

# ETHICS IN ANTICIPATORY SYSTEMS; THE NORMATIVE STANCE

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## **Abstract**

This paper develops the author's recent chapter in Poli's Handbook of Anticipation. I take further Rosen's characterizations of anticipatory systems as having 'almost an ethical character' to suggest that in the domain of the social, ethics, as *values inherent in inferential judgements*, act on the disposition to anticipate.

The approach takes anticipation to be existential to living things, in particular humans and societies; that it is natural and ubiquitous. Rosen's anticipatory systems theorises that actions of living things are based on their inferences of how the world works, and is motivated by signs of change (which might be seen as threat or opportunity for example). This approach is linked to a critical realist account of social change, drawn from Bhaskar's transcendental realism and following this Archer's Morphogenesis and Elder Vass's causal power of social structures. Between them these authors offer a deep account of social change and of the centrality of social relations and values in understanding social change.

Drawing from positive psychology of prospecting, inspired by Gilbert, Seligman and others, This paper contributes the idea that human disposition to anticipate is a causal mechanism in social change and needs to be understood and addressed in policies and practices concerned with creating responsible futures.

**Keywords:**] anticipation; ethics; critical realism; norms; responsibility

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## **Introduction**

This paper draws its content mainly from a pre-print of a chapter in the Handbook of Anticipation {Poli, 2018 #1781} by the author {Fuller, 2018 #318}. Citations from this paper should be more properly made to the chapter. The theme of the paper is the way that normativity is generated and stabilised through anticipatory processes, but that changes in values is also the product of anticipation. In the domain of science and technology foresight, or policy foresight, this is significance for a) the issue of responsible innovation and b) anticipatory governance. The central idea is that value and values are inherent in anticipatory systems, which themselves are part of everyday life and include the formal and informal structures associated with technological innovation and futures.

The term 'normative' is used here to mean *relating to or deriving from a recognized standard and applied to behaviour and to judgements*. The term 'normative' has a variety of meanings, and can relate to ethical questions of which values are 'good' or 'bad', or more generally to what values are taken as 'social values'. The role of cultural values is central to structural functionalist theories of social structure (Parsons 1961).

Social norms are inherent and hidden in languages; are contested; are negotiated. Norms are dynamic; there are evident deviations between practices and the rhetoric of espoused values. What is operationalized as 'the norm' is not fixed. Norms also vary between groups of people: sub-cultures, nations, ethnic groups, religious communities, professional practitioners etc.

Norms are dynamic and the relationship between anticipation and the normative is dynamic. The processes of anticipation, I suggest, create or add to the dynamism of social norms.

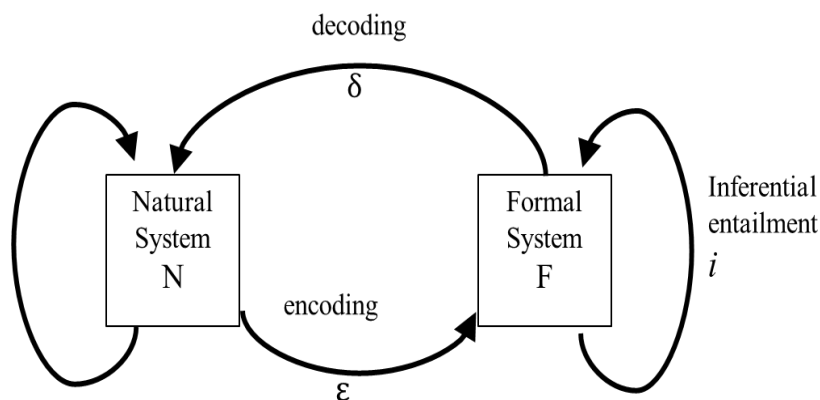
In this paper anticipation is framed through Robert Rosen's work on anticipatory systems, but in particular noting the concern Rosen had for normativity as ethical good and the ways in which his systemic models relate to norms and values. The second theme is that of emergence as a theory of social change, grounded in a critical realist philosophy after Roy Bhaskar that sees emergence as an explanation the possibility of human self-emancipation. I follow Margaret Archer's theory on morphogenesis {Archer, 1995 #1111} and Dave Elder-Vass {Elder-Vass, 2007 #1459; Elder-Vass, 2010 #1764} on social emergence to suggest that anticipation is inherent in the causal power of social structure.

