

## The Chances of Literature

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When I read a book, what are my chances, or, as one might as well say, what are its chances, that I will get to the end of it? If I do, how likely am I to have read it all with optimal attentiveness? Will I have been able to read it concentratedly, all in one stretch, or will I have been plagued (or relieved) by interruptions? If I do finish it, will I ever return to it, and, if so, to reread all or merely part? None of these factors ever features in my thinking about or teaching of literary texts, though they may sometimes be mentioned when discussing study skills (always try to read in a good light, away from distractions, and with a pencil in your hand). The text is hitched, in a marriage made in the heaven of our ideal readerly and critical conception, not only with its ideal reader, but also with its ideal prescribed reading. If we do not finish a book, it is we who have come up short, not it. It is not so much that we do not attend to these matters, as that we regard them as in principle neither worth attending to or in practical terms not the kind of thing of which it would be possible to take account. They are purely contingent factors.

To be sure, 'the reader' does make occasional appearances in literary theory and criticism. Usually, this reader is said to be 'situated' in various ways, which means that they can be assumed to come at the text from various predictable or predetermined angles. Sometimes, this reader is said to be 'plural', unresolved, resistant, refracted, refractory, or cross-grained. But, in order to be spoken and written about at all, in the manner in which it appears such things are required to be written and spoken about, the reader has to be brought over from the side of contingency to that of necessity. The contingency of a reading is construed as a determined, predictable or necessary contingency. But the point about contingency is precisely that it is not fully predictable. It is not only a contingent matter what sort of reader I am (most writers seem able to distinguish only a small number of these sorts – gender, ethnic affiliation, class, sexuality and degree of disability just about cover it), but a fully (which is to say, partly) contingent matter how far I will on any particular occasion in fact conform to these determinations.

Just occasionally, rumours of this contingency can penetrate to the interior of the literary text, as in addresses to the reader of various kinds, or when Beckett concludes his taxingly particular explication of the way to get 1.3 cups of tea for the price of one, by dint of complaining first about the temperature and then

about its milkiness, with the exhortation to ‘Try it, gentle skimmer’. I once suggested that the form of literary fiction might partly be determined by its effort both to acknowledge and to head off the liability to interruption that long texts are almost by definition heir to, not by attempting to keep the reader grimly glued to the reading from beginning to bitter end, but by conceding the strong likelihood of interruption but encouraging the reader to synchronise his interruptions with those provided by the text, in a scripting of contingency.

On the whole, literary criticism acts almost entirely as though it were functioning in the domain of law and necessity. In fact we might define the concept of a text, or The Text, as the rendering of the contingency of reading as a necessity. This might well, I think, strike us as odd, given that most of us would regard the investigation of reading and writing as much closer to the grain and fluctuations of things than, say, the pursuit of mathematics, or the measurement of air pressures. Not only this, literature itself seems to take as its subject, not the sphere of necessity but what Thomas Hardy calls ‘change and chancefulness’.

Those who have written about the relation between literature and probability have tended to do so in terms of the ways in which probability features in it, or in its ideal reader’s response to it. In Robert Newsom’s *A Likely Story: Probability and Play in Fiction* (1998), for example, the word ‘plausibility’ might be substituted throughout for probability, since it is concerned almost exclusively with the ways in which fiction represents conditions of doubt or uncertainty, mobilising forms of probabilistic judgement in its readers. Its concern is therefore to explicate the effects of a background of ideas about probability on literary writing, and the ways in which those perspectives then feature within that writing, especially the fictional realism of the seventeenth century onwards. The questions to be asked concern the judgements can be made about the likelihood, lifelikeness or convincingness of the actions of characters or depictions of worlds in literature. But all of this occurs within what we might call the determinately dubious space of the literary text. The concern with the ways in which probability is deployed by literary texts leaves no space for the way in which literary texts might themselves be exposed to conditions of chance, or themselves operate within fields of probability.

These kinds of questions are brought to the fore in the reading of hypertext fiction, which builds in the contingency of choice or accident to its structure. The frustrating thing about teaching or discussing hypertext fiction was that it made it impossible to have and hold a single literary text in common.

### **Playing Literature**

The formalised estimation of probability has been condemned by Nassim Nicholas Taleb as relying on and promoting what he calls the ‘ludic fallacy’, the idea that events in the world are best understood by formalising them as games, which is to say with a ‘flat’ background of equal chances. Under these

circumstances it becomes possible to solve classical problems like the ‘interrupted game’ problem on which both Galileo and Pascal cut their probabilistic teeth. But what might it mean to think of the work of art or literary text as a game?

