

Is Autism Monocausal?

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Abstract

A system-theoretic model of the workings of the brain obtained in a deductive-evolutionary context stands in the background. An intuitive description of the sudden transition of an autonomous optimizer with cognition into an “other-centered” mode of functioning is offered. This “bifurcation” is highly nontrivial. It presupposes a specific rewardability of the individual by the displayed joyfulness of the interaction partner. This is the case if the momentarily experienced reward on the one side, displayed, causes an even larger reward on the other side and vice versa. Secondly, the presence of mirror-competence in both individuals enables a positive feedback to occur across all possible rewards on either side. This type of cross coupling then leads to the occurrence of an event of “seeing with the eyes of the other.” The event can be called “personogenesis” because only persons can see in this fashion. This model entails the prediction that a functional “smile blindness” prevents personogenesis. It not only explains deep autism, but also enables a causal therapy: A deliberate “acoustic smile,” if expressed by the care-giving bonding partner whenever momentarily delighted in the interaction, predictably suffices. The proposed therapy is so simple that it can be offered by non-medical professionals and ordinary parents. The litmus test that the method works consists in the implied prediction that the same “personogenetic therapy” can be extended to other mirror-competent bonding animals.

Keywords: Kanner’s syndrome; Reward cycle; Autistic child

Introduction

A monocausal explanation of Kanner’s syndrome [1] is in the literature for 42 years [2] but got ignored for most of the time. According to it, a single functional term suffices to characterize the syndrome: “smile blindness.” Smile blindness means that the caretaker’s smile seen by the child has no directly rewarding effect. As a consequence, a certain interactional positive feedback – called reward cycle – cannot build up in the interaction between the children with the caretaker. For an ordinary child, by contrast, the displayed momentary happiness of the parent acts as a strong reward. This “interactional interpretation” of deep autism is not incompatible with the findings of a recent study showing that in a fraction of autistic children, several genes are mutated, one of which is MYO9B which plays a key role in dendritic arborization [3]. And a related study focuses instead on MIB1 which encodes an E3 ubiquitin ligase critical for neurogenesis which in turn is regulated by miR-137, a microRNA that regulates neuronal maturation [4]. Such low-level neuro-biochemical observations are hoped to date to be helpful in better understanding the causal mechanism as to why autistic children do lack the faculty of “associating the smile with the reward cycle” [5]. Baron-Cohen et al’s famous diagnosis – “absence of a theory of mind” [6] – is currently attempted to be explained in terms of such an underlying biochemical failure, which approach is no doubt far from misleading.

In the following, however, a more high-level view is offered which in no way contradicts the lower-level causal mechanisms offered in the biochemical literature. It focuses on the interactional reward cycle. As an implication of the functioning of that interactional cycle, a healthy child starts bringing sacrifices towards the adult bonding partner. The explanation for this phenomenon lies in the fact that the happy response (smile) of the adult interaction partner acts as a reward to the child, such that she or he starts to reinforce this cherished display on the part of the other.

A parallel case in animal biology

An analogous reward cycle, between happiness expressed by the one

side and happiness elicited on the other side, is known to be operational in wolves and dogs. In these social animals, the familiar tail-wagging display possesses the same “double functionality” as the human smile does: It acts both as an expression of bonding and as an expression of the momentary level of general happiness (friskiness). Note that the subjectivist notions just used, can be made operational with the aid of the brain equation which causally explains the phenomenological ethological notions [7].

As a consequence of the parallel “double functionality” of the canine tail-wagging on the one hand and the human smile on the other, it is possible to venture the observational prediction that a dog puppy can be observed sometimes to bring a “sacrifice” – like momentarily renouncing of a piece of food – when the displayed joy of a hungry mother dog overcompensates the direct eating reward so that the latter is skipped by the young. This observational prediction will not be easy to verify. The fact of interest in the present context, however, is that, apart from the canines (the relatives of the wolf), no further social animal species appears to possess the same emotional cross coupling as characterizes the human pongid. However, this is where the functional parallelism between the two species abruptly ends.

