Anticipation: A New Thread for the Human and Social Sciences?

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Abstract

Anticipation is increasingly at the heart of urgent contemporary debates, from climate change to economic crisis. As societies are less confident that tradition will provide an effective guide to the future, anticipatory practices are coming to the foreground of political, organizational and personal life. Research into anticipation, however, has not kept pace with social demand for insights into these practices. The paper outlines the main contributions to the understanding of anticipation from the human and social sciences, focusing in particular on the most recent developments.

1. Introduction

Anticipation is increasingly at the heart of urgent contemporary debates, from climate change to economic crisis. As societies are less confident that tradition will provide an effective guide to the future, anticipatory practices are coming to the foreground of political, organizational and personal life. Research into anticipation, however, has not kept pace with social demand for insights into these practices, their risks and their uses. The conditions should be created for interdisciplinary collaboration and conceptual development to inform decision-making, strategy formation and societal resilience. To achieve a fuller understanding of the centrality of anticipation to human behaviour a research base must be developed that is capable of assessing and enhancing the potential of anticipatory practices for individuals, organisations and society while mitigating the risks of human behaviour. This research base is in development, but it is fragmented. Bringing researchers together from across disciplines, to explore the question of how humans anticipate, and the risks and uses of such anticipatory practices, will lay the foundation for understanding and creating future-oriented dialogue across disciplines and subsequently enhance decision and policy-making.

A better and more complete understanding of anticipation and its effects will improve theories and models of individual and collective human behaviour and its consequences. The benefits will thus assist those who are explicitly seeking to understand and design 'the prepared society', to make a more effective and sustainable use of technologies, to create more inclusive democracies and to explore the boundaries of human endeavours. The ability to anticipate in complex (self-generating, unpredictable) environments greatly improves the resilience of societies facing threats from a global proliferation of institutions, agents and forces, by articulating insecurities through anticipatory processes.

2. A First Surprise

As soon as one starts collecting data on anticipation, the first unexpected surprise perhaps is the finding that over the past century many scholars from many different disciplines and fields have worked on anticipation. (Nadin, 2004); (Zamenopoulos & Alexiou, 2004); (Poli, 2010). The unwelcome result is that nobody has systematically collected and compared the various proposals to date. It may well be that the same phenomenon has been discovered time and again. Even so, it would be interesting to know the differences, if any, among the various phenomena and among the theories purporting to capture them. It may be that different scholars have seen different aspects of anticipation, and a thoroughgoing comparison between the different proposals may help develop a more rounded-out theory. The following notes outline a map of the territory. A former paper of mine (Poli, 2010) provided an even more preliminary, somewhat idiosyncratic, survey, and it included some information on areas not covered by the present sections, such as semiotics (Nadin, 2004), engineering (Camacho & Bordous, 1998); (Astrom & Murray, 2008), and artificial intelligence (Butz, Sigaud, & Gerard, 2003); (Butz, Sigaud, & Baldassarre, 2007). In the meantime I have discovered other areas that have contributed to anticipation, such as language (for which see Streeck and Jordan (2009), a special issue of *Discourse Processes*), family therapy (Boscolo & Bertrando, 1993; Goldbeter-Merinfeld, 2005; Selvini Palazzoli, Boscolo, Cecchin, & Prata, 1975), and the advanced design approach (Bleecher, 2009; Celi, 2014; de Mozota, 2006; Zamenopoulos & Alexiou, 2004). The next sections cover only some of the main areas of the territory that, for good or ill, are considered the main articulations of the human and social science: namely psychology, anthropology, sociology, and economics. It is patent that much systematic work remains to be done.

3. Psychology

Anticipation is an old friend of psychologists. Herbart claimed that anticipations of sensory effects not only precede voluntary movements but also determine them. This thesis, known as the Ideomotor Principle (IMP), runs contrary to the claim that psychic processes in general are determined by stimuli (i.e. it is at odds with both behaviorism and most of current cognitive psychology; for an overview of IMP see Stock and Stock (2004); for a treatment unfolding the idea that, after all, stimuli may not be as important as mainstream psychology believes see Albertazzi (2013)).

