1.0 Abstract

The most fascinating claim of the genetic algorithm is that apportionment of credit to schemata is accomplished implicitly, with no information explicitly revealed about which schemata are being favored or disfavored. From a philosophical perspective, this idea makes a claim about what is knowable - or rather unknowable - about evolution, especially in terms of what is good and bad within us.

This paper explores how this ignorance as to our identity - our meaning within the larger evolutionary process - gives rise to the major theme of existentialism: what are the implications of the fact that existence itself is a dilemma for human beings? Nietzsche was perhaps the most perceptive explorer of these mysteries. Several of his key theories and predictions - of the ubermensch, eternal recurrence and going "beyond good and evil" - are both illuminating and illuminated by implicit parallelism.

I will argue that implicit parallelism fits at a central position in the realization of Nietzsche's prediction that a "joyous science" would emerge; that out of such a science's evolutionary perspective would arise a scientific basis for ethics and religion. He said we would find the overview of our natural history within evolution and that it would allow us to see how to bring back a transcendent affirmation of human existence.

2.0 Why we are here: Implicit parallelism and Nietzsche

This Festschrift comes at an ideal time, when my thoughts are naturally turning back toward those larger concerns of graduate school; those ideas that one tends to put away for some final reckoning, the ones too general to solve in ones youth. We are at this Festschrift to re-examine those basic ideas of our intellectual guide and mentor, John Holland. We are here to celebrate the richness of his ideas, to test their strength over time and to rededicate our passion for them.

I have always believed that implicit parallelism has connections to various religious and philosophical issues. This connection has emerged out of - and taken form in - Nietzsche's philosophy. This document weaves these two areas together:

In other words, I have a Nietzschean vision of transcendent reality, that is confirmed and deepened via the knowledge of implicit parallelism.

This work first emerged and is ongoing in a more "poetic" (or free associative) form. See http://www.cs.rpi.edu/~skolnick/poetry. I promised myself that I would try to not indulge in associative ways, and swore to make this a less tangential and idiosyncratic text. I have partially succeeded in keeping this promise. So the reader is encouraged to roll with the more associative/poetic text, but above all feel free to skip it if you're in a skipping mood. I am trying to say the same thing in many forms.

This is about the human-all-too-human dread of existence: a dread that centers around a failed search for our identity (or meaning) in creation - and how implicit parallelism both defines the threat behind this dread and yet provides the solution to the identification of what truly is transcendent about existence.

I hope that what follows, clarifies - makes real and transmits - my confusions.
3.0 Can existentialism find an evolutionary acceptable source of transcendence?

What is the natural history of man's need for God? This is one of the central questions of this century. First, Darwin made it infeasible to believe in a personal god: an involved - or focused, attentive - creator. Then Nietzsche alerted the world to what we must face next: to confront our own need for transcendence: to find an alternative route to transcendence, one that honestly solves the existential crisis of identity. The central insight of Nietzsche's existentialism is that the existential gap is real and uniquely a human problem, a uniquely human wound. Nietzsche would say that we will find transcendence only by fully embracing the reality of this existential alienation from reality: to look into what is most fearful to the human-all-too-human consciousness of what being human has meant. Existentialism gazes on our deepest human nature - the consciousness of our separation from reality - and proclaims it most real. (Unfortunately, existentialism has been remiss in the contemplation of what in nature we hold in common with other beings; we must know our creatureliness equally as well as our transcendence - see Midgely.)

Nietzsche knew that the Darwinism of his day was still crude; and it would take a huge step to arrive at a science of life that gives us the - poetic/mythic story of and - source of our own transcendence - from within its own study! Nietzsche thought that there would emerge a future science, where the mechanisms of existential adaptation would be studied. Such investigations take one towards the ubermensch: out of whom comes a scientific study - and application - of the holy-lies of mans deepest doubts: the lies at the heart of religion.

Nietzsche actually made a historical prediction, that 100 years after his writing, science would have evolved to the perspective of seeing above this "human-all-too-human" (menschliches-also-menschliches) level. There are many aspects of adaptive systems science that Nietzsche would look on as grist for the mill of this joyous science: the notion of an evolutionary stable strategy (Maynard Smith) confirms much of his idea that ethics would move "Beyond Good and Evil." This is where we see the mechanisms and postures of culture, produced by the playout of human-all-too-human "dances" of good and evil.

(Culture is the set of adaptive lies we tell ourselves about identity: to understand the uncertainties and anxieties - the threats to adaptive structure - that have historically brought us to the arms of maladaptive transcendence: gods that pretend to exalt man but make him blind as to his reality. We desperately need a simulation of culture where lies about reality have adaptive value.)

