Some Comments on Generative Anthropology

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Eric Gans writes in *Chronicles of Love and Resentment* 166 (April 17, 1999), that much has been written about anthropology since he wrote *The Origin of Language* (1981), but that "virtually none takes [its] analysis, let alone its general perspective, into account." I, too, wonder. I have in all these years found no reference to this book (or Gans's other books). Why is it so? Not because these works are without meaning and depth. On the contrary. But why then?

The fact, as I see it, is that Generative Anthropology on the one hand and more empirically oriented evolutionary anthropology and linguistics on the other turn their backs on each other. But there is really a great bulk of work done in the 1980s and 1990s that could support the more formal, Gansian way of thinking, and this, conversely, could surely throw some new light on the empirical problems.

The main problem is the acknowledgment of dialectics. Gans's thoughts in this respect, his interest in paradoxes, and so on, contain a great deal of sound dialectics. The empiricists, on the other hand, generally do not recognize dialectics as a profitable way of thinking. Let me try to explain this fact.

Let me start with an example from the world of the physicists. A famous old sentence says: A moving body at a certain moment is in a definite place, and at the same time it is not in this place. The sentence goes back to Zeno of Elea. Hegel discussed it, and the dialectician Engels showed that he did not understand it at all.

Certainly, the sentence contains a strange contradiction. What can it mean–if anything? That a moving body at some definite moment is in a definite place, call its co-ordinates q, is trivial. But what does it mean to say that at the same time it is not in this place? Is it, then, in place r? No. Such a statement would be an undialectical and senseless (logical) contradiction–unless we ascribe to its author some presentiment of the quantum-physical two-slit experiment, which would be

equally senseless. Zeno lacked the modern concepts for expressing a deep thought: he wanted, I presume, to express something that in his time was really inexpressible. Therefore his difficult–or today all too easy–paradoxes about movement and time.

On the basis of modern physics it should not be difficult to give this old statement a meaningful interpretation (see my 1998a). If we interpret "not *being* in this place" as "*moving*" in this place, then at once the problem is solved, but the ancients simply lacked the adequate concept here. Moving means possessing velocity (v), and more explicitly, we may speak of the velocity v of a body of mass m. This implies the concept of momentum $mv = p$. Now the physicists should begin to listen with some interest. Magnitudes p and q are called "canonical conjugates," being mutually connected in the Lagrange-Hamiltonian formalism. Thus together they express the entire essence of Newtonian physical determinism with its laws of conservation of energy and momentum.

Nevertheless, the physicists have shown no interest at all. They have their formalism and are therefore freed of the hard job of speculating about strange sentences–and the possibility of dialectical thinking–the argument being, of course, that "nature itself" is not dialectical. Nevertheless, the physicists' thinking about nature is inherently as dialectical as all other thinking, which must necessarily be based on human practice–even when not recognized as such. In fact, the whole dialectics of their science–the contradiction contained in the concept of movements as being states–is expressed in this single sentence. Indeed, it determines the conceptual and historical problem of establishing physics itself as a modern science.

In my web paper 1998b (here called *Models*) based on the elementary faculty of all life of anticipating (within some temporal horizon) its future states, I–admittedly in a somewhat formalistic way–offered a general analysis of two forms of generative events: first, a simple one, characterizing what I called Psi-intentionality and, second, the more complicated one of the Gansian "originary scene of representation," which he proposes as the core model of GA, implying the form of intentionality that I called the Omega-form. A somewhat more thorough characterization of these concepts is given below.

The problem of GA to be solved is, in fact, related to that of Zeno's movement paradox just referred to. The moving body was in its position q in a transitional state. It was "no longer" in a position before q, and "not yet" in the position after q. But being "no longer" and "not yet," as I see it, only defines a No-man's-land, so that its "real" place between the boundaries of "No-longer" and "Not-yet" is really undefined (this is, in fact, the core problem of limit theory and the differential calculus). This alone gives us no new concepts.

The dialectical problem of anthropogenesis is quite analogous. Today we must make a conceptual transition analogous to that which was impossible in ancient times because of the lack of adequate concepts. We must define a generative moment as more than that of a No-man's-land that we must transgress. Rather, we must define the transgression as such; that is, we must create the concept, theory, or model defining the essential point of transgression itself. In everyday language, this might perhaps be expressed in the sense of a "no longer no-longer," and, at the same time, a "not yet not-yet." But surely, such a transgression is difficult to conceptualize as a definable "state"; it can only be analyzed in formal terms.

