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A Panglossian Dilemma

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Abstract

Ambient intelligence is a factual phenomenon of increasing magnitude. It also invites intrigued attention as carrier of meanings. Meanings are produced in a variety of contexts, which are here the focus of attention. In order to analyze contextual narratives and their effects, concepts such as intelligence, optimization, rationale, rationality and ambience are discussed. One meaning of ambient intelligence is its indicative contribution to increased unilateral control of the many by the few. Ethical guidelines may be part of prevailing rhetoric, but their success as a self-controlling factor seems fairly unrealistic. Moral confusion is not only related to artificial intelligence, but to the very essence of modern society.

Keywords: ambient intelligence, intelligence, rationale, rationality, optimization, ambience, epistemology

1. Introduction

Our world is composed of particulars, matters that have extension such as dimension, weight and form. Our lives are also composed of universals, abstractions regarding relative matters such as position and value. Particulars are compulsory to conceptualize when describing the world, universals are indispensable when making particulars and other universals meaningful. Our world exists for us as far as we live, and we live as far as we produce meanings.

Our understanding of the world is constantly deepening due to scientific progress, but the meaning of our lives is not a matter of accumulating knowledge. Every generation and every individual have to work out that for themselves.

Ambient intelligence is a phenomenon that can be described and it is also a carrier of meanings. As rhetoric would advise, the best argument is the inevitable. By skillful descriptions, rhetoric aims are pursued and those subjected to skillful talk eventually think they have figured out everything by themselves. In the pursuit of a critical understanding, conceptual analyses are needed.

Here, an attempt is made to conceptualize contexts that are meaningful for understanding ambient intelligence and the ways we understand it. Intelligence is often associated with the act of optimizing, which in its turn seems to be connected to the broader concept of rational action. Rationality is, however, a function of the context where rational action takes place. The context of rational action has its own rationale, which defines rationality.

Ambient intelligence concerns ambience, and ways we conceive it. In pre-industrial built environments, the physical context caused intelligible ambience to emerge. In the industrialized world of constant flux, intelligible and stable conditions are replaced for a dynamic that makes virtue of the constant need for change.

Whatever that ambience is, it must influence the meanings we attribute to ambient intelligence, and it must have a crucial effect on how societies are managed and controlled by artificial intelligence.

2. Intelligence and optimization

What do we understand by intelligence? Obviously, it indicates problem-solving capacity, but what does that mean? The development of intelligence testing is based on their measuring capacity, but what do they measure? An essence of rationality is optimization, but how, and what, can we optimize?

2.1 Intelligence

The lexical meaning of intelligence is the ability to acquire and apply knowledge and skills. The ability to acquire knowledge is evidently linked to personal capacity as individuals are born different. Inherent assets may not be realized due to external factors such as malnutrition, diseases, social instability or injuries. The same reasons that hamper people from acquiring knowledge and skills may also cause obstacles in applying them.

The standard definitions seem to pay less or no attention to the potential targets of intelligence. What are the actual contexts where intelligence works? What is the focus? Is it a question of solving particular problems, or to act successfully over longer time periods in changing conditions to achieve some distant end? Does it include only logic and attention, or emotions as well? Is intelligence part of developing and organizing social and symbolic systems?

The more limited the target of our mental activities is, the easier it is to find out ways of optimizing. This is a standard version of rationality. In the gender-centered world some of us still live in, female prejudices attribute “typical male” approaches to “tube-thinking”. Male biases attribute “typical female” approaches to “funnel cake-thinking”. Either way, rationality is defined according to particular contexts. Males would be accused of lacking the capability to understand matters related to social complexity. Females would face the blame of lacking capacity to rationalize and optimize. This issue exceeds gender speculations as it is an existential matter. All of us are part of the complexity of this world.

The lexical meaning of artificial intelligence refers to the theory and development of computer systems able to perform tasks normally requiring human intelligence. Visual perception, speech recognition, decision-making and translation between languages are often mentioned examples. Optimizing seems to be an integrated and necessary part of programming and the elaboration of algorithms, which makes “tube-thinking” necessary. When expanded into a “funnel-cake thinking”, problems arise. Optimization-based rationality gets complicated or outright impossible.

