

# Homo imaginatus: Generative Anthropology, prefrontal synthesis and the origins of the human

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## Abstract

My task in this piece is to give a different but still plausible account of the emergence of the human within the framework of Generative Anthropology. As an author who aspires to publication in *Anthropoetics*, I hope I am justified in assuming more than superficial familiarity with Generative Anthropology and the Originary Hypothesis on the part of readers. Rather than spend time summarizing the GA basics, then, I will begin by articulating some difficulties I have with some of its presuppositions and conclusions. I do this to clear the ground for the introduction of an alternative hypothesis, based on the work of Andrey Vyshedskiy on prefrontal synthesis (PFS). This hypothesis derives from his work on language disorders, but though it diverges from the OH it still comports well with mimetic theory—as well as Generative Anthropology—in spite of being, apparently, ignorant of both. To be clear then, I am appropriating Vyshedskiy’s hypothesis but rearticulating it in line with GA, which prioritizes the sudden emergence of the human as a point of departure for research in the social and human sciences, and never loses sight of the importance of mimesis for any understanding of the human that so suddenly emerged.

Keywords: Generative anthropology, prefrontal synthesis, mimetic crisis, imagination, hominization, scenic cognition

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1.

Let us start with some of GA’s presuppositions. They are drawn from “[A Dialogue on the Middle East and Other Subjects](#).” There, Eric Gans says: “Perhaps the simplest characterization of humanity is that it is the species that has more to fear from its own members than its natural environment, including predators, starvation, and everything else.” I don’t think this is quite right. A species itself does not fear anything, for a species is

not a whole biological organism. I understand that Gans is employing a shorthand here, but I want to be as precise and literal as possible. What I would say is that the individual organism of the species *Homo sapiens* has more to fear from another individual organism, or from other individual organisms, of that same species, than from anything else. Such is not the case for the individuals that comprise other species. By insisting that we must focus on the individual biological organism I want to make clear that I am not yet talking about individual *subjects*. I am talking about biological, *brained* but not necessarily *minded*, individual organisms. By shifting our focus to what the individual organism experiences I believe we will be better situated in evolutionary terms for understanding the emergence of the human.

Another presupposition, also from Gans in “A Dialogue”: “As our ancestors became more human, they became correspondingly more mimetic, with the result that the potential violence of their rivalry became too great to be controlled by animal modes of communication.” This is linked to the idea, central to GA, that “language, and human culture in general, insofar as it falls under the general category of ‘representation’ or the use of signs, emerges as a collective, ‘scenic’ *means of deferring the violence occasioned by mimetic desire*” (emphasis mine). Here I think we are straying into a kind of evolutionary functionalism. The argument, if I can paraphrase it, is that culture emerged to fix a problem. The problem was mimetic violence, which had gotten out of control. The function of culture—its purpose—is to defer such violence.

My initial problem with this formulation is that there is no reason to think that a particular instance of mimetic violence would ever, prior to culture, constitute an extinction level event. Inversely, there is no reason *not* to imagine that bouts of mimetic violence might have played a role in the natural dynamics of ecological equilibrium. It is quite possible that in *ethological* terms what *we* might think of as excessive mimetic violence was a factor in constituting such an ecological equilibrium. Perhaps the violence kept our ancestors’ populations at numbers that did not exhaust local resources, while local resources, fauna and flora, were never so depleted as to motivate migrations, at least not in precultural times. What I want to suggest is that there simply is no scenario in which it makes sense to think of a hominin population being unable to control its mimetic violence yet needing to control it. The level of mimetic violence would—must—never have exceeded the capacity of the population to recover. At a certain level of recovery, perhaps a bout of mimetic violence served as something of a tonic, culling some conspecifics and insuring—unconsciously, of course—ecosystem equilibrium.

If this is right, then it is a mistake to construe culture as a “collective, ‘scenic’ means of deferring the violence occasioned by mimetic desire.” Culture—but what we really mean is the ability to do culture or be cultural—emerges as a result of genetic mutations that support such a doing or being. This is why attempts to acculturate non-human organisms produce marvelous oddities but not, in the sense that interests us, *cultural* animals. Such a

mutation, about which we will say more below, is necessary but not sufficient for the organism to have the ability to do culture. The ability to do culture will provide *the individual organism*, first of all, and not the reproductive population, with a relative intraspecific advantage vis-à-vis the rest of the reproductive population, improving its survival or its productive reproductive opportunities, or more likely both, *relative to its conspecifics*.

