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Vygotsky's machinery of the will. Or: Descartes in the dog house

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ABSTRACT

In this paper, I have chosen to examine one phase in the development of Lev Vygotsky's 'cultural-historical' psychology, namely his account of what he calls 'cultural will'. The account is important for the role which Vygotsky attributes to signs in the creation of the psychological functions – psychological mechanisms – involved in the capacity for conscious, wilful action taken to be distinctive of and unique to human beings.

The paper gives an outline of some of the main issues and problems to do with the formulation of this view of 'cultural will' and attempts to locate it within a tradition of psychological naturalism linked by many intellectual threads to the Cartesian animal-as-machine philosophy. On this basis, I offer a diagnosis of the semiological flaw at the (mechanical) heart of Vygotsky's account of the will and thereby throw some light on the wider implications of these issues for perspectives on language and communication and their role in human activity and thinking.

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1. Introduction: two machines¹

In *The Language Machine* (Harris, 1987), Roy Harris notes that there are two separate but interlocking pieces of machinery at work in the engineering of the sterile and reifying mechanism of modern linguistic theory: 'an internal language machine' of mental operations plus a 'much more powerful language machine outside' (1987: 122). Harris explains:

'The linguistic equation "man = machine" only begins to seem credible in the context of a system of social control capable of maintaining a high degree of linguistic conformity' (1987: 122).

My aim here is to bring this 'much more powerful machine' of social control from the background to the foreground in a critical examination of Lev Vygotsky's view of the role of language in the formation of human psychological capacities. To that end, I have chosen to focus on one phase in the development of Vygotsky's psychological theory having to do with *cultural will* ('cultural volition', Vygotsky, 1997b: 50; Vygotsky, 2005: 278).² Vygotsky's account is significant since it gives a clear illustration of the role he attributed at that stage in his thinking to *signs* in the creation of the psychological mechanisms he considered responsible for conscious, voluntary or *wilful* action, a form of behaviour which he took to be distinctive of and unique to human beings.

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¹ This paper began life as a presentation to the annual conference of the International Association for Integrational Linguistics at the University of Birmingham, July 2011. I'm grateful to many colleagues for their critical comments, then and since.

² Quotations from (Vygotsky, 1997b) are accompanied with a reference to the Russian original (Vygotsky, 2005).

I will attempt to locate Vygotsky's view of 'cultural volition', rooted in Pavlov's reflexology, within a tradition of psychological naturalism characteristic of 18th century speculation on human nature and origins and linked organically and historically to René Descartes' animal-as-machine philosophy. I hope thereby to provide a diagnosis, as it were, of the defect at the (mechanical) heart of Vygotsky's account of the will and at the same time, from an integrationist perspective, offer some reflections on the wider implications of these issues for psychology and the language sciences.

2. Vygotsky and Pavlov

Our principal protagonists in the dramatic monologue to follow are Ivan Petrovich Pavlov (1849–1936) and Lev Semënovich Vygotsky (1896–1934):

Pavlov: Nobel Laureate, infamous tormentor of dogs, and renowned reflex theorist. Pavlov's principal theoretical contribution was the *conditional* (or *conditioned*) *reflex* - a conception of animal (and, consequently, human) learning as the formation of reflex (that is, automatic or involuntary) responses to environmental stimuli ('signals' in Pavlovian reflexology speak; [Pavlov, 1960](#)).

Vygotsky: brilliant Soviet psychologist who died at the age of 37, leaving a legacy of stunningly original practical and experimental work as well as powerful and tantalising psychological theorising. The psychological tradition Vygotsky founded is commonly known as 'cultural-historical psychology', the main idea being that distinctively human psychological capacities are *constructed* in the life process of each individual through their participation in the communicational practices of the community. Though at first an enthusiastic advocate of Pavlov's reflexology, Vygotsky later argued that conscious, voluntary behaviour was beyond the reach of Pavlov's reflex concept and urged a re-focussing of psychology around the phenomenon of consciousness as an integral dimension of human voluntary (or 'free') action.³

From this rough description, the respective theoretical positions of Pavlov and Vygotsky appear to present entirely different, not to say incompatible, approaches. They are, however, intimately connected through our third protagonist, who lurks in the background, namely *René Descartes*, who surely needs no introduction in this context. This Cartesian connection will be explored below.

