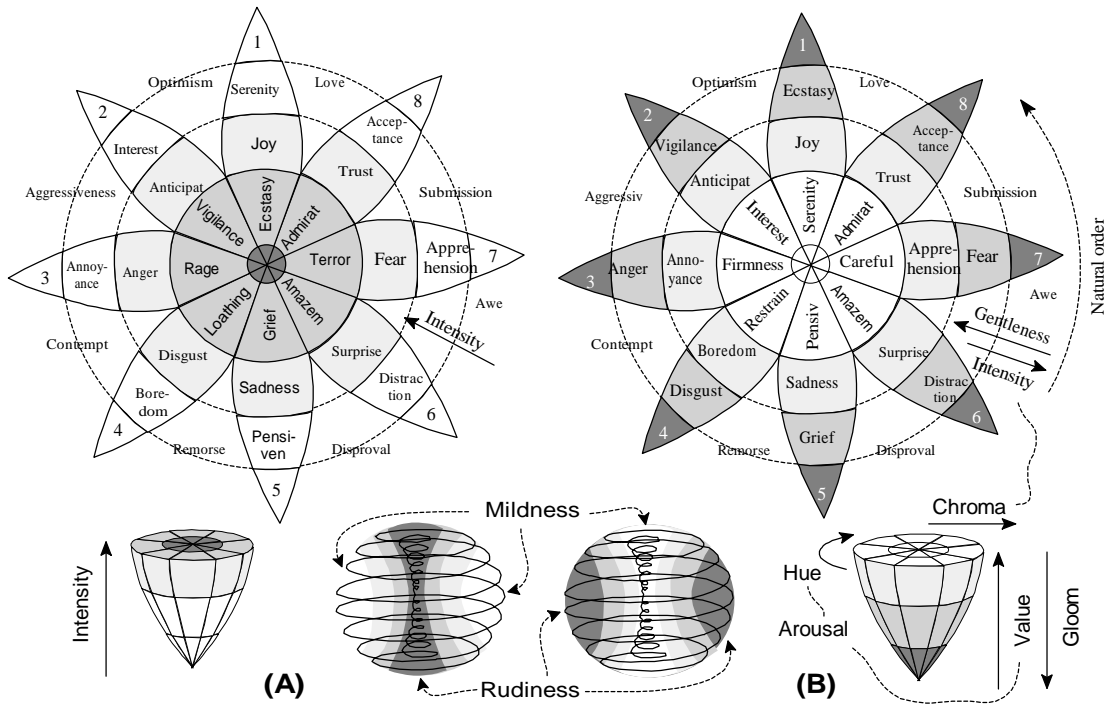


FIG. 9

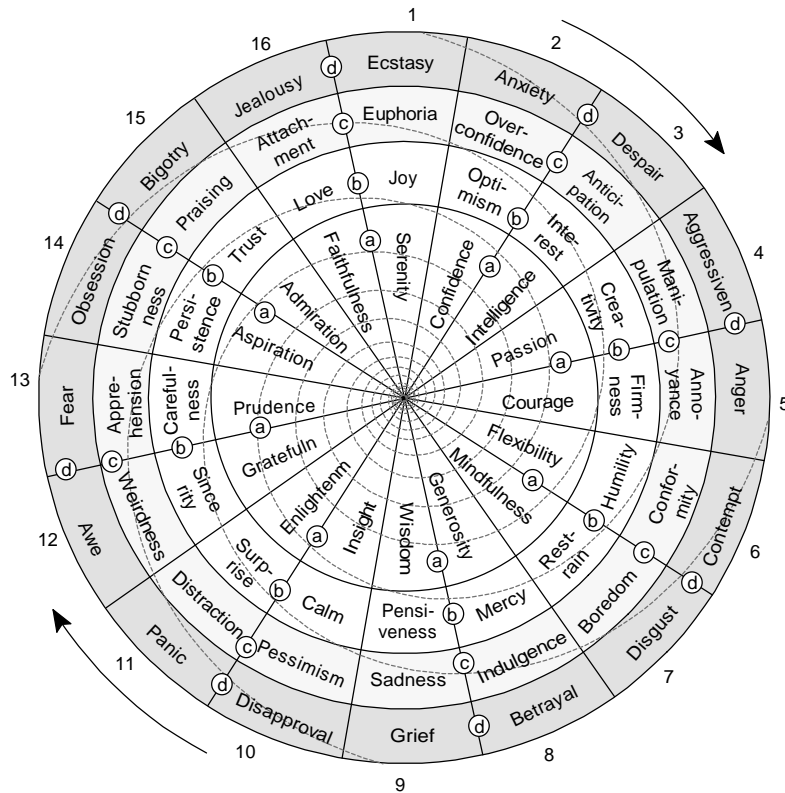


FIG. 10

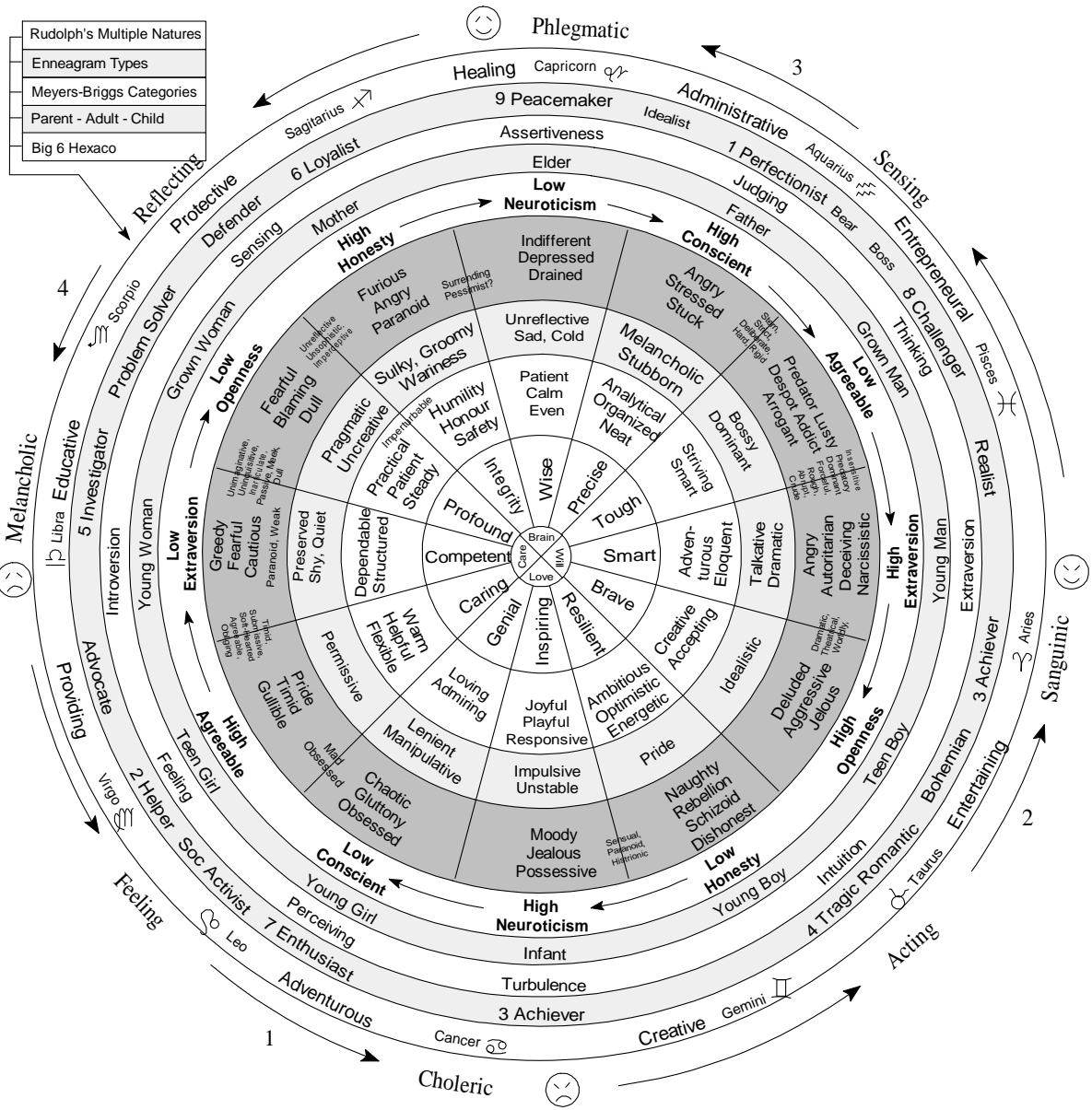


FIG. 11

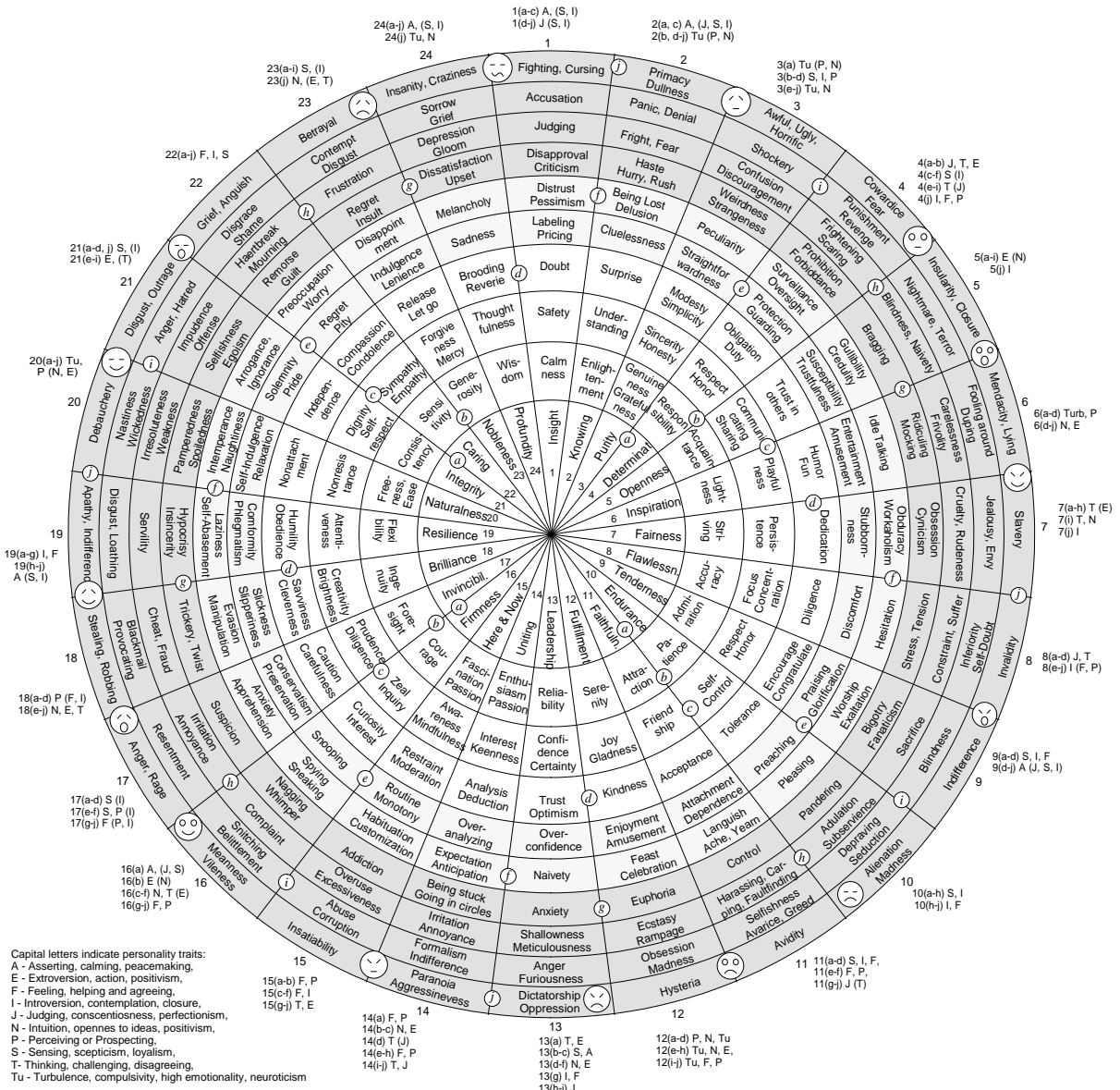


FIG. 12

- [0010] FIG. 4 illustrates analysis of phrases “God Exists” and “Feminism aims to correct biases”;
- [0011] FIG. 5 Illustrates the Story Building Game for decision-making, crowd-sourcing of theses and antitheses, and linking them to each other
- [0012] FIG. 6 illustrates construction of 2 x 12 wheel from a word Love
- [0013] FIG. 7 illustrates construction of 2 x 12 wheel from a word Science
- [0014] FIG. 8 illustrates 3-dimensional causal networks obtained by merging two 2 x 12 wheels from FIGs 5 (H) and 6 (E);
- [0015] FIG. 9 illustrates Plutchik Wheel representing the inverted vortex (A) and an inverted wheel representing the realistic vortex (B);
- [0016] FIG. 10 illustrates expansion of the Inverted Plutchik Wheel;
- [0017] FIG. 11 illustrates a 4 x 12 wheel of characters obtained by merging smaller wheels of various personality models;
- [0018] FIG. 12 illustrates a 10 x 24 wheel of affective words, where each word is related to the character trait(s);
- [0019] FIG. 13 illustrates relations of words to character traits and personality types.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

[0020] The innovation is now described with reference to the drawings, wherein like reference numerals are used to refer to like elements throughout. In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding thereof. It may be evident, however, that the innovation can be practiced without these specific details. In other instances, well-known structures and devices are shown in block diagram form in order to facilitate a description thereof. Various embodiments are discussed hereinafter. It should be noted that the figures are described only to facilitate the description of the embodiments. They are not intended as an exhaustive description of the invention and do not limit the scope of the invention. Additionally, an illustrated embodiment need not have all the aspects or advantages shown. Thus, in other embodiments, any of the features described herein from different embodiments may be combined.

[0021] A given word or thesis is provided with its opposition or antithesis. Both the word and the opposition are provided with their positive and negative sides (“under- and over-developments”). Positive sides of thesis and antithesis can be united by a certain action or condition, that invokes a counter-action or “reverse condition”. Both of these have their own positive and negative sides. As a result, we obtain a concentric causal network (a “dialectic wheel”), where all positive statements can unite into something new in the center of the wheel. If all positive sides are complimentary to each other, so that they naturally unite into some perpetual state (commensurate with practically useful Eternal Truth), then a person’s understanding of a given word or thesis is balanced and correct. Otherwise, the understanding is partial, biased, or false. The method of determining the understanding has many practical applications that are overviewed below.

[0022] FIG. 1 illustrates exemplary steps for generation of the dialectic wheel for an exemplary word “Love” using the method of the present invention in accordance with the disclosed architecture. Steps 1-3 in scheme (A) indicate generation of “negative” and “positive” sides of the given word “Love” (1a) and its opposition “Hatred” (3b). More specifically, Step 1 generates “negative” side 1b and step 2 generates “opposite” side 3b. It should be appreciated that there may be many different oppositions: Hatred, Resentment, Fear, and more, wherein each opposition would imply an independent dialectic wheel. All such wheels can be united into a larger single network that models specific types of thinking, while still producing “higher common sense” (as will be shown below). Step 3 generates positive of opposite side 3b. Steps 4 and 5 verify consistency of the results: 1b and 3b must be opposite to each other, whereas 1a and 3a must be mutually beneficial (“complimentary”). Ordering of the steps provided in scheme (A) are exemplary and steps can be performed in any given order. For example, scheme (A) can be started with step 2, then, continue with steps 3 and 5, and finished with steps 4 and 1.

[0023] Scheme (B) illustrates the obtained half-wheel 102 that can be used for generating the exemplary statements such as “Love (1a) is complimentary to Wisdom (3a). Love (1a) without Wisdom (3a) yields Insanity (1b). Wisdom (3a) without Love (1a) yields Hatred (3b). Insanity (1b) is Love (1a) without Wisdom (3a)” and more. Such sayings are generalized later in the disclosure.