Now, it is quite true that culture permits the deferral of mimetic violence, but it does not emerge *as* a scenic means of deferring violence. That is functionalism. It emerges as a capacity that, somehow, allows its bearer to survive and reproduce more successfully than conspecifics. That is to say, when the ability to do culture emerges, it does not emerge uniformly across a population. Such a capacity must have emerged at the level of only two conspecifics, for reasons to be explained below. It must have helped at least one of them defer being swept up in the mimetic melee—thus increasing their survival—which may well have in turn made them more attractive—affording them greater reproductive opportunities. As more culturally enabled offspring survived, those without the capacity for culture will have died out—or been eliminated. Here we have, perhaps, the very birth of sacrifice, not *as* but *in* the emergence of culture itself. For while it is axiomatic for GA that “the human is uniquely characterized by *the deferral of violence through representation*” (“A Dialogue”), what is left out of such a formulation is the corollary: the human is uniquely characterized by the dreadful, systematic organization and practice of violence through representation (ritual being only the first example of this). Nonetheless, with respect to this position, I think that if one adopts an appropriately evolutionary perspective, the notion that representation is about deferring violence turns out to be more of a truism than a revolutionary *aperçu*, for everything organic life does is, in truth, about deferring violence, the violence of death, the violence of non-being. Though every individual instantiation of life must die eventually, in the very nature of every such instantiation is embedded the striving to defer death, including death through violence. Why would culture be any different in this regard?

Now I would like to challenge a particular aspect of the Originary Scene. We will use the account given by Gans, again in “A Dialogue”:

In a scenic configuration, with the participants on the periphery of a circle and an object of desire (say, a source of food) at the center, each wishes to appropriate the object for himself, but, as each fears the others, his gesture of appropriation is cut off from its object and transformed into the first sign.

What puzzles me about this scene is how it could have ever been enacted. My principal question is, why would the mimetic hominins ever have organized themselves into such a circle? To have done so would have already required deferral. To understand why a spontaneously organized circle seems to me untenable, I want to bring up the work of

Michael Tomasello, whose name will be familiar to scholars in GA. He has provided an important analysis of chimpanzee hunting in Chapter 5 of *Origins of Human Communication*. What others see as an instance of cooperation and sharing (which would already require deferral), he sees, rather, as an exercise in appetitive animals pursuing food self-interestedly, without regard for conspecifics. Though a number of chimps appear to participate in the hunt, they are not doing so *together*. Each is doing it, according to Tomasello, on his own. When the prey animal is captured, it is captured by only one chimp, which proceeds to attempt to dismember and devour it as fast as possible, without concern for the other chimps. That the others manage to feed too owes not to “sharing” but to the fact that the captor simply cannot devour the entire prey animal all at once. Thus, those who were also hunting—each one for itself, not for the group—can grab some and feed too. Finally, those who were not hunting can feed once the others, having fed, become disinterested and abandon the leftovers. These chimpanzees do not form a circle around the prey is what I want to highlight. To be able to do so would indicate that they are already cultural, already engaging in deferral, and I do not see what impedes us from saying the same about the hominin participating in the Originary Scene, as construed by GA. Since the formation of an originary circle already implies deferral, the deferral of the aborted appropriative act constitutes only an anticlimax. Something must have happened elsewhere.

Finally, let us look at what is perhaps the fundamental axiom of GA—that the human is defined by language or representation. My view is this, which both upends received understandings of GA while nonetheless comporting well with its basic terminology: humanity, just prior to language, is defined by *scenic cognition*. To make sense of this, let us recall that the human vocal tract appears to have been fully developed by about 600,000 years ago. But scenic cognition—the ability to see different things *in relation*, that is, in spatial and temporal and in comparative relation to other things—what I will soon be calling (following Andrey Vyshedskiy) prefrontal synthesis, only shows up about 50,000 years ago. Such cognition is, it turns out, a prerequisite not for ostensive signs—“lion,” “water,” perhaps even “danger”—but for mature, which is to say, recursive (prepositional, spatial, temporal) language. Scenic cognition is first; language comes next. Indeed, Gans himself gives support for this way of putting it in “A Dialogue.” There he says:

The point of the originary hypothesis is to account not so much for the superiority of human language over that of our ape cousins as for its different mode of operation, through symbols as opposed to “indexical” signals. [. . .] Apes can no doubt communicate all sorts of things [using those signals]. But a [human] language of conventional signs, even if at the start it doesn’t communicate very much information, has an essentially unbounded capacity for such communication, whereas animal signal systems do not.

