Article

Futures Fallacies: What They Are and What We Can Do About Them

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Abstract

In this article, I analyse detrimental thinking patterns about the future, termed futures fallacies. These fallacies create barriers to positive individual and social change. I provide examples of ten specific futures fallacies and explain why they remain current. The article is intended to both those new to Futures Studies and to futurists, to help them, us, more effectively use the future.

Keywords

Futures Fallacies: Context and Earlier Research

This article develops on earlier work on futures fallacies providing a detailed explanation of each of these fallacies and how they are employed. I have previously written an introductory essay which defined and listed common futures fallacies (Milojević, 2020a) and an essay on one of these fallacies (Milojević, 2020b). This article provides further exploration of each of the fallacies, and where we have seen them employed.

I began exploring futures fallacies some ten years ago[1] and have since presented my research findings at numerous futures workshops[2] wherein workshop participants also provided their feedback and input.

The fallacies were an exploration into:

1. Thinking patterns that stand in direct contradiction to a truly desired longer-term future;
2. Thoughts and behaviours that are contrary to our best existing evidence, facts, and logic, of relevance to emerging futures; and
3. Cognitive frames that ensure chosen strategies fail.

I observed futures fallacies at the individual level (for example, when a smoker is "shocked" that he has developed a smoking related health problem or when people desiring a "harmonious family" engage in daily bickering) as well as at the collective level (futures warnings not addressed or believed, for example, as related to the climate change/environmental degradation, violence/its escalation, and infectious/noncommunicable diseases).

These observations challenge commonly held views that people are mostly rational, make the best decisions for their own benefit, their behaviour is logical, and that more (and more correct) information given would reduce faulty thinking and destructive behaviour. Indeed, it has been recognised that rather than purely being influenced by rationality decision-making is far more complex (e.g., Simon, 1991; Hodgson, 2010; Stone, 2012). Moreover, logical fallacies have been recognised for millennia. However, research into the cognitive fallacies associated with our thinking specifically about the future is sporadic and ad-hoc. This article aims to systematise – provide a meta-analysis – of previous insights.

The futures fallacies analysed in this article are based on insights from numerous academic fields including Social Psychology, Behavioural Economics, Policy Studies, Organizational Change, Planning, and, of course, Futures Studies.

In a decade plus of research, I have discovered many useful texts including Adam Dorr's fairly recent article on

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"Common Errors in Reasoning About the Future: Three Informal Fallacies" (2017). In this article Dorr argues that "most professional, academic, and scientific disciplines hold unrealistic views of the future beyond a 15 to 20-year timeframe" (Dorr, 2017, p. 322). This is because the "conventional visions of the next 50 years fail to realistically account for the full implications of accelerating technological change" (Dorr, 2017, p. 322). Unlike some other authors (e.g., Hoos, 1977), Dorr argues that it is possible to study the future more rationally, or, to use Dorr's term, more "realistically". To be able to do so, Dorr further argues, three common and interrelated errors in reasoning need to be addressed: (1) The linear projection fallacy, (2) The ceteris paribus fallacy, and (3) The arrival fallacy. In a nutshell, these three fallacies are about:

1. The error of presuming that future change will be a simple and steady extension of past trends – i.e., most disciplines envisioning futures with only minor changes as compared to the present moment.
2. The error of considering only one single aspect of change (i.e., only one technological, social, economic, political, or ecological change at a time) while holding "all else equal".
3. The error of envisioning possible futures as static objects such as destination or goal, rather than as snapshots of an inherently dynamic process, an ongoing procession of changes (Dorr, 2017, p. 322-330).

Taken together, these three fallacies conspire to undermine the recognition of the full implications of the accelerating growth of technological change and the implications which come with it. Futurists themselves have a "well-documented history of committing serious errors of their own", two of which stand out for Dorr (2017, p. 322): (1) Subscription to technological determinism, and (2) Naïve technological optimism.

To this assessment by Dorr we could add a third and a fourth. The third is the predominant focus amongst many futurists on technological change at the expense of social, cultural and epistemological changes. The fourth is, the predominant focus on forecasting and scenario planning for corporations and governments at the expense of, let's say, inclusive community visioning – that is, market and state at the expense of community and nature.

Still, it is important to note that antidotes to Dorr's fallacies have also been devised by futurists. For example, to address the linear projection fallacy, methods such as emerging issues analysis, discussion on "black swan" events (Taleb, 2007) as well as a general focus on alternative futures have been utilised in order to expand the breadth of the future.

For ceteris paribus, the futures wheel serves as an excellent method as it expands futures possibilities through first, second, and third order consequences. Finally, to challenge the static nature of the future and move toward the dynamic nature of change, what is helpful is to give examples of previous, historical changes or utilise methods such as Meimei Song's time machine.

However, beyond personal observation and received feedback after workshops, there is no empirical scientific evidence to prove the antidotes work. Both fallacies and their antidotes are thus indicative and exploratory; the list is not complete. In this article I limit the discussion to the fallacies well established in literature, and based on research into the "predictable irrationality" (Ariely, 2009) of thinking about the future. Along with the three fallacies articulated by Dorr – the linear projection fallacy, the ceteris paribus fallacy, and the arrival fallacy – I expand on Dorr's list, to include seven more futures fallacies, organised within six subheadings that follow.

