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SOCIETY – THE FOUNDRY OF HUMAN MINDS

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John Stuart Mill (1806-1873) [1], widely regarded as the ‘most influential English-speaking philosopher of the nineteenth century’ [1], examined the relationship between the society and the individual, focusing on the “nature and limits of the power which can be legitimately exercised by society over the individual” in his famous essay *On Liberty* [2]. Though the issue of Civil Liberty had “divided mankind, almost from the remotest ages,” he felt that, in his time, it required a “different and more fundamental treatment,” because it had begun to “profoundly influence the practical controversies of the age” [2]. He also predicted that the controversy over ‘social liberty’ was “likely soon to make itself recognized as the vital question of the future” [2].

We live in that future now, and the perceived contradiction between social and individual interests has become the biggest bone of contention in current ideological

debates. Mill’s argument for individual liberty, insofar as it does not encroach on the liberty of others, still holds sway: “The sole end for which mankind is warranted in interfering with the liberty of action of any of their number is to prevent harm to others. His own good, either physical or moral, is not sufficient warrant” [2]

However, individual actions are so interwoven into the fabric of social life that it is difficult to define or quantify their effects on ‘others.’ In the twenty-first century, we are torn between arguments for individual freedom, epitomized in the idea of ‘free market,’ and calls for government regulation to assure social cohesion and social justice. This issue has become further complicated by a dangerous paradox of our time: on the one hand, individuals have acquired unprecedented power to impact the society through the use of modern science and technology (tools for doing both ‘good’ and ‘bad,’ depending on one’s perspective).

On the other hand, the rise of corporations in our profit-driven economy has marginalized individuals in society – the “Invisible Hand” of the ‘free market’ controls the ebb and flow of our lives. Capitalism, built on the promise of individual freedom, has subjugated individuals to the economic interests of organizations. Profits rule, while individuals chase after the mirage of personal freedom.

Individuals are becoming more aware of their technologically enhanced power to impact the society; however, there is a general lack of understanding of individuals’ visceral interconnectedness / interdependence with the society. Egocentric thinking conflicts with our technological maturity – that is why the relationship between the society and individuals requires now even more fundamental treatment.

A deeper understanding of how the foundry of society casts all individuals (including individualists) may help us discover our common purpose and the objective laws of social harmony. I hope to contribute to this ongoing enquiry by highlighting the fundamental role of society in ‘humanizing’ our individual minds. But first, what is being ‘human’?

The ‘Human’ Difference

We have been asking this question since the dawn of human consciousness. In Ancient Greece, Aristotle (384-323 BC) [3] pointed out that it was ‘connected experience’ that enabled man to abstract similarity between things:

“By nature, animals are born with the faculty of sensation, and from sensation memory is produced in some of them, though not in others. And therefore the former are more intelligent and apt at learning than those which cannot remember. The animals other than man live by appearances and memories, and have but little of connected experience; ...from memory, experience is produced in men; for several memories of the same thing produce finally the capacity for a single experience” [3].

This human ability to abstract similarities from experiences, connected in our memory, is the root of all abstract ideas and knowledge – generalization. Through our senses, we experience the physical world; our concrete experiences, connected in memory, are the soil from which meaning grows in our minds. Human understanding, to Aristotle, was ‘knowledge about the principles and causes’:

“We do not regard any of the senses as Wisdom; yet surely these give the most

authoritative knowledge of particulars. But they do not tell us the '**why**' of anything – e.g., why fire is hot; they only say that it is hot. ... Wisdom is knowledge about certain principles and causes" [3]

Because thoughts have no physical substance and so cannot be perceived directly, their nature (despite Aristotle's incisive analysis) remained wrapped in mystery until quite recently, when David Hume (1711-1776) [4] became interested in the *mechanism* of human thinking. In his *Enquiry Concerning Human Understanding* (1748), he claimed that humans 'in all times and places' make sense of things by connecting ideas. These **connections** we make between ideas reflect our perception of how things *relate* to each other in terms of their similarity or difference, time and space, and cause and/or effect:

