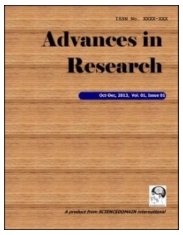

Advances in Research
2(10): 528-542, 2014, Article no. AIR.2014.10.002

SCIENCEDOMAIN *international*
www.sciencedomain.org

Computational Basis for Human Relations

Syed V. Ahamed[1*]

[1]*Computer Science Department, City University of New York, Staten Island, New York 10134, USA.*

Author's contribution

This whole work was carried out by the author SVA.

Original Research Article

Received 5th April 2014
Accepted 2nd June 2014
Published 11th June 2014

ABSTRACT

In this paper, we present a seminal step into the "science of social programming" for computer and communication systems. Most human relations though frail and fragile, have scientific basis and methodology that are programmable behind them. Relations progress through incremental stages and become reflective gemstones in the emotional human bondage between people. Transactions, events, episodes and relations evolve and sparkle as desires and sentiments that become living memories and longings. Such short- and long-term stages mould human feelings into masterpieces of passion, poetry and art. These states of mind, that linger as winding pathways in the psyche are amenable to computational techniques and can act as AI based self learning programs and as leading indicator of the impending curvature of relations. These pathways have an origin, a destination and numerous contours in between. Path finding and routing algorithms are applicable and the software and database techniques become applicable to the content-management and to the relationships between the numerous aspects of the personalities of any interacting social object(s) with the other or many others. Based on the two adjoining disciplines of social and computer sciences, it becomes feasible to define the constructs and designs of social machines that analyze, follow and guide social transactions, events, episodes and relations to one or more desired conclusion. The processing and storage of personal traits and their influences on the future interactions are well accommodated in PDA or iPOD type of hand held device and acts as a global social positioning system in the various social norms and cultural environment of individuals, corporations and nations. Such a system would serve as a computer aided social GPS of the future, particularly useful for immature adults, new students, hospital patients and cultural transplants.

**Corresponding author: E-mail: Profahamed@gmail.com;*

Keywords: Social Interactions; computer based social systems; social machines; social positioning systems; knowledge based systems; personal knowledge bases.

1. INTRODUCTION

Individual actions and acceptable social behavior have been intertwined since historic times. Individual actions form the strands in the fabric of social behavior. Being anchored deep in the personalities of interacting individuals, the destination of the pathways leads to the gratification of such needs that are known to have five [1-6] stratified layers. Functional behavior results from motives arising from such needs [7].

An enhanced need pyramid with seven[1] layers [8] also has been proposed. The cohesion between needs stratified in five or seven layers and behavior is strong and subtle [9]. The stratification of the layers and the principles of social psychology[2] [10] thus become a series of programmable computational steps. Styles, traumas, whims and fancies are generally transient but the social fabric of most cultures has a longer life. Being alive and well founded in the needs of all humans, it changes gradually and continuously, but it is governed by the social norms and ethics [11]. Having a deep foundation in being congenial, benevolent they are adaptive to changing whims and fancies do not stray too far, nor too long to become outcast destructive to humankind [12].

All is not too well all the time. Tyrants have come and gone like shadows in sunlight lasting for a glimpse or two. The bloody trails they leave behind only strengthen the honest and righteous ones to strive and struggle against false and deceptive. Unfortunately these traits of ugliness can also be stored in the knowledge banks of social machines. Evil nature can as easily find its footing as the beneficial character. Unchecked by a superagency (such as the judicial system, or the self-less politically elite, or pious/religious organizations (without any political or hidden agenda), these tyrant machines can mushroom and grow like the Mafia or the medieval slave traders.

The social software developers bear the responsibility to abolish the undesirable traits to infiltrate and to become ingrained in the knowledge bases that guide social machines to offer optimal and beneficial solutions to the users. Beneficially primed knowledge base is far more desirable than one that is wickedly primed. In the political arena, an evil council can radically hasten national leaders into wars, destruction[3], cruelty[4] and bombs.

---

1 *Maslow has modified his original notion s (1943) of the five layer need pyramid repeatedly in 1954, 1962, 1968, and twice in 1970 to include religion, human values and peak experiences. The basis of the seven layer suggested in Reference 8 is based on the present Internet era, when users spend countless numbers of hours searching for "the best", even though they have no idea of what "the best" may be. Any slight movement towards the better triggers further search till they can accumulate the "the best" from all the searches!*

2 *as defined by Baron, Byrne & Suls (1989) in [10] as "the scientific field that seeks to understand the nature and causes of individual behavior in social situations".*

3 *The blaring example of this action is documented when George Bush ordered the invasion of Iraq in spite of Baradei's (Co-recipient of Nobel Peace Prize 2005) early findings [http://en.wikipedia.org/wiki/Mohamed_ElBaradei] that there were no weapons of mass destruction (WMD) concealed in Iraq.*

4 *The acts of torture of prisoners in Guantanamo were intensified by "psychologists and psychiatrists" in the treatment of detainees in US Custody is documented [http://thejusticecampaign.org/?page_id=273. Also see* http://www.dailymail.co.uk/news/article-2486998/CIA-ordered-US-military-doctors-design-new-torture-methods-use-Guantanamo-Bay.html *and retrieved on March 27, 2014] and in 'The Dark Side', by Jane Mayers, Scribe Publications, Victoria, London, 2008, p.73.*

This error proof shielding of the social knowledge bases requires extra diligence in their strategic design. At a personal level in the handheld devices, reexamination and decontamination of individual knowledge bases becomes a matter of social and behavioral hygiene.