After the prelude represented by Herbart, studies on anticipation in psychology have been conducted only very recently, providing evidence of distinct forms of anticipation in learning, attention, object recognition, and many other cognitive activities (see Hoffmann (2003) for references; for an overview of the impact of anticipations on cognitive development see Butz (2008)).

These studies show that behavior is more goal-oriented than stimulus-driven. In other words, they show that there are robust reasons for challenging one of the main assumptions of cognitive science, namely that stimuli come first. The contemporary version of IMP claims instead that ambient interactions reinforce *anticipated* outcomes.

Behavioral and cognitive schemata – be they pre-given or acquired – shape the way in which organisms perceive the environment. For this reason they are anticipatory: "Schemata construct anticipations of what to expect, and thus enable the organism to actually perceive the expected information" (Riegler, 2003, p. 13).

However, the most systematic development of anticipation in psychology is the theory of prospection presented by recent research (Seligman, Railton, Baumeister, & Sripada, 2013), a major contribution to a new conception of psychology as a whole. As a matter of fact, during the past decade psychologists have begun a systematic study of people's orientation towards the future (for a non-technical introduction to time perception see Hammond (2012)). Seligman's paper, however, has the nature of a paradigm shift, and it will likely provoke heated discussion. The paper's main aspects are the following:

– Historical reconstruction of the development of twentieth-century psychology, with a particular focus on the limits of behaviorism and cognitivism;

– Empirical collection of data, especially on white rats;

– Presentation of the idea of the 'prospective brain' and analysis of its 'default mode'.

Other aspects include a comparison with and critique of Kahneman and Twersky's prospect theory (not to be confused with Seligman's prospection theory) which deals with the prospective reformulation of several psychological disorders and analysis of memory, subjectivity, consciousness, and free will. I am providing this highly compressed summary to show that, whilst in my reconstruction below I will have to be very selective. The paper is worth reading in its entirety.

Prospection, for Seligman, is the representation of possible futures – an idea undeniably close to anticipation. While prospection is a ubiquitous feature of the human mind, much psychological theory and practice has understood human action as determined by the past. According to mainstream psychology, anticipation is seen as "a violation of natural law because the future cannot act on the present" (Seligman et al., 2013). However, "prospection involves no backward causation; rather, it is guidance not by the future itself but by present, evaluative representations of possible future states" (Seligman et al., 2013).

While "viewing behavior as driven by the past was a powerful framework that helped create scientific psychology, … accumulating evidence in a wide range of areas of research suggests a shift in framework, in which navigation into the future is seen as a core organizing principle of animal and human behavior" (Seligman et al., 2013).

If the future indeed becomes a core organizing principle of the mind, the past will have to recede from being a force driving needs and goals to being a resource from which agents "selectively extract information about the prospects they face. These prospects can include not only possibilities that have occurred before but also possibilities that have never occurred" (Seligman et al., 2013, p. 119). To do so, "the prospective organism must construct an *evaluative landscape* of possible acts and outcomes" (Seligman et al., 2013, p. 120).

Moreover, "the success or failure of an act in living up to its prospect will lead not simply to satisfaction or frustration but to maintaining or revising the evaluative representation that will guide the next act" (Seligman et al., 2013, p. 120).

> *"Since all the modes of time are mutually inter-connected, changes in any one of them reverberate on the others."*

The entire conceptual framework of psychology changes when we shift our focus from the past to the future. Since "at any given moment, an organism's ability to improve its chances for survival and reproduction lies in the future, not the past … learning and memory, too, should be designed for action. These capacities actively orient the organism toward what might lie ahead and what information is most vital for estimating this" (Seligman et al., 2013, p. 120). Moreover, the focus on expectations helps in reconsidering the role of past experience, which ceases to be seen as a force directly molding behavior and becomes information about possible futures. "Choice now makes sense … stretching well beyond actual experience and enabling them [the rats in the paper's exemplification, but I see no obstruction towards understanding the claim generically] to improvise opportunistically on the spot" (Seligman et al., 2013, p. 124). There is more than opportunistic improvisation, however: namely the "active, selective *seeking* of information ('exploration')" (Seligman et al., 2013, p. 124).