3. The perils of Pavlovian reflexology

Although the appeal of reflexology in its various guises ([Joravsky, 1989](#)) may be lost on us today, it was an extremely popular, widely held and fiercely supported position across the intellectual spectrum, not just in the USSR but also in the West where behaviourism had become the dominant paradigm in a number of academic areas, including linguistic theory. In the early years of the Soviet Union, due to a particular political and ideological context, '[t]he term, "reflex", became so ubiquitous that it even entered Soviet "new speak". In this context it was assumed that human nature is endlessly plastic and can be shaped à la carte by means of reforming reflexes' ([Sorotkina, 2010](#): 145). The reflex idea was also adopted in the arts and influenced literary and cultural innovators across the board, amongst whom was Nikolai Foregger 'who staged the "dances of the machine" in his theatre, MastFor (Foregger's Workshop)' ([Sorotkina, 2010](#): 146).

At home, Pavlov himself was lavishly supported, fêted and lauded despite his sometimes outspoken attacks on the policies and practices of his Communist paymasters. In 1924, Nikolai Bukharin, an old Bolshevik and member of the ruling inner circle, published a response to Pavlov's criticisms of Communist policy in which Bukharin argued that 'whether Pavlov realized it or not, his [reflex] doctrine was "a weapon from the iron arsenal of materialism"' ([Joravsky, 1989](#): 213). Indeed, Pavlov's renown travelled far, although he had his detractors as well as his admirers. The following very negative appraisal, for instance, is by George Bernard Shaw:

'For the moment the Pontifex Maximus in biological science is Ivan Petrovich Pavlov, lately deceased, in celebration of whom I have just heard a broadcast eulogy which would have been excessive if Pavlov had been all the greatest benefactors of mankind rolled into one, with all the gods and their prophets and all the philosophers and discoverers thrown in. He was in fact the prince of pseudo-scientific simpletons' ([Shaw, 1944](#): 202).

While the following eulogy – and the casual symbolic violence thrown G B Shaw's way - is from the pen of no less a figure than H G Wells:

'If "A" is drowning on one side of a pier and "B" is equally drowning on the other, and you have one lifebelt, to which of the two would you like to throw it? Which would I save, Pavloff or Shaw? What is the good of Shaw? And what is the good of Pavloff? Pavloff is a star which lights the world, shining above a vista hitherto unexplored. Why should I hesitate with my lifebelt for one moment?' (H G Wells, 1927).

Shaw, of course, was only one among many, including the vivisectionist lobby, who were deeply hostile to, even horrified by, Pavlov's work. But there was a widespread scepticism too about the relevance of what Pavlov made happen in artificial laboratory conditions to real life animal behaviour. Pavlov defended his methodology on the grounds that 'it is hardly likely, in view of the infinite variety of stimuli met with under natural conditions, that we shall hit on one that is quite unprecedented

³ For a discussion of 'free action' and its significance in Vygotsky's work, see [Jones \(2002\)](#).

in the life of the animal' (Pavlov, 1960: 21). He followed up with the comment that 'the same objection and the same answer apply equally to the whole of animal physiology' (Pavlov, 1960: 21). So much the worse, then, for animal physiology, one might say.

4. Interlude: 'o' mice an' men'⁴

It is interesting to consider Pavlov's defence of his procedures in the light of the 'little tale of self-deception' related in Sebeok (1979: 86), namely the 'notorious but unimpeachably corroborated case of Pavlov's mice' (Sebeok, 1979: 85). Under Pavlov's direction, an attempt was made in the laboratory to confirm a Lamarckian conception of evolution according to which 'acquired characters' (in this case learned behaviours) 'could be inherited' (Sebeok, 1979: 85). This was done 'by inducing conditioned reflexes in mice and then counting the conditioning trials required through successive generations' (Sebeok, 1979: 86). Pavlov's expectation 'was that the numbers would significantly decrease' (Sebeok, 1979: 86), showing that a learned response to stimuli could be genetically passed on from parent to offspring. Having put five generations of mice through the mill, the results were announced by Pavlov's assistant at the Soviet Physiological Conference in 1923 as a resounding confirmation of Lamarckian evolutionary doctrine. For the record, the 'dramatically cascading figures (rounded out later by Pavlov himself)' over the five generations were: '300, 100, 30, 10, and 5' (Sebeok, 1979: 86).