What I think Gans is actually indicating here is the difference between mere signs that are more or less indexical and *recursive* language. The latter, via prepositions, is potentially

infinite. The former is squarely limited to things that are there. The difference between a human language of conventional signs and animal (and, likely, hominin) signal systems is that the former is what it is due to recursion and the latter is what it is due to a lack of recursion. The recursiveness and prepositionality of language derives from scenic cognition and also drives it, as language tells us to see scenes in our mind's eye which we have not and perhaps could not see out there in the world, in "reality." For the scene itself is recursive and prepositional, requiring a cognition that can *see* in such a way: scenically. Parts are embedded or nested in other parts, and isolatable from other parts; and stand in relation to other parts, enjoying significance as a result. Thus, the fundamental question is, whence recursion? We will answer that question below.

## 2.

Let us now develop an alternative hypothesis for GA. I'll begin this part of this essay by recalling Gans's words concluding the first chapter of *Science and Faith*: "the historical greatness of an event cannot always be measured by the number of its participants" (16). I wonder, might this observation serve to prepare us to accept the idea that "the human" is not the result of a scene localized in time and space, but of a scene consisting in continuous action over time and places, and no less great for that? Additionally, might it persuade us to consider that perhaps there were as few as only two participants/hominins/humans in that no less momentous scene, its greatness undiminished?

In the hope that we are so persuaded, I now introduce Andrey Vyshedskiy, a neuroscientist who works on language disorders. His is a theory of the emergence of the human—"a behaviorally new species" (32)—prompted by his research into language disorders, wherein he has found that recursive language requires what he calls prefrontal synthesis (PFS) ability, which seems to be equivalent to recursive ability. PFS ability is the ability to engage in voluntary imagination, and thus it is, I want to argue, equivalent to scenic cognition. Importantly, Vyshedskiy has found that there is a necessary contextual requirement within a limited time frame for the normal ontogenetic development of PFS. If the time-frame or "critical period" is missed, no voluntary imagination or scenic cognition and no recursive language (2). "Modern children," he has found, "not exposed to recursive language [the necessary contextual requirement] in early childhood [the limited time-frame or critical period] never acquire the type of active constructive imagination called Prefrontal Synthesis (PFS)" (2). Because I think that PFS is equivalent to scenic cognition, I believe it would have been impossible for the protohumans, lacking PFS, to construe the scene in accordance with the OH. In that sense, there was no OS as GA construes it. But, taking into account our mimetic nature (which does not feature in Vyshedskiy's theory) there is still a way to construe an OS that aligns with the claims—the conviction that all of humanity can be glimpsed in an originary scene—of GA.

Vyshedskiy's theory is based on the fact that a capacity for "full recursive language depends

on the [healthy development of the] lateral prefrontal cortex (LPFC)” (2). This is so because the LPFC is the seat of *imagination*. Imagination here is understood as active rather than passive. The healthy LPFC, for example, is not required for dreams. But if imagination is understood as “the conscious purposeful active LPFC-driven synthesis of *novel* mental images” (3), a healthily developed LPFC is necessary. Prefrontal Synthesis (PFS) is the name for the activity of purposefully synthesizing novel mental images out of other mental images. Though Vyshedskiy himself never puts it quite this way, it is the name for the activity of seeing things that *are not there*. Surely, then, it is the ability that allows us to invent and use signs, as opposed to indexical pointers. Conversely, PFS disability amounts to a handicap, an inability to use imagination (4). Hominins—and indeed humans—without PFS would, at most, not have language but at most a “rich-vocabulary non-recursive communication system” (8). Such a system would have nouns, perhaps, to refer directly to objects, but it would not be able to relate different objects to each other, principally because it would not be able to “think” such relations. A person with PFS disability would not be able to *put the yellow cup into the blue cup*. Such a person would not understand what was being asked of him. PFS inability would have characterized the brains of the hominin in the OS, thus they would not have been able to become human—active users of the imagination—through said scene.

