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Artificial Wisdom: A Research Perspective

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Abstract: *Being an amateure researcher I am working independently for artificial wisdom (AW) for a long time. This paper is presenting my works in a nutshell. AW should have issues like high speed processor, large data handling, encoding of human mind. I have defined non-binary data processor for ease in data processing, interlaced binary search (IBS) for ease in data handling, and introduction to the possibilities of encoding human mind or else wisdom through quantum mechanics. This is a mult-subject paper. Non-binary processor is designed using pulse position modulation (PPM). IBS improves binary search on introduction of multiplication along with division. Wisdom is differentiated from intelligence on adding desire. Desire is defined as something more than need on encompassing knowledge of self and unbiased reasoning. Each components of desire has an embedded part that is defined as hallucination need (defined as wandering of mind around unreal, acting with attachments, having deluded mind with egoism, performing as foolish follower.) This research is viewing wisdom as the tool-kit to realize the "Survival of the fittest." That is wisdom allows to develop own-self on desire base. Quantum Mechanics allows probabilistic approximation of multiple interacting events. Human behavior and creativity is a product of multiple events occurring simultaneously and/or in cascade with mutual interferences. Quantum mechanical interpretation of human behavior may be possible on describing it with dual aspects of desire (conscious or the real need and unconscious or the hallucination need) and uncertainties in simultaneous measurement of them. This paper is presenting one new postulate besides earlier nine postulates.*

Keywords: *Wisdom, Intelligence, Desire, Need, Data Processor, Interlaced Binary Search*

1. PRELIMINARIES

Myself is running a long for last 40 years since my boyhood for Artificial Wisdom (AW). To achieve the goal I have defined non-binary data processor [1,2,3,5,11,12], multiple items simultaneous binary search and corresponding data encoding [4,5,15], possibilities of encoding human psychology through my management papers [6,7,8,9] and an introduction to wisdom on delinquent it from intelligence [10,13,14,16]. In this paper I am presenting my works in a nutshell and possible future research. This paper is covering multiple disciplines starting from electronics and communication, computer science, to philosophy, psychology, and quantum mechanics. There is a wide scope of further integrated research for artificial wisdom.

First I am giving the scope of my defined non-binary data processor. This may be a corner stone on implementation of AW to process simultaneously multiple items. Second the interlaced binary search and its implication possibilities. Third the Wisdom a delinquent from Intelligence and last the future research possibilities.

2. NON-BINARY DATA PROCESSOR

Today's all computers run with binary processor. The binary processors works with binary number system. Binary number system uses 1/0 (On/Off or High/Low) to represent a number. To work say in decimal the specific number needs to be converted into binary. To represent any number of decimal decent binary system requires system specific binary number paths or else data bus. Say, to represent decimal numbers from 0 to 255 we need eight binary data paths which would be set high or low (1/0) as per data encoding requirement. Now say, if we can use each of these data paths as one number we could have a parallel processing system that can simultaneously handle numbers in count equal to the number of data paths of the data bus, say for an eight bit bus we could create a multi-processor environment of simultaneous run of eight processors. This requires data representation and manipulation using single data path. Non-binary data processor that I have defined can process data on referencing designer's choice. I have defined the data encoding using pulse position modulation (PPM) where data is represented by time gap between two successive pulses of opposite polarities. The polarity of the start pulse denotes the sign of the number. Similar to 'bit' the digit in this representation is termed as **ait** (analog digit). There are three states in clock pulse – first zero, second positive high and third negative low. With this representation addition, subtraction and comparison operations are defined using single line signal processing. The

processor architecture is defined with tri-state multivibrators to temporary store data. The tri-state multivibrator is two monostable multivibrators arranged in inverse parallel. One tristate multivibrator stores an ait on outputting positive (negative) high **start pulse (SP)** and negative (positive) low **end pulse(EP)**. Time gap between SP and EP is the data value. Figure-1 is representing the processor and data in schematic. It contains r_w as base of referenced number system, BDP the binary data processor that makes the control, PBI the PPM to Binary interlace, PDP the PPM encoded data processor, PIO the PPM input/output, and CLU the control logic unit.