"It is evident that there is a principle of connexion between the different thoughts or ideas of the mind, and that in their appearance to the memory or imagination, they introduce each other with a certain degree of method and regularity. In our more serious thinking or discourse, this is so observable that any particular thought, which breaks in upon the regular tract or chain of ideas, is immediately remarked and rejected. And even in our ...dreams, we shall find ... a connexion upheld among the

different ideas, which succeeded each other. Were the loosest and freest conversation to be transcribed, there would immediately be observed something which connected it in all its transitions. ... Among different languages, even where we cannot suspect the least connexion or communication, it is found, that the words, expressive of ideas, the most compounded, do yet nearly correspond to each other: a certain proof that the simple ideas, comprehended in the compound ones, were bound together by some universal principle, which had an equal influence on all mankind.

Though it be too obvious to escape observation, that different ideas are connected together; I do not find that any philosopher has attempted to enumerate or class all the principles of association; a subject, however, that seems worthy of curiosity. To me, there appear to be only three principles of connexion among ideas, namely, Resemblance, Contiguity in time or place, and Cause or Effect.

That these principles serve to connect ideas will not, I believe, be much doubted. A picture naturally leads our thoughts to the original: **[a]** the mention of one apartment in a building naturally introduces an enquiry or discourse concerning the others: **[b]** and if we think of a wound, we can scarcely

forbear reflecting on the pain which follows it. [c] ... The more instances we examine, and the more care we employ, the more assurance shall we acquire, that the enumeration, which we form from the whole, is complete and entire: [a] Resemblance; [b] Contiguity; [c] Cause and effect... Contrast or Contrariety is also a connexion among Ideas: but it may perhaps, be considered as a mixture of Causation and Resemblance. Where two objects are contrary, the one destroys the other; that is the cause of its annihilation, and the idea of the annihilation of an object, implies the idea of its former existence" [4].

David Hume thus, for the first time in recorded history, described the universal principles of human thought. His claim that human minds connect ideas by resemblance, contiguity and cause/ effect gave us an insight into the inner workings of our minds. All three types of association are necessary for generalization – they form the matrix of our understanding.

This ability to abstract meaning from concrete experiences is the distinguishing feature of the human race. According to T.W. Deacon, Professor of Biological Anthropology and Neuroscience at the University of California, 'Biologically, we are just another ape. Mentally, we are a new phylum of organisms' [5].

Karl Marx also commented on the 'human difference' in *Das Kapital* [6]: "The spider makes operations resembling the operations of the weaver, and the bee creating its waxen cells disgraces some architects. But from the very beginning, the worst architect differs from the best bee in that before building the cell of wax, he already has built it in his head.

The result, which is received at the end of the process of work, already exists in the beginning of this process in an ideal form in a representation of a person. The person does not only change the form given by nature, but in what is given by nature he ... realises his conscious purpose, which as a law determines the way and character of his actions and to which he must subordinate his will" [6].

Lev Vygotsky (1896-1934) [7], the brilliant Russian psychologist, defined the 'human difference' in even broader terms: 'Man cannot be distinguished by a single feature (intellect, will), but in principle by his relation to reality' [7]. We share physical sensation and most of our feelings with other intelligent animals. But, unlike animals who passively adapt to their environment, we are conscious of our separateness from the world and act deliberately to transform it to our liking.

Despite certain similarities, there is a fundamental difference between human and animal behavior: human actions are voluntary / intentional, whereas animals act by instinct. "Will implies freedom from the situation," argued Vygotsky. "**Man wants the stick, the ape wants the fruit**" [7].

Animals, even when they seem to use a tool intelligently, do not want the tool for its own sake; for them, it is just a means to satisfy an instinctive wish. The concept of **tool** requires abstraction from the situation; 'tool' is the **meaning** of an object. The use of tools requires the ability to 'make sense' of things, to give them **meaning**.

