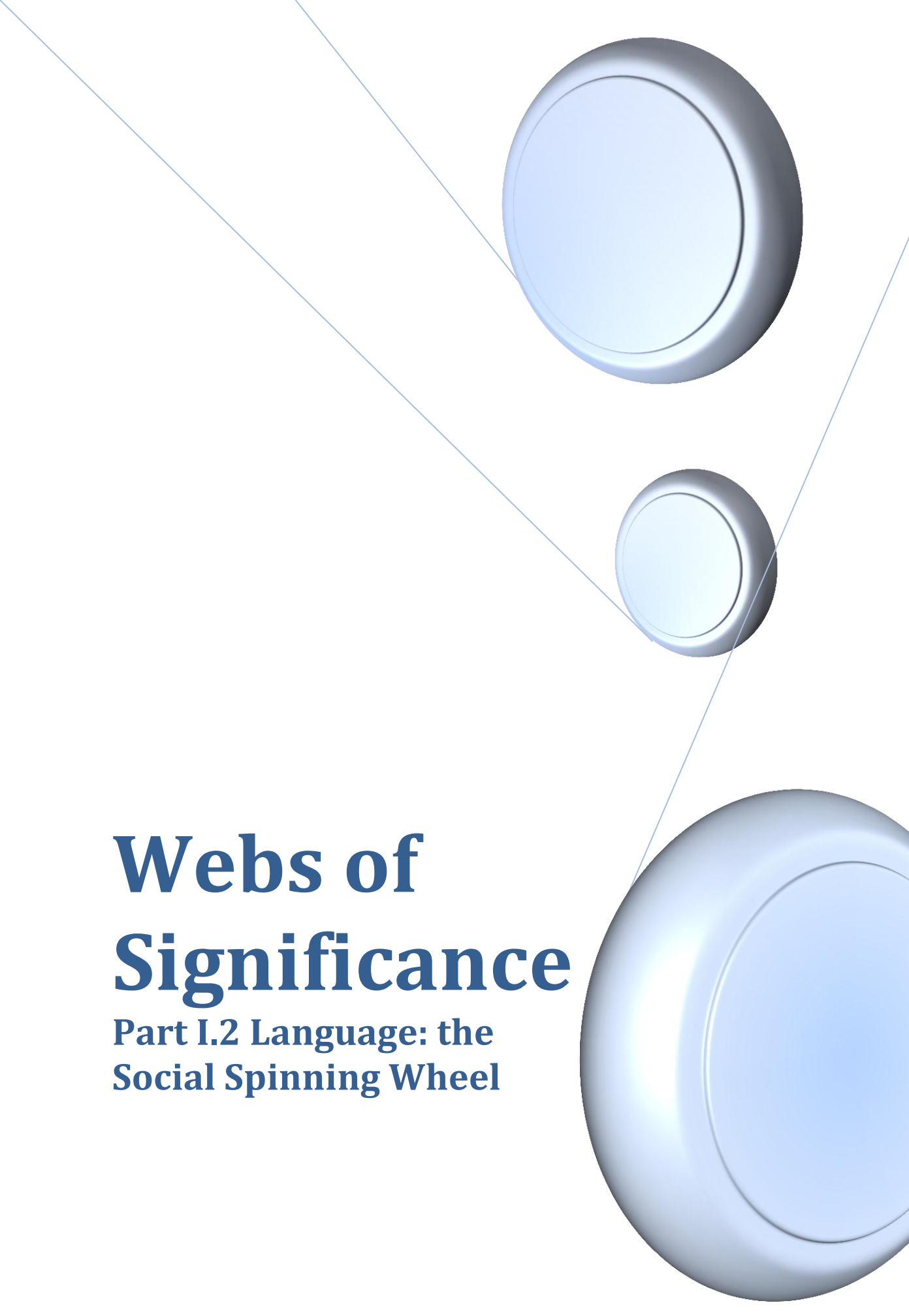
