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*Like engenders like (1978)*

Before philosophy corrupted my wits, everything came to me rapidly and easily. Afterward I found there was almost nothing I could not fail to understand. For example one day I decided to reread *Don Quixote* and got stuck in the opening paragraph.

Cervantes is apologizing in his prologue to the reader that his book isn't any better. In the original:

Desocupado lector: sin juramento me podrás creer que quisiera que este libro, como hijo del entendimiento, fuera el más hermoso, el más gallardo y más discreto que pudiera imaginarse. Pero no he podido yo contravenir al orden de naturaleza; que en ella cada cosa engendra su semejante.

I can't find a good translation of this;<sup>1</sup> the literal sense is

Idle reader: without an [i.e. though I give no] oath you can believe me that I wish this book, as the child of my understanding, were the most beautiful, the most elegant and the most discreet [modest] that could be imagined. But I could not contravene the order of nature, in which each thing engenders its like.

At any rate reading this I was dumbstruck. Because the picture it paints is clear and comprehensive, and was obviously wired into the old Scholastic logic far below the conscious level: that as the whole is greater than the part, the cause must be greater than the effect; and thus this *Don Quixote* — the child of the imagination of Miguel Cervantes — can be no better than he is. — Its possibilities are bounded by its antecedents. — Because

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<sup>1</sup> At least not any more. What I first encountered in the Harvard Classics was pretty close to what is presented here.

when like engenders like, we implicitly assume an *analog*<sup>2</sup> copying process, which is necessarily imperfect and introduces error.

Thus in the progression of causes and effects a slow degeneration — as inexorable as entropy, indeed this was the original intuition of that necessity — is inevitable, and if we follow any chain of antecedents into the past, substances must grow purer: things are greatest in their origins; anything that moves has less vital force than what set it in motion (and all chains of causation of motion must originate in some Prime Mover); the history of any object in the world is like a bag of qualities<sup>3</sup> with a hole in it, out of which the good ones are continuously leaking.<sup>4</sup>

So what Reason is supposed to be telling us is that children can be no better than, and must generally be inferior to, their parents; as were parents to grandparents, and so on back to *Genesis*: Adam was the Platonic Idea of Man; his descendants are copies, the light that shone brilliantly in the original must gradually dim and fade out — their stature must be lesser; their lifespans shorter; their capacities inferior.<sup>5</sup> — The Greeks thought they could only account for the births of heroes by making them the offspring of the gods. — What began as a Golden Age had to turn into an Age of Silver, and then into one of Brass; no wonder now that everywhere we look it's sludge and shit. — Originally men were giants and lived to ages of hundreds of years; what began in perfection in the Garden turned into one long stumble after the Fall. — The Ancients must

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<sup>2</sup> I.e., like copying a videotape from one VCR to another, with a loss on the order of thirty percent, not like copying a computer file, which is essentially perfect. — Even in the replication of the genome, which is relatively noisy, the process of copying DNA introduces error only on the order of a single nucleotide per chromosomal reproduction.

<sup>3</sup> Or “perfections”. — The concomitant assumption of a subject-predicate logic in all this is fairly obvious.

<sup>4</sup> Or: a copy can't be as good as the original. Which makes perfect sense if you're talking about analog videotape, though I doubt this was the example on Plato's mind when he enunciated this principle.

<sup>5</sup> Joseph Glanvill, in *The Vanity of Dogmatizing* [1661], makes the curious (but consistent) assertion that the vision of Adam was so perfect he did not need telescopes or microscopes.

naturally have been the superiors of the Moderns; the wisdom of the Founding Fathers can only trickle down to their successors. — The New World Order is just the degeneration of the Old. — This picture is clear, vivid, easily understood, universally assumed at some unconscious level, and completely wrong.

Small wonder then it seemed impossible a machine should be able to reproduce itself; or that an infinite set could be equinumerous with a subset, or that arithmetic could be capable of representing its own structure. The whole must be greater than the part.

But what else is wrong with this picture?

The first clue is that if parent stands to child as cause to effect then it is rather odd you have two parents. Which is the *real* cause? That isn't obvious. — Or rather, it did, originally, seem obvious, but some political revolution before written history began deposed the mother in favor of the father,<sup>6</sup> and confused the matter irrevocably. — Or didn't, actually, because the necessity of a single cause was imposed a priori, since otherwise the recognition that in the case of human reproduction, anyway, the number of Prime Movers doubles with each preceding generation might have proved an embarrassment to other arguments assuming the exact opposite which were deemed mission-critical to the metaphysical enterprise. — One could call this the fallacy of linearization: when in doubt, always try to turn a tree of dependencies into a line of descent.<sup>7</sup>

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<sup>6</sup> How Primitive Man ever could have figured out he had anything to do with procreation, clearly the domain of Primitive Woman, baffled me for a long time, until it was pointed out to me that the domestication (and breeding) of animals may have provided a critical clue. — At that point, conjecturally, the male of the species flipped instantly from innocent uncomprehending bystander to master of ceremonies and prime mover, the female was demoted to mere sperm recipient, a sort of inconsequential laboratory assistant, at best an employee, at worst a serf; one conceptual mistake was replaced by another, and the Patriarchy commenced. — This may be as good a myth of origin as any.

