What would have been, and might have been:
Counterfactuals implied and used by historians and geographers

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1: THE ISSUES

Should we avoid counterfactuals? Critics have rebuked historians who have sought to ask 'what would have been' with the charges that they peddle 'unhistorical shit' (EP Thompson), that they indulge in 'idle parlour games' (EH Carr), that they turn away from 'rigorous, data-based study' to the lamentable supposition that 'one history is as good as another' (Hunt 2004), and that they perpetrate 'historical fallacies' (Fischer 1971: 17-19). In recent times, supporters of historical counterfactualising have been more prominent, contributing to widely read series such as *Virtual History* (Ferguson ed.) and *What If?* (Cowley ed.). Geographers have (more recently) raised the parallel question of the respectability, or otherwise, of spatial counterfactuals. It is lamentable that the theoretical background required to assess the acceptability of historical and geographical counterfactualising has typically been presented with a lack of clarity. Critics and supporters alike have tended to underestimate the extent to which counterfactuals enter into so much of our reasoning: evidential, explanatory, narrative, justificatory. Both critics and supporters have tended to insist or assume that a counterfactual approach is restricted to particular types of history, such as that which focuses upon the decisions of past individuals (Hunt provides a particularly clear example). Philosophers have devoted much attention to modal logic over the past forty years, but have tended to devote minimal attention to the interrelation between that work and the role of counterfactuals in cognitive practice. I hope in this paper to remedy that deficiency.

Criticism of cognitive reliance on counterfactuals is of two types. First, it may be said, counterfactual 'reasoning' is no better than guesswork. In particular, no evidence can bear on the correctness of such reasoning. Second, counterfactuals are of no use, certainly not to serious history (or geography). An assumption of these two criticisms is that counterfactual history is a sub-field of history; a sub-field which can and should be avoided. I first argue that this assumption is untenable, given the implication of counterfactuals by statements that can hardly be avoided by any historian or geographer. I then reject the second criticism by describing two ways that the explicit use of counterfactuals can be of profound use to both historians and geographers. In so doing, I make explicit the reasoning behind counterfactual claims, thereby rebutting the first criticism.

It is also useful to demarcate three separate (though related) positive theses. First, one can argue for a relation of semantic implication: to reason historically or geographically is to be committed to certain corresponding counterfactual claims. Second, one can argue for theoretical reduction: that recognising the connection between historical/ geographical practices and implied counterfactual claims aids our

understanding of those practices.   Third, one can argue in favour of the practical utility of counterfactuals: that the explicit deployment of counterfactuals can aid and enrich historical and geographical work. I shall defend all three theses[1].

2: COUNTERFACTUAL IMPLICATION

Counterfactuals are implied by four sorts of claims; those that I shall name evidential, explanatory, explanatory-importance, and explanatory-robustness. By 'implied', I mean that anyone who asserts one of these sorts of claim is thereby normatively *committed* to a corresponding counterfactual, of forms that will be specified in what follows. Note that it is no part of my argument that the counterfactual implication is the only commitment demanded from each claim. For example, and in particular, it is clear that there is more to an explanation than the corresponding counterfactual: explanations carry intensional requirements, such that explanans and explanandum are conceptually related (in ways the specification of which is beyond the scope of the present paper).

The argument for such implication can be brief in the case of the first two classes. For their relationship with implied counterfactuals is rather obvious once attention is focused in that direction. In the case of the more contentious final pair, the argument for implication is one of best explanation. By semantically connecting such claims to corresponding counterfactuals, we thereby permit understanding of the former in terms of the latter. And such an understanding provides a good explanation of the fact that historians and geographers typically engage in meaningful reasoning and debate with regard to those claims. In short, to avoid any commitment to counterfactuals would leave one in the forlorn position of having to avoid evidential and explanatory claims.

> **Evidence:** 'e is evidence for h' implies that if h had not been, then e would not be the case.

