

Formulation of Theory of Concepts

Abstract: A general formula is proposed based on the discovery of a fundamental conceptual unit of structural formation for contents in complete human knowledge and reasoning. A detailed analysis is conducted in parallel with the views from Peacock's theory of concepts. Due to the reducibility, universality, and parsimoniousness of such a formula, it is author's intention to claim it as an experimental epistemological model for conceptual processing of complete human knowledge in digital format. It is predicted that such an epistemological model would mimic one of the most significant attributes of the human mind, namely 'Reasoning'.

Keywords: Epistemology, Set theory, Law, Concept, Phenomenon, Codon, Knowledge, Reasoning

I am grateful to Leo Sans, Ira Dicker, Yingkai Wang and Himadri Samanta for their kindness and interest in helping me with English editing and critical input; to Douglas Hofstadter and Pei Wang for their honest doubts and debates, which are considered as the ultimate sources of the true enlightenment to me.

1. Introduction

A constant self-enlightening impulse has been acting upon the author in a seemingly peculiar way, which has always presented itself in the form of a question 'What is the basic structure for human knowledge and reasoning?'. The words 'knowledge' and 'reasoning' are always paired to appear in the same line of question. It forces the author

to consider a common solution, if there is, to this combined inquiry. Despite the obvious overwhelming ambitiousness, the foreseeable significance and profoundness from its possible solution draws sustained interest and focuses the author on an investigation of the truth. Such a truth must meet the requirements reflected by three key fundamental elements: reducibility, universality, and parsimoniousness. Only thusly can this truth be qualified as an ideal general intellectual instrument.

Analogically, like set theory in Mathematics, it is naturally and primitively compelling that some kind of comparable counterparts reflected from set theory might exist even in the kingdom of the highest order for all intellectual contents, namely 'knowledge and reasoning'. If the set theory has built philological foundation for the whole field mathematics, a new foundation based on its conceptual extended line of analogy might exist to serve as a new epistemological ground for the complete human knowledge and reasoning. In other words, a new school of thought about theory of knowledge becomes inevitably foreseeable. No matter what it would be, it must have the essence of all, the number and anything beyond based on it. As Swedish mathematician Gösta Mittag-Leffler implicated: Number is the beginning and end of thought. Thought gave birth to number but reaches not beyond.

From antiquity to modern times, there have been many remarkable attempts and achievements on similar matters. Regardless of their opinions or theories, what they all then have in common is that they offer the contents of their belief, the contents of ideas and the contents of their concepts in their native languages. However, none of them have

searched for a common conceptual structure. The reason is obvious. There was no such urge from intellectual reality. In the past, peoples, especially the most serious, the theorists, never encountered the scenario in the world of reality, which was that besides human being ourselves, there had been nothing else come close to be considered more intellectually and intelligently challenging than human mind until the dawn of information age. What those scientists and engineers, well known as ‘Artificial Intelligence’ researchers, have just done and are continuously doing is a constant reminder of the irreversible existence of such a new era.

In this article, the author focuses on philosophical aspects of just such a profound subject. Due to space constrains, a focused analysis is given to a sufficient degree to lay out the rationale for a proposed formula. This focus is on Peacocke’s theory of concept, solely from his book ‘*A Study of Concept*’ (the book).

On the contrary, the reason to choose Peacocke’s theory for analysis is not based on an analysis by the author of all other relevant theories proposed by every concerned contemporary philosopher, such as Michael Dummett, Danial Dennett, Jerry Fodor, or Crispin Wright, etc. It is just opposite. The proposed formula is a conceptual ‘building block’, the contents of theory like Peacocke’s, is chosen as the first to be tested philosophically for its truth.

2. Formula

$$\sum_{T < 0}^{R_1} \{(-LCP-)_n\} @ T_0$$

Read: Right now, this is what has already been all known about all things. For convenience, a simple expression is given to the formula in a short form '*LCP*'.

2.1. Explanation of the Terms in Formula

L: the subset of Law, including the contents of any proposition, rule, principle, axiom, theorem, and theory, etc. The number of individual laws being held in this subset has no limit.

C: the subset of Concept, including any individuated single units of meaning. The number of individual concepts being held in this subset has no limit.

P: the subset of Phenomenon, including any perception, or any objects to be explained such as sounds, images, words, etc. The number of individual phenomenon being held in this subset has no limit by counting.

$\{(-LCP-)_n\}$: a set with a unit called '*Codon*' (resembling codon used by geneticist in biology), which contains three fundamental and inseparable subsets in a symbol $(-LCP-)$. The technical nature of $(-LCP-)_n$ resembles the concept expressed for 'Polymers' or 'Polymerization' in chemistry for organic and large size molecules, in which '-' is the bonding symbol at high position on the left side to make '-L', and the low position 'P-' on the right side in a *Codon*; and the subscripted 'n' is an indefinite whole number indicating the quantity of repeated units in a 'polymer' or a *Codon* of $(-LCP-)$.

