

# Vygotsky & the Concept of Consciousness

Talk by Andy Blunden at University of Witwatersrand, February 2011

## Vygotsky's Immanent Critique of Reflexology

VYGOTSKY came to psychology by way of aesthetics. At the time, in the wake of the Russian Revolution, aesthetics was the scene of intense ideological struggles between Symbolists and Formalists and Phenomenologists. Vygotsky claimed that aesthetics had to be based on psychology and this is how he came to Psychology, more in tune with semiotics than medicine. This was not the usual training for the psychology of the time, dominated by reflexology and other variants of physiological behaviourism.

But in his first speech to the Congress of Psychoneurology in 1924, Vygotsky spoke in the language of reflexology, building up to a point where he declared:

“Consciousness is only the reflex of reflexes. If to claim that consciousness too has to be understood as a reaction of the organism to its own reactions, one has to be a bigger reflexologist than Pavlov himself. So be it” (1997).

The conventional wisdom about this speech is that it represents *the reflexologist stage* in Vygotsky's development, that is, that he was at this time a reflexologist, and later he became a reactologist and then ... But if we take account of Vygotsky's background, this is really not believable.

Vygotsky began by declaring that ‘the methods of the reflexological investigation of man have now reached a turning point ...’ explaining that ‘outside the domain of the elementary and primitive, reflexology was left only with its general bare claim – equally well applicable to all forms of behaviour – that they constitute systems of conditional reflexes.’ Continuing with this damning characterization of the poverty of reflexological research, Vygotsky claimed that if reflexology was to become a general science of behaviour then its methods would have to merge with those of its opponent, ‘subjective psychology’ whose methods hinged on *dialogue* with the experimental subject.

He established this with a beautiful line of *immanent critique*: he quotes an eminent reflexologist to the effect that the most sensitive reflexes should be used in experiments; the most sensitive reflex is the ‘speech reflex’, therefore, instead of poking pins into someone's *foot* and measuring how long it took the person to withdraw their foot, reflexology should focus on the ‘speech reflex’.

He then points out that in fact without acknowledging it, reflexologists continuously use speech interaction with experimental subjects: “Please sit down,” “Did you feel that?” and so on. But they do so *unscientifically*, whereas in fact it is essential to recognize speech interaction between the researcher and the subject as *part of* the whole experiment and examine it scientifically.

The reflexologists held that self-observation – asking subjects about their own state of mind – is an inherently unscientific method of investigating consciousness, because it is *subjective*. But Vygotsky pointed out that an experimental subject's responses to questions are simply *experimental data* to be subject to scientific analysis like everything else that takes place within the experiment.

According to reflexology, thought was a speech reflex which has been inhibited before it becomes manifest, and so Vygotsky asked ‘why it is allowed to study complete speech reflexes ... [but] forbidden to take account of these same reflexes when they are inhibited?’ If manifest reflexes are objective, then inhibited reflexes, i.e., *thoughts*, are also *objective*. The question is only *the methods to be applied* to study thought.

VYGOTSKY then goes on to talk about ‘the capacity of the reflex to be a stimulus for a new reflex – this mechanism of awareness is the mechanism of the transmission of reflexes from one system to another’, and makes a reflexological definition of consciousness:

“the act of thought, the act of consciousness is in our opinion *not a reflex*, that is, it cannot also be a stimulus, but it is *the transmission mechanism between systems of reflexes*.”