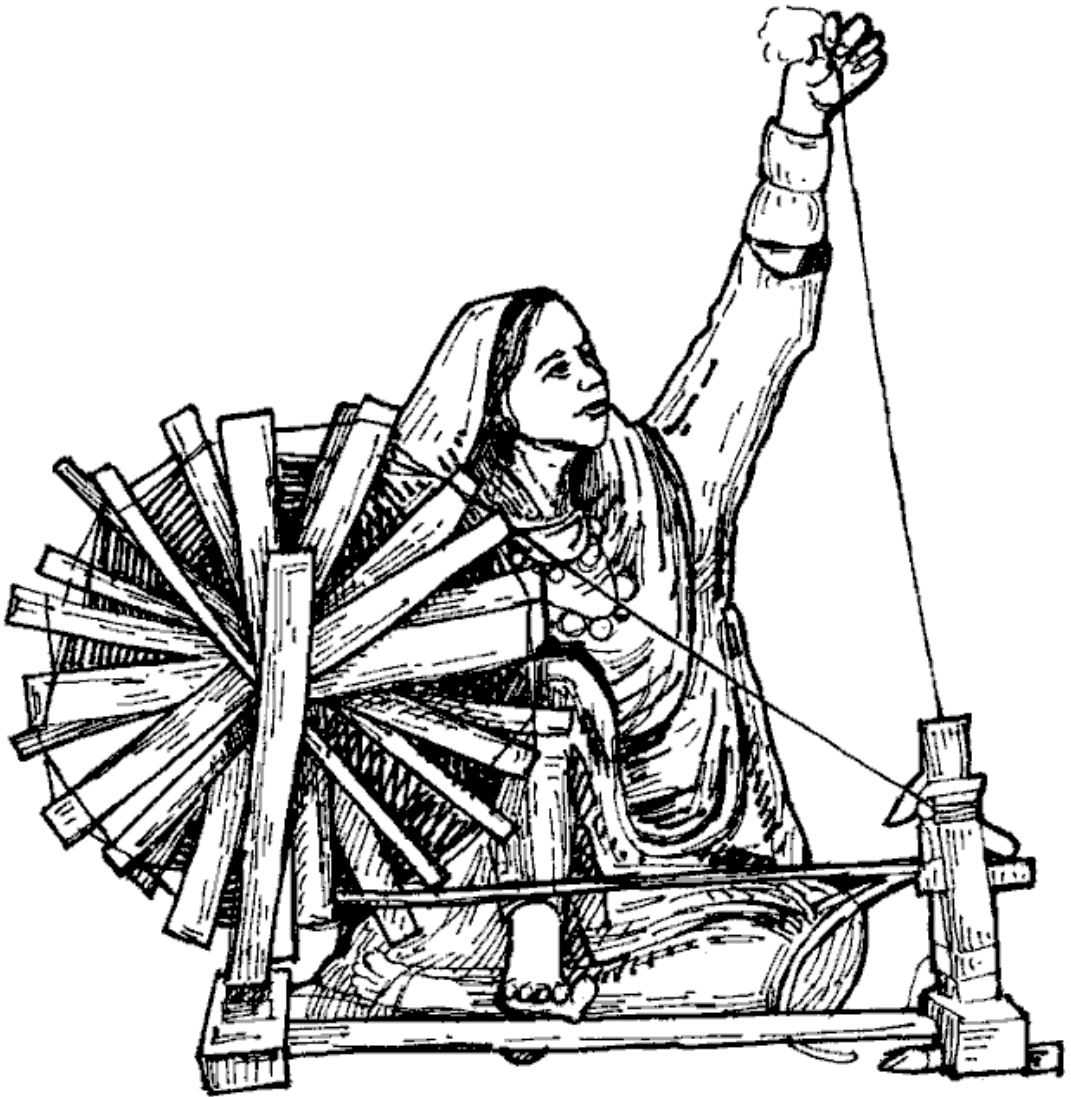