Only in 1929, and 'in an informal statement' during the Thirteenth International Physiological Congress in Boston (Gruenberg in Sebeok, 1979: 86), did Pavlov give a rather different explanation of the laboratory results:

'Pavlov explained that in checking up these experiments it was found that the apparent improvement in the ability to learn, on the part of successive generations of mice, was really due to an improvement in the ability to teach, on the part of the experimenter!' (Gruenberg in Sebeok, 1979: 86).

In other words, Pavlov had produced – at the Soviet taxpayer's generous expense – a new variant of the 'Clever Hans Fallacy' (Sebeok, 1979). The 'Clever Hans effect', as Sebeok puts it, 'informs, in fact insidiously infects, all dyadic interactions whatsoever, whether interpersonal, or between man and animal, and by no means excepting the interactions of any living organism with a computer' (Sebeok, 1979: 87). While the first lesson of the case of Pavlov's mice 'boils down to this: be ever on the lookout against deception, but beware, above all, of self-deception' (Sebeok, 1979: 95), the second, Sebeok argues, 'may be best understood in a semiotic frame' as the problem of 'looking in the destination for what should have been sought in the source' (Sebeok, 1979: 85).

What Pavlov thought belonged to the mouse actually belonged to the house. Pavlov's team had unwittingly *created* the phenomenon they thought they had *discovered*. By the same token, we could argue that a similar self-fulfilling prophecy was enacted, although with far greater moment, in the case of Pavlov's dogs. In order to 'prove' that animal behaviour was ruled by 'conditional reflexes', Pavlov's laboratory procedures turned a group of lively, inquisitive and cooperative animals, by surgery and coercion, into helpless, obedient producers of saliva on demand. Pavlov's bark was surely far more effective than his bite.

5. Descartes and Pavlov

Pavlov himself, with a bust of Descartes proudly displayed in his garden, is quite explicit in noting that '[o]ur starting point has been Descartes' idea of the nervous reflex' (Pavlov, 1960: 7–8).⁵ He explains:

'Starting from the assumption that animals behaved simply as machines, he regarded every activity of the organism as a *necessary* reaction to some external stimulus, the connection between the stimulus and the response being made through a definite nervous path: and this connection, he stated, was the fundamental purpose of the nervous structures in the animal body. This was the basis on which the study of the nervous system was firmly established' (1960: 4)

In the empire of the reflex, then, Descartes rules the doghouse; Descartes' ghost haunts Pavlov's reflex machine. What Pavlov's supporters, east and west, took to be the objective (or 'materialist') underpinning of Pavlovian reflexology was what Descartes had considered to be the basis of animal behaviour, namely mechanical reactivity to external features of the environment. Human behaviour, of course, was a different kettle of fish for Descartes. In people, the mindless automaticity of corporeal movement and reaction needed to be directed by an incorporeal intelligence, with the freedom and inventiveness of true linguistic communication offering the paradigm case of that spiritual power. With his scientific work concentrated solely on *animal* 'reactions', Pavlov could continue faithfully along the first line of the Cartesian proposition, banning any talk of mind or consciousness within his laboratory, and accounting for any canine behaviour that did not quite fit the frame by making up a colourful series of additional reflex mechanisms such as the 'goal reflex', the 'reflex of freedom' etc (Pavlov, 1960).