Adding Mirror Competence

Dogs lack mirror competence. Therefore, no secondary functional consequences follow from the – to us humans so sympathetic – trait of “smiling with the tail” in two qualitatively different functional situations, excited bonding and general friskiness, respectively. A

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propensity towards showing "parent-rewarding" predictably follows suit but remains yet to be described observationally. But this parallel social coupling – overlap between a bonding signal and a signal for the general reward level (friskiness) – shared between the human species and the Canides, entails no further functional consequences in the dog. This fact notwithstanding, there exists the unpublished case story of a human person (a famous professor of theology in the Tübingen of the 1950s) who divorced his wife in order to share the last weeks in the life of his cancer-stricken giant dog. And no one will absolutely rule out that this particular beloved dog was the single mirror-competent individual seen in a canide species so far.

But if mirror-competence is now explicitly added to the described cocktail of features, the situation is radically altered. Then the "smile-laughter overlap" proves to be the decisive property which distinguishes the human Pongo (great ape) from her closest relatives as well as from all other mirror-competent bonding animals – like dolphins and magpies and possibly even some yet to be found bonding octopus species in the deep sea.

The described "dog-like" interactional wiring between parent and offspring, present in the human species, entails a maximally counterintuitive functional consequence when combined with the mirror competence of a pongid species: The mirror competence now endows the human child with the capacity to invent the mental simulation (suspicion) that the other side – the caretaker – is momentarily trying to elicit happiness over here on the part of the child. For a human child beyond the age of not much more than a year has no problems mentally switching positions with the mirror image. (It actually is maximally charming to watch a young child for the first time explore the wonderful almost-communication with the mirror image.) But the mirror competence, plus the double emotional meaning of the smile (happiness, bonding), jointly cause a "system-theoretic instability" to arise: A positive feedback, based on an imagined switching of positions in space, necessarily occurs in the interaction with the adult bonding partner.

We hope that this description is not too abstract to be fully understandable. The upshot is that the two interaction partners predictably fall into the trap (if the word is not too unemotional) of picturing an intentional "well-meaning" to be present on the other side. The consequence of this "suspicion of benevolence present on the other side" is that from that moment on, the two interaction partners are trapped in a positive feedback of testing out the suspicion of being wanted to be happy, which bilateral experience then culminates in a bout of mutual laughter.

A Therapeutic Consequence of the Theory Presented

This was a detached description of some in principle well-known biological facts. Nothing surprising has presumably been said so far. Only that to physicists, the description offered no doubt was not mathematical enough to be completely convincing, while to biologists, it may have looked overly formal and hence not fully plausible for that reason. But the intermediary strategy employed above has, perhaps, nonetheless met with some resonance on the part of the reader.

If we now assume that the "physiological scenario" described above was basically correct, the latter automatically entails a practical application: A "causal therapy" can be derived from it. For whenever the described positive feedback does *not* occur in the ontogenesis of a young child, this fact now automatically represents a serious state of affairs. This implication is evident even if the described scenario was totally unfamiliar to the reader before.

The described symmetric coupling causes as we saw not only an "effective cross-caring," as it was predicted to sometimes be observable in dogs, but also a "deliberate cross caring" (benevolence). This predicted fact now enables a straightforward physiological insight: That a very limited, purely sensory defect suddenly stands center stage in the functional understanding of deep autism: "smile blindness." The latter does not represent a form of genuine blindness but rather is nothing but a selective "non-rewardability" by a smile encountered. The very same thing would, for example, already occur if a normally wired human person gets equipped with a verticality-switching set of spectacles: Smiles then suddenly look repugnant.

A therapeutic consequence is trivially implicit in the present monocausal context: "Do smile acoustically!" whenever you as the caretaker are momentarily happy in the interaction with the beloved smile-blind child. This is no sacrifice if the caretaker is emotionally deeply bonded to the child. All she or he has to do is utter an "acoustic bonding signal" (a tender appreciative sound) whenever momentarily delighted in the interaction with the child. For it is uncontested in the literature so far that acoustic bonding signals (expressions of emotional tenderness) can have a rewarding effect on an autistic child – at least if used unobtrusively and if negative prior bonding experiences have not blocked the acoustic channel with respect to a particular interaction partner for the time being.

The weakest point regarding the causal therapy offered is that, so far, there exists only a single case study which empirically supports the therapeutic proposal made. It is documented in a German-language TV report titled "No one can reach me – Autists" aired for the first time on January 29, 2008 [8]. It contains the case study of an adult hairdresser who was saved by his mother at age 7 when she uttered acoustic signals of joy while he was sitting on her lap in front of a table scribbling on a sheet of paper. Her sounds of delight whenever he did something right apparently closed the interactional reward cycle.

