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CHAPTER **2**

David Bohm's "Thought as a System" and Systems Intelligence

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Willingness to observe our own reactions in everyday situations allows us to see that thought is driving us in a much more mechanical fashion than we would like to admit. Our tacit model of thought claims that thought just tells us how things are, and thus we fail to see how thought participates in our perception in fundamental ways. Without noticing it, we "see what we want to see" and "hear what we want to hear". Our thought has developed defensive reflexes against seeing its participation. However, we can learn to see ourselves anew and understand that thought drives all social systems in the same way it drives us. This observation may bring about a deeper understanding of our problems and opens a way for new creative solutions.

Introduction

THINKING ABOUT THOUGHT is notoriously difficult, and at first, it seems the benefits of doing so are few and far between. The book "Thought as a System" by the late David Bohm (1992) challenges the reader to dive into deep discussion[1] about the nature of thought from a systemic viewpoint.

While Bohm's text is very enlightening and inspiring, the discursive format of the book presents a challenge to the reader. The aim of this chapter is to illuminate the central themes of Bohm's book from the systems intelligence viewpoint (Hämäläinen and Saarinen 2007), hoping that this will facilitate in making Bohm's reframing of thought as a system more accessible.

The tenets of systems intelligence maintain that we, as human beings, are by nature systems intelligent – we are successfully participating in many systems simultaneously, even though we never fully know those systems and often are not even aware of them. We are called to do more of what we already do well, act in the present moment, making decisions affecting the course of our lives.

[1]The book is a transcript of a weekend seminar with presentations of Bohm interspersed with questions and answers.

Bohm methodologically resists setting an objective for the discussion about thought, trusting in our inborn ability to change our reactions when we see something seemingly familiar (thought) from a new viewpoint.

Bohm uses the word "thought" in a wider sense than the typical dictionary would have it. The dictionary definition for "thought" includes both the process of thinking, and the mental products of such process.[2] Bohm's reframing of *thought as a system* also includes all external products of thought that we interact with, for example books and architecture.

The main theme of "Thought as a System" revolves around the mostly reflexive nature of our thought, rooted in the past, in contrast to live thinking in the present. These 'thought reflexes' are rather easy to see in normal emotionally charged situations, such as getting upset by someone stating something negative about you. The usual *reaction* is some sort of feeling of anger and at worst a violent outburst of primitive action, as if you had been physically endangered.

Thought reflexes are built by conditioning, and allow us to adapt to the environment we live in. Learning to drive a car takes some practice, but eventually driving becomes second nature, and we can find ourselves driving almost unconsciously, immersed in discussion, or in our thoughts. This kind of 'learning by conditioning' or "acquisition of automaticity" (Bargh 1999) is a key to our survival, allowing us to focus our attention on the novelty in the situation. Nevertheless, when the environment changes, we may be at a loss with our patterns of reaction as they might not fit the situation at hand.

By observing and then seeing the reflexive nature of thought in action we can open a possibility for a new understanding about thought and how it drives us. This observation also enables some real learning[3] to happen, where our mental models (Senge 2006) can be challenged so as to better match our current reality. Hopefully, this will also allow us to be more forgiving of others, who might not know what they are doing, when arrested by thought patterns of violence or hatred.

Tacit Assumption about Thought

Most people are "naïve realists" believing what they see *is actually the case*, "that some things are just plain True – and that they know what they are" (Sterman 2002). Our tacit assumption about thought, Bohm points out, claims that thought only tells us how things are. Thought is telling us: "This is the way things are, and you – the thinker – must decide what to do" (Bohm 1992, p. 211). If this assumption were true, there would be no reason to inquire about the nature of thought, since thought would just be doing what it was supposed to do. This is an example of what Bohm calls a "defensive reflex"; our tacit mental model lulling us into not seeing that thought deeply participates in our perception.