The 'human difference' is, first and foremost, in the way the human mind **thinks** – through abstracting 'principles and causes' from our connected experience. But why did we, biological apes, leap into consciousness? How did our distant ancestors start to think 'Human'? And what makes consciousness sprout in each of our individual minds, forming a relationship between us, and the world? In essence,

Where do human minds come from?

The short answer to this question is 'from the society.' The collective mind of the society has crafted Language, the tool all individuals use to think 'Human' and to communicate their thoughts. We are

relatively small and fragile creatures, living in a world full of dangers – our individual survival depends on the cooperation of others in the group (the society). Cooperation is impossible without communication; no wonder, then, that the process of natural selection favored groups who could communicate (and, therefore, cooperate amongst themselves) more effectively. Thus, in the course of human biological evolution, our brains developed the high-speed networking capability required for connecting our experiences in memory and abstracting from them their common features – to produce, finally, what Aristotle called a 'single experience' – the **idea** of similar experiences [3].

Thus, human adaptation in response to our existential need for cooperation resulted in the emergence of the most ingenious tool of all time – Language, the tool for constructing meaning. Basically, Language is a system of signs (those 'single experiences' abstracted in the collective mind of the society). What we call words are **signs** of conventional meanings. Like all signs, they have a double function: intellectual (to carry meaning) and social (to communicate). Language, thus, is a social **means** of thought – a TOOL societies use for generating and communicating an infinite variety of complex meanings. How does it work?

The Mechanism of Language

The Language tool consists of a set of conventional word-meanings and rules for putting them together into sentences to create complex meanings (thoughts). Artists can create any kind of mosaic images by arranging colored tiles in a particular way (See Figures 1 and 2). Speakers are all like artists, in that sense – they create all kinds of complex images (meanings) by arranging words into sentences. Words are like tiles of different colors – the same brown tile may be part of a flower (Fig. 1), a sucker on a frog's toe (Fig. 2), or anything else, depending on how we *use* it in our mosaic.

Each tile in any mosaic acquires its 'meaning' only in the context of the other tiles that make up the whole image. In the same way, each word acquires its true meaning only in the nexus of the proposition whose meaning, in turn, is more than the sum of its words – it also depends on how they have been put together (*The Earth orbits the Sun* ≠ *The Sun orbits the Earth*).

Word-meanings are fluid in use – so fluid, indeed, that words and their meanings are relatively independent of each other in the thought mosaics we make. It is practically impossible to 'fix' meanings in use, because

ideas exist only in our minds. We perceive the world's mosaics with our own eyes and ears, and we make sense of them only in our own heads. Each mind's eye views the world from its own perspective; its clarity of vision depends on many factors, such as our experience, disposition, context of communication, etc.

The 'image' (sentence meaning) different people see with their mind's eye, therefore, may not be the same; it depends as much on the 'color' and patterns of the word-meanings making up the 'image' (proposition), as on their subjective perception – this is why ambiguity is so inherent in all human languages. We 'think' by connecting ideas into complex mosaics of meaning. Just as the process of breathing involves both inhalation and exhalation, so also the process of thinking involves both synthesis and analysis of ideas. We use language (our 'thinking tool') to spin our 'webs of significance' by synthesizing ideas into conventional sentence structure (the nexus of the Subject, Verb and Object) and analyzing or specifying any of the major sentence constituents.