Futures Fallacies

The planning fallacy
Examples of the planning fallacy "are found everywhere", argues Daniel Kahneman (2011, p. 250) who, together with Amos Tversky, coined the term in 1977 (Kahneman & Tversky, 1977, p. 2-2). Since then, a myriad of case studies and research studies (e.g., Kahneman, 2011; Pezzo, Pezzo, & Stone, 2005; Weick & Guinote, 2010) have confirmed the existence and the costs of the planning fallacy in numerous settings and environments.

To start with, it is a "common knowledge" in many places that if one is to undertake a home renovation project, it will "cost twice as much and take three times longer" as initially thought. This insight is, however, often offered in hindsight rather than in early planning stages, and almost always by outsiders of the actual project. A case in point is the construction of the Sydney Opera House, with an original cost estimate of $7 million and a final cost of $102 million (Sydney Opera House, 2020). Construction was expected to take four years; instead, it took a full 14 years. Besides obvious detrimental financial and temporal consequences, planning fallacies can have an additional

negative social, cultural and psychological effects. Governments and politicians have been known to fall from grace due to "overpromising"; marriages and families were strained (or worse) as specific project deadlines were not met. In the sphere of work, overly ambitious time scales have been known to "put employees under pressure, induce stress, and contribute to overtime work" (Weick & Guinote, 2010, p. 603).

Why is our thinking about the future when planning a task so wrong? In a nutshell, researchers claim that there is an "optimistic bias in prediction", which increases with temporal distance – i.e., the further away in the future, the less accurate the prediction of performance (Pezzo et al., 2005). They also found out that power can be "detrimental for planning and lead to greater errors in forecasts" (Weick & Guinote, 2010, p. 603). In other words, those who are "typically in charge of planning (e.g., managers, decision and policy makers) are more at risk to fall prey to biases in their forecast" (Weick & Guinote, 2010, p. 603). Perhaps similar findings would take place if research was undertaken evaluating optimism of the consulting futurists, as well as, overly optimistic and unrealistic expectations by the participants in various foresight projects?

In any case, the robustness of the phenomena has been found to withstand attempts to remedy it such as: recalling past projects that have run late, dividing the project into subcomponents, inviting construction of the "worst-case" or "consider the opposite" scenarios, and offering incentives for accuracy (Pezzo et al., 2005, p. 221). At this stage, there are mostly speculations as to how to minimise the planning fallacy, i.e., by changing the power structure and including individuals with less power (Weick & Guinote, 2010, p. 603), reducing the desirability of promised outcomes and making "salient the sequelae of failed predictions" (Pezzo et al., 2005, p. 221) and using "distributional information from other ventures similar to that being forecast … taking an 'outside view'" (Kahneman, 2011, p. 251). With, perhaps, the occasional administration of a healthy dose of pessimism.

Table 1: The planning fallacy

Futures Fallacy	Definition	Reason for/Benefit	Cost
Planning	The error of over-promising due to an "optimistic bias in prediction"	Generates action	Financial, psychological, social and temporal

The prediction fallacy

The prediction fallacy is related to the previously mentioned fallacy of linear projection (Dorr, 2017). However, it has some qualitatively different features, such as, for example, the belief that it is actually possible to predict the future in the first place. Futurists themselves are subtly or not so subtly pressured to provide various predictive forecasts, whether in the form of trend analysis, statistical and modelling analysis, Delphi, road mapping, risk mitigation studies, proposal and identification of strategies and most likely futures or so-called predictive scenarios. While such foresight activity is important, it is the overall lack of understanding and interpretation of probabilities that is at issue here. For example, even if an event has 99% chances of occurring, that does not mean it will occur for sure, as there is still a chance (albeit only 1%) that it will not. However, the anticipatory work futurists do is often perceived as set in stone, and futurists themselves are sometimes pressured to present their findings in prophetic perfect tense. Quantitative projections are taken as certain and unquestionable, which can lead to huge costs to both forecasting organisations as well as those requesting forecasting services. For example, in 2007, a global engineering and design group that engages in forecasting/prediction, Arup, received a hefty $4.7 million contract from BrisConnections (Brisbane, Australia) for their traffic forecasting work. Their efforts were further rewarded with an additional $130.6 million fee after winning a contract to help design the Brisbane Airport link (Wiggins, 2017). In 2014, however, Arup found themselves in court. They were brought "to the brink of bankruptcy by a $2.2 billion lawsuit" for its "unreasonable, implausible and unreliable" traffic forecasts and "the flaws in the methodology … so egregious that they could not be ignored" (Rubin, 2018). In summary, the forecast was found to be some 75% off the mark; the actual daily traffic after opening and charging of tolls reached around 50,000 vehicles instead of 194,000 as predicted. As a result, BrisConnections were forced to close their operations and went into receivership in 2013 (O'Sullivan, 2013). The group of 10 banks that loaned the company $3 billion regrouped to recover some of the losses they incurred. Arup is not the only traffic forecaster who settled lawsuits related to failed predictions. In fact, "numerous other traffic forecasters on major Australian toll road projects have also faced litigation over traffic volumes drastically lower than those predicted prior to road openings" (Procter, 2018).