This implication is brought out particularly clearly if we consider the role of evidence in deciding between two competing hypotheses. In such a case, the competitor of h – h* – fills the role of the antecedent. It is, in other words, the determinate circumstance merely suggested by the idea of 'h not having been'. (We will find common recourse to contrastive formulations of this sort, as an aid to specification of counterfactual content.) If e would have followed from h*, then e can not be evidence for h rather than h*. I may claim that the holes in the skirting board are evidence for there having been rats, you that they are evidence for poor workmanship. If we discover (perhaps from an expert joiner) that these holes are the sort that one would expect given shoddy workmanship, then it is not the case that 'if there had been poor workmanship, then there would have been no holes'. Given that admission, it can no longer be claimed that the evidence supports my rats hypothesis[2].

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[1] The 'reduction' that I argue for in this paper is weak: it is 'theoretical' rather than analytic or metaphysical. In particular, I do not argue for the analytical or metaphysical reduction of causality to counterfactuals (see Lewis 1973 for a strong reductionism of that sort).

[2] Of course, if h and h* are both 'merely' hypotheses – if we don't know which is true – then we don't know whether the statement is genuinely a *counter*factual. It is of interest to note that for the purposes of evidential reasoning it is irrelevant whether or not the antecedent turns out to be factual or counter to

> **Explanation:** 'c explains e' implies that if c had not been, then e would not be the case (or would not have been the case, where e is a past situation).

For example, it is commonly thought that the dire financial predicament of the French Crown in the late eighteenth century is one explanation for the coming of the French Revolution. That is to say that had the Crown not been in that predicament, the Revolution would not have taken place. It is potentially a source of concern that, in the counterfactual situation envisaged in this example, something like the French Revolution might have occurred in any case, though not the exact same Revolution. A contrastive understanding can help once more, this time with regard to the specification of the explanandum (e) 'not being the case'. For if the target of explanation is 'why the Revolution happened in 1789, rather than at some other date', then the financial predicament will most likely be deemed explanatory on the basis that had there been no such predicament, the Revolution would not have taken place in that year. However, if the target is 'why the Revolution happened in France, rather than in some other country', then the predicament may well not be deemed explanatory, since had there been no predicament, the Revolution would have still occurred in France (at some later point in time).

> **Explanatory-importance:** The importance of c is proportional to the degree of difference between e and e*, where e* is that state that would result from the absence of c.

The third counterfactual implication is an extension of the second. It is no great leap from recognising that an unexplanatory event makes no difference to that to be explained, to realising that an event is more explanatory to the extent that it makes more of a difference. Yet this suggestion is more contentious than the last, not least due to a greater unease with the idea that there might be more or less explanatory features, than with the plain idea that some features are explanatory and some not.

I regard explanatory importance as setting two requirements for accounts. First, an account of e is better to the extent that it attributes events with the *correct* level of importance. Second, an account of e is better to the extent that it mentions important events, and omits the unimportant. The latter is the case given the pragmatic presupposition that, unless flagged otherwise, one mentions the important explanatory factors and omits the unimportant. (This ability to explicitly cancel commitments is a hallmark of *pragmatic* commitment in general.) Descriptions and interpretations are, sometimes rightly, criticised not only for what they say but for what they don't say. Why is this? Not on account of omission *per se*; for no account can mention everything, even where the topic is limited. Rather, criticism is justified where the description or interpretation has omitted something important (more precisely, where the omission is of more importance than those facts which *have* been included, barring some other explicitly flagged purpose). If we can make sense of selection by tying its fate, at least in part, to that of importance, then certain traditional worries concerning the 'objectivity' of accounts can be confronted. For historians in particular, the issue of selection has been at the root of much of the discomfort with

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fact. That equivalence is explained by the parallel between real and imaginary experiments, discussed in the following section.

the idea of objectivity[3]. If one can tie selection to counterfactuals, and can further defend the construction of the latter as a cognitively respectable enterprise, then one can thereby affirm that the processes of selection and exclusion can be rationally defended or criticised. When it comes to what to include in one's account, not anything goes.