The philosophical problem of transition is that of a conceptual genesis which Gans partly grasps but, as I see it, none of the empiricists has realized or been interested in at all. The empiricists have nonetheless, in fact, on more or less speculative grounds, collected and discussed an enormous bulk of evidence in the attempt to define the anthropogenetic No-man's-land as such–and have in fact determined at least (!) three different possible evolutionary No-man's-lands. The first one might be at some time before the differentiation of apes and hominids about 5-6 million years ago; another at about the appearance of *Homo erectus* 200,000 or more years ago; and the (presumably) last one at the time of the Upper Palaeolithic 35 to 40,000 years ago. Below I shall try to show the possible relevance of such proposals to Gans's GA.

In this connection we must, of course, also study the neuronal underpinnings of these mental processes and their possible generative transitions; I would here mention the recent work of Rodney Cotterill (1998). In the second section of this paper I shall try to evaluate this book in relation to the problem of dialectical model-building for the general understanding of intentionality (consciousness) of which, of course, GA is also an essential part.

With respect to GA itself, it is my feeling that Gans somehow is turning his back on these anthropological discussions–seeing himself, so to speak, in high flight across this (or these) No-Man's-land(s). The great thing in this is, surely, that he succeeds in showing that the structure of the "originary scene" really determines the paradoxical structure of the human mind after this transition, along with language, art, and so on. This knowledge too could find empirical support from some (perhaps few!) scholars (see, for instance, Andrew Lock, 1999). But I agree that it is sad to see the empiricists' unwillingness to study the paradoxical appearances of the transgressions as such–this unwillingness being of just the same sort as that of the physicists who lack interest in Zeno and Hegel so long as they find that these philosophers cannot help them in their own work.

What in the Gansian theory of GA must be acknowledged as the most essential point is perhaps just the one that Gans himself has least emphasized–that is, just the point that has especially interested some of the evolutionary anthropologists. This might in itself sound like a paradox–and require its own explanation. In Gans the “originary scene” is characterized as an appropriative situation, with the participants making appropriative gestures, while at the same time concurring about an object of common interest (a prey, for example) with the risk, therefore, of a general conflict of all against all. This would certainly be dangerous for the whole group. To prevent this, a cautious and reasonable reinterpretation of certain appropriative gestures could have acquired existential meaning for all members of the group. Therefore it is necessary that these members (and the appropriative gesture itself) be “so to speak already ‘predisposed’ to re-present the object even as it performs its practical function” and so “in effect, [bring] to (human) consciousness–this already-existing tendency.” (Gans 1997, p. 22)

The essential point worth highlighting is, therefore, that the Gansian “originary scene” is primarily a scene of appropriation; that is, it is a scene mentally determined by the direction from subject(s) to object. Under such conditions, the current level of socialization would certainly be put into question, that is, the achieved sociability would be determined as in all probability not sufficient to prevent violence, at least if no other moment such as, for instance, a special and compelling sign, were brought into play. That is a point of paradox to which I shall return.

But this scene contains a further and more essential paradoxical point. It is in itself defined as a transitional model; it models the transition from an appropriative conflictive scene to a scene mentally defined in quite another way. That is, the scene is now defined by interindividual solidarity within the group. In this way, the originary scene–in a generative NOW–has created a new non-objective world direction; that is, a new direction of attention, so to speak perpendicular to the objective one, has mentally come into being. In *Models* I have called this direction the “allojective,” and its polar elements, the group members relative to the subject, the “allojects.”

A further paradox appears, then, because of the empirical indistinguishability between the subject itself and its allojects when viewed from the position of an observer outside the scene itself; the allojects, namely, are only defined relatively to the given subject. Further, each single entity can easily change from being an object to being an alloject, and vice versa. This new conceptual uncertainty will have consequences that I, for the moment, cannot fully foresee; it could, perhaps, be an essential factor in the dialectical understanding of the concept of “resentment” (perhaps also of the ethical problems of war?).

In any case, the introduction of this dialectic of objectivity and allojectivity is presumably a most essential shift. What Gans defines is just this very transition from objectivity to allojectivity of the group members and so also the shift from objective interest (appropriation, material fitness in the Darwinian sense, etc.) to a socially determined interest in interhuman relations; that is, the very generative NOW of this transition. I therefore think it would be crucial to give this transition itself a formally strong treatment; I made a first attempt in this direction in my *Models*.

