Preface and acknowledgements

Drawing a map of every nook and cranny of the river basin of human thought and behaviour is not easy to do. But two reliable questions gave me direction, namely: "why should you?", and "how could you?".

Reflecting on the first one made me figure out the scope (time span, state space) and the depth of the map. The second one made me start from a much more general point of view than psychology alone. After introducing my *why*-answer, I will give a brief account of *how* I did it. Or better: whose ideas I used to make it work. The scientific roots of this model are very long indeed. This is also true for my part; because my first draft was drawn forty years before the finishing touch in 2017.

Why ?

Allow me the freedom to generalize and exaggerate a bit in order to outline the problem I have with a contemporary tendency in the mental development of human beings. Let us focus for a moment on the intellectual ones.

My impression is that intellectuals have a rather strained relationship with feelings. They try to approach issues in their professional field as objectively as possible without being hindered by their feelings, which they consider too narrow, too variable. Neither do they truly value life experience, which, in their opinion, is too subjective and outdated.

Expressing misery, fear, attachment or aversion to themselves or others in a professional capacity is considered a sin in their culture. All these feelings are stifled. Instead of giving in to these feelings, or even diving into them, they try to stay on top of them. As a result, feelings are granted hardly any time to stay and therefore barely get the chance to develop. A resisting sensitivity to feelings arises, as well as the tendency to magnify all feelings – like waves that might drag you away – and to push them out-of-the-way, thereby yielding even further to the urge, felt by any human being at one point or another, to free oneself from the raw nerve of the physical self. People who are busy striving for success often consider the vulnerable and penetrating nature of feelings a weakness.

As the old saying goes, "Each man kills the thing he loves". The modern form

of such "killing the blues" resides in the application of an ever-growing number of scanners to track these so-called weaknesses down and to ration or liquidate them, using chemical compounds. With them freely rumbling around, we do not feel at home any more.

This detached intellectual lifestyle is becoming the normal way of being nowadays. Energy and technology are developing at such a pace that most corporal functions are relieved of their tasks. People are more and more turning into purely rational information pumps, juggling with words whose meaning contents lack sensorial impressions of the phenomena to which they refer, but are overflowing with links to other words.

The question is: will this work out? Will our lives remain viable if we continue in this manner?

It is this concern – *on the one hand* observing how humanity is more and more exchanging the versatile sensuous and muscularly contact for specialistic, purely intellectual cerebral contact with its social and material environment, and *on the other hand* having a lifelong experience with humans needing broad contexts and turbulences in order to keep going in the right direction and knowing when to draw the line – that sparked my endeavour to put into words *the essential and potential aspects of the relationships between feeling, thinking, and acting.*

It was a logical step to use the general systems language to map this huge scope of mental activities. This interdisciplinary language, specially designed to describe the dynamical interaction of many multi-aspect processes, allowed me to avoid the fuzzy concepts from psychology and neuroscience (e.g. association, reinforcement, reward, learning, conditioning, attitude, mental space, shunk, emotion, habit*).* In fact, very few concepts were needed to compose the map.

How?

How did I compile this model?
The content may seem in line with constructivism in psychology, but it was neither triggered nor inspired by it.

Looking back, I derived the main structure from **Ashby**'s two-level feedback control structure, which he published in 1952. His elaborations on the requisite variety per control unit boosted my insight in the way self-organisation could explain the adaptivity of a such structured organism.

This prompted me to elaborate on Ashby's structure.

Firstly, I introduced and defined more rigorously the domain-concept (i.e. the limitation of the situation to be controlled or decided on). This is important in order to understand complex self-organisational processes, since a control structure itself figures as the situation to be controlled during those processes. When you have a process P(D) that can change a thing D, this process itself can be changed through P(P(D)).

Secondly, I understood that human beings deal with their situations somewhat reactively, but that this is negligible compared to their proactive dealings. We almost always think ahead before we act, instead of just waiting and seeing what happens. To live is to engage.

I therefore started boosting the feedforward capacity of the control units (i.e. regulating black boxes). The notion of anticipatory acting on the basis of an internal model has been around for some time in psychology (Bandura) and economy (Tinbergen), as well as in control theory (Maxwell) and cybernetics (Wiener, Steinbuch), but these were all one-level models in which the determination of behaviour (or control activity) was treated as one big jumble. I, however, was looking for reasoning that – slowly but surely, while cutting across adjacent and underlying domains and skipping between sub-problems – brought intermediate results to a conclusion.

So thirdly, to that end, I elaborated the *structure of common knowledge*, that is to say, the four descriptive elements and their mutual relations that are in use while reasoning. I derived this structure from the impressions I formed when working with the high-level structured computer languages Algol (Dijkstra) and Simula (Dahl and Nygaard). The two principal relationships between the descriptive elements (i.e. abstraction and composition), combined with the structural ideas of Mesarovic about coordination within hierarchical control structures, made clear to me along which points every single determination of behaviour could split up and therefore fragment indefinitely in a virtually unlimited yet coordinated way.

Ready?

When I was young, I participated in a small research group under the guidance of **Klabbers**, an ardent advocate of systems theory, computer simulation, and interactive gaming. There, it must have been around 1980, I simulated the fragmentation of the determination of behavior with Simula-computer-programs.

In one program, I had a decider plan a journey using railway timetables and

maps (= model), then go on said journey (= acting), subsequently experience the reality of disruptions and diversions (= domain), and by revising his plan seek alternative ways in the direction of his final destination.

This program constantly crashed sooner or later, because the expanding decision structures took up too much disk space, but I did not mind; it was the debug that mattered. It allowed me to follow the train of thought from microsecond to microsecond. It showed me in detail how outbursts of feelings – in the compound form of appraisals – had total control over the direction and intensity of every train of thought; total control, in fact, over the entire game of thinking and acting.

It is then that I came to realise how important it is that we are *touched*, i.e. that these like- and dislike-signals regarding the unsteadiness of the state of each of our bodily subsystems gets through to us.

After all, this is the raw stuff from which the appraisals (= credit balance of feelings) can be made that trigger and constantly adjust our thinking like a muscle until, finally, the train of thought pulls well chosen behaviour out of the hat.

Later on I figured out that this same procedure also goes for the making-of of *internal* behaviour. This internal behaviour is prepared and finalised reactively and proactively in a similar fashion by the second (monitoring) level – which is where our ego lays out what we are going to think and sometimes intervenes in *how* we think.

This internal working explains both the dynamics of human developmental trajectories and the variability in the development of people. The model is a true revelation in this respect, as it shows you in clear detail along which trajectories the values, knowledge, and mental capabilities of somebody can move or get stuck.

Test?

In the last chapter I compare the scope and explanatory power of my model with other recent models, namely Roll's neuroscientific model, Scherer's psychological model, and various models of value development.

In the discussion on the social problems underlying the development and curative application of these other models, I invariably return to the question whether the current trend towards *high-tech mental specialised functioning* affects human viability. The model presented here enables us to see these consequences on a myriad of aspects simultaneously and in the

long term, and perhaps even feel them.

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