@ T_0 : 'At Time zero', also means 'Right now', or 'Right at this moment', and so on. The concept of Time, T , has its full range of meaning crossing all subjects of knowledge.

Σ : 'Sum', 'Sum up', 'All added up together'. It shares the same meaning with its counterpart in mathematics. Every word or phrase is a label for a sub-regional 'Sum' if it contains plurality (sub-classifiable members within subsets of *Codons*).

R_- : The set of negative real numbers, a concept taken from mathematics.

$T < 0$: 'before now', 'before this moment', any time point before T_0 . It has no limit in how far it can be stretched into the past.

3. Libraries Built with Individualized Single Meaning Units

To build the complete knowledge sets (*Codons*), which should have all the members in all three subsets of '*LCP*', every member in the subset must be identified, named, and filled-in. It also means that three libraries of three individual subsets must be built to hold all registered or classified contents.

3.1 'A (C)' vs. '*LCP*'

Now, let us start from single meaning unit of '*LCP*'.

The author thinks it compelling to consider that Peacocke's general form 'A (C)' is equivalent to either one of expression in the language of '*LCP*', which is '-LP-' or '-CP-'.

It is worth examining the quotation from its original source.

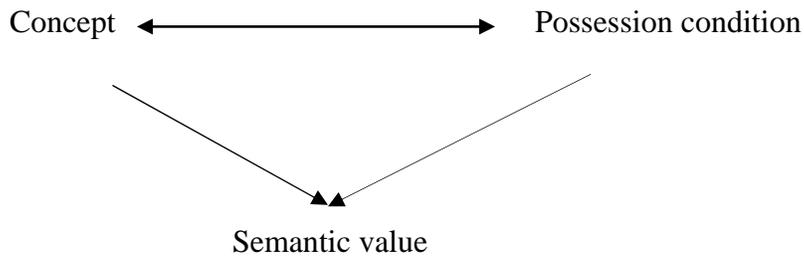
...This book proposes a general form that should be instantiated by an account of any concept and elaborates various aspects of the proposal. Developing such a proposal is a pivotal task for a philosophical theory of concept. The general form sets a standard to which accounts of particular concept must conform. Insofar as certain alleged concepts are declared to be spurious, as beyond the limits of genuine thought, it must also be by appeal to properties of this general form that such claims are justified (the book, 1992, xi).

With the same goal and philosophical spirit in mind, the author intends to argue that '*LCP*' can *slice* as finely as Peacocke's 'A (C)'. Furthermore, the form '*LCP*' is equivalent to be conceptualized by non-human entity, such as computer, as long as the identity of the members from each subset of '*LCP*' is constantly checked between the mind and the computer. To make Peacocke's 'A (C)' offering 'sliceable' by a computer, the distinctive identity between 'L' and the plural form of 'C', (although counter-intuitively subtle,) must be epistemologically established. Such 'fine-slicing' is not just philosophically interesting, but of necessity as a way to view the world with both generality and detail in 'Mind' at same time, from the point of view of a human being or an equivalent entity of non-human 'Mind'. By offering a select sample, the following paragraphs under the same section number (#3) illustrate the rationale in detail on constructing conceptual contents of any kind.

Example:

When a real-life teacher asks a real-life student the question ‘What is Newton’s second Law’; the student may answer, ‘Newton’s second Law’ is ‘Force equals a union of acceleration times mass’. Then, the teacher asks a further question: What is **in** common from the following two statements, ‘Galileo drops a ball’ and ‘NASA launches a rocket.’ The student may say, ‘Nothing is in common. One is downward; the other is up. They are just opposite.’

First, let us analyze this example by using Peacocke’s diagram (the book, 1992, 17):



From the first answer by the student, the semantic value contains the correct contents about the concepts or the contents of the law. It seems that the student passes the specific test about this question, implying that such student might be having possession condition for the concepts. However, further questioning reveals that the student does not really have the possession condition of concept, in other words, not truly fully understanding the concepts, although the possession condition of the semantic value of the concepts does exist in that student’s mind.

In a retrospective manner, the author would like to offer more adherences to the following immediate paragraph, which is illuminating of application of 'LCP' method, by stating three consecutive formulations made by Peacocke prior to the above diagram in his book. They are: Formulation for (1) Local Holisms; (2) Indexicals; (3) Perceptual Demonstratives; and a chunk of relevant details as follows (the book, 1992, 10-11): 'Indexical type H is that type T such that for any thinker and any time...' or '...if an object is the F perceived by the thinker at that time in a way...'