Given that in the absence or degradation of PFS ability, construal of even the “simplest” relations between neurologically encoded objects is impossible (Vyshedskiy 3), the idea that a hominin population without PFS could have understood or grasped, in any sense, the relations between center and periphery, between the object and its significance, and between itself and those on the periphery, seems to me improbable. On the other hand, as Vyshedskiy puts it, the “magic of using a finite number of words to communicate an infinite number of images completely depends on the PFS ability” (7). I refer the reader back to my previous quotation of Gans, who said, recall, a human “language of conventional signs, even if at the start it doesn’t communicate very much information, has an essentially unbounded capacity for such communication, whereas animal signal systems do not.” This human advantage is down to recursion, or PFS, which is the ability to do culture.

### 3.

Here, however, thinking about how language (culture, representation) and PFS evolved becomes complicated, for as we have reiterated, PFS ability must be cultivated or nurtured via exposure to recursive language in early childhood. We know this because “Individuals without any brain injury exhibit PFS disability if they were not exposed to recursive language in early childhood” (Vyshedskiy 8; see also Emmorey et al., Martin, Martin et al., Pyers and Senghas). This poor outcome owes to the fact that PFS ability has, as mentioned previously, what is called a strong critical period; the “neural infrastructure mediating PFS can only be established in early childhood” (Vyshedskiy 11). We have already seen that PFS ability requires a recursive context as well. Thus, how could that childhood recursive

context have existed, if its very existence depended on the PFS ability of conspecifics who themselves could not yet have developed it?

Vyshedskiy intensifies the complication by noting the following. It is not unusual that species-level capacities require targeted stimulation in the individual organism in order to be realized ontogenetically. For example, in the individual vision is realized through quite natural stimulation of the retina. But an individual raised in total darkness would not be able to see. The same is true of hearing, which requires what naturally occurs anyway: noise, or rather, sounds. But for PFS capacity to be realized in the individual, said individual must be embedded not merely in a context of sights and sounds, which all things being equal, would be inevitable, but in what Vyshedskiy pointedly characterizes as “a purely cultural phenomenon” (11). He means that the individual must be actively participating in a recursive language context. In terms that bear directly on the plausibility of the OH: “The development of neurological networks necessary for PFS in a child [which is the only time and place such networks can develop] requires a community of humans using existing recursive language [. . .] in communication with [that] child” (11).

This leads to what strikes me as a fundamental problem for the OH. The participants in its OS are identical to us—physically and genetically—except they do not yet have language. But language, or a sign as complex as the sign whose emergence or invention is posited in the OS, requires PFS, and as Vyshedskiy makes clear: “it is not enough to be [a] fully genetically modern individual to acquire PFS” (12). One must be genetically modern *and* “one needs to be exposed to [I would prefer, for what I think are obvious reasons, *acculturated into*] recursive language in early childhood” (12).

Even if the participants in the OS were genetically modern, which is to say capable of PFS, they could not have spontaneously acquired PFS in the scene as staged by the OH, which would have been necessary for them to produce and understand the aborted sign of appropriation as effective sign of deferment *in the scene*. That is, the scenic cognition of each individual—its ability to apprehend the spatial relations between itself and the others, to see the others as some kind of agent similar to themselves, to perceive the tension between center and periphery, to imagine the consequences of unbridled appetite *at this* time and thus defer, and so on—simply was not there. For if it were there, language would have already existed, leaving us with some other scene of its invention. But that aside, they simply couldn’t have been genetically modern and thus able to invent language (assuming it to be inventable on the scene), for reasons we will explain.

To be clear, Vyshedskiy’s hypothesis rejects the gradualist account of hominin becoming human, and thus comports well with GA on this point. Evidence for the ability of humans to raise structures in their minds, to see things that aren’t there—composite figurative objects, bone needles that needed “seeing” a hole, a thread, and suggest the envisioning of a designed garment, elaborate dwellings with hearths, so-called “adorned burials,” evidence

of global migration in a short period of time, animal traps and megafauna extinction (Vyshedskiy 12-16)—suggests a rough date of phylogenetic acquisition of PFS about 50,000 years ago. As Vyshedskiy notes, though the dating is rough, others have recognized the phenomenon and its tremendous suddenness (for example Bar-Yosef, Harari, Diamond, Tattersall). But the question remains, what happened?