The focus of this work is on the central question of finding an evolutionary acceptable (and healthy - this is where ethics enters) source of transcendence. I will attempt first to characterize how implicit parallelism is a source of the existential gap of evolution.

4.0 The Facts of Life: “The Information is Unavailable to the Mortal Man” (P. Simon)

Implicit parallelism is a fundamental limitation on what we can know about our own identity - within the context of evolution (see below). It says the evolutionary process does not reveal information about which building blocks (schemata) are worth (or being) exploited in the next emergent level. It does not give us the information on how to place our bets on various schemata. This is why the problem of speciation is central, so difficult to penetrate and almost paradigmatically characterizes the general problem of emergence.

But the theory says, not to worry, the information is being used implicitly: the distribution of schemata in the population will tend towards an optimum distribution - where the allocation of trials is an exponential function increasing and decreasing geometrically as the ratio ($<, >$, or $= 1$) of a given schemata over the average in the population.

The kicker is that it is impossible - without exhaustive search complexity - to compute the ratings of schemata. We cannot compute the set of schemata that represent rich regions of new structure, nor can we compute the identities of those schemata that have seen their day. It remains a black box - despite attempts to make the black box less opaque; we don't know the societies of schemata interactions; the important recombinations, their growth and death, their natural history. The only information returned is the value of the payoff function on the individual. Nothing is revealed within this number other than the fitness of the individual. and to examine (and update histograms) of each of the exponential number of schemata would be an exponentially impossible task.

Like an n-dimensional surface over schemata space, com- mingling patterns of fixed alleles mixing with the opening and closing of new hashed dimensions; coming into and going out of existence, over time; the commingling of new and old regions of interest in the market. All in parallel. All in silence. Like an n-dimensional volume of constantly changing porosity (Holland).

Sometimes it seems like a bargain with the devil: I give you the genetic algorithm; it works exactly as you would want it to work; but it cannot tell you about its exploitation decisions; it cannot tell you what is good and bad, even though you have knowledge (in the schema theorems) that
the algorithm is effectively searching according to the knowledge of good and bad. What in this stops us from seeing the affirmation of life? What terrifyingly willful creatures we seem. How easily our feelings are hurt, when we are not the center of things.

This separation from knowledge of ones identity - that you can't read off your identity; that you don't know your fate: this gives rise to amor fati - a way to acknowledge your faith in the process: that by virtue of coming into existence you are the incarnation of a blessed - but not necessarily charmed - experiment; an experiment under divine auspices.

As an individual incarnation of adaptive reality, I, the individual, affirm my existence. Let me rejoice in the destiny of all schemata made real in me. But the unenlightened part in me, is still mortally wounded from the existential gap that hides who I am.

5.0 The Search for Identity within the context of evolution: the existential gap is real because context is real.

What do we do in the face of this ignorance about ourselves? How does what we do know about human nature - garnered from within our wisdom and science - constrain our thoughts? As Holland points out, we must be careful in these kind of discussions not to mystify all science. We should not fall into an easy solipsism that makes impossible science, knowledge, and wisdom, which would in the end dissolve the connection to implicit parallelism. In the notion of the joyous science, the move is to use all our evolutionary knowledge to constrain our model of what it means to be a human-being.

The identity and meaning of a being only makes sense in terms of its context. But context - which supports, defines, infuses the object of thought - is ineffable. As James notes: like seeing the transition from dark to light, of holding onto the transitive state. As Wittgenstein weighs in, all objects are always “in the world.” Thus, we need to be clear on the meaning of the context of evolution.

Let the context of evolution be the totality of all schemata distributions in life. The state of evolutionary context at any point in time is given by the selected values from the distributions that go into the holy vessels of evolution - the individuals, or so to speak crudely, the state of the biomass at a given timestep.

What is God or Reality? Assume there is no difference and that God is identified as “merely” the totality of adaptive reality: a Spinoza-like god that is the totality of all schemata distributions in existence, the realization of the context in each living being.

The existential gap is real because implicit parallelism prevents us from knowing - except dimly during life - who we are. Culture is the lie - adaptive or not? - that interprets this weird state of affairs.

This existential hole in our knowledge is emblematic of the issues of context in the arena of consciousness: can we be conscious of all this contextual fringe (a la James) or are we doomed to have but a dim consciousness, that we are flawed with a fundamental lack of knowledge with regard to our identity. It has become ever more difficult - in this period of the “twilight of the idols,” as Nietzsche put it - to believe that God created us in his own image. We are now in a psycho-dynamic paradigm shift, like a new Copernican divine revolution. For now, we are not at the center of God's focus, his particular love; the animals are not beneath us. We need to see that this is the radical change we face: we must become mature enough to create true gods, gods that represent the deepest truths of evolution. We must find what we share with all creation.