But it should be noted that in the last twenty years just the same shift of attention has been made by other, more empirically oriented scientists as well. This expresses, in fact, a deep and common mental shift from a “normal” Western interest in material “objective” phenomena and goods to a new, broader interest in sociality. But, in my view, Gans himself, in making this essential shift, is not fully aware of its content, range, and necessary material background. Therein I see the above-mentioned paradox.

Let me illustrate the depth of this mental, indeed, political shift of orientation by reference to the book *Machiavellian Intelligence* collected and edited by Richard W. Byrne and Andrew Whiten (1988). Their “Machiavellian” idea is just this shift, which they find expressed along the evolutionary path from monkeys to apes (and humans) through a special mental faculty called a “theory of mind,” or “mind reading,” and further developed as a theory of human interaction; see for instance (Levinson 1995). This faculty itself must be recognized as being based on some primordial form of inner representation (without outer designation). And, *nota bene*, this faculty was (in the opinion of the authors of *Machiavellian Intelligence*) not evolved through expressions of “objective” interest nor through new methods of appropriation, tool use, and so on, but rather, on the contrary, through expressing new forms of growing interindividual interests, that is, in the terminology proposed above, interests of “allojective” character.

In *Machiavellian Intelligence*, Nicholas K. Humphrey, in a humorous manner, writes:

> [The] idea of the intellectually challenging environment has been perfectly described by Daniel Defoe. It is the desert island of Robinson Crusoe–before the arrival of Man Friday. The island is a lonely, hostile environment, full of technological challenge, a world in which Crusoe depends for his survival on his skill in gathering food, finding shelter, conserving energy, avoiding danger. And he must work fast, in a truly inventive way, for he has no time to spare for learning simply by induction

> from experience. However, was that the kind of world in which creative intellect evolved? I believe . . . that the real world was never like that, and yet that the real world of the higher primates may in fact be considerably more intellectually demanding. My view–and Defoe's, as I understand him–is that it was the arrival of Man Friday on the scene which really made things difficult for Crusoe. If Monday and Tuesday, Wednesday, and Thursday had turned up as well then Crusoe would have had every need to keep his wits about them. (Humphrey 1988, p. 15)

It must be recognized as a fact that for some centuries such "Robinsonades" really have determined the ideas even of many people who actively oppose them–even as Marx, who energetically opposed all the common bourgeois "Robinsonades," based his political economy exclusively on social forms of appropriation. So also does Gans himself not observe, as I see it, that the turn he has initiated had been initiated already by other more empirically minded anthropologists, on whom he, sorry to say, nevertheless "turns his back."

Thus what in my opinion is lacking here is not calling attention to the "allojective," socially oriented relationships between cultural humans; on the contrary. What I consider to be lacking is attention to the bulk of empirical evidence supporting this shift or transition, the real basis of which had already developed in the course of the nonhuman primate way of life. These primordial non-cultural forms of intelligence (using internal "dumb" representation) were therefore, presumably, of much greater importance than the objective-material forms of simple appropriation (and so, for instance, was the development of tool use). But Gans's starting point is just a scene of appropriation.

Of course, we must ask the question as to *when* and *how* these transitions were actually realized–if not in fact through an "originary scene"? Perhaps they could not be realized in one stroke. It is possible (but, of course, not certain) that it had to be realized through two, three (or more?) such strokes.

The first of these was perhaps the above-mentioned moment of 5-6 million years ago. This could reasonably be considered as conditioning further developments of a richer and more differentiated all-round social life, which could in the long run have resulted in a second transition generating *H. erectus* whose material culture, at least in the view of certain scholars, did not show a great deal of material refinement. This supposition is, however, strongly contradicted by Thomas Wynn (1989) with reference to the Acheulean stone techniques of some 300,000 years ago. For Wynn these techniques demonstrate a spatial competence involving the concept of "artifact as a whole," the divorcing of space from the focus of ego, and

the development of perspective:

> The construction of perspective requires a complete “stepping out” of the bonds of perception. One must construct not just the objects in space but also the viewpoints those separate objects may have when looking back at ego. Objects and ego can then be conceived as occupying the same space. The evolution of these concepts of space reflects, I think, the development of the very distinct concept of self as an actor in an independent existing world. Such awareness is at the heart of human understanding (65).

