

## The Deep-Autism Story

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### Abstract

The journal kindly invited me to offer a contribution after another clinical journal had solicited a paper on autism. Author was allowed to use the occasion to give more background information. This time around, author does not quote the grandmasters of the past like René Spitz and Mary Ainsworth but rather only describe the conditions under which the experience of personal love arises. The latter underlies, in the ontogenesis of the individual, the bifurcation from being a non-person to being a person. The context to understand this metamorphosis is “the smile theory.”

**Keywords:** Autism; Ecology; Bifurcation

### Introduction

The theory of early infantile autism was first put on a mono-causal basis in 1975 [1] following an earlier exposition of the underlying idea [2]. Konrad Lorenz found the theory “too difficult” for him to understand fully while Gregory Bateson said he was totally in agreement, Noam Chomsky and Jurgen Habermas had no objections and Niklas Luhmann would quote it approvingly several times over the years. In spite of this benevolent reception in the theoretical community, the implied therapy never got tried out in clinical practice. Only an inadvertent application could be quoted [3] in which the ingenious intuition of the mother of a 7 years old child appears to have healed him in exact conformity with the theory. Similar case studies of a seemingly spontaneous recovery may exist. Most recently, an application of the theory to a white elephant cub was proposed [4] causing a stir in the media [5,6].

Like any other newly proposed therapy in medicine, the offered causal treatment of deep autism might involve a fatal error. Its correctness and power can only be judged after many cases can be reviewed. So the present story is still very much at its beginning. On the other hand, the proposal also possesses a strong side to it.

### Why is the theory so powerful in case it proves true?

This is because it is ultimately based on a deductive mathematical theory: the “brain equation.” The latter is an implication of the so-called “optimal foraging theory” of animal ecology [7], a theory proposed independently and in more detail in the same year at an international conference on the “Physics and Mathematics of the Nervous System” in Trieste [8]. The underlying theory is called “spatial Darwinism.” Biological survival in a changing environment is the motor of evolution according to Darwin and Wallace as is well known. This motor is dependent on long-term temporal changes in the environment [9]. But there exists also a short-term space-dependency: if the survival of the individual depends recurrently on the momentarily applicable spatial environment. Then survival can only be assured by an autonomous activity shown by the individual organism

[8,10]. The requisite responses can be derived deductively from first principles.

The predictions made by this “top-down approach” cannot possibly be ignored by Nature. They constrain the functioning of “brains” in biology no matter whether or not any brain has ever been encountered empirically before, either on earth or on Europa (the closest place where life predictably exists as well [11]). This is because there exists only one brain equation. It comes in different approximations dependent on how high or low the allowed error rate is in the ecological niche in question. Nature cannot not use it and it can also be implemented artificially in an AI [12].

### Why is the theory largely unknown?

Even the famous “European Brain Project” is totally unaware of the existence of spatial Darwinism and the implied brain equation. The explanation for the dichotomy of knowledge lies in the persistent foreignness of Darwin’s thinking which up to this day is not recognized as the deductive, intrinsically mathematical, approach which it represents [13]. The new spatial sub-branch of Darwinism called “positional adaptation” has the asset over the traditional temporal one that it is fully predictive; in other words, it does not depend on historical accidents as classical Darwinism of “metabolic adaptation” necessarily does. The top-down nature of this ecological approach is so foreign to contemporary thinking that only artists have grasped its significance up until now [12].

### The connection

Our topic here is autism, and the brain equation is by its very nature autistic – just as Darwinism itself is by definition (which fact of course does not mean that Darwinian scientists were autistic themselves).

The current revival of public interest in autism has to do with the fact that the rate of autism is growing steeply for essentially unknown reasons. Simultaneously, this is the age of day-care centers for toddlers. So it is perhaps especially important to date that parents of young children get informed advice. In the following, “deep autism” with its virtually total lack of linguistic communication is put center stage.

## Brain equation and ethology

The brain equation acts as a counter-weight to the quite emotional story which follows. Medicine always has to do with emotions yet at the same time is a purely rational edifice. The best way to proceed is to not talk much about the brain equation itself but to instead use the technical notions developed in an empirical biological discipline called “ethology” – the American- European (McDougall-Lorenz) theory of animal behavior. The latter theory can be said to describe features of the brain equation to the extent that it is factually valid itself [13]. For example, the so-called “endogenous mood pressure” and the “rewards” that are described by ethology match very well the predictions made by deductive biology [13]. And they neatly describe the behavior of a dog, for example. These animals are not only frighteningly good-natured, but are also very close to human beings in one particular respect: they express both friendly affection (bonding) and happy friskiness (exuberance) by the same signal: the wagging tail’s smile-laughter. As every dog-owner knows, this comparison is cogent. But unlike human beings, dogs are lacking in “mirror-competence.” The latter ability was first discovered empirically by Wolfgang Köhler in 1917 in young chimpanzees [14] and later re-discovered (and augmented by the “mark test” in the face) by Gordon Gallup [15]. If the dog and wolf were in addition to their emotional closeness also mirror-competent, they predictably would become persons, too.