[0024] Schema (C) is configured to construct the circular causation that can be either directed (follow strict order of transformations) or undirected (indifferent to the order of transformations). Using the circular causation, Calm 4a and Devoted 2a are included in the formation of the wheel. Schema (D) is similar to schema (A) but deals with “orthogonal” pair of oppositions. Apathy 4b is opposite of Devoted 2a and Fight 2b is opposite of Calm 4a.

[0025] Schema (E) is similar to Schema (C) but deals with “scalar” (linear) causation that is indifferent to the order of transformations. Scheme (F) shows the obtained wheel 104 for the exemplary word “Love” and Schema (G) has switched positions of negative sides (1b switched with 3b, 2b with 4b) in the updated wheel 106. The Schema (G) is useful for designing new concept mapping axes and hypotheses. Schema (H) shows an example of the semantic causality graph 108 (a kind of semantic similarity network) that could facilitate the method’s automation of the present invention. It can be obtained for any word by generalizing all types of its dialectic wheels.

[0026] FIG. 2 illustrates the square and tabular representation of the obtained wheel in FIG. 1. Here all steps are correlated with classic temperaments and elements. In accordance with the present invention, all wheels go through a set of quality control procedures that determine validity of the wheels.

[0027] Dialectic wheels may be constructed in different ways, depending on the starting thesis, available knowledge or purpose. For instance, when the starting thesis is clearly negative (like Hatred, War, Problem and more), then positive antipode (Acceptance, Peace, Solution and more) is looked for. When the starting thesis is neutral (like Car, Water, Science and more), then, both positive and negative sides for itself and oppositions (as illustrated in FIGs 3 and 4) are determined. If words or theses like 3a are known beforehand (for example, from proverbs or famous quotes), then, words or thesis for circular causation like 2a and 4a connections are determined. When seeking the deeper philosophical meaning (e.g., in analytical philosophy and Humanistic therapy), two or more wheels with similar theses in positions 1a or 3a may be combined, yielding new wheels (in which Love may be complimentary to Courage, Confidence, Prudence, Truth, etc.). When designing new scientific scales and hypotheses, the wheel’s structure may be changed, as shown in Schema (G) in FIG. 1. Each segment defines a new scale and all scales are orthogonal to each other, expanding a starting thesis to a 4-dimensional space. When systemizing complex knowledge,

detailed wheels with more segments and layers are formed as shown in Figs 6 - 12. Such detailed wheels can be viewed as special kinds of periodic systems of knowledge, useful for indexing or tagging independent information. Sometimes a substantial part of the wheel can be gathered from the existing wise sayings (proverbs and quotes), independent observation or scientific literature. For example, many ancient philosophies used four archetypal classic elements to explain patterns in nature. These elements correspond to certain steps of dialectic wheels (see FIG. 2, B), whereas most of natural patterns are cyclic (see FIG. 2, A). So, they can easily be presented as dialectic wheels. In psychology, various circumplex models suggest new types of wheels (Plutchik, Conte, 1997). For example, Plutchik’s wheel (FIG. 9, A) can be converted into a dialectic wheel (FIG. 9, B). The tabular representation is represented in FIG.2, C.

[0028] Basic Quality Control - A valid wheel must pass a number of “quality control” checkups that are summarized in Table 1.

Table 1. Relations between cells in FIG. 1(F)

Cell	1a	2a	3a	4a	1b	2b	3b	4b
Cause of	2a	3a	4a	1a	2b	3b	4b	1b
Effect of	4a	1a	2a	3a	4b	1b	2b	3b
Complimentary to	3a	4a	1a	2a	3b	4b	1b	2b
Opposite of	3b	4b	1b	2b	3a	4a	1a	2a
Negative side of	-	-	-	-	1a	2a	3a	4a
Positive side of	1b	2b	3b	4b	-	-	-	-

[0029] For example, positive side of thesis (1a) must be opposite to negative side of antithesis (3b), and *vice versa*. Both positive sides of thesis and antithesis (1a and 3a, as well as 2a and 4a) must be complimentary to each other (Complementarity implies mutual enhancement, yielding more subtle forms of existence)

[0030] Overall, each row of Table 1 includes eight cells and each cell of a row is logically related to five of other seven cells. For satisfying the relations among cells, broader generalizations can be used. For example, Insanity (1b) may be replaced with Ignorance, the direct opposition of Wisdom (3a). Hatred and Resentment (3b) can be replaced with Self-

righteousness, the “negative side” of Wisdom (3a). Many broader generalizations can be used in the present invention.