With regard to the precise counterfactual claims implied by ideas of explanatory importance contrastive notions are helpful once more, here with regard to the 'degree of difference' required by the above model of explanatory importance. One may be sceptical of any attempt to gain a more precise understanding of some cognitive activity, where that attempt terminates in judgements of 'difference' (or, its opposite, 'similarity'). In particular, one might think that judgements of similarity between any x and y require us to specify which features of x and y are to be relevant[4]. Which pair of Britain, France, Holy Roman Empire (HRE) in the 1780s were most similar? Well, Britain and France were both maritime powers, France and HRE were both continental powers, and Britain and HRE were both post-Reformation countries … Yet the question becomes tractable once we recognise that explanatory importance is relative to a particular explanatory target, and that explanatory targets can be understood contrastively. The relevant dimension of similarity is that by which the target fact and the contrasts differ. For example, one can sharpen the explanatory target 'why the French Revolution came about' by introducing a contrast, viz. 'why the Revolution happened in France, rather than in HRE'. The suggested explanans, to be 'tested' with regard to explanatory importance, is France's geo-political position. The required judgement of similarity/ difference between actuality and what would have happened had France's geo-political position differed can be made tractable by considering those features by which France and HRE differed; importance of explanans is affirmed to the extent that the France without her geopolitical difficulties draws close to the actual HRE. In short, real world contrast can make tangible the judgement of counterfactual similarity.

> **Explanatory-robustness:** The robustness of e is inversely proportional to the degree of difference between e and e*, where e* is that state that would result from the absence of c.

Consider two accounts of the French Revolution: Georges Lefebvre's 1936 *The Coming of the French Revolution* and Simon Schama's 1989 *Citizens*. For Lefebvre, the French Revolution was inevitable, given the underlying political and economic relationship between the social classes of the bourgeoisie and the nobility. Lefebvre's Marxist understanding of historical process leads him to state that

> 'These groups [the nobility and clergy] preserved the highest rank in the legal structure of the country, but in reality economic power, personal abilities and confidence in the future had passed largely to the bourgeoisie. Such a discrepancy never lasts forever.

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[3] For example, in his extended critical survey of the notion of objectivity in the American historical profession, Novick frequently cites concerns over selection, believing that it is problematic that it is impossible to have 'neutral criteria for selecting among the multitudes of facts … [without an] "a priori", and at least tacitly evaluative, frame of reference' (Novick 1988: 254)

[4] Goodman (1954: 437-446) presses this point in order to argue that similarity can do *no* work in analyses such as this, since 'judgements of similarity' can be entirely reduced to identity in certain respects. I would respond by agreeing that similarity must be 'in a certain respect', but noting that similarity in a certain respect is not the same as identity in a respect.

> The Revolution of 1789 restored the harmony between fact and law.' (Lefebvre 1947: 2)

Schama, on the other hand, takes himself to be furthering the new orthodoxy which holds that

> 'the Revolution [does not] seem any longer to conform to a grand historical design, preordained by inexorable forces of social change. Instead it seems a thing of contingencies and unforeseen consequences' (Schama 1989: xiv)

The issue at stake between Lefebvre and Schama should be understood in terms of the above counterfactual criterion of robustness. Lefebvre holds that the Revolution was a robust occurrence; that it was 'necessary', 'inevitable', or at least something that approached those qualities. Schama holds that the Revolution was a chancy occurrence; that there were many possible ways that things might have turned out, and that what actually happened was not in the least 'necessary' or 'inevitable'. Each claim implies counterfactual notions. Certain parts of the history of the event (in this case, the French Revolution) are held fixed, other parts are permitted to vary by a 'small' amount. Take a number of those counterfactuals. If some of those result in quite different outcomes to what actually happened, then the actual outcome was not necessary; something quite different might have ensued. It is important to note that ascriptions of explanatory robustness require a background idea of what is to be held fixed. If one supposes that every aspect of the event's history is to be held fixed, then the question becomes that of causal determinism: whether the whole set of prior events is sufficient to determine the later course of events. That is not the question that is usually of interest to historians and geographers. What is held fixed is more limited: given the Enlightenment, or France's geo-political position, was the French Revolution necessary? Given the economic systems of USA and USSR, was the actual resolution of the Cold War inevitable? Given the alignment of the globe's major continents, are the differentiated patterns of development in our contemporary world only to be expected?