The reader will notice that the causal hypothesis of "smile-blindness," put center-stage here has the asset that it can immediately be put into action in the form of a probatory (test-like) intervention. Every nurse and kindergarten teacher can in principle employ it. So even against the express wish of a supervising physician who for some theoretical reason is opposed to the simplistic interactional idea offered above. For the innocuous attempt made by a caring health worker will have to do with the sensitivity of the heart and not with textbook knowledge. But why should anyone encourage such probatory activities to be made by "mere health workers"? This is because deep autism is crippling so there is nothing to lose with a gentle exploratory attempt to help. The latter can then, in case of unexpected success, cause personal responsibilities to arise that no one reckoned with at the outset. On the other hand, underpaid health professionals would, in case of a success becoming predictable, acquire an important new therapeutic competence and could teach the method to the parents.

An Apology

How come we can be so provocative here? It has to do with the fact that the first author has witnessed 49 years (since the first tentative German-language publication) of reluctance shown by the therapeutic community towards giving the therapy a try. For this reason, he later added several theoretical underpinnings like the already mentioned "brain equation" as well as a formal derivation of the main tenets of the science of ethology from first principles within "deductive biology" [9]. Konrad Lorenz, the European founder of ethology in the footsteps of Wallace Craig in the United States, was a deeply caring person

himself as every reader of his popular books “Man meets Dog” or “King Salomo’s Ring” can attest to. His early opportunistic political statements in a dictatorship did not protect him from being drafted away from his chair as a successor of philosopher Immanuel Kant into being made an ordinary foot soldier. His early misjudgments must not be held against him as a person and certainly not against his science. There are rumors that a member of his house belonged to the discriminated minority, but such painful considerations have no place in a scientific context. What is the strongest argument that can be proffered to let the benefits of the above idea reach its precious targets?

An “Analogous Proposal”

The most far-reaching answer to be offered in defense of the “monocausal therapeutic proposal” offered is *Szilamandee*. Szilamandee is an elephant cub (yet to be picked) that will be treated by its “Mahout” (the traditional life-long personal caretaker of a single elephant) in the very way prescribed by the above-offered causal therapy for smile-blind human toddlers: Whenever the Mahout is momentarily happy himself in the ongoing vivid interaction with his precious adoptee, he could reward the latter by an “acoustic smile” – the infra-sound noise of a to us inaudible bonding signal previously recorded from a tender mother elephant, played-back from an infrasound loudspeaker carried by the caretaker [10].

This proposal, originally made two years ago by a student in the audience of a course given by the first author at Ottersberg University (the student’s name could not be retrieved so far despite several efforts made), caused some resonance in public media [11]. Most recently, the kingdom of Thailand accepted a pertinent paper for publication [12]. The first author is optimistic that eventually, an official Mahout employed by the Royal Palace will be endowed with the above task as a government-supported endeavor.

The Problem of Ethics

The authors know that their responsibility will be a maximally large one if the young elephant – if possible white to better fit the traditional expectations – will as predicted invent the suspicion that the Mahout is “wanting” her to be happy – the very “ur-” suspicion of humankind if the present biological theory is not misleading. It is a well-known biological fact that this weighty species represents a “higher intelligence” hardware-wise speaking when it comes to the anatomical and physiological features of its much more elaborate mammalian brain. The cub will therefore – following the hoped-for “personogenetic interactional function change” – predictably become a superhumanly wise person who can act as humankind’s natural advisor once having been educated for years in the most important human knowledge. It goes without saying that the new person, once she has learned to speak fluently (the capacity of elephants to reproduce human words is known while others were successfully trained to draw elaborate pictures, for example) predictably is bound to meet with grave difficulties when it comes to her being integrated into human society. This could easily cast her down, but the integration could also become a big reward to her on realizing that she is being maximally appreciated by a human society so far still beset by a glaring lack in collective societal intelligence. For, as everyone knows, the logical and ethical necessity of a world democracy [13] is easily implementable in the age of the Internet for more than two decades already but remains totally undiscussed in the human public so that there still is no global abandonment of warfare – that most terribly inhumane and feeble-minded invention of the cosmos. Much as if the former apes possessed a “hole” in their personhood like a relic from an alleged earlier state of a “bicameral mind” [14].