Vyshedskiy insists that “phylogenetically, PFS must have been acquired at the same time as recursive language” (19). What this does not mean is that at a certain date all of our ancestors acquired PFS and language at once. What it means is that we humans all share a common ancestor—more likely two—who bore a genetic mutation that allowed for the acquisition of PFS and language, the ability to do culture. Given that only children can acquire PFS and that they can only do so in the context of recursive language use, and that adults, who were not recursively abled, could not have provided such a context, Vyshedskiy surmises that children, likely two of them, must have provided such a context for themselves. How?

The answer to this question is more complex than it appears at first sight, because if children did develop recursive language and PFS at the same time, why didn’t they do it during the 550,000 years in which they had the vocal tract and, presumably, speech capacity and a large number of indexical phonemes? To begin to resolve this imponderable, Vyshedskiy points to studies of genetically modern but institutionalized deaf children in Nicaragua who spontaneously, which is to say, naturally, invented recursive sign language and developed PFS even though they were not taught the language (see Kegl, et al., Martin, et al., Senghas and Coppola, Senghas, et al., Senghas). From this Nicaraguan evidence provided by genetically modern children, he concludes that PFS development for 550,000 years was precluded by genetics. Such a genetic inability to develop PFS also precluded the development of recursive language during that same 550,000-year time span.

It appears that due to genetics there was what Vyshedskiy calls a “neurological barrier” (22). Vyshedskiy makes his case by focusing on primates. Apes raised by humans can, apparently, learn many words. But they never develop PFS (it seems to me that PFS-enabled primates are the stuff of Planet of the Apes scenarios). This is because the prefrontal cortex (PFC) of apes and indeed, in all other mammals, develops at a rapid rate. It is likely that the PFC of our ancestors also developed at a rapid rate. Rapid development of the PFC seems to make the development of PFS impossible. Thus, a first part of the solution to the problem of why PFS and recursive language were not developed 600,000 years ago shortly after the evolution of the vocal tract, but only 50,000 years ago, is that only then, in at least one of our ancestors, did “one or several genetic mutations” cause a “delay of the PFC [prefrontal cortex] maturation” (Vyshedskiy 22). That ancestor could not have developed PFS or recursive language because both require dialogue—not a whole community but just one other organism. But assuming survival (a problematic but necessary assumption, as we shall see in the next paragraph), one single ancestor could have passed the mutation on to two



offspring, perhaps born within a year of each other, perhaps, as Vyshedskiy prefers, twins. Such a mutation, “slowing down PFC development,” would have “prolonged the critical period and enabled [these] children’s invention of recursive elements, resulting in recursive dialogs and acquisition of PFS” (Vyshedskiy 22). Additionally, “[s]lowing down PFC maturation could have theoretically improved PFC mediated social behavior, working memory, and impulse control” (Vyshedskiy 23), which is to say, *it could have led to the capacity to defer*.

Now, about that assumption: here things get even more complicated, but even more interesting. To appreciate why, I want to remind us about some evolutionary basics. Evolution works minimally, if it works at all. Minimally, in this context, means that it works via mutations in individual organisms, an individual organism being the minimal unit (Dunbar). A mutation in a single organism can give that organism reproductive advantage vis-à-vis other organisms of its kind. Perhaps the mutation makes the particular organism more attractive to mates, and thus it is chosen more often than others for reproductive behavior by conspecifics among the reproductive population to which it belongs; perhaps the mutation equips it to survive where conspecifics die, allowing it, again, to engage in more reproduction than those others. Perhaps both. To give a reductive example, a single proto-peacock has a brighter feather in its tail due to a mutation. The tail does not help it survive, but it leads to it being chosen more often for reproductive behavior. Its more numerous descendants have brighter feathers due to genetic inheritance and in turn are chosen more often for reproduction by others among the reproductive population. Eventually, shortly in fact, we have a reproductive population (a species) not of proto-peacocks but of peacocks.

But of course we’re not dealing with peacocks and at this point we have to foreground the mimetic crisis which afflicts us and our ancestors. The right way to approach what we believe to be the fact of mimetic violence is not as a threat to the species, which we have already discounted, but as a threat to each individual that comprises the reproductive population which we call the species. Mimetic violence constitutes a threat to *an individual’s* survival. A mutant with what we are calling scenic cognition or PFS, instead of possibly being a lucky survivor of a mimetic crisis, would have been able to avoid it on purpose, deliberately. Being able to avoid it so would give an individual greater relative reproductive success. Also, being able to avoid the melee may well have made the mutant more attractive. Its genes—and the capacities with which they endowed their bearers—would soon, in a matter of generations, dominate the reproductive population in question. But it is not necessary that the ability to see the scene of imminent violence and thus preempt it *for oneself* was acquired all at once and uniformly across a population. In evolutionary terms, that would have been impossible.