I conclude this section with two comments. First, both importance and robustness are inherited properties. An event that follows from a more important cause tends to itself be judged more important. Likewise, an event that depends upon a robust cause tends itself to be judged more robust. Second, the corollaries of importance claims and robustness claims are inversely related. Taking the same two connected events, c and e: if c is important then e is fragile, and if c is unimportant then e is robust. One key manifestation of the inverse relationship is in the presence or absence of potential causal factors. A firing squad provides many ways to kill the intended victim; each particular shot is relatively unimportant, and the final outcome relatively inexorable.

3: IMAGINARY EXPERIMENTS

In the remainder of this paper, I move beyond the claim that counterfactuals are *implied* by the judgements that geographers and historians (and more) routinely make, to the argument that counterfactuals can and should be *actively used* by geographers and historians. Indeed (as is so often the case), practice has outstripped theory in this field, allowing me to provide good examples of counterfactual usage. I identify two ways that counterfactuals are actively employed, which I call the method of 'Imaginary Experiment', and that of the 'Possible Paths'. (It is, though, no part of my thesis that one historiographical or geographical example may not utilise elements

from both.) A counterfactual consists of an imagined antecedent and a connected consequent. My defence of the (first) use of counterfactuals as imaginary experiments will focus upon these steps in turn: the construction of the antecedent, and the proper connection between antecedent and consequent. The imaginary experiment approach to counterfactuals envisages the antecedent as an experimental start-point, and the consequent as the outcome of that experiment.

Where should one begin to counterfactualise? As suggested at the start of the previous section, in order to accurately imagine some counterfactual we usually require more than the bare counterfactual 'absence' explicitly mentioned. In terms of the implied experiment understanding, the initial experimental situation must be sufficiently determinate to permit proper resolution. While we often aren't very explicitly precise about what we wish to be imagined upon asserting a counterfactual, we should be able to fill in the relevant gaps if the implied experiment would otherwise be unacceptably ambiguous. The specification of counterfactual antecedent can be usefully appreciated in terms of the explicit or implicit contrast, since the implied counterfactual absence just is the explicit contrast. 'What if there had been no French Revolution' leads to an overwhelming counterfactual task. It is helpful to specify (or, perhaps more often, to simply imply by context of conversation or other pragmatic cue) that one has in mind a contrast of a French parliamentary monarchy, or a Revolution elsewhere in Europe, or the continuation of absolute monarchy on the continent into the late nineteenth century. In such cases, the counterfactual antecedent simply is the determinate contrast.

Given that contrast is a pragmatic tool, it follows from the above that (to at least some extent) we stipulate the antecedent. A certain level of detail is required in order to be able to assess any given counterfactual, and it is up to us – the questioner – to provide that. Yet, the antecedent is not to be only regarded as a stipulated starting point, for two reasons. First, not everything about an antecedent *can* be explicitly specified; much must be presumed. Where we are not told otherwise, we assume that things are as they were in actuality. Second, the interest of counterfactuals typically depends on relevant actual facts. 'If I had looked behind that skirting board, I would have found a rat' is not to be resolved by *stipulating* whether or not there were rats[5]. Rather, the it is the way the world actually was that should determine whether or not I would have found those troublesome mice. To the 'rule of stipulation' must be added the 'rule of minimal difference': an Ockham's Razor for counterfactualists. We should alter the actual past only in those ways required by the explicitly stipulated antecedent change[6].