Furthermore, there is no need to see expectations as limited to conscious processes only. Indeed, "generating simulations of the future can be conscious, but it is typically an implicit process … often not accessible to introspection, and apparently occurring spontaneously and continuously" (Seligman et al., 2013, p. 126).

4. Anthropology

Anthropology has traditionally focused its research on non-industrial societies; moreover, the main focus of anthropology has been the cultural reproduction of identity, which for the most part means analysis of the ways in which societies develop their sense of the past. These claims are no longer valid: anthropology has begun to focus on both industrial societies and the ways in which societies develop their sense of the future (Appadurai, 2013, p. 285). As a cautionary note, one may add that "anthropology has the means, but not yet the concerted conversation, to develop an ethnography of the near future of the 21st century" (Guyer, 2007, p. 410).

Within anthropology, the recent debate on its future has been ignited by Guyer (2007). Previous efforts to call attention to the future within anthropology had little impact (Munn, 1992; Wallman, 1991). Munn (1992), for instance, already saw that the future is a crucial topic for anthropology: "anthropologists have viewed the future in 'shreds and patches', in contrast to the close attention given to 'the past in the present'" (Munn, 1992, p. 116). Here I will consider only three main contributions to this otherwise rich debate: namely the already-mentioned works by Guyer and Appadurai, together with Piot (2010).

Guyer starts by noting the emptying "of the temporal frame of the 'near future'" (Guyer, 2007, p. 409). What has been called the 'postmodern condition' seems to be based on a "reduction to the present" (Jameson, 2002, pp. 207, 209). Since all the modes of time are mutually interconnected, changes in any one of them reverberate on the others. Jameson notes that the sense of the past and future within the present tends to become feebler and feebler (Jameson, 2002, p. 214). As a counter-move, he proposes learning to see utopian tendencies as they develop. To which Guyer replies: "I like the general direction here but doubt the matrix. The spaces opening up are not alternative or utopian in any holistic sense. They are reconfigurations of elements that are well-known already, moved in to colonize particular phases and domains of individual and collective life that have been released from answerability to a more distant past and future" (Guyer, 2007, p. 416). Moreover, "the spaces opened up offer innovative extrapolation from some vantage points and block any cumulative momentum from others.… In many literatures and in formal and informal daily life, I perceive a similar rising awareness of a time that is punctuated rather than enduring: of fateful moments and turning points, the date as event rather than as position in a sequence or cycle, dates as qualitatively different rather than quantitatively cumulative" (Guyer, 2007, p. 416).

Guyer's analysis is based on the concept of 'near future'. The question that she raises is whether the near future includes "a gap, a space, a rupture in time" – that is a singularity that cannot be described but only believed and witnessed. If indeed the near future includes a temporal rupture, this implies that previous frameworks providing temporal coherence have been substituted by a series of new frameworks "entailing continual temporal arbitrage to stay afloat" ((Han, 2004); (Guyer, 2007)).

Piot's reconstruction of West Africa after WWII explains how the end of the Cold War has been a major disruption for the colonial system of governance: "the end of the Cold War has changed the sociopolitical landscape in ways that demand new theoretical tools" (Piot, 2010, p. 16). All the recognizable continuities notwithstanding, Piot remains "committed to the idea that a threshold has been crossed and that the contemporary world is undergoing significant shifts in modes of sovereignty and forms of political-economic organization, shifts that dramatically transformed Africa in the 1990s" (Piot, 2010, p. 13).