The Rational Mechanism of Language

The mechanism of human understanding – generalization – is thus embodied in the syntax of all human languages. In order to understand something /form a concept, we

must be able not only to connect, but also to *abstract*, to *single out* characteristic elements, and to view them separately from the “totality of the concrete experience in which they are embedded” [8]. Every word of language is already a generalization; every statement in every human language is a structural embodiment of its

- **Synthesis**, connecting word-meanings into the **nexus** of the proposition (mosaic), and
- **Analysis**, focusing on **parts** of the sentence (recursion) – i.e., describing them by associating parts of the whole with other ideas, based on some Resemblance, Contiguity, or Cause/ Effect relationship

Generalization, thus, is the universal matrix of human thought which finds expression in the diverse grammars of the world’s languages, all shaped by it. This idea is not new; the epistemology of the great Islamic philosopher of the tenth century, al Farabi, postulated ‘universal reason’ (i.e., universal principles of human understanding):

[Logic] “shares something with grammar in that it provides rules for expressions, yet it differs in that grammar only provides rules

specific to the expressions of a given community, whereas the science of logic provides common rules that are general for the expressions of every community” [9]. Logic is universal – two plus two is four, no matter where you come from. It constitutes the Rational Language Mechanism (generalization, which has created (and finds expression in) all human languages. However, logic is not inborn – how do we, individuals, learn to think?

Stages of Our Cognitive Development

Jean Piaget (1896-1980) [10], the outstanding Swiss psychologist, showed that consciousness germinates and develops in our minds in the process of cognitive development during our so-called ‘formative’ years. He argued that the difference between child and adult thinking is **qualitative**, not just quantitative; that a child is not a miniature adult, and that his mind is not the mind of an adult on a small scale.

Through observation and experiments, he proved that the human brain continues to develop after birth, and matures only by adolescence. Piaget contended that we generally go through four stages of cognitive development, driven by biological changes in our brains [10]:



Figure 1. www.firelily.com/samples/images/mosaic.lily.html



Figure 2.
www.lineartgallery.com/web/Artist/Strachan/art_mosaics/art_mosaic_photos/art_mosaic_frog.jpg

- **The Sensorimotor Stage** occurs between birth and age two. Babies are born with no thinking structures and develop them through 'soaking up' language and exploring their environment through their senses. At his stage, humans are incapable of coherent logical thought, even though most babies begin to speak their first words long before they are two. 'The child's babbling, crying, even his first words, are quite clearly stages of speech development that have nothing to do with the development of thinking' (Vygotsky) [7]. The child's first words are not really words, but rather expressions of feelings that are communicated not by the words, but by the child's whole behaviour at the time (like pointing, reaching out to something or pushing it away, etc.). The word *mama*, for example, could mean anything from *Mama, give me* or *Mama, come here*, or *Mama, hold me*.
- **The Pre-Operational Stage** (approximately two to seven years of age). At a point in this stage, children make the greatest discovery of their lives – that each thing has its name! They begin to ask, '*What is this?*' about every new thing they come across. They rapidly develop language skills and, concurrently, the underlying thinking structures. Children also develop personal traits and character, but are yet incapable of mature reasoning. For example, the concept of conservation is above the average toddler (conservation implies the understanding that actual amounts of any substance may remain constant, even if their shapes may change). Preoperational kids are egocentric – they cannot see things from another person's perspective. Both conservation and de-centering are basic requirements for logical thinking.
- **The Concrete Operational Stage:** ages approximately seven to adolescence. Children begin to grasp conservation and de-centering, although word-meanings, in their understanding, still remain the names of concrete things. That is why children cannot really understand some abstract thoughts, even if they know the necessary

words – the adequately generalized concept may still be lacking.

Word-meanings develop in the child's mind together with his thinking ability – by the end of the pre-operational stage, they have fully learnt the structures of language, and their thinking becomes more abstract. They begin to reason logically, but only on a concrete level, not hypothetically or abstractly. They solve problems logically, but not systematically or consistently. As opposed to preoperational children, kids in the concrete operations stage are able to take another's point of view and take into account more than one perspective simultaneously. Although they can understand concrete problems, they cannot yet consider all of the logically possible outcomes.

