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# Behind the Curtain

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***Summary***
*We cannot know what happens behind the interface with another we communicate with, what their understanding is. Yet we can communicate, and communicate interactively. How this may be, how we can retain our ignorance of what happens in the other and yet communicate, is explored, using the cybernetic construction the “Black Box”. The interface is shown to be the space between the participants (be they animal or machine) in the conversation, which is where CyberSpace is to be found.*

***Keywords***
*Action and reaction, as if, between, Black Box, circularity, communication, control, functional description, ignorance, in- and output, interaction, interface, mechanism, observer, signal.*

## Introduction

As a generalisation, it is probably fair to say that not many of us, when we use a computer, have any but the vaguest idea of what’s going on “in it”. The same is true of a car and of a chair. This may be one of the general truths of the age. We use things, but we do not know what happens in them. We use them “symbolically”. We use them, in spite of our ignorance. We have no idea what is behind the screen, the keyboard, the curtain. And, when we do think we know, persistent questioning always seems to bring us to the point where, in fact, we must admit we do not know, and where we enter the realm of faith.
It is this realm, the realm of faith, which most of us enter almost immediately when we use computers, that this paper is concerned with. It is presented through the concept of ignorance. And it is used to explore how we are in an interactive world, and where the interface that allows us to remain ignorant yet still to interact, is.

### The Stage

“You are about to take part in a mass delusion.

“Behind me there is a Gamelan Orchestra. You can hear it playing now.
There is a screen and on it you can see the shadows of the Wayang Theatre puppets.“

I am sitting on a chair on the stage between the Wayang theatre and you, a spotlight on me. I have a bottle of water, coloured blue glass. I address you.

“What is Behind the Curtain?”

## Ignorance

Wittgenstein (1971) tells us in his “Tractatus” that there are areas about which we cannot talk and must, therefore, remain silent. He also reminds us that we never see beyond our seeing: that is, what we see is what we see, not necessarily what is; and that what is behind what we see we cannot know.
There is an ancient embodiment of this understanding: the Javanese Wayang (shadow) puppet theatre, where the puppets’ shadows are projected onto a screen by a strong light, performing to the accompaniment of a Gamelan Orchestra. It is as if we were the audience, but we cannot know what is behind that screen—even that it is a puppet and a shadow and that it is a

screen—for the screen (if that is what it is) entirely encompasses us: it is the screen of our understanding.
Wittgenstein also reminds us of the great historicist fallacy—that because something has always happened does not mean to say that it always will. History, no matter how we may use it, is the finding of a pattern in events concluded, not the prediction of events to come from the Great Unmanageable (Glanville (forthcoming)).
Much of our understanding, however, is based on the curious notion that we can actually see what is behind: that science (for instance) tells us what is really there and how it really works. That we know.
However, we may consider how we come to know? One way is by observation. We look at what we see happening. We consider some perceived system, and we determine that there is a change in behaviour, and we determine that this change is due to some clearly interpretable mechanism. Our way of looking defines both the system and the mechanism.
We can consider and model this, without depending upon the presumption of such a mechanism, through the use of the "Black Box".[1]

**The Black Box**
The Black Box is a construct invented to explain how some perceived "signal", observed to change, changes. It is, metaphorically speaking, placed over the signal so the signal enters with one value and emerges with another (the observed change in the signal). The relationship between the in- and outputs can be tested by the observer (who invoked the Black Box), who can modify the input in the light of the output by feeding the output back to be the next input. The observer[2] determines what relationship holds between these two signals, and treats this as if there were some cause functioning inside the Black Box itself to make the observed change. In this way, the Black Box acts like an interface.
Note that not only is the Black Box constructed by the observer, but the whole explanation is, also. You cannot see inside the Black Box (there is nothing to see: there is nothing there—it is an explanatory principle). Nor can you assert that because you have proposed a working relationship between in- and output, it will always hold. There is no true causal connection, no mechanism. The Black Box embodies Wittgenstein's principles (and pre-dated them by about a quarter of a century). It allows us to handle our ignorance by building relationships and by pretending there is a causal element at work.
To achieve this, there must be communication between the observer and the Black Box (including the in- and output signals). That is, the observer must be able to distinguish the input and the output (which must have different values on at least one occasion), and communicate with or through them. This is how the "functional description" works, which describes how the observer understands the action of the Black Box, comes to be constructed. The observer compares the signals, builds his functional description, and then takes an output and making it the input, predicts what will happen by using the functional description, and then testing whether the prediction is upheld.[3]
Thus, the observer controls the Black Box, recycling signals (changing the input) and communicating with the Black Box. And the Black Box, for its part, equally controls the observer, who responds to the signals the Black Box emits. Each controls the other in an endless loop. The control (and the communication through which the control is exerted) is circular.
It is this mutualism, this reciprosity of interaction in the building of the (observer's) functional description, that leads us to insist the structures and qualities attributed to the one (most often the observer) must, for the sake of consistency, also be attributed to the other—even though (in the case of the Black Box) we cannot see into it, and it is a constructed fiction! This is why we come to assume that the Black Box also makes a functional description of its interaction