The prediction fallacy is dangerous because genuinely valid warnings about the future are not heard due to previously failed predictions. Most predictions are, of course, bound to fail, even though some are to be accurate. Given how many predictions are made on a daily basis, it is always possible to find some that have, in retrospect, been shown to be true. At the same time, it is also always possible to find even more that have been off the mark.

The antidote to this fallacy is at the core of futureS studies and behind efforts of countless futurists. Critical futures thinking, in particular, challenges assumptions behind "given futures", certainty and the implicit prophecies. The more viable alternatives are outlined – especially those that challenge the dominant frameworks of meaning – the less likely the manifestation of the prediction fallacy. Furthermore, an effort to provide a "disclaimer" may be needed when futurists themselves are pressured to provide predictive or quasi-predictive findings.

Table 2: The prediction fallacy

Futures Fallacy	Definition	Reason for/Benefit	Cost
Prediction	The error of believing it is possible to predict the future	Certainty	Cynicism towards futures work

The fallacy of overinflated agency[3]

A thorough overview of the work by futures researchers and theorists concludes that the future is determined partly by history, social structures and reality, and partly by chance, innovation and human choice/agency (Milojević, 2005, p. 17). That is, there is a myriad of causes and conditions, including random events, especially in social arena, that come together to create a particular outcome. However, many believe that our collective present and our global future are created by an individual (e.g., George Soros, the Pope, Bill Gates) or a rather small group of people (e.g., Illuminati, Masons, UN). If a group, they usually meet in secret and in order to pursue some malevolent goal (Bale, 2007). "They" are known to share a common ideology (e.g., "globalists", "big Pharma") and/or national/religious/racial identity (for example, Jews).

There is no doubt, of course, that individuals and groups aim at influencing the future. Human agency directed towards inducing the future is widespread, including engagement in "conspiratorial politics", that is, "real-world covert and clandestine activities" (Bale, 2007). For example, in 2001, a group of men conspired (in secret) to create a terrorist attack on US soil. The shock triggered, the ripple effects and the overwhelming "success" of their project (damage done, global and long-term impact) has, however, led to the belief that there is more to the official version of the events. For example, research shows that "between 30 and 40 per cent of the [US] population believes that the official account of 9/11 is a cover-up or that the US establishment was [somehow] involved in the attacks" (Byford, 2011, p. 6). Another study found that around 20% of US residents endorse the idea that climate change "is a hoax perpetrated by corrupt scientists who wish to spend more taxpayer money on climate research" (Lewandowsky, Gignac, & Oberauer, 2013). These two beliefs are examples of "conspiracy theories", so popular in the US that there is a Two Volume *Encyclopaedia on Conspiracy Theories in American History*, with some 300 A-Z entries and nearly 1000 pages long, for that one country alone (Knight, 2003).

However, while the US is one of the most thoroughly researched societies, it is not unique in its embrace of conspiracy theories. Once again, the belief that the future is created by a hidden force or a group of humans conspiring behind closed doors is widespread through time and space. Therefore, it is critically important to distinguish between "essentially elaborate fables even though they may well be based on kernels of truth" and the activities of actual clandestine and covert political groups, a common feature of (modern) politics, argues Jeffrey Bale (2007, p. 48). The table below summarises Bale's conclusion as to what distinguishes these two phenomena.

In summary, no group or individual has the capability to fully control our future, no matter how secretive or powerful they are. A conspiracy never, or hardly ever, turns out in the way that is intended, argued Karl Popper in his 1972 influential essay, because "nothing ever comes off exactly as intended" (Popper, 1972, p. 13). And yet, the fallacy of overinflated agency has been proven to be incredibly resilient, possibly because it fulfils certain important "social function and psychological needs" (Bale, 2007, p. 50). Paradoxically, while relegating agency to others, people simultaneously reaffirm their own potential ability to control the course of future, i.e., via exposing and acting against those (imagined) omnipotent actors.

Table 3: Bale's arguments

Conspiratory politics	Conspiracy theories
Concrete and evidence based	Bizarre, unfounded and grandiose claims
Actors real humans with different values, beliefs and political goals	Actors inhuman, superhuman and or /anti-human beings who are Evil Incarnate
Focus on a specific, from their point of view, desired future	Focus on Manichaean (dualistic, battle between good and evil) and apocalyptic futures
Some outcomes unforeseen	Every outcome a result of conscious planning and direct intervention
Internal division among the conspirators exists across multiple lines (beliefs, strategy, preferred future)	Group monolithic and unerring in the pursuit of its goals; extraordinary (super-human) degree of internal solidarity exists
Restricted in (specific) time and (local) space	Omnipresent – global in its spatial dimension and continuous in its temporal dimension
Limited in scope and outcomes, with various levels of effectiveness	Virtually omnipotent
Some historical change accidental and of limited historical significance	Everything happens as a result of secret plotting in accordance with some sinister grandiose design
Concrete future outcomes a result of competing images/interest and enacting of power by various individuals/groups	A conspiratory group successfully alters the course of history; they alone are capable of controlling our destiny
New evidence discovered adjusts what is known	New evidence further confirms and strengthens the initial conspiracy