Another feature of thought is that thought is fragmenting the world around us (Bohm 1992, p. 3). This is by necessity, since we need the phenomena to be

[2] Merriam-Webster Online, http://www.merriam-webster.com/dictionary/thought

[3] Ref. *Metanoia* (Senge 2006, p. 13), compare to Bohm's "flash of insight" (Bohm 1992, p. 30, 182, and 221).

separated and classified in order to function properly as agents in our environment. What is wrong about this is that thought gives that these boundaries are *real*, part of reality itself. In fact, the boundaries are drawn by thought, like the boundaries between nations on the map of Africa. These boundaries may be functionally right to a point, but when the world changes these artificial boundaries may become sources of great problems.

Our tacit model of thought also claims that thought is somehow radically different from our (other) bodily functions, Bohm maintains. The main reason for this is that we *think so*, and therefore perceive it to be so. Obviously it would help if we knew exactly how thought arises from our physical bodies, but the best we can get is the understanding that our thinking and other bodily functions are in some kind of a causal loop relationship. The state of our body influences our thinking (e.g. bodily stimulus rising above the level of conscious awareness, anesthesia, effects of psychedelic drugs, etc.) and our thinking influences our bodily functions (e.g. willed action, psychosomatic disorders).

Our conceptions, language and institutions mould the reality so that our beliefs become self-fulfilling (Ferraro 2005). It seems evident that this phenomenon hits us also in our understanding of ourselves through our ideas of thought.

Towards Better Mental Models of Thought

To cope with the problems we face as individuals and as a society, we need a more truthful understanding of the nature of our thought – a better mental model than the one we have built implicitly so far. It should be noted that "all models are wrong" (Sterman 2002), and the task at hand is not to find the Truth about thought. All models are simplifications, abstractions, hopefully capturing some essential aspects of reality. All we can hope to find is *a better mental model* of how thought drives us. This model will not come from a textbook (or a chapter like this!), but from experience, just like the original one. Continual openness to the possibility that there *is* something to fix in our worldview is a prerequisite for any real learning to take place.

There is hard scientific evidence that thought participates in our perception (e.g. Balcetis 2006[4]), but the main vehicle Bohm offers towards the more truthful mental model of thought is to see how thought participates in our own perception, and thus does *not* just tell us how things are. For example, prejudice makes us categorize people into existing classes based on some superficial traits, as if we knew the person in question.[5]

Bohm's reframing of *thought* includes not only the conscious mental processes at present (what he calls *thinking*), but also the mental traces of past thoughts (*thought*) that operate in us mostly unconsciously, as automated reflexes. In similar fashion he separates *feelings* from *felts*: *Feelings* are connected to present sensual

[4]This study suggests that motivation has an effect on preconscious processing of visual stimuli and thus guides what is presented to conscious awareness.

[5]It is difficult to not be affected by prejudice we know of, and impossible when most of our prejudice is unconscious to us. (Bargh 1999) suggests that value judgments become part of the structure of our mental models, and are therefore practically impossible to shake without rethinking the whole situation.

reality (e.g. physical pain), or are brought about by our thoughts interpreting our situation in a certain way (e.g. fear of danger). *Felts* are memories of past feelings resurfacing through thought. According to Bohm, most of our "feelings" are actually produced by thought. The overall *system of thought* includes these as well as all other products of thought (books, speech, architecture, etc.).

Bohm emphasizes the operation of the categories of *necessity* and *contingency* in our thought. When something is necessary, it cannot be otherwise. When something is contingent there is room for choice, we have options. *Absolute necessity* becomes an imperative we cannot get around. Our actions are fundamentally affected by what we hold as (absolute) necessity. We will simply *do* what we think as necessary, and we can ponder or delay action when there is any contingency. If we hold that thought only tells us how things are, we will not hesitate to act accordingly. But if there is any contingency, i.e. if we understand that something might distort our perception of a situation, we have an option to suspend our reactions. This also works the other way around: When we observe ourselves reacting as if there was no other choice, we have surfaced a category of necessity in our thought.