This definition avoids both reductionism and dualism, allowing Vygotsky to ask rhetorically: “Is a scientific explanation of human behaviour possible *without* the mind?” In fact, even the most extreme reflexologists, Pavlov and Bekhterev, accepted that consciousness exists and that it forms an essential

component of human behaviour. They simply refused to admit the study of thought into 'objective' science on the basis of the unsustainable claim that the study of thought is possible only by self-observation, which is by definition unscientific. This locks them into an inflexible dualism: reflexology which is able to make only the most banal claims, and psychology, which is unscientific. 'Two sciences with *the same* subject of investigation – the behaviour of man'. The reflexologists could only conceive of consciousness as subjective states understood in a dualistic way, excluded in principle from interaction with the material world. Vygotsky concludes with the paradox:

“Psychology has to state and solve the problem of consciousness by saying that it is the interaction, the reflection, the mutual stimulation of various systems of reflexes. It is what is transmitted in the form of a stimulus to other systems and elicits a response in them. Consciousness is a response apparatus. ... Consciousness is only the reflex of reflexes. ... to study the behaviour of man without mind as reflexology wishes to do is as impossible as to study mind without behaviour.”

Finally, to the supposed inaccessibility of subjective states to scientific investigation, Vygotsky points out that the geologist, the historian, ... all scientists in fact, face the problem that the object of their science is not open to 'direct' *unmediated* observation. In every case, methods must be worked out to reconstruct the relevant facts from observation and experiment. These facts include the mind and the methods for reconstructing the facts include talking with the experimental subject whilst participating with them in the experimental activity.

So Vygotsky has managed to argue exclusively from within the framework of reflexology to a point which completely *negates* reflexology. Without disturbing the universal claim that 'everything is a reflex', Vygotsky has turned the concepts and methods of reflexology against themselves and proved that reflexology, that is to say, the study of the physiology of the nervous system, must merge itself with the methods and concepts of its opposite, subjective psychology.

Vygotsky was applying the method of *immanent critique*, the method of critical development of science worked out by Hegel and applied by Marx in the writing of *Capital*. Instead of counterposing to a given theory or system of practice, an opposite point of view, the critic enters that system of ideas and argues in its own terms to disclose its inner contradiction and lead it through to its own negation. This allows the critic to recover the insights utilized by the theory, understand the limits of their validity, and maintain them, whilst laying the basis for a practice which transcends the limitations of the given theory. But it is unlikely that anyone in Vygotsky's audience understood the notion of 'immanent critique'. Like politics, science was a field in which people joined factions, and the idea of immanent critique would have seemed strange and inexplicable.

## Behaviourism

**IF WE ARE** going to deal with *any* concept of consciousness, then we have to dispose of Behaviourism, by which I mean all those approaches to the study of the mind which *exclude consciousness* as a legitimate scientific category, or reduce consciousness to an epiphenomenon having no explanatory role in relation to behaviour, limiting itself to the study of physiology and observable behaviour. Although American and Russian behaviourism developed in parallel, it is J.B. Watson who is generally recognized as having defined behaviourism:

“Psychology as the behaviourist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behaviour. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. The behaviourist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute.”

Let us recapitulate these four linked characteristics of behaviourism: (1) Its aim is the prediction and control of people's behaviour, (2) It excludes the use of evidence proffered by the experimental subject, (3) It excludes the notion of consciousness and (4) As a part of *natural* science, it deals with human beings without culture, as *brutes*. All four of these characteristics are incompatible with an emancipatory human science, which was Vygotsky's principal interest in psychology.

The aim of controlling human behaviour answers to the needs of capitalist, prison guard, interrogator, marketer, politician and bureaucrat, but an emancipatory psychology aims to free people from manipulation so that they can have voluntary control over their own behaviour.

Since emancipatory science aims at *self*-emancipation, it must have the consciousness of its subjects at its *heart*, and rejects the idea of a God's eye view which pretends to view society from outside and above. In fact, efforts to exclude consciousness from the study of human behaviour are ineffectual, unscientific and self-deceptive. The consciousness of both the researcher and their experimental subject *always* participate in scientific experiments, and experiments are only scientific to the extent that the researcher understands the role played by their own consciousness.

A psychology which is only interested in those forms of behaviour which human beings share with the animals misses just those forms of behaviour which keep human life from descending to the level of brutes, and except in instances of neuropathology or injury, are actually what interest us. Treating people like animals is useful only to those who already treat people as objects to be manipulated.