 Source: Jeffrey Bale (2007), summarised by I. Milojević (2020b)

What is disheartening is not only the resilience of this fallacy but also the finding that throughout history people have engaged in this fallacy with higher intensity during "impactful societal crisis situations, such as during fires, floods, earthquakes, rapid social change, violence, and wars" (McCauley & Jacques, 1979, as cited in van Prooijen & Douglas, 2018, p. 898). As we currently find ourselves in precisely such an impactful societal crisis situation at a global level, it is highly likely that the fallacy of overinflated agency will continue well into the future. Perhaps also discouraging is the finding that belief in one conspiracy theory makes belief in another different conspiracy theory more likely, including simultaneously believing mutually incompatible ones (e.g., a famous person was killed and faked his/her own death) (van Prooijen & Douglas, 2018, p. 898).

Fortunately, psychologists have also proposed two antidotes for this fallacy: 1. The promotion of analytic thinking and providing rational arguments against specific conspiracy-based views, and 2. Interventions aimed at decreasing negative emotions such as fear by instilling "feelings of security among the public", for example by opening avenues for people to experience a higher sense of control whilst simultaneously providing them with a sense of hope and empowerment (van Prooijen & Douglas, 2018, p. 905). Parallel to this, methods from futures studies such as visioning desired futures and backcasting in a similar way serve the purpose of "owning" one's own preferred future and agency.

Table 4: The over-inflated agency fallacy

Futures Fallacy	Definition	Reason for/Benefit	Cost
Over-inflated agency	The error of not being able to separate conspiratory politics – "real-world covert and clandestine activities" (Bale, 2007) – from conspiratorial ideation such as conspiracy theories	Relegates and reaffirms responsibility	Scapegoating Disempowerment

The future negation fallacy
Statements such as the future "does not exist" and will "never exist" are truisms which sometimes take rather delusional forms. A number of popular memes proclaim that "the past is history, the future is mystery, but today is a gift which is why it's called the present" and recommend to solely live in and focus on the present. Variations on this theme include the following: "Fear not the future, for it doesn't exist and never shall – because there is only

now" (Pinterest, n.d.). "If you want to be happy, do not dwell in the past, do not worry about the future, focus on living fully in the present".

The promise of eternal bliss when living in (only) the present moment may, however, be lost on people with neurological disorders and brain damage which prevent them from recollecting the past and projecting themselves into the future. On the contrary, functional disability, as present among people with, for example, traumatic brain injuries that affect parts of the brain in charge of memory, is known to exert a heavy toll on a person's quality of life. People with global amnesia, for instance, experience a host of emotional, physical and cognitive difficulties which impair their daily activities and create problems in a variety of social settings. As they are unable to recall remembered and project future events (Krawczyk, 2018, p. 165) this impairs their ability to solve problems in the present. Findings from brain research indicate that the same neurological systems and brain regions that are used in memory, i.e., to recall the past, seem to be critical for futures-thinking as well (Bar, 2009; Buckner & Carroll, 2007). Damage to these parts of the brain create an impaired capacity to both remember previous events and project oneself into the future (Tulving & Szpunar, 2009). Research into "autonoetic consciousness" (Tulving, 1985; Wheeler, Stuss, & Tulving, 1997), episodic foresight (Suddendorf, 2010), episodic future thinking (Atance & O'Neill, 2001), prospection, simulation, projection, or mental time travel into the future, stresses the importance of cognitive ability to "project oneself into the future and mentally simulate situations and outcomes" in order to enhance the capacity to "make decisions or organize behaviour in the present in view of anticipated events" (Hudson, Mayhew, & Prabhakar, 2011).

The relevance of the above for our argument is that future-directed thought is critical for "healthy human cognition" (Klinger & Cox, 1987; Szpunar & Tulving, 2011). The general capacity to anticipate a broad range of external events is a crucial brain function that enables and promotes adaptive interactions with one's environment (Bar, 2009). Moreover, the persistence of personal identity through time is "a fundamental feature of our self-concepts" (Moore & Lemmon, 2001, p. 1) of a self-spanning past, present, and future (Moore & Lemmon, 2001, p. 5).

Away from psycho-spiritual narratives, there is yet another and more insidious way to negate the future, widely known in traditional economy as future discounting. Discounting the future means that via numerous applications and methods within growth-oriented economics the future is given less value than the present. Money available at the present time is assumed to be worth more than the identical sum in the future, due to potential inflation, interest rates and investments or the money's earning capacity. One of the common formulas used − $FV = PV \times [1+(i/n)]^{(nxt)}$ − calculates the future value of money (FV) based on the present value (PV) in the context of the interest rate or other return that can be earned on the money (i) the number of years to take into consideration (t) and the number of compounding periods of interest per year (n). In such a way, "the future is devalued by a slight of the economic hand" (Adam, 1998, p. 75). It is the "exponential discounting" in particular, which determines that "values in the far future tend to have present values close to nothing" (Philibert, 2003, p. 2).