Mirror-competence implies the presence of a very high level of “intelligence.” More specifically, mirror competence means that the performance of the “great simulator” in the brain (a Virtual-Reality type complement to the force-field generator or “great motivator” of the brain equation [8,16]) is very powerful. Since Köhler’s chimpanzees, quite a few mammalian and avian species were found to be mirror-competent, but dogs are not among them.

It is not necessary to believe in the theoretical constructs of ethology (like “innate action patterns” and “innate releasing mechanisms” and spontaneously rising “action-specific readinesses” or moods), although the use of these terms is heuristically helpful. The brain equation has the same functional implications in a more rigorous, mathematically provable sense. Therefore one can legitimately use the terminology of ethology to explain autism.

## Primary autism as smile-blindness

Autism physiologically characterizes every baby and every higher animal. Unlike most of the latter, the young child becomes mirror competent from a certain young age on, which is in general well before the second birthday (there seem to be no statistical studies). But as we saw, the same thing occurs also in a not very small number of higher mammals and birds and possibly even some octopus and mantis-shrimp species. But mirror competence is as stated lacking in our good friend, the dog.

However, mirror-competence does in no way suffice to overcome autism – it is only a necessary condition. What is it then that is lacking in the both well-equipped and strongly bonding super-intelligent higher animals like New-Caledonian crows or dolphins or elephants such that they remain “physiologically autistic”? It is an inconspicuous element which was already mentioned: the smile-laughter overlap which is exclusively present in human beings and their best friend.

The smile-laughter overlap we share with the wolf, but not so mirror-competence as we saw. Hence a certain functional consequence enabled by the presence of mirror-competence is bound to be blocked

in the wolf. The ambiguous smile-laughter is the human equivalent to the equally ambiguous tail-wagging of the dog as we saw. It occurs both when you are generally happy and when you are experiencing the specific tenderness of bonding. It can because of the latter fact be maximally rewarding for the interaction partner. Only the human species and the wolf have evolved this functional overlap in the signalling of two radically different emotional states, friskiness and bonding, as we saw.

Most people and most specialists expect that severe human autism is a deep defect. These individuals “cannot” socially interact as even dogs do. So one of the therapeutic aims is making them more sociable, for example. This approach is misplaced if the deficiency is a much more localized one than is usually believed. One is easily misled by the fact that these individuals do show happiness as usual by smiling and laughter. So no one expects that they do not “see” the smile as that what it is in the playroom – a sign of affection. They are “smile blind.” This mono-causal theory is pursued here.

## Therapeutic consequences

In the affected young individuals, the human smile fails to act as bonding reward when displayed by the mother, for example. This inconspicuous fact automatically entails maximally strong functional consequences. The same consequences as in Orangutans which, too, cannot be lured into an inter- personal relationship (although there are frightening episodes in the most comprehensive book on their behavior so far [17] which may make a reappraisal necessary eventually).

The familiar lack of “bribability” by a smile in a state of deep primary autism does not mean, however, that the capability for bonding were not present in these human individuals. This particular readiness is only not elicited in the usual optically mediated manner. It is not that there were no bonding present in these individuals but the bonding that is present does not respond to the natural emotional signals of other human beings – their optical signals. “Smile-blindness” would be the summarizing monocausal term for this condition. Note that the term “smile-blindness” is much less discriminating a medical tag than the non-explanatory, merely phenomenological descriptive term “autism.”

In all mammalian species the intrinsic helplessness of the young is necessarily accompanied by a built-in strong rewardability of the latter by food and shelter and other nursing activities. Only the “personal connection” is missing in young human autists: There is “no eye contact” while being nursed, for example. Nevertheless, some kinds of bonding are obviously present – bonding to the familiar room, to certain playthings, or to an autistic-appearing motor stereotype like head-shaking (*iactatio capitis*) or to some other rituals, to an “at-home feeling,” etc. Only no bonding to a person is observable – or so it appeared up until now, given the fact that eye contact is almost panickingly avoided.

The monocausal hypothesis offered here is as mentioned that it in reality is only the optical input channel for bonding that does not work in Kanner’s syndrome. Such that “smile-blindness” represents not just a leading symptom but rather advances to being the key etiology. A single input channel would in this case be missing – the optical rewardability by a broad smile and the accompanying loud laughter. These expressions would in their naked hilariousness look and sound frightening to those children – much as they would appear to extraterrestrials.