2. CHANGES IN HUMAN NATURE

Human nature has evolved slowly over many eons. Social and cultural changes tend to accelerate the changes, but any drastic change can be safely ruled out during short intervals. However, Internet is a recent and unprecedented phenomenon. Human nature and the Internet both have knowledge and its deployment in common. The explosive growth of Internet has a brought about a compulsive change in human nature, especially in the swinging groups of young iPod users. The age gap in the populations of many Internet users gets reflected as the use-of-knowledge gap between the two groups. Knowledge gap affirms the natural-behavior gap; and knowledge acquisition over the Internet and knowledge retention of in young minds is a strong component separating the two groups of users [13].

Human needs also play a definitive role in any impending changes in behavior. The final state of human nature is generally a compromise based on gratification of needs that are essential for survival and existence and the acceptable means to gratify such needs. No need is entirely gratified over a long time. In the short run, human needs that are all too prevalent to be ignored. In turn, they dictate the behavior and subsequently, the traits of individuals. In fact, human needs provide the energy to gratify the most dominant needs first. They also tend to modify the nature to enact the changes as a routine matter with minimal expenditure of energy [14].

For example, if shelter is considered as the most immediate need, any human being by nature would find easiest ways to find a house, an apartment, etc., that would offer a satisfactorily offer enough gratification. Further, the accumulation of experience of finding accommodation would change the nature of that individual. If the experience is common to very large populous, then it becomes the nature of a member of the large group.

3. GOAL SEEKING BEHAVIOR IN NATURE

Most species have learned the uncanny behavior of reaching their goals in a most efficient way. Dolphins, dogs, crows and sharks exhibit some of most intelligent tactics. Even vegetation and plants follow intelligent and goal seeking behavior[5] to survive and flourish. This behavior of almost all life forms assures their survival needs first, and then any of their next higher-level needs, and so on. Over many generations, such instinctual actions become learned habits and the knowhow is passed down to the next generation. In the natural world, almost all species (including elephants to elk, bears to boars, ants to bees), are influenced by the learning and retention of knowledge. When the evolution of certain species (like crocodiles), becomes stagnant the skill, knowledge, or retention becomes genetic, and the newborn infants in the species “know” how to “behave” in gratifying their needs. In essence needs, knowledge and gratification become inherently intertwined [13,14].

5 *Nature, “What Plants Talk About”, Aired 04/03/2013. Also visit http://video.pbs.org/video/2338524490/ for the entire broadcast.*

The goal seeking behavior in nature tends to reach the goal efficiently while seeking to maximize the rewards earned. Human beings have evolved various scientific and mathematical approaches in the process. Other species practice this art of gratification to perfection (in their own script of behavior) as natural instinct. Optimality in reaching the goal implies a minimization of energy (or effort). Together this mini-max strategy (i.e., minimize energy but maximize rewards) is used in business and is applicable to reach a compromised solution to individual, human or social problems, as well. The pursuit of solution thus becomes scientific and well disciplined amenable to strategies in Management Science and Operations Research and [15].

In inventory management, businesses optimize the level of inventory based on expected demand (thus maximize the profits earned) while minimizing the carrying costs (interest-, spoilage-, warehousing- etc). In sales, the pricing is adjusted based on demand curve while trying to capture a maximum market share. The behavior of and individuals and groups is always based on prior knowledge and maximum expected rewards. In businesses, the rewards are generally real and measures in terms of monies and cash. For individuals, rewards can be more abstract such as enjoyment, companionship, love, etc. Hence, the human behavior does not follow precisely, but it retains a systemic flavor of reason and validation.

In 1959 Peter F. Drucker [16] had envisioned and reiterated them in 1966, [17]) that information and knowledge would bring significant changes to the functions of the "knowledge worker". During the last three decades, the change foreseen by Drucker has been amplified many times over by the very large scale integration (VLSI) industry and backbone fiber optic networks around the globe. In the following Sections, we present the role of mathematical and computational systems that serve to bring new features to the Internet users in resolving their social needs in an efficient and optimal fashion that are also least demanding on the (time and energy) resources of the users.

4. REWARDS AND SATISFACTION

In most instances, rewards are real, whereas satisfaction is personal and acquired over prior experience(s). The element of satisfaction can become too short lived in the human mind. To deal with the transient nature of human satisfaction and an un-calibrated scale in this human dimension, a time integration procedure is suggested. When reward gained by any computer based solution are evaluated, then the satisfaction can be estimated by the equation:

$$\text{Satisfaction (S) offered} = \int_0^T Rewards(t).dt,$$

where *T* is the life time of expected use of the solution and *Rewards (t)* is a function of the rewards offered at any instant of time *'t'.* This formulation dimensions satisfaction[6] as *(rewards* $\times$ *time)*. An equally powerful representation of satisfaction is also plausible and is written as

6 *This representation is perhaps more preferable in social sciences since Rewards (t) can assume the significance of 'power' and Satisfaction can assume the assume the significance of 'energy'. Rewards integrated over a period of time leads to satisfaction and these in turn become similar to power and energy relations become those used in physical sciences.*

$$\text{Satisfaction offered (S)} = \int_0^T \{ \frac{\Delta(Rewards\ (t))}{\Delta t} \}.dt,$$

and this later equation dimensions satisfaction as rewards themselves and the rates of changes of satisfaction and rewards are equal. Satisfaction being more inclusive than rewards calls for rewards to be all inclusive as well.