**THERE ARE TWO** broad lines of development of behaviourism: physiological behaviourism and social behaviourism. In Vygotsky's day, Pavlov and Bekhterev were representatives of physiological behaviourism, in that their aim was to predict and control behaviour through an understanding of the physiological substratum of thinking and behaviour. So, if you can manipulate a person's physiology, inclusive of presenting subjects with verbal or other sensory stimuli, then you can predict the resulting behaviour, and thereby ultimately *control* people's behaviour.

Social behaviourists share the conviction that consciousness is inaccessible to scientific observation. But unlike the physiological behaviourists, they prefer to study Stimulus-Response relations in a sociological context and do not consider that the study of the biological processes mediating between an external stimulus and observable response contributes to an understanding of behaviour.

Social Behaviourism took their cue from the work of William James and the other American Pragmatists, Mead and Dewey. Social behaviourists recognize that people's behaviour is generally a response to stimuli which have social origins. From this standpoint, one thing leads to another, and there is still no place for the presumption of consciousness. Social behaviourists like Mead recognized that a person's 'attitudes', the earliest phase of the production of actions, lying *within* the organism, cannot in general be revealed by physiological investigation, but nonetheless play a crucial role in behaviour. Vygotsky seems to have drawn on these ideas in the preparation of his immanent critique of reflexology.

B.F. Skinner developed the most consistent elaboration of Behaviourism, studying the Stimulus-Response relation with the experimental subject regarded as an absolute 'black box' or blank 'input-output' device. Skinner would not admit *any* characteristics of the person into science, not only excluding consciousness and physiology, but even character and motivation, which he saw as nothing but social constructs, invented for the purpose of the control and prediction of behaviour, and fully reducible to behavioural analysis.

So it is only (3) above, the rejection of consciousness as a scientific category, that all currents of behaviourism share unambiguously. But the exclusion of consciousness necessarily implies the denial of *agency* to the experimental subject, so even though only indirectly, despite the humanism of its founders, social behaviourism shares the full range of characteristics of behaviourism, because it denies to human beings the main determinant of behaviour, consciousness, and therefore the capacity for self-determination, equating human beings with animals, regarding culture as nothing more than a system of devices for conditioning behaviour.

Vygotsky showed however, that there is no basis for the exclusion of consciousness on the assumption that consciousness can only be accessed by self-observation. Noam Chomsky (1968) famously asked: 'Is physics the science of meter readings?' – we infer consciousness from behaviour, and in so doing we act in exactly the way that *all* sciences act, reconstructing the facts of the science from the available evidence.

But behaviourism is not to be simply cast aside. Vygotsky demonstrated that while *self-observation* is rightly excluded as a method from science, we *can* and must infer consciousness by objective observation of the behaviour (including verbal behaviour) of the experimental subject, based on their participation in the experiment as a shared project along with the researcher. This means that the

researcher's behaviour must be treated with the same rigor as that of the experimental subject, denying the subject a privileged insight into their own consciousness, and the researcher an illusory God's eye view.

Likewise, physiological behaviourism, the investigation of the nervous system as a network of conditioned stimulus-response links, has a legitimate place in the work of psychology, but because the central and most important process determining behaviour – consciousness – can only be inferred from behaviour, in most cases physiological investigations must play a secondary role. In cases of trauma or other types of physiological pathology, the role of physiological investigation obviously becomes more important.

## The Ontology of Consciousness

**SO LET'S** look at what consciousness is. Nowadays, there is a firm prejudice to the effect that all dichotomies are necessarily mistaken, even reactionary; that wherever there appears to be a dichotomy, closer examination will always show that there are blurred edges, in-betweens, third ways, and so on. And invariably the whole idea of dichotomy or dualism, which amounts to the same thing, is referred back to Descartes: the Cartesian Dualism between mind and matter.