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[5] Adapted from an example of David Lewis' (1974: 68)

[6] Admittedly, this 'rule of minimal difference' skirts over some thorny philosophical problems. For what is meant by 'required by' in that rule? One could alter only those events causally related to the antecedent, leaving causally independent events as they are. But in that case, it seems possible that the wrong result is returned in the case of the mice, since it may be that my looking behind the skirting board is causally dependent upon there having been mice there in the first place. (This problem has been called the 'backtracking problem' of counterfactuals.) Should we, then, instead fill out 'required by' in terms of consistency? This would entail altering only those events in contradiction to the antecedent. But in that case, the opposite problem looms: not enough changes with the antecedent. If the prehistory of the antecedent remains exactly as it actually was, then there will be a bizarre 'jump' (particularly in cases where the difference between antecedent and actuality is imagined to be large). I do not pretend to offer a satisfactory philosophical solution to that problem. But a practical solution is easier to grasp. What one requires is a smooth 'take-off' path, terminating in the antecedent, and beginning a 'short time' before. In addition, for most counterfactuals their decidability does not

The connection between counterfactual antecedent and consequent can be understood by analogy to actual experiments, and to predictions. In all cases, what is either generated or employed is, to use a deliberately general term, 'process knowledge'. Such knowledge might be in the form of strict laws: if it is a law that crime rate in a city always increases as population increases, then we can infer that the crime rate of a given city would have been increased had the population been higher. We should, though, appreciate that process knowledge is a wider class than nomic knowledge[7]. An important alternative to laws is the ability to *model* the counterfactual situation. Such modelling may use an actual analogous case, perhaps (practicality and ethics permitting) manipulated in ways demanded by the counterfactual. (One may estimate the potential consequences of more extensive use of nuclear weapons in the Second World War from later nuclear tests.) An interesting subclass of models involves using oneself as a model, understanding what another would have done with reference to imagined responses in oneself. (So say the 'simulation theorists' in the debate over how we understand others' minds.) Or modelling can in some cases be purely imagined, with no actual model at all. To appropriate an example of Hilary Putnam's, it is by simple mental modelling, and not by detailed application of scientific law, that I judge that had I attempted to place that square peg into that round hole then it would not have fitted.

Imaginary experiments, unlike their actual counterparts, generate no process knowledge that was not already implied by existing knowledge. Imaginary experiments therefore rely on previously acquired knowledge[8]. But that is not to say that they can not be informative and surprising. As the following example shows, certain counterfactuals require the skilful deployment of a variety of historical knowledge and process knowledge. If that is the case, then the status of the counterfactual can be far from obvious prior to that deployment. Counterfactuals are, in this respect, very similar to predictions. Predictions also require pre-existing process knowledge, in addition to knowledge of the relevant particular facts. Both predictions and counterfactuals are possible, and justifiable, to the extent that we can claim the relevant knowledge. It might be thought that predictions are a more cognitively respectable enterprise, on the basis that they can in principle be checked at a suitable point in the future. However, not only can counterfactuals – in principle – be equally checked by perfectly analogous actual cases, but more importantly it is the question of *justification* of counterfactuals that is at issue, not their potential *truth*. Indeed, counterfactuals are frequently more amenable to justification than predictive

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depend on whether or not such backtracking occurs, so the specification of that back-history is unnecessary.

[7] An overly limited understanding of counterfactuals of precisely this sort has been encouraged by the traditional analysis of counterfactuals. Nelson Goodman's Meta-Linguistic model (Goodman 1954) states that counterfactuals are telescoped versions of arguments leading deductively from initial conditions and laws of nature, to the consequent-conclusion.

[8] It is necessary to briefly consider a potential source of concern: that the imaginary experiment understanding leads to vicious regress. All explanation implies a counterfactual. To justify a counterfactual, one must apply process knowledge. Process knowledge is thereby used to explain the consequent in terms of the antecedent. Therefore process knowledge implies a counterfactual. Is this circularity unacceptable? It is not, for the reason that the final 'counterfactual' implied amounts to what actually happened. There is no infinite regress of counterfactuals, merely a connected pair of conditional statements. For any process claim, a pair of conditional statements is implied: what follows given the presence of the actual event, and what follows from its absence.

counterparts, given that (often easier to acquire) historical knowledge can play a greater role than (often harder to acquire) process knowledge. For example[9], imagine a case where a lava flow threatens two villages, A and B. The direct route of the lava flow leads to village A, and not to B. But there are periodic earthquakes in the area which can divert the course of the lava flow. In the case that such an earthquake did divert the flow on to village B, one can easily assert the counterfactual 'had there been no earthquake, village A would have suffered', yet not easily have predicted the lava flow.