Satisfaction of needs leads to knowledge about the solution. Human nature tends to cumulate pertinent knowledge since need(s) are all too prevalent and solution become essential just to survive [18]. Gratification of need(s) and knowledge thus get inherently associated. It becomes a part of human nature to remember and reuse knowledge. The relation to tie this rather basic rule of human behavior[7] can thus be stated as the incremental knowledge (Δk) gained over any duration of time Δt, is proportional to the incremental satisfaction (Δs) received during that duration. Stated alternatively,

$$\Delta k \approx (C_{s,k}) \,.\, \Delta s,$$

where $C_{s,k}$ is a constant of proportionality that depends on the type of satisfaction (s) and the direction of knowledge (k) gained. Such constants are uniquely personality and situation dependent. Even though there is a profusion of personality dependent coefficients and constants, they can be conveniently stored in the PDA(s) for each individual. The nomenclature is presented in the Table 1.

In the nomenclature presented in Table 1, various truisms are suggested. For example time increments are always positive (row 1) but rewards can be positive or negative and get accumulated (row 2) over time. Similarly satisfaction and knowledge (rows 3 and 4) both get accumulated and retain their own moving profile in the time dimension. The constant $(C_{s,k})$ is treated as a semi static variable (row 5) held fairly stable over events and episodes, but can change over long duration and tracked in the PDA devices of the individual. The knowledge gained (rows 5 and 6, right hand side) also tends drift over time and age of the individual. It is also assumed the social transactions, events, and episode all have cost and utility values associated with them. Largely the cost incurred (in transactions, events, episodes and relationships) approximately equals the utility derived (rows 7, 8 and 9) from these transactions, events, episodes and relationships between social objects.

Further expanded, row 6 of Table 1 implies that the gain in knowledge plays a role in building a relationship. Transactions, events, episodes and relationships have knowledge commonality among them. Much like a moving platform, knowledge about the past leads both parties towards a better, a worse or a balanced relationship. In examining these (approximate) equations in row 6, we have two knowledge levels k and K as

$$k \approx \Sigma(\Delta k) \approx (C_{s,k}) \,.\, \Sigma \Delta s \approx (C_{s,k}).\ s,$$

7 *The notation used is that individual transactions cumulate to events, events cumulate to episodes and episodes lead to relationships.*

Table 1. Social movement over time spans Δt, t, and T and over single and multiple event of interaction

	Interaction→ / Parameter	Events *1, 2, ..n;*	Episodes *n, .. N*	Relationship 0.0.., $\forall\Delta,..,\Sigma$= -1 ..+1
1	Time	Incremental = $+\Delta t$	Σ, Cumulated = $+t$	$\Sigma\,\Sigma = +T$
2	Rewards	Incremental = $\forall\Delta r$	$\forall r$	$\forall R$
3	Satisfaction	Incremental = $\forall\,\Delta s$	$\Sigma = s$ 8,9, or :	$\Sigma\,\Sigma = S$ 8,9, or :
4	Knowledge	Incremental = $\forall\Delta k$	$k = \Sigma\Delta k$, up, dn, or→	$K = \Sigma k$, up, dn, or→
5	Immediate Vicinity Constant: $C_{s,k}$	$(C_{s,k})$, unique to any individual	$(C_{s,k})$, time varying and unique	$(C_{s,k})$, time varying and unique
6	Approximating Equations	Incremental Gain $\Delta k \approx (C_{s,k}) . \Delta s$	Gain over Episode $k \approx (C_{s,k}) \times \Sigma\,\Delta s$	Gain over longtime $K \approx (C_{s,k}) \times \times \Sigma\Sigma\Delta s$
7	Costs Involved	Incremental = $\forall\Delta c$	c	$C = \Sigma\, c$
8	Marginal Utility	Incremental = $\forall\Delta\, u$	u	----
9	Costs and Utility	----	$\forall\Delta\, C \approx\approx \forall\Delta U$	$C \approx\approx U$ and $\Sigma\Delta C \approx\approx \Sigma\Delta U$

Note: Most of these parameters (e.g., rewards, satisfaction, and utility) are not amenable to direct measurement or quantification; however they are indicated by other observable influences such as knowledge acquired, constant Cs, k (the value for the relationship) and extent of relationship, in the social situations. The formulation for u is selected to reflect the fact that marginal utility of a human will diminish after certain level of satisfaction S. Representations such as {u = A/(B+C.(mod. S))} are amenable, where A, B and C are personality dependent constants stored in the knowledge bases for the individual.

cumulated over *n* events, and

$$K \approx \Sigma\,(k's) \approx (C_{s,k}) . \Sigma\, s's \approx (C_{s,k}).\, S$$

cumulated over *N* episodes.