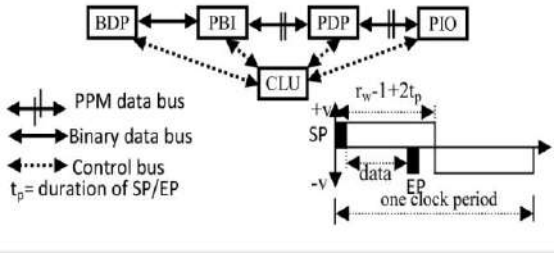

Figure -1: Non-binaryData Processor Architecture and Data Representation Schematic

3. INTERLACED BINARY SEARCH (IBS)

The **binary search** is the base to represent binary number system. It search an item from a serially listed n items on continuously dividing the list into two equal parts till the item is found. It can search only one item at a time because dividing the list into smaller segments leave out other items from the search scope. The improved search that is named as **interlaced binary search (IBS)** uses multiplication simultaneously with the division to search multiple items in one run. Two uses of IBS is defined. First is the **interlaced analog to digital converter (IADC)** that can convert multiple analog inputs to digital or else binary simultaneously with more efficiency than input multiplexed analog to digital converter using binary search. Second use is the possibility of binary data compression. A large set of binary data may be encoded with IBS and adaptive delta modulation to a smaller set for storage and transmission use. IBS may be used for AW to manipulate large data sets.

4. WISDOM & INTELLIGENCE

Wisdom is differentiated from intelligence on the basis of two items. First is the uncertainty between yes and no. The wisdom works with the uncertainty whereas intelligence works with certainty. Second is the introduction of desire to be incorporated with intelligence to have wisdom. On referring quantum mechanics (QM) a mathematical foundation of wisdom is being defined to have the wisdom machine that can work like creative human. Creation may be defined as the desire to have new. Wisdom is differentiated from intelligence on adding desire. Desire is defined as something more than need on encompassing knowledge of self and unbiased reasoning. Each components of desire has an embedded part that is defined as hallucination need (defined as wandering of mind around unreal, acting with attachments, having deluded mind with egoism, performing as foolish follower.) My research is viewing wisdom as the tool-kit to realize the "Survival of the fittest." That is wisdom allows to develop own-self on desire base. QM allows probabilistic approximation of multiple interacting events. Human behavior and creativity is a product of multiple events occurring simultaneously and/or in cascade with mutual interference. Quantum mechanical interpretation of human behavior may be possible on describing it with dual aspects of desire (conscious or the real need and unconscious or the hallucination need) and uncertainties in simultaneous measurement of them.

Table 1: Wisdom & Intelligence

Intelligence	***Wisdom***
Certain	Acceptable
Evident	Counter balanced
Directly Evident	Self-presenting
Axiomatic	Priori, Tends to confirm, Defeats
Belief without doubt	A set of concurrent proposition
True belief de dicto	True belief de re
Non-defectively Evident	More probability than not
Context sensitive	Context free

Wisdom may be viewed as the capability to create, on referencing knowledge gained in other situations that is making the context sensitive knowledge context free. Let have a little idea about creativity from psychology .