An abstract graphic featuring three blue, 3D-rendered spheres of varying sizes. The spheres are connected by thin, light blue lines that form a triangular network. The largest sphere is at the bottom right, a medium-sized one is at the top right, and a smaller one is in the middle right. The lines connect the top-left of the large sphere to the bottom-left of the top-right sphere, the bottom-left of the top-right sphere to the top-left of the middle-right sphere, and the top-left of the middle-right sphere to the bottom-left of the large sphere.

Webs of Significance

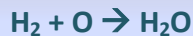
**Part I.2 Language: the
Social Spinning Wheel**



http://mrvarghese.wcsd.wikispaces.net/file/view/spinningwheel_charkha.gif

I.3. Language – the tool societies use to spin their ‘webs of significance’

‘The whole is more than the sum of its parts’ (Aristotle: *Metaphysics* 1045a10).



Two atoms of hydrogen + one atom of oxygen make up one molecule of water. The ‘whole’ of water is more than the mixture of the two gases; their properties are all different: hydrogen burns, oxygen feeds fire, while water extinguishes fire!

Language is more than the sum of set word-meanings and rules for putting them together.

Language is a social *means* of thought – a TOOL for generating complex meanings.

How does it work? What is the Mechanism of Language?

Society gives us the TOOL for creating infinite meanings – LANGUAGE. This tool consists of a set of conventional word-meanings and rules of how to put them together into sentences (thoughts). Artists can create any kind of mosaic images by arranging colored tiles in a particular way:



Source: <http://www.firelily.com/samples/images/mosaic.lily.html> (12/04/2010)

Source: http://www.lineartgallery.com/web/Artist/Strachan/art_mosaics/art_mosaic_photos/art_mosaic_frog.jpg (12/04/2010)

We are all like artists, in that sense – we create any kind of complex meaning by arranging words into sentences. Words are like tiles of different colors – a brown tile may be part of a flower, an eye socket of a skull, a sucker on a frog’s toe, or anything else – **its true meaning is its use in the mosaic**. Likewise, words acquire their true meaning only in the context of the composite whole of the sentence mosaic; i.e., compare the meaning of ‘beef’ in ‘Stop beefing about Karen’; ‘Where is the beef?’ ‘You have a beef with me?’; and ‘Your essay is good, but you must beef it up with facts.’

Each sentence we make, like a mosaic image, has a composite meaning of its own, reflecting the physical world as our mind's eye sees it. We play the same 'language game' with our 'wantoks' who can 'see' the 'mosaics' we create, because we all use the same set of tiles (conventional word-meanings) and rules of putting them together to create our composite meanings.

Language, rooted in the senses, is also *perceived* with our senses (of hearing & sight); therefore, we perceive spoken (and written!) language through the wide-angle lens of our physical senses, in *chunks* of meaning. This is why we often understand the sentence, before the speaker has finished saying it, and can even guess the words not yet spoken. Made up of colorful word-meanings, sentences transmit their meaning 'in a flash', just like mosaics do. The only difference between sentences and mosaics is that we see the meaning of images with our eyes, while our minds 'see' the meaning of sentences ('word mosaics') through our ears. Because our physical senses perceive things as a whole, we 'sense' word mosaics (sentences) just as we see visual images, as a whole.

Meaning as Use

Conventional word-meanings are the social 'currency of thought exchange.' They are the colored tiles we put together to create our mosaics (composite meanings). Each tile in a mosaic acquires its 'meaning' only in the context of the other tiles that make up the whole image. For example, what is the 'meaning' of each brown tile in this ancient Italian mosaic?



<http://www.trekearth.com/gallery/Europe/Italy/Campania/Naples/Naples/photo625199.htm>

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 ('Paul eats fish' is not the same as 'Fish eats Paul').

'Meaning as Use' reflects the **fluid** nature of word-meanings – so fluid that, indeed, words and their meanings are relatively independent of each other in the word 'mosaics' we make (the same brown tile can be used as part of a cock's tail, beak, or eye, etc. in the mosaic above).

It is practically impossible to 'freeze' meanings in use, because ideas exist only in our minds. We all 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 the level of our cognitive development, experience, emotional /physical state, the cultural context and place /time of the communication, etc.

The 'picture' (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 whole 'image' (proposition), as on all the other variables (the level of cognitive development/ individual experiences and memories of the people who are trying to make sense of them; social and physical circumstances of exchange, etc.). This is why ambiguity is so inherent in all human languages.

1.3.1. Generalization Is the Mechanism of Our 'Thinking Tool' – Language

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 the 'thinking tool' (language) to spin our 'webs of significance' through synthesis and analysis of ideas. In order to form a concept (i.e., *understand* something), we must be able not only to connect, but also to *abstract*, to *single out* its characteristic elements, and to view them separately from the "totality of the concrete experience in which they are embedded" (Vygotsky: 1986, p. 135).

To make a mosaic, we must not only put our tiles together into a meaningful pattern, but also add enough detail, to make the image clearer. Similarly, when making a sentence, we must not only put words together into a basic meaningful structure (S/V/C), but make our meaning clearer, by adding detail (description) to the major sentence constituents (Subject, Verb, and Complement).