"Thought doesn't know it is doing something and then it struggles against what it is doing."

Finally, thought seems to be unaware of its own effects. As a result, it fights against these effects, again without observing this. Or as Bohm puts it succinctly: "*thought doesn't know it is doing something and then it struggles against what it is doing*" (Bohm 1992, p. 10, italics by Bohm). It seems we have a shortsighted view on the system closest to ourselves. We fail to see the causal link between our thought and e.g. affect, maybe because of a delay of a couple of seconds between the two (Bohm 1992, p. 40), or the automatic attribution of the cause to something else present in consciousness (Wegner 1999). Instead of an endless fix of "symptomatic solutions" (Senge 2006), the systems intelligence viewpoint on thought as a whole might enable us to first look, and then to find the locus of real leverage where an intervention is in order.

Incoherence

When we get outcomes we do not want, there is some *incoherence* in our thought. Our usual reaction to incoherence is to fight the outcomes, when it would be more advantageous to try to find where the incoherence is. There are many potential criteria for coherence. One possibility is to hold pleasure and pain as the criterion for coherence and incoherence, correspondingly (see e.g. Ryan 2001). However, not all pain is due to incoherence or pleasure due to coherence. The criterion Bohm suggests is:

> The criterion for coherent thought is that it is true and correct. But if you can get pleasure or pain from thought then coherent thought is no longer functioning. Rather, the criterion has become whether the thought gives pleasure or pain, consequently that thought becomes destructive. (Bohm 1992, p. 49)

Another danger with mixing pleasure with coherence is the fact that our thoughts are capable of producing endorphins in our brains that make certain thoughts feel very good. A prime example is the feeling of being "right", while someone else is "wrong". The pleasurable effects may make us addicted to these thoughts. All evidence of addiction should raise concern about incoherence that ought to be rooted out.

When thought does not want to see its participation and struggles against its own results, but still insisting to keep on with that way of thinking, we have what Bohm calls *sustained incoherence*. It seems we can afford to be coherent with things not so important to us, but when there is evidence of incoherence in things related to our worldview, for example, we find all kind of reasons against considering any of it any deeper. In words attributed to Leo Tolstoy:[6]

> I know that most men, including those at ease with problems of the highest complexity, can seldom accept even the simplest and most obvious truth if it be such as would oblige them to admit the falsity of conclusions which they have delighted in explaining to colleagues, which they have proudly taught to others, and which they have woven, thread by thread, into the fabric of their lives.

Reflexiveness of Thought

One of the most fundamental points in Bohm's reframing of thought is that thought is reflexive, and more like our other bodily functions than we tacitly realize. Just like your knee will jerk if hit on the nerve, your thought will fire existing patterns given suitable stimulus. The example Bohm uses is the fact that you will get upset e.g. if your value as a person is belittled, even if the insults were coming from someone you do not know, and especially so if you are insulted by someone you hold dear. Moreover, if you suddenly realize that you misheard the words, and in fact, you were not insulted, you can calm down very fast. These reactions are driven automatically by thought, your interpretations of the impulses in relation to your self-image.

Thought reflexes build up to big systems of reflexes, chains of thought, including e.g. logical thinking (Bohm 1992, p. 53), mathematics, or any other symbol system you may be immersed in. The whole of thought is a virtually unlimited system of mechanical reflexes. One specific class of reflexes are the defensive reflexes (such as stereotypes, Spencer 1998) whose function is to keep the thought system intact, basically resisting all structural change. There is evidence that some of our conscious "thinking" is actually rationalization of what is going on in our reflexive system of thought (Libet 1985, Bargh 1999, Wegner 1999, Libet 2004).