The question of 'what is being anticipated that might change society?' is discussed and in particular the role of value and values in anticipatory inferences, suggesting that what is taken as value is central to the inferential logic of anticipatory systems. This then leads to a discussion of ways in which anticipation is causal and what effect it has on the stabilizing or destabilizing of social norms.

### Methodological approach

#### Anticipation

Anticipation involves inference. In an anticipatory system the modeling relations synthesize entailments in a natural system by inferential entailments in a formal system. The relational model is a set of inferential entailments. Inference is a judgmental process, whether conscious or unconscious, cognitive or psychomotor, reasoned or 'felt'. Inference, at the point of action (of the effector in the case of an anticipatory system) is a process internal to the 'system'. However, the causal influences on human inferential reasoning are social. The judgements in inference are socially produced.



**Error! Reference source not found.**, Inferential entailment in anticipatory systems. Source: Rosen {Rosen, 1985 #1181, p72}

Encoding and decoding may not appear to have ethical characteristics. However, Rosen raised the question of normative values in his work, pointing out that anticipatory systems assumed an 'almost ethical character'.

The character of a predictive model assumes almost an ethical character even in a purely abstract context. We might even say that the models embodied in an anticipatory system are what comprise its individuality; what distinguish it uniquely from other systems. As we have seen, a change in these models is a change of identity...” (Rosen et al., 2012, p370)

He was also concerned with what was good for human society, asserting that “ought is of the essence” in anticipatory systems: ‘Without a conception of “ought”, there could be no guide to politics’ (Rosen et al. 2012, p1), that is, normativity is inherent in identifying desirable regions with respect to future states of the system - to guide anticipatory systems concerned with planning and governance of humanity.

The causal effects of what is desirable and undesirable shape the emergence of changes in the environment. I link two dynamics; anticipation and emergence, by the interacting effects of each on the other. If actors (or anticipatory systems) are inter-relating in an ecology of actors, then each will have a sense of what is desirable and undesirable for themselves. Anticipation of a change in value of something significant - something of greater or lesser desirability or undesirability than currently exists - motivates action.

### Emergence

Ontological emergence is the appearance of an emergent property produced through interactions of something other than the emergent property, and that the emergent property has features which are novel from the features that produced them. In certain kinds of emergence, the emergents are also autonomous from the features that produced them and have a form of holism in themselves. See Humphreys (2016:26) for further explanation. This account of emergence is consistent with the idea that society changes itself from within.

Theorizing social emergence, Bhaskar (1983), Archer (1995) and Elder-Vass (2010) relate transformational models of social activity to group norms and relationality and to temporality. Elder-Vass refers to ‘two critical moments’, one where individual actions are affected by pre-existing social institutions and one where they act to reproduce or transform the social structure concerned. Such actions, argues Elder-Vass have multiple influences, not simply determined by the values and practices of the particular group circle or social structure involved. Other more powerful influences may change the dominant beliefs of an individual; other more powerful influences may loosen any group sanctions for norm transgressions by individuals. Significant changes external to the group may cause a weakening of social institutional power that guides the shared practices, and for the model that each individual has of this environment to become obsolete.

### Prospection

Seligman et al contribute to understanding relations between prospection, emergence and social norms. One of their propositions is this: ‘what if morality is not evaluation of the present action, but the prediction of character and its thrust into the future?’. Morality and social norms, as with laws and technologies add structure to the future, making otherwise unavailable actions and outcomes possible (Railton 2016:22). A causal force in this, they imply, is the idea of a future benefit or costs which regulates or motivates action. ‘To want to take an action because we like the idea of what that action might yield, even if that is remote in time or novel in character.’ (p. 21). The drive towards action is thus anticipatory. Railton argues that the ‘system biology’ with the features necessary for making and acting on moral judgement is the affective system – human emotion. This is the system capable of representing and comparing the values at stake and allocating efforts, such that our values serve to ‘orient and move us’. The affective system

involves ‘attention, perception, memory, inference and action-readiness in a coordinated way’ (p24).