5. SCHEMATIC FOR MOST SOCIAL ACTIVITIES

In Fig. 1, the details of most social activities are depicted and make the basis of the Social Software Layer (SSL) in the social machine (SM). Three under-lying features are presented to start emulating social activities and listed as follows:

(1) The numerical data processing (e.g., date, time of day, location, duration, witnesses present, etc.) associated with individual transactions (or incidents), events, episodes and relationships; transactions that lead to events; events that lead to episodes; episodes that lead to relationships,

(2) The processing of the content of interaction(s), i.e., topics under consideration or the knowledge domain identifier in the succession of transactions (or incidents), events, episodes and relationships, the progress or enhancement of the topic and the positive or negative knowledge gained from each of the transactions in events, from each of the events in episodes, from each episode in relationships,
(3) The timing and sequencing details of the transactions (or incidents), events, episodes and relationships.

The schematic aspects are included in the numbering sequence of the boxes (1 through 10c) in Fig. 1. As relationships evolve, the schematic in the figure get repeated numerous times and insignificant transactions (or incidents), events, episodes and relationships are ruled out rather quickly. However, notable and significant relation will have a knowledge base of the history of the relationships and the contents (such as love, affection, parenthood, mentorship, etc). In a sense, the social machine acts as a memory bank and a knowledge bank for every meaningful relation; the former store derived knowledge and the later raw knowledge and the context in which the knowledge was derived. Such a detailed accounting provided for individuals to reflect, contemplate, rearrange, reconstitute and reevaluate knowledge in relation to the knowledge centric objects (KCOs) such as friends, parents, colleagues, campuses, automobiles, toys, etc. It is interesting to note that a social machine can perform such function equally effectively but without emotions. It can indeed examine all about emotions without emotions, much as a psychologist can do, without involvement with subjects.

An emotional bondage between people, places, events, comments, etc., is seeded in the human mind. Perhaps these two bases form the subconscious repositories for emotions while linking their contents with the frequency and intensity of the values. Human beings also perform a similar task by storing the details of social interactions. Short and long term memories get invoked in dealing with events, episodes and relationships. In this case the localized social machine PDAs or iPODs, process, analyze and learn from social experiences. The results will become available to the users to monitor future transactions and events.

6. RETENTION OR DERIVATION OF KNOWLEDGE

Retention (a memory function) is favored over derivation (a processing function) of knowledge and most human beings use these two functions in an optimal fashion and in most economical ways. In the computing environment, the blending of memory function(s) with processing function(s) occurs during all phases of program execution. The cache memories hold transit variable for possible further use, the cache in control memories hold transient microcode, etc. In the social environments, these two functions are used discretionarily to suit the situation and become a trait or a habit for individual over time.

For example, the knowledge gained (if it is valuable and scarce), is likely to be stored for future use in its appropriate context. Results from simplistic and one step logical derivations are likely to bypass storage functions. The simple logical derivation generally being a single step process appears more favored over selective retention needing two steps; first to remember the context in which the derivation was made and second to remember the derived result. However both functions are as necessary in social context as they are in a computational context.

7. ROLE OF KNOWLEDGE IN SOCIAL RELATIONSHIPS

Physical, emotional, intellectual (and even spiritual, in some cases) activity involves expenditure of energies. The human psyche has found an appropriate balance between these energies such as to maximize the derived utility from the effort in these three (or four) directions. The role of knowledge is to use the prior information to make social activity efficient to derive physical, emotional, intellectual (and/or spiritual) satisfaction, rewards, (joy, gratification, enjoyment, etc. included). States alternatively, the laws of economics play the crucial role in balancing energies with satisfaction provided. This is true at the microscopic level of individual transactions leading to events (see column 3, Table 1) and at the macroscopic levels of episodes, and relationships (see columns 4 and 5, Table 1).

In the social machines, the knowledge in different directions is stored in knowledge banks. The personalized knowledge (dealing with physical/emotional activity) is channeled into PDAs for storage and reuse, and universal knowledge (dealing with generic intellectual, (and generic spiritual activity)) is initially store in PDAs but validated for truth and accuracy of such derived and stored knowledge for reuse in social transactions. In a sense, the human activity although initially economical and optimal (at a personal level) assumes the role of being confirmative with the social, cultural, and even perhaps spiritual environment of the individual(s). Knowledge in these numerous directions plays the decisive role in transforming the status of being an individual to being a member of the group, the society, the culture, the community (and perhaps a sect, a cult or even a religion). Social machines do not enter a region that is too amorphous for and scientific representation. When probabilities are assigned to the migration process (based on observed data), then social machine can estimate the “cultural age” of an individual in any society based on the ratio of conformities in different directions to statistical average of the cultural group. Like intelligence quotient (or IQ) the cultural quotient (or CQ) becomes a predictive estimate of how well an individual can adjust to the culture, sect, or even a corporate environment.