The Formal Operations Stage: adolescence or above. The concrete operational and the formal operational stages differ mostly by the degree of abstraction in the way we think and the

amount of experience on which we draw. The mind is now capable of sophisticated logical thought. It can think abstractly, hypothetically and can solve problems using the logic of combinations. Piaget considered this to be the ultimate stage of cognitive development. Not all people reach the formal operation stage; research shows that only about 25% of all adults use formal operations on a regular basis; these require significant training and cognitive discipline.

Piaget's research showed that, at birth, there is no significant difference between us and other intelligent animals [10]. Babies have no self-awareness and are governed entirely by instincts and feelings; self-awareness and logical thinking are contingent on the child's biological development and social interaction.

Lev Vygotsky [7] went even further to claim that there is no genetic link between speech (vocalization) and abstract thought. He graphically represented speech and thought as two separate circles in both animals and human babies:

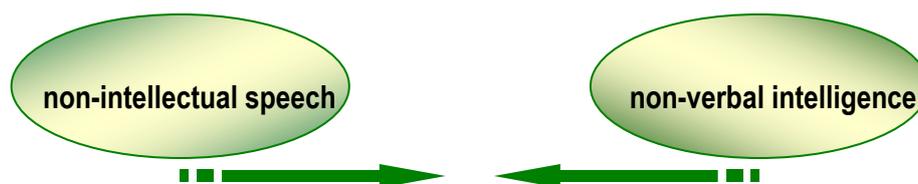


Fig. 3: Speech and Thought spring from different roots – they do not overlap at birth

During the first stage of our cognitive development, we 'soak up' the sounds and words of language used by the people around us through our physical senses of hearing and sight. Gradually, we begin to 'connect' the sounds of certain words with concrete objects around us; when that connection 'clicks,' we begin to *use* those sounds to refer to things around us. Babies' first words are not yet abstract thought, claimed Vygotsky; rather, they are expressions of wishes and feelings [8]. It is not so much the words as the whole behavior of the child that communicates meaning – much like a dog's barking may signal anger, fear, pain or joy. Gradually, thought germinates from feelings: from the people around us, we learn to connect single words together, creating more complex meanings (phrases and sentences). Vygotsky described the process of language acquisition as the prerequisite for abstract thought [8]:

In mastering external speech, the child starts from one word, then connects two or three words; a little later, he advances from simple sentences to more complicated ones, and finally to coherent speech made up of series of such sentences; in other words, he proceeds from a part to the whole. In regard to meaning, on the other hand, the first word of the child is a whole

sentence. Semantically, the child starts from the whole, from a meaningful complex, and only later begins to master the separate semantic units, the meanings of words, and to divide his formerly undifferentiated thought into those units. The external and the semantic aspects of speech develop in opposite directions – one from the particular to the whole, from word to sentence, and the other from the whole to the particular, from sentence to word. A child's thought, precisely because it is born as a dim, amorphous whole, must find expression in a single word. As his thought becomes more differentiated, the child is less apt to express it in single words but constructs a composite whole. Conversely, progress in speech to the differentiated whole of a sentence helps the child's thoughts to progress from a homogeneous whole to well-defined parts [8].

For the child, words are the *names* of concrete objects: "signification independent of naming, and meaning independent of reference, appear later ... Only when this development is completed does the child become fully able to formulate his own thought and to understand the speech of others. Until then, his usage of words coincides with that of adults in its objective reference but not in its meaning" [8]

Thought and speech in children begin to intersect in the course of language acquisition. At a certain point, children discover that everything around them has a name; this revelation triggers a qualitative change in their behavior:

Before this turning point, the child does (like some animals) recognize a small number of words which substitute ... for objects, persons, actions, states, or desires. At that age, the child knows only the words supplied to him by other people. Now the situation changes: The child feels the need for words and, through his questions, actively tries to learn the signs attached to objects. He seems to have discovered the symbolic function of words. Speech enters the intellectual phase. The lines of speech and thought development have met [8].