We spin our verbal 'webs of significance' by putting word-meanings together into the **nexus** of the proposition (**synthesis**) and describing *parts* of the nexus by associating them with other ideas, based on some Resemblance, Contiguity, or Cause/ Effect relationship (**analysis**).

Generalization is thus the matrix of universal grammar of verbal thought; it is embodied in countless forms and structures of the world's languages, all shaped by it:

[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 (al Farabi: 1931; 17.5-7, 18.4-7).

‘Practice Makes Perfect.’ We acquire all skills through practice (even though inborn talent may also play a role). This is why our language (and, therefore, thinking) skills are conditioned by the quantity and quality of our social interaction; there is a **direct correlation between our social and cognitive development**, i.e., between our **social interaction** and our **thinking ability**.

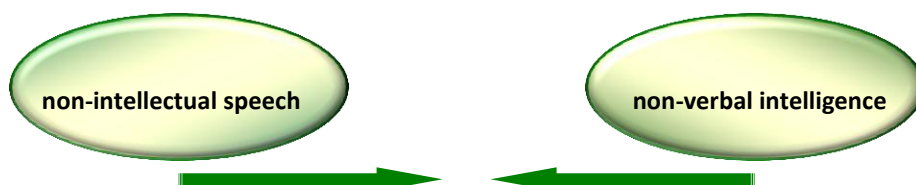
As individuals, we often underestimate the role of society in our lives; we need to be reminded that, **by giving us language, our society made us human**.

I.3.2. How do we acquire language?

(a) We are born without language. Initially, in babies (as in animals) thought is *nonverbal* and speech – *non-intellectual*: ‘a ‘prelinguistic period in thought and a pre-intellectual period in speech undoubtedly exist also in the development of the child’ (Vygotsky: 1934). As a result of social interaction, children ‘discover’ that things have *names*, and begin to ask what they are called. They begin to connect sound patterns with the physical objects they perceive. Their speech becomes increasingly rational and thought – verbal, until the **speech structures they have acquired become the basic structures of their thinking**. Verbal thought, therefore, is not innate: a *connection* between word and thought originates and grows in the human mind in the course of social interaction – in many ways, *shaped* by society:

There is no specific interdependence between the genetic roots of thought and of word: **the inner relationship is not a prerequisite for, but rather a product of, the historical development of human consciousness** (Ibid.).

Vygotsky represented thought and speech in animals and human infants as two **separate circles**:



Speech and Thought spring from different roots – they do not overlap at birth

In babies, these two functions of the brain do not overlap; like all mammals, human babies are governed by instincts and feelings. During the first stage of our cognitive development, we 'soak up' the sounds and words of language from the people around us through our physical senses of hearing and sight. Gradually, we begin to 'connect' the sounds of certain words we hear to concrete objects in the world around us; when that connection 'clicks,' we begin to *use* those sounds to **refer** to concrete objects around us.

Babies' first words are not yet abstract thought; rather, they are expressions of wishes /feelings. It is the **whole behaviour** of the child that communicates meaning (just like a dog's barking, squealing, etc. can communicate aggression, fear, pain or joy, etc.):

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 (Vygotsky: 1934).

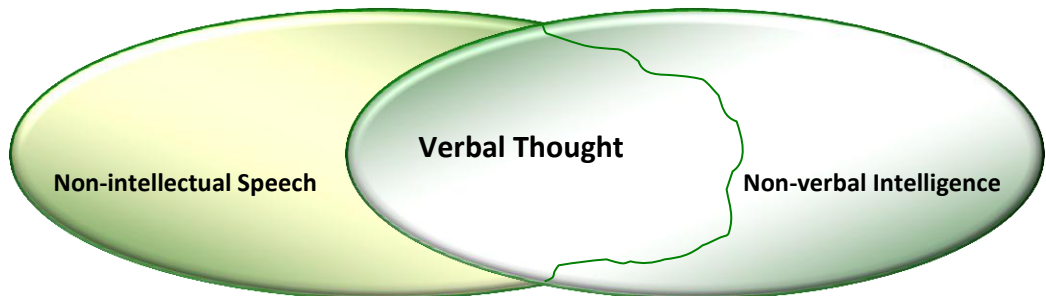
The dynamics of thought development follows the dialectics of *synthesis* and *analysis*. Abstract thought (i.e., human understanding/ conceptualization) is *both*:

... 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 (Vygotsky: 1934, pp. 135-136).