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On the other hand, these hominids also had some biologically (anatomical, neurological) modern equipment (larynx, vocal tract, etc.) at their disposal. This new period could therefore be thought of as characterized by some form of vocalization (perhaps, as with Bickerton’s “proto-language,” lacking any grammar), or, in the terms of Gans’s GA, characterized by primordial forms of the ostensive and perhaps imperative, which would be in agreement with the idea of some sort of intentional separation between selves and others.

In the paper cited above, Humphrey also proposes the following:

> The outcome has been the gifting of members of the human species with remarkable powers of social foresight and understanding. This social intelligence, developed initially to cope with local problems of inter-personal relationships, has in time found expression in the institutional creations of the “savage mind”–the highly relational structures of kinship, totemism, myth and religion which characterize primitive societies. [I would like to insert a little question mark here! – RS] By sympathy I mean a tendency on the part of one social partner to identify himself with the other and so to make the other’s goals to some extent his own. The role of sympathy in the biology of social relationships has yet to be thought through in detail, but it is probable the sympathy and the “morality” which stems from it is a biological adaptive feature of the social behavior of both men and other animals–and consequently a major constraint on “social thinking” wherever it is applied. Thus, our man setting out to apply his intelligence to solve a social problem may expect to be involved in a fluid, transactional exchange with a sympathetic human partner. (Humphrey 1988, pp. 22, 23)

I think, on the contrary, that just such a mental “fluid” of transactional exchange between early humans could be an essential constraint *against* making a still richer social life. Because, as Stephen C. Levinson says (about humans): “[L]anguage didn’t make interactional intelligence possible, it is interactional intelligence that made language possible as a means of communication” (Levinson 1995, p. 232). So material mediation of the interactional possibilities at hand could surely lessen the danger of “mimetic crisis.” The “revolution” of the Upper Palaeolithic 35 to 40,000 years ago was precisely one of symbolizing and “art” manifesting new levels of representation. This “revolution,” therefore, could be thought of as the third transition. Would it be impossible to propose that the abolition of the above-mentioned constraints might give rise to the development of Gansian declaratives as the attempt to bring such awareness-“fluids” to a standstill? A grammar, then, would certainly be needed to mark and grasp the different meanings of these vocalizations, some of them meaning things, some meaning properties of things, or their movements, and so on. This would certainly imply the genesis of a grammar.

Further: the representation of the actions of things (movements) as analogous to the actions of the humans themselves (using rudimentary grammar) would give the individuals involved a better overview of their whole life-situation than had been the case without such a representation. If in this way things could be viewed as more or less humanlike agents rather than as merely “dead” objects, this could initiate the transformation of the primordial “theory of mind” into a more advanced “theory of properties,” the notions of which could then perhaps give rise to the myths and rites that Humphrey had in mind.

Last but not least, such a transition would grant the humans overall subjectivity in the form of Omega-intentionality. This would mean self-referentially to help them to mark their own positions in the world and society underpinning their Egos.

To sum up this first part of the paper: I see Gansian GA as being an essential contribution to the understanding of the transition from animals to humans, that is, the crucial moment of the whole anthropogenesis. In this sense GA also makes an essential contribution to the understanding of these strange beings we call humans. Understanding a concept presupposes the understanding of its genesis.

Yet in the picture of Zeno’s paradox it is not enough to conceive movements as such (v). Movements are always movements of *something*, that is, a body with some mass (m), being already before its interrogation located at q. The abstract concept of “resentment” I therefore experimentally interpret as such a v-concept deprived of its bodily (“touchable,” see below) m-moment, not recognizing the essential moment of $p = mv$. In a fully dialectical treatment–of the problems of being a human as well as all other problems of humanity–we have to relate all

relevant concepts; metaphorically this means necessarily relating each *q* to all the anthropological "*m*s," "*v*s," "*p*s," as well as the "*q*s" to each other.

Lastly, this task must necessarily involve some formalisms (analogous to those of logic and physics); but I would strongly caution against the serious fallacy of modern physicists and technocrats to be content with something like an anthropological "Hamiltonian," thereby forgetting the whole mental, social and material (also ethical and aesthetic) labor of mankind with its dialectical contradictions. Without this labor, mankind would never have been what it is today. To be able to conceptualize these notions is an essential requirement of every full-scale humanism.