[0031] Table 1 corresponds to the wheel in FIG 1(F). If the wheel’s structure is changed (like in FIG. 1 (G) or Figs. 4-11), then the respective changes must also be reflected in Table 1 as well. (For example, if the wheel has N segments, then the X-th segment will be compatible to / opposite of the $(X+N/2)$ -th segment. If it has 3 layers, then letter b should be replaced with c.)

[0032] **The 5th Element Test:** All positive sides (1a – 4a) of the wheel (both in FIG 1 (F) & (G)) must “stick together” into a naturally evolving system (the “5th element”). When all positive sides are simultaneously and perpetually together, without a constant special effort, such a wheel brings true wisdom. In case if positive sides do not “stick” together, then, our decisions (goals and understandings) are either partial or false.

[0033] The “5th element” effect can be related to a number of well-known phenomena, such as: (i) the synchronicity of Jung and Pauli, as a “meaningful connection between phenomena beyond causal relations” (Kerr, 2013); (ii) synchronization of oscillators, where all elements are related to each other not just circularly, but also diagonally (Strogatz, 2003; O’Keefe et al, 2017); (iii) hologram, where each point of an image reflects the whole image; (iv) homeostasis, where all constituents form a self-regulating system that optimally reacts to any outer changes, (v) the effect of “mind over matter” and placebo, when the right words at the right time can turn the loser into a winner, and the patient into a healthy person.

[0034] To pass “5th element” test, all positive sides (1a – 4a) must be equally dissimilar (orthogonal), yet complimentary to each other. Love, Devotion or Fidelity, Wisdom and Peace or Freedom all satisfy this condition, as the resulting wise saying is meaningful enough: “Love encompasses Fidelity, Wisdom and Freedom. Otherwise, Love becomes Insanity”.

[0035] The respective negative sides – Insanity, Fanaticism, Resentment, Indifference may not stick together, as Fanaticism and Resentment contradict Indifference.

[0036] (In case of multi-segmented wheels, like in FIGs 6 – 12, the 5th element test requires that all positive words and theses form a natural causality pattern, yielding a self-regulating mechanism. Often, if not always, this pattern is opposite to the causal pattern of negative words and theses.)

[0037] Usability Test. The final test is seeing if the obtained wheel yields useful enough advice. Table 3 exemplifies generalized statements that can be gathered from any valid wheel.

Table 2. Generalized statements, where X denotes segment's number

No	<i>a</i>	<i>b</i>
1	If you are in Xa, then seek (X+2) a	Xb is "healed" by (X+2) a
2	Xa without (X+2) a yields Xb	Xb is Xa without (X+2) a
3	Xa arises from (is complimentary to) (X+2) a	Xb arises from (is complimentary to) (X+2) b
4	Xa is complimentary with (X+2)a, only if (X+1)a is complimentary with (X+3)a	Xb is complimentary with (X+2)b, only if (X+1)b is complimentary with (X+3)b
5	Xa arises from (is complimentary to) (X+1) a and (X+3) a	Xb arises from (is complimentary to) (X+1) b and (X+3) b
6	(X+1) a and (X+3) a brings Xa	(X+1) b and (X+3) b brings Xb
7	Xa without (X+2) a yields Xb	Xb is Xa without (X+2) a
8	To get Xa, seek (X+1) a and (X+3) a	... avoid (X+1) b, (X+2) b, (X+3) b
9	Eternal Xa is (X+1) a, (X+2) a, (X+3) a	Xb is (X+1) b, (X+2) b, (X+3) b
10	Xa yields (X+1) a	Xb yields (X+2) b and (X+1) b or (X+3) b
11	Xa without (X+1) a yields (X+3) b	Xb is (X+1) a without (X+2) a
12	Xa without (X+3) a yields (X+1) b	Xb is (X+3) a without (X+2) a
13	To get Xa, seek (X+3) a	... avoid (X+3) b
14	If you are in Xa or Xb, then seek (X+3) a	... avoid (X+2) b and (X+3) b

[0038] For example, the first row of the 1st column (a) yields the following advice: "If you are in love, then seek wisdom. If you are devoted, then seek freedom and peace. If you are wise, then seek love. If you are free, then be devoted". The first row of the 2nd column (b) means the following: "Insanity is healed by wisdom. Fight is healed by peace. Hatred is healed by love. Apathy is healed by devotion". Table 3 provides examples of combined statements.

Table 3. Examples of combined statements

If you (are / feel):	Then Seek:	Avoid:
(1 <i>a, b</i>) Love, Passionate, Curious, Obsessed, Attached, Naive, Ignorant, etc	(2-3 <i>a</i>) Devotion, Persistence, Action, Creation, Wisdom, Profundity, Experience, etc	(3-4 <i>b</i>) Apathy, Sleepiness, Laziness, Conformity, etc.
(2 <i>a, b</i>) Devoted, Persistent, Act, Create, Improvise, Stubborn, Fight, Abuse	(3-4 <i>a</i>) Wisdom, Profundity, Experience, Peace, Calm, Dignity, Tranquility, Rest	(4-1 <i>b</i>) Obsession, Insanity, Egoism, Ignorance, Insanity
(3 <i>a, b</i>) Wise, Profound, Experienced, feel Hate, Fear, Resentment, Regret, Sickness	(4-1 <i>a</i>) Peace, Calm, Dignity, Tranquility, Love, Passion, Admiration	(1-2 <i>b</i>) Stubbornness, Fight, Abuse
(4 <i>a, b</i>) Peaceful, Calm, Inactive, Dogmatic, Submissive, Conservative, Lazy, Sleepy	(1-2 <i>a</i>) Love, Passion, Affection, Curiosity, Devotion, Persistence, Action, Creation	(2-3 <i>b</i>) Hate, Fear, Resentment, Regret

[0039] For example, if you are in Love (Passionate, Curious, etc.), then seek Devotion (Persistence, Action, etc.), while avoiding Apathy (Sleepiness, Laziness, etc.). More sophisticated statements can be obtained from the wheels of more sophisticated theses (like in FIG. 4, see Interpreting Abstract Theses). The accuracy of each statement can be further increased by exploiting the More Detailed Wheels (FIGs 6 – 12). Compared to the famous language models (like BERT, GPT-3, Wu Dao), these statements are more concise and wiser. While the former reflects the “linear logic of majority”, the present invention follows the “dialectic of the wise”.

[0040] “**Mixed**” **Wheels:** Different wheels containing similar theses in 1*a* or 3*a* position can be combined into the “mixed” wheels. All such wheels can be combined into just one causal network, which in turn can yield many smaller new wheels, as will be shown below. Consider Table 4, cases A – D.

Table 4. Combining interrelated wheels

1 – Feeling,	2 – Acting,	3 – Sensing,	4 – Sharing,
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		Possession	Intention	Goal/Result	Reflecting
		Choleric	Sanguinic	Phlegmat	Melanchol
A	a	Love / Passion	Devotion	Wisdom	Peace / Calm
	b	Insanity / Ignorance	Fight / Abuse	Resentment	Apathy / Laziness
B	a	Bravery	Active / Smart	Wise/ Careful	Calm, Analytical
	b	Foolhardiness	Fight / Abusing	Fearful	Procrastinating
C	a	Desire	Action	Satisfaction	Sharing
	b	Frustration	Abuse	Indifference	Overbearing
D	a	Humble	Loyal	Special	Deep
	b	Mediocre	Fanatic/Shallow	Arrogant	Fuzzy
A-D-1	a	Love	Smartness	Satisfaction	Depth
	b	Frustration	Fanatic/Shallow	Resentment	Procrastinating
A-D-2	a	Humility	Action	Wisdom	Peace
	b	Ignorance	Rash / Abuse	Arrogance	Overbearing

[0041] The interrelated wheels were obtained as shown in FIG. 1, and they pass the 5th element test as described earlier. Love (A-1a) yields Wisdom (A-3a and B-3a) that in turn yields Bravery (B-1a). In parallel, Love also yields Desire (C-1a), whereas Wisdom yields Humility (D-1a). Because of such interrelations, all of these wheels can be combined into many new wheels. Cases A-D-1 and A-D-2 provide just two examples.

[0042] Case A-D-1 suggests that “Love (A-1a) is Smartness (B-1a), Satisfaction (C- 1a) and Depth (D-1a). Love without Satisfaction (C-3a) brings Frustration (C-1b)”. And so on. Case A-D-2 yields: “Humility means Action, Wisdom, Peace. Humility without Wisdom yields Ignorance”.

[0043] Mixed wheels uncover the deeper relations between seemingly unrelated concepts (e.g., Truth ~ Acceptance ~ Beauty ~ Subtleness), that cab be useful in self-analysis and solving dilemmas. For example, am I in Love or Affection? Love brings Wisdom, Affection brings Resentment. Am I Wise or (potentially) Resented? Wisdom brings Bravery, Resentment brings Foolhardiness. Am I Brave or Foolhardy? Bravery brings Prudence, Foolhardiness – Fear or Conservativism. And so on. See Solving Dilemmas for a more fundamental approach.

[0044] Personal Development: Tables 2 – 4 yield countless advice for various situations (e.g., “To overcome Fear, be Active and Analytical”). Table 4 can be extended infinitely, covering all existing words and theses, and thus suggesting wise advice for all types of situations. Table 4 also helps identifying our inner state (e.g., Confidence vs. Overconfidence, Compassion vs. Being Pathetic, etc.), defeating linear thinking, finding the best explanations, solving dilemmas, changing attitudes and more (see below).

[0045] Invalid Wheels: Table 5 provides examples of invalid wheels that falsely treat negative sides as positive, thus replacing natural evolvement with the “stoic fight”.

Table 5. Examples of Invalid wheels

		1 – Feeling, Possession	2 – Acting, Intention	3 – Sensing, Goal/Result	4 – Sharing, Reflecting
		Choleric	Sanguinic	Phlegmat	Melanchol
A	a	<i>Excited</i>	<i>Calm</i>	<i>Thoughtful</i>	<i>Successful</i>
	b	<i>Euphoric</i>	<i>Disappointed</i>	<i>Depressed</i>	<i>Turbulent</i>
B	a	<i>Principled</i>	<i>Tough</i>	<i>Lenient</i>	<i>Secure</i>
	b	<i>Despotic</i>	<i>Desperate</i>	<i>Indifferent</i>	<i>Weak</i>
C	a	<i>Threat</i>	<i>Alert</i>	<i>Courage</i>	<i>Relief</i>
	b	<i>Fear of Worse</i>	<i>Wariness</i>	<i>Safety</i>	<i>Recklessness</i>

[0046] Case A represents the seemingly correct logical sequence (Excitement – Calming– Thoughtfulness – Success) that can only work for a short time. The reason is that Excitement (A-1a) is incompatible with Thoughtfulness (A-3a). Although Excitement without Thoughtfulness gives Euphoria (A-1b), yet Thoughtfulness without Excitement may not give Depression (A-3b).