Is it perhaps been too long that our primal fear of our undefinedness and disconnectedness within all of creation has driven us into hands of Gods that can no longer support us? That are becoming more and more, empty lies. This is the existential fear that Nietzsche proposed will finally be understood by science - and in turn honored.

6.0 Eternal recurrence and Karma: how implicit parallelism is the embodiment of the existential gap.

Can we know our karma? If we knew all of - and about and above - our karma, would we be “free” of karma? Or, is karma not the realization that no matter how much we might know our own karma through science, knowledge and wisdom, it is but a small thing and our ignorance is fundamentally vast. That we should be humble.

The idea of karma involves a sequence of (hopefully) improving lives, through reincarnation. Despite the fact that reincarnation with improvement cannot exist - it is just not real, because it is combinatorially suspect, not to mention a basic divine form of wish-fulfillment - there is some real consultation within it (also very handy for administering a caste system, as Nietzsche noted).

In the Hindu religious view karma is something to be overcome during ones lifetime. So that, on the basis of how one confronts karmic reality in ones life, one has the opportunity to reduce its “load” in the next lifetime. The goal is to eventually free oneself from all of karma - and ones attachments to all sources of karma - and, in so
The primary rational for reincarnation and karma-reduction is that pain and suffering are caused by our attachments to the world (ones immersion in maya) and that heaven (or nirvana, if we move in the direction of Buddhism) is the cessation of all pain and of all attachments. Nietzsche argued that this highly nihilistic view of reality resulted from historical processes (the Aryan invasion of India), which in turn resulted in a reversal of moral tablets (due to thwarting the natural exercise of power); at the same time, following his contradictory aesthetic, he offers up the idea that by entering into a (nihilist) disaffection from reality, one may find the very path to one's true reality with affirmation.

Nietzsche offers up a key variation on the theme of karma, in his theory of eternal recurrence.

Nietzsche's theory is presented by Zarathustra - the prophet - who comes down from the mountain and proclaims the following truth - which he offers as the most liberating and life affirming viewpoint of all: affirm eternal recurrence! This means that if we can affirm the following: that each individuals life - my own especially in all its particularities - be relived over and over in a cycle of rebirth where there is no possibility of improvement in ones karma.; then we will paradoxically find the way to affirm all of ones karma - in not seeking karma's amelioration, but instead affirming it for all eternity.

In the affirmation of eternal recurrence, we feel the force that heightens the sense that attention should fall on the individual, in all his particularity. To affirm life, we must focus only on life, and not some after-life. That is what Zarathustra is saying that the good and the bad of life must be affirmed, if life is to be affirmed. To see above the mechanisms of good and evil - joyously affirmed as we learn to dance in the face of pain and attachment, within our identity: unknown, revealing and revealed. The mystery provided by implicit parallelism.

7.0 New consciousness of the individual in evolution

The next step in consciousness is when the human-all-too-human consciousness sees itself as a being that is the result of adaptive processes. This is the basic Darwinian revolution: how does this awareness of being the result of evolution change us? How will it change our Gods?

Nietzsche said that they were dead and that somehow we must now find (in this period of the "Twilight of the idols") this new being, the ubermensch. It must view life with affirmation, as opposed to most other religions where life is in some ways unreal to the participant. To heal the existential gap our affirmation must fall on the particular life. Implicit parallelism is about our lack of identity, but it is also about our identity found: despite our unknownness to ourselves we are somehow right; we are given life and that is what is right. We are rightly not given our identity.

Nietzsche proposed the eternal recurrence as a meditation that forced one into an affirmation of ones time in existence. Nietzsche failed in his efforts to completely specify what transcendence is worshiped by such a being, and thus, for that matter the full consciousness of the ubermensch. This so-called destroyer of religions, lived the vision of Moses.

What is the threatening thing about the Darwinian revolution? One is tempted to go for the most obvious threat; namely, that ones existence is now the result of a random process. (The randomness of implicit parallelism redeems this seemingly impoverished randomness, giving it life in the k-armed bandit.) I think that the real threat is much closer to the defense of our specialness in evolution. That is, our gods have served the function of paying attention to us. God has selected humans as being special amongst his creation. God focuses on us. Gods flatter us with their attention, for we become central to creation. How more obviously wrong can one be?

8.0 Transcendent consciousness: is it sufficient or do we need transcendence beyond consciousness?

What is a higher consciousness that we can obtain that addresses the human-all-too-human existential gap? That truly glorifies what the human can be? That is at the heart of a new joyous science of evolution?