Now, keeping Peacocke's explanation in mind, let's 'slice' them in 'LCP'. To do this in a thorough manner, both Peacocke and the author would agree that we must start by mentioning its conception in recorded human history, the time 'T', which is presented as follows:

L (Law): Newton's second law

C (Concept): Force, Mass, Acceleration, Equation, Union of two terms by multiplication

P (Phenomenon): Apple falls on Newton's head, etc.

Publication: *Philosophiae Naturalis Principia Mathematica*

Author: Isaac Newton

Year of Publication: 1687

From the list above, we can see that before the time (Year) 1687, the world did not know the secret of nature in terms of natural law governing an objective motion. From then up to now, by practicing Newton's second law, together with other mastered

knowledge, people have sent man-made objects into space with predicted precision, i.e. the phenomena that are fully explained by existing theories including Newton's second law. Now, its expression in 'LCP' would be:

$L_{\{\text{Newton Second Law, } F=ma\}}$

$C_{\{\text{Force, Mass, Acceleration, Equation, Multiplication}\}}$ or equivalently labeled as

$C_{\{F, m, a, =, x\}}, C_{\{F\{\text{gravity}\}\}}, C_{\{a\}}, C_{\{m\{\text{apple, earth, human body, ...}\}\}},$
 $C_{\{\text{human body}\{\text{Newton, ...}\}\}}$

$P_{\{\text{Apple falls on Newton's head, Earth rotate around the Sun, Galileo drops the balls, ...}\}}$

Here, by counting, the number of law is one; the number of concepts in the law is 5 or more, which (number) is controlled by key members in the subset of concept; the number of phenomena is 'n', beyond countable, meaning taking objects as many as possible for explanation. Therefore, a complete chain of 'LCP' of knowledge and reasoning for Newton's second law (being formatted to show the significance of 'LCP' structure):

$L_{\{\text{NewtonSecondLaw, } F=ma\}} C_{\{F, m, a, =, x\}} P_{\{\text{Apple falls on Newton's head, Earth rotate around the Sun, Galileo drops the balls, ...}\}} @ T_{\{\text{Year 1687}\}}$

Since then, up-to now, such a discovery is still considered be true. Again, the truth value in 'LCP' expression with its parallel of $L_{\{\text{NewtonSecondLaw, } F=ma\}} C_5 P_n$ is:

$$L_{\{\text{TheoryofTruth}\}} C_{\{\text{Truth value}\}} P_{\{\text{Truth Value ,1}\}} @ T_0$$

Combined together, or we may say ‘Sum up’, we have:

$$\begin{aligned} &(-L_{\{\text{NewtonSecondLaw, F=ma}\}} C_{\{\text{F, m, a, =, x}\}} P_{\{\text{Apple falls on Newton's head, Earth rotate around the Sun,} \\ &\text{Galileo drops the balls, ...}\}} @ T_{\{\text{Year 1687}\}}) (-L_{\{\text{TheoryofTruth}\}} C_{\{\text{Truth value}\}} P_{\{\text{Truth Value ,1}\}} @ T_0) \end{aligned}$$

The time-span between Year-1687 to now is expressed as a fraction of a negative real number, meaning ‘so far since 1687’.

Furthermore, the contents from ‘LCP’ can be removed without losing any equivalent identities if reference of time is used to label the individual subset factually. For example, the content of law ‘ $L_{\{\text{NewtonSecondLaw, F=ma}\}}$ ’ can be same as one in ‘ $L_{\{\text{number 1, Year 1687}\}}$ ’, if the publication record shows the evidence as a fact. Now, logically, $L_{\{\text{NewtonSecondLaw, F=ma}\}}$ equals $L_{\{\text{number 1, Year 1687}\}}$, for which the reason is guaranteed by Law of Identity, Law A is Law A. Here, the contents or members in the subset are identified as a law by definition, and identical to each other by nature.

Now back to the judgment again about that student’s second answer, her ‘mind’ bag labeled Concept ‘Force’ is not filled with the content of ‘gravity’, and ‘Mass’ filled without ‘balls’ or ‘rocket’. To see how much is understood by that student on ‘Newton’s Second Law’, express this situation in ‘LCP’ about that student’s understanding’:

Before the correct answers are given, in that student's mind, or in 'LCP' terms 'personal library of student x', or 'pl (x)' in short:

pl (x) @T_{the correct answers are given}:

L_{Newton Second Law}C_{Force, Mass, Acceleration, Equation, Multiplication}P_{ Newton Second Law , Force , Mass , Acceleration, Equation , Multiplication , ?,?,?...}

Again, in published record, or in 'LCP' term 'Public library', 'PubL' in short, 'Newton second Law' is expressed as such:

PubL @T_{the correct answers are given}:

L_{Newton Second Law}C_{Force, Mass, Acceleration, Equation, Multiplication}P_{ Newton Second Law , Force , Mass , Acceleration , Equation , Multiplication , Earth, Sun, Stars, Planets, apple, ball, rocket,...}

Now, let's compare the contents of 'LCP' from pl (x) @T_{the correct answers are given} and the one from PubL @T_{the correct answers are given}.