So far as I know, the only current of philosophy which has a clear position on the mind-matter dichotomy *and* a commitment to dialectics, is the current of Marxism which runs from Plekhanov to Lenin to Vygotsky and his followers up to Ilyenkov. Vygotsky says:

“The question is whether in introspection phenomenon and being coincide” and quoting Lenin: “the only ‘property’ of matter connected with philosophical materialism is the property of being an objective reality, of existing outside of our consciousness ... the concept of matter means nothing other than objective reality, existing independently from human consciousness and reflected by it.”

This quotation is a real gem, so let us take a little time to unpack it.

Firstly, what is meant by “phenomenon” and “being” when we are talking about introspection? “Phenomenon” means appearance, how things appear to be, whilst “being” is what is. So the question is: does the impression one has of one's own consciousness correspond to what one's consciousness actually is. Phenomenology – the study of appearances – answers in the affirmative and makes its subject matter what is given in introspection. [Just a warning here: although this was the definition in Vygotsky's time, the meaning of “phenomenology” has been somewhat mobile since.] On the face of it, the claim that one has direct, unmediated and reliable access to one's own consciousness seems to be undeniable, indeed, the very definition of consciousness!

But the answer is not so simple. What is given in introspection is clear enough as a concept, but what it corresponds to is far from clear. A drunk may tell you they are clearheaded and fit to drive, a mentally ill person may tell you that they are the King of England, I might tell you I am typing the word “form” whereas in fact I am typing “from” And yet all these obviously mistaken reports of the introspective appearance of my consciousness, are contradicted by what anyone listening to me *knows* about my consciousness. How is this possible? Well, in our behaviour we betray our consciousness to everyone, but our introspection is only of the act of introspecting and by the act of introspecting I destroy the state of mind which is supposed to under observation. *Appearances may be deceptive.*

Lenin refers to “philosophical materialism.” He refers to the fact that philosophical materialism simply makes the distinction between, on the one hand, matter – everything that exists outside of our consciousness, and in whatever shape, is given to us in our consciousness, and on the other hand, our consciousness. Beyond the claim that matter exists independently of consciousness philosophical materialism cannot take a step further; matter is *defined* by being outside of our consciousness. And it is through our consciousness that we get to know about the world. Any attempt to blur the distinction between consciousness and matter, under this definition, is madness. At best it is missing the point. If I can't distinguish between my thought and what I am thinking of, then either I am an infant or simply don't understand the question. The question of the distinction between thought and matter is the fundamental question of philosophy. As Descartes saw, consciousness is what we are given. The question then is, what is there beyond that, behind our consciousness. If we blur that distinction, and obfuscate the question then we surely must have misunderstood the question.

In *The German Ideology*, Marx wrote “My relation to my environment is my consciousness,” but then crossed it out. But this is a very succinct way of putting it. Marx puts it in the first person; he does not say “a person’s relation to their environment is their consciousness,” because he must treat anyone else’s consciousness scientifically, in the knowledge that another person’s consciousness must be inferred from their behaviour and whatever we know about their physiological condition. But his own consciousness occupies a special position because everything he knows passes through his consciousness, including his scientific investigations. The point is that the special ontological status occupied by consciousness only applies in the first person. Descartes’ mistake was to extend a perfectly valid question he asked of himself, to consciousness in general.

**THIS IS** what transformed “consciousness” into a problematic substance. *Your* consciousness is part of the material world, and is reducible to the totality of the state of your organism and its environment, all of which is accessible to scientific investigation.

**BUT** *my* consciousness, I cannot investigate scientifically. As Feuerbach put it quite correctly: “what *for me* is a mental, non-material, suprasensory act, is *in itself* a material, sensory act.”

The other point about Marx’s aphorism is that he defines it as “My relation to my environment” without any qualification. It is all-inclusive. Marx does not limit consciousness to “awareness” nor does he exclude emotions, or make any other such qualification. It is the totality of my relation to my environment. The problem of the further specification of consciousness cannot be settled in advance by philosophy but requires positive, experimental investigation. So philosophy can only give this very starting point: “My relation to my environment is my consciousness.”