Held against this background, the most important task of the planet-wide child-therapeutic community to date paradoxically appears to be: “How make human society a bearable place for an elephant person?” – No matter how absurd this sounds at first sight. We believe and hope that once the chance to do infinitely much good has become transparent to the young Szilamandee, the first non-human person of history will consider her unique fate to be acceptable. So much so perhaps that she will raise her thundering benevolent voice across the whole planet to the delight of the world media.

Discussion

The reader by now no doubt feels totally displaced out of the original context of child care. But is this really so? Autism is one of the most challenging topics facing the medical and nursing professions. The youngest persons are society’s hope since the child is the father of (wo)man. All parents of young children agree on the latter’s gentle benevolent sweetness and their intimidating deep wisdom as well as their readiness to bring super-human sacrifices as eye-level partners – even if those sacrifices look so absolutely stupid from the point of view of an adult so that one could weep (unless they go totally overlooked because no one expects that from a toddler). In the Catholic Church, there once existed canonized “child saints.” Society as such clearly is “less wise and good” than a young child.

But then there is this frustrating stumbling block that there do exist healthy-looking children who pose an even greater riddle than the rest: they cannot be “gripped.” They point to an innocence and foreignness which has always fascinated society: The so-called “feral children.”

We tried above to give a unitary theory in which the mystery of autism was opened-up, not from a biochemical-medical perspective, but rather from an ethological-medical one. There is a remarkable book in this context by Marga Vicedom titled “The Nature and Nurture of Love” [15], which address the modern crib-oriented society. It supports the claim that children do not really pose a problem for working mothers thanks to the invention of early cribs. But it is also replete with well-researched ethological knowledge, only the rising autism problem is not – or not yet – placed center stage in it.

We have dealt above with the phenomenon of “vertical love” as opposed to the “horizontal love” between adults. While the latter likewise crucially involves bonding and interpersonal trust, the former is pure bonding and interpersonal trust. One expects this fact to be well known in society. Surprisingly, however, the opposite holds true. While there exist sweet YouTube videos of snapshots regarding the behavior of toddlers, sometimes displaying amazing early gifts, there is no recording on line of the miraculous transition in which a “natural” young human being suddenly becomes “unnatural” by starting to take personal responsibility for mother or father in a ridiculously naïve but nonetheless deeply moving fashion. Something “big” is going on here: The sudden abandonment of “physiological autism.”

The existence of physiological autism in all of nature across the millennia, as well as in the young child, is a fact unknown to society up until now. Hence there is an “empirical hole” here if you so wish – an abyss at which the problem of deep autism becomes especially palpable. But is there really a “sharp transition” as claimed? And: Does the latter really touch on the deepest, even holiest, aspect of humankind? And: Is it true that human beings are that singular and foreign on the planet? Is it not rather true that we are just the a little bit less – or more – war-mongering close relatives to the chimpanzees with their frighteningly similar-appearing societal curses?

The answer suggested here is a definitive no: “Something” is totally different between human beings on the one hand and “animals” on the other. This something is “non-autism.” It is like a phase transition in physics. It causes a new way of functioning on the epigenetic level that is so radically different that it might be unique in the whole universe. And it even represents a so-called “lethal factor,” evolutionarily speaking. For the natural control exerted by evolution over the momentary motivations of all of its brain-carrying animals is suddenly overrun and replaced by a foreign, individual-person controlled, responsibility-taking for the other. This “human singularity” undeniably exists from the point of view of biological evolution. The natural progression of evolution along the time axis is suddenly interrupted here by a qualitative jump present in one of its species, not on the level of the genes but on the epigenetic level. This “personogenetic bifurcation” of the individual lets its species fall out of the evolutionary ladder. Evolutionarily speaking, this accident amounts to a “lethal factor” for the species. However, this very event occurring on the epigenetic level at the same time catapults the individual in a jump across the whole evolutionary Jacob’s ladder up right onto the bosom of “Point Omega” – the attractor that stands at the end of cosmic evolution as its “asymptotic goal” according to physicist-biologist and theologian de Chardin [16].