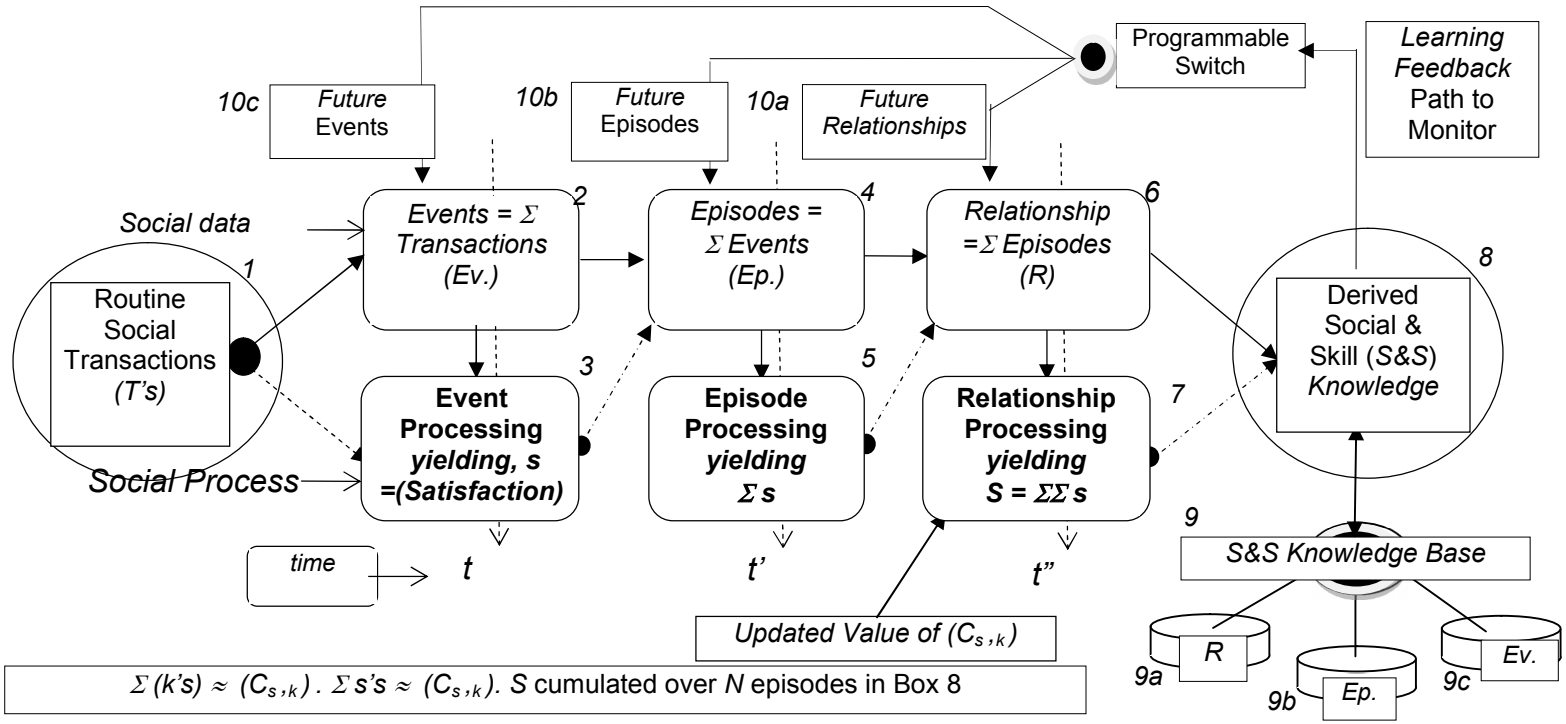

Fig. 1. Schematic of social transactions, events, episodes leading up to relationships. The social-data aspects (see boxes 2, 4, 6) are shown with the concurrent social-processing (see boxes 3, 5, 7) and timings (t, t', t") are also depicted to build the social skill and knowledge base(s) for events (Ev.), episodes (Ep.) and Relationships (R). This self-learning (S&S) knowledge base (box 9 with three sub-databases 9a, 9b,9c) retains information to monitor the future events, episodes and relationships (see boxes 10a, 10b,10c) . It is also possible to replace the schematic with a self learning neural network that facilitates smooth and error free social activities of individuals, corporations, communities and societies

8. THE BEHAVIOR TRAIL

Human behavior is predictable based on three constraints: traits, energies and reason, as much as it is unpredictable when anyone or more of the three becomes uncontrolled, disorganized or manipulated. Much as rationality binds a human being to be fair, just and equitable; irrationality can exceed the limits of madness, destruction and selfish-self-righteousness. Behavior would become wild but for the three constraints of fairness, justice and equality. Based on these, most responsible human beings follow a tentatively straight path between the needs of humans that drive and align them and the laws of ethics that guide and confine them. Minor fluctuations may be expected in the path, just as the human walk that cannot be geometrically straight.

In Fig. 2 a schematic of the behavioral trail is presented starting from routine social interactions to the knowledge that is accumulated by participating in such interaction. Social interactions form the basis of very seminal knowledge that breeds further knowledge catalyzed further by more focused social interactions that yield more specialized knowledge. A process of directed search starts to emerge and the knowledge acquired and gained gets nourished further. Knowledge banks are growing at an alarming rate. If money was power, knowledge has become the mastermind behind both power and money. Two basic types of knowledge start to surface as personal, private and protected knowledge (as in "know thyself") and as public, shared, and scientific knowledge (as in "know the world" via the WWW sites).

During the last three decades, there is an unusual and unprecedented knowledge explosion caused by the Internet that modifies the behavior of the current generations. The prediction of behavior involves more diversified parameters (such as the awareness of the greater freedom the society has to offer) at a personal level and greater diversity (such as the accessibility and connectivity to the WWW knowledge banks) at public level. Both these types of knowledge(s) interact gracefully to yield a more creative platform of behavior, or conversely, to yield a more deadly terrorist and destructive platform. Largely, civilized societies are more likely to harness the positive mode of behaviorism.