Putting this together with the problem of the difference between phenomenon and being in psychology, what this means is that introspection may contribute something to an elaboration of consciousness, but consciousness is not given to introspection. Introspection is a phenomenon in its own right. I cannot step outside of myself and make my own consciousness an object of my consciousness.

**VYGOTSKY EXPLAINS** this as follows.

Consider an object  $A$  (such as a table) which exists thanks to a natural process  $P$ , and the image of the table we see in a mirror  $\alpha$ , thanks to a natural process  $\pi$ , involving light beams and reflective surfaces. The image  $\alpha$  exists thanks to two objective processes,  $P$  and  $\pi$ . It would be absurd to identify  $A$  and  $\alpha$ , to say the reflection of a table is a table.  $A$  is material and exists independently of  $\alpha$  which is non-material. It would also be wrong to identify  $\alpha$  with the optical processes which produce it,  $\pi$ .  $\alpha$  is neither  $A$  nor  $\pi$ . Both  $A$  and  $\pi$  are real processes and  $\alpha$  is their apparent, i.e., unreal result. The reflection does not exist, but both the table and the optical processes exist. The reflection of a table is identical neither with the real optical processes nor with the table itself.

Likewise in psychology, both the world outside the brain and the processes taking place in the brain, are objective, material processes, by definition, being outside of consciousness (the image), while on the other hand, consciousness is not material, it is a phantom. It is just as wrong to identify consciousness with the material processes which bring it about as it is to identify consciousness with the natural process it apprehends.

Just as a mirror cannot reflect image  $\alpha$ , since a reflection presupposes a light source and  $\alpha$  is not a light source, so introspection cannot apprehend its own thoughts. Introspection is itself an act of consciousness and a so-called state of the mind. It cannot step outside of itself to observe itself without that act of introspection.

Like the reflection, the thought is a phantom, a chimera, an illusion. But my consciousness is my illusion, and because I know that what I perceive is not the same as what exists outside of my consciousness, I can take action to verify my observations. I can look at things from different angles, I can compare with past experience, seek a second opinion, consult measuring devices, and so on, and by such means make my illusions truer and truer. There is not an absolute line separating truth from illusion. Every truth has an element of illusion and every illusion an element of truth. But one still has to know the difference, and the difference rests on the absolute difference between my consciousness and the material world outside of my consciousness.

Is that clear? The conclusion that consciousness is an illusion is useful because many adherents of physiological behaviourism will tell you that consciousness doesn't exist, that it's an illusion. They say this because having avoided the error mentioned above of identifying the image with the processes whereby it is produced, they find that there is no place where any image can be found. In the natural scientific sense consciousness does not exist, it is an illusion.

The thing is, that illusions exist. They exist as illusions, as phantoms, not in the same way as material things and processes exist. Consciousness is a real illusion; they are causes in relation to behaviour. So maybe this is a point where physiological behaviourists and cultural psychologists can have a conversation, and ask: "Well, how is that illusion created?" and "How is it that illusions guide behaviour?" and if people use these illusions to guide their behaviour, aren't these illusions what we need to investigate? After all, it is sometime obvious what illusion a person is suffering from by observing their behaviour. A "real illusion," and an illusion which has enough truth in it to allow people to live by it.

At the same time, it should be noted that Vygotsky was a student of Shpet, the leading advocate of Phenomenology in Russia at the time, and Vygotsky was not shy of utilising the methods of phenomenology. By means of immanent critique he was able to gain wisdom from any direction. He also drew heavily on the tradition of nineteenth century subjective psychology, which provided tools hinging around dialogue with the experimental subject and provided insights which had been lost in the dominant behaviourist tradition.