<sup>7</sup> There is a curious passage in Boswell where he consults Johnson regarding the legal question of establishing the true male line of descent in ambiguous circumstances. Johnson's reply is as always brilliantly expressed, but logically incoherent.

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*Blood simple*

There is a companion fallacy which concerns breeding. It is subtle,<sup>8</sup> pernicious, almost universally embraced, and more difficult to explain because in this case common sense intuits a theorem which is actually correct in quite general circumstances. This is the idea that inheritance is mixture, and it is what is implicitly referred to in the traditional identification of line of descent with blood. You picture a sort of fluid of life, passed down by parents to their progeny: thus the blood of your ancestors flows in your veins, someone with parents of different races is of mixed blood, the opposite is pure blood, an aristocrat is a blueblood, an inherited predisposition toward evil is bad (or tainted) blood, tribal conflicts are blood feuds, one expresses confidence in genetic determinism by saying blood will tell, etc., etc. — Austin could keep this up for half an hour —

At the level of reproduction this is the blending theory of inheritance. Even Darwin believed this, and it is the principal flaw in the argument of *The Origin of Species*; though Darwin's mistakes, like those of Copernicus before him, were fortunately inconsequential.<sup>9</sup>

You picture the blood of the infant as a mixture of that of its parents: a quart of me is a pint of my father and a pint of my mother, as it were. And the logic of combination of characteristics is supposed to work this way in general. This is rendered plausible by your sense that you can see the features of both mother and father in the child, that it represents a kind of average between them.

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<sup>8</sup> Subtle enough that a version of the fallacy was the basis for an early and highly touted artificial intelligence program (the so-called General Problem Solver, see Peter Norvig, *Paradigms of Artificial Intelligence Programming* [Morgan Kaufmann, 1991], Chapters 4 and 6), claimed by its authors to be a universal silver bullet; at least until everyone who tried to use it kept turning up fresh examples of puzzles that baffled the underlying algorithm. — See also the method Stuart Kaufmann specifies for negotiating his fitness landscapes, which has similar limitations.

<sup>9</sup> I.e., negative capability once again carried the day; see below.

But this is also spectacularly wrong. One might wonder, e.g., why the uniqueness of the average doesn't make all siblings identical, but the most succinct refutation of the idea was given by R.A. Fisher, who pointed out that if the blending theory were correct then the offspring of male and female would invariably be a hermaphrodite.

And in fact a closer examination of the mechanism of inheritance reveals atomism, in the form of genes, that the genes of the child are a mixture of the genes, not the qualities, of the parents, and that what was thought to be mixing is actually more like shuffling.

Which still doesn't quite explain the fallacy: the key assumption is actually that characteristics *add* (this is also suggested by the traditional subject-predicate logic).

Indeed there is a familiar theorem to the effect that, given a linear functional defined on a vector space of finite dimension, for any region defined as the convex hull of a finite set of points,<sup>10</sup> the functional assumes its maxima on the boundary of the region, in fact at one of those points.<sup>11</sup>  
— So here intuition for once is correct.

But only if the functional *is* linear; only if additivity is correct.

You have the intuitive sense, for instance, that the mixture of superior individuals cannot produce anything but an average between them, which characteristic by characteristic will be less than the originals: suitably corrected for sexual differentiation, if one is taller than the other you average their heights, if one runs faster than the other you average their times, and so on.

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<sup>10</sup> I.e., a polyhedron without dimples. Finiteness isn't necessarily essential.

<sup>11</sup> I don't know the most general class of functions for which a similar principle holds, but it is well known that a function harmonic in a region assumes its extreme values on the boundary; e.g. Feynman proves a version of the theorem in his *Lectures on Physics*, Vol. II. (The application there is that there can be no stable equilibria in a static electric field, save on a boundary.)

And thus the the mania for purity of blood: mixtures inevitably diminish.<sup>12</sup>  
— And any positive characteristics must, presumably, have been handed down from time immemorial, from the days of Genesis. Since nothing could have *improved* by itself. — Heritage is a form of capital which never collects interest; it can only depreciate.

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Though in many situations the entropic intuition is accurate. One of the most entertaining scientific experiments I ever witnessed, for instance, took place entirely by accident, one morning when a friend of mine who all too obviously had been up all night smoking The Killer Weed stumbled into the freshman chemistry laboratory with a beatific smile on his face and proceeded to wander aimlessly around the room for a couple of hours opening jars at random from the shelves and pouring their contents into a large beaker; let's see what happens if we just mix everything together, was clearly the question that motivated him. — The result, rather to the disappointment of his audience, was not some kind of green glowing radioactive goo that gave him spider powers, but an inert gray sludge. Sometimes things just do all average out.

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A similar idea was supposed to apply to individual physiology, incidentally, though the extrema were not considered desirable: temperament was determined by the balance of the humors, which could, literally, be pictured as a four-vector of percentages of (blood, phlegm, choler, bile) — each a real number greater than or equal to zero, normalized so that their sum was equal to unity — and, so on. Very neat, very simple, very wrong.

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<sup>12</sup> “The Targaryens married brother to sister for centuries to keep the bloodlines pure,” suggested that noted geneticist George R.R. Martin. Compare General Jack Ripper on Purity of Essence.