Robert W. Fogel's seminal *Railroads and American Economic Growth* well exemplifies the imaginary experiment approach. Fogel makes use of the 'explanatory-importance' and 'explanatory-robustness' implications introduced in the first section to question the oft-assumed link between railroads and economic growth in nineteenth century United States. His studies lead to the potentially surprising conclusion that the railroad was not a particularly important factor in American growth, and (as I argued above, a linked conclusion) that such growth was a robust feature that depended on no one technological innovation. Fogel's antecedent relies implicitly on the rule of minimal departure: what is imagined is an America which differs only in there being no railroads. In particular, no unhistorical technological advances are imagined, no fundamentally different economic system postulated. Fogel's first consequence, more assumed than argued for, is of a greater use of boat and wagon transport. Such a consequence is plausibly the only way that economic activity in America could have continued in anything like a similar manner to its actual course. The second consequence, argued for in detail, concerns the economic cost of an economy dependent on boats and wagons in this way. By extrapolation from certain typical and central industries (agriculture, in particular) and from certain years (1890, in particular) Fogel arrives at a differential cost of some 1.2% of American GDP, a relatively small figure. The measure of difference between the actual and the counterfactual American economy is provided by this differential cost, or 'social saving'.

These counterfactual conclusions are justified by a particular sort of process knowledge, and by a mass of historical data. For the former, Fogel – unsurprisingly, as an economist – relies on a theory of 'rational man': that people will maximise economic efficiency given the technological tools available. It is this assumption that permits counterfactual consequences to be drawn. For example, Fogel at one point turns to the question of agricultural land use in a water-based transportation system. Given the assumption that profits are maximised, one can conclude that agricultural land will cease to be cultivated where it is past the point at which the cost of road transport to the nearest navigable waterway is higher than produce value. In this way, the counterfactual requires evidential backing (one needs to discover where the navigable waterways were, what the cost of road transport was, and what the value of agricultural produce), and hence can lead to justified conclusions. Certainly, Fogel's process-assumptions can be themselves be empirically challenged. But it is of value to make such assumptions explicit, and thereby to focus criticism and further research.

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[9] Adapted from Edgington 2001

4: POSSIBLE PATHS

It is not the case that all counterfactualising demands the ability to demonstrate a tight, 'experimental', connection between antecedent and consequent. It can be as valuable to point out what *might* have happened as what *would* have happened. Typically, this emphasis on possibility features as part of the privileging of culture over the innate, freedom over structure, and chaos over linearity. The place of *possibility* in arguments of this sort can be clarified by making a parallel division to that in the previous section. In counterfactualising there are two stages: the antecedent is constructed, and then a consequent of that antecedent is postulated. I first suggest how sketching an antecedent alone can go some way towards opening up possibilities, before examining in more detail the relevance of the connection between antecedent and consequent.

To enter into counterfactual imagination is to disrupt the stability of that which is imagined away. To imagine that something might have been different can open up the world and our actions within it. The move is akin to the role of *questioning* in Gadamer's hermeneutics. For Gadamer, to interpret requires putting one's own views into question. To approach Aristotelian ethics, for example, requires that we locate the differences between our post-Enlightenment ethics and those of Aristotle (between, for instance, the right of the individual to determine their own good life and a pan-human telos). Interpretation further requires that we question our own practices and beliefs in those respects found to be different, thus holding open the possibility that Aristotle might be right and us wrong. So it is with counterfactuals: to raise the possibility that things might have been different is to open up aspects of our world and its past that are usually ignored or assumed to be immutable.