Clearly, what's missing from pl (x) is that the subset of P is not filled with content of the semantic values like 'ball', 'rocket', etc, which should be filled up if the *concept* of 'Mass' or 'm' is really understood by the student to confirm its possession condition in his or her mind. It shows the 'gap' or missing parts between pl (x) and PubL at the time

point of 'the correct answers are given'. When that particular time point passes, that student may present some evidence to show his or her new status of understanding about Newton's second law of motion. From that moment on, the comparison chart of pl (x) vs PubL may not show any 'gap' in this regard, indicating that student x has highly likely fully understood that specific law, or, say, have the knowledge and know-how to use it upon similar questions to be asked in the future ($T > 0$, time point @ greater than zero).

Before ending this subsection, a transitional note must be made here to re-emphasize the definition of 'subset of Phenomenon'. If we skip technical insides about computer and computational theories, with humble propositional attitude for accepting the facts about its nowadays power (speed and memory), the following statement can be made without difficulty:

All the contents as members in the subset of P from any kind of documents can be digitized. The entity of such collected totality is $\{(P)_n\}$, subset of Phenomenon.

As stated in the formula, without losing track of any event, the content of observed phenomenon, time from timer is set up for tracking and marking recorded items or objects on its trail. It is a vital element in 'LCP'.

3.2 Build the Complete Libraries of 'LCP': A Status of Possession Condition of Concepts in Computer

To build the libraries, PubL, in '*LCP*', what one must have is a library in digital format, which includes total collected words or images from total collections of any kind of documents, (books, journals, audio and video materials) from Public libraries (physical ones). The best example is the Library of Congress (LC).

As a granted condition from the previous section, $\{(P)_n\}$ has the contents in strings of letters or sound or images without contents of meaning, which are in the subset of C and L. To make a computer having possession conditions for any concepts, not just words or symbols, the subset of L and C must be filled-in besides the subset of P. Actually, this has been done for the computer itself or the communication between computers; but not between computers and real-life persons.

For example: When a real-person asks a computer 'how much is one plus one?', probably, because of the ambiguity of Natural Language, there is still no computer to be able to answer the question like this. Obviously, it is not the reason that a computer, which is packed with arithmetic programs, does not do simple math '1+1'. In the theory of '*LCP*', it means that the computer does not have the possession condition for the concepts in the way a human being does for these strings of letters and symbols.

Here, to make a computer 'understand' humans, we need to use the same meaning structures to construct information both in computer and human languages. To do so in a computer, there should be a set or class with permanently fixed label 'L', (again governed by the law of identity). The set of law should have unlimited space for the variables under

'L' to tag the unique identification to each law; and the same way to all the members of 'C' and 'P'. In our case here, there are members in 'L' tagged 'rule of taking question' 'rule of addition' or 'rule of arithmetic operation' 'rule on 'is''; for the members in subset of C, tagged 'question' 'number' 'natural number' 'summand' 'augends' 'add' 'sum' 'summation' 'arithmetic operation'; for the members in subset of P tagged 'how much' 'is' 'one' 'plus' 'one' '?'.

Clearly, what has been taken for granted here is that without context the author assumes such a question is just about mathematics. With this exactly same sentence, it can also mean that what is the cost for a product called 'one plus one'. In such a case, expressed in '*LCP*', the members of 'L' can be tagged 'rule of trade' 'checking price' 'every product have a name'; the members of 'C' tagged 'price' 'product name'; again, the members of 'P' 'how much' 'is' 'one' 'plus' 'one' 'one plus one' '?'. Now, by this simple example, we know that the context is to make the reasoning domain, or subject, be clarified, where we have either about pure math or trade, or both or even beyond these two. No matter what domain it may be, if the speaker reasons logical, the domain should be defined and focused. In other word, the contents of 'L', the 'bag of reasons', are clustered in a group, and distinguish themselves from all other groups of 'L'. Meantime, it should treat the members of 'C' accordingly by following their appropriate positions in the domain of 'L' as its own logical members.