The therapeutic idea therefore is that a different rewarding input channel can be exploited instead of the missing optical one. Operant conditioning comes to mind – and has often been employed to little avail), as is well known. Building-up trust is not unimportant, but this success often did not help as such very much, although bonding when successfully established is a great intrinsic reward for the adult family members. What is it then that is still missing?

### The functional secret

What is the functional secret that the human smile normally transports? When the toddler is happy, Mom is even happier and rewards him still more by her own bonding response (actually only the displayed delight is showing on her face and in her voice). This response then triggers a positive feedback between the two individuals. The regularly elicited strong bonding bout then on some day eventually results in the toddler suddenly conceiving of the “suspicion of benevolence” – of benevolence being shown to him by the partner. That is, the suspicion of being desired to be happy by the other person is conceived out of nothing.

The invention of this suspicion is tantamount to the toddler having become a person herself or himself. Namely, of having become a partner in mutual love. It is a very complicated simulational operation that occurs. It culminates in the adoption of an infinite trust that is not subconscious (as in the passive state of permitting to be nursed and groomed etc. shown by all young mammals) but rather is actively deduced as an objective fact by the naïve partner-as a reliable and loadable factual reality arrived at by the toddler.

### There is everywhere nothing in the world

“There is everywhere nothing in the world that without qualification could be called ‘good’ except for a good will,” said philosopher Immanuel Kant in his idiomatic phrasing. This “good will” is what the young interaction partner is sensing for the first time along with its religious undertones.

This transition having occurred is what characterizes a human “person”: To have made the invention of the “suspicion of benevolence encountered” on the part of Mom or Pa or the Nurse. An infinite reliability is conceived to exist. From then on, quite a long separation in space can in principle accompany this certainty without being able to sever it. A young niece of Lorenz’s who had to be put into a clinic told her mother afterwards “I had lost you so.”

Is the just-made claim of this apparition of a totally changed attitude towards the world arising in the playroom at one point, something that can be relied on as a scientific fact? There are no records after all, and the children usually are too young to remember later in life. All of this sounds like an utterly academic theory – reality is not like that, or is it?

### Bifurcation Theory

If you have a dog, you know that long tender interactions exist. The same holds true with young children, toddlers especially but the bonding bouts extend much longer into life. However: can a bifurcation-a-dynamical “function change” in the sense of mathematician Robert Rosen et al. [18] really occur in the playroom? Is personogenesis really an epigenetic ontogenetic event?

Author return to the already mentioned fact that author was able to explain to my own subjective satisfaction the spontaneous healing from his previous state of severe autism of a 7 years old child, reported

as having occurred in his own life by an adult hairdresser on TV [3]. The report is apparently no longer on the web but it can no doubt be made accessible to professionals by the TV company and the Interviewee.

The “acoustic smile” is bound to have been the vehicle – so author spontaneously realized while watching the TV report that evening in a hotel room (Author had given a talk on Hawking’s theory of black holes on the same day at the Berlinale which still reverberated in my head). This “smile” works as well as the optical smile does ordinarily, author saw. The 7-year-old autistic was sitting on the lap of his mother in front of a wooden table, scribbling on a sheet of paper. The protagonist later claimed towards the interviewer that his recovery had started on this day on which he also learned to write. Apparently – so my explanation went – whenever he did something right on the sheet of paper in front of him, his mother would utter her joyful appreciation behind his ear. And this “acoustic smile” would then work in the same manner as the optical smile does in a non-smile-blind child: by giving rise to a positive feedback across all potential activities. This was – so it appeared to me – the spontaneous implementation by serendipity of the acoustic-smile therapy of early-childhood autism proposed more than three decades before [1].

In this lucky event of spontaneous healing, everything fell into place naturally as it were. The “suspicion of benevolence” occurred in the child and, by confirming itself in the interaction, made him a person. He told the interviewer on TV that he still could not see faces correctly, that he saw them as if splintered. But this did not disturb him in any way even though he was working as a hairdresser in front of mirrors all day.

### Double reward

Acoustically, the smile-laughter overlap obviously works also in children born blind since their autism rates are not markedly enhanced or so it appears. But this argument works, of course, only if the present theory is not misguided. In sighted children afflicted with smile-blindness, avoidance by the caretaker of the optical channel that works so counterproductively in bonding, can be achieved through deliberately suppressing her own natural, so tactlessly loud laughter along with the staring that automatically goes with it. By her instead uttering tender bonding sounds whenever she is momentarily delighted by what the child is doing, the beloved caretaker predictably can bring about the same “double reward” which triggers the non-smile-blind child’s suspicion of being desired to be happy. So that the child starts reciprocating as if being the care-taker herself. This evolutionarily speaking problematical (but actually just “premature” on Teilhard’s ladder [19]), both human and humane role is then adopted by the child just as it is by a non-smile-blind young person. Both partners again behave as if an invisible benevolent super caretaker stood behind since the substance of the rewards granted each other is not of their own making.