There is of course a substantial history of associating art and play, literature and game, as well as a slightly less substantial literature in which game or aleatory procedure is involved in the generation of texts themselves. But, though literature can itself explore or even incorporate gamelike structures and procedures, a game is never an exposure to the open as such, for there is no open as such. Indeed, games seem in important respects opposed to pure contingency. All games are in fact determinate generators of indeterminacy. The rules of a game may attempt to cover every contingency, but they can never predict or exhaust it.

This is perhaps imaged in the astragalus, the animal heelbone which was the favoured form of randomiser for a very long period among Egyptians, Greeks and Romans and other peoples. The physical form of the astragalus is a graphic allegory, or what is called a ‘phase portrait’ of the blending of the determined and the undetermined in the game that is played with it. The astragalus can land on any one of its four faces, but, since there is no standardised form of the astragalus, the chances are not evenly distributed between these two faces. It is, as we say, weighted or biased in different ways. In the classical world, these faces counted for 1, 3, 4 and 6, the numbers 2 and 5 being omitted. There seems to have been about a 10% chance of throwing a 1 or 6, and about a 40% chance of throwing a 3 or 4 (David 1962, 7-8).

Every astragalus has two bodies, an actual and a virtual. There is first of all the bone itself, in the awkward aggregate of its angles and predilections, the lumpy three-dimensional landscape of likelihood, that is both given and yet unknowable, or as yet unknown, wholly apparent, yet entirely unpredictable. Play begins. Imagine please that there is one who is recording the sequence of throws as they are called out who cannot see the game and has no knowledge of the shape of the astragalus. For a long time, he can tell little or nothing of the shape of the astragalus from the sequence of throws. But slowly, even inexorably over time, and after many, many throws, assuming the willingness or capacity to keep perfect records, the ghost of the astragalus’s shape, the abstract law of its distribution of possibility, may begin to emerge. Putting the astragalus in play will expose its physical form to randomness, which would initially scatter that physical form into indistinctness, giving the astragalus something like the perverse shape of contingency itself. But the pure contingency that at first scrambles the shape of the astragalus slowly starts to assemble its form, albeit now translated into a kind of numerical distribution. Eventually, one’s data on outcomes will start to come together in a kind of virtual astragalus, a distribution of probabilities that will be the stochastic silhouette of the original.

It might seem at first as though the rather ungainly shape of the astragalus would make it harder to guess its shape, but in fact this will tend to make it easier. The

uniform haze or blizzard of randomness will make the oddity and unpredictability of its knobs, ridges and declivities stand out more clearly than that of a more regular shape, just as a word is easier to guess when one has only consonants as opposed to vowels – one uses the abbreviation ‘rptn’ for the word ‘representation’, not ‘eeio’. A shape that is closer to equilibrium, which is itself more likely to generate random or unpatterned results, will keep its head down much longer in the hail of circumstance. A roulette wheel, or a ball, may escape detection for very much longer than a coin or die. You may recognise in what I have been describing something like the process involved in guessing the nature of the Enigma machine by the codebreakers at Bletchley, who were faced with the problem of inductively determining the physical construction of an encoding machine that was designed to produce randomly scrambled outputs using only those outputs themselves, – by indirections finding direction out. In both cases, the sheer mass of random outputs allows a slow building of a determinate shape, instrument or process. Something like this process has also been put to work in modelling procedures – for example the simulation of the biological processes and systems, such as the human immune system.

A game is a putting into play, in an attempt to model this emergence of necessity from contingency. The difference is that, where the conditions of a simple game are given in advance, and its possible outcomes limited, there are many kinds of game situation in which what is being sought through the play is not just the shape of a particular object that the game puts into play, but the shape of the game itself. I think it may be interesting to think of reading literary texts as just this kind of playing of a game, where the nature of the game itself is only semi-determined, or itself must emerge stochastically from its playing. We are accustomed to a much simpler kind of model of literary texts and their reading. On the one hand, there is the text, which is a given; on the other, there are its readers and their readings.

What one is attempting to model through the trial and error of reading play is the act of modelling with is reading itself. The challenge now is not to use the distribution of outcomes to model the astragalus alone but also to model the conditions under which the game is being played – what kind of surface the astragalus is being thrown on (a sandy floor? a table with a tilt? a counterpane? a tray in a chariot being drawn by two skittish chestnut yearlings?), how many players there are, and their idiosyncratic throwing styles (how high does each player throw the astragalus? how far does it usually roll?). In the first case, there is complete information, and the possibility of a complete mapping of the probabilities; in the second, the information is incomplete, and the judgements necessarily inductive.