Again, when a question is being asked of a computer, answers cannot be presented until a definite domain is singled out, meaning of knowing which part of '*LCP*' is known to be

picked up, even under the condition that the solely correct choice can be the one out of an extremely large number of matches, but still searchable, countable and matchable by computer. In the reasoning chains of ‘LCP’, the higher end of *-LCP-* of ‘*-LCP-LCP-...*’ has deducting power to the low end on the right. It produces new propositional conclusions solely based on deductive reasoning. In the opposite way, we have inductive reasoning; in which more generalized propositions or hypotheses are created or discovered.

With confidence in the capability of endless counting, it’s time for us to return to our task ‘Building the complete libraries in digital format’. We can start the list about concepts collected from the world in the recorded human history. It can be started from any point, for example, ‘Newton’s second law’ or those about ‘one plus one’, or any time point in human history. To go any further, it is unavoidable to have reference of time set up.

And, let us start a document, named ‘Doc. No. 1’

We can start to build the detail about content from Doc.No.1 as follows:

Doc. No. 1 in ‘*LCP{ }*’ (Expression-A-3.2)

... T@ time-3 T@ time-2 T@ time-1 T@ 0

Contents of L

L1{at time-3} L1{at time-2} L1{at time-1} L1{at time-0}

L1{at time-3}	L1{at time-2}	L1{at time-1}
	L1{at time-3}	L1{at time-2}
		L1{at time-3}

Contents of C

C{C1, C2, C3, C3... at time-3}	C{C1, C2, C3, C3... at time-3}	C{C1, C2, C3, C3... at time-1}	C{C1, C2, C3, C3... at time-0}
	C{C1, C2, C3, C3... at time-2}	C{C1, C2, C3, C3... at time-2}	C{C1, C2, C3, C3... at time-1}
		C{C1, C2, C3, C3... at time-3}	C{C1, C2, C3, C3... at time-2}
			C{C1, C2, C3, C3... at time-3}

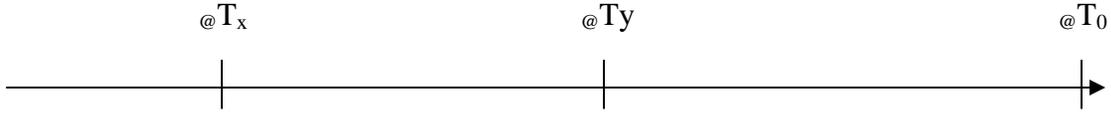
Contents of P

(word: 'WD')

P{WD1, WD2, WD3, ... at time-3}	P{WD1, WD2, WD3, ... at time-2}	P{WD1, WD2, WD3, ... at time-1}	P{WD1,WD2,WD3, at time-0}
	P{WD1, WD2, WD3, ... at time-3}	P{WD1, WD2, WD3, ... at time-2}	P{WD1,WD2,WD3, at time-1}
		P{WD1, WD2, WD3, ... at time-3}	P{WD1,WD2,WD3, at time-2}
			P{WD1,WD2,WD3, at time-3}

Before building all the subsets of 'LCP', the most fundamental rule must be re-emphasized, which is Law of Identity, 'A is A'. In 'LCP', Law A is Law A. It is absolutely not Law B or Concept A or Phenomenon A. Now, let's build every document in 'LCP' and in a complete version with historical referential points:

Historical time points



Between historical time point x and y: History (x-y) = T @ x – T @y

Total accumulated documents in P (words, sentences, paragraphs, chapters, books)

$$\sum_y^{R-} \{(\mathbf{P})_n\}_{@T_y} \quad \text{minus} \quad \sum_x^{R-} \{(\mathbf{P})_n\}_{@T_x} \quad (\text{Expression-1-3.2})$$

Total accumulated concepts and laws from those documents within history (x-y)

$$\sum_y^{R-} \{(\mathbf{LC})_n\}_{@T_y} \quad \text{minus} \quad \sum_x^{R-} \{(\mathbf{LC})_n\}_{@T_x} \quad (\text{Expression-2-3.2})$$

Total knowledge accumulated within history (x-y), including relational reasoning factors, the ‘bonding’ or ‘-’:

$$\sum_y^{R-} \{(-\mathbf{LCP}-)_n\}_{@T_y} \quad \text{minus} \quad \sum_x^{R-} \{(-\mathbf{LCP}-)_n\}_{@T_x} \quad (\text{Expression-3-3.2})$$