There is no limit on what may be put into question. It is a mistake to think that counterfactuals must be limited to the intuitively 'chancy', and that we cannot also raise such counterfactuals as 'what if the law of gravity had been distance cubed … ', 'the earth had orbited a binary system …', 'the Mediterranean had been twice the size …', 'men were not motivated by money and power …'. However, just as Gadamerian hermeneutics demands that a question be not only raised, but taken seriously by a working through of the consequences of openness; so the destabilising effects of counterfactualising will not be found without some attempt to flesh out the counterfactual possibility. In other words, attention must be paid not to the counterfactual antecedent alone, but to the relation between antecedent and consequent.

Though any feature of our world may be put into question (imagined away or imagined to be different), there is another sense to 'S might not have happened' that can lead to evidentially based debate. An example was provided earlier, in Lefebvre's and Schama's contrasting understandings of the French Revolution. What is essential to such debate is that some prior aspect of the world is held fixed – say, the French socio-economic system – while other aspects (decisions, whims, meteorological events) are allowed to vary. On that basis, counterfactual consequences can be postulated. The defender of contingency (in this case, Schama) must establish a negative claim: that not all counterfactual paths that begin with that held fixed end with what actually happened. That negative task can be achieved in a number of ways, consideration of which will occupy the remainder of this paper.

One could argue for the contingency of the actual by producing the sort of imaginary experiment that was discussed in the previous section. One way to establish the claim that (actual) e was not necessary and that (counterfactual) e* was possible, is to develop a convincing imaginary experiment that runs from c to e*. Thus, an opponent of Fogel might seek to move from the antecedent of an America without rail-roads, to a consequentially much less industrialised America, in order to defend the possibility of non-industrialisation. A rather different type of example is to be found in the systemic knowledge gained by the application of chaos theory to real world systems (such as the meteorological, economic, or demographic). In such cases, nonlinear mathematics can be used to support the claim that very small changes in the systemic initial conditions can, under certain circumstances, give rise to extreme differences in systemic end points.

I have noted that imaginary experiments require 'process knowledge', knowledge which should not be limited to the theoretical (relying on explicit laws and causal properties) but should also be taken to encompass the ability to manipulate models. One can appreciate that a six sided die is a non-robust system – that the actual outcome might very easily not have happened – without knowing anything of the mechanics of dice rolling. In a similar vein, it can be argued that certain human environments are more open to possibility than others. Doreen Massey (2005) has suggested regarding spaces in terms of multiple, and changing, relations between human actions and objects. Some spaces – cities, in particular – have denser relations, and thereby permit a greater set of possibilities. Greater possibility can even be designed into an environment; Massey (2005: 180) cites the example of the project of the architect Aldo van Eyck to create the 'ludic city'. In terms already introduced (section two) we can formulate Massey's point as follows. Spatially open environments lead to non-robust outcomes, since if one holds fixed the number of relations in that space but allows the nature of those relations to vary, a wide variety in possible outcomes can thereby be expected.

In all the ways sketched above, one uses knowledge of a system to argue that the actual outcome was not robust, and therefore that other outcomes were possible. Those systems may or may not encompass human action. But it is of interest to point out that rational, free, action has an additional, and distinctive, connection with counterfactual possibility. A rational action is an event which is not bound by its antecedents. Where we cannot do otherwise, we cannot be taken to have freely acted. (Compare the scientific law that one cannot travel faster than light – a law which cannot be broken – with the rational requirement that one's thoughts should be consistent.) Thus any given example of rational action could have been different, even had the antecedents been the same. And if that is correct, then one does not need systemic knowledge in order to claim that an action might not have been performed; one needs only the knowledge that it was indeed a free action.

Though rational action has a special connection to possibility, I want to resist the typical demand that all historical counterfactuals be founded in that connection. Ferguson (1997: 86) requires historians in their counterfactualising to be bound by the rule that antecedents be those 'which we can show on the basis of contemporary evidence that contemporaries actually considered'. Hawthorn (1991) requires that the antecedents considered be themselves 'possible choices' of the individuals involved. As should be clear from the examples already cited, I believe that we should avoid taking such recommendations as binding rules on the use of counterfactuals. To do so is not only philosophically and methodologically unnecessary, but carries the distinct

disadvantage that historical counterfactuals would thereby imply an individualistic form of historiography that critics such as Hunt (2004) decry.