with the observer.

**Between**

The Black Box epitomises Wittgenstein's specification. The observer cannot see into it, that is, the observer cannot see "Behind the Curtain" (Anderson (1982)). There are limits to what the observer can observe. The Black Box is predictable but uncertain: although the observer may believe the functional description and treat it as a mechanism, it is not: it is just a construct, an explanatory principle.

(The functional description is the observer's: the observer's, made of the interaction. What is the Black Box's? We, as observers, can never tell: but we assume it by what we may think of as the "Principle of Reciprocal Consistency".

Everything that has happened has happened between the observer and the Black Box, in the space between them. Nothing is entirely of the one or the other (so, for instance, the Black Box is taken by the observer to be of itself, yet it is of the observer). The communication is in the between, where both the control and the functional description are situated.[4] What happens within (behind the facade of) the Black Box remains unknown and intangible, to the observer.[5]

**Conversation**

We communicate in a circle. This is the form of communication between the simple Black Box and the observer, appearing to be a "Black Box" to the Black Box.

Black Boxes do not have to be simplistic systems. For instance, I really have no idea what is happening in your head, and I can see none of your ideas, nor (therefore) can I share them. If you represent them in some way, it is still not your ideas I see, but my interpretation (building my understanding) of your representation. And I can never escape myself, nor, reciprocally, you yourself. We are trapped in our own selves. This is Wittgenstein, again.

But we believe we communicate. How can this be?

Not by means of a code: a code assumes that we see the same, share the same understandings, literally (Glanville (1996)). The only mechanism I know of which allows us to communicate through ignorance—ignorance of what the other person is thinking (or even whether they are thinking at all) and of how that relates to their chosen form of representation (and even what that means to them)—is conversation.

We owe this profound insight to Pask (1975). Pask's formalisation of what happens in an everyday conversation (developed, as it happens, as a way of communicating between teachers and learners in a computer supported learning environment of unsurpassed subtlty) allows that we believe we communicate even though we have no idea at all what is actually going on within our conversational partner[6]—that we don't know what they are doing or thinking: we only see the result of our signals (statements, etc) entering, and leaving them transformed, so that we can judge what causes the change and thus what our partner's understanding is. That there is a profound similarity with to the Black Box should be clear: the understanding we develop of the supposed understanding of our conversational partner is our functional description, which develops as we continue in the conversation: a circular activity, in which I don't know what's going on in your head (to use the human personification) and, likewise, must assume you don't know what's going on in mine.[7] Thus, ignorance is maintained, while I can nevertheless build up understandings that help me account for behaviours I have observed, and hope for validity in my account (while never being certain of this).

**Between**

A conversation occurs in the space between two (or more) participants.