In every game, there are perhaps two contrary motivations that the playing of the game itself ties together. The first is the desire to create conditions of randomness. The second is to use conditions of randomness to disclose the game’s own essential form. A game always asks the question ‘What kind of game am I? What is possible within my limits? How much play do I allow and afford?’

inviting the bringing of necessity out of contingency. And, we will see, this question is always asked in a looped future perfect tense, or what is called in French the future anterior: thus ‘What kind of game will I turn out to have been?’ ‘What kind of play will have been afforded by the kind of game I will have been revealed to be?’ This doubleness is indicated by the fact that we use the word ‘game’ both for the set of rules and procedures that constitute a game (the game of chess) and a particular episode of playing, or actualisation of the possibilities of the game (a game of chess). The two meanings of game, those signified by the definite and indefinite articles (the game and a game), are always in some sense both in play.

### **Sequence and Ensemble**

One of the greatest difficulties in making sense of literary texts, which might be thought of in some ways as singular historical events, is the incommensurability of sequence and ensemble in probability theory. Put more simply, this is the principle that probabilities only apply to large collections of events, and can only measure the likelihood of certain events occurring over the long term, as a result of repeated trials, never in the short term, or at a particular point in a sequence. If my inordinate fondness for Gaulloises and lunchtime Guinness puts me in a group that has a 70% risk of suffering a heart attack in the next 10 years, I cannot use this information to answer the question that, since I am not a group of persons but an individual person, is the one I really need answered, namely what my chances are of actually being one of the 70%. Of course, my chances of being in the 70% group are exactly 70%, but this is not a guide to what will happen to me, since I can't have 70% of a heart attack. I will either have a heart attack, if I last long enough, or I won't. If I turn out to be one of the 70%, my chances of having a heart attack will have been 100%. If I don't, they will have been zero. Probabilities predict what happens on large scales and cumulatively to collections of events. They tell us nothing about the order in which those events are likely to happen. Toss a coin 500 times, and, even if it comes up heads 499 times in a row, there is still a 50:50 chance of it coming up heads again on the 500th toss. If there is a likelihood of a particular sequence of numbers being drawn twice in the space of 100 years, this tells us nothing about where in the sequence those two numbers are likely to occur – which means that they are just as likely to be appear next to each other in successive draws as they are at 50-year intervals.

Since probabilities relate to ensembles and not to entities, this may seem to imply that probability considerations have no purchase on the individual events we know as literary texts. But there is one sense in which the texts we know and denominate as literary might seem to qualify amply as probabilistic ensembles, namely in the fact that, by definition, literary texts tend to be experienced more than once. For, at its simplest, literary texts are texts with a higher than average probability of being reread. The phenomenology of rereading may not appear much in accounts of literary texts, but it is its implicit condition. To consider a text a literary text is to suggest that it requires or is susceptible to rereading,

either locally, sentence by sentence, or paragraph by paragraph, or globally. To say that a text requires or is susceptible to rereading in these ways are both ways of saying that there is a higher probability of this rereading than with other texts, not because they are already literary texts, but because literary texts just are texts that happen to be subject to this higher degree of probability. We might even see Roland Barthes's specification that 'Literature is what is taught', as another way of saying that literature is what gets reread. On this specification, a literary text is therefore a text that has a high chance of being treated as a literary text. Literary reading is sometimes defined as the bringing to bear of a certain kind of attentiveness, one that is attuned to questions of linguistic form, for example, but it really involves any kind of unnecessary or surplus reading, and the features that it may disclose. And, even if one sets aside the fact or horizon of individual rereading, the fact that literary texts are texts that are studied and discussed makes them texts that are experienced as multiples, as the aggregation (and exchange) of different acts of reading. We think of nonliterary texts as much more likely to be characterised by average or uniform or predictable kinds of reading, but in fact nonliterary texts are much more likely to be experienced uniquely – that is, not in the horizon of predictable alternative readings. From this point of view, it is in fact literary texts that are read by means of the averaging of divergent responses, and by the diverging of average responses..

For this reason, literary texts ought to be much more responsive than other kinds of texts to the model of reading as a series of iterated plays, occasions or chances of reading, which in turn makes it apter than it otherwise would be to think of them as ensembles rather than singular entities or events. This would make the text entitled *Middlemarch*, for instance, something like the rules of a game of which each reading is the enactment.