Furthermore, although their concern is human psychology from a prospective point of view, they explicitly recognize the significance that collective psychology has in shaping social structures and norms. Returning to a theme of Elder-Vass, albeit implicitly, Roy Baumeister suggests that

‘In a sense, the future’ is a ‘product of collective imagination and agreement. The Group imagines it together [...] people in the group cooperate to impose their collective imagination on top of some physical or anticipated facts’ (Baumeister 2016)

### Dispositions

Bhaskar describes dispositional realism as the specific form of modal realism. Modal realism takes the realist position that entities have disposition, i.e. causal powers that are transcendental from the particular actual world context in which they are observed as being situated. Such inherent dispositions transcends the specific context, albeit that in a difference context they might not be realised or manifest because of the arrangements to other objects and their dispositions. Thus modal realism is epistemically consistent with alternative futures, a world of possibilities, where there are other possibilities than what exists now. ‘There is another world, but it is in this one [...] as a possibility it is enfolded within the things and structures that we have in this world, and so this world could be different’. (Bhaskar and Hartwig 2010:66) For Bhaskar, modal realism is indispensable for concrete utopianism and for human freedom.

Borghini and Williams add to an explanation thus; “Dispositions are characterised by the manifestations they produce, and hence are for that manifestation. For example, the disposition fragility has as its manifestation a shattering or breaking of the fragile object, so fragility is a disposition for shattering or breaking. [...] ‘Dispositional realism’ refers to any theory of dispositions that claims that an object has a disposition in virtue of some state or property of the object. (Borghini and Williams 2008:23).

As noted elsewhere, (Fuller 2018) if, as Rosen, Gilbert (2007), Seligman and others assert, anticipation (or prospection) is existential, that it is a characteristic of ‘life itself’, then anticipation can be described as a disposition. Perhaps more specifically, prospection and acting upon anticipations is dispositional. The nature of the particularities of what is anticipated is ontological; it depends on the situation. The nature of an actual anticipation and its effects are empirical. The point is that all living things have such dispositions, even when they are not manifest because of the specifics of a situation.

### Anticipation, emergence and norms

Anticipation it is argued is dispositional, existential, part of the temporality of being. Anticipation is a process of sensing and interpreting ‘external’ information in relation to the actor’s (or anticipatory system’s) internal model. When presented with new information or experiences, the inferential process makes judgements about the salience of that information and its consequences. Judgements are made with regard to whether this information, or this experience, or this deviation from the norm, has desirable or undesirable consequences. Thus the anticipation of an end effect will cause a response, either to accept and adapt to absorb the new condition, or to try to reject or try to amend the condition. I suggest that this process is at least a partial explanation for transformations in social structure. The empirical nature of how

knowledge of a change in modelling relations is actually sensed and responded is open to further research.

Archer's proposed morphogenesis / morphostatic duality can be applied in considering the role of anticipation in the social process of establishing, maintaining or changing norms. This duality asserts that social action can be stabilizing or transformational, depending on the actions of the actors involved. Inherent in the notion of transformation is that actions leading to transformation are destabilizing, in the sense that transformation is a post-hoc state. The preceding text shows that interpretation of circumstances or conditions is an anticipatory modality of action. The modality of anticipation is a process that mediates between sense (knowledge sensed in multiple ways) and action, or 'effecting' in the terms of anticipatory systems.

One significant function of this anticipatory mode is evaluative; seeking to understand if a particular situation or changing context is desirable or undesirable and how to act. Logically, the evaluative criterion in relation to anticipated future states is how valuable that possible future state is to the actor. The evaluation framework used by the actor is influenced by the norms and values of the 'group circle' (Elder-Vass), though not in a closed way, as discussed earlier. Within that group circle the criterion is, logically, the anticipated consequences for the group's existential being, and related identity, longevity, quality, purpose and etc. In short, the anticipation of value stabilizes practices in relation to ephemeral emergent properties. The anticipation of greater value arising from emergent practices or properties tends towards a destabilizing of the norm, and transforming to another stabilized state. The anticipation of reduced value, as threats or loss, leads to action that conserve stable practices, i.e. morphostasis. Loss aversion has been shown to be somewhat stronger than possible gains (Tversky and Kahneman 1992; Kahneman and Tversky 1979). This argument is extended in more depth in Fuller.(2018).