In Fig. 2, the basis of human behavior arising from social transactions, events, episodes, and relationships (as depicted in Fig. 1) is preserved in the left side of the figure. The knowledge acquired during these social transactions is carried through for further analysis at three levels the data aspects (box F), information collection (box G) and finally the knowledge collection and retention (box H). At the knowledge level (box H), after the social aspects are processed, the knowledge so acquired has a distinctively scientific and economic flavor. Utilitarian knowledge is treated positively for further use and junk information from social transactions is discarded[8]. Social knowledge can now the treated as a scientific entity and processed to determine any underlying concepts behind generic social transactions. For example, a information about a job interview is scanned and retained in a different knowledge bank for further processing with tools for "boss-employee" processing compared to a casual introduction at a cocktail party which may retained in the "friends" knowledge bank.

[8] *This process is akin to the routine database management functions of "cleaning and organizing" the stored data.*

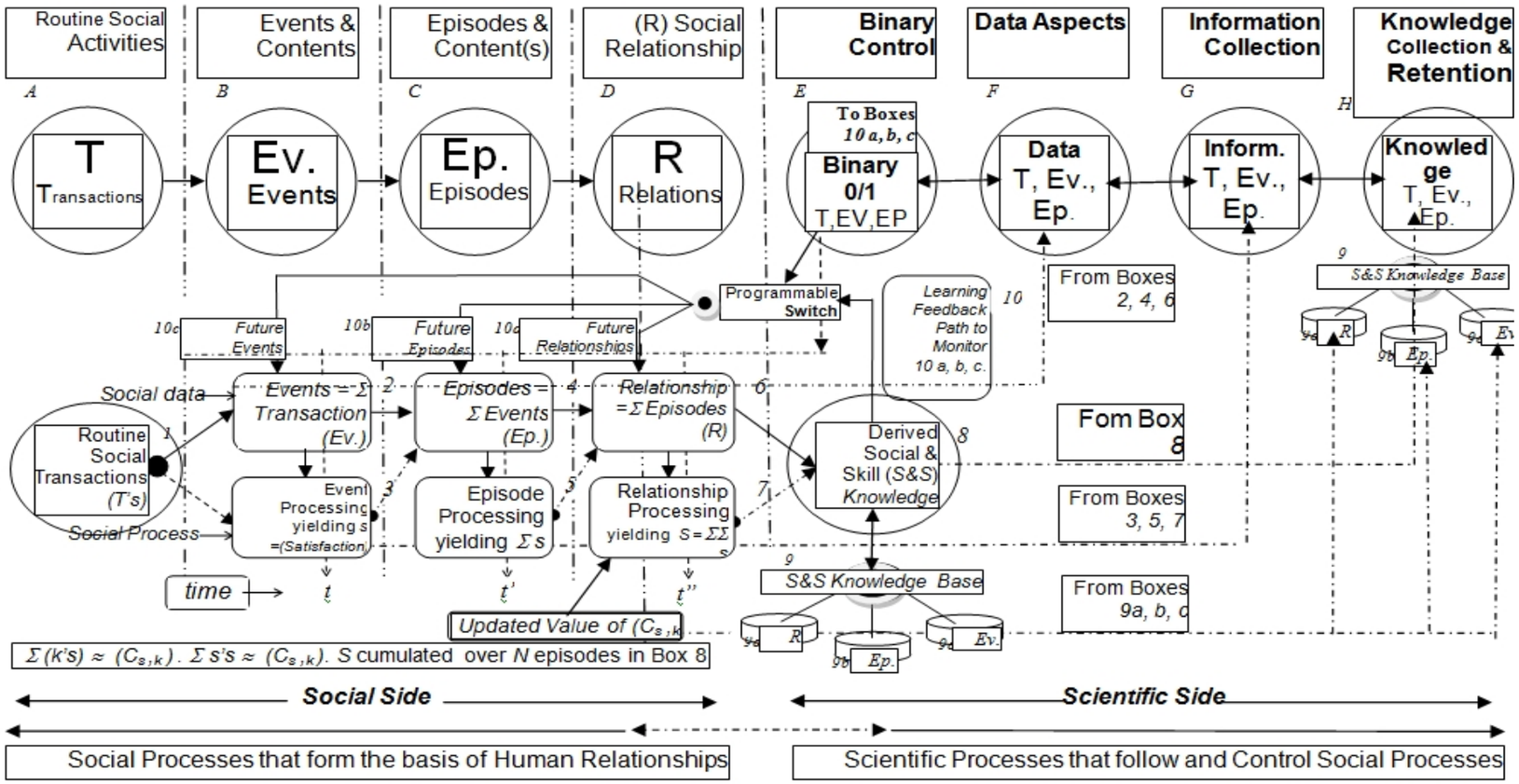

Fig. 2. Superposition and Integration of Social Processes in the Collection and Retention of Human Knowledge. The social aspects provide the scientific footings for the systemic scientific processes that are necessary to plan, organize, implement and to control complex organizations, corporations, societies, communities and cultures. The blending of basis social activities are shown in the lower left side of the figure