[0047] Wheel B shows how we fool ourselves by “rebranding” Despotism (B-1b) to “Principledness” (B-1a). The latter yields Thoughtfulness (B-3a), which is often replaced with Lenience (B-3a). Although Lenience without Principledness yields Indifference, yet Principledness without Lenience may not yield Despotism.

[0048] Wheel C shows how the fear-driven logics presents Threat (C-1a) as a positive side, whereas Safety (C-3b) as negative. Such a perversion happens whenever we pursue

Safety out of the “Fear of Worse” (C-1b). Although Threat without Courage yields Fear, and Courage without Threat yields Safety, yet both of these statements are tautological. (Threat yields Fear independently of Courage, as well as Courage yields Safety independently of Threat.)

[0049] Another type of invalid wheels occurs due to the “inverted thinking”, when oppositions are expected to cause just struggle, but not complement each other and unite. See Unmasking Linear Thinking, Analyzing Neutral Words, Discriminating Interpretations, and Plutchik’s wheel in FIG. 9, A, for examples.

[0050] Unmasking Linear Thinking. Dialectic wheels help spotting potential discoveries through defeating the linear thinking. Table 6 provides examples.

Table 6. Linear Logic vs. Dialectic

		1 – Feeling, Possession	2 – Acting, Intention	3 – Sensing, Goal/Result	4 – Sharing, Reflecting
A	a	<i>Many Choices</i>	<i>Try All</i>	<i>Find the Best</i>	<i>Calm / Relief</i>
	b	<i>Go with Any</i>	<i>Rush / Stress</i>	<i>Few to None</i>	<i>Give Up</i>
B	a	<i>Compound Library</i>	<i>Screening</i>	<i>Active Lead</i>	<i>Selecting</i>
	b	<i>Impotent</i>	<i>Guesswork</i>	<i>Toxic</i>	<i>Preserving</i>
C	a	Natural Cure	Dialectic	Solving / Healing	Easy / Cheap
	b	Problem / Toxic	Difficult / Expense	Synthetic/Kitschy	Linear Logic
D	a	Simple Pencil	<i>As Above</i>	Weightless Writing	<i>As Above</i>
	b	Usual Writing		Complex Pen	

[0051] Wheel A refers to a “problem of many choices” (A-1a). Linear logics suggests Trying them All (A-2a), until finding the “Best” (A-3a). This makes A-1a incompatible with A-3a, and A-2a incompatible with A-4a. Yet, wheel D from Table 4 suggests an opposite: sticking with Humility (4-D-1a) and Loyalty (4-D-2a), until finding something Special (4-D-3a).

[0052] Wheel B shows how it works in practice, using Drug Design as an example. Large compound libraries (involving millions of compounds) (E-1a) are screened in order to find the best Active Lead (E-3a). This is comparable to looking for needle in a haystack. It cannot

pass the 5th element test due to the rigidity of the high-throughput screening and drug design setups (Klein, 2008).

[0053] Wheel C suggests replacing compound libraries with proven remedies from other fields of medicine, cultural traditions, or general wildlife (C-1a) and Dialectic Thinking (C-3a). It suggests that “Dialectic is what helps us find natural solutions in disregarded sides of simple things. Linear thinking is what creates artificial problems through over-rated benefits of complex things”. (Below we will see that linear thinking assumes that all meanings are independent of each other, *i. e.* “dead”, whereas dialectic assumes that they are inter-dependent, thus forming a self-regulating “hologram of life”.)

[0054] Wheel D provides an example of Dialectic thinking from anecdotal legend that NASA developed an expensive pen for writing at zero gravity, while Soviets used pencils (Fact or Fiction? NASA Spent Millions to Develop a Pen). Although this legend may be false, it clearly shows the hidden benefits of dialectic thinking.

[0055] **Analyzing Neutral Words.** If the starting word or thesis is “neutral” or carry variable sentiment (like Car), then we have to identify both positive and negative sides of thesis and antithesis, as shown in FIG. 3(A). As illustrated in FIG.3, case (A) places Car and its antithesis (“No Car”) in the neutral area (*1b* and *3b, respectively*). *1a* and *3a* list their positive sides, *1c* and *3c* are negative sides. All rules from Tables 1 and 2 remain operative (with small letter *b* changed to *c*). The obtained wheel generates the following maxim: “Car brings speed, pleasure and convenience in exchange to the cost, pollution, danger of accidents, and unhealthy lifestyle. In order to drive it, you have to be Thoughtful, Careful, Trained and Fit”. Yet it does not pass the 5th element test, as Pleasure, Speed and Pride can hardly be combined with Safety, Zero Expense, Health and Ecology.

[0056] Schemes B and C show the usual 2-level wheels in which a Car is taken sequentially as a positive and negative phenomenon. Wheel B has all the same obstacles as wheel A, since a Car is incompatible with words Free, Health and Clean. Wheel C has no such obstacles, as Walking is compatible with all such words. Walking is not as fast as riding a car, yet the speed is just a matter of an attitude.

[0057] Solving Dilemmas. The 3-level wheel (on FIG. 3, A) helps solving the following dilemma: to ride a car or to walk by legs? Just answer two questions: 1) Does Health and Cost-Effectiveness (*1a*) outweigh Speed and Excitement (*3a*)? and 2) What is easier:

Training / Running (2a) or Thinking / Caring (4a)? Wheels B and C paraphrase it: What is easier: to drive healthily, cleanly and for free, or to walk quickly enough, proudly and conveniently? This may hint on how to shift the paradigm. Table 7 provides more examples of solving dilemmas.

Table 7. Solving Dilemmas

		1 – Feeling, Possession	2 – Acting, Intention	3 – Sensing, Goal/Result	4 – Sharing, Reflecting
A	a	1st Positive	Striving	2nd Positive	Adapting
	b	1st Alternative	Action	2nd Alternative	Thinking
	c	1st Negative	Shallow, Fighting	2nd Negative	Indifference
B	a	Pleasure, Arousal	Active Lifestyle	Health, Wellness	Ease, Relief
	b	Meat eater	Mindfulness	Vegetarian	Obliviousness
	c	Sickness, Cruelty	Self-abasement	Bore, Misery	Lazy, Apathy
C	a	Healthy	Hardened	Immune/Mature	Upraise
	b	No Vaccine	Get Cold	Get Vaccine	Get Virus
	c	Immature	Fall	Sick	Softened/Spoiled
D	a	Coziness	Fast Result	Scenery View	Humane, Cheap
	b	Live in Garden	Cut Trees, Dig Pond	Live near Lake	Plant Trees
	c	Crowded Views	Expensive, Cruel	Strong Winds	Long Wait
E	a	Subtle, Gentle	Create, Earn	Tough, Mighty	Help / Share
	b	Art, Science	Focus, Fight	Business, Warrior	Relax
	c	Weak, Pathetic	Stress, Abuse	Rude, Bossy	Stagnate
F	a	Brave, Genuine	Striving	Wise, Careful	Precision
	b	Subjective	Acting	Objective	Calm
	c	Naive, Deluded	Fighting	Fearful	Lazy
G	a	Bold / Tough	Survival Skills	Prudent	Continuity
	b	Overconfident	Danger / Risk	Cautious	Safety
	c	Foolhardiness	Stress / Disaster	Coward	Stagnation

H	a	Gentleness	Strive	Meat	Peaceful
	b	Animal Rights	Protest	Slaughter	Struggle
	c	Rigidity	Fight	Greed, Cruelty	Neglect
I	a	Wellness/Climate	Eco-Lodges	Easy Money	Conservation
	b	Natural Forests	Infrastructure development	Plantations	Zoning
	c	Little Money	Clear-cutting	Sickness/Disaster	Exhaust

[0058] Case A shows the general method. Write the two alternative decisions in the opposite grey cells (1-b and 3-b), their positive and negative sides in the respective white and red cells. Connect both positive and negative sides by the causal relations (2a and 4a, 2b and 4b). Decide what is more important (1a or 3a) and what is easier (2a or 4a). Think how to unite all positive sides (1-4a) into the “5th element”.

[0059] Case B asks if it is better to be an omnivore (meat eater) or vegetarian. What is more important: a sense of full stomach (instant satisfaction) or overall health and wellness? (Google vegetarians vs meat eaters.) What is easier: to conquer an instant desire or chronic disease? (Google meat eaters’ chronic disease – diabetes, cardiovascular, Alzheimer’s, various types of cancer.)

[0060] Case C asks if it is worth of getting vaccinated. Whom do you trust more: your own health (C-1a) or expert opinion (C-3a)? How it is better to strengthen your immune system: by increasing your discipline / exposing to the cold (C-2a, see Iceman on virus, scientific proof: Muzik et al, 2018) or by exposing to virus (C-4a)? (In other words, what is easier to control: your own temper (1a, 2a) or virus (3a, 4a)? Are you sustainable by yourself or need a support? What kind of support: physical, moral, motivational?)

[0061] Case D considers, weather it is better to buy a house in the garden (D-1a) or near the lake (D-3b). Does garden coziness outweigh lakeview? If no, then: Does fast yet cruel tree-cutting (possibly with pond-digging) outweigh humane yet long-lasting wind-fighting with garden-growing? This will determine how to combine both garden coziness and scenery views in a single solution.

[0062] Case E asks, if it is better to become an artist (scientist, philosopher) or a businessman (earn money, become a warrior). What is more important: learning or earning?

What is easier: conquering yourself or creating something new? Many carrier assessment tools ask similar questions while disregarding the common goal of all choices (perpetual causality Subtle – Creative –Tough – Sharing; see Optimizing Character Traits for further hints).

[0063] Case F asks if Subjectivity is worse than Objectivity. The question comes down to the following: Do you need more Genuine Braveness (C-1a) or Wise Carefulness (C-3a)? Is it easier for you to Strive in Action (C-2a) or to be Calm and Precise (C-4a)?

[0064] Case G asks if kids should be able to engage in risky activities (climbing trees, playing cards, exploring the unknown). Do you want your kids to grow bold (develop autonomous learning & survival skills) or be more obedient and considerate? What is easier: engage in all activities of kids, or prohibit any dangerous activities, while leaving them alone?

