A rose by any other name would smell as sweet? – Paradigmatic Differences of Foresight, Futures Studies and Forecasting

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Abstract
The quest to define Foresight and Futures Studies seems to spark a regular discussions about the terms and discussion on the differences and hierarchy between Futures and Foresight are quite frequent on informal fora. We recognize that a stable definition and name are important for legitimacy of a research field. Thus we analyze the names, the associated definitions and underlying assumptions to create new understanding to the underlying currents of naming the field. This paper is builds on a mini-review of Ziauddin Sardar’s Namesake paper and the discussion it sparked, examination of relevant other literature as well as reflection on the authors’ cumulative experiences in researching and practicing Futures Studies and Foresight. Based on our analysis and reflection, we propose that there are distinct paradigms behind activities named Futures Studies, Forecasting and Foresight. Thus we argue that rather than try to forge one single term to cover all of these activities, the researchers need to recognize these differences and the assumptions that follow with them.

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Introduction
The quest to define Futures Studies and Foresight is as old as the practices themselves. In the community of researchers and practitioners, discussions about the differences and hierarchy between Futures and Foresight are quite frequent both informally and in the published literature, perhaps most recently around Ziauddin Sardar’s “Namesake Paper” (Sardar 2010; Tonn 2010; E. B. Masini 2010; Marien 2010; Martin 2010). This suggests that there is a need for a clear definition for these fields of research and practice. However, the discussion also alludes that an analysis of the names themselves does not capture everything that is needed to define the field.

It is also suggested that the whole field is thwarted, as a lack of an accepted name and definition puts the legitimacy of the field in question (Marien 2010). Marien (2010) describes the field as an “underdeveloped multi-disciplinary clearinghouse for all futures-relevant information on world and national problems, ... and it should be organized to fulfill this potential”. After all, if something cannot be defined, to any degree of accuracy, it can hardly be understood or studied. Thus we argue that clear definition of any research field, while at times restricting, is an important source of legitimacy as it also provides tools for solving the demarcation problem (K. R. Popper 1963; Gieryn 1983), i.e. judging whether something can be considered Foresight and whether it contributes to the field.

The reason to revisit this discussion is that a stable definition is also paramount for an adjacent topic that has been recently on the rise in the community and literature. Namely there is an ongoing discussion on and for theory of and in Futures Studies and Foresight (e.g. Öner 2010; Hideg 2007). The discussion on theory of Foresight calls for a theory, but rarely it expounds what is the scope of theorizing. We propose that one of the reasons may be that the field of research to the future is not well defined.

Thus we analyze the names, the associated definitions and further underlying assumptions to create new understanding to the underlying currents of the discourse. While we do not want to overlook the importance of understanding how different cultures affect attitude and perception of the future (E. B. Masini 2010; Sardar 2010), we focus here on the definitions and underlying assumptions represented by current research literature.

This paper is builds on a mini-review of the Namesake paper and the discussion on it, examination of relevant other literature as well as reflection on the authors’ cumulative experiences in researching and practicing Futures Studies and Foresight. The second section will start with a discussion of the definitions and names of Futures Studies and Foresight, and continues to a summary historical analysis of the paths of development and underlying assumptions. We come to the conclusion that the three different paradigms can be recognized, which may explain the plurality of the different names for the seemingly similar activities. We propose further that in fact we need to recognize the plurality of the field explicitly to move forward in a productive manner.

Definitions
The practice, field of research or body of knowledge about the future has and is been called with many names since its inception. Futures Studies, or Futures for short, seems to be a prevalent terms, which we adopt here. Others include variously and apparently largely interchangeably Futures Research, Futurology,
Futuristics, Futurism, Prognostics, Prospectives, Futuribles and Conjectures (Sardar 2010; E. B. Masini 2010; Bell 2009) depending on authors’ backgrounds and which school of thought they subscribe to.