As one plays the game called *Macbeth* or *Barnaby Rudge*, one builds up a map of its probabilistic landscape, like the one who tries to intuit the shape of the astragalus or Enigma machine from the sequence of plays to which it gives rise. The probabilistic figure that the text cuts, or the stochastic landscape it seems to delineate, is both actual and virtual; it is never all together in one place and time, but only ever a set of possibilities, even though the distribution or physiology of those possibilities may start to seem indubitable.

And we need to add this: in reading *Macbeth* and *Middlemarch*, we are not just guessing at the kind of plaything or chance-dealing instrument it is: we are also guessing at the kind of game we are playing, since there is in this case no text that really stands outside or before the game begins. One does not in fact simply put the text into play, since the text is the outcome or profile of this putting of it into play. The goal, or at least the process, of a game of *Macbeth* is to disclose the shape and reach of the game of *Macbeth*. This resembles the Gadamerian account of reading as a kind of production of a text, just as the staging of a play is the production of an original that requires this supplement in order to be an original. Gadamer assumes that, over time, the form of the play will gradually emerge,

which is a kind of probabilistic logic (though he is unlikely to have seen it in these terms precisely).

As one rereads, one encounters and foregrounds the relations between redundancy, or features of the text with high probability, and information, namely unpredictability, or features of the text with low probability. Redundancy is used here not in its everyday sense of uselessness or unnecessariness, but in the sense employed by information theorists, who indicate with it a certain quota of excess or repetitiousness. The redundancy of a message is the amount of information required to transmit the message minus the amount of information needed for the message itself. Every utterance involves elements that are not necessary to the specific utterance, elements that simply register or confirm the fact of the utterance taking place, or indicate the structure of language. The word redundancy, which derives from *redondare*, to flow back, from *re+undare*, to flow back in waves, can also mean echoing or resounding, which aptly suggests the role of redundancy in turning the message back on itself, the channel checking that there is contact, which is to say, that there is, that it is, a channel, saying yes, this is a message, are you on the line, are you still receiving me?. But without this apparent excess, no message can in fact be transmitted. In a sense, redundancy can be identified with the channel or form of the message, which must involve recognisable, repeatable elements.

No text or message can consist of either redundancy or information exclusively, and neither redundancy or information can exist independently of the other. There will be features and procedures that become familiar in the text, and there will also be features and procedures that we will recognise from the reading of other texts. These are not given in advance, for our recognition of them will itself be contingent matters, that depend upon a number of variable factors, most importantly how many times we have read the text in question before or how many other texts one may have read.

These redundant or high probability features will tend to predominate and in certain cases may end up by inundating and therefore exhausting the text, by starving it of information, by which I mean the emergence of low predictability out of a background of high probability (we will see soon that, since fields of probability are not static distributions of value, but as dynamic as weather systems, a state of high probability can sometimes begin to make the appearance of low probability events more probable).

Of course texts do not merely enter the condition of reread or rereadable texts by fiat. We may perhaps say that all texts wish in some sense to continue in their being, by which one means, not to endure exactly, but rather to continue to be subject to replication. I don't mean this literally, though there are no doubt some features of literary texts and their readings which are partly determined by the conscious interest of their writers and readers in perpetuating them, which is to say, converting them from singular into repeated entities. In fact, the wish to remain in being is not to be thought of as lying behind and pre-programming the

text, but instead as emerging from the tendency of certain texts in fact to remain in play, or get themselves reread, as a result of their conformability to changeable sets of conditions. The will to remain in being of a given text is therefore in fact the probability of its successively doing so. A plant the leaves of which grow round its stem in a ratio approximating to that of the golden ratio is not deploying this strategy or striving towards this form as a way of maximising its chances of survival, though putting out leaves at these intervals do maximise the amount of sunlight it can gather and also give it the greatest chance of shutting out the light to competing plants beneath it. Its will to obliterate its competitors is a retroactive artefact of the fact that by chance it stands a good chance of doing so.

Whether or not a text gets to meet the condition of becoming thought of as literature, which is to say, a text that will be reread, is itself a matter, not of pure chance, but certainly of unpredictably variable probabilities. Some texts will achieve rereadability, some will have it thrust upon them, and some will not – and whether or not they do achieve it is correlated hardly at all with whether they set out to do so. In fact, though, the idea of continuing in being must be thought of, like almost everything else in this kind of evolutionary perspective, back to front; that is, not as an engine showing things forward from behind, but as a property or propensity that gathers over the course of time, and as a result of replication. The will to persistence of writing is a back-formation of the fact of its inertia, or tendency to persistence. The disposition, or capacity to replicate is built into all writing, since it can be read many more times than it can be written, unlike speech which, until it can be recorded, which is perhaps to say, until it can become writing, can only be heard as many times as it can be uttered. Something that happens to survive starts irresistibly to take on the appearance of meaning or being meant to. Why do some texts persist for longer than others? Because they can. Given the in-principle replicability of all writing, and given also a differential and temporally changeable landscape of readerly habits, motives and preferences, the chances of all texts lasting the same amount of time, that is, of there not being texts that last longer than others, are vanishingly small. Let us not forget the fact that, in reading, as in the expanding population of grey squirrels or Japanese knotweed, nothing succeeds like success.