Perhaps surprising from a European perspective, in West Africa Pentecostal churches are the main forces forging a new understanding of the future. By urging a break with the past, including rejection of the old structures of authority, these churches reshape temporality (Piot, 2010, p. 9). Attention may be called to the fact that "US pastors are now traveling to Africa to be ordained – because they see African Christianity as a purer form – before returning 'home' to engage in 'mission' work" ((Jenkins, 2002); (Piot, 2010, p. 63)).

There is more than this, however. The issue is not limited to rejection of the past; the really intriguing issue is that "futures are replacing the past as cultural reservoirs" (Piot, 2010, p. 16). While our understanding of these Pentecostal-mediated futures is remarkably poor (for an insider's point of view, see (Heward-Mills, 2006)) the very possibility of using futures as cultural reservoirs is central to the idea of anticipation.

In order to develop a systematic understanding of the future, anthropologists should examine "the interactions between three notable human preoccupations that shape the future as a cultural fact, that is, as a form of difference. These are imagination, anticipation and aspiration" (Appadurai, 2013, p. 286), even if "we have not yet found ways to articulate how anticipation, imagination, and aspiration come together in the work of future-making" (Appadurai, 2013, p. 298). Nevertheless, "as we refine the ways in which specific conceptions of aspiration, anticipation, and imagination become configured so as to produce the future as a specific cultural form or horizon, we will be better able to place within this scheme more particular ideas about prophecy, well-being, emergency, crisis, and regulation. We also need to remember that the future is not just a technical or neutral space, but is shot through with affect and with sensation. Thus we need to examine not just the emotions that accompany the future as a cultural form, but the sensations that it produces: awe, vertigo, excitement, disorientation" (Appadurai, 2013, pp. 286-287).

The capacity to anticipate the future is socially differentiated, however. On understanding that "'the capacity to aspire' is unequally distributed" and that "its skewed distribution is a fundamental feature, and not just a secondary attribute, of extreme poverty" (Appadurai, 2013, p. 289) one begins to grasp some of the deeper issues related to the future as a cultural reservoir. Not everybody has access to this reservoir.

As a step towards building a future reservoir where none is available, one may consider the productive role played by memory. "While state-generated archives may primarily be instrumental of governmentality and bureaucratized power, personal, familial, and community archives –especially those of dislocated, vulnerable, and marginalized populations—are critical sites for negotiating paths to dignity, recognition, and politically feasible maps for the future" (Appadurai, 2013, p. 288). Put differently, without "the capacity to aspire as a social and collective capacity … words such as 'empowerment', 'voice', and 'participation' cannot be meaningful" (Appadurai, 2013, p. 289).

Anthropologists need to engage in a "systematic effort to understand how cultural systems, as combinations of norms, dispositions, practices, and histories, frame the good life as a landscape of discernible ends and of practical paths to the achievement of these ends. This requires a move away from the anthropological emphasis on cultures as logics of reproduction to a fuller picture in which cultural systems also shape specific images of the good life as a map of the journey from here to there and from now to then, as a part of the ethics of everyday life" (Appadurai, 2013, p. 292).

This effort will evidence the difference between what Appadurai calls 'the ethics of possibility' and 'the ethics of probability'. The former is based on "those ways of thinking, feeling and acting that increase the horizon of hope, that expand the field of the imagination, that produce greater equity in what [he has] the capacity to aspire, and that widen the field of informed, creative, and critical citizenship". Conversely, the ethics of probability deal with "those ways of thinking, feeling, and acting that flow out of what Ian Hacking called "the avalanche of numbers"… they are generally tied to the growth of a casino capitalism which profits from catastrophe and tends to bet on disaster" (Appadurai, 2013, p. 295).

5. Sociology

Alfred Schutz argued that we simultaneously live in different contexts of meaning, with different temporal dimensions, at different levels of familiarity. Schutz distinguished three main systems: thematic, interpretative and motivational. The system of most interest here is the last one, the motivational system (Schutz, 1972; Schutz & Zaner, 1982).