Bell writes in defining the purposes of Futures Studies that “[t]he purposes of futures studies are to invent, examine and evaluate, and propose possible, probable and preferable futures. Futurists seek to know: what can or could be (the possible), what is likely to be (the probable), and what ought to be (the preferable).” (Bell 2009, 1:73, author’s emphasis) In a similar fashion Kreibnich defines futurology, i.e. Futures Studies, as “the scientific study of possible, probable and desirable future developments, the options for shaping the, and their roots and past and present” (Kreibnich 2007). Additional definitions broaden the scope, corresponding with the moniker ‘scientific’, to the philosophical and methodological foundations underlying Futures Studies, particularly ontology and epistemology of the future (Malaska 2009; Sardar 2010; Aligica 2003). Thus we argue that:

*Futures Studies are scientifically motivated activities to create knowledge about the future itself, and about the associated methodology and philosophy.*

Judging by the discussion, it tends to be assumed that Foresight is yet another synonym for Futures Studies (Marien 2010; Sardar 2010), and it has been used as such. However, there is an ongoing discussion in the field about the nature and definition of Foresight (Miles et al. 2008). One of the most cited definitions might be from Joseph Coates (through Miles et al., 2008, p. 7) that Foresight is a purposeful activity to develop knowledge about the future of a given unit of analysis, system of actors or area of interest, be it an industry, national economy or a single organization. Alternatively, or additionally “The aim of Foresight is systematically to explore ... alternative futures. Thus, Foresight involves a consciously ‘active’ attitude towards the future, recognising that the choices made today can shape or even create the future” (Martin 1995) The roots of Foresight as a practice and research discipline are counted by Miles (2010), and much of them lay in Technology Forecasting to inform research, development and innovation policy as well as corporate innovation and technology management (Martin and Johnston 1999; Cariola and Rolfo 2004; Martin 1995). Compared to Futures Studies, Foresight is a relatively young concept often attributed to 1980s. However, in recent research and practice, the domain, application, approach, methods and use of terms frequently overlap with Futures Studies or Futures Research (Sardar 2010; R. Popper 2008).

Voros (2003) has modeled a generic Foresight process which captures the basic structure of Foresight as commonly practiced. It is notable that the process includes a strategizing phase which implies that Foresight should be attached to action. The process is commonly organized as prescribed by the generic guidelines and whichever methodology (Keenan and Popper 2008; R. Popper 2008) is seen as fitting for the scope and mission of the Foresight. Thus, we argue (after Miles et al. 2008) that:

*Foresight is a purposeful process of developing knowledge about the future of a given unit of analysis or a system of actors, which is aimed at action in the form of public or private policy making, strategizing and planning, and that Foresight is frequently a participatory, involved and collaborative process.*

Additionally we consider Technology Forecasting to be a tradition that has similar aims and application areas. Technology Forecasting has been defined as “the probabilistic assessment of future technology transfer, which here denotes the entire range and effectuation of impact in technological as well as non-technological (economic, social, military, political, etc.) terms” (Jantsch, 1967, p17). The word probabilistic
is a key here, as the literature has made a point in distinguishing itself from both Futures and Foresight for similar reasons (Wissema 1982; Tschirky 1994), or put the other way, Foresight is an outlook to what is possible (Grupp and Linstone 1999) while Forecasting is an outlook to what is probable. However, also Technology Forecasting and Foresight are used interchangeable, or positioned within or under each other (Coates et al. 2001; TFAMWG 2004). Thus we argue that:

(Technology) Forecasting is probabilistic assessment of future technology, technology transfer and their socio-economic and technical impact.

Reflecting on discussions in informal for a between researchers, there seems to be a tendency among researchers and practitioners to institute a hierarchy between the terms or try to position all future-oriented activities under one large umbrella term often putting Futures Studies as the parent term of the taxonomy. If we look at the discussion on the names of the fields (particularly Tonn 2010; Sardar 2010), there seems to be what one colleague called “a pragmatic rhetorical shift” from Futures to Foresight, while there is also the argument that Foresight is old wine in new bottles as Foresight uses some of the same methods as Futures Studies.

However, we argue below that while reconciliation of terminology is useful, the ambiguity in terms is a result of three distinct paradigms and thus they cannot be straightforwardly reconciled. We propose based on the definitions that the main distinguishing factor is that Futures Studies are scientifically motivated knowledge creating activities, while Foresight and Technology Forecasting are mainly pragmatically motivated of “product-oriented” (c.f. Sardar 2010). The distinguishing factor is that Futures Studies include the philosophy and methodology streams more explicitly than the others.

