Redefining Artificial Intelligence within Sociolinguistic Frames: The Dilemma of Automated Behaviorism and Natural Language Processing

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Abstract: *Language technology choices are shifting paradigms where talent, communities and social development converge. Innovation follows talent, and talent is prioritizing purpose, diversity and inclusion within a general communicative inclusive framework. The digital shakeup of services and supply networks is creating a new era of entrepreneurship as interdisciplinary sciences and skills gain steam. As myriad options for digital technology emerge, radical innovations in technologies and communication systems are redefining the nature of language itself. When artificial intelligence leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind, the very essence of psycholinguistics becomes questionable. Basing on Spears Jeff's Theories of Meaning, this study sought to redefine artificial intelligence as a dilemma of automated natural language process when sociolinguistics joins the discourse. The argument generated from such underpinnings show significantly greater use of decontextualized lexicological semantics. The analysis demonstrates that the use of artificial intelligence can be effectively employed in social media communication to drive social change and sustainable development.*

Keywords: *semantics, digital shakeup, artificial intelligence, sociolinguistics, computers and machines*

1. INTRODUCTION

Artificial intelligence (AI) is generally considered as intelligence demonstrated by machines or linguistically as the operationalization of thinking processes built in machines. This logic of thinking is opposed to natural intelligence displayed by humans. Some AI scholars including [1] define the field as the study of *intelligent agents*: any system that perceives its environment and takes actions that maximize its chance of achieving its goals. Within this scope, we could be looking at artificial intelligence as describing machines that mimic *cognitive* functions usually associated with the human mind, such as *learning* and *problem solving*. However, these considerations have little bearing with automated contextual dynamics of the thinking and response operations that combine with subtilty in the entire process of logical communication within the human brain.

2. THE LINGUISTIC CONTOURS OF AI

The general problem of simulating (or creating) intelligence has long been broken down into sub-problems. These consist of particular traits or capabilities that researchers expect an intelligent system to display such as reasoning and problem solving. Whereas early researchers developed algorithms that imitated step-by-step reasoning that humans use when they solve puzzles or make logical deductions, resent trends demonstrate that by the late 80s and 90s, AI research had developed methods for dealing with uncertain or incomplete information, employing concepts from probability and economics. As such many of these algorithms proved to be insufficient for solving large reasoning problems because they experienced a "combinatorial explosion": they became exponentially slower as the problems grew larger as humans rather use fast, intuitive judgments. Relatedly, AI research has developed tools to represent specific domains, such as: objects, properties, categories and relations between objects; situations, events, states and time; causes and effects; knowledge about knowledge (what we know about what other people know);. default reasoning (things that humans assume are true until they are told differently and will remain true even when other facts are changing); as well as

other domains. Among the most difficult problems in AI are: the breath of commonsense knowledge (the number of atomic facts that the average person knows is enormous); and the sub-symbolic form of most commonsense knowledge (much of what people know is not represented as "facts" or "statements" that they could express verbally). With this, the linguistic contours of human thoughts and reasoning even when reformulated in formal knowledge representations are used in content-based indexing with context interpretation subject to predefined systems of codification.

3. MACHINE LEARNING AND HUMAN KNOWLEDGE ACQUISITION

Machine learning (ML), a fundamental concept of AI research since the field's inception, is the study of computer algorithms that improve automatically through experience. It is at this level that unsupervised learning finds patterns in a stream of input. whereas supervised learning requires a human to label the input data first, and comes in two main varieties: classification and numerical regression. Classification is used to determine what category something belongs in. In this light, the program sees a number of examples of things from several categories and will learn to classify new inputs. Regression on the other hand is the attempt to produce a function that describes the relationship between inputs and outputs and predicts how the outputs should change as the inputs change. The issue with this operational algorithm is that both classifiers and regression learners can be viewed as *function approximators* trying to learn an unknown (possibly implicit) function; for example, a spam classifier can be viewed as learning a function that maps from the text of an email to one of two categories, "spam" or "not spam". In reinforcement learning, the agent is rewarded for good responses and punished for bad ones. The agent classifies its responses to form a strategy for operating in its problem space. Hardly can this process be replicated with utmost exactitude in a none similar context, whereas human linguistic cognitive operational status requires mind mapping and layer knowledge juxtaposition to fit in squarely within the natural process of the theory of meaning. With AI transfer learning , that is, when knowledge gained from one problem is applied to a new problem, it is not systematic and is devoid of the sentimentality that underpins social communicative behaviors.

4. NATURAL LANGUAGE PROCESSING AND THE HUMAN BRAIN LANGUAGE PROCESSING

Natural language processing (NLP) allows machines to read and understand human language. Implicitly, a sufficiently powerful natural language processing system would enable natural-language user interfaces and the acquisition of knowledge directly from human-written sources, such as newswire texts. Such straightforward applications of NLP include information retrieval, question answering and machine translation. This goes to admit that symbolic AI used formal syntax to translate the deep structure of sentences into logic. However, this could fail to produce useful applications, due to the intractability of logic and the breadth of commonsense knowledge. Present statistical techniques include co-occurrence frequencies (how often one word appears near another), "Keyword spotting" (searching for a particular word to retrieve information), transformer-based deep learning (which finds patterns in text), and others. They have achieved "acceptable accuracy at the page or paragraph level, and, by 2019, were able to generate coherent text" [2]

This process is an application of the mentalist theories of meaning which have as a common denominator the fact of analyzing one sort of representation—linguistic representation—in terms of another sort of representation - mental representation. For researchers especially AI scholars who are interested in explaining content, or representation, in non-representational terms, then, mentalist theories can only be a first step in the task of giving an ultimate explanation of the foundations of linguistic representation in the domain of artificial intelligence The second, and more fundamental explanation would then come at the level of a theory of mental content. Indeed, the popularity of mentalist theories of linguistic meaning, along with the conviction that content should be explicable in non-representational terms, is an important reason why so much attention has been focused on theories of mental representation over the last few decades.