(b) Grammar precedes logic in the child's mind. We know that the child has spoken his/her first words when the child 'connects' a particular sound sequence to a concrete object and begins to use those sounds to **refer** to that object. For the child, words are *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 (Ibid.).

(c) Verbal thought: In children, thought and speech begin to intersect in the course of language acquisition. In adults, the overlap, where thought and speech coincide, represents **verbal thought**:



This diagram shows that a lot of our intelligence is non-verbal, just as much of our speech 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 tools¹ belongs in this area, as does practical intellect in general (Vygotsky: 1934).

Humans and animals share feelings /sensations, which we all can express in non-intellectual speech (we all laugh and cry in the same way – no language barriers there!). Our ‘fellow men and women’ give us our humanity through language: it teaches us, first, to connect concrete things to sounds of words, and then to **think** / connect ideas (i.e., *generalize* through the *synthesis* and *analysis* of ideas).

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, of course, holds true for people of any age: if the concept is not formed in the brain, the word will not ‘make sense’ to us.

¹ Use of tools / practical intellect includes mechanical skills, such as driving a car, operating a machine, etc.

I.3.3 Piaget's Stages of Cognitive Development²

Jean Piaget (1896-1980), a Swiss psychologist, corroborated Vygotsky's findings. He showed that the difference between child and adult thinking is **qualitative**, not just **quantitative**: a child is not a miniature adult and his mind is not the mind of an adult on a small scale.

The human brain continues to develop after birth, and matures only by adolescence. During these formative years, according to Piaget, it goes through four major stages of cognitive development:

1. **The Sensorimotor Stage** occurs between birth and age 2. Babies are born with no thinking structures (the so-called schemas) 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 2.
2. **The Pre-Operational Stage** (approx. 2 to 7 years of age). Children rapidly develop language skills and, concurrently, the underlying thinking structures. They develop personal traits and characters, 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 the shape or form of it may change). When water is poured from a tall, narrow glass to a short, wide bowl, the preoperational child will think that there is now less water. They are also incapable of de-centering (the ability to see things from another's perspective). When pre-operational children are asked to sit at a table but draw the view from the other end of the table from the perspective of someone looking at them, they cannot do it. Both conservation and de-centering are basic requirements for logical thinking.
3. **The Concrete Operational Stage**: ages about 7 to adolescence. Children begin to grasp conservation and de-centering. They can now reason logically, but only on a concrete, not hypothetical or abstract level. When a Concrete Operational child is shown a blue block and asked "Is the block green or not green?" he or she will probably answer "Neither, it's blue!" – that 'blue is not green' is too abstract. They solve problems logically, but not systematically / consistently. As opposed to Preoperational children, children 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.

² Cognitive development ~ the development of intelligence, conscious thought, and problem-solving ability that begins in infancy (Source: <http://medical-dictionary.thefreedictionary.com/Cognitive+development>)

4. **The Formal Operations Stage:** adolescence or above. 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 the ultimate stage of development, and stated that although the children would still have to revise their knowledge base, their way of thinking was as powerful as it would get.

Vygotsky described this process in one sentence:

Psychology has scrutinized the way individual flashes of human speech gradually emerge from a baby's squeals and from the babble of very young children, and the way the process of the mastery of speech becomes essentially complete only at the time of sexual maturity, as it is only from then on that speech becomes a *tool* enabling the child to form abstract concepts and a means of abstract thinking. (Vygotsky: *Primitive Man and His Behaviour*; 1930).

Not every child reaches 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.

Language develops before Logic (Grammar precedes Logic). '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: 1934). 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, etc.

At a point in the pre-operational stage, the child "makes the greatest discovery of his life" – that "each thing has its name" and begins to ask "What is this?" about every new thing they come across.

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 (Vygotsky: 1934).

Word-meanings, for a child, are the names of concrete things. That is why children cannot understand some abstract thoughts, even if they are familiar with the necessary words – the adequately generalized concept that alone ensures full understanding may still be lacking.

Thought development is determined by language, i.e., by the linguistic tools of thought and by the socio-cultural experience of the child. Essentially, the development of inner speech³ depends on outside factors; **the development of logic in the child is a direct function of his socialized speech**. The child's intellectual growth is contingent on his mastering the social means of thought, that is, language (Ibid.).