According to how motivational systems operate, actions are typically framed by two types of opposition: the opposition between my actions and yours and the opposition between future and past actions. Future actions are interpreted according to an 'in-order-to' structure, whilst past actions are interpreted according to a 'because' structure. In-order-to motives are components of the action: they shape the action from within. By contrast, because-motives require reflective acts upon already-taken decisions. This structure helps explain why we perceive actions as free according to in-order-to-motives and as determined according to because-motives.

Actions are always elements of wider projects, which in their turn rely on various stocks of knowledge. One of the most familiar components of knowledge is the stock of typical expectations, which may become actual in typical circumstances and predetermine typical reactions. As Riegler notes, "Instead of getting overwhelmed by the details of a new situation, humans seek to replace them with familiar activity and behavioral patterns that show a high degree of predictability to putatively gain control again, to be able to anticipate the outcome" (Riegler, 2003, p. 12). In this sense, indeed, new experiences may be familiar to their type.

Expected social behavior constrains social life ((Schutz, 1972); (Berger & Luckmann, 1969); (de Jouvenel, 1967)). The distribution of social capital (including economic, relational and intellectual forms of capital) further distinguishes the typical anticipations of the future characterizing different social groups (Bordieu, 1984). While "the network of reciprocal commitments traps the future and moderates its mobility," it nevertheless makes social life less difficult in the sense that it "tends to reduce the uncertainty" (de Jouvenel, 1967, p. 45). On the other hand, the growing degree of uncertainty experienced by contemporary society implies that something more is at stake. Specifically, what is at work is the covert connection between a peculiar interpretation of rationalization and an equally peculiar interpretation of the future. As to the former, already at the beginning of the past century Weber showed that efforts to make social life more rational generate the unintended consequence of raising uncertainty (Adam & Groves, 2007, p. 12; Weber, Lassman, Velody, & Martins, 1989).

The subsequent distinction between two main kinds of futures paves the way for a better understanding of the roots of social uncertainty. Adam and Groves distinguish between "the embedded, embodied, contextual future", on the one hand, and the "decontextualised future emptied of content, which is open to exploration and exploitation, calculation and control", on the other (Adam & Groves, 2007, p. 2). I shall distinguish them as respectively concrete and abstract futures.

Not surprisingly, economic agents see the future as a commodity, a good to trade like any other good: banks calculate the value of the future with respect to interest and credit,

insurance companies calculate the value of future risk (Adam & Groves, 2007, p. 10). These futures are abstract possibilities, independent of any context. They are reduced to pure, i.e. abstract, exchange value. The future as a commodity "can be calculated anywhere, at any time and exploited for any circumstance" (Adam & Groves, 2007, p. 10). Once the future has been traded as an abstract exchange value, "speed provides not only evolutionary and cultural but also commercial advantage" (Adam & Groves, 2007, p. 102). Trading concrete with abstract futures paves the way for the onset of uncertainty (Adam & Groves, 2007, p. 55). Furthermore, the experience of the past two centuries shows that "efforts to control, manage and engineer the future produce unprecedented uncertainties" (Adam & Groves, 2007, p. 77).

The tendency towards higher degrees of uncertainty experienced by contemporary society is further strengthened by the interplay between abstract futures and the role of information and communication technologies. Not only has communication become instantaneous, it is also networked across space to cover almost the entire planet. As a consequence, the usual, primarily local, order of causal dependences recedes into the background and contributes less and less to sense-making efforts. Again, the net result arising from abstract futures and globally networked instantaneous communications is the rise of uncertainty (Adam & Groves, 2007, p. 55).

Disturbingly, as uncertainty increases, the capacity to anticipate real, i.e. concrete, futures decreases (Adam & Groves, 2007, p. 35). The more our activities generate outcomes extending into the deep future, the more our explicit anticipatory capacities diminish.