For philosophers or psychologists with loftier ambitions, however, the problem remained of how to extend Pavlov's 'signal' conception from simple reactive processes to voluntary and purposeful human behaviour. After all, running for cover at the sound of an approaching predator might be construed as a reaction to a stimulus, but voting in an election, composing a symphony or setting up an experimental reflex laboratory are behaviours which are more difficult to gloss in these terms. Pavlov himself indulged in speculation over the relevance of his discoveries for specifically human behaviour, notably

⁴ Robert Burns: 'The best laid schemes o' mice an' men/Gang aft agley' ('To a mouse').

⁵ The work was first published in 1927.

describing language as a ‘Second Signal System’ raised above the primary conditional reflex substratum (Pavlov, 1960). But the task remained of putting plausible flesh, so to speak, on these hypothetical symbolic bones.

6. Vygotsky: from ‘signal’ to ‘sign’

In his first psychological writings, Vygotsky took for granted the validity of Pavlovian principles. His *Educational Psychology* (Vygotsky, 1997a), published in 1926 though written some years earlier, is a passionately reflexological work, albeit with marked Freudian tendencies as well, headed by an epigraph from Münsterberg according to which the pupil is ‘best treated as a reactive apparatus’ – hardly a clarion call for the student-centred pedagogical philosophy of today. In his own Preface to the work, Vygotsky outlines his vision for a psychology of human behaviour, in particular a psychology of education, founded on specifically Pavlovian principles:

‘The study of conditional reflexes constitutes a foundation on which the new psychology will have to be constructed. The term, *conditional reflex*, is the name given to that mechanism which carries us from biology to sociology and makes it possible to comprehend the very essence and nature of the educational process’ (1997a: xvii)

However, it soon became clear to Vygotsky that the reflex approach could not provide a total explanation for human behaviour and he began to articulate what would be the key principles of his new ‘cultural-historical’ approach from about 1927 on. His most insistent objection to reflexology was that it offered no account of the distinctive conscious, voluntary control over their own behaviour that human beings obviously exercised and so he turned his attention to that problem. In putting flesh on this new idea, Vygotsky took the reflex conception as a valid account of so-called ‘natural’ (or ‘lower’), involuntary and reactive psychological functions with which children (in common with animals) are initially endowed and then erected, on that foundation, a superstructure of ‘cultural tools’ or ‘psychological tools’ (including language) which were the vehicle for the distinctively human ‘cultural’ (or ‘higher’) psychological functions responsible for conscious, active and voluntary behaviour. As he explained:

‘Creating and using artificial stimuli as auxiliary devices for controlling one’s own reactions also serves as a basis for the new form of determinacy of behavior that distinguishes higher behaviour from elementary. The presence of *created* stimuli together with the *given* stimuli seems to us to be the distinguishing characteristic of human psychology’ (Vygotsky, 1997b: 54; 2005: 284).

In other words, we react to stimuli – we are ‘reactive apparatuses’ – but we create, control and appropriately situate the stimuli to which we react.

7. ‘Cultural volition’: the diceman cometh

Vygotsky saw an insuperable difficulty for reflexology in the myth of Buridan’s ass (alluded to by H G Wells in his criticism of Shaw): a donkey caught between two stimuli (or Pavlovian ‘signals’) of exactly equal strength – two different bales of hay – will be rendered immobile and so will inevitably die of hunger though surrounded by food (Vygotsky, 1997a: 47). How does a human being cope in such a situation? Vygotsky’s answer:

‘A man in this situation throws dice ... Man himself creates an artificial situation and introduces an auxiliary pair of stimuli. He determines in advance his behavior, his choice, beforehand with the help of a *stimuli-device*’ (1997b: 47; 2005: 275).

He explains

‘Thus, a stimulus created by the man himself determined his response. Consequently, we might say that the man himself determined his response with the help of an artificial stimulus’ (1997b: 47–48; 2005: 275).