**Background and underlying issues**

Some authors make a connection from present Futures Studies back to the oracles and scholars of antiquity (e.g. Kuosa 2011) Alternatively also 16th century religious scholastic Luis De Molina is mentioned as an influence (mainly by Masini 2010). Thomas Moore and his “Utopia” and early utopian or science-fiction authors, such as H.G. Wells, Aldous Huxley, and Jules Verne are also often mentioned as influences if not actual futurists (Bell 2009; Ayres 1969). H.G. Wells is sometimes credited for introducing the idea for Futures Studies as a research discipline (van Vught 1987) in his 1902 essay “The Discovery of the Future” in Nature (Wells 1902).

However, while the interest exhibited towards foretelling the future exhibited by the scholars of antiquity, soothsayers and others in the previous centuries tell us that future has interested people (Kuosa 2011; van Vught 1987; Wright and Ayton 1986). While these traditions may have influenced Futures Studies and researchers, it seems more reasonable to date the field of Futures Studies to 1940s-1960s, starting from the problem based scenario and Forecasting/Foresight studies conducted for the Manhattan Project, United States Army Air Corps and the United States Air Force Project RAND, which spawned the RAND Corporation in the 1940s on one hand, and on the other the French School pioneered in the 1950s which has been labeled La Prospective (Piirainen and Lindqvist 2010; E. Masini 1993; Bell 2009; Kuosa 2011; van Vught 1987) and later the “futures movement” in the 1960s which brought arts and humanities to Futures, when for example the first university courses and many of the present landmark publications appeared (Bell 2009; van Vught 1987).
In this sense, the most direct descendant from the early Futures Studies field is the Technology Forecasting tradition, which largely builds on the systems analysis, operations research/management and econometric traditions of probabilistic statistical model-based forecasting as well as the early efforts of demographic economic and socio-technical forecasting starting at the latest from the so-called Hoover Committee i.e. the United States President’s Research Committee on Social Trends (1929-1932) commissioned by President Herbert Hoover (Jantsch 1967; Ayres 1969; Del Sesto 1983; Cleary and Lanford 1978). The Forecasting tradition has its roots largely in the Hudson Institute, RAND Corporation and Battelle Memorial Institute (Martin 2010). However, Technology Forecasting has a strong association with the framework of reference given by the relatively deterministic strategic planning school of thought that has fallen out of favor in business and public policy making in recent times (e.g. Mintzberg 2000).

A further look to the definitions, or more specifically the publications that discuss the definitions, uncovers some interesting underlying patterns. While the roots of Futures Studies are quite technical and deterministic, later, especially starting in the 1960s, it has moved methodically and philosophically towards social sciences and humanities. Consequently, present Futures Studies seem to have roots in Universities and a strong association with Arts and Humanities to disciplines such as Social Sciences in general, including policy sciences, sociology, history (Bell 2009). In this sense modern Futures Studies may be more closely associated with the French School, which has put more weight on envisioning a favorable future and making it actionable, as the early American tradition was concerned with accurately predicting the futures(s), while it is generally recognized that there has been quite little influence between the two traditions (Durance 2010; Godet 1986; Godet 1982).

Additionally there are, what Marien (2010) calls, ‘futurized specialists’ and ‘specialized futurists’ and other researchers whose disciplines’ span the gamut of natural and social sciences and who contribute to Futures Studies and practice, but do not identify themselves (primarily) as futurists. We perhaps need to recognize particularly the numerous environmental and energy scenario exercises which however frequently methodologically belong to Technology Forecasting tradition.

Foresight in Europe is heavily associated with the Science Policy Research Unit (SPRU) at Sussex University as well as University of Manchester Business School and particularly the former PREST (Policy Research in Engineering, Science and Technology) group, presently Manchester Institute of Innovation Research (Martin 2010; Miles 2010) and its long standing collaboration with European public technical sectoral research institutions VTT Technical Research Centre of Finland, AIT Austrian Institute of Technology and TNO (Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek Eng. Dutch Organization for Applied Scientific Research). This alludes to an Engineering and Business School background. However, less attention is often given to the systematic application of Technology Foresight, originally under the label Technology Forecasting, in Japanese RDI policy (e.g. Kuwahara 1999).