- Creativity does not happen inside people heads, but in the interaction between a person's thought and a socio-cultural context. It is a systematic rather than an individual phenomenon. [17]

- Creativity occurs when a person using the symbols of a given domain such as music, engineering, business, mathematics, etc. has a new idea or sees a new pattern and when this novelty is selected by appropriate field for inclusion into the relevant domain. Occasionally creativity involves the establishment of a new domain. [17]
- The creative process starts with a sense that there is a puzzle some where or a task to be accomplished. Perhaps something is not right, somewhere there is a conflict, a tension, a need to be satisfied. [17]
- Creative process may be defined by five stages – *period of preparation*, *period of incubation*, *insight*, *evaluation*, and *elaboration*. These stages are not exclusive but typically overlap and recur several times before the process is completed. [17]
- Depending on situation, *adaptation* (to adjust the self to fit environment) can hinder creativity or support it. In some cases, adaptation means tightly conforming to a confining environment that stifles creativity. In other cases, it means creatively adjusting to the subtle nuances of a changing environment. [18]

5. QUANTUM MECHANICAL POSTULATES TOWARDS AW

Here I am mentioning the QM postulates that I have proposed on [16], and proposing the tenth postulate. QM is the description of the behavior of matter and light in all details and in particular of the happening in the atomic scale. For human unconscious behavior is so unlike ordinary conscious experience, it is very difficult to get used to, and it appears peculiar and mysterious.

Postulate 1

Wisdom = Truth = Intelligence + Desire;

Truth = Truth of Action + Truth of Inaction + Truth of Prohibited Action;

Desire = Need – Knowledge of Self – Unbiased Reasoning;

Postulate 2

Hallucination Need (HN) is defined as wandering of mind around unreal, acting with attachments, having deluded mind with egoism, performing as foolish follower. Each of three components of `desire' has embedded HN.

Postulate 3

Each of five needs (physical, safety, social, esteem, self-actualization), 'knowledge of self', and ' unbiased reasoning' have two components. First is real and second is imaginary or else hallucination (HN). As for illustration, the physical need (PN) has two components the real and the imaginary or else hallucination physical need. For QM representation each need is represented with a complex number (a+ib), whose real part (a) relates to probability of the real need and imaginary part (b) relates to probability of imaginary or hallucination need.

Postulate 4

Desire (DS) is taken as combination of (superposition in QM) needs, knowledge of self (KS) and unbiased reasoning (UR). This sum is to be interpreted as simultaneous occurrence of all states.

Postulate 5

Thinking may be defined as disturbance in desire that tries to rearrange needs with/without a net change in behavior. The rearrangement requires efficient 'analysis', 'synthesizing', and 'imagining and goal setting.'

Postulate 6

Thinking and consequent human behavior may be accounted as manifestation of socio-biological aspects and desire. The randomness of human behavior may be coping with probabilistic outcome of intelligence and/or wisdom operators on desire and socio-biological functions. Socio-biological function is to be defined for. The desire and socio-biological functions are to be elaborated statistically on statistical observations of human groups. Different entries in table-1 should be taken as operators that work on function to output another function with change state.

Postulate 7

Need cycle with only deficiency needs may be called as intelligence operated system with zero hallucination need. Need cycle with deficiency and/or growth needs with hallucination components may be called as wisdom operated system.

Postulate 8

Need-Desire Uncertainty: It is impossible to measure needs individually without interferences among them, when ascertaining the desire that is framed out from those needs.

Postulate 9

Mind or else Wisdom Space is defined by five needs (physical, safety, social, esteem, and self-actualization) as dimensions, where each need space is defined as per postulate-1. Desire is combination of needs to achieve a particular need.

With these discussion I am proposing here the 10th postulate.

Postulate 10

Creativity may be accounted as superposition (simultaneous harmonized occurrence) of need-desire, environment, and adaptation.

6. CONCLUSIONS

This paper is presenting my span of work for artificial wisdom. Being amateur researcher I have a little time to work besides my professional engagement. Due to time constraint I am failing to have more justification for the *postulate-10* presented here. Though I have some more postulates I cannot have the time to write them with justification. The realization of artificial wisdom requires an integrated fully devoted research. This integration requires first the encoding of human mind, followed by software and hardware requirements. The encoding I am going through to use quantum mechanics for different psychological items that may in future encode human mind. This requires a strong mathematical, psychological, and philosophical base. Anyone is welcome to have an integrated research. I will try to support my best.

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