To say that literary texts are ones that are subject to a high probability of being reread is to say that they are texts that have a more extended temporal profile, which is more than saying that they simply last longer than other texts – it is not a question of simply persisting, so much as radiating. Radiation does not mean dissemination necessarily; texts do not always decay into proliferation or polyvocality – they sometimes decay into univocality.

Probability requires time, but also complicates hugely the notions of literary history with which we customarily work. We live and read in time, and what we mean by time must in part be the emergence of determination and definition out of indeterminacy. The future is characterised by high indeterminacy, the past by high determinacy. As one lives, or reads, potentiality decays or is decanted into



definiteness. To read literary texts is always to read historically, that is, to read texts with an extended rather than attenuated readership profile. To read historically is thought to mean to attempt to recover the lost actuality of texts. Like the statistical sampler, one attempts with imperfect information to assess inductively a true value.

But is there a finite truth about the text to be discovered, as there might be thought to be an actual value to be estimated from the opinion canvasser's selective sampling? Perhaps the text was always, from the off, a kind of code to be actualised, a set of parameters within which to play the text? So there was no moment of closed self-coinciding for a literary text, any more than there was for its context, its period, or its culture, those terms that we use to limit the terms of the text's possibilities. The text was always in play, always a set of probabilities, which have not yet hardened into actuality.

A literary text is, of course, among other things, a certain kind of historical fact, or a collection of such facts. Every literary text is an improbable event, a choice, or set of choices made in certain ways from among a huge number of other ways in which they might have been made. We must say of every literary text that it did not have to take place, or not in that way. Facts are given and apparent. They are actualisations from the field of the possible. But a literary text is more than the fact it is, the facts of which it consists. For those facts are so as a result of causes, occasions and conditions, of relations. Now relations, and especially the primary relation of causation, have seemed to many to be different from facts, in that relations are not given or finite. This is because relations always have to be relations that are made out or taken to exist, extrinsically, by some other. Relations are takings-to-be. So relations are themselves the product of relations. The heart exists to circulate blood in the body, which is in turn needed in order to supply the oxygen required by our body cells to remain alive. These things seem like facts, given, self-evident, irrefutable, *en soi*, so much so that the fact of the matter with regard to the heart might be said to be its functional relations. But this is precisely to say that the fact of the matter about the heart is not a fact about the heart alone. It is a fact about what the heart may be taken to be, the functions in which it may be taken up. These relations are actualisations from fields of possibility. Overwhelmingly, hearts tend to appear and operate in circumstances in which their function is to distribute oxygenated fluid round a body. But this is not the only possible thing a heart could be for. It may be extremely unlikely that hearts might start to be useful for other things, but it is not impossible, and it is certainly not unprecedented. The field of evolutionary development is a probabilistic field because it is a field of possible relations, only some of which are made actual.

The construing of literary texts is sometimes taken to be the recovery of all the relations that brought it into being and made it what it was. Historical reading has been defined as reading a text as it would have been read when it was new. This is to say, perhaps, that reading a text is like making out the ways in which it actualises certain possibilities. The notion of recovery implies, however, that this

actualisation is, or once was, in fact complete, or completable. In one sense one may say that a text actualises certain possibilities from among a more or less open or articulated field of possibilities. The dice are cast, and, though they might have come out in any number of ways, they come out in just one. That is what casting dice means.

But the relations which constituted a text are extrinsic, that is to say that are only in a partial sense properties of or things about it. It is an interesting and useful exercise, for example, to tabulate the responses of contemporary readers to a text they have read, if only to show that there is rarely any kind of consensus about what the value or even nature of a text is the moment of its appearance, whenever that might be taken to be. So, though it is helpful to think of a text as a throw of the dice, or the reduction of possibility to actuality, that actuality must be construed by those external agents we know as readers, who in their turn may be thought of as constituting a stochastic field, which selectively amplifies certain possibilities from among others. Writing a review of a text is more like casting its horoscope than performing a CT scan on it.