On the basis of the foregoing, we can say that language did not evolve because it gave humans an advantage over other animals, or because it was a way for the group to defer

violence. It evolved because with its mutually constitutive condition of possibility, PFS (or scenic cognition), at least one proto-human enjoyed an advantage over other proto-humans in the relevant reproductive population. A proto-human with language capacity could appeal intraspecifically and attract more mates, giving it a something like a passive reproductive advantage. But it could also leverage language's constitutive condition of possibility, PFS (imagination, scenic cognition) actively, to safeguard its own survival better than its peers, and thus again win for itself more reproductive opportunities. In reality, in this regard it would have been peerless! In surviving and out-reproducing their conspecifics, its mutant offspring would have been more numerous and would, in turn, have been able to survive and out-reproduce their peers, and so on. Soon, as a result of what can still be construed as an event or a scene of activity unfolding over time, we would have humanity.

#### 4.

But we do not have it yet—because we never finished dealing with that assumption. Let us continue. Mutations, if they are to prosper, must serve as the basis for something that leads to more reproductive success and/or greater survival of the organism in question. The PFC delay mutation is, in this regard, strange. Vyshedskiy puts it this way: a delay “in the PFC development rate results in a prolonged immaturity [during which] the brain is incapable of full risk assessment” (22). In plainer terms, mutant infants with delayed PFC development are, in fact, not at all likely to out-survive and therefore not at all likely to out-reproduce conspecifics, and therefore they are not at all likely to pass on the genes related to PFC delay. Non-human primates who are still subject to rapid PFC development—and who are precluded from acquiring PFS as a result—are quickly able to take care of themselves after birth, more or less; minimally they do tend not to wander off and die. Infant chimpanzees cognize bodies and flows of water as threats; they never drown in the wild. Human infants don't cognize risk so well, not—presumably— in the wild, nor even in the back yard. The consequences are tragic.

To be clear, we are assuming survival of the first mutant(s) who were, all things otherwise being equal, predisposed, thanks to their mutation, to early expiration. The PFC delay mutation which they carry would seem to usher its bearers quickly to extinction by radically inhibiting their ability to detect and therefore avoid threat. Such a mutation “is expected to increase childhood mortality” (Vyshedskiy 23) and thus die out, along with its bearers. Vyshedsky runs some computer simulations and concludes that any population into which PFC delay was introduced would, over time, cease to exist.

How then do we explain that instead of such an outcome we humans have PFC delay *and* have managed to colonize the planet?

Based on the plausibility of his hypothesis, and the fact that we are here and everywhere, Vyshedskiy imagines that the first mutants must have simply been the beneficiaries of

adequate care, which mitigated their mutation-related vulnerabilities and allowed them to become nothing less than the progenitors of humanity. Here is how Vyshedskiy imagines it:

Two or more young children with ‘PFC delay’ must have been born at the same time and lived together for several years, so that they could often talk to each other [...]: they were genetically modern (in terms of the ‘PFC delay’ mutation), but their parents could not have taught them spatial prepositions; [the] children had to invent the recursive elements of language themselves. Having invented recursive elements and having [at the same time] acquired PFS, these children would have gained near-modern imagination: a ticket to dramatically improved hunting [. . .], proclivity for fast discovery of new tools through mental simulations and the ability to strategize [. . .] clever ways to eliminate other hominin competitors. (23)

For Vyshedskiy, the most important consequence of acquiring PFS and recursive language is that the mutants would have been able to “engineer better weapons and plan a sophisticated attack strategy using animal traps and stratagem” (26). Even if many infants in subsequent generations did die due to inhibited risk assessment, those who survived generated more food and thus the population was able to support greater numbers. It was this that allowed the mutants, and the population within which they evolved, to avoid the extinction that would otherwise have resulted from PFC delay. Then, as Vyshedskiy goes onto say, the “‘PFC delay’ mutation [as well as PFS ability] and recursive language could have then spread like a wildfire through” (23) the reproductive population, which would, within a few generations, be uniformly human.