So Vygotsky started from this philosophical foundation. Consciousness is my relation to my environment, and consciousness is a phantom, a "real illusion," mediating between physiology and behaviour. And he then proceeded to build up the complex, dynamic, differentiated and holistic picture of the mind and its development using careful and ingenious observation and experiment. "Conscious awareness" [*osoznanie*] was a special grade of consciousness which Vygotsky reserved for the person who is aware that they are using a thought process and can deliberately control these thought processes. But from early childhood up to adulthood, the person goes through numerous different grades of awareness and the development of self-consciousness and affective and subconscious processes.

Vygotsky disagreed with Freud on the question of the subconscious. Everything that is found inside the personality, existed previously on the plane of activity, on the interpersonal plane. We learn to read aloud, and later whisper or move our lips as we read, before we learn to read silently, and even alas, learn to do other things whilst reading. Likewise, the unconscious life of the person is something which begins life on the social plane of the person's interaction with other people and in using artefacts. With the development towards adulthood, many of the processes which began life as overt expressions and feelings, become 'second nature' and do their work silently in the background. So Freud's Subconscious is not something there at birth, bubbling up into consciousness, but rather, processes of consciousness which have been developed in conscious interaction with other people and like silent speech, become internal functions which go on without even the subject themselves being aware of them. Thus consciousness develops as a more and more complex dynamic structure, which the psychologist may investigate using appropriate experimental techniques as it develops.

## Units of Analysis

**IN THE CONTEXT** of a general approach of studying behaviour in order to build up a knowledge of consciousness, as a developing, complex whole, Vygotsky made some important innovations in methodology, which Vygotsky acquired through his study of Marx, but which have their origin in Goethe and Hegel.

**VYGOTSKY** contrasted the methodology of Pavlov, who exhaustively and empirically investigated one reflex in one animal, to the reflexologists who asserted dogmatically that *everything* is a reflex. Vygotsky praised Pavlov, asking "What gives him the right to call his experiments the study of the higher nervous activity of *animals*?" How was it that the "fact that Pavlov's dogs salivated to signals given by Pavlov immediately became a general biological principle?" And Vygotsky explained: "This proved possible because Pavlov *maximally abstracted* the phenomenon he studied from the specific conditions of the particular phenomenon. He brilliantly *perceived the general in the particular*."

On the other hand, the “reflex” known to reflexology was simply a name applied to any and every aspect of animal behaviour up to and including complex human behaviour. Here every particular was simply given a common general name which contributed nothing to its understanding. Vygotsky devoted a great deal of attention to the study of methodology, and while appreciating the merits of the methodology adopted by all the great figures of the time, who had made significant breakthroughs, the key problem of writing his “*Das Kapital* of psychology” was the identification of what Vygotsky called a “unit of analysis” for the study of consciousness in general, or the intellect in particular. Marx had discovered the commodity as the unit of analysis for bourgeois society; Pavlov had discovered the conditional reflex as the unit of analysis for the nervous system. The question was: what were appropriate units of analysis for resolving the various problems of consciousness?

## Romantic Science

**THIS DEFINITION** of the problem of science dates back to Goethe, whose approach to science is known as “Romantic Science.” Goethe developed his approach in the late 18th century, in opposition to the style of science developing in the wake of the success of Newtonian physics. The features of this style of science to which Goethe most objected included the following:

- Goethe criticised the dominance of *analysis*, the breaking of everything down into its elements instead of an effort to comprehend processes as a whole, as a *Gestalt*;
- He also criticised the categorisation of things according to inessential attributes instead of seeking the essence of things, which made them what they were;
- He criticised the experimental method which observed processes under artificial conditions not corresponding to the actual life of the process.

But the most famous contribution which Goethe made to scientific method was the concept of *Urphänomen*, or archetypal phenomenon, later to become known as the cell. The *Urphänomen* was the simplest unit of a complex process which exhibited all the properties of the whole process. Goethe died before microscopes became powerful enough to observe the microscopic life inside organisms, but only a few years after his death, the cell was observed and it was this discovery which put biology on a sound scientific footing. The cell of a process not only allows a process to be understood as a whole, but constitutes it as a *Gestalt*.