Influences to Foresight come from the early Futures Studies in the American tradition, also starting from the Hoover Committee, and especially the development of the Delphi method in the RAND Corporation and subsequently in the Office of Technology Assessment instituted in the early 1970s by the United States Congress, which set-up the Technology Assessment tradition, which is the root of Foresight (Van Eijndhoven 1997; Cleary and Lanford 1978), but also the French tradition of Futures Studies (Martin 2010). In contrast to Futures Studies or Forecasting, the term Foresight as it is used today has been developed from the technology Foresight tradition to take the social cost and benefit into account through
participative methods, but retaining a practical or pragmatic orientation and a link to planning (Grupp and Linstone 1999). It can be argued that Foresight is in fact increasingly moving away from forecasting to participative and visionary direction.

We summarize this review of the development of these traditions to the following figure which also aims to illustrate the interrelations to some extent. The timeline is very illustrative and the links are as well. Especially the influence of the French School is hard to estimate, as on one hand it seems that the influence to American tradition is said to be weak (Durance 2010), but on the other hand present Futures Studies have seemed to arrive to similar orientation, even if through a roundabout way.

Figure 1: Illustration of paths of development between Futures, Foresight and Technology Forecasting (Adapted from Piirainen and Lindqvist 2010, with ref to Durance 2010; Martin 2010; Cleary and Lanford 1978; Bell 2009; van Vught 1987)

These findings makes us hypothesize that the difficulties to find one name and definition for apparently similarly inclined activities is in fact rooted in the different paths of development that may have given rise to separate paradigms (in the sense of Kuhn 2012). Kuosa (2011) also discusses paradigms within the field of Futures Studies, but his analysis on the underlying assumptions is conducted from the perspective of and within Futures Studies. We would like to propose that between Futures Studies, Foresight and Forecasting at least two and perhaps three paradigms in the classical sense can be identified. For the purposes of illustration we discuss abstract archetypes of each tradition, while recognizing that they have significant overlaps.
Table 1: Illustrative archetypes of the paradigms

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Futures studies</th>
<th>Foresight</th>
<th>Forecasting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope</td>
<td>Knowledge creation about the future, philosophy and methodology of Futures</td>
<td>Informing and influencing planning and decision making</td>
<td>Informing decision making through analysis and knowledge production</td>
</tr>
<tr>
<td>Philosophical orientation</td>
<td>Critical realist, interpretive and earlier (post-) positivistic</td>
<td>Pragmatic, also interpretive</td>
<td>(Post-) Positivist</td>
</tr>
<tr>
<td>Knowledge interest</td>
<td>Emancipatory, earlier also technical</td>
<td>Practical/technical, also emancipatory</td>
<td>Technical, control</td>
</tr>
<tr>
<td>Practical orientation</td>
<td>Knowledge and understanding/insight oriented</td>
<td>Process, product and client/sponsor oriented, focus on impact</td>
<td>Product oriented, focus on delivering reliable and valid information</td>
</tr>
<tr>
<td>Process attributes</td>
<td>Researcher-driven Frequently desk-based research, also participative</td>
<td>Client/sponsor-driven Frequently participative co-creation, focus on interaction and negotiation</td>
<td>Data driven, Desk research with quantitative data</td>
</tr>
</tbody>
</table>

This proposition can be tested by revisiting the definitions through the lens of demarcation. If we look at the definition of Futures Studies and then apply that definition to literature that identifies itself as Foresight, we cannot say that Foresight or Forecasting research fulfill the definition for the part of consideration of philosophical foundations and seeking knowledge about the future. And vice versa the decision-oriented definition of Foresight excludes Futures Studies.