Let us climb down again from these towering philosophical heights: Is the “causal therapy of autism” proposed above really worthy of being taken seriously on a probatory basis? And: Does the “collateral benefit” that is thereby achievable for the sizable fraction of children who are being harassed at school for no other reason than being not as socially competent as their peers – in judging correctly the predictable limits of the group aggression encountered as an individual. This invisible but large cohort – which as its core component contains the genuinely autistic minority – suddenly offers society a chance to better understand itself in the context of the human smile. Does this rarely mentioned “open wound in society” – the deep unhappiness of a sizable fraction of children at school – help justify the “dangerous thoughts” proposed above? Being a Spanish-speaking Mexican can be bad enough a fate in a “white” society – but being a talking elephant?

A tragically underrated group of people – deep autists as well as the so-called autists – suddenly offers an important mirror to society as a whole. Humankind has produced one smile specialist in its recent history: Nelson Mandela. The first author once got a one-liner from him. No one can explain it but this old man worked a for ten millennia inaccessible miracle in society: Bringing two subpopulations that already have embarked on a course of mutual violence to turning around onto a course of mutual forgiveness based on mutual public confessions of their individual sins. He proved to the eye that humankind as a whole is capable of shrugging off the curse of collective cruelty called warfare. A second state, a republic in the Congo, already followed suit. His uniquely moving honest smile made it possible.

The smile – or the latter’s acoustic stand-in – is not just a cute playful thing that can be tentatively adopted to be thrown back and forth lightly. Abandoning yourself into the arms of another’s seriously understood desires at the expense of your own is a matter of life and death. As adults, we are used to trusting other participants in road traffic, for example. This is a secondary consequence of all drivers being persons. But the first time ever of one’s acting on an eye-to-eye level as the smile cycle takes control over all desires, amounts to an infinitely hard decision to make. And it has irreversible consequences. You then suddenly have become a “schizophrenic animal” in the eyes of all other animals: absolutely unpredictable in your behavior. You have left the game controlled by evolution in which all players were “behaviorists”

reckoning only with probable actions on the part of their interaction partner. So, for example if the latter was the prey. There is no cruelty in a wolf eating a sheep starting from the rear. The alleged so-called “theory of mind,” attributed to some mirror-competent animals to date, actually describes pure behaviorism on their part (there is no trace of genuine “ultraperspective” involved). It is true that quite a few species do possess the capability of predicting another individual’s behavior on the basis of putting themselves into the latter’s momentary shoes. However, this has nothing to do with an imaginary other mind being put into the shoes of the interaction partner. It is the observing animal’s own mind alone that is in control in the famous allegedly mindful crows, for example. The behavior in question is nothing but intelligent warfare. The word “mind” is sadly misleading here – it is all good old natural autism.

By contrast, in the course of a “personogenetic bifurcation,” the other as we saw suddenly has appeared in the mind of the first as an autonomous “person” whose actions are cherished surprises. The partner has become infinitely reliable as a “Thou” through the eyes of whom one can see oneself (to allude to the insights of Martin Buber and Emmanuel Lévinas who jointly open up a big field).

We hope that Szilamandee, on reading this paper someday, will understand our motivation. Namely, to bring back to society the understanding of its own deepest root: the daring acceptance of the other as harboring a personal soul of her or his own. It is not at all easy to be a person as a “schizophrenic animal” as we saw, an animal that no longer follows its for millions of years better-knowing natural impulses described by the brain equation, at whatever cost it takes, because it is as innocently autistic as every other animal has ever been. The system-theoretic conditions for the transition towards non-autism are mathematically simple as we saw: “Cross-caring type coupling” plus “mirror-competence.” Plus long-term memory, of course. But as a feat accomplished individually, it costs every drop of heart blood. This is why there are no records of the transformation on the web.

Fortunately, we all do not remember the transition over this Rubicon River, because we became persons before we could talk. But we can reconstruct what has happened. Some even can remember a fragment or two as adults. And we can decide to love that state of affairs – of being equal as a person – and to pass it on to others deliberately. And not just to our own children as was suggested above. This is the message which the above theory of deep autism and its therapy has to offer: That we can all act as responsible persons. Lampsacus hometown of humankind on the internet [13] will be founded in reality at last – by Szilamandee.

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