All of this is very difficult to understand in its complexity. Ordinarily, such difficult mathematical operations – with “mirroring” and “coincidences” and “role switches” – are too hard even for adults to disentangle in the mind. Nevertheless this is what the “smile theory” claims to be: a theory of the greatest invention made in the life of every person at a very young age from which ordinarily no memories survive into adulthood. And objective recordings of this holiest moment in the playroom do not exist for understandable reasons: the miracle comes as a surprise to both partners. And the implied lawfulness seen in a detached system-theoretic description is clearly of no interest at the

moment in question. A moment of “communion” is not meant for the public eye.

## Discussion

The above theory proved to be unsellable to the therapeutic community for almost five decades, although it was re-told from time to time in follow-up publications. No therapist ever came across it in a way that resonated with her or his everyday activities – so a wise aged specialist once told me. It was “too theoretical” in the absence of a special training program, she said. It would have to be first done in the abstract, in the therapist’s real surroundings but with only an imaginary patient and his partner sitting there, and then in the everyday therapeutic reality itself. And thereafter, one would have to wait until a colleague has practiced it too, and reports about success rates are available. In light of its arcane theoretical nature: how could a therapist ever start using it? The therapy looks almost like coming from an autistic. Or to put it differently: “Theoretical medicine is not medicine.”

Therefore it was a real present a year ago when a youthful male student in the crowded big lecture hall of a course on philosophy that Author was privileged to teach at a distant university, in which author had the day before talked about the larger and more complex brains of some animal species, raised his hand and told the class that he had recently learned that mother elephants have an acoustic bonding signal and that the latter consists of inaudible infra sound. So one could, he said, inaudibly “smile acoustically” at an elephant cub by just using a transponder with the recorded infra-sound bonding signal, whenever momentarily delighted oneself in the interaction with the cub as her beloved caretaker. You see the creative transposition made by the student?

author up until today was unable to find out about the name of the student who came up with this proposal in class. For this reason, he presently figures under the name “Anonymous Student” as the senior author on the paper that took shape in the wake of his suggestion. This paper was then not only accepted for publication [4] but in addition got followed up by an extensive report in a popular science magazine’s Internet part [5] drawing quite a few responses from readers and even causing a long perplexed-skeptical report in the popular press [6] as already mentioned.

If the smile-laughter overlap that characterizes both the human species and the wolf (when transposed from face to tail) indeed proves realizable artificially in a to us inaudible frequency range in a much more momentous species than we are, it at that moment suddenly becomes fully transparent intuitively. It is the sheer size and slowness and majesty of elephants that makes the otherwise so hard to understand “interactional function change” transparent: Make the bonding sound whenever you are happy in the interaction with your beloved protégé, and you will be loved-back by a person in the end. The overly modest student A.S. discovered the trick of how to explain to the human species what it is that makes it human. Such that it thereafter is no longer alone.

In this way a white elephant who so far exists only in the phantasy of a growing number of enthralled human individuals got baptized Szilamandee in honor of two planetary heroes, Leo Szilard and Nelson Mandela [4]. She could bring about the long hoped-for breakthrough in the therapy of severe early childhood autism in human individuals. At the same time, humankind would acquire a new responsibility by opening up the door, not only to refugees in the age of the unification

of the planet under the influence of the Internet, but also to everyone acquiring an understanding of what humaneness in the sense of “personness” means. Most everyone knows how terribly non-selfish very young children can be. It now suddenly appears as if they were not stupid at all.

To conclude, author tried to explain in as straightforward a manner as author could an almost half a century old theory of primary autism in human individuals and not just in these. The therapy never got tried out deliberately so far (only by serendipity once, courtesy of an ingenious mother). A very hard to understand theory of human bonding was offered. Only young people are able to completely see through the whole tangled interplay. It looks like mathematics, it sounds like mathematics, it smells like mathematics, it is mathematics: but actually it is nothing but love between two persons. The decisive step to convince everyone is owed to a student. Society at large may be better able to understand the salient point than the profession was so far, for every member of society was a toddler once and many have had young children themselves. The epigenetic transforming power implicit in a phenomenon that is the most inconspicuous of all (the cross-anticipatory smile) only begins to be understood to date – no matter whether optical or acoustic or sub-acoustic or sun-glow inspired [20].

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