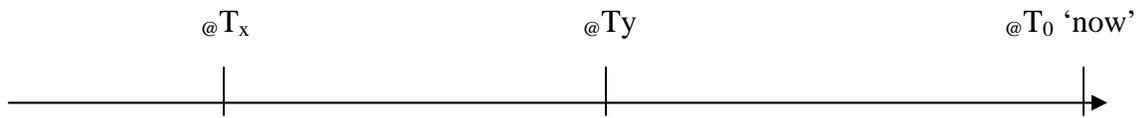
Up to now, total human knowledge with reasons known from all recorded history:

$$\sum_{T<0}^{R-} \{(-\mathbf{LCP}-)_n\}_{@T_0} \quad (\text{Expression-4-3.2})$$

3.3 Building Individual Personal Libraries

With the limited life span and capability of every individual person, each man or woman possesses a limited quantity of total human knowledge during his or her lifetime. Nonetheless, such limited quantity of knowledge can be built in the way of 'LCP' with this person's own unique experience. It should look like this:

Personal lifetime points



Between personal time point x and y: personal history (x-y) = T @ x - T @y

Total accumulated documents in P (words, sentences, paragraphs, chapters, books)

$$\sum_y^{R-} \{(\mathbf{P})_n\}_{@T_y} \quad \text{minus} \quad \sum_x^{R-} \{(\mathbf{P})_n\}_{@T_x} \quad (\text{Expression-1-3.3})$$

Total accumulated concepts and laws from those documents within history (x-y)

$$\sum_y^{R-} \{(\mathbf{LC})_n\}_{@T_y} \quad \text{minus} \quad \sum_x^{R-} \{(\mathbf{LC})_n\}_{@T_x} \quad (\text{Expression-2-3.3})$$

Total knowledge accumulated within personal history (x-y), including relational reasoning factors, the 'bonding' or '-':

$$\sum_y^{R-} \{(-\mathbf{LCP}-)_n\}_{@T_y} \quad \text{minus} \quad \sum_x^{R-} \{(-\mathbf{LCP}-)_n\}_{@T_x} \quad (\text{Expression-3-3.3})$$

Up to now, total personal knowledge with reasons known from all recorded personal history can be obtained. If time x is this person's first birthday, Expression-3-3.3 should be containing all this person's knowledge up to his or her time zero, T_0 .

4. Communications: Understanding Exchange

Obviously, when a person's total knowledge is recorded and shared publicly at certain time points, it means that the total quantity and contents of such personal knowledge are definitely much less than total recorded collection of human knowledge, or equivalently less than the public libraries, the contents in Expression-4-3.2. However, in reality, none of all personal knowledge from any individual person can be shared with the public right away at a certain time point. Therefore, communication must be done to reach shared understanding after the process of information exchange, or say a commonly agreed explanation, or in 'LCP', shared contents of reasons.

The quantitative expansion of sheer volume of public libraries does not quantitatively change the value of truth of previously discovered laws. Indeed, such expansion shows the scale of significance of some discovered laws over others among the total knowledge gained at certain time points in human history, from the remote past, current and even right up to this moment. In expression of 'LCP', those significant laws repeat themselves in more instances in the real world and more reasoning powers than others in human mind as a whole. Being equally shown, in the chain of '-LCP-', such laws stand at the very left of the reasoning structure, in '-LCP-LCP-LCP-....', from which the deduced

laws (propositions, rules, or theorems, etc.), are well ordered in their positions in the reasoning.

4.1. Education: Teacher vs Student

For further illumination by typical instances, again, let us resume the scenario between a student and a teacher.

Like most students, this is a group of people with their own diverse personal experience and intent to grasp new concepts, so called ‘learning’, for which the possession condition has not existed in their mind. Despite of the fact that some words, phrases, and sentences might be heard before time-zero, they happen just to be the semantic values of some concepts or laws without being truly grasped by the student for their true meaning. Nonetheless, some vivid and rich personal histories are being described as rich contents of P (Phenomenon) of this specific individual, the learner or student, leaving explanations with theories to be learned at time beyond zero.

In ‘LCP’, as a teacher, ‘Tr’ in short, in a field or Discipline-A, his or her personal libraries, within the subjects of her expertise in teaching, should contain all the contents of materials for teaching. Given an assumed quantity of 10,000 thoroughly read and understood books, Tr’s ‘LCP’ can be displayed just for the purpose of presentation and comparison:

Tr’s total number of possessed contents in L, C and P, ‘ $\sum \{(-LCP-)_{\text{Discipline-A from Tr}}\}$ ’

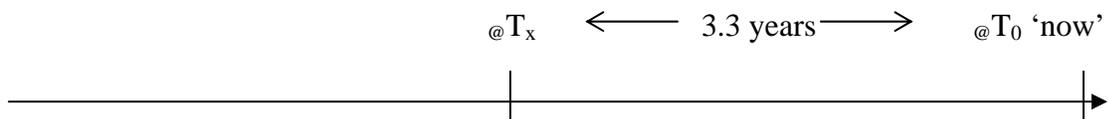
from those books:

L(a lot) Discipline-A from Tr

C(a lot) Discipline-A of from Tr

P(10,000 books) Discipline-A from Tr (the actual counts might be 1,800,000,000 of total words; 3,000,000 of total pages; It might take 3.3 years, for Tr to finish all of them without single second break)

P (personal experience besides reading those books) non-Discipline-A from Tr



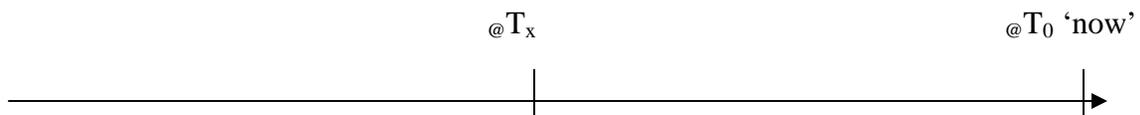
Now, the student's, 'St' in short, total number of possessed contents in L, C and P from non-discipline-A ' $\sum \{(-LCP-)_{\text{non-Discipline-A from St}}\}$ '

L(none) Discipline-A from St

C(none) Discipline-A from St

P(no books) Discipline-A from St

P (personal experience besides reading those books) non-Discipline-A from St



Before St starts to learn new things about discipline-A (knowledge and reasons), first of all, questions begin to be raised only based on St's past personal experience. From those

experiences, St has vivid memory, even evidence of them (diaries, notes, photos, recorded video, etc) about those contents of phenomenon, but has possessed no explanation or very preliminary thought about the explanatory theories behind those phenomena about discipline-A. The number of questions raised can be very large and lengthy in natural language expression. Nonetheless, they are always related to the parts of St's true personal experience. Such an accumulation of questions for St about Discipline-A will not stop until all the theories that should be learned by St have covered the scope and scale from the questions out of St's personal experience, which he or she takes for granted for their whole life before the time-zero.

For a clearer demonstration, let us put Tr's and St's personal libraries side by side:

$$\text{Tr's } \sum \{(-\text{LCP-})_{\text{Discipline-A from Tr}}\} \quad (\text{Expression-1-4.1})$$

$$\text{St's } \sum \{(-\text{LCP-})_{\text{non-Discipline-A from St}}\} \quad (\text{Expression-2-4.1})$$

For a 'broken-down' version of Expression-1-4.1 or Expression-2-4.1, it may look like the following.

Now, the general Expression-A-3.2 in Tr's case, starting from Doc. No. 1 in 'LCP {}' within the time span of T_x to T_0 . Simply,

Tr's

(-LCP-LCP-LCP-...)(-LCP-LCP-LCP-...)(-LCP-LCP-LCP-...) the rest of Discipline-A from Tr

(-LCP-LCP-LCP-...)(-LCP-LCP-LCP-...)(-LCP-LCP-LCP-...) the rest of non-Discipline-A from Tr

The shaded LC means those concepts, laws, and, theories which are already published and also grasped by Tr.

St's

(-xxP-xxP-xxP-...)(-xxP-xxP-xxP-...)(-xxP-xxP-xxP-...) the rest of Discipline-A from St

'x' means the empty subsets of L or C. However, a very large sets of questions have been created based on St's experience and arranged according to existing knowledge and reasoning possessed by Tr and Public libraries. Therefore, there is no lack of contents of P from St's libraries regarding discipline-A.

The semantic values or marks for a new group of concepts to St may appear counter-intuitive when St is learning discipline-A. Such situations may seem to alienate St on truly grasping some concepts and laws in order to fully understand discipline-A. Nonetheless, those questions, the contents of P, indeed begin to have answers for the explanations that St is waiting for. Once all the questions are answered, it should be reasonable to believe that St has as equal knowledge along with reasoning as Tr does, although St might not have spent as long as Tr does on discipline-A learning. Now, let us put them together to compare:

(-LCP-LCP-LCP-...)(-LCP-LCP-LCP-...)(-LCP-LCP-LCP-...) the rest of Discipline-A from Tr

(-xxP - xxP - xxP-...)(-xxP - xxP - xxP-...)(-xxP - xxP - xxP-...) the rest of Discipline-A from St

From countless instances under P from Tr, it is reasonable to believe that some of them can be convincingly close to what St has experienced, the contents of P from St, but lacking of explanation to them. In other words, all the theories and reasoning which allow

St to master Discipline-A can be presented at once to answer all the questions raised by St in his or her life time. This kind of education process, or understanding exchange, can be reacted and completed within relatively short periods of time, resulting in the same quality of teaching and learning experience in the traditional way, but taking a longer time. This process becomes direct, personal and efficient because of the unprecedented reasoning tools ever used: computer and the theory of concept, 'LCP'. With such assisted intelligence, it will become a common notion that artificially grasped concepts by a person are considered 'being understood' if this person always practices the learned theories consistently even he or she is being helped with reasoning tools.