It is one thing to claim that a given action might have been different, quite another to claim that significant differences would have flowed from that altered act. That task brings me to the final means to defend claims of possibility: through the construction of possible stories. Philip Roth's *The Plot Against America* provides a compelling example that illustrates the distinctive features of the genre. Roth's depiction of a proto-Nazi America under the presidency of Charles Lindbergh in the early 1940s stems from an antecedent requiring only minimal suspension of belief. Roth notes Lindbergh's popularity, anti-semitic views and advocacy of Nazi Germany, using these actual features as the route to the counterfactual outcome. The only antecedent change that is required is the alteration that Lindbergh chose to run for President, rather than, in reality, professing no interest in governing. The interest of Roth's story lies in the consequences that he draws from that antecedent.

When constructing a possible story what counts is narrative connection. The standard of connection is that required for narrative in general: weaker than predictive entailment given the starting point, yet stronger than mere compatibility with that starting point. Roth writes of the development of Jewish assimilation programmes ('Just Folks'), of the marginalisation and eventual assassination of the Jewish broadcaster Walter Winchell, of anti-Jewish riots just short of pogroms. None of these outcomes are determined by the antecedent, none well justified by the sort of process knowledge required by imaginary experiments. Yet all are believable; we, as readers, have no hesitation in 'following' the narrative that Roth creates. This is not the place to develop any comprehensive theory of what narrative 'followability' amounts to. What is important is to note is that one can follow a narrative without supposing that the later steps were determined by the earlier, and yet one is able to recognise and reject the artificial device, the *deus ex machina*. Roth's narrative has a believability grounded in the detailed and plausible actions of the key characters, foremost amongst these his young narrator. Yet the conclusion of Roth's possible story has struck commentators as the weakest aspect of that book, for the same reason. The possible story is brought back into line with actual history by the device of removing Lindbergh by abduction, and thereby bringing Roosevelt back to the Presidency. (It appears to be a regrettable and recurring theme of possible stories that they pander to a needless desire to flee back to reality.)

5: RECOMMENDATIONS

It is not without reason that my examples of explicit counterfactual use have focused outside the historical and geographical mainstream (on an economist on the one hand, a novelist on the other). My contention is that the mainstream, to the extent that it has explicitly employed counterfactual reasoning, has been too cautious. Historians and geographers can learn from the boldness of the practitioners of the two approaches here outlined.

Taking as typical those historians who have contributed to Ferguson's *Virtual History* series, we can notice a tendency to inherit the restrictions of each approach without utilising their more ambitious elements. In common with imaginary experiments, sound knowledge of process knowledge is generally required (the only exception being Ferguson's own final narrative resulting from Royalist victory in the English

Civil War, a piece however written entirely for playful and ironic effect). Yet the process knowledge deployed is rather conservative, consisting primarily of projecting forward the realisation of pre-existing plans of contemporaries. (In fairness, one must also note the sometimes sensitive use of analogous cases as models, as in the discussion of Britain's reaction to Nazi occupation by critical use of the analogous cases of continental and Channel Islands occupation[10]).

Similarly, the restrictions of possible stories are adopted: that the initial alteration be minimal, reversing a fact that was itself contingent. Much of the argument of each of these papers concerns the demonstration that there were pre-existing plans that, if implemented, would have led history down a different path (that Britain might not have supported France in the First World War, that the Western powers might not have backed the anti-communist revolts circa 1990). These attempts do have value with respect to the contingency or robustness of certain key historical events. Yet the possible stories traced from that point remain truncated and cautious. In being so, they limit our ability to contextualise the present, and thus to morally judge and argue what should or should not have been.

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[10] Roberts, A 'Hitler's England', in Ferguson 1997: 301-304