Discounting the future goes beyond the financial sphere and into the realm of general human psychology. Both have enormous consequences for a number of issues, for example long-term environmental planning (Farmer, Geanakoplos, Masoliver, Montero, & Perelló, 2015), financial well-being (i.e., living on "credit"), and the implementation of preventive health measures which improve future health (Chapman & Elstein, 1995). What is behind all this is the natural human tendency towards impatience, preference for immediate gratification, lack of proper understanding of risk and uncertainty (which increases as we go further into the future) and overall "present bias". The cost of future discounting is, however, huge, given the tendency of the future (not yet, out there) to somehow keep on turning into the present. What is spatially and temporally seen to be "out there", becomes difficult to deal with when it transforms into the lived experience in the here and now.

Antidotes for future negation have also been proposed. The alternative narrative of "prevention being better than a cure" works at a metaphorical level. Other strategies may include enhancing a sense of power or "the felt capacity to influence the thinking and behaviour of others" (Duan, Wu, & Sun, 2017) as well as enhancing the degree of connectedness between "me now and myself in the future" (Ahmed, 2018). Research has shown different ways to reduce discounting, known in psychological literature under the terminology of primed future focus (Sheffer, Mackillop, Fernandez, Christensen, Bickel, Johnson, & Mathew, 2016), mental simulation of future experiences (e.g., Stein, Wilson, Koffarnus, Daniel, Epstein, & Bickel, 2016), and interactions with visual representations of one's future self (Hershfield, Goldstein, Sharpe, Fox, Yeykelvis, Carstensen, & Bailenson, 2019). Amongst futurists these strategies are known as experiential futures and futures labs (Boulding, 1988; Candy, & Dunagan, 2017;

Sweeney, 2017; Ramos, 2017; Miller, 2018), and various embodied futures-oriented role plays (e.g., The Polak Game, The CLA Game, The Time Machine, The Toynbee Convector Experiment, The Sarkar Game, A Game for Future Generations, etc.) (Milojević, 2017).

Table 5: The future negation fallacy

Futures Fallacy	Definition	Reason for/Benefit	Cost
Future negation	The error of denying the existence of the future because "there is only now/the present moment"	Present bias and preference for immediate gratification	"Shock" when the future turns into the present

The time imbalance fallacy: back to the past, present centredness and overinflated futures fallacies
Challenging "presentists", futurists point out at the general lack of futures literacy, i.e., the inability to envision futures significantly different to the present moment and to use the future to better inform "what people see and do" (Miller, 2018, p. 15). Futurists stress that we cannot move through the present, make decisions or act in the present moment without some, even vague, idea about the future. The importance of hope and futures visions has also been repeatedly brought up, as "what we can imagine, we can create" (Boulding, 1988; Milojević, 1999).

Perhaps paradoxically, the situation of simultaneously "not being in the present" and lacking "futures literacy" is also possible. Most of our futures imagining are "tacit, token and taken-for-granted" (Gough, 1990), that is, implicit and often subconscious. Such imaginings impact our decision making indirectly and are combined with a multitude of factors to help us choose a course of action or inaction. In addition to rationality, logical and implicit/explicit futures visions, methods used by humans to decide on a course of action include: "habit, social custom, impulse, intuition, procrastination, and avoidance; cogitation, delegation, advice-seeking, and prayer for guidance; consensus, bargaining, mediation, voting, or chance" (Stone, 2012, p. 248). Moreover, humans rarely make choices in absolute terms (Ariely, 2009, p. 2). As the psychologist and author of *Predictably Irrational* Dan Ariely points out, we do not even know what we want unless we see it in context (Ariely, 2009, p. 2). We thus think relationally. We also easily think "associatively, we think metaphorically, we think causally" further argues psychologist Daniel Kahneman (2011, p. 13). He identifies such dominant thinking as "fast thinking" – and further defines it as automatic, quick and/or instantaneous mental activity that heavily relies on perception and memory. Statistical and complex thinking, on the other hand, requires a slower, more deliberate and effortful form of thinking, and unfortunately, is also a less influential type of thinking. So paradoxically, it is precisely during times of rapid change when we collectively need to slow down and carefully deliberate what may lie ahead.

However, the way people respond to such cognitive interventions will be mediated by another set of factors. Every decision we make, argues psychologist Philip Zimbardo, is governed by our internal time perspective – defined as an unconscious cognitive response style shaped by historical, social and cultural context. At an individual level, the way people respond to accelerated changes and uncertainty seems to be guided by this sort of implicit and unconscious set of attitudes towards change, time and future. This may explain why – whether discussions about the past, present or the future – some people immediately "get it" and others struggle when their specific internal time perspective is challenged.