### **Results, discussion and implications**

The causal power of anticipation by virtue of its relation to values and norms in the evaluation of possible futures states can be observed in transformational practices. In particular in the way that narratives are intentionally shaped and promoted by those in transformational roles, such as leaders, entrepreneurs, politicians and activists. This may manifest as narratives of hope, of promised utopias, of security, of better lives. Or narratives may convey fear, threat, uncertainty, loss. Influence on the inferential modality of anticipation is a political imperative. Economic and monetary systems on which humankind depends for development are dependent on imaginaries; on the expectation of future value, whether as the result of new technologies, or the payment of interest on loans. Social systems depend on trust for their stability and flourishing. The relationship between anticipation and norms is not a passive relationship nor necessarily a natural one.

Powerful narration of particular prospects can form and modify modelling relations, our inferential judgements about the world made in the process of our actions. In the process is it easy for the introduction of what Rosen referred to as impredicativity, i.e. where internal causality is self-defined and thus not predicated on causes in the environment. The avoidance of impredicativity requires a continuous critical reframing of the 'modelling relations' (between inference mechanisms and natural systems) to prevent a divergence between assumed reality and experienced reality.

### **Conclusions**

*"Normativity, relating to or deriving from a recognized standard and applied to behaviour and to judgements, is assumed to be significant in the maintenance of social structures.*

Transformations in social norms are possible and associated with changes in practices. Norms, with associated values and practices, are socially reproduced and socially transformed. The question of what 'causes' these to be reproduced or transformed is a central one to understanding social change. This paper takes an emergence perspective on social change, i.e. that changes in patterns of practice of social interaction are emergent from extant practice and can exert power over extant practices.

The link between social emergence and anticipation is drawn from Rosen's theory of inferential modelling relations contained within his theorizing of anticipatory systems. In the context of human society it applies when a particular human actor or agent makes inferential judgements about the desirability of changes in their relations to others and to their environment. The disposition to anticipate other possibilities may be causal with respect to a change produced, where the agent has, and uses, power to respond to an anticipated change. The extent to which such a disposition leads to action will depend on context.

From a critical realist perspective, anticipation is a causal mechanism in the process of emergence. At the same time, the state of an anticipatory system: involving inferential logic, modelling relations and actions of effectors, is dynamic, emergent and inherently formative of emergent practices.

Anticipation can act to stabilize practices to avoid undesirable outcomes or to destabilize practices in a transformational process. Transformation is a process of destabilizing and re-stabilizing. The appearance of ephemeral (short lived) emergent norms can be stabilized by the actions of individuals within the group in anticipation of futures value. Similarly, existing norms can be maintained while ephemeral emergents are extinguished by reactions to an anticipated loss in value.

The anticipatory mode of normative judgement is material in the stabilizing and transformation of human society. In the methodological context of this paper, dispositions to anticipate and the anticipatory actions initiated by this anticipation provide some explanation of morphogenesis and morphostasis. With regard to anticipation and the normative stance, a case is offered that anticipation is inherent in the formation and stabilizing of normative practices." (Fuller 2018)

Nothing in this account of anticipation being causal suggests that anticipation is 'accurate' in its predictive capacity, nor that the desirable regions guiding an anticipatory system (or individual, or group circle etc.) are necessarily best for the future of humanity. Such the casual power of anticipatory inferences relates to the internal model that the system holds of itself in its environment. It is likely to be self-related, rather than automatically more widely related to the human condition and therefore almost certainly suboptimal. It is however, important as an explanation of how the self-identities of groups and individuals can change and of the anticipatory mechanisms related to this. In these terms, the task of shaping greater responsibility for the consequences of human actions on the future of humankind is that of shaping the modelling relations, and inferential values; the nature of which need to remain open and protected.

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