Leaving abstract futures aside, two main kinds of concrete futures can be distinguished: pre-given futures, and futures in the making. The former are the futures resulting from relevant pasts, the futures resulting from given structures, from individual embodiment and social embedding in networks of social relations. These futures are primarily past-driven and common-sense-based. On the other hand, the futures in the making are growing possibly latent futures. Adam and Groves distinguish them respectively as 'present future' and 'future present'. Present futures are "futures that are imagined, planned, projected, and produced *in* and *for* the present" (Adam & Groves, 2007, p. 28). Economic and scientific forecasts are cases in point. They colonize the future from the present (Miller, 2007). Present futures are continuations of the past through the present. Future presents, on the other hand, are futures "that can be known, 'seen' and anticipated". As far as future presents are concerned, they are the futures that are used in the present, the futures that enter into and shape the present.

The distinction between 'present future' and 'future present' was initially introduced by Luhmann (Luhmann, 1982, p. 281). According to Luhmann, while present futures are utopian, future presents are technologically biased. Adam and Grove develop a different understanding of these two expressions based on the difference between 'pre-given futures' and 'futures in the making'. I am suggesting that they add a more explicitly active component to their description indicated by the expression "using the future". I will reserve the qualification of 'anticipatory' only to those systems that can use the future in the present.

To return for a moment to present futures, the value of a given present future is calculated against its alternative present futures. The present future generating the larger profit is the

future with the highest value. "In this way the future as such becomes tradable: one future outcome is tradable for another, on the basis of its estimated returns" (Adam & Groves, 2007, p. 73).

"Are we sure there are no other institutional frameworks and configurations of social relationships that are further able to advance democracy, freedom, and respect for individual and social rights?"

Adam and Groves call the future in the making 'latent'. A latent future is a future 'on the way' that still has to surface and become visible. Even if a latent future is hidden and invisible in the present, it is nevertheless an actual component of the present: it is a future "living within the present".

This may be the appropriate place to note that "during the past thirty years substantial experimental data have shown that all axioms of expected utility theory have been violated by real subjects in experimentally controlled situations" (Berthoz, 2003). Real agents are far from being ideal or idealized decision-makers, as expected utility theory assumes. On the contrary, we systematically make mistakes, for various reasons including social pressure, the tendency to agree with others, the influence exerted by hierarchical structures, the role of emotions, the desire to be right, the way in which problems are represented (Berthoz, 2003). All this may eventually provide robust evidence that it is time to update the decision-making programs used in business schools for managers, public policy schools for administrators, or military schools for soldiers.

As we have seen, the invention of abstract futures is one of the sources, possibly the most important one, of the rising level of uncertainty in contemporary society. The idea of developing strategies intended to reconnect abstract and concrete futures presents itself as the natural option to consider. The suggestion is not to return to anything like the 'good old times' because nothing historical reverts to any of its previous states. The only possibility, as always, is to move forward. What has to be considered is whether it makes sense to reconnect what was severed. However extraordinarily successful the bourgeoisie has been, the institutions that it has invented are only two centuries old. Are we sure there are no other institutional frameworks and configurations of social relationships that are further able to advance democracy, freedom, and respect for individual and social rights? Wright's idea of 'Real Utopias' faces such questions (Wright, 2010, p. 4). Indeed, one cannot rule out that at least some of the problems being faced are directly or indirectly connected to the form that political institutions have historically taken in the West. Imagining new institutional frameworks may be of assistance in addressing some of these issues. Clearly, it would not be sufficient to simply carry out purely abstract thought experiments on institutional changes. As social scientists, we can and must also assess whether the newly proposed frameworks are desirable (for instance in the sense of mitigating the adverse consequences in question), viable (i.e. capable of withstanding the test of time), and achievable. A fra-

mework that induced unbearable unintended negative effects, that proved unsustainable in the long run, or that could not be established in practice would not constitute an acceptable outcome (Wright, 2010, pp. 13-14). Identifying the ways in which existing social institutions and social structures cause harm for people is a natural starting point. Complementarily, a better understanding of the variety of human flourishing clarifies the capacities that any institutional framework should respect, protect and improve.

