

## **Plausibility as an issue in participatory Technology Assessment: A reflection on the question “From your perspective, what is intriguing about plausibility?”**

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I am presently involved in public participation in science and technology as a social science researcher to the Flemish participatory Technology Assessment (pTA) project ‘Nanotechnologies for Tomorrow’s Society’ (NanoSoc); a four-year research endeavour (2006-2010) funded by the Flemish government. The project involves two major Flemish universities and a leading research center on nanotechnology. It aims to provide nanoscientists in these institutes with incentives to reflect on social and ethical issues in relation to possible nanotechnology developments and to integrate such considerations into existent or nascent R&D strategies (for more information, see: [www.nanosoc.be](http://www.nanosoc.be)). In what follows I briefly focus on instances in which ‘plausibility’ emerged as an issue of debate between various participants and argue why such discussions matter in view of the question above.<sup>1</sup>

In the first of four NanoSoc ‘participation rounds’, participants were asked to co-construct nano-imaginaries, or “socio-technical visions of futures with nanotechnologies”. In an attempt to structure the exercise and clarify its purpose, initiating social scientists defined the issue of plausibility along the following lines: *A certain degree of scientific and social feasibility of the visions, meaning that scientific and accordant social developments have to be situated between concrete technology developments not yet realized but with good evidence of feasibility, and the utopian visions of the Science Fiction stories which do not claim to be feasible at all* (Van Oudheusden et al., 2007).<sup>2</sup>

This guiding definition of plausibility proved helpful in terms of separating *exploration* from wild socio-technological *speculation* (“science fiction” in the words of social scientists) and ‘near’ from ‘far’ future discovery. As Nordmann and Rip (2009) argue, such distinctions are necessary to avoid putting up only “speculative visions” for discussion at the cost of more pressing ‘here and now’ issues. However, even seemingly straightforward questions as to what constitutes “good evidence of feasibility” (in the definition above) are not easy to answer. In NanoSoc they remained open to discussion even among scientists from the same research center.

One – probably inescapable – plausibility issue that emerged in the interactions between participants was whether they should take seriously the possibility of ‘gray goo’; i.e. the idea of out-of-control self-replicating nanobots turning against human beings. A nanoscientist described the view as a “flawed fantasy”, to be dismissed on the grounds that gray goo poses “no real risk” to society. Yet, some prominent scientists like Bill Joy (2000) *do* argue the scientific feasibility of self-replication at the nanoscale and point out risks accordingly. In addition, more metaphorical uses of gray goo have been proposed, based on the understanding that the manners in which nanotechnology is imagined cannot be separated from social and technical practices (Macnaghten et al., 2005). From this perspective, gray goo may serve as a metaphor for scientists’ hubris in their day-to-day attempts to control nature, symbolizing an expression or ambition of power. It is such values and broader commitments that warrant public debate, as they potentially affect the whole of society when acted on. Plausibility would then acquire a ‘non-technical’ meaning, as distinct from *scientific* feasibility.

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<sup>1</sup> Most of the examples are derived from the following article: Van Oudheusden (2009).

<sup>2</sup> The distinction between concrete technology developments and science fiction is taken from: Grunwald (2004).

The understanding of *social* feasibility proved equally debatable. One NanoSoc participant argued that a scenario in which a dictator establishes his rule based on technological power should not be ruled out even in the short term (i.e. that it is “feasible”), whereas other actors refused to give it serious consideration.

Finally, a matter of use complicates the question of plausibility. Do visionary ‘projections’ of nanotechnology lend weight to nanotechnology’s promise? Or do they conversely incite fear among recipients and discredit both scientists and ‘their’ technologies? Clearly, certain nanotechnologists in NanoSoc feared the latter possibility (see also: Deblonde et al., 2008).

I mention the different framings of plausibility and the different responses they prompted because the expectations, fears, and hopes they elicit confront us with competing perceptions and perspectives on an issue that are at the heart of the participatory effort. If we engage too much in open speculation, (nano)technologists in particular will react defensively and possibly withdraw from (public) debate. If we narrow down the scope of possible questions to those of health risks and environmental impacts only, we risk casting aside important concerns about values and broader commitments – concerns that are usually neglected in political and institutional settings. In both cases, the quality of debate suffers.

Although I do not have a straightforward answer to resolving the problems described above, my entrance point would be to trace the various problem definitions that abound so as to articulate with actors the different motivations for engaging in speculation/exploration in the first place, as well as to probe the narratives actors construct for what they *do* rather than what they contain. To give an example: revolutionary visions of nanotechnology do not (always) have to come true if their primary function is to increase the chances of funding; rather, they have to hold much promise to attract investments and motivate researchers (Hessenbruch, 2004). As such, they are technologically inaccurate, yet ‘plausible’.

A mutual discussion of the purposes and practices of plausibility, as well as the controversies the issue incites, could thus serve as a learning experience (Limoges, 1993; Rip, 1986), albeit on the condition that actors are willing to engage in reflection on various plausibility rationales and seek to understand their function. To enable such learning, certain distinctions may well need to be made and others reconsidered. For instance, it may merit consideration to refine ‘scientific’ vis-à-vis ‘social’ feasibility. Maintaining a too stark distinction between the two is not helpful: it produces a duality between ‘hard’ scientific facts and human values that isolates science from social context. Moreover, as is clear from the gray goo example, communities of practice do not rigidly define plausibility on such terms. There is widespread disagreement *within* them as to what distinguishes the real from the unreal and the ‘technological’ from the ‘social’. Consequently, it may make sense to begin by exploring plausibility within particular communities and settings rather than bringing communities together to face one another from the start. Similarly, exploring the concrete ‘here and now’ with scientists could – paradoxically – incite an imaginative discussion among them, simply because they may feel less on the defensive in their own setting than in a (semi)public one.

Without claiming that any of these suggestions will work or prove effective, they may help to render more explicit what actors mean by ‘plausibility’, how their definitions serve particular purposes, and how various interpretations connect; particularly when these techniques are combined with other approaches. The main point I seek to argue then is that plausibility is understood differently from various angles. When it is negotiated among actors, it may in turn induce various and often ambiguous uses. These observations are hardly novel or surprising (see e.g. Laurent, 2007). However, meanings and uses of plausibility mesh with participation procedures and perspectives. We must fully ‘think’ these various elements together to understand their significance and to give ourselves more control over the situations they are cast in and are performative of.

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