So is it ever game over for the past? No, because the relations which we convince ourselves constituted a text were only ever a partial actualisation of its possibility, which it may be left for us or others, depending on our calculation of the likely profit or utility, to attempt to complete. It will remain true for ever and a day that on Thursday 16 June 1904, Throwaway won the Ascot Gold Cup by a length from the 5-4 on favourite Zinfandel, at odds of 20-1. No matter how many times the race might be replayed, Zinfandel will never make up that length to alter the outcome of the race. But the significance of that fact currently seems to have a better-than-average chance of continuing to radiate and unfold. Why? Because, lucky as Throwaway and his backers might have thought themselves, they got luckier than every other horse, and every other race that day, because this race was picked out by Joyce for special attention in his novel *Ulysses* (and, presumably, using something of the process that punters themselves might have used, namely, scanning the papers and looking for some circumstance in the name of the horse that seemed to pick it out from the rest and promote it to attention – something, in other words, that reduced its randomness and increased its redundancy).

Throwaway survives because it has entered into a relation that will ensure continued replication (though only and exactly for as long as it does). This is to say, it continues in being by entering into a field of probabilities, which could not reasonably have been thought to be a likely part of its original field of opportunity. Once again, things survive, seeming to exhibit in the very fact of their survival a will to persistence, because they are repeatedly selected, because there is a high chance of their seeming significant.

This is not to say that the past is revisable or retractable. This view does not require anything like an alternative universes theory, which would allow us somehow to throw the dice again and get a different outcome. There are facts, but

those facts can be made meaningful in many different ways. An historical fact is like a move in a game that is still in process. Because the game is not over until the fat lady sings, and there is rarely any sign of the approach of the taxi bearing this famous personage, the significance of any particular throw is not yet completely settled. History, says Michel Serres, ‘conjugates in the future anterior’. A statement about the past is always hazardous, to the degree that it is a prediction about its future. A fact is an event with a high probability of being replicated without modification, in changing circumstances.

## Counting

It is certainly true that we should not expect to be able to quantify exactly these fields of probability. On the other hand, we will not be able either to dispense entirely with the notion of quantity, simply because the qualities that we make out in literary texts will in the end come down to numbers and frequencies, even if they are only specifiable in terms of statistical averages and estimates rather than precise calculations. But this is in any case the nature of statistical analysis, which offers a way of calculating on relative rather than exact quantities, a way of getting as good a fix on imprecision as one can. One example of a kind of quantitative analysis is that offered in Franco Moretti’s *Graphs, Maps Trees* (2007). Moretti proposes and explores a mode of ‘distant reading’ that would use long-range quantitative evidence, rather than the microscopic reading of individual texts, to show the development over time of what he calls a ‘*comparative morphology of form*’ (Moretti 2007, 92). Though he does not address questions of probability directly, they are the engine of most of the effects that he analyses. His first chapter, ‘Graphs’, maps the distributions and periodicities of fictional genres. The evidence that Moretti presents suggest that the majority of fictional genres – the silver-fork novel, the Newgate novel, Imperial Gothic – appear to flourish for around 20-30 years, and then rapidly and all at once to give way to others (Moretti 2007, 18-19). This suggests that genres are related more than etymologically to generations, that their lifetimes are synchronised. Moretti’s proposal is that, though one can sometimes suggest external triggers for the birth and supersession of genres, generic generations are in fact internally paced, simply by the rhythm of a group of individuals who are drawn into solidarity by a particular destabilising prompt, then persist by a kind of inertia until their solidarity with each other begins to weaken:

Once biological age pushes this generation to the periphery of the cultural system, there is suddenly room for a new generation, which comes into being simply *because it can*, destabilization or not, and so on, and on. A regular series would thus emerge even without a ‘trigger action’ *for each new generation*: once the generational clock has been set in motion, it will run its course – for some time at least. (Moretti 2007, 22 n.11).

Moretti places his analysis in a medium term, that lies between the micro-time of individual events (particular literary texts, for example) and the macro-time of

the Braudelian *longue durée*. This time is populated by cycles, for ‘the short span is all flow and no structure, the *longue durée* all structure and no flow, and cycles are the – unstable – border country between them’ (Moretti 2007, 14). We might perhaps rewrite structure and flow as redundancy and information. These temporary structures – ‘morphological arrangements that *last* in time, but always only for *some* time’ (Moretti 2007, 14) – are formed of probabilities. To say they last is to say that they recur, which in turn is to say that they introduce islands of redundancy or high predictability into fields of relative disorder or unpredictability.