So when you are caught on the horns of a dilemma, you throw dice or lots or you flip a coin: heads I go this way, tails I go that way. You avoid the pull of the natural stimulus on your reactive capacities by inserting an artificial stimulus – one whose properties elicit no natural reaction – into the reflex chain. This is, in a nutshell, Vygotsky’s conception of psychological *mediation*. Vygotsky refers to throwing lots (or flipping a coin) as ‘a rudimentary form of cultural volition’ (1997b: 50; 2005: 278). The new, and distinctively human, psychological process ‘consists of the fact that man himself creates stimuli that determine his response and uses these stimuli as devices for mastering processes of his own behavior’ (1997b: 49–50; 2005: 278).

So Vygotsky’s new position stands as follows. One foot rests on the reflex mechanism: all behaviour involves and is reducible to reactions to stimuli. But the other foot is located in a different camp, namely in the creation or introduction by the person him/herself of an ‘auxiliary’ stimulus linked ‘artificially’ or consciously to the relevant reaction. Any reflexologist would be comfortable with the first proposition but had no way (or no desire) to handle the second, i.e., the conscious introduction of stimuli into the reflex chain. Vygotsky’s new psychological model therefore allowed him to distinguish animal and human behaviour in terms of a natural-cultural, lower-higher distinction:

'The line dividing the two forms is the relation of stimulus-response. For one form, an essential characteristic shall be a full – in principle – determinacy of behavior by the stimulus. For the other, the same essential characteristic is *autostimulation*, the creation and use of artificial stimuli-devices and determining one's own behavior with their help' (1997b: 53–54; 2005: 284).

In fact, it is exactly this conception which forms the basis of Vygotsky's new definition of the term 'sign':

'We call artificial stimuli-devices introduced by man into a psychological situation where they fulfill the function of autostimulation "signs", giving this term a broader and at the same time a more precise sense than in common usage' (1997b: 54; 2005: 284).

Vygotsky builds on the principle as a way of understanding all 'higher', or voluntary, functions. The general principle, then, involves the *externality* and *artificiality* of the sign, that is, its being created and brought into the natural causality of the reflex chain from outside. Having set out his basic position on the role of artificial signs in human voluntary behaviour, Vygotsky's attention shifted more and more to the role of language as the main culture-forming psychological tool. Special emphasis was placed on a particular kind of utterance, the command or instruction, on the grounds that commands appear to require a 'reaction' or response from their addressee in the form of bodily action or movement of some kind (Jones, 2009). And this apparent quality of the command – the power to elicit or determine a behavioural 'response' – also gives us the key to the problem we identified earlier of how we might extend the reflex account to social activity generally. The command, as so conceived, in effect constitutes the bridge between biology and sociology which Vygotsky was looking for. As he put it:

'Of central significance among all systems of social intercourse is speech. Pavlov said: "Because of all the preceding life of an adult, speech is connected with all external and internal stimuli that enter the cerebral hemispheres, it signalizes them all, changes them all ['substitutes for them all'] and for this reason may elicit all the actions and reactions of the organism that these stimuli govern' (1997b: 56–57; 2005: 288).

Vygotsky continues

'In this way man created a signalization apparatus, a system of artificial conditioned stimuli by means of which he creates any artificial connections and elicits the necessary reactions of the organism. If, following Pavlov, we compare the cortex of the cerebral hemispheres with an immense signal board, then we might say that man created the *key* to that board – the grandiose signalistics of speech' (1997b: 57; 2005: 288–289).

He goes on

'Social life creates the need to subject the behavior of the individual to social requirements and together with this, creates complex signalization systems, means of communication that guide and regulate the development of conditioned connections in the brain of each person. The organization of higher nervous activity creates the necessary prerequisites, creates the possibility of external regulation of behavior' (1997b: 56; 2005: 288).

In other words, Vygotsky is giving us a picture of distinctively human behaviour as one made possible by the determination of psychological activity in the individual by 'social life' as a source of stimuli, with language, in the form of the verbal command, as the universal social stimulus.

In further elaborating his 'cultural-historical' account, Vygotsky will argue that it is the *internalization* of these forms of verbal regulation of behaviour (i.e., the command) that will enable the individual to acquire conscious control of his or her own psychological capacities and behaviour:

'Regulating another's behavior by means of the word leads gradually to the development of verbalised behavior of the individual himself' (1997b: 104; 2005: 353).