[0065] **“Educative” Negotiation.** The proposed method can be used in negotiations, to educate the opposing side. For example, case H in Table 7 explains motivation of Animal Rights activists, who prefer Gentleness over Animal Meat (google slaughter cruelty). Even though Slaughter is claimed to be “humane”, the positive side of Meat looks like a false claim (consider case B in Table 6). Case B can easily pass the 5th element test, whereas case H cannot, as Meat is hardly compatible with Gentleness, Health and Wellness.

[0066] Case I explains motivation of Nature activists, who prefer common wellness over easy money and cheap timber. Industry produces money from plantations that cannot match psychological wellness and climate regulation of natural forests. The solution could be in Eco-Lodging, that merges both sides (generates money and preserves nature, google logging and eco-lodging). Loggers maintain own arguments (google why logging is good) that very likely cannot pass the 5th element test. Such proofs must be provided by the Nature activists who seek to educate their opponents.

[0067] Cases C and G explain motivation of Human Rights activists, who prefer freedom over government control. They would have to demonstrate that opposition ‘s arguments fail to pass the 5th element test.

[0068] **Humanistic / Gestalt Therapy.** Dialectic wheels help changing attitudes and achieving psychological relief. (“Human beings can alter their lives by altering their attitudes” – William James.) For example, in case of outrage, hatred or self-reproach, recall

that every guilt is shared between the victim and aggressor. Draw a wheel of your concern and observe your changing attitude. Table 8 provides examples of Gestalt Therapy.

Table 8. Transforming blame into analysis

		1 – Feeling, Possession	2 – Acting, Intention	3 – Sensing, Goal/Result	4 – Sharing, Reflecting
A	a	Internal Lesson	Internal Growth	External Lesson	External Growth
	b	Aggressor	Praying, Penitence	Victim	Training, Striving
	c	External Abuse	External Fall	Internal Abuse	Internal Fall
B	a	Lesson, Wisdom	Maturation	Love, Creation	Success
	b	Brutal World	Praying	Gentle Me	Striving
	c	Harm, Suffer	Failing, Loosing	Self-Indulgence	Giving Up
C	a	Lesson, Wisdom	Hear the World	Self-Respect	Understand Yourself
	b	Guilty Me	Listen to World	Innocent World	Listen to Inner
	c	Self-Reproach	Ignore Inner Self	Overconfidence	Ignore the World

[0069] Case A compares an aggressor to his victim. Both undergo symmetric transformations, as the Internal (spiritual) and External (physical) worlds are comparable to the real (± 1) and imaginary ($\pm i$) axes of complex numbers. These describe all types of misery of victim and aggressor ($1c = (+1; -i)$, $2c = (-1; -i)$, $3c = (-1; +i)$, $4c = (+1; +i)$). A victim should recall that aggressor is his mirror reflection. Balancing yourself automatically balances the opponent.

[0070] Case B compares the Brutal World (Enemies, Wrong-Doers) to Gentle Me (my Friends and followers). It is nearly identical to case A. When you harshly hate or blame somebody, recall that he is your teacher, whereas those whom you admire can make you blind.

[0071] Case C compares Guilty Me (a Kid or Student) to the Innocent World (Parent, Adult, Teacher). The World (C-3b) teaches Me (C-1b), while I teach the World. When you harshly hate or blame yourself, recall that Self-Reproach damages those whom you care about the most. The Guilty Me (C-1b) is comparable to Aggressor (A-1b), whereas the

Innocent World (C-3b) equates the Victim (A-3b). The Guilty Me is opposite to the Gentle Me (B-3b), so Self- Reproach is complementary (thus, equivalent) to Self-Indulging.

[0072] Interpreting Abstract Theses. Dialectic wheels help clarifying the deeper meaning of abstract theses (especially if they are new to us). For instance, FIG. 4(A) shows the wheel for a phrase “God Exists”. It yields typical moral maxims: “God exists, because I trust. God does not exist, because I don’t care. Friendliness of the world without my responsibility makes me fanatic.” And so on. These maxims are trickier than earlier, because the positive and negative sides of the given phrase are more difficult to determine.

[0073] God is dialectically similar to words Heart, Trust, Love, Happiness, Subtlety, Courage, *etc.* We can say that God exists in your Heart (Trust, Love, *etc.*), when you feel your Heart, through your Heart, because of Heart, *etc.* The opposite statement – “God does not exist” – is dialectically similar to Heartlessness, Hatred, Denial, Rudeness, Fear, *etc.* So, God does not exist in Hatred, when you Hate, through Hate, because of Hate.

[0074] FIG. 4(B) analyses phrase “Feminism aims to correct biases”. The word “correct” was replaced with “reduce” and “increase”. The consequential (orthogonal) words question if Biases imply Natural Differences and if Equality implies Lack of Gender. Two YES-es yield Rude Woman and Weak Man. Two NO-pes yield Tough Man and Subtle Woman. The resulting wheel generates statements like these: “Tough man make woman happy. Subtle women make man happy. Weak man abuse woman. Rude women abuse man.”

[0075] Resolving Ambiguities. Dialectic wheels help selecting the best interpretation from two or more alternatives. Consider the Mouse Utopia Experiment, when unlimited resources caused the population’s self-extinction. The most typical explanation is that population grows too fast, therefore it must be physically suppressed (see Table 9, wheel A). Another explanation is that unlimited conveniences cause moral degradation, so we must change our attitude toward the Life in general. Instead of suppressing population growth – and thus fighting Life – we must fight what prevents each of us from celebrating Life (see Table 9, wheel B). Wheel (A) can hardly pass the "5th element test", as healthy population (4a) contradicts to the birth control (2a). Wheel (B) does not have this problem, as Self-invoked Personal Struggle (2a) complements the Family Sense (4a). This yields the following statements: "Limitless resources without morality yield self-extinction. Family sense without personal struggle yield immaturity and pampering".

Table 9. Two interpretations of the Mouse Utopia Experiment

		1	2	3	4
A	a	Unlimited resources, convenience	Population control	Small enough population	Mental / physical health
	b	Too large population	Mental / physical suffer	Limited resources, inconvenience	Uncontrolled population growth
B	a	Unlimited resources, convenience	Struggle, internal growth	Moral prosperity, enough space for all	Sense of family, caring
	b	Moral degradation and self-extermination	Sense of enemy, fight	Limited resources, inconvenience	Immaturity, pampering

[0076] Computational Ethics. Any computer-generated statement can be converted to a dialectical wheel that verifies its ethical validity. Valid statements must fit some real-life situations with clarified moral outcomes, like in Table 9. This can be used in the Case-Based Reasoning, where each case can be provided with its moral statement(s). This could facilitate decision-making in complex situations (see Solving Practical Dilemmas and Story Building Game).

[0077] Designing Axes for Concept Mapping. Dialectic wheels expand any given parameter into a 4-dimensional space, which can be useful in business, economy, sociology, philosophy, psychology and similar fields. Table 10 provides examples. Each pair of positive and negative statement in a given column (Xa and Xb positions) contain thesis and antithesis, that in combination describe a certain scale. (Note that all other tables place thesis and antithesis in “diagonal” columns, Xa and $(X\pm 2) b$.)

Table 10. Dialectic Wheels as Orthogonal Scales (Xb replaced with $(X\pm 2) b$)

		1 – Feeling, Possession	2 – Acting, Intention	3 – Sensing, Goal/Result	4 – Sharing, Reflecting
A	a	Given Parameter	Expandability	N-Dimensions	Elasticity, Adaptability
	b	Immeasurability	Unscalability	Abstraction	Rigidity
A*	a	Length	<i>Same</i>	Width	<i>Same</i>

	b	Too small/large	Too Narrow / Wide	Too small/large	
B	a	Money	Calm	Diversity, Breath	Discipline, Agility
	b	Poverty	Stress	Rigidity, Fixation	Looseness
C	a	Cost-Effective	Naturalness	Dialectic	Efficiency, Skill
	b	High Expense	Artificial, Fake	Linear Thinking	Awkward
D	a	Feasibility	Clarity	Generality	Subtlety, Beauty
	b	Impossibility	Obscurity	Narrowness	Rudeness
E	a	Acceptance	Truthfulness	Carefulness	Subtlety, Beauty
	b	Denial	Deception	Negligence	Brutality
F	a	Pleasure	Arousal	Wisdom, Maturity	Subtlety, Gentleness
	b	Aversion	Sleeping	Insanity	Rudeness, Intensity

[0078] Wheel A considers the most general scenario, when a given property (A-1a) is complimentary to many other orthogonal parameters, denoted as N-Dimensions (A-3a). For example, when measuring a length of a complex body (A*-1a), we may also consider its width, depth, shape, weigh, smell, and so on (A*-3a). This automatically yields two more parameters: Expandability or Scalability (A-2a) – how easily 1a transforms to 3a, and Adaptability or Elasticity (A-4a) – how easily 3a gets back to 1a. Below we will clarify the particular meaning of these parameters using specific examples.

[0079] Wheel B considers Money (B-1a), as the major parameter in business and economy. Most people expect Money to be complementary to the Diversity, Breath and Quality of Life (B-3a). The latter is maximized, when Money yield Calm and Confidence (B-2a), as opposed to Stress and Anxiety (B-2b). Quality of Life yields Money through Discipline and Agility (B-4a). Here Scalability (A-2a) represents Calm and Confidence (B-2a), Adaptability (A-4a) – Discipline and Agility (B-4a).

[0080] So, for business and economy to become ‘true sciences’ they must learn to measure Calm (“quality of emotion”), Diversity (“quality of life”) and Agility (“quality of thoughts”). (In the absence of such an understanding, the United Nations established Happiness Index, UK and Japan – Ministry of Loneliness, UAE – Ministry of Happiness,

Bhutan – Gross National Happiness Commission. All of them attempt to compensate for the missing 3 parameters).

[0081] Wheel C considers Cost-effectiveness of Dialectical Thinking. Here Expandability (A-2a) equates to Naturalness (C-2a), Adaptability (A-4a) – to Skillfulness (C-3a). So, to be cost-effective, we must live Naturally, think Dialectically, act Skillfully.

[0082] Wheels D and E come from analysis of starting words Clarity (D-2a, shifted by one position) and Truth (E-2a). Here Expandability (A-2a) equates to Clarity or Transparency (D-2a) and Truthfulness (E-2a), Adaptability (A-4a) – to Subtlety and Beauty (D-4a). So, to analyze productively, we must think Clearly / Truthfully, Generally / Carefully, aiming at Subtlety and Beauty.