The conversation allows us to remain ignorant of our conversational partner's actualities,

requiring, instead, that we make (and test) our own evaluations of our own observations. We decide what we believe our conversational partner means.
The interface is where we meet: it is the front (end) of something about which we are ignorant. It is that beyond which we will not (cannot) go. But the meeting is not active/reactive. It is interactive: both contribute; and the conversation winds along its own way (Glanville (1993)).
What Wittgenstein, the Wayang Theatre, Ashby (and, through him, Maxwell) and Pask are telling us is that we must build the interface with our partner, and, through it, we master that of which we remain ignorant. We do not know what goes on behind the interface. But, in order for us to build out understanding, we have to interact. Action and reaction, which we so facilely call, and sell as if it were "interaction", will not do.[8] In the world of interaction, communication is circular and conversational. The outcome of a conversation (and the building of the functional description is interactive and unpredictable: each contributes. What we make of and with eachother is here, in the space between, the space (necessarily) of (essential) interaction, the space we can properly call CyberSpace. When we force this interface on to one of us (attach it to one participant) and consequently use action and reaction (or vice versa), the interactive conversation cannot occur and we stop respecting the interaction (and hence the other). We forget control is naturally mutual and circular. We treat one in such a way that, instead of preserving our ignorance (and freedom) by making functional descriptions in the space between that let us think it is as if we know, we pretend we do know, and loose the interaction and its conversation. This is where the interface is. The interface is not on each or either of us. The interface is the space between, where we find eachother and ourselves.
Thus, we can conserve our ignorance: and hence freedom and individuality, and room for creativity and imagination. In a sense, there is no you and me, but the dance of interaction through which we come into being, you and I for me, I and you for you (Glanville (1990)). When we force the interface onto one or the other, we lose the space of interaction, and we loose our freedom and individuality: we become the automata of action/reaction, of the psychologists' misuse of the "Black Box", of the confusion of the as if with the as.

**There is no…**
"There is no Gamelan Orchestra.
"There is no Wayang Theatre.

"I am wearing Chromakey Blue."

**References**
Anderson, L, 1982 "Let X = X", in "Big Science" Warner Records
Ashby, R, 1956 "An Introduction to Cybernetics", London: Chapman and Hall
Glanville, R, 1982 "Inside Every White Box There Are Two Black Boxes Trying to Get Out" Behavioural Science Vol 12 No 1
Glanville, R, 1990 "The Self and the Other: the Purpose of Distinction", in R Trappl (ed) "Cybernetics and Systems '90", Singapore: World Scientific
Glanville, R, 1993 "Introduction: Behind the Screen" in Glanville, R and de Zeeuw, G (eds) "Interactive Interfaces and Human Networks" Amsterdam: Thesis
Glanville, R, 1996 "Communication without Coding: Cybernetics, Meaning and Language (How Language, becoming a System, Betrays itself)", invited paper in Modern Language Notes, Vol 111, no 3 (ed Wellbery, D)

Glanville, R, forthcoming “The Value of Unmanageability: Variety and Creativity in CyberSpace”, to appear in the proceedings of the 1997 Global Village Conference, Vienna
Pask, G, 1975 “Conversation, Cognition and Learning”. London: Hutchinson
Wittgenstein, L, 1971 “Tractatus Logico-Philosophicus”, 2nd edition, London: Routledge and Kegan Paul

**Notes**

[1] Ashby (1956), in his “Introduction to Cybernetics” tells us that the Black Box was invented by James Clerk Maxwell (I have never been able to find this source), and that everything we consider and examine might be treated as a Black Box. I agree with him, except he was too mild: for might, read should!
I am aware that psychology has borrowed the term Black Box and that the use in psychology is predominantly determinist and behaviourist. Theirs is a misuse of the term. See the next section

[2] The word observer is used as a convenience. In this case, it includes, for instance, the designer.

[3] For example, an input of 1 might give an output of 3, 3 gives 5, 5 gives 7. But what will an input of 7 give?

[4] For a more extended discussion of the Black Box, see Glanville (1982).

[5] And, presumably, vice versa.

[6] There is no need to restrict the numbers of partners other than simplicity of explanation.

[7] See Glanville (1996) for a fuller description. Pask’s magnum opus (Pask (1975))) is hard work, and far more technical than is necessary for the understandings required in this paper. Pask’s thesis is, of course, far richer and infinitely more complex than the bones I present here.
I leave aside the question of how, in a medium such as a paper, I might anticipate communicating with you. But an explanation appears in the paper cited.

[8] Hence, I believe, the extraordinary emotional paucity of most so-called interaction with a computer.