## 5.

So though Vyshedskiy is a proponent of a sudden emergence of the human, his account is not wholly free of gradualism. What he calls a behaviorally new species is nonetheless quite continuous with the sorts of organisms that preceded it; PFS ability and language constitute an addition to an organism already verging on culture. His account does not account for mimetic desire at all and thus cannot formulate the rupture between what was and what becomes as radically as we feel we must. So let us now try to make sense of this alternative hypothesis in terms of GA. Though Vyshedskiy does not put it this way, our PFC-delayed ancestors could prosper rather than die out in short order because although the mutation made these mutant individuals quite incapable of living *naturally*—for this is how the vulnerability caused by PFC delay cashes out—it enabled them and in a sense spurred them to *do culture*. We might specify culture here as the ability to exchange the contents of their minds—as the ability to have minds!—as the ability to actively imagine novelty and innovation together, on the basis of an ability shared by each mutant to see both what is there but perhaps more momentously, what is not there. This is culture (an unwieldy characterization, admittedly), radically distinct from the mere social learning which is a limited ability of which many animals are possessed (see Whiten for example); none of them

have PFS. But to be sure this culture was not conjured up by any need. It was not concocted with a purpose.

But it did confer an advantage, such that its bearers enjoyed reproductive success over and against their conspecifics, who were still able to live naturally—though not for long. Vyshedskiy, from what we might characterize as a sense of solidarity with the non-mutants, imagines the PFS enabled organisms supporting the broader population with productive innovations in hunting and fighting. But in our thinking we have to contend not only with mimetic violence, but with the new ability to organize cooperative violence.

Let us then propose an alternative scene, ongoing through time and space. It begins with a couple of mutants, the beneficiaries of adequate care despite presenting in ways that would strike their conspecifics as eccentric. They develop PFS and prepositional language via a recursive learning dynamic where an advance in each capacity would have generated an advance in the other. The result, initially, would not have been an ability to defer something called violence, but the ability to defer their own exposure to it, to opt out of or exit the scene in which it presents.

It would be an error, as we said earlier, to think that such violence was experienced as a threat to the group's survival by any particular organism involved. This is so because prior to PFS it would have been impossible for the organisms involved to conceptualize "the group" or "us." Each individual organism, but not the group *qua* group, would have entered what LeDoux calls a "global defensive state," as all higher animals do when under threat. Such a state must not be interpreted as subjective but as organic: the embodied genome, being an instance of life, does not want to expire. The mutants, however, have something like a burgeoning subjectivity and at this time, in this particular scene, at least one of them—perhaps the only one of them—was able to see or rather pre-see or preview the unfolding of mimetic violence and its relation to itself, its potential implications for its own survival, specifically . . . and withdraw from the scene in anticipation, deferring not the violence but its exposure to it.

This ability to survive where others did not, *combined* with an ability to ideate better hunting strategies, and likely organize ritual, would have made them in some real sense more attractive. On both counts, then, they were able to out-reproduce their non-mutant conspecifics, leading to the evolution of a new species: *homo imaginatus*, which we in our hubris call *homo sapiens*.

There is more to say. We can think of PFS ability or scenic cognition as inherently *deferent*, while mimesis—the importance of which has not been diminished for us—implies thoughtless immediacy, at least in its negative sense. I think this is right because it seems to me that prefrontal synthesis discombobulates our relation to the world. Our perception is intervened, short-circuited, by our ability to see what is not there, which is tantamount to

our ability to *not see* what is there. Once we have delayed PFC development and then PFS, we necessarily have deferral, inescapably so, because we have to work out what we are seeing and how to proceed with respect to this scene, the one before our eyes, but also the one before us in the future, and indeed, the one behind us in the past, which now impose on us in a way they never have before. Not one of these scenes, not even the one before our eyes, is self-evidently actionable, whereas, before PFS, only the scene (though it wasn't really a *scene*) directly in front of our eyes existed, and as for what to do, there was nothing to discuss. Just as chimpanzees just do it, so, surely, did our pre-PFS ancestors.