[0083] Wheel F comes from the 2- and 3-dimensional models of emotions, suggesting that all emotions differ by Pleasantness or Valence (F-1a) and Arousal or Awokenness (F-2a). Pleasantness (F-1a) must be balanced by Wisdom or Maturity (F-3a), as excessive pleasantness indicates immaturity, whereas excessive seriousness causes aversion. Arousal (F-2a) must be balanced by Subtlety (F-4a), as excessive energy causes brutality, whereas indolent subtlety is pathetic.

[0084] Arousal (F-2a) differs from Intensity (F-4b), as some emotions may be intense, but fatiguing (*e.g.*, Depression or Grievance), whereas others may be gentle, but energizing (*e.g.*, Serenity or Faith). This also marks the difference between Expandability (A-2a) and Adaptability (A-4a). Many psychologists supported such differentiation (thus suggesting 3-dimensional scales, *e.g.*, Wundt 1897, Schlosberg 1954, Osgood et al 1957, Lyusin, 2018), but none of them considered the 4th axis – Maturity or Wisdom. So, for psychology to become a ‘true science’ it must learn to measure Wisdom

[0085] Re-interpreting The World. Dialectic wheels help grasping the deeper meaning of various phenomena through relating them to the classic elements (Aristotelean doctrine). Table 11 provides an example.

Table 11. Correlations of Classic Elements

		1 – Feeling, Possession	2 – Acting, Intention	3 – Sensing, Goal/Result	4 – Sharing, Reflecting
A	Temperament	Choleric	Sanguinic	Phlegmatic	Melancholic

B	Classic elements	Fire	Air	Earth	Water
C	States of matter	Plasma	Gas	Solid	Liquid
D	Physics	Entropy	Kinetic Energy	Enthalpy	Potent. Energy
E	Dialectic wheel for 'Live'	Live - Die	Create - Destroy	Wise - Dull	Will - Force
F	Dialectic wheel for 'Flexible'	Flexible - Rigid	Create - Destroy	Order - Chaos	Transform - Spoil

[0086] Rows A – C relate dialectic wheels to temperaments, classic elements and states of matter. Row D relates them to the two pairs of physical concepts: Entropy (D-1) and Enthalpy (D-3) on the one hand, and Kinetic and Potential energies (D-2 and D-4) on the other. These pairs are never mixed together, because thermodynamic stands separately from kinetics and kinematics. But here they are combined, due to correlation with dialectic wheels in rows E and F.

[0087] Rows E and F represent dialectic wheels (in a form of 4-D spaces) that explain the meanings of Life and Flexibility. Entropy can be equated to Life (D-1a) and Flexibility (E-1a), contrary to the long belief that it measures Chaos (England, 2020). Enthalpy can be equated to Wisdom (D-3a) and Order (E-3a), that does not oppose Entropy, but complements it. Kinetic energy compares to Creation (D, E- 2a), Potential energy – to Will (D-4a) and Transformation (E-4a). These also complement each other, although the classic physics considers them as oppositions (within the energy conservation law).

[0088] Such correlations form the basis of analogous and/or intuitive thinking. They can be viewed as an extension of “mixed wheels” from Table 4 beyond the scope of human emotions. Below we will see that they can cover virtually any phenomena that are characterized to the great enough detail. Any pairs of words or theses from a given column in Table 11 will be called the ‘dialectic twins’ or ‘cousins’. As mentioned earlier, they allow us to unite many seemingly unrelated concepts into a single causal network.

[0089] Designing Story Building Games. Dialectic wheels can be used for designing board games, computer games and mobile applications that not only assist in decision making, but also help designing the aforementioned causal network(s). FIG. 5 shows one of many possible layouts of the game. Each segment of the wheel contains a number that tells a

player what types of theses and antitheses must be used. Selecting particular theses and antitheses in each type yields a story that represents a certain causal network.

[0090] Each pair of thesis and antithesis can be represented on a single (physical or virtual) card. A physical card can have thesis on one side, antithesis on another. All cards can come in pairs, so that one card can be placed on a segment of positive side (of thesis, antithesis, action, reflection), another on a negative side (respectively, of antithesis, thesis, reflection, action).

[0091] The 1st step implies selecting thesis or dichotomy closest to the actual problem (using lists of pre-defined theses and/or dichotomies). For example, consider the Heart vs. Mind dichotomy. Step 2 is selecting cards that specify positive side of thesis ('Heart') and negative side of antithesis ('Mind'). For example, 'Gentle - Rude' and 'Excites - Depresses' (one can pick many cards). Step 3 - positive side of antithesis ('Mind') and negative side of thesis ('Heart'). For example, 'Rational - Irrational' and 'Objective reality - Subjective illusion'. Step 4 - action and reflection that can potentially unite both positive sides of thesis and antithesis (Gentle and Exciting with Rational and Objective Reality). For example, it can be 'Aspiration - Flexibility', 'Striving - Relaxing'. Step 5 - positive side of Action (Aspiration, Striving) and negative side of Reflection (Flexibility, Relaxing). For example, it can be 'Commitment - Negligence', 'Struggle - Idle'. Step 6 - negative side of Action, positive side of Reflection. For example, 'Sharing - Hiding', 'Generosity - Greed'.

[0092] The last (7th) step implies composing a story, using at least 1 (or more) cards from each segment of the wheel. An obligatory condition is that one must use at least card from each positive section. An optional condition is that one may also use some cards from neutral and negative segments. If the obtained story is perpetually truthful and useful, then your understanding of the problem is correct. If no, then you are disingenuous somewhere.

[0093] The obtained story may be as short as just one sentence. For example: "the excitement of heart yields aspiration in action, while the rationality of mind yields generosity in after-action; generosity inspires new excitement, while rationality verifies its usefulness". More sophisticated stories can involve more cards and employ various statements from Tables 2 and 3. Any story represents a causal network that can often be viewed as a new dialectic wheel. Examples of such (multisegmented) wheels will be considered below.

[0094] To arrive at more interesting stories, design and use cards with more sophisticated statements and phrases. For example, there may be cards like this: 'Rationality starts with looking at the facts' and 'For every fact there is an infinity of hypotheses'. This also means a wider variation of polarities of dichotomies, from clear antagonisms (like in 'Love - Hate') to potential complementarities (like in 'Facts - Hypotheses')

[0095] For the easier decision-making on where to put each card, each side of every card can be color-coded, in accordance to colors on the physical game board (shown in FIG. 5, where each segment of the wheel can be in certain color). If some cards can be usable in more than one step, their colors should correspond to the averaged colors of respective segments.

[0096] All statements on every card can be supplemented (or replaced) with graphic illustrations. A separate set of illustrations can depict the most typical story-telling outcomes that match various real-life situations. If a story matches any illustration of successful situation, then it can be considered as success. If it matches a problematic situation, then it may be considered a problem.

[0097] Computer games and mobile applications bring additional possibilities. The story-matching illustrations can be supplemented with videoclips, music, songs or other known stories. All cards can be inter-linked to facilitate analysis of any given problem. Each link between any cards can have statistical weight based on their overall usage. Authors of links can receive points or tokens as other people use their links.

[0098] This yields a **crowd-sourcing system** that generates new cards and their inter-connections, based on tokenization and/or other motivation mechanisms. In the end, all sayings and quotations can be interlinked in a single causal network, using more detailed wheels and “secondary” relations among them.

[0099] As mentioned above, every case from the Case-Based Reasoning can also be converted into a new moral wisdom statement helping to build new stories and decide on their further outcomes.

[00100] **Designing More Detailed Wheels.** Any wheel can be expanded, by adding intermediate segments and layers, as shown in FIGs 6 – 12. Multi-segmented wheels can be viewed as the most balanced stories of the abovementioned Story Building games. Valid wheels must satisfy two conditions. First, all of their segments (pairs of positive and negative

words, or theses and antitheses) must be orthogonal to each other, yielding different enough moral statements. Second, all words (and theses) must form a homeostatic (self-regulating) circular causation, reflecting some naturally occurring sequence(s) of transformations.

[00101] FIG. 6 exemplifies generation of larger wheels from smaller ones that are related to the word “Love”. Curved dotted arrows show specific relationships among the smaller wheels. In wheel A, Love is complimentary to Wisdom. In wheel B, Wisdom is complimentary to Courage, and so forth.

[00102] The larger wheels (E – I) explain how Love naturally transforms to various other virtues, and how the lack of such transformations creates various sins and scandals. Note that schemes (H) and (I) suggest slightly different sequences, both being potentially valid under different circumstances. Scheme (H) suggests that Love (1) transforms first to Devotion (2), which is what most people would probably agree with. Scheme (I) suggests that Devotion (6) results from Competence (2), which is what most personality models agree with (as will be shown below).

[00103] FIG. 7 exemplifies generation of larger wheels from the word “Science”. We first generate smaller wheels from various associations of Science (Theory, Hypothesis, Truth, and so on). We then combine them into (D) and (E). Scheme (F) is just another representation of (E), stressing the fact that all positive words have independent “dialectical twins”. Note, that other sequences of transformations are also possible (not shown in FIG. 7).

[00104] Positive words of FIG. 7 (D – F) tell the following story (in clockwise direction): Science (Theory, 1) yields Design (Deduction, 2), that further yields Observation (Experiment, 3), and so forth. Each word is associated with its “dialectical twin” (listed above in parentheses), which is generally not always perceived in such a way. For example, Science is often perceived not as a Theory, but rather as the “Final Truth”, which indicates its confusion with Dogmatism. Design is often perceived not as Deduction, but rather as Induction, which points to its confusion with Hypothesis. And so on.

[00105] “Dialectical twins” represent mutually complimentary words or theses that do not fit into standard 2-dimensional wheel. We therefore obtain a 3-dimensional network, as exemplified in FIG. 7 (F). Here dashed lines connect parallel planes of 2-dimensional wheels. Positive words of each wheel follow clockwise causation. Both of these causations can be

mixed in any desirable way. They share common “negative” causation that rotates in opposite direction.

[00106] Negative words in FIG. 7 (D – F) explain how dogmatic thinking leads to destruction (in counter-clockwise direction). In short, Dogma (1) breeds Indifference (12), which in turn breeds "unintentional" Lies (10), Falsification (3) and Destruction (2).