In a nutshell, the Zimbardo Time Perspective Inventory focuses on three key time perspectives (past, present, future) which are further divided into two more categories (past-positive and past-negative; present-hedonistic and present-fatalistic; and future-oriented and transcendental-future-oriented). Past and present time perspectives can be hostile towards the future, albeit in qualitatively different ways. For example, past-positive oriented people are nostalgic and focused on the "good old days" – and thus adverse to change. Past-negative oriented people tend to reframe their pessimism as "realism", often this time orientation is a result of previous trauma (Sword & Zimbardo, 2016). Trauma can also be behind present-fatalism, where people believe they have no or very little control over the future. Alternatively, present-fatalism is a result of a religious orientation or "a realistic assessment of people living in extreme hardships" (Sword & Zimbardo, 2016). Finally, present hedonists "live in the moment", seeking pleasure and to avoid pain.

It is logical that the stronger the past-positive orientation, the stronger the "back to the past" fallacy, wherein the response to current and emerging problems is seen to be in some sort of return towards earlier historical phases.

This orientation may be related to yet another fallacy – that of declinism[4], which stands in stark opposition to the optimistic bias in prediction. Rather, declinism refers to a staunch belief that things, institutions, societies and civilizations are irreversibly tending towards futures worse than both the past or present. This too is a psychological defense mechanism which has been related to difficult situations wherein future is perceived to be worse in order to make the present more tolerable. At the collective level, declinism has been linked with post-conflict societies, or societies that experiences severe hardship and trauma (Milojević, 2013), as well as those that have a mythology of the past "golden age" and subsequent "fall from grace" (Spengler, 1918). At the individual level, older age ("everything was better once upon a time when we were young") and the "negativity bias" (negative events "sticking" more strongly than the memory of the positive ones) have also been linked to declinism. Further along declinism we go, the more we find ourselves in some dystopian places – but like the unchecked optimism of utopia, the unbalanced darkness of dystopia is perhaps a futures fallacy in its own right (Milojević, 2003).

It is important to stress here that there is a qualitative difference between learning from the past and wanting to relive/recreate it. The former is at the core of alternative futures-alternative pasts endeavours – wherein the past can be used as an inspiration for both desired for and discourses about futures to be avoided. The latter – wanting to go back to the imaginary good old times and recreate them in the present/future moment – is not only an impossible task, it is perhaps also futurists' "disowned self" (Stone & Stone, 1989).

Present-hedonism, on the other hand, is most likely behind beliefs of the future being "out there", or that futures problems happen temporarily and spatially "elsewhere". And so when a future finally arrives, for example, when certain causes manifest via their logical consequences, present hedonists genuinely "are shocked" and say that they "never saw it coming". "No one could have envisaged what has transpired this week," stated Australian Acting Prime Minister Michael McCormack in December 2019 (McCauley, 2019), defending his colleague and PM Scott Morrison who was criticised for taking a vacation in Hawaii while hundreds of fires raged across Australia. This was despite McCormack's own assertion just a month earlier that the warnings about the upcoming unprecedented fire season – related to climate change – were the ravings of "inner-city lunatics" (Murphy, 2019). And despite repeated warnings and requests for preventative action by Australia's fire chiefs who clearly "saw it coming" for years (Zhou, 2019; Thomson, 2019). The confusion extends to these two Australian government representatives – McCormack and Morrison – simultaneously asserting that Australia "absolutely must take more action on climate change" (McCauley, 2019) and that there will be "no change to government's climate change policies" (Molloy, 2019).

The primary time orientation of McCormack and Morrison is yet to be ascertained, but they have certainly demonstrated weakness when it comes to preventative futures thinking. When the past-present time orientation predominates, it is one's own spatially and temporally localised past-present which is expected to extend indefinitely into the future. In psychological terms, such an attitude and unconscious belief indicates low autonoetic consciousness and low ability for episodic foresight, meaning difficulty to project a future experience and mentally find oneself immersed in it.

The obvious antidote for these time perspectives is the development of futures literacy. Once again, the development of futures literacy is qualitatively different from being excessively focused on the future – which is what the quotes at the beginning of the future negation section tried to point out. Going back to Zimbardo, he argues that each time orientation has some benefits and some costs. Future-orientation is both a developmental as well as characteristics of a particular personality. Future oriented people, for example, tend to "be successful, save money and make healthy choices" (Chamberlin, 2008). But the negative side of people who are "too future-focused" in terms of life achievement, further argues Zimbardo, can be the neglect of present issues (e.g., time for social interactions and relaxation) which actually does not pay off in the (very) long-run (Chamberlin, 2008). The excessive future orientation can create "time crunch", and result in stress related illnesses or the neglect of social relationships and leisure. The goal is, according to Zimbardo, to make these preferences conscious and balanced. This re-balancing needs to happen at both the individual level – the concern of psychologists – and the collective level – the concern of sociologists and policy-makers – for example, in organisations, communities, societies and even globally.

Thus the development of futures literacy and utilisation of methods such as three horizons, as argued by futurists, go hand in hand with the development of a "balanced time perspective" (Zimbardo & Boyd, 1999; Boniwell, & Zimbardo, 2003), as argued by psychologists. Such a development would mean that each time perspective, especially in its positive aspects, is utilised as appropriate. It would also mean the appreciation of our time-orientation differences and embracing all our time-oriented selves. And who knows, it may even prevent the

individual and collective time wars (Rifkin, 1987) we repeatedly wage.