## 6.

In conclusion, generative anthropology. PFC delay damages our very nature, making us less rather than more adaptive in the short run. But the damage is the condition of possibility for the sudden emergence of a new organism that is almost infinitely adaptive when it exploits an ability which is entirely dependent on PFC delay: the ability to conceptualize problems and imagine solutions the function of which is, precisely, to solve those problems. The truly new organism does this, in a way that other animals do not and probably cannot, with its conspecifics. It cooperates, rather than coordinates. The first few members of this species-to-be survive their earliest years almost against the odds, but then they can, because of that which was initially, on the face of it, a maladaptive mutation, an injury, develop imagination, PFS, scenic cognition, language and in short order replace (sacrifice?) their non-mutant conspecifics in just a few generations. As fewer and fewer non-PFS capable hominins survive, the capacity to live *without* culture which was heretofore the birthright of this reproductive population, withers away. The mutant biology is maladaptive for years, but if those years are lived socially—where socially means much more than enumerative being, where it means intersubjectively—, and survived, the result is that organisms with interconnected minds—what Girard calls “interdividuals”—emerge. Insofar as these interdividuals become genetically predominant among their reproductive populations, they are moved ever further away not from *their* nature, but from nature, from the ability to live without culture, to live naturally, so to speak. But *their* nature is now cultural. At a rapidly reached certain point, it would have already become impossible for this recent reproductively compatible population to live naturally, solitarily (even in numbers), as chimps do (Schmid).

Their nature was such that they could not have survived had they not constantly generated culture in response to changing environmental pressures, many of which their new cultural practices themselves caused (see Henrich, for example). In sum, the origin of the human must not be conceived only in additive terms—in terms of adding cultural capacity to the hominin, in terms of the invention of the sign. It must be conceived in terms of loss, in terms of being cut loose, in terms of an unbridgeable abyss which we can never re-span. For the sign, which is to say culture and language, is called into being by the fact that individuals could no longer live individually, as if others didn't exist, or matter. But because they can no

longer live naturally, which is to say, they can no longer live *together* naturally and mimetically, they must invent how to live together, with mimesis still. And this is the birth of religion, which always is constituted by the attempt to defer violence and death, the violence of which the group—and other groups—are capable, and thus the death, but this time truly, of the group. If this is not a generative anthropology, I do not know what is.

## 7. Postscript

Finally, from the perspective of GA and in light of this alternative hypothesis, we might observe that up until the invention of culture there was only *natural* selection. What does this mean? It means that before culture a mutation either gave an individual better survival vis-à-vis conspecifics, or it made it more attractive, or both. In either case, such an individual had more reproductive opportunities intraspecifically, and therefore, assuming a relative higher rate of surviving offspring, its genes with the mutation spread through the reproductive population. There was no moral calculus involved here; no behavioral ethics impinged on the process. Reproductive behavior was a given. Deference didn't exist. If an individual's genes gave it a reproductive advantage, its genome was passed down and would have spread through the reproductive population over a number of generations. But this can all be described as a quite natural process.

The hypothesized PFC-delay mutation is utterly astounding, utterly transformative and utterly generative. Whereas, during the whole of natural history, evolution has proceeded through mutations borne by an individual or two, this new species—but not others—can now be said to be in a quite different situation. Mutations in individuals no longer matter much. An individual's reproductive success has no real impact on the reproductive population. What does have an impact on the reproductive population, that is, on the individuals who comprise it, are the ways in which those individuals cooperate, or do culture, which is based on how those individuals can *see themselves doing culture*. The fact and forms of deference become important, crucial, really. We can now begin to speak of something like group selection, of cultural rather than biological mutations that favor certain groups and lead them to remake the species, or some part of it, not at a genetic level, but at a cultural level. Everybody is passing on, more or less, the same genes. But not everybody is passing on the same cultural practices. Such practices are collectively intentional: they require each member of the population to act in a certain way, with the rest of the group as a point of reference. A subjective, actionable, manipulable orientation of self to group is required. No doubt an individual can always prioritize his own individual preferences and survival over that of the group, but for the most part, many—most—individuals are mobilized to think of their own survival intertwined with the group's survival (though perhaps this is not so in the modern West). Social Darwinists will justify such a scenario in terms of natural selection, but they're missing the point. The point is that *we*—whoever we are—can observe that X practice or Y values are *good for us*. And if they really are in practical terms both good for us and better than what *they* do is for *them*, we have something like group selection: some

groups will prosper, others not so much. We are all different, even though we are all descendants of the same scene.

And so this is the scene of our dilemma. Does everyone belong to the same group? Or do different people belong to different groups? Whether—given the ability of members of our species to wage violence on a global scale—a future mimetic crisis will finally be an extinction level event, or whether such a crisis might be deferred indefinitely despite such capacity, depends on how those questions are answered.

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