Language, according to both Vygotsky and Piaget, precedes logic [8, 10]. The vocabulary of the child grows with the grasping of new concepts; if a concept is too abstract for the child's mind to grasp,

that word will not 'enter' the child's consciousness. The same holds true for us at any age: if the concept is not formed in the brain, the word will not 'make sense' to us. The dynamics of thought development follows the dialectics of *synthesis* and *analysis*, for abstract thought (generalization) is *both*:

... the advanced concept presupposes more than unification. To form such a concept, it is also necessary to abstract, to single out elements, and to view the abstracted elements apart from the totality of the concrete experience in which they are embedded. In genuine concept formation, it is equally important to unite and to separate: synthesis and analysis presuppose each other, as inhalation presupposes exhalation [8]. In adults, the overlap where thought and speech coincide represents **verbal thought** (Figure 4):

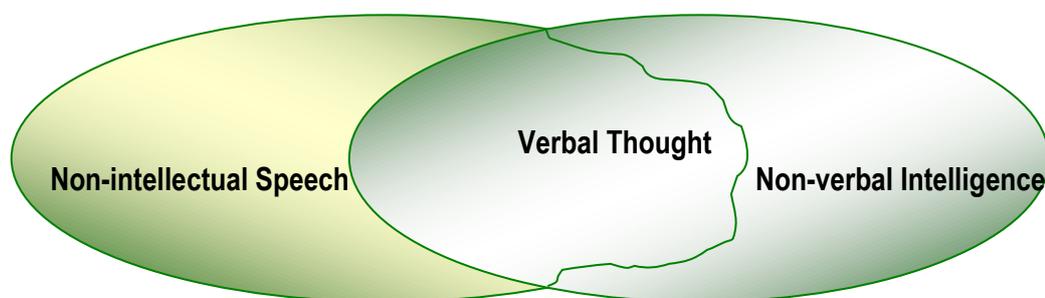


Fig. 4: The relationship between speech and intelligence in mature humans

This diagram shows that a lot of our intelligence is non-verbal, just as much of our speech (vocalization) is non-intellectual:

“Schematically, we may imagine thought and speech as two intersecting circles. In their overlapping parts, thought and speech coincide to produce what is called verbal thought. Verbal thought, however, does not by any means include all forms of thought or all forms of speech. There is a vast area of thought that has no direct relation to speech. The thinking manifested in the use of tools belongs in this area, as does practical intellect in general” [8].

We can express our physical feelings and emotions, most of which we share with animals, non-verbally – we all laugh and cry in the same way. Symbolic representation – abstract meaning – is uniquely human, and it is the society, the people around us, who make us human by giving us language, the social means of thought. The words of language are units of ‘both generalising thought and social interchange’ [3]. A clear correlation exists between our social and cognitive development, between our *social interaction* and our *thinking ability* [8, 10, 11]. By installing the software of language in our brains through social interaction, the society creates human individuals. The more social stimulation we receive, the

better we become at using the language tool to think.

CONCLUSION:

Research indicates that individual human minds are inconceivable outside of the society – not only because individuals cannot survive physically in total isolation, but because human minds are only forged in the foundry of society. We acquire our ‘human difference’ – abstract thought, embodied in language – only in the course of socialization.

Collective human welfare must, therefore, define the natural limits of individual freedom in society, because the natural interests of humankind (physical survival being the most basic one amongst them) are, in fact, the natural interests of every individual. We can draw a valid analogy between cancer cells, which greedily deprive other body cells of nutrients, and individuals/ organizations, who pursue their egocentric interests outside of the context of the objective public good; the outcome of both scenarios is grim.

In what is given to us by nature, we must realize our conscious purpose – our common survival. Collectively, we must de-center from egocentric nationalist concerns

and begin to think in global terms; we must recognize our common purpose as a law which must determine the way and character of our actions – if we are to survive.

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