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As mentioned above, in my *Models,* I presented a somewhat formalistic picture of a living organism as necessarily capable of anticipation. Further, every organism has a boundary, a membrane, or skin of some sort. Membranes must, on the one hand, let stuff go in and out. On the other hand the membrane constitutes the locus where anticipation is realized. This essential faculty is based on information (not matter) coming in from the outside (realized by the "afference" function) and on the reaction to this information (realized by the outward "efference" function of the motor apparatus).

On the one hand, these functions are all tightly interwoven; on the other hand, to a great extent they also correspond to the difference between appropriative ("objective") and orienting ("allojective") behavior, the latter of which is strongly connected with the psychic functions. Analyzing the neurological and neurophysiological underpinnings of especially these functions, Rodney Cotterill in his recent book *Enchanted Looms* (1998) has tentatively elaborated a "motor theory of qualia." For such "allojective" behaviour Cotterill coined the term "navigation." This "motor theory of qualia" is based on the tight neuronal interplay of the afference and efference functions and so aims at the description of the formation of these "allojects" as the content of conscious awareness. Because Gans's hypothesis about the "originary scene of representation" is itself a theory about the creation of the "allojective" dimension, there is good reason to compare these two theories.

In brief, the principal difference between the "objective" and the "allojective" can be stated by mentioning that the first is directed toward appropriation, the intake of food to be digested in the interior of the organism, the second, in contrast, toward such things as must remain outside the organism.

This “remaining outside” is essential. Cotterill proposes a veritable exorcism of the “homunculus”; there is nothing like a “soul” or other special essence inside the body or brain representing or bearing conscious awareness as such, no sort of material “intake” with respect to the faculty of anticipation:

> Things heard are . . . heard out there. The same is true of things seen. We should be content to leave them out there; there is no need for them to be pulled inside the skull, where there would then arise the problem of enlisting some agency to scrutinize them for us. The brain is an impressive building, but there is no one at home! (Cotterill 1998, p. 238)

What in this paper are called “afference” and “efference” are close to what Cotterill calls “exafference” and “exefference”: “*Exafference* and *exefference* refer, respectively, to incoming signals from the environment which impinge upon the sensory receptors (thereby producing ongoing afference signals) and signals sent out to the environment (as a consequence of prior efference signals)” (*Ibid*., p. 389).

“Inside” the surface of the organism we find–instead of a clever homunculus–“schemata” for anticipation which can be defined in this way: “A schema is a reproducible coactivation of neurons linking a specific pattern of motor-planning activity in the premotor area to relevant activity in the sensory areas, the reproducibility stemming from the fact that schemata are laid down in memory.” (*Ibid*., p. 352; schemata are in *Models,* following Rob. Rosen, called simply “models.”)

I am here especially interested in a circuit structure which Cotterill calls the “*master module.*” In fact, this structure consists of two distinct structures, the first of which he calls the *core circuit*(including the sensory cortex receiving direct sensory input, the premotor cortex with its working memory, and the thalamic intralaminar nuclei which have gating control of the circulation around the core circuit and back to the sensory cortex). The second circuit also includes the sensory cortex and the premotor area; its third center is the anterior cingulate, from which there is in mammals a special connection to the nucleus reticularis thalami supplying the gating control of the core circuit. This special structure plays a central role by making decisions as to when pain is possible. So this structure serves to avoid danger and also presides over the selection between competing alternatives on the basis of a preexisting internal, conscious plan; it is here that executive attention operates.

In referring to the anticipatory processes of the core circuit, nothing essential transcends what in *Models* had been called “Chi-intentionality” (instinctive,

unconscious reactions); so here “there is no *problem* of body/mind, only a *situation* of body/ability-to-simulate-body’s-interaction-with-environment” (*Ibid*., p. 351).

What in *Models* I called “Psi-intentionality” (there presumed to be a mammalian specialty) seems also to be in accordance with the special function of the said connection from the second circuit to the core circuit. Let us therefore hear what Cotterill has to say about this secondary circuit relative to the notion of “navigation.” He first offers a concrete example similar to my own about the NOW of a predator’s attack on the prey after lying in wait for it, in *Models* assumed as characteristic only of Psi-intentionality:

> The latter [the sprinter in his starting block], if he does not deliberately intend to cheat, will be simultaneously experiencing conflicting urges: to react as rapidly as possible, but also to avoid initiating his movements before he is sure that the starter’s pistol has sounded. One should look upon the latter tendency as a sort of self-imposed veto . . . the countermanding process [being] just as automatic as the original movements themselves. [. . .] The benefit is in fact a profound one: *the power of real-time choice (or veto-on-the-fly, as it were), even in the absence of free will, would still be an enormous advantage to the animal.* The advantage can be expressed in a single word:*navigation*. (*Ibid.*, p. 342)