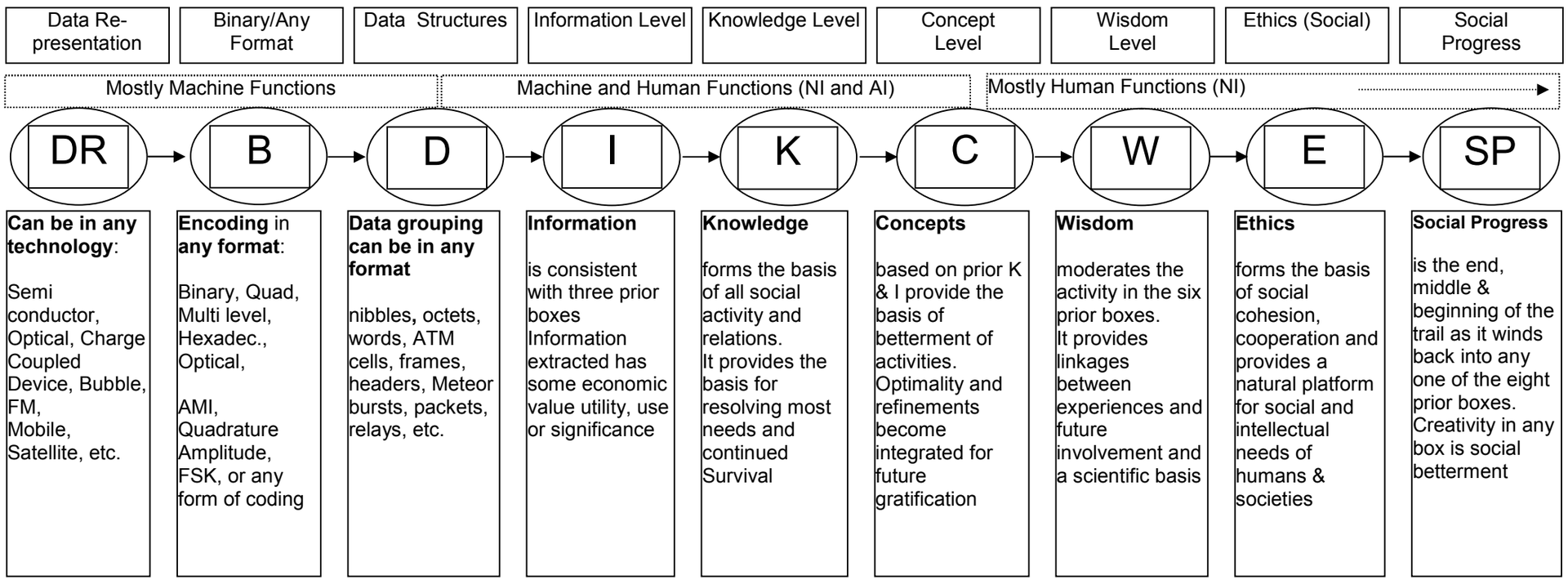

Fig. 3. Extended knowledge trail [19] to include the data representation as DR in the technology domain prior to the B node. The computational domain takes over in data-, information- and knowledge- processing all types of data including social (see Fig. 2), scientific, business, educational, medical, government, systems data. The main stream from all aspects of intellectual human activity gets unified at the knowledge (K) node. The human activities and involvement get intensified on the right side of the figure and act to compliment the machine activities and artificial intelligence (AI) on the left side of the figure

The parallelism of the “knowledge trail” [19], shown in Fig. 3 and the “social trail” shown in Fig. 2, starts to emerge and gets unified past the Knowledge Node (K) level on to the Concept Node (C), the Wisdom Node (W) and the Ethics Node (E) in Fig. 3. Knowledge processing of the earlier social processes can now be done by the social machine that feeds socially acquired knowledge in the K node of the knowledge trail and processed by knowledge machines [20]. The processing of social domain information now progresses in the knowledge domain by a knowledge machine.

In 1995, piotr wozniak, wrote a dissertation in the economics of learning [21], at the university of economics, wroclaw, in poland. The emphasis was on what this type of a knowledge machine *might* do in the future. The engineering, network and architectural aspects are not discussed. The role in making the benefits to the internet users and their social needs are not presented. Even though the term knowledge machine is used in this paper, the perspective and context is totally different from the considerations presented in [21].

The social machines have unique and distinctive functions in processing the social activity (see left section of Fig. 2) and the knowledge machines have unique and distinctive functions (see right section of Fig. 3) in processing intellectual (logical and derivative) functions. The two figures have an intersection at the H (Knowledge Collection and Retention) node Fig. 2 and the K (knowledge Fig. 3) node. It appears logical to switch the thought from Figs. 2 to 3, as the social activity approached the H node in Fig. 2. When social activity is not reanalyzed, recapped and concluded by knowledge processing functions, the long term impact of prior social activity tends to be lost. Social activity by nature is more abundant than intellectual functions that are anchored in the more cohesive fashion in the human minds. Social activity tends to be more routine requiring less emotional energy and conversely knowledge functions tend to be more distinctive requiring more intellectual energy. Social-ware and knowledge-ware play a crucial role in making the hardware truly efficient and personalized social-extension of the human mind. Creativity and VLSI expertise coupled with software discipline will offer the next generation of humanistic machines [22]. It is our contention that such machines are as distant as the Internet was in 1980s.

In revisiting Figs. 2 and 3, the processes and functions appear detailed while they are easily programmable in iPODs and PDAs. The entire behavioral traits and memory can be integrated in an integrated circuit (IC) chip less than a few square mm. When the entire lifetime traits and memories are stored, the newer processor chips and their integrated caches and memories could be addressed by a device of the size of a PDA or much smaller.