Table 6: The time imbalance fallacy

Futures Fallacy	Definition	Reason for/Benefit	Cost
Time imbalance	The error of the unconscious cognitive response style known as an internal time perspective (Zimbardo & Boyd, 1999) favouring either the past, the present or the future, rather than using the tenses as appropriate	Search for certainty and simplicity (back to the past fallacy) Seeking pleasure (present centredness fallacy) Escapism (overinflated futures fallacy)	Inability to adequately respond to change Inability to utilise different time perspectives as (time and place) appropriate

The fallacies of present-attention and future personal exemption

Decades of research by futurist Jim Dator unearthed a number of fallacies that exist far beyond his University of Hawaii freshmen class. Dator investigated views of the future amongst students by asking them on the first day of the class to write a short description of a day in their life 25 to 30 years into the future. The first class then proceeded with the discussion about "time" and nothing specifically about "the future". The papers were then collected during the second class wherein the students are handed a second assignment – to write a short description of their community 25 or 30 years into the future. Two key findings emerged from Dator's research (Troumbley, Yim, & Frey, 2011) which are crucial for our argument. One, that the images of the future are highly dependent on current events and are thus highly volatile. This dependency on current events also means that whatever is a concern of the present tends to extend into the future (e.g., a bus strike in the present: traffic issues foreseen in the future – but only in the year of the actual strike and not during the other years). This finding by Dator is confirmed by other, decades long and rigorous psychological research. "Issues that gain attention also gain presumed importance," argues psychologist Cialdini (2016, p. 48). Thus, the future is rarely about the future but about the present. Dator reconfirms this argument in his critique of judiciaries in their attempt to be futures oriented (Dator, 1989). As argued by Bernard Cohen (1963), press coverage (in democratic societies), may not be very successful in telling people what to think but it is remarkably successful in telling people what to think about. New (social) media has tapped into this tendency by enhancing simplistic and "click-bait" worthy narratives – all of this diminishes careful and thoughtful considerations of future alternatives. People tend to "assess the relative importance of issues by the ease with which they are retrieved from memory", is the finding by Kahneman's research (2011, p. 8). Such "biases of intuitive thinking" are apparent in various tasks, including in "assigning probabilities to events, forecasting the future, assessing hypotheses, and estimating frequencies" (Kahneman, 2011, p. 8). Consequently, whatever is not in the media (traditional or social) and whatever is not talked about, simply disappears or fades from consciousness when thinking about both present and the future. A case in point are nuclear fallouts, from weapons or accidents. Whilst the dangers have increased since the 1980s, the discussion about them has followed a reverse curve since then, except when an incident, such as the Fukushima Daiichi nuclear disaster occurs. The fallacy of present-attention is related to logical fallacies known as availability, attention or anchoring bias, which completely ignore or minimise phenomena that exist but cannot be remembered or retrieved with ease. This may explain yet another finding by psychologists, as to why our imaginations about the future are, by and large, not particularly imaginative (Gilbert, 2007).

The obvious antidote is to consciously pursue future issues framing, i.e., to put a concentrated effort in promoting thinking about the future. Another antidote is to enhance "emerging issues"/"black swan" awareness and analysis, or, at the very least, to acknowledge that such events may drastically change current trajectories.

The second main finding from Dator's research is of relevance to what can perhaps best be termed the fallacy of future personal exemption. In Dator's words: "the image one holds of one's self in the future is highly positive while their community will be wretched: My community is going to hell, but I am the president of it" seems to be their (students') view" (Dator, 2019). Another metaphor Dator presented is his students believing that "the ship is sinking, but they are the captains of it" (Dator, 2019). Once again, rigorous psychological research confirms Dator's finding. We have a "general tendency to fall in love with, and be overly optimistic about, anything that has to do with ourselves" (Ariely, 2009, p. 182). Also known as "special pleading/exemption", "positivity bias" and "the lake Wobegon" effect, this characteristic of human thinking can have both positive and negative outcomes. On the

positive end, it makes it easier for us to "synthesise happiness" when we do not get what we want – as opposed to the "natural happiness" when we do (Gilbert, 2007). On the negative end, this fallacy can easily slip into yet another one, that of denial (Cohen, 2001; Nelson & Vertigan, 2019).

Table 7: The present-attention and future personal exemption fallacies

Futures Fallacy	Definition	Reason for/Benefit	Cost
Present-attention	The error of ignoring or minimising phenomena that exist but which cannot be remembered or retrieved with ease in the present moment	Ease of retrieval from memory	Narrow focus on the latest newsworthy issue
Future personal exemption	The error of being overly optimistic about one's own future despite the realistic or even dystopian take on our collective futures	Protects from difficult and inconvenient truths	Hard to sustain

The Fallacies Futurists Encounter

Futurists encounter all these protective mechanisms when engaging with individuals and communities participating in futures thinking and strategy development processes. While such repeated exposure may result in futurists becoming exasperated or exhausted, perhaps understanding that it is part of a protective psychological mechanism may ease the pain. In that sense, a compassionate response towards this common human fallacious futures reasoning, as well as all the other ones, provides yet another antidote.