We could not survive, had we to consciously decide all the action ongoing in our bodies. Therefore, the reflexes are there to help us. All the reflexes have some historical reason for their existence. The problem with this is that when our environment changes, the reflexes should be adaptive enough to save us from the confusion and problems caused by incoherent behavior. So far it seems that the

[6] Attributed to Leo Tolstoy in e.g. Hoover (1999, p. 233), but with no source mentioned.

humanity has adapted amazingly well, but it seems possible that in the global community we face such big problems that the prevalent thought reflexes driving e.g. war on terrorism will not help us very much.

Bohm postulates that seeing things for what they are with suspension of thought reflexes could open up a window for some real, live *thinking* to happen in the present moment. This could lead to a flash of intuition that then changes our thought reflexes. You could imagine the reality of lung cancer to sink in causing a person to quit smoking instantly, even if she had tried that many times before without success.

Seeing Reflexes in Action

It is important not to accept Bohm's view on the thought as a system without personal experience. There is a real danger of illusionary thinking that one has "understood" based on just reading about this, but that could just be yet another defensive reflex keeping your existing comfort zone intact.

A good example Bohm gives is:

> If you think that a certain person has treated you badly you may get angry. Suppose that somebody keeps you waiting for a couple of hours. You can get angry thinking: 'What does he mean treating me like this? He has no concern, no consideration for me.' You can think of various things: 'He's always doing this, he treats me badly', and so on. By thinking that way you can get very angry. Then if he comes and explains that the train was late, the anger goes. This shows that the emotion was influenced by thought. By changing your thought, the anger fades. (Bohm 1992, pp. 6–7.)

Bohm suggests we try to find the words that best describe the implicit thoughts that operate in the background, thus lifting them up for conscious scrutiny. When the words get accurate enough, there could be a feeling reaction (or more accurately, a *felt*-reaction), which shows you the thought reflexes in action, like in the example above. If you can suspend further reactions you should be able to see how the feeling reaction will fade away. Finally, Bohm claims that it is important for you to verbalize what you have seen, in effect lifting the once implicit thoughts to consciousness. From there you may be able to re-evaluate the potential insignificance of this specific thought, allowing the reflex to loosen its grip on you.

Openness of Thought

Having the insight that thought is reflexive is potentially quite shaking. By now, it should be easy to accept that thought is always just a representation – never the thing itself. Thought is never complete, there always remains room for better, more accurate representation. This is evident in the evolution of the sciences; in material physics, we have had a succession of increasingly more accurate models.

Moreover, nothing guarantees that there will ever be a final explanation to the structure of matter for example.[7]

We become possessed by the "truth" we think we possess. Since there is no security in the final knowledge of anything, it is better to stay open to the unknown. This openness is the precondition for the reflexes to yield when they no longer fit the ever faster changing reality around us. The new balance will come when you are ready to receive it.

We become possessed by the "truth" we think we possess.

Proprioception of Thought

Proprioception is the process of being aware of our internal bodily stimuli. For example, proprioception allows us to immediately know whether a movement of our limbs has been caused by ourselves or not. In some cases there is incongruence between the motor intention, awareness of movement and visual feedback, which can result in pathological pain (Harris 1999). McCabe et al. (2003) have shown that mirror visual feedback can be utilized to treat this condition in non-chronic cases.

Bohm maintains that thought is rather similar to our other bodily functions,[8] which raises a number of questions about the possibility of proprioception of thought. Firstly, if we lack proprioception of thought, what would be the consequences? Secondly, is it possible to develop proprioception of thought, i.e. learn to sense the movement of thought? And finally, would it be possible to sense the participation of thought in your perception?

If we did not have proprioception of thought, most of the thought would operate unconsciously to us. Thought would have free reign over us, following the cultural and personal ruts that have been built through repetition since our birth. We would find ourselves in situations we do not like without understanding how we got there, or what to do about it. We might find ourselves unable to do the things we know to be right, relapsing to the same old habits as always before.