> *"Within economic thought there seems to be an unrestrainable tendency to see everything as risk."*

According to Wright, a theory of transformation involves four central components: (1) a theory of social reproduction; (2) a theory of the gaps and contradictions within the process of reproduction; (3) a theory of the underlying dynamics and trajectory of unintended social change; and (4) a theory of collective actors, strategies, and struggles (Wright, 2010, pp. 17-19). All of these obviously involve the future and should be integrated into a full-fledged theory of anticipation.

6. Economics

Economics deals with the future in many different ways, at many different levels. Governments deal with forecasts on the inflation rate and the increase or decline in the Gross Domestic Product; almost any aspect of the strategic management of companies concerns the future: from calculation of the production of goods adjusted to seasonal variations to long-term decisions about producing entirely new goods or opening new factories. In turn, finance is entirely based on anticipations. Leaving aside all its remarkable technical complexities, the basic rule of finance is simple, almost trivial: buy assets that are going to grow in value, sell assets that are going to fall in value – both sides include unavoidable reference to the future. However, as later chapters of Beckert's book will show, the vast majority of ways to see into the future exploited by economists is severely constrained. There are entire realms of anticipation that have never been considered by economists.

Even within economics, however, things are starting to change. Jens Beckert in particular is opening new avenues. Particularly worth mentioning is his endeavor to break down the walls that so far have isolated economics, political science and sociology from each other (Beckert, 2013a, p. 324).

In order to understand the micro-processes underlying macro-economic outcomes, one should focus on agents' expectations. The economic activities that are pursued or avoided are established by expectations. The problem is that "under conditions of fundamental uncertainty, expectations cannot be understood as being determined through calculation of optimal choices taking into account all available information, but rather are based on contingent interpretations of the situation in the context of prevailing institutional structures, cultural templates, and social networks" (Beckert, 2013a, p. 325). It is here that Beckert introduces the concept of 'fictional expectation' referring to "present imaginaries of future

situations that provide orientation in decision making *despite* the incalculability of outcomes" (Beckert, 2013a, p. 325). This means that fictional expectations are more imaginations about the future than they are forecasts. Like imaginations, fictions add creativity to the economy and contribute to the dynamics of capitalism (Beckert, 2013b, p. 220). As Beckert explicitly declares, "the notion of fictional expectations is directed against the concept of 'rational expectations' constituting the micro-foundation of much of modern macro-economics" (Beckert, 2013a, p. 325), (Beckert, 2013b, p. 221). The reason is clear: according to rational expectations theory, aggregate predictions are correct because individual errors are random. Therefore predicted outcomes do not diverge systematically from the resulting market equilibrium. As a consequence the uncertainty of the future becomes a predictable forecast, paving the way for the rational calculation of optimal choices. On the other hand, the true openness of the future makes it impossible to explain decisions as calculations of optimal choice (Beckert, 2013b, p. 221).

> *"It is the images of the future that shape present decisions" – Jens Beckert*

Despite all the objections raised against the just summarized train of thought, such as the role played by cognitive biases or true novelties, the ideology of the rational calculation of optimal choices is still the position defended by the vast majority of working economists. Apparently, economists tend to analyze uncertainty as if it were risk. As should be well-known, the distinction between the calculability of risk as opposed to the incalculability of uncertainty was introduced by Frank Knight as early as the 1920s (Knight, 1921). This notwithstanding, within economic thought there seems to be an unrestrainable tendency to blur their differences and to see everything as risk.

Beckert's intention is to reintroduce a difference between risk and uncertainty by raising the question of the nature of expectations under conditions of uncertainty. Here is his answer: "Structurally, expectations depend on cultural frames, dominant theories, the stratification structures of a society, social networks, and institutions. But the concept of fictional expectations gives the notion of expectations at the same time a political twist because expectations are seen as being open to the manipulation by powerful actors" (Beckert, 2013a, p. 326).