9. CONCLUSION

Computational strategies from computer science are introduced in handling social transactions, events, episodes and relations. Knowledge derived from prior experience and acquisitions is held in the personal devices with the users and universal knowledge is validated from the world wide knowledge bases via the Internet. Both types of knowledge are intertwined and applied to the solution of localized user problems on an individual basis. The techniques are applicable to executive information and support systems on a corporate basis.

The role of incremental changes of knowledge and movements are reflected into the social contours that bind human beings, corporations, and most social entities with close ties and commitments. Conversely, serious negative fluctuations of knowledge about social entities also expel one another from close relationships. Such events are frequent in political and corporate environments that need to survive in dynamic socioeconomic and financial situations. In this paper, we have interleaved the classical works of Maslow (from his visions of human personality and social psychology) with contributions of Drucker (from his perspectives on the corporate management). Our goal has been to explore the technology of the 21st century architecture for social machines to solve the day to day problems of the end users. In a sense, this paper carries the intent that drove the 1908 designs of Henry Ford to build the "Model T" or the Tin Lizzie (that was sold for less than $300 in 1925) for everyone in America. In the 1938 Volkswagen engineers decided to build "the beetle" (1934 specification that it should travel at a top speed 62 mph, 42 MPG, and cost less than £86).

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Maslow AH. A Theory of Human Motivation. Psychological Review. 1943;50(4):370-96.
2. Maslow AH. Motivation and Personality. New York: Harper and Row; 1954.
3. Maslow AH. Towards a Psychology of Being. Princeton: D. Van Nostrand Company; 1962.
4. Maslow AH. Toward a Psychology of Being. New York: D. Van Nostrand Company; 1968.
5. Maslow AH. Motivation and Personality. New York: Harper & Row; 1970a.
6. Maslow AH. Religions, values, and peak experiences. New York: Penguin,(originally published in 1964. Abraham H. Maslow has written 20 books and significantly contributed to numerous fields in siology, behavior, motivation, and social psychology; 1970b.
7. Deaux K, Synder M. Goal-driven cognition and functional behavior: The fundamental-motives framework. Current Directions in Psychological Science. 2012;19(1):63-67.
8. Ahamed SV. An enhanced need pyramid for the information age human being", in Proceedings of the Fifth Hawaii International Conference, Fifth International Conference on Business, Hawaii, May 26–29, 2005. Also see "An enhanced need pyramid of the information age human being", paper presented at the International Society of Political Psychology", (ISSP) 2005 Scientific Meeting, Toronto, July 3-6, 2005. For a detailed discussion of the seven layer need pyramid, see, Intelligent Internet Knowledge Networks, Wiley. 2007;9:241-265.
9. Kenrick DT, Neuberg SL, Griskevicius V, Becker DV, Schaller M. Goal-Driven Cognition and Functional Behavior; 2010.
   Available: https://psychology.clas.asu.edu/faculty/douglas-kenrick
10. Baron RA, Byrne DE, Suls JM. Exploring Social Psychology. Allyn and Bacon, 3rd Edition; 1989.
11. Neettle Daniel. Beyond nature versus Culture: cultural variation as an evolved characteristic. Journal of the Royal Anthropological Institute (N.S.). 2009;15:223-240.

12. Brown GR, Dickins TE, Sear R, Laland KN. Evolutionary accounts of human behavioural diversity. Phil Trans R Soc B. 2011;366(1563):313-324. DOI: 10.1098/rstb.2010.0267.
13. Pew Research, Internet Project. Social Media Use by Age Group Over Time. 1615 L Street, NW, Suite 700 Washington, DC 20036; 2013.
14. Good, Lorna. Uses and Grarifications Theory. Prezi Corporation, 642 Harrison Street, San Fransisco, CA 94107; 2013.
15. Taha HA. Operations Research: An Introduction, Prentice Hall, 9th Ed; 2010.
16. Drucker PF. The Effective Executive: The Definitive Guide to Getting the Right Things Done, Harperbusiness Essentials; 2006.
17. Drucker PF. Management Challenges for the 21st Century, Harper Business; 1st edition. Peter Drucker has Authored 25 Books, Each One a Classic Its Own Right; 2001.
18. Eede J. The Yanomami are great observers of nature; 2014. Available: http://www.survivalinternational.org/articles/3162-yanomami-botanical-knowledge
19. Ahamed SV. Intelligent Internet Knowledge Machines: Processing of Concepts and Wisdom. Wiley, See Chapter 15, "Looking Ahead: Social and Ethical Implications" and Section 15.1 for the seven node (BDIKCWE) Knowledge Trail and Node Transition Analysis. 2007;444-582.
20. Ahamed SV. Computational Framework for Knowledge: Integrated Behavior of Machines. Wiley, See Chapter 4. "Verb Functions and Noun Objects" for the Software and Knowledgware of Knowledge Machines (KM); 2009.
21. Wozniak PA. Economics of learning, Doctoral Dissertation, University of Economics, Wroclaw; 1995. Available: http://www.supermemo.com/english/ol/knowmachine.htm
22. Ahamed SV. Computational Framework for Knowledge: Integrated Behavior of Machines. Wiley, See Chapter 5. Humanistic and Semi-Human Systems. 2009;182-243.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history.php?iid=554&id=31&aid=4878