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So “navigation”–a term that so nicely characterizes the special Psi-form of intentionality–demands the faculty of real-time choice, or veto-on-the-fly, made possible by the second circuit:

> The real-time-choice I am referring to includes the vital extra ingredient of being able to react (deterministically) to stimuli that are generated *internally*, through the agency of short-term memory. Now in order for such memories to be evoked, the system requires some form of priming, . . . [being] supplied by a combination of the intended motor act and the current sensory input. This will guarantee that the unconscious veto mechanism gets the best possible instantaneous information, under the prevailing circumstances. . . . Moreover, we noted that it is particularly efficient for the activation of relevant memories to recruit the same areas that are used for perception. . . (*Ibid*., p. 428)

Conscious animals (mammals, equipped with the said special neuronal connection) are simply navigators, probing their environments through their muscular movements, that is, they are (at least) psi-intentional. Pain avoidance also necessarily implies “executive attention,” attention being the main characteristic of Psi-intentionality. Of course, one can call such attention a form of conscious awareness. The predator lying in wait for his prey and the sprinter in his starting block have to realize “attention,” that is, being “aware” of the situation; nevertheless, in the actual moment they act relatively automatically. But I am somewhat dissatisfied by this preliminary definition–the preliminariness seemingly being just the reason why the concept of consciousness has always been such a hard problem for philosophy. It simply lacks a *formal* definition. The preparation for this is the main aim of *Models* as well as of this part of the present paper.

First of all we should note that the only thing an organism can *do* relative to its environment–there being no one at home!–is to *move*. But (ex)efference is no simple form of innervation. It involves at least three neuroprocesses together composing a veritable navigational chart over “muscular hyperspace” and reveals the master module’s faculty of triggering preprogrammed motor sequences on the basis of the “knowledge” stored in the schemata.

(Ex)efference always achieves some change in the environment, manipulations of things, movements producing new perspectives for attention, and so on, causing new sensations, (re)afferences being the environmental feedback. But this is not all. In the premotor areas the collaterals of the efference neurons produce for the short-term memory an “efference copy”; through this, reafferences will always be registered differently from exafferences but will also be compared with the efference copies. Efference copy signals keep the nervous system itself apprized of when and how it is probing the environment, the reafference telling the outcome.

Thus Cotterill states that “every muscular movement asks questions of the environment, and our only means of asking such questions is through muscular movement” (*Ibid*., p. 356). This statement implies that our eye movements serve as questionings of our environment by directing the eyes at certain places “out there,”

> the premotor area [being] the source both of instructions to the motor cortex (and hence to the muscles) and of the efference copy passed back toward those regions of the sensory cortex that receive input from the thalamus. In effect, the signals transmitted from the latter routes are “saying” to their target areas: *BE ON THE ALERT!–the premotor area has just given the orders for muscular movements which could lead to a response from the environment!* (*Ibid*., p. 356)

So far we are still considering Psi-consciousness, not yet the definitive problem of consciousness as we experience it in our daily life, that is, the problem of the specific personal *unity* of "our" consciousness as such.

When we perform a task involving different motor components at the same time, we use different links in our muscular "hyperspace" that are clearly separated but without being clearly aware of the individual elements of this task. This reveals that the master module merely triggers programmed motor sequences, but without thereby coming in inner conflict with itself. Our Psi-intentionality is "unconsciously" asking the decisive "questions" about the environment "out there." Only if during this process the second circuit tells us that one of these actions could lead to dangerous responses (for instance, involving pain) from the environment does it call: *BE ON THE ALERT–BE CONSCIOUS!*

This requires the animal to retain a record of what movements it has just performed, as well as a record of the resulting reactions of both the environment and the creature's own body. This record of the state of the "muscular hyperspace" has been registered through the reporting system of the muscular spindle apparatus (an internal sensory system), which provides information via further internal reafference routes and so gives the organism a full chart of the momentary muscular state and movements of the body. These spindles also play a key role in the generation of the internal feelings usually called "*qualia.*" The "hard problem of consciousness," therefore, is in Cotterill's view "no more difficult to explain than any other aspect of the phenomenon, for the fact is that navigation in the above sense requires that consciousness and qualia are inextricably tied" (*Ibid*., p. 429).