[00107] Standard wheel becomes a **multidimensional network**, if its nodes participate in more than one causal transformation(s), that cannot be described on a 2-dimensional plane. We saw this above during merging interrelated wheels (FIG 7 (F)), but more often they occur during merging independent wheels that are barely related. Such networks can be useful for modeling various worldviews and doctrines.

[00108] FIG 8 shows two representative ways of merging large (2 x 12) wheels from seemingly unrelated words, Love (from FIG. 6 (H)) and Science (from FIG. 7 (E)). White circles indicate words (theses) from the first wheel (FIG. 6 H), black circles – from the second wheel (FIG. 7 E). Arrows denote causal transformations of positive words. Negative words appear in parentheses (and transform in opposite direction).

[00109] Cases A and B use different sets of similar words in orthogonal positions. Case A yields two opposite causality directions, thus forming “local” loops with “shaky” moral statements. Case B yields just one causality direction with “higher moral standards”. Table 12 compares their moral statements using the following phrase: “Freedom (white 8) without X yields Betrayal.” Different loops from scheme A produce different X (Design, Boldness, etc.), creating risk of “double standards”. In contrast, different loops from scheme B produce invariable X = Truth.

Table 12. “Locality” effects in FIG. 8: “Freedom without X yields Treason”

Scheme	Loop length	Black nr	White nr	X
A	6	1 – 4	7 – 10	Design (black 2)
A	12	1 – 7	4 – 10	Boldness (black 5)
A	18	1 – 10	1 – 10	Creation (black 8)
A	24	1 – 12	1 – 12	Prudence (black 11)
B	12	Any	Any	Truth (black 4)

[00110] Local loops distort the "reverse" causality between positive and negative theses, indirectly pushing us to the edges of the parent wheels. On the contrary, "global loops" reinforce the interconnectedness of positive theses, thereby pulling us toward the common center of parental wheels. In other words, widening the worldview strengthens moral wisdom.

[00111] Scheme B provides 12 pairs of “**dialectical cousins**”, denoted by dashed lines between the neighboring black and white circles. They represent “secondary complementarities” that explain each other’s meanings from a new perspective. For example, “Truth (black 2) without Devotion (white 4) yields Ugliness. Science (black 1) without Humility (white 11) yields Dogma”. These associations remind correlations of classic elements from Table 11, playing a central role in intuitive thinking, decision-making and self-motivation. They can be induced by certain theses, stories, illustrations and videoclips from abovementioned Story Building Games.

[00112] Table 13 shows that such “secondary” complementarities can unite many different wheels into a single network. Here we have six 12-segmented wheels, four of which refer to the words Love, Science, Car, Water. The remaining two refer to circumplex personality models that will be considered separately.

Table 13. A general causality for independent wheels

	Wheels from words				Personality models	
N	Love (FIG. 6(I))	Science (FIG. 7)	Car (FIG.4)	Water	Family archetypes	MBTI traits
1a	Love	Observe	Comfort	Comforting	Infant baby	Turbulent, Tu
1b	Insane	Falsify	Expense	Expensive	(spontaneous)	(neurotic)
2a	Courage	Boldness	Focus	Evolving	Small Boy	Intuition, N
2b	Reckless	Reckless	Imbalanced	Imbalanced	(dishonest)	(deluded)
3a	Smart	Zeal	Arousal	Adapting	Teen Boy	N, E
3b	Anxious	Problem	Unfit	Sicken	(rebellion)	
4a	Win	Explain	Safety	Reflecting	Young Man	Extrovert, E
4b	Arrogant	Trivialize	Slow	Annoying	(categorical)	(reckless)
5a	Competent	Create	Clean	Clean	Grown Man	Thinking, T
5b	Numb	Mess	Ugly	Draining	(disagree)	(authoritarian)
6a	Devotion	Truth	Proud, Happy	Consistent	Father	Judging, J

6b	Slavery	Ugly	Kitschy	Artificial	(perfectionist)	(perfectionist)
7a	Wise	Verify	Inexpensive	Inexpensive	Elder	Asserting, A
7b	Hatred	Overlook	Burden	Burden	(drained)	(apathetic)
8a	Prudent	Prudent	Balanced	Balanced	Mom	Sensing, S
8b	Fear	Fear	Distract	Stagnant	(warry)	(warry)
9a	Calm	Solution	Fit	Healing	Woman	Introvert, I
9b	Dumb	Apathy	Numb	Opposing	(closed)	(closed)
10a	Humble	Science	Speed	Satisfying	Young Lady	Feeling, F
10b	Abased	Dogma	Unsafe	Ignoring	(cautious)	(cautious)
11a	Curious	Design	Design	Energizing	Teen Girl	F, P
11b	Spying	Destroy	Dirty	Dirty	(submissive)	(agreeable)
12a	Free	Beauty	Natural	Natural	Small Girl	Perceiving, P
12b	Betray	Lie	Upset	Unstable	(undisciplined)	(chaotic)

[00113] Table 13 follows causal transformations from FIG. 6(I). Although it may look less intuitive than in FIGs 6(H) and 8(B), yet it offers longer chains of “dialectical cousins” (compare each row of Table 13 to the dotted lines in FIG 8(B)). For example, in the row 1a, Love means Observation from the Science’s perspective, but Comfort from the Car’s perspective. In the row 10a (by new numbering), Science means Humility from the Love’s perspective, but Speed from the Car’s perspective.

[00114] One can see that in a given row every meaning affects all other meanings, which can be described by the Bayesian formula: $M(A|B) = M(B|A) \times M(A) / M(B)$. Here $M(A)$ is the meaning of statement A, $M(A|B)$ – the meaning of statement A under given B, and so forth. Under $M(A) \neq M(A|B)$ we obtain a self-regulating system of “dialectical cousins”. Under $M(A) = M(A|B)$ we obtain pure “linear logics”, where all meanings are independent of each other, and so the dialectics is prohibited (as in Table 6).

[00115] The obtained causality network can be called the “**hologram of meanings**”, as most of its nodes are related directly to each other, through “dialectical cousins”. It reminds of the “map of territory” described by Alfred Korzybski in General Semantics. Each map is unique to every single person, as we all use slightly different semantic associations.

[00116] The entire hologram determines the deepest meaning of every single word and thesis. Yet, changing interconnectedness of just one node may change the interconnectedness of many other nodes, through an exemplary transformation of scheme A to B in FIG. 8.

[00117] All of this explains the power of Placebo and perhaps even the “mind over matter” effects, when the right word at the right time transforms a loser into winner, and makes a sick man to feel much better. It also provides the basis for modelling and healing various “internal wounds” in psychology, and biases in politics, science and philosophy. Thus, each local loop in FIG 8 and Table 12 models a certain type of subjective / linear thinking, inducing misalignment between our consciousness and subconsciousness. For example, while subconsciously we all agree that Science and Love are inseparable from each other, consciously we submit to “scientific materialism”, where the physical reality stands in total separation from Love. Likewise, while many of us agree that our civilization causes global problems, yet most of us do not relate these problems to their personal actions.

[00118] **Mind Mapping.** As mentioned above, any successful story from the Story-Building Game can be viewed as a new (multisegmented) dialectic wheel. Overlapping such wheels from different “parental” theses and antitheses can yield causal networks similar to those in FIG. 8 and Table 13. In other words, using similar “daughter” dichotomies (cards with sub-theses and sub-antitheses) for different “parental” dichotomies allows us to suggest “dialectical cousins” among the remaining “daughter” dichotomies. If such overlapping has been made for the large enough variety of stories (represented by multisegmented wheels), then we obtain a multidimensional network of conscious causalities with subconscious associations (serving the first approximation of the “hologram of meanings”).

[00119] If in such a network we identify any “local loops” (like in FIG. 8(A) and Table 12), then we can warn a person about his inner misconceptions. As Mark Twain has said, “It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so”.

[00120] Overlapping such networks of different people may give them a hint on how they can complement each other's views. Most people treat the opposing views based on the „either-or” judgement, as if the world followed just one logical path. In reality there are always many paths, so that most views are correct, but none covers all possibilities. The proposed mapping tool could help people stop fighting and start looking into each other's views more friendly.

[00121] **Circumplex Models.** In psychology, more detailed wheels can be obtained from already existing circumplex models (Plutchik, Conte, 1997). FIG. 9 (A) shows the Plutchik's

wheel of emotions, perhaps the most elaborated circumplex model published. Scheme B shows its corrected form that corresponds to all requirements of the valid dialectic wheel. The Plutchik's wheel was inverted inside out, so that the most subtle forms occurred in the center (where they can unite). Then some words were corrected to obey the dialectic laws (e.g., in petal 4, Loathing was removed, but Restrain added, as it is more complimentary to Admiration from petal 8, than Boredom).

[00122] FIG 10 further expands the corrected Plutchik's wheel, furnishing it with additional segments (petals) and layers. Such wheels yield more accurate wisdom statements compared to what was suggested in Tables 2 and 3, as each position provides more thoroughly selected theses. For example, the 16 x 4 wheel in FIG. 10 suggests: "Serenity (1a) without Pensiveness (8b) yields Euphoria (1c)". (Here $(X+n) \pmod{4} = (X+4n) \pmod{16}$, $a = (a, b)$, $b = (c, d)$).

[00123] In addition, new types of moral maxims can be obtained: $X_{a,b}$ converts $(X+8) c$ to $(X+8)b$. "Joy (1b) converts Sadness (8c) to Pensiveness (8b)". $X_{a,b}$ with $(X+4) a,b$ and $X (+12) a,b$ convert $(X+8)y$ to $(X+8)b$. "Joy (1b) with Firmness (5b) and Carefulness (9b) convert Grief (8d) to Pensiveness (8b)".

[00124] Personality Traits. FIG. 11 expands the classic four temperament scheme to a 4 x 12 wheel, that unifies several major personality models (Big 5, Hexaco, MBTI, RHETI, Parent – Adult – Child, Rudolph Multiple Natures). It yields the following types of maxims: "Caring without Toughness yields Permissiveness. Toughness without Caring yields Bossiness.". A given character trait can be improved by improving its opposition: warriors must practice creative arts, whereas artists must practice warriorship.

[00125] Note, that character traits change in the opposite direction from classic elements. Caring comes from Inspiration rather than Profundity, although Feeling (analog of Caring) comes from Reflection (analog of Profundity) rather than Action (analog of Inspiration). This may be due to a mismatch between logic and intuition (left and right hemisphere). Synchronizing both brings us closer to the center (the "global loop" effect), while distortion pushes us to the edge (the "local loop" effects).