As Alexander Luria, one of the co-creators of cultural-historical psychology, explained: 'The ontogenesis of voluntary action begins with the practical act that the child performs in response to the command of an adult' (1982: 90). Subsequently, 'the child learns to speak and can begin to give spoken commands to himself/herself', at first 'externally, in the form of overt speech', and then 'internally, through inner speech' (1982: 89).

On that basis, then, all voluntary behaviour can be seen as a response to a stimulus – a verbal stimulus from oneself! Pavlov himself had developed something similar in his approach to language as a 'Second Signal System' (1960), to which Vygotsky, as we have seen, refers. If the Pavlovian treatment was little more than crude and simplistic hand waving, in Vygotsky's hands it became an exploratory principle leading to a significant research programme dealing with the interactional bases of learning and activity, research that ultimately came into contradiction with the initial reflexological premises.

8. Language and the naturalisation of dualism: Condillac

If Vygotsky's view of signs as enablers of voluntary action sounds familiar to those unacquainted with his theory, this could be because it's not an original conception. Take a look at this statement, for example:

'we cannot recall a thing to mind, unless it be in some manner connected with something else which is in our power. Now a man who has only accidental and natural signs, has none at all at his command ... But as soon as a man comes to connect ideas with signs of his own choosing, we find his memory is formed. When this is done he begins of himself to dispose of his imagination, and to give it a new habit. For by means of the signs which he is able to recall at pleasure, he revives, or at least is often capable of reviving the ideas which are connected with them. [...]'

The position outlined is that of Etienne Bonnot, Abbé de Condillac, from the 1756 English translation of his *Essai* (as quoted in Harris and Taylor, 1989: 120). A follower of John Locke, at least in his earlier writings, Condillac's contribution to communication theory was an original, language-based conception of the will: 'without the use of a language man does not have voluntary control of the faculty of reflection, nor indeed of the other faculties of the mind' (Harris and Taylor, 1989: 123–124). Harris and Taylor go on to explain Condillac's position in more detail, using a terminology that in effect highlights the close affinity with the Vygotskian, reflex-based perspective:

'Condillac argues that the mind of prelinguistic man is subject to physiological determination and to environmental stimuli ... Man is at birth endowed with natural desires and with a variety of mental faculties, but not until he has some mastery of a language can he make purposeful use of his mental faculties to accomplish one of his desires' (1989: 124).

Language, for Condillac, consists not of 'natural' signs, but 'artificial ones' – ones which are voluntarily produced – and it is by the use of such voluntary signs that the natural mental faculties can be consciously controlled:

'How can the mind of man gain control of its own materials, that is, of its sensations and operations? Gestures, sounds, numbers, and letters: only with instruments as foreign to our ideas as these can we put our ideas to work' (Condillac quoted in Taylor, 1992: 53).

However, as Harris and Taylor (1989) and, later, Taylor (1992, 2001) show, Condillac's theory harboured insoluble conceptual difficulties which bedevil all mechanistic approaches and which have to do, as Taylor (1992) notes, with the twin problems of creation and use of voluntary signs. Specifically, how are we to account for the fact that an animal being, supposedly subject to the imperious and exclusive sway of 'natural', involuntary psychological forces, may gain the ability to create and use artificial, voluntary signs? Condillac recognizes the problem:

'It might appear that one would not know how to make use of conventional signs if one were not already capable of sufficient reflection to choose them and attach them to ideas: how then, it might be objected, can the exercise of reflection only be acquired by the use of signs?' (Condillac, 1947: 226, in Taylor, 1997: 75).

Taylor (2001: 75) argues that Condillac's approach to the problem 'rests on three crucial factors:

- 1 a natural stimulus-response system;
- 2 intentionality;
- 3 a social, cooperative environment.

8.1. Taylor explains the model

'Once, within (3), man has somehow discovered that he may make imitative use of (1) for the purposes of (2), he has crossed the threshold into true language-using. For he now has the means to control his innate power of reflection and this, in turn, enables him to develop more sophisticated methods of using language' (2001: 75).