As Moretti makes clear, the advantages of this method depend upon the availability and, one might surmise, the manipulability of evidence that in turn enable us to shift scale in the required way. This does not just involve the massing together of the individual units we call literary texts into larger aggregates that allow us to measure distributions. For it is possible also to try to make sense of the patterns of distribution across these aggregates of features that are smaller than texts – in the case that Moretti offers, the ‘clue’ in detective stories, or the device of free indirect style. This makes it possible for him to say that the forms that shape literary history are simultaneously ‘the very small and the very large’ (Moretti 2007, 76), the motif or, as a structuralist of a certain stripe might have called it, the lexeme, and the corpus. A quantitatively-based literary history of the kind that Moretti proposes would use the former to generate the latter, with texts being the carrier-form that drops out of the picture. The analogy would clearly be with the analysis of the distribution of genes and alleles in different populations, in which the individual bodies that are the bearers of these genes similarly fading from view. ‘Texts are certainly the *real objects* of literature...but they are not the right *objects of knowledge* for literary history’ (Moretti 2007, 76). Moretti may mean by this in part that texts may not provide the best samples from which to generate large amounts of data.

It is, I think, a promising strategy, which suggests that finding the right kinds of molecular elements within texts, or other objects of critical and historical attention, might allow for the determinate measurement of molar fluctuations. Given that the unit of currency of most of the non-mathematical databases in the world today is the word, for example, it may be possible to devise a calculus of word appearances and meanings. The probabilistic spectrum represented by a single word-entry in the Oxford English Dictionary, or in its recent supplement the *Historical Thesaurus*, suggests that it might be possible to begin to base our judgements on the meanings and functions of words at particular times on estimations and inferences of probability rather than the crude averaging and rounding up or vague notions of drift and transition on which we currently rely. The implications for larger structures, like cultural or literary historical periods or movements, which are themselves the roundings-up (often relying on hair-raisingly unrepresentative samples, with a correspondingly huge likelihood of error), yet powerfully determine the ways in which we legitimate our knowledge and judgements, are immense and mouth-watering.

It may be objected that this no more than a new round of positivism that looks to the sciences for a spurious and inappropriate exactitude. In fact, I think it may be the opposite – namely, a way for the humanities to escape the intractable positivism that in fact lurks beneath our convictions of the approximate and the indeterminable. In this, the humanities may in fact be borrowing back something it in the first place lent to the sciences. The ‘social physics’ that is being adumbrated by writers such as Philip Ball (2004) is an interesting recall of the positivism of Quetelet and others who first began to apply statistical methods and reasoning to the understanding of social phenomena. There was certainly a great deal of overconfidence in those who thought prematurely that they had discovered the invariant laws of human and social behaviour. But it seems highly probable that the social physics of the early nineteenth century had a decisive influence on scientists like James Clerk Maxwell, who were faced with the problem of calculating the behaviour of physical substances, like gases, in which it was impossible, practically and in principle, to account for the movements of every single particle, and who draw on statistical thinking in the new social sciences to develop stochastic models in the physics of matter. When Einstein used probability theory to explain the mysteriously erratic dance of pollen granules noticed by Robert Brown in 1827, and known thereafter as Brownian motion, he decisively established the importance of statistical physics (Mlodinow 2008, 165-8)

If we accept, as I think we should, that the study of literature in its historical context is in fact a study of mass phenomena, and requires the generation of inferences about very large ensembles of similar and recurring events (a book being read), we should not be indifferent to the ways in which large ensembles of phenomena have been analysed in other areas, in order to try to make our models and methods less bungling and dubious. I would like it if we tried to find many more things to count and measure and many more ways of counting and measuring them than to develop ever more sophisticated theoretical models that are based upon a stone age understanding of physics.

The humanities, especially the theoretical humanities, that aim to model the processes whereby cultures and subjects are formed, are locked into a determinism that is date-stamped about 1750 (though with little responsiveness to the major advances in probability theory that had already taken place by that time). The more empirical and historical forms of the humanities are less arrogant but scarcely less deterministic in their understanding of causes and relations. All fail miserably at any predictive test of their competence and value. Everywhere, we are asked to believe in the existence of the simplest, most remorselessly linear processes which act evenly, uniformly and predictably. Interactions of any complexity at all are almost entirely absent from this writing. Nearly all of these explanations depend upon staggeringly naïve faith in the adequacy of the skimpiest and most schematic accounts of initial conditions to explain outcomes; everywhere, that is, there is a dependence on what Daniel Dennett calls the ‘mind first’ fallacy, the idea that forms can only emerge from prior models, and that nothing in what is emerges can not have been latent in