[00126] Personification of abstract phenomena. Tables 11 and 13 show correlations between human character traits and various other phenomena, suggesting that virtually anything can be viewed as living beings. Panpsychism has long advocated a similar view,

insisting that the entire reality is a living being. The purely practical aspect of such correlations is that now we can use various methods of interpersonal compatibility to offer the best products and services for each person.

[00127] For example, consider a Car that differs strictly by the first five traits in Table 13 (1a/b to 5a/b rows). In terms of MBTI classification, this relates to the Turbulence, Intuition and Extroversion (see the last column). Using FIG. 13 (and various inter-personal compatibility charts available on the internet), we can suggest that it will be most compatible with ENFP (Campaigner) and least compatible with ISTJ (Logistician).

[00128] A better accuracy can be achieved through the direct assignment of words and theses to personality traits, as shown in FIG. 12. We can simply track the key-words and phrases that a person uses to characterize either himself or a given phenomena (like a car) in the above-mentioned Story Building Game and/or his speech, or ask him to select the most typical words from FIG. 12 (using either random cards or systemic scanning). The final set of personalities should be determined from distributions of choices in FIGs 11 and 13.

[00129] For instance, the abovementioned car (that differs by 1a – 5a in Table 13) can be linked to FIG. 11 through the following key-words: comfort (15f = F, I and 20e = Tu, P (N, E)), focus (8c = J, T), arousal (6c = Tu, N and 20b = Tu, N and 16c = N, T (E) and 18d = P (F, I) and 24(c) = A (S, I)), safety (1c = A (S, I) and 13b,c = S, A and 17a = S (I)). Summing up all letters (and applying coefficient 0.5 for letters in parentheses) yields: [I₃E₁] [S₃N_{3.5}] [T₂F_{0.5}] [J₁P₂] [Tu₃A₃]. Each bracket pair contains a pair of oppositions. Subscripts indicate the number of occurrences. Assuming that oppositions fight and the winner has the larger subscript, we obtain INTP. The last pair [Tu₃A₃] has no winner, but since its subscript values are quite high (compared to other brackets), each opposition can yield an independent personality. Turbulence (Tu) is closest to ENFP, Assertion (A) – to ISTJ (see FIG 13). So, in total we obtain 3 possible personalities (INTP, ENFP, ISTJ) for which compatibilities should be considered. The 4th personality (of somewhat lower importance) may come from [S₃N_{3.5}] that is close to equilibrium, and thus ISTP may also be important.

[00130] Improving Personality Classification. Traditional personality models do not allow co-existence of opposing traits, even though both of them may be important (consider the case of [S₃N_{3.5}] in previous example). In contrast, dialectic wheels suggest that all personalities evolve toward uniting inner oppositions. This suggests replacing dominant

letters with indexed pairs of oppositions: [$I_a E_b$] [$N_c S_d$] [$T_e F_f$] [$J_g P_h$] [$A_i T_u j$]. Subscripts indicate the “inner relations” of oppositions. If oppositions are united, then subscripts should be positive, if disconnected – negative.

[00131] The specificity of classifications can be further increased by considering higher numbers of oppositions. For example, the 12 segments of the wheel in FIG. 11 suggest using 6 pairs of oppositions. Socionics considers as many as 16 pairs of oppositions. The most prominent pairs of oppositions can be identified during the abovementioned Story Building Game, as each ‘dichotomic card’ is a new potential pair.

[00132] The best classification should rely on the unique “holograms of meanings” arising from personal associations (Korzybski’s “maps of territory”). This implies drawing a multidimensional causality network (like in FIG. 8 and Table 13) for every single person and then clustering such networks according to similarities of their causal sequences and dialectical associations.

[00133] Knowledge Indexing. All of the above suggests that every word and phrase can be assigned to certain columns in Tables 4 -11. This can be done using crowd-sourcing during the Story Building Games. More accurate indexing comes from the more detailed wheels, like in FIGs 11 – 13, and personal causality networks.

[00134] Every assignment can be annotated with personality traits of its author, enabling accounting for its ‘subjective bias’. For example, the choices of turbulent extraverts can be offered only to other turbulent extraverts, while assertive introverts can have their own domain of choices.

[00135] Such indexing enables the following advantages:

a) Suggesting how to improve ourselves, through dissolving our inner contradictions and establishing new associations (like in FIG. 8). This contrasts with AI methods, that aim not at improving our inner selves, but rather at pleasing our desires, potentially accelerating our inner degradation.

b) Explaining every suggestion *via* transparent dialectical wheels and causal networks. In contrast, AI methods do not provide any explanations to their decisions.

c) Visualizing our personal differences *via* the dialectical causality networks, that invites complementing each other’s views. Today we often fight in an attempt to override each

other's views, instead of complementing them. A good example is Wikipedia, where various influencers often overwrite each other's interpretations.

[00136] Process Automation. To automate the process, every word and thesis should be linked to antitheses, negative, positive, and complimentary theses, as well as causal precursors and consequences (see Table 1)

[00137] When constructing a new wheel, similar words should be placed in the same cell (or in adjacent cells, if the wheel has more than 4 segments). Opposite words should be placed in the opposite segments and layers (one closer to the center, another further away). Words that are neither similar nor opposite should be placed in (closer to) the orthogonal segments.

[00138] Higher reliability can be achieved using words' "under-developed" and "over-developed" forms. The Under-development of Xa represents its opposition or antonym ($(X+2) b$). The Over-development of Xa represents its "negative side" or "harsh extremity" (Xb). Table 14 provides examples.

Table 14. Under- and Over-developments

	(1a) Love	(3a) Wisdom	(2a) Devotion	(4a) Peace
Over-developed	(1b) Fixation	(3b) Self-right	(2b) Attachment	(4b) Indifferent
	Promiscuity	Dogmatism	Dependence	Inaction
	Insanity	Overthinking	Fighting	Reluctance
Under-developed	(3b) Resentment, Hate, Fear	(1b) Ignorance Reluctance Insanity	(4b) Indifference Carelessness Egoism	(2b) War, Hostility, Fighting Abuse

[00139] Two words are similar (*i.e.*, may belong to the same Xa), if their over / under forms are also similar. (The latter can be determined by the number of synonymity / anonymity steps in semantic graph(s).) Two words are complimentary (may belong to Xa and $(X\pm 2) a$), if under-development of one is over-development of another, and *vice versa*. Two words are neutral or dissimilar (may belong to Xa and $(X\pm 1) a$), if at least one of their over- / under- forms do not correlate with any such forms of another word.

[00140] Both under- and over-developments can generally have multiple levels, *e.g.*, Love – Passion – Attachment – Control – Jealousy – Obsession – Insanity (see Roget’s Thesaurus and Semantic Differentials). They are useful for generating more detailed maps (like in FIGs 10 – 12).

[00141] Small wheels should be gradually merged into larger networks using predefined causal sequences that reflect natural phenomena, as in FIGs 6 – 12. These sequences should be rechecked and updated when larger wheels / networks are merged, as in FIGs 8(B) and 11.

[00142] **Advantages of the present invention:**

[00143] Obtaining dialectic wheel(s) from any given word or thesis, whereby the most subtle / positive concepts occur closest to each other (in the centre of the wheel or square), and all concepts obey the circular causation

[00144] Using internal consistency criteria based on complementarity, oppositions, and causality, as exemplified in Table 1

[00145] The 5th element test, according to which valid wheels are such that all positive theses are complimentary to each other and can be experienced simultaneously and perpetually without any special effort. Accordingly, the morally correct judgements and decisions must involve the principle of complementarity, arising from two or more positive words or theses that in combination create something new. The latter must be perpetually stable and simultaneously reflect positive sides of all original theses.

[00146] Generation of wise sayings using rules from Tables 2 and 3, and their proper modifications, if cell numbering differs from FIG. 1(F) (*e.g.*, like in FIGs 1(G) or 3 – 12)

[00147] Enhancing the Case-Based Reasoning through better interpretations (Table 9)

[00148] Designing concept mapping axes, through expanding any given thesis to the N-dimensional space (like in Table 10, where $N = 4$)

[00149] Designing Story Building Games for the easier decision-making and crowd-sourcing of the most appropriate theses

[00150] Constructing larger wheels, where all segments are orthogonal to each other, and circular causation reflects self-regulating natural transformations (Table 13).

[00151] Designing causal networks, where nodes (words or theses) are linked to their positive and negative forms or consequences. Each node can be provided with semantic /

ontological distance(s) from the symmetry centre of all complimentary oppositions (“subtlety indices”)

[00152] Assigning personalities to any abstract phenomena for the easier selection of the most appropriate products and activities in a given situation. Characterizing phenomena and situation by what really matters to the deeper ourselves.

[00153] Mapping, tagging, or positioning any concepts or information on the dialectic wheel or causal network

CLAIMS

What is claimed is:

1. A method of obtaining one or more dialectic wheels from a word or thesis, comprising:
determining an opposition of the word;
generating negative sides of the word;
generating positive sides of the word;
generating negative sides of the opposition word;
generating positive sides of the opposition word;
constructing a circular causation of the generated positive and negative sides;
obtaining a dialectic wheel; and
obtaining another dialectic wheel by switching positions of the negative sides;
2. A method of obtaining causal networks through merging smaller dialectic wheels, so that all segments are orthogonal to each other and all theses form meaningful circular causations that ensure natural self-regulation
3. The method of claim 1, further comprising the step of using a causal graph for constructing simpler dialectic wheels.
4. A method of modelling logical reasoning in various theories, worldviews, ideologies and doctrines, using multidimensional causal networks
5. A method for decision-making, story building, and crowdsourcing of the most appropriate theses for any given situation
6. A method for identifying character traits and personality types, based on the words and theses used by a person, and their position(s) on FIGs 10-12.

ABSTRACT

This invention represents a method for visualizing dialectic and causal relations and decision-making in analytical psychology, philosophy, and computational ethics. It uncovers the deeper meaning of any words or theses, helps generating wise sayings and hypotheses, verify the validity of any judgements (goals, decisions), balance opinions, change attitudes, visualize worldviews, and personalize choices. It is based on the analysis of positive and negative sides of thesis and antithesis, suggesting how all positive sides could work together, while negative avoided. It can be viewed as an “Artificial Honesty” that unites ancient philosophies with modern formalism.

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