However, as Harris and Taylor (1989) and Taylor (1997; 2001) demonstrate, it is quite impossible to explain the emergence of intention and volition without in some way, at some stage, already presupposing intention and volition – the very things whose origin you are claiming to explain: if you squeeze volition out of the balloon of psychological theory at one point, it protrudes at another. And so a hopeless and helpless circularity ensues: you can't explain voluntary behaviour as the voluntary use of conditional stimuli because you've now included what you wanted to explain – voluntariness – on both sides of the equation.

But exactly the same problems hit the Vygotskian treatment: how do beings ruled by natural stimulus-reaction mechanisms invent a voluntary sign and endow it with any force? Vygotsky takes it as read that the dice thrown acts as stimulus in the conditional reflex sense, i.e. as something to which a person automatically responds. The hardline reflexologist may agree but there is no reason why anyone else should. Imagine you, the reader, have a dilemma or doubt about whether you should read the next paragraph in this text: how would you resolve it? Let's say you decided to roll a dice to help you make up your mind: one, two or three you read it; four, five, six you don't. You throw a six. You shrug your shoulders and read it anyway ... Or you're feeling neglected and frustrated waiting for a medical appointment. 'If they don't call me in 10 min I'm out of here'. Ten minutes go by. 'I'll give it another ten'.

But even if we agreed for the sake of argument to entertain the reflexological interpretation of the response to the dice, we still have the problem of explaining the process of actually equipping oneself with dice and throwing them for this purpose, as well as the problem of deciding what the dilemma is about and deciding to toss a coin to resolve it. The appeal to 'signs' in Vygotsky's sense subverts itself via this circularity. The same problem applies to the command (Jones, 2009). Even if I were to buy the idea that acting voluntarily involves giving myself a command, then who or what is commanding me to issue the command to do it? And so on ... While 'social life', as we have seen, is held responsible for the existence of such means of

autostimulation to which individual behaviour is subject, Vygotsky did not attempt to explain how these social ‘signalization systems’ or ‘means of communication’ could themselves have come about. He had no explanation, in other words, for the (social) psychological mechanisms responsible for the wilful foresight and decision making capacities necessary to the very creation and deployment of signs within activity in the first place.

There are differences, of course, between Condillac and Vygotsky. In Condillac and other 18th century accounts of the origins of language, the role attributed to social processes and contexts is pretty minimalist. In Vygotsky’s case however, the sociological dimension could come to the fore: the existence of complex, articulated and interactional social processes outside the individual and the power of the social milieu to mould individual personality and development was taken for granted (Jones, 2019); sociality construed in this way, as a source of meaningful signals was, therefore, the new departure. The voluntarily acting or conscious individual could be accounted for as a mobile offshoot of the sign systems regulating behaviour at societal level. Sociality – albeit it of an abstract and impersonal kind – was the ‘materialist’ *deus ex machina* invoked to shore up the leaking reflex vessel. The machinery outside, as Harris puts it, was now the creator of the machinery inside.

Such differences aside, the Vygotskian solution to the problem of voluntary behaviour had already been articulated carefully and thoughtfully in the 18th century but proved to be a dead end. And Vygotsky’s new hybrid approach, in which language is the lynchpin of nature (reflex) and culture, was no more successful. As Bruner (1987: 2) noted, Vygotsky ‘flirts with the idea that the use of language creates consciousness and even free will’. ‘Vygotsky’s argument’ on the nature and growth of “will”, he goes on, ‘is not, alas, an overwhelmingly convincing one’ (1987: 14).