Bohm suggests that there is proprioception of thought when you realize your reaction being just a mechanical reflex, allowing you to see the emptiness of prejudice, for example. Our thought implicitly holds that proprioception is not necessary; if thought were only telling you how things are, there would be nothing to be aware of, since there would be no place for incoherence. However, seeing the reflexive nature of thought makes the proprioception of thought seem very important.

The Collective Nature of Thought

When it comes to thought, no man is an island. The system of thought is more social and cultural than it is individual (Bohm 1992, p. 187). Or like Nisbett

[7] For more on this theme, see e.g. *The Qualitative Infinity of Nature* (Bohm 1957).

[8] This view has recently gained acceptance under the title "Grounded Cognition", see (Barsalou 2008) for an overview.

et al. (2001) put it, "systems of thought exist in homeostasis with the social practices that surround them." Or even more fundamentally, the human capacity for thought seems to develop from the intersubjective relatedness between the baby and the caregiver (Hobson 2002). All through our lives, we are receiving thoughts, internalizing them (through repetition and emotional affect) and then sending them out again. Every now and then we will develop a thought of our own. Are all these thoughts important and valuable in themselves? Alternatively, do the thoughts themselves only have a relative value, should they be evaluated as a whole via the outcomes they lead to? Senge puts it (2006, p. 225) like this:

> Once people see the participatory nature of their thought, they begin to separate themselves from their thought. They begin to take a more creative, less reactive, stance toward their thought.

All communication we have can be seen as exchange of thoughts, and ultimately, meaning. Bohm presents dialogue as open exchange of thoughts where we do not avoid conflict, but suspend our immediate reactions (the mechanical reflexes), just as we did earlier with our own thoughts and reactions. We will see that we are all on the same situation with our thought reflexes, and our own relative cultural backgrounds. We all have our prejudice that will distort our view of the reality. When we take the effort to understand the point of views of each other without imposing our own agenda, we might find ourselves from a place of stillness that enables new, creative solutions to emerge.

Conclusion

Largely, we are what we think we are.[9] It seems we innately seek a balance between our thinking and our being. Thus, the way we think has tremendous leverage on how we function. Thinking in general is fed from unconscious sources (Jung 1921). This suggests that "we should nurture the conditions in which free play of unconscious mental activity may proceed" (Libet 2004).

Bohm maintains that thought is not a closed system, but open to intuition that has the potential to change the structure of thought. Intuition does not come at will, but there are ways in which we can give more space for intuition to operate. We can learn to still our minds to free ourselves of the excess thought clutter by being more present in the now. We can get more to our senses and be less in our heads. It may well be that for many of us the balance between the feeling and thinking functions (Jung 1921) has been lost on the side of incessant thinking. What if you do not need to be thinking all the time?[10]

Seeing the incoherence we face as an opportunity for intervention in the thought system is our natural systems intelligence at work.

[9] A kind of self-fulfilling theory (Ferraro 2005).

[10] Rest assured, the impulse to think will be back very shortly after you manage to squelch it. What do you think happens every morning when you wake up?

Throughout the book, Bohm stresses that there is no objective; we are not aiming at any specific goal, other than learning about thought. Any goal pursuit would taint the effort, likely making us think "I got it" prematurely and thus missing the point. By exposing how thought drives us, gives rise to our feelings and sets our moods, Bohm equips us with a powerful tool. Gaining a more open view to *thought as a system* fosters systems intelligence in us. By seeing the systemic structures of thought we can become not only better thinkers (which sometimes means thinking *less*), but can also gain a new kind of leverage on situations we face in our lives. Seeing the incoherence we face as an opportunity for intervention in the thought system is our natural systems intelligence at work.

In closing, keep in mind that "Your incoherent actions are reflexes. You are not doing them on purpose. You don't know that you are doing them." (Bohm 1992, p. 64). Moreover, by extension, this wisdom should apply to others as well; as it was put some two millennia ago: "Father, forgive them; for they know not what they do."[11]

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[11] Luke 23:34 (KJV)

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