I can put the important event - in the story of the emergence of consciousness - in one sentence: it is that the coming into existence of a being who is a result of adaptation and this being has a consciousness of the fact that his coming into being was governed by adaptive existence. I have tried to examine the reality of the existential gap as confirmed, or even generated, by implicit parallelism - of man’s need for transcendence as a search for identity.

How can such a consciousness find its uniquely human -or over-human - nature? What is our task in evolution? Do we now represent evolution, even in our great ignorance of its secretes?

Can we now fulfill our true destinies: to introduce consciousness of evolution to evolution, to become like our old gods by providing attention to evolution - but in the...
measured manner of gods, who focus only on the interesting, no longer compulsively attending to the old human-all-too-human. To become like new gods that seek to study all creation - kind of like studying Torah - and finally become the voice, the scribe, the understander, the sustainer, the scientist and the artist of evolution.

What ends the paper is my poetic attempt to sing such a song of evolution.

9.0 Transcendent Adaptive Consciousness

Koan:
I will make myself transcendent; it is my death that makes this possible.

Definition:
Adaptive reality is the totality of schemata distributions participating - being incarnate - in life.

Consciousness need not be part of evolution. But when consciousness emerges, it is important, as the first step onto land, as the very first attempts at a genetic code.

Koan:
Seeing into and affirming the non-linearity of existence; it makes us real, and is what makes the real out of reach.

The genetic algorithm in the end is a bringing into and out of existence machine; bringing us into existence, in the context of creation.

To will transcendence: try to will the eternal recurrence:: (it is not given out free!) ((the seeds of "free will" are found in transcendence?):) feel the heightening to the extreme of yourself - your being’s - particular moment of sharing life with all other beings, in the context of creation.

How fundamental is the moment an individual enters existence: a time at that combinatorial casino of life opens us to his samplings of the schemata distributions. A moment of holiness and gambling.

Koan:
To see the transcendent importance of being in existence only once: will eternal recurrence.

To affirm ones entire existence, dancing ecstatically beyond good and bad, while willing the blessed return to non-existence.

Our existence will go on beyond us, not as the unique being I am now (what a vain will such a thing is - uniqueness of the side show), but as unique schemata beings out into the future: I almost see them as in a heaven of sorts. the schemata of my life: can i see them in the totality of dimensional spaces some schemata good: I cannot say and some schemata bad: I cannot say. Such is the contribution of the individual, incarnate biomass blessed by all creation.

Should this be the quest of wise beings? Acknowledge and will the consciousness of existence, make it ones task to comment and commit poetry.

Koan:
To participate; to comment: which is which? Is consciousness all?

A being that sees the process and context of its own creation, projects back this awareness on itself.

It overflows beyond the human-all-too-human, raising into awareness the perfect rightness of unconscious creation - becoming habit - as we form a consciousness of this fact.

Schemata propagating at exponential rate; and the disturbing thing is not the randomness of it all it is about the fact that there is no consciousness in it - paradoxically, that is, until ours emerges in it - for this is our claim to divine perspective, how we become gods who die.

Can we send the will beyond good and evil.
Do we still need the old gods; 
those that made palatable the unfairness 
and unknowingness 
of it all?

The old gods were built in our image. 
They flattered us for 
we were their focus, 
their special children. 
Our very shame.

How does the consciousness of creation 
turn us into gods? 
Gods who die. 
Gods, who in their lifetimes, constitute existence itself. 
Gods of limited knowledge, 
who aspire to see and embrace all. 
Each individual god, 
a holy vessel of evolution. 
An incarnation of the sampling of creation.

Middle Meta Remark:
- Toying with the gap of mind and 
how its like the gap of existence, 
to explore the parallel effects 
of context: 
as in consciousness 
as in evolution. -

Embrace the circumference of our consciousness 
(Emily Diskinson: the deep sadness of seeing beyond 
but never getting beyond 
the divine tyranny of the object of thought; 
with no way of bringing out the object, 
without the fading of context; 
of always aiming towards 
the fringe of consciousness and 
reflecting sadly back on the rush to the substantial. 
I feel this pain, this tension in her poetry.)

the very focus of consciousness 
that gives up the object 
but hides the fringe, 
the support that provides the focus 
and makes mind possible, 
and, in turn, 
makes the context of evolution real. 
Through meditation and prayer 
can we approach 
the feeling of 
being in full context?

For there is a deep parallel, 
a deep mutual support that 
makes it possible for 
consciousness to be 
in touch with reality. 
(I'll probably contradict myself on this, latter.)