The sticking point was, if we may put it this way, the separation of powers – natural and ‘artificial’ (or ‘cultural’). Although the theistic packaging of the Cartesian perspective was rejected by Vygotsky, the premises of that perspective – the idea that the natural reactive mechanisms of the body were a given to be wilfully set in motion and controlled by the conscious, linguistic mind – were not. Indeed, in *The Language Machine*, Harris offers telling observations about the continuity between Descartes and Vygotsky in the matter of the relationship between thinking and language. Harris noted that ‘Descartes presents a more rigorous and intransigent formulation of the telemental doctrine than any of his predecessors’ (2009: 30). Harris goes on:

‘This dogmatic Cartesian distinction between language and other modes of communication survives into the twentieth century in some surprising theoretical guises. It underlies, for example, psychological theories of children’s language acquisition such as Vygotsky’s, which assumes that up to a certain stage in the child’s development “thought” and “speech” are independent, and that “true” language is acquired at the nexal point when “thought becomes verbal and speech rational”’ (1987: 30, quoting from Vygotsky, 1962: 44).

9. Beyond the divide ... ?

Descartes’s vision of the human mind and of animal behaviour was based, as we know, on a theistically derived view of the matter-spirit hybridity of humankind as distinct from the soulless, mechanical, material corporeality of the animal. The dividing line looked therefore as follows with language as the crucial divider, the form and expression of rational thought and mental action:

Animal	human
N body	L mind
A natural	A artificial
lower	N higher
T involuntary	G voluntary
U signal	U sign
passive	A active
R reaction	G reason
E sensation	E reflection

The naturalistic theories of the 18th century, like the more radical reductionist positions of La Mettrie and others, culminating in effect in the Pavlovian and Vygotskian accounts, were in effect attempts to move the dividing line to the right – to extend the ‘good’ (‘scientific’) principles of natural reactivity, the natural exercise of biologically given powers, of habit and conditioning etc to cover or displace the ‘bad’, spiritual side, or, in more secular terms, to bring language, though still regarded as the font of mind and reason, into the acceptable materialistic fold. If, for the earlier scholars including Condillac, we might say that social circumstances provided an occasion for the development and extended use of these natural capacities, then, for later scholars such as Vygotsky, it seemed obvious that social processes were more fundamental to the whole problem of human nature and development with society as the agency of the tutelage or training of the natural reactive powers with which individuals are endowed at birth. Paradoxically, conscious and voluntary behaviour in individuals was going to be explained by their conformity to the dictates (the commands) of the ‘external’ social machine as articulated in the verbal command, and as in behaviourism generally. But in all these cases the essential dichotomy of the Cartesian perspective was maintained in one way or another with language as the connecting link between mind and body.

The contradictions and circularities of these approaches in the spirit and in the shadow of the Cartesian split are testimony not to the inadequacy or insufficiency of one or other of the two sides but to the problematic nature of this dichotomous

perspective in its entirety. The issue is not that it is the right hand side of the table which is the problem, a superstitious obstacle in the way of some consistently objective or scientific approach to understanding human action and thought. Rather, both of these opposing principles – bodily reaction versus mental action, reflex versus language – are equally flawed, equally abstract, equally impoverished. It is the very separation of these contradictory principles or properties at a fundamental level – for animal behaviour generally as well as human – that is the problem; trying to sew them together leads only to a vicious circularity. And since it is a particular conception of language which underpins and licences this dichotomy, then developing a different conception of language, as Harris (1987, 2009) argues, is crucial to overcoming it.

Vygotsky himself recognised the problems contained in his early formulations of ‘cultural-historical principles’, including the all-important conception of ‘mediation’ and began a search, unfinished at his death, for a more coherent and non contradictory account of human behaviour and the role of language in the development of conscious and voluntary powers based around concepts of word meaning, sense and *perezhivanie* (González Rey, 2020). However, to what extent he was able, with his later theoretical innovations, to critically come to terms with his initial reliance on reflexology and, thereby, to exorcise the ghosts of Descartes and Pavlov remains an open question (González Rey, 2020; Jones, 2020).⁶ For that reason, the critical examination of this particular stage in the evolution of Vygotsky’s thinking, a stage at which principles distinctive of ‘cultural-historical psychology’ are developed and expounded in considerable detail, retains its significance for our understanding and evaluation of both the roots and the trajectory of this remarkable intellectual construction.

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⁶ For a different, and more positive, evaluation of Vygotsky’s linguistic contribution, see Thorne and Lantolf (2007).