It seems to us that the Forecasting tradition is most strongly and stably rooted in the logical-positivistic tradition, although the rooting is implicit and exhibited mostly in the orientation towards model-based probabilistic forecasting. Foresight literature is not immersed in philosophy of science, but quite commonly exhibits the traits of implicit pragmatist or instrumentalist orientation consistent with its problem-based and pragmatic roots i.e. Foresight research and practice is typically more concerned with outcomes and impacts than methodology or philosophy in the attitude ‘what works is true’ (e.g. James 1995). It has been suggested that Foresight departs from Futures Studies because Futures tend to be more critical towards technology and the idea of progress through research, development and innovation. Nevertheless, also social constructivist epistemology for Foresight has been recently identified (Fuller and Loogma 2009). In this sense Futures Studies comprise more variety as reflected in Kuosa’s discussion on the taxonomies of Futures Studies (Kuosa 2011), but it seems that increasingly, perhaps in the wake of the postmodern turn, the field assumes critical realist (Bell 2009) or subjectivist (Hideg 2007) and constructivist views (Aligica 2003) besides or instead of the positivistic.

If we further examine the questions answered and methods used in the field through the lens of ‘interests of knowledge’ (Giddens 1977; Habermas 1966), we can propose that Futures Studies are more prone to critical or emancipatory interest evident in the very definition of Futures as search for i.a. preferable futures, a value-laden statement and a philosophical sticking point for researchers since Hume’s Guillotine (Black 1964) and the naturalistic fallacy (Ridge 2013), while Foresight and Forecasting traditions tend...
towards the practical or technical interest. This finding is consistent with both examination of the institutional grounding and underlying assumptions.

Thus, while recognizing the many shades of gray and overlaps, we summarize this discussion to the following figure, which illustrates our understanding of the present landscape and relationship of Futures Studies, Forecasting and Foresight. What we mean to convey is that there are three distinguishable paradigms that have common history, significant overlap in terms of the main purpose (c.f. definitions above) and the methods\(^1\), but which nevertheless have their own distinguishable character and they cannot be easily merged or positioned within another. This, we argue, is because of the underlying philosophical assumptions and knowledge interests.

\(^1\) If one compares the methods proposed and used for Foresight (Keenan and Popper 2008; R. Popper 2008), Futures Studies (Bell 2009; Bell 2008; Glenn 2009) and Technology Forecasting (Martino 2003; TFAMWG 2004; Coates et al. 2001), there are clearly common grounds.
Conclusions

We have contributed to the discussion on foundations of Futures Studies and Foresight by examining the terms used to identify within the field. Based on our analysis and reflection, we propose that there are distinct paradigms behind activities named Futures Studies, Forecasting and Foresight. We use the word paradigm, because we propose that due to the differences in interest of knowledge and underlying philosophy, it may not be fruitful to try to forge one single term to cover all of these activities, but to recognize these differences and the assumptions that follow with them.

As discussed above, the legitimacy of a research field depends on an accepted definition and demarcation criteria. This analysis provides some basis for developing an understanding what constitutes Futures Studies or Foresight. The analysis of knowledge interests provides additional tools to position oneself in the current traditions. We suggest that to move forward, the community of researchers and practitioners engaged in Futures Studies or Foresight need to embrace the plurality of the field, but also position themselves to the current paradigm(-s). However, the present of historical paradigms do not necessarily (have to) stay stable, and we can expect development in the field.
Additionally, we expect this analysis helps putting existing research and practice into an appropriate historical and paradigmatic context. We expect this analysis provides a valuable starting point for entering the fields of Futures Studies and Foresight, and help students and professional alike to position themselves to a tradition close to them in terms of philosophy and knowledge interest. Recognizing where we and the others come from as individual practitioners, and being clear about our underlying assumptions in communication can only serve to increase (self) understanding and improve the quality of research in and legitimacy of the field.

As for implications, we strongly argue against digging trenches and starting any kind of war of factions within or between the (sub-) fields. In our view, the paradigms are not mutually exclusive nor do they constitute a hierarchy. On the contrary, we point to the fact that the practitioners have managed thus far to collaborate and coexist in various conferences and academic fora, including journals such as Foresight, Futures, Technological Forecasting & Social Change quite peacefully and fruitfully.

The properties of observed paradigms have also some bearing on the called-after theorizing in the field. On the contrary, recognizing the underlying assumption within the paradigms opens up new avenues for choosing a right tool for the question in hand. Presently the Futures Studies field is conceivably more open to multidisciplinary theorizing and systemic studies as well as philosophical theorizing (Öner 2010), while Foresight and Forecasting fields may be more supportive of utilitarian or pragmatic theorizing.

**Literature**