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For this faculty of navigation it is not enough to act automatically or to have schemata merely indicating how the environment usually reacts to muscular probings. Being really "conscious" of a situation means to be able to recognize the specific as well as the general. This means that

> qualia arise naturally from the need to monitor the significance for the body of the environment's response to a *volition-provoked stimulus*. It is equally tempting to suppose that the system can mimic the functioning of the stimulus-response loop that closes via the environment, simply by employing the alternative route for the efference copy[,] . . . the signals carried by that part of the circuit . . . possess[ing] all the attributes of the main route. If that were not the case, it is difficult to see how they could adequately perform their task in the scheme. (*Ibid*., p. 357; italics added.)

What Cotterill here defines as “qualia” is exactly identical to what I called in *Models* “Omega-intentionality.”

> Let us close this section by briefly returning to the question of why exploitation of the unconscious veto mechanism paradoxically requires us to be conscious. . . . In the model I have been advocating in this book, that concept-using mechanism relates to the anchoring of schemata to what I have called the [core circuit], with planned movement being the *sine qua non*. It is extremely important, however, that consciousness will not be present unless a schema, or a set of schemata, are *actually being activated*. . . . Finally, it is worth noting the connection between these planned movements and . . . *affordance* for action, these requiring the subject to be an actual agent, rather than a mere mover. (*Ibid*., pp. 376-7)

I think that these arguments are sufficient to explain the common human feeling, that is, “qualia,” of being *one*, the unified awareness of just being an *individual*: “*We,*” that is, the phenomenal qualia experiences of ourselves being “individuals” (in-dividuals = mental atoms = unique creations) are not homunculae in our bodies; there is simply “nobody at home”! Man as the only agent of his life himself has in fact *one* body, whose neuronal processes and circuits with their specific memories, spindle apparati and other afferences, efference copies, and so on, are taking place in it. But this is happening in such a ramified way that insurmountable discrepancies–and so the body’s possible processual partition–must necessarily be controlled (by gating processes) in order to avoid such a partition, which would be life-destroying. So a unified, and certainly unique, conscious “person” can–necessarily!–arise; if this had not happened, presumably the line of the hominids would have died out–at the latest–with *H. erectus*.

To all this we must add that movements imagined via processes in the prefrontal lobe will be registered by their efference copies in spite of the real veto, or “abortion,” of their realization. That is, “thought” and “reality” will be automatically coupled and are at the same time clearly distinguished (if not, we would speak of mental disease). Things are sensed (seen, heard, touched), moved, and also thought about “out there”; hence they are recognized as being “objective”–this in contrast to the mere “thinking” about these things happening “in here.” (The term “objective” here is not meant in opposition to “allojective” but, conversely, “thought-about” things must be allojects.)

“Thinking,” therefore, monitors the significance of environmental responses relative to *possible* volition-provoked stimuli, that is, as moments of a generalized form of navigation. Thinking in this way mirrors real or imagined motor acts including the

motor acts necessary in speech. This must all be included in the definition of Omega-intentionality.

Outlook on GA

Now, what can this have to do with Generative Anthropology? Let us compare the situation just described with the “originary scene of representation.” The primary (“instinctive”) Chi-intentionality is oriented against certain selected objects to appropriate or to avoid the prey or the enemy. The more advanced Psi-intentionality including the “allojects” made a richer “navigation” (orientation) possible by way of the faculty of real-time choice, or veto-on-the-fly.

This is a situation just like that of the “originary scene” before the abortive sign emerged, or, as noted in the first part of this paper, the situation described in *Machiavellian Intelligence* where the allojective interindividual relationships (of the hominids) had presumably been so strongly differentiated and complex that it could be a real problem to secure the inner balance and coherence of the group.

In such situations it was necessary for the individuals to pass from Psi-intentionality to the specific Omega-intentionality with its “qualia.” This is the fourth formal moment, or category (so to speak, a *fourthness* in Peircean terms, had he accepted more than three such categories).

Precisely analogous to the personal unity obtained by navigating in the world, social unity, the need for collective security, is the crucial matter of the “originary scene.” Here fourthness could not be merely that of individual awareness or qualia; in GA the minimal achievement was the genesis of the hypothetical abortive gesture as the sign. This fourthness is the crucial point in GA, as I see it–a really great point. The essential difference, of course, is that qualia is an individual affair, the sign a collective one.