Word-meanings develop with the child's thinking ability – by the end of the pre-operational stage, they have fully learnt the structures of language, and their thinking becomes more abstract. The pre-operational and formal operational stages differ mostly by the degree of abstraction in the way we think and the 'data base' of knowledge/ experience on which we draw.

Language is *ambiguous*,⁴ because speakers 'make sense' of what they see and hear in their own heads, based on their individual perceptions / 'connected experience.' Here is an example of how the same sequence of sounds can be interpreted in different ways:



1.3.4 Ambiguity: Lexical vs. Structural

Words may sound the same, but have different meanings: **see/sea, bred/bread, hour/our, break/brake**, etc. These are **homophones** (= 'same sounds'):

Bush Wins on Budget, But More **Lies** Ahead

³ Inner speech = verbal thought – OT

⁴ **Ambiguity** – uncertainty of meaning; having more than one meaning

Child's **Stool** Great for Use in Garden (newspaper ad)
My son has grown another **foot** in the past year.

Lexical⁵ ambiguity occurs when same-sounding words have different meanings; look at some ambiguous notices spotted in different countries:

The Manager has personally passed all the water served here (Hotel, Acapulco).
Ladies are requested not to have children in the bar (cocktail lounge, Norway).

Structural ambiguity occurs when a sentence can be understood in several ways because the words in it can be *grouped* differently:

We Need More Honest Politicians (a newspaper headline)
Special cocktails for ladies with nuts (notice in a Tokyo bar)
Visiting relatives can be boring.
Vegetarians don't know how good meat tastes.
Kids make nutritious snacks.
Milk Drinkers Are Turning to Powder

Meaning (consciousness generally) is possible only through the act of thought (generalization). This is why none of us can remember the first months and year(s) of our life; we all have the so-called 'childhood amnesia' simply because at that stage in our cognitive development we had not yet learnt language, whose structures later become the structures of logical thinking:

True human communication presupposes a generalising attitude... Man's thought reflects conceptualised actuality. That is why certain thoughts cannot be communicated to children even if they are familiar with the necessary words. ...Children often have difficulty in learning a new word – not because of its sound, but because of the concept to which the word refers. There is a word available nearly always when the concept has matured (Vygotsky: 1934).

The webs (mosaics) of significance which we spin are not the product of the tool we use to spin them (Language) – they are the product of the living and thinking human minds that *use* the tool to create meaning.

Because **the principles of generalization are universal**, they underlie all systems of meaning created by human minds and embodied in all languages and cultures. Ideas, we remember, have no physical substance – they do not exist out there, in the physical world; they exist only in human minds. The truth of our ideas can only be measured by their correlation with physical reality – everything else is a matter of

⁵ *lexis* means 'words'

taste, opinion or conviction. Paraphrasing Hamlet, we can say that 'There is nothing that is either right or wrong, just/unjust, good or evil – but thinking makes it so.'

Of course, we do speak of universal human values (love, friendship, kindness and honesty are valued in most human societies, for example), but that only means that these ideas live in most human minds, and not that they correspond to reality (not that they are either true or false).

When we consider Language and Culture, therefore, it is important to remember that

'There is no absolutely "objective" scientific analysis of culture... All knowledge of cultural reality... is always knowledge from particular points of view. ... an "objective" analysis of cultural events, which proceeds according to the thesis that the ideal of science is the reduction of empirical reality to "laws," is meaningless... [because]... the knowledge of social laws is not knowledge of social reality but is rather one of the various aids used by our minds for attaining this end' (Max Weber, "Objectivity" in Social Science, 1897).

In other words, judgments, 'moral good and evil belong only to the actions of the mind' (Hume: 1749). In contrast, 'Reason is the discovery of truth or falsehood. Truth or falsehood consists in an agreement or disagreement ... to real existence and matter of fact. Whatever, therefore, is not susceptible of this agreement or disagreement, is incapable of being true or false, and can never be an object of our reason' (Ibid.).



Fluid Meanings – the products of our Ethereal Minds

Further Reading: Appendix I

Reading 4. Temple: (2011) Genesutra. Sutra 5

Reading 5. David Hume (1740) A Treatise of Human Nature: Book III OF Morals. Part I Of Virtue and Vice in General. Sect. I Moral Distinctions Not Derived from Reason.