what it emerged from. We have no tolerance for exception, anomaly and emergence, for things that form from unpredicted and probably unpredictable conjunctures of circumstances. The only models that count in the humanities are determinist models in which what happens can only ever be the actualisation of specific and knowable potentials. Curiously, many of the most extreme forms of constructionism, which proudly strut their antagonism to the idea of pre-existing essences, nevertheless represent egregious examples of this fallacy. This kind of constructionism can thus appear strikingly akin to creationism. The account of subject formation to be found in most psychoanalytic models and the theories that depend upon them such as those of Judith Butler, is a striking example of this. Imagine asking Judith Butler to provide an estimate of the operations of chance and randomness in the formation of subjects under the conditions of heteronormativity.

Nowhere is this more or more lamentably apparent than in the ways in which the topics of chance and indeterminacy themselves appear in such work, namely as abstract topics – as in Derrida’s spectrum of names for unpredictability, difference, iteration, etc, or the ideal of the purely contingent Event, the idea of a purely undetermined event being as much of an idealisation as that of a purely and absolutely determined event – rather than actions or conditions of operation.

It is perhaps not entirely surprising that the operation of chance should be presented as the incalculable Other of law and determination in this way. Chance may indeed appear to be on the outside of every absolute determination, and always just in advance of or to the side of every formalisation that we might attempt of it. When Freud writes of the widespread disinclination to believe in the universal necessity of death, he is perhaps diagnosing in an indirect way an aversion to the idea of chance, of the necessary accident known tellingly as ‘death from natural causes’. Many peoples would prefer the idea that every death can be accounted for by a specific, usually malicious cause.

But chance is different from all the other kinds of otherness, or has now, historically (that is, by chance) become so. For centuries, chance has represented the incalculable as such, absolute, unknowable, and intractable. This left the sphere of causality, determination and the calculation of consequences intact. If simply no account can be taken of chance, then it can be set aside as the simply or absolutely incalculable, meaning that, reduced as its sphere may be, one can at least count upon what one can under no circumstances calculate.

What happens from the seventeenth century onwards is the entry of chance into calculability itself. The advantage of this is clear, and the vast importance of statistical reasoning in contemporary life makes it obvious how impossible it would be to do without probability calculus. Many calculations actually depend upon randomness, hence the strange and paradoxical quest for reliable ways of generating genuinely random numbers, in other words for a determinate indetermination (Bennett 1998, 132-51). The cost is the surrender of the

possibility of exactness, even as an ultimate horizon. Henceforth, one works not against error and inexactness, but with and within them. It is not the incalculability of chance that is the problem, but the fact that it is no longer possible to regard chance as wholly incalculable and also remain honest. It is this which holds out the darling prospect of the ruin of most of our modes of reasoning and argument in the humanities.

Not of course, only ruin, pleasant and invigorating though the contemplation of ruin has traditionally been in the humanities. The question is not, with respect to the statistical sciences, how can we do with our object of study what they do with theirs; but what could we do with that object if we knew how to do what they do with theirs? So: not how can we in the humanities do what they in the statistical and mathematical sciences do, but what could we do if we knew what they knew?

And what might be the probability of such an expansion of probabilism into literary study? What are the chances of literary study renewing itself with recourse to such probabilistic techniques and modes of reasoning? Looking at the patterns that seem established in the humanities, one might be tempted to say, rather slim. It might be that the recommendation to import the sciences of conjecture and statistical inference into literary study is a vastly long shot and a tall order, and therefore an irresponsible or self-indulgent thing to recommend to a new generation of scholars, or even to an old one interested in at long last in getting a life.

Nevertheless, if, as Jean-François Lyotard was fond of suggesting, the point of the game is to win by inventing a new way of playing it, my suggestion is to bet on the outsider. You may not need to risk very much to clean up. Remember, though, if you don't bet anything, your probability of winning anything is exactly 0. You may remember the joke about the guy down on his luck who falls to his knees and begs God to let him win the lottery. The first night comes, and he doesn't win. More prayers, promises of repentance and a reformed life, etc. The following week comes, and again he doesn't win. Prayers renewed even more piteously and vehemently. The following week comes and still there is no fortune. In rage and reproach, the guy howls 'My God, My God, I've lost everything, house, car, wife; why have you forsaken me?' There is a roll of thunder and a voice from the heavens: 'Listen, meet me half way on this could you? Buy a ticket!'

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