The table below summarises futures fallacies and their antidotes. Some have been mentioned earlier, others are outside the terms of this article. For more on antidotes, see Inayatullah (2015).

Table 8: Futures fallacies and their antidotes

Futures Fallacy	Antidote
Linear projection (Dorr, 2017)	FutureS Emerging issues analysis "Black swan"
Ceteris paribus (Dorr, 2017)	Futures wheel
The arrival (Dorr, 2017)	Time machine Historical change examples
The planning	Inclusion of less powerful – participatory futures Pessimism
The prediction	FutureS Alternatives Critical futures thinking
Overinflated agency	Personal and local futures which enhance a sense of hope and empowerment Zone of influence Analytic thinking Visioning desired futures and backcasting
Future negation	Enhancing a sense of influence Connecting me now and in the future (i.e., later life stages or legacy) Enhancing a sense of intergenerational connectivity and responsibility Embodied futures learning
Time imbalance	Development of futures literacy and balanced time perspective Three horizons
Present-attention	Promote futures issues framing
Future personal exemption	Exposure Interconnectedness Holism

Conclusion: Logic and Metaphor

Understanding the many ways in which we are all irrational, including our common detrimental cognitive patterns when thinking about the future, is critically important for "our everyday actions and decisions, and for understanding how we design [or can design] our environment and the choices it presents to us" (Ariely, 2009, p. xix). Understanding the predictability of our irrationality, including the predictability of futures fallacies, could be then "a starting point for improving our decision making and changing the way we live for the better" (Ariely, 2009, p. xx). As shown in psychological literature, such an antidote can be helpful in improving our ability to "identify and understand errors of judgment and choice, in others and eventually in ourselves, by [for example] providing a richer and more precise language to discuss them" (Kahneman, 2011, p. 4). In at least some cases, "an accurate diagnosis may suggest an intervention to limit the damage that bad judgments and choices often cause" (Kahneman, 2011, p. 4).

More recently, futurists have also come to recognise the role metaphors, language, unconscious biases and discursive narratives as well as our physiological brain structure (e.g., Ahvenharju, Minkkinen, & Lalot, 2018; Chen, 2016; Hollinshead, 2002; Izgarjan & Djurić, 2016; Judge, 2016; Milojević & Inayatullah, 2015; Tarasti, 2016) all play a role in futures thinking, inclusive of futures fallacies. Social psychologists and sociologists discussed the role fear and the speed of change play in them. Consequently, there is an increased overall awareness that when faced with such powerful forces, rationality alone becomes powerless. Story can be decisive. For example, American researchers have found that the use of one word alone can change the support of public support programs by almost 44 %. That word is "welfare"; and compared to terms such as "assistance to the poor" or "caring for the poor" within the same sentence structure the term itself "acts like a poison pill" (Stone, 2012, p. 257). Another example is that the majority of the people interviewed supported the "expansion of government power" versus the same majority being against "expansion of government spending", even though both terms refer to the expansion of the government's role in the economy (Stone, 2012, p. 257).

In this sense, by being epistemologically alert, each fallacy can be explained by a particular worldviews and metaphor. For example, the planning fallacy or prediction fallacy is explained by the worldview of the universe is closed and "we need to get it right". However, that a fallacy can be explained by going deeper as with Causal Layered Analysis (Inayatullah, 2004) does not mean it is any less of a fallacy, i.e., there is still a failure in meeting the stated goal.

Certainly, it is always easier to recognise other people's mistakes and detrimental thinking patterns than our own (Kahneman, 2011, p. 28). Various biases, including futures fallacies, are in that sense "influencing us to be blind to the obvious, and blind to our blindness" (Kahneman, 2011, p. 24). To cure such common blindness and myopia we not only need to be aware of the causes and conditions that give rise to them. We also need the assistance of other people, and their worldviews and narratives. Behind every future denier, there is a person frightened about the speed and type of change experienced. Can futurists become our fear healers rather than enhancers? And would we be willing to not only address the futures fallacies of the people we work with, but also our own?

Notes

1- I would like to thank Dr Mirjana Beara for her invaluable input, advice and guidance over many years while I was conducting my research on this topic.

2- My initial list of futures fallacies included: (1) denial, (2) freezing (too hard), (3) switching off/overwhelming, (4) reactive response (piece-meal strategies) and (5) back to the past. Other fallacies I have discussed include: sameness; fantasy & mythology vs reality; one future/inability to recognise alternatives; social myopia; "we never saw it coming"; getting "shocked" when causes manifest via their logical consequences/when "unimaginable" becomes reality; present-centeredness; procrastination, learned helplessness/"someone else will solve futures problems when they start bothering us"; futures problems happen temporally and spatially "elsewhere"; "back to the past"; and piece meal strategies.

3- Most parts of this section were previously published (Milojević, 2020b).

4- I would like to thank Markus Becker for reminding me of this fallacy.

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