In order to clarify his concept of fictional expectation better, Beckert openly claims that "it is the future that shapes the present—or, to be more specific: it is the images of the future that shape present decisions" (Beckert, 2013b, p. 221). The fact is that actors must develop expectations "among other things, with regard to technological development, consumer preferences, prices, availability of raw materials, the strategies of competitors, the demand of labor, the trustworthiness of promises, the state of the natural environment, political regulations, and the interdependencies among these factors", despite the true unknowability of the future (Beckert, 2013b, pp. 221-222). Hence expectations are real fictions – there is no chance of seeing them through the opposition between truth and falsehood; eventually, the proper opposition will be based on the difference between convincing as opposed to unconvincing expectations. Moreover, expectations are more than 'mere fantasies' because actors

develop plans that are based on and include them (the difference between 'mere fantasies' and 'design fantasies' reaches back to (Schutz, 2003, p. 148)).

Finally, fictional expectation works on an 'as if' base: "fictional expectations represent future events as if they were true, making actors capable of acting purposefully with reference to an uncertain future, even though this future is indeed unknown, unpredictable, and therefore only *pretended* in the fictional expectations" (Beckert, 2013b, p. 226).

7. Toward a Discipline of Anticipation?

The generality of anticipation raises many questions. On the one hand, it shows that anticipation is indeed a general feature of a variety of phenomena and research fields. From this point of view, anticipation traverses disciplinary boundaries and may indeed become a point of unifying perspective. On the other hand, the danger is always present of treating in a uniform manner phenomena that are essentially different. The theory of anticipation may risk the same fate as suffered by systems theory (at least in some phases of its history) and 'anticipation' may become a catch-all term for so many different phenomena to be scientifically unhelpful.

As far as the social sciences are concerned, a clear result emerges from the above overview: that the boundaries among the various social sciences appear more and more meaningless. The more the efforts to develop the discipline of anticipation proceed, the more the traditional walls separating the social sciences will break down.

However partial the preceding overview may have been, it has nevertheless shown the variety, generality, and depth of the interest in anticipation of the future. Not surprisingly, terminologies differ widely, and the lack of a uniform theoretical framework within which to understand anticipation will become a major obstacle to the establishment of anticipation as an autonomous, unifying research field.[*]

The following five aspects emerge from the overview as likely components of the incipient Discipline of Anticipation:

– The difference between calculable risks and incalculable uncertainty. The former emerges from closed futures – closed because calculable – and the latter characterizes open futures. While there is only one way to be closed, there are many ways to be open. There are also many different ways to open a closed system, which implies that the process of opening a system is not generic.

– The difference between the distant future and the future in the present. The further distinction between 'present future' and 'future present' – that is, the distinction between the future as a projection of the past (a form of calculable future) and the future as a proper anticipation of the future – distinguishes different types of the future in the present. An issue to be addressed is whether the future in the present and the near future are synonymous concepts.

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[*] For a first effort to lay down the basis of the Discipline of Anticipation see R. Miller, R. Poli and P. Rossell, "The Discipline of Anticipation. Exploring Key Issues", 2013, http://unitn.academia.edu/RPoli.

–   The difference between continuous future and the discontinuous or ruptured future. While it is granted that the far future will include major discontinuities, the issue is whether the opposition between continuity and discontinuity characterizes also the future in the present or the near future.

–   The difference between systems able to use the future as opposed to systems unable to do so. I shall call 'anticipatory' only the systems that have the capacity to use the future in the present.

–   If it is acknowledged that there are different types of anticipations arranged along a variety of dimensions (such as (1) biological, psychological, and social forms of anticipations, (2) explicit and implicit anticipations, (3) calculable and incalculable anticipation; (4) continuous and discontinuous; etc.), the question arises as to how they interact with each other. Under what conditions do the various forms of anticipation work together? Under what conditions do they interfere and even block or destroy each other?

This list, though partial and provisional, raises further questions. Anyway, while a full-fledged theory of anticipation will likely require further, presently unaddressed components, the above five components show that a systematic effort to gain better understanding of the many nuances of anticipation promises to pay dividends.

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