“Resentment” (a term that has always been somewhat difficult for me) could on this basis perhaps be interpreted as a double inaccessibility; on the one hand, as the inaccessibility of the environmental objects more or less consciously recognized, seen, heard, and so on, but merely of interest for “navigation,” not being subject to active manipulation; and, on the other hand, as the inaccessibility of the “inner” qualian moments of awareness, untouchable as such, only modifiable intentionally by way of the agent’s “own” outward activities of some sort. The same must also be valid for imagined sensuous impressions, movements, actions, or “thoughts”; these too are processed in the prefrontal lobe and–in spite of the real (“resentmental”) veto of their realization–registered by their efference copies.

We should note here, too, that in the originary scene the real agents are subjects having two essentially different ways to represent these untouchable elements, an individual one through the qualia and a social one through the hypothetical sign of language and other forms of representation as well, all of them conditioned by "resentment." This two-fold way of representation, therefore, makes every material thing as such in its double, material and ideal, form of existence, express a dialectical contradiction. That is, we clearly distinguish these material and ideal forms from each other; they cannot be interchanged. On the other hand, under the condition of the omega-intentionality (qualia) they also mutually condition each other; you cannot consciously have the material form of things without their ideal forms, and vice versa.

In a three-fold way this is valid also for the sign (language, etc.) itself–being "fourthness"–by unifying all three '-ject's–subject, object, alloject–in its own untouchable body, thus by its mere existence socially materializing their common nexus which must not be destroyed.

My own hypothesis in this connection is therefore that these two "fourthnesses," different in themselves, are mutually dependent on each other: on the one hand, clearly distinguishable, on the other hand, necessarily to be viewed in unity. It is impossible to imagine the utterance of a (cultural) sign without recognizing the utterer himself as omega-intentional. On the other hand, the phenomena of qualia and attention directed toward the elements of the environment will presumably first acquire their specific form, richness and full "meaning" for the individual when "signed," or "de-signed," that is, when semantically being re-presented in the individual consciousness. Or, in other words, this double "fourthness" itself represents the dialectical contradiction. In the formal manner of *Models* in which I defined the dialectical contradiction, this "fourthness" represents a No-sign and, at the same time, a No-qualia, hence precisely the unity of these negations.

So it must also be recognized that the schemata themselves have been generalized in this process of fourthness. These reproducible coactivations of neuronal linkings in the premotor area and elsewhere (see Cotterill 1998, p. 352) must now be viewed as including as well linguistic (and other) signs, their articulation and interpretation themselves involving afference and efference processes of all sorts. So we could imagine a Cotterillean "master module" enormously enlarged so that it included the whole space of social intercourse, with the individual inhabitants themselves equipped with real "master modules" mutually attuned to match each other so that this collective intercourse can be realized. Is there somebody at home?

On the other hand, the crucial difference between signs and qualia seems to be the "materiality" ("thingness") of the first as opposed to the "ideality" ("mindness") of

the second–their opposition nevertheless perhaps annulled in the proposed four-tiered model. Among the proposed models themselves, in the main, there seems to be no great contradiction at all: the abortive gesture-sign of the generative moment for Gans seems in itself to represent a “no-thing”–being just as underdetermined and ephemeral as the qualia of conscious awareness.

With this, I think, we have defined, that is, formally modeled the generative transformation not only of an animal into a human, but also of an animal group into a human society and consequently of the members of the group into (culturally defined) social individuals. Both Cotterill’s theory (or, more precisely, the model here abstracted from it) and the theory of GA are, in this respect, minimalist abstract model hypotheses. This is no reproach. On the contrary! In my opinion this is the crucial–and necessary–point from which alone it will be possible to formulate further models for anthropological theorizing in the future, namely, by “dressing” the minimal model in different ways.

It is surely exciting to ask the ontological question of what human society really is and to pose the question of whether there is “somebody at home” there at all. What about kings, parliaments, plans, storehouses, and arms? And what about language and our wonderful arts? Surely, no! There is nobody at home but the social agents themselves (along with their neurons!)–these being just the conscious agents who by virtue of their generalized and socialized schemata are also capable of creating material equipment potentializing their bodily equipment–with their objective possibility of new consumption, even of thinking by means of the new information technology! We can simply *do* more then animals and the ancients. Let us try to *do* so as to understand…

9

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