Subsequently, Hegel took up Goethe’s suggestion and transformed it into the abstract concept, and the same concept was taken up by Marx in the writing of *Capital*. Vygotsky’s comrade, Alexander Luria was raised in a love of German literature and philosophy and declared himself a supporter of Romantic Science. Luria is remembered for his advocacy of Idiographic science, in which the researcher intensively and exhaustively study just one case (or class of cases) in order to illuminate a more general process. The most famous example of this is Luria’s study over 40 years of a man with a photographic memory. Luria studied the man’s whole personality and thereby elucidated the place of memory in the whole complex of the personality.

Romantic science also emphasised the practice of science as a social practice, which had to be so framed that the whole community could participate. The practice of science would bind the society together and give foundation to shared beliefs and its relation to Nature. Accordingly, Vygotsky and his group worked collaboratively explicitly working for a better society. The relation they sought with experimental subjects was one of collaboration, not manipulation, and nor did they attempt to study people in isolation from their normal conditions of life. The extent to which these ideals were realised by Vygotsky and Luria is open to question, and conditions at the time proved to be inauspicious for collaborative and emancipatory science. Nonetheless, the ethos of collaboration thoroughly penetrated all their work. And the collaborative relationship was central to their understanding of consciousness.

## Units, Elements, Microcosms, Attributes and Archetypes

**SO IN HIS STUDY** of mind, Vygotsky always sought the unit of analysis for each problem, i.e., the concept of the process. A unit preserves all the properties of the whole, an ‘element’ cannot manifest these properties on their own. So for example, a social group is made up of individuals, but an individual is not a unit because a single person on their own cannot carry out any of the activities or psychological functions of a social group. Equally, water is composed only of the elements hydrogen

and oxygen, but neither hydrogen nor oxygen manifest any of the properties of water. The unit of water is the water molecule H<sub>2</sub>O.

**THE UNIT IS** an empirically given thing, not a law or principle, but manifests the concept of the whole process. So a unit differs from an attribute, which is just one aspect of a process and cannot exist as such and is in any case contingent. So for example in the debate about what is a human being, Benjamin Franklin correctly defined human beings as tool-making animals not “naked apes” or “intelligent apes,” because “tool-making” is not a contingent attribute of people but that characteristic which explains all others, and which brought humans into being in the first place.

**A UNIT ALSO** differs from a microcosm, which also, it is said, exhibits all the properties of the whole, because the unit is the simplest, and not the highest component part of a process. If Marx had wanted a microcosm of bourgeois society, then he would have chosen a capitalist enterprise or a bank. But instead he started with the simplest embryonic unit of capital, the commodity.

**IN DIFFERENT STUDIES**, Vygotsky identified different units according to the problem he was trying to elucidate. His most famous project was the study of the relation between thinking and speaking, in other words, the intellect. Here Vygotsky said that “word meaning” constituted the unit of analysis, and a study of the development of word meaning would allow the researcher to track the entire development of the intellect.

More generally, he used “artefact-mediated action” as the unit of analysis, of which “word meaning” is a special case. That is, the simplest archetypal unit of consciousness is the use of an artefact from the culture to mediate an action in relation to another person. You can see that using a word meaningfully is a special case of an artefact-mediated action.

Later he identified *perezhivanie* as a very general unit for the development of consciousness. *Perezhivanie* is a Russian word similar to the German word *Erlebnis* and translates into English as “a lived experience” somewhat like “an adventure.” Its sense is both subjective and objective in that it refers to the significance of an objective event for a given subject.

So these are the kind of concepts from which Vygotsky set out to build a concept of consciousness. At this point we have hardly begun, but Vygotsky’s study of the relation of thinking and speech is his crowning achievement, showing how speaking and thinking arise from separate bases, follow distinct lines of development, which intersect and merge, each promoting each other’s development, and finally thought transcends its link with words and thought-as-such, thinking which is beyond words arises.