Consequently, since mentalists aim to explain the nature of meaning in terms of the mental states of language users, mentalist theories may be divided according to which mental states they take to be relevant to the determination of meaning. The most well-worked out views on this topic are those of [3] that explain meaning in terms of the communicative intentions of language users, and the view

that the meanings of expressions are fixed by conventions which pair knowledge with certain beliefs. Certainly, natural language processing (NLP), at every time in point will be confronted with such issues that are rather obvious in a relatively natural human brain language processing milieu

5. ARTIFICIAL INTELLIGENCE AS THE GATEWAY TO SOCIAL INTELLIGENCE AND DEVELOPMENT

Affective computing is an interdisciplinary umbrella that comprises systems which recognize, interpret, process, or simulate human feeling, emotion and mood [4] For example, some virtual assistants are programmed to speak conversationally or even to banter humorously; it makes them appear more sensitive to the emotional dynamics of human interaction, or to otherwise facilitate human–computer interaction. However, this tends to give naïve users an unrealistic conception of how intelligent existing computer agents actually are.

Nevertheless, it permits humans to recalibrate consciously or unconsciously to a mental process that triggers a significance within our social intelligence setup. It is very vital for such processes to constantly bombard our cerebral hemispheres if operating within global filters is a sign of sustainable development. More importantly is the fact that, introducing the idea of an expression determining a reference, relative to a context, with respect to a particular circumstance of evaluation, as is the case with artificial intelligence is a laudable technological innovation within the present global economic dispensation. However, there is a clear indication that discussions on decontextualized categorization and the notion of a circumstance of evaluation are rather underspecified in the march forward to making artificial intelligence an imperial agent in the process of sustainable development. One might want to know more about what, exactly, these circumstances of evaluation involve and hence, about what sorts of things the reference of an expression can (once we've fixed a context) vary with respect to.

One way to focus this question is to stay at the level of sentences, and imagine that we have fixed on a sentence **S**, with a certain character, and context **C.** If sentences express propositions relative to contexts, then **S** will express some proposition **P** relative to **C**. If the determination of reference in general depends not just on character and context, but also on circumstance, then we know that *P* might have different truth-values relative to different circumstances of evaluation. Our question is: exactly what must we specify in order to determine **P**'s truth-value?

Artificial intelligence has the daunting task of providing lasting solutions to such linguistically based interrogations since as earlier mentioned, knowledge categorizations are formed within social and cultural beliefs with little bearing on sentence-semantic mappings.

6. SYMBOLIC AI WITHIN UNIVERSAL KNOWLEDGE

Symbolic AI simulated the high-level conscious reasoning that people use when they solve puzzles, express legal reasoning and do mathematics. They were highly successful at "intelligent" tasks such as algebra or IQ tests. Early researchers in the domain proposed the physical symbol systems hypothesis: - A physical symbol system has the necessary and sufficient means of general intelligent action. However, the symbolic approach failed dismally on many tasks that humans resolved easily, such as learning, recognizing an object or commonsense reasoning [5]. As science evolved, present generation scholars have come to agree that high-level "intelligent" tasks were easy for AI, but low level "instinctive" tasks were extremely difficult. Philosopher Hubert Dreyfus had argued since the late 70s that human expertise depends on unconscious instinct rather than conscious symbol manipulation, and on having a "feel" for the situation, rather than explicit symbolic knowledge. Although his arguments had been ridiculed and ignored when they were first presented, eventually AI research came to agree. [2]. From a sociolinguistic perspective, the issue remains primordial for any effective communicative art since we are dealing with a process of encoding and decoding of signs and symbols. Sub-symbolic reasoning can make many of the same inscrutable mistakes that human intuition does, such as algorithmic bias. It is within this perspective that critics such as [6] argue that continuing research into symbolic AI will still be necessary to attain general intelligence though in part because, sub-symbolic AI is a move away from explainable AI as he argues that, it can be difficult or impossible to understand why a modern statistical AI program made a particular decision.

7. CONCLUSION

From a sociolinguistics perspective, motivations for artificial intelligence are also both metaphysical and sociocultural. Those attracted to the sociolinguistic underpinnings of AI will advocate its indisputable role in the remaking of a new communicative global landscape that makes the inclusion of a local index superfluous. As such, AI researchers are bound to pursue the goals of artificial general intelligence and superintelligence directly to solve as many specific problems as possible, in hopes these solutions lead indirectly to the field's long-term objectives that shift dynamics towards the attainment of the desirous sustainable development goals.

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