Both the plane of consciousness and 
the plane of evolution 
have context that functions as a fringe. 
The fringe of consciousness is what makes focus possible 
and the fringe over the distributions of schemata is what 
controls the emergence of new stars, 
the death of old ones, 
and the solid forces of the bourgeoisie.

To achieve transcendence we need to meditate on 
our stream of consciousness 
for we can see there the underlying 
mechanisms of focus and association.

We can see now 
- in this, the "Twilight of the Idols" - 
our human-all-too-human projection 
that had 
our gods focusing on us, 
flattering us in their light, 
giving us solace when in despair. 
Most importantly, mirroring back on us 
a consciousness that was not divine, 
but one that was creaturely, 
just as James describes it.

Focused over this broader evolutionary reality: 
We become that unique event when evolution sees itself 
We become like Gods - not in the sense of being 
creators of the universe - 
but as when there emerges within a species 
the awareness of evolution, 
as part of its existence 
and those of all beings.

**Now is the time to give the transcendence, 
the one I've been promising all along:** 
we exist to sing the song of evolution, 
to tell the story of all beings, 
to write the play of life, 
to find a joyous science of dancing schemata.

The key question is: 
is consciousness of a will to articulate 
sufficient for our needs of transcendence?

It is that our consciousness 
of being in evolution 
brings consciousness 
to evolution: 
we are emergent mind.
(By the way, for those sci-fi fans:
If I were an Alien from space,
I’d be looking for the emergence
of this consciousness.)

Man need not be neurotic:
lost in the fear of losing
powers given over to the gods.
We can stand on our own two feet.
We can justify our own existence.
Our consciousness can rise to the task.

It's when adaptive vision sees itself;
and instead of running away in
the twilight of confusion and pain;
steps closer,
embracing that
flame,
(like our soul, like Zoroaster);
accepting the task of
adaptive consciousness.

A cognizance of the source of the gap in reality:
the will to bridge the gap.

What power of discernment would such a
divine consciousness
have?

How can we be like Gods?

If existence becomes the garden, then
we can be like angels to god,
except that our songs
articulate the gods.

Koan:
Our lifetime is a theatrical enterprise
- as Shakespeare noted.
Can we write our own parts.

The garden of existence, the garden of creation.

Koan:
It will become the eden we seek:
it is already the eden we seek::
feel the pain in the gap above.

Will we ever learn,
finally,
to accept and dance in
the pain of mismatch:
to affirm necessary evil,
as
central
to the sustenance of evolution.

Meditate on the eternal recurrence.
See the rightness of living
as the data point you are.

Think of the larger search space of all creation:
Do we embrace it as the source of life;
or will we continue to make war upon adaptation itself,
to deny that we are its very fruits.
Hopefully, these gods will die soon.

Koan:
Meditate on the consciousness of your attention
in its transitive state (James).
Feel the pull of the fringe;

Koan:
Open up to its dionysian calls
Reject it's apollinian walls.
Affirm the two in one breath.

To sing the song of evolution made aware,
self aware,
to fulfill the honor of
being given a vision
over the range of
all creation.

Our identity as Gods:
We bring to evolution, the telling of the tale.
We can step into the voices what once were gods,
above us is where we’ll be.

A new Copernican revolution of the soul of man.
(First, of course, from man to human.)
We are no longer the special focus of the
human-all-too-human man-god above.

Instead a greater maturity (healthfulness) is ours.

We can be replaced with the sun,
and take our place among the planets.
We can see no gods focusing or guiding us
with special love
finally taking responsibility for finding
what's to love in ourselves
(only a Jewish mama would know)
and, hopefully for this is harder,
what's to fear?

For what is to love?:
partaking of the dance of life,
born into the process of adaptive evolution.
Life in all uniqueness and commonality,
Affirming our undefinedness
and the divine pain of change
it brings.

Affirming the complexity of the
assenting but unfocused
context of evolution
-like the fringe of consciousness.

To derive wisdom from our time in the search space
To worship both knowledge and un-knowledge
We must feel the rage
and pain of all existence;
to be torn apart by Ormazd and Ahriman -
coming back to wholeness in the act.

Exalt the
existential gap
and in this meta-retreat
find the heaven of mind,
(not so paradoxically,
an eden
where the pain of existence
is a balm)

We are a new species,
we can speak of evolution, itself.
Knowing what we know and
that we don't know.

A Koan:
Like any species, we can die:
affirm our own extinction.
affirm the loss of mind.
affirm the end of one’s life.
affirm the end of time.

A Koan:
Seek that deep connection
between consciousness and reality;
or perhaps, rather, the great divide.
The existential gap of mind.