4.2. Knowledge, Reasoning and Natural Languages

Now, we have gradually reached the understanding that identities and contents of Laws and Concepts are independent from a specific linguistic system, although they are impossible to exist without linguistic expression in general. To grasp a theory, laws and their concepts, a person does not need to be a bilingual or beyond. Having such shared understanding crosses all human races; by analogy similar to implementing Qwerty on a computer keyboard, in this way, establishing libraries of Law and Concept in 'LCP' can be accomplished in a specific linguistic system such as English. To be exact, as an initial phase, English will be used as marking labels for all the contents of Laws and Concepts so that the libraries of L and C can be established with less concern solely resulting from interference of specific language, until then, the libraries of L and C just for linguistic knowledge and reasoning shall be set up.

Obviously, four significant categories come to exist: Sciences and Non-sciences, Religions and Non-religions. Furthermore, we say anything in between those four categories. No matter what way of parsing, as all possible ontological entities, any kind of categorization and classification of Laws and Concepts deserve their own conceptual existence and truth. Thus, they deserve their own places as part of human knowledge and reasoning in the libraries of L and C in 'LCP'.

Finally, as libraries for complete human knowledge, they should include every ethnic and culture detail: language, tradition, and its own history. In other word, PubL should include all non-English contents in $\{(P)_n\}$.

4.3. Misunderstanding, Human error, Ignorance and Free will

In any kind of communication, oral or writing etc., seeking answers always result in a few kinds of unsatisfactory endings: Misunderstanding, Human error and Ignorance. By and large, the general cause of them is from free will, which is taking most of space in the structure of human reasoning chains of 'LCP'. Nonetheless, free will of specific proposition is always short-life due to its self-conflicting nature upon standing in the lane of truth-value test. Therefore, it always leaves its value of significance as knowledge as zero but with high value of noise as background in reasoning. Indeed, its existence does prove the structural reality and truth of 'LCP'.

Structurally speaking in 'LCP', misunderstanding is understood as a mismatch between the contents from two sets of 'LCP' from two persons upon communication: grasping

wrong concepts when initially thought having done correctly in belief. It is one of the most common things happening to everybody everyday. Natural language is believed to be an inevitable sources as the cause because of its ambiguity in nature, such as the one mentioned earlier 'one plus one', which can be taken as content under concepts of arithmetic, or under concepts of naming with free will. Nonetheless, as long as tolerance and time are allowed, misunderstanding always can be overcome by re-thinking with re-identification of right concepts that make more sense or reminded by new evidences. Unfortunately, its trade-off is always less efficiency, taking time to realize the fact of misunderstanding and possibly regretting not having identified the correct one at first time.

A human error is judged by definition of failure in following rules with unexpected results. In other words, a human error results from inconsistent performance, which is dictated by the contents of laws and concepts. It reflects a deficiency of human capability in physical and mental terms. Again, using tools can overcome it by gained strength and smartness. The latter has something to do with 'LCP'.

A true and complete ignorance is an incurable intellectual deficiency, because the narrowed and fixed view about the world yields no hope to its holders and beholders. Along their reasoning chains of 'LCP', they are short of contents and filled with empty sets, even poor quantity in short-life free wills. It is pathetic to see it in civilized society. Fortunately, the extreme cases are rare.

5. Reducibility, Universality, and Parsimoniousness

To be qualified as an ideal intellectual instrument, without exception in all counts from recorded human history, for every theorist, philosophers or specialists in specific field, any general hypothesis or theory must satisfy a minimum requirement on universality test. Beyond it, establishment of self-representation and elimination of unnecessary redundancy produce the final perfect form of a theoretical system.

Codon theory has passed the tests for these three criteria for its truth by author intuitive reasoning, leaving the task for further testing its truth to other testers including computers.

6. Conclusion

Along the extended lines of the same philosophical essence of theory of concept from Peacocke, the author formulates a more generalized system that unifies the diverse scenes of human intellectual contents. On this unified viewing ground, the timeless subject about human knowledge and reasoning has met its future object, a platform that is talking about itself in a complete and organic manner. It is just like mimicking the essence of all, the human mind.

References

Peacocke, C. 1992: *A Study of Concepts*. Cambridge, MA.: MIT Press

The sources for all common knowledge cited on this paper are from encyclopedia in digital version, either from *Encarta* by Microsoft, or, *Wikipedia* via Internet.