2.2 Testing intelligence

Allegedly the first to create a test, in 1905, was Frenchman Alfred Binet (1857–1911) together with his colleague Théodore Simon (1873–1961) [1]. Binet considered intelligence to be a mixture of mental faculties, emerging in changing conditions and controlled by practical judgement. He did not view intelligence as a fixed capacity. Intelligence could not be measured, only classified. The test categorized the mental age of children, and was a way to assess the mental adequacy of the tested compared to the mental average for persons of the same age.

In the USA, eugenicist Henry H. Goddard (1866–1957) got acquainted to the Binet-Simon Scale, and saw it as a way to detect feeble-minded people for compulsory sterilization, matching the view of intelligence as genetically inherited. In 1916, Lewis Terman (1877–1956) issued the Stanford-Binet Intelligence Scale, sticking to the view of intelligence as unchangeable.

The pioneer of American behaviorism, Edward Thorndike (1874–1949), defined intelligence in terms of the capability to form neural bonds based on genetic factors as well as experience. J.P. Guilford (1897–1987) maintained that standard IQ tests imply an oversimplified answer, convergent thinking. Creativity on the other hand implies per definition more than one answer to any problem, divergent thinking. He disputed reductionism, and ended up with 180 different types of intelligence, which for practical reasons would limit the use of his method.

In Britain, Charles Spearman (1863–1945) claimed in 1904 that disparate cognitive test scores reflect a single general intelligence factor, and assumed that the psychological g factor would correspond to a biological g factor. This position did not remain uncriticized. Raymond Cattell (1905–1998) developed Spearman's ideas. Fluid intelligence refers to the ability to reason abstractly and perceive relations without previous practice or instructions. Crystallized intelligence generates from experience, learning and accumulated judgement skills. He elaborated a test to assess fluid intelligence by making it culture-fair. His promotion of eugenics has, however, been a cause of critique.

The changing approaches to testing indicate that human intelligence is a controversial matter, and very much embedded in those culture-specific societies from where the theories emerge. Even the fairly recent invention of emotional intelligence (EI) is phrased according to strongly utilitarian guidelines, meaning how to manage emotions to achieve one's goals.

Intelligence testing has historical bonds to biologism and eugenics, which have providing a pseudoscientific basis for racism. Testing reflects the way the overall context of intelligence is conceived. When testing changed from classification to computing, the focus was by necessity narrowed down to matters that could be measured. The perspective should be broadened up as testing intelligence is a moral matter as well. There are many different kinds of utility, and other aspects besides utility to be considered. Is there a happiness-intelligence or only a dissatisfaction-intelligences? Are we looking for creativity, many answers to a problem, or are we looking for optimum, the best answer to one problem?

2.3 Optimization

When we optimize, we either seek to minimize resources when pursuing defined ends, or alternatively, we try to optimize results within given resources. Both cases require a time table, often broken down into sub-targets on the way to an end. Optimization may also indicate the attempt to minimize time-use within available resources and defined output, or regardless those.

Economic ventures are typical targets of optimizing, but optimization does not necessarily cover all aspects of a single project. Negative externalities, such as depletion of resources, natural hazards, social and cultural costs that are caused by private entrepreneurs, are still often passed over to public administration and tax payers. In addition, even single projects cannot be optimized without a fixed point of reference in time. In hindsight, many owners of projects would recognize that a change of time perspective could have ended in very different results. An optimum is a function of time.

The issue of benefits to optimize may also be viewed in terms of various kinds of markets according to market access (restricted versus non-restricted) and

competition within a market (rivalrous versus non-rivalrous). The market for private goods is per definition restricted and rivalrous. One can enter only in case demanded resources are possessed. Optimization is possible and needed for private benefits. The idea of an unrestricted and free market is an abstraction as the very logic of capitalism induces market restrictions and monopolies. If not, there would be no use for anti-trust legislation. Governments and politics can influence the market of private goods mainly indirectly, by implementing laws and regulations.

Club goods indicate restricted and non-rivalrous markets, which the club can optimize according to conceived club-benefits. Markets for common goods are non-restricted, but rivalrous and the common assets are at risk of being depleted, i.e. the “tragedy of the commons” [2]. Because of non-restrictedness, an optimization is impossible, and public government can interfere only indirectly. Public goods are open for all and do not imply rivalry among users. Because of their open access, there is nothing to optimize from the point of view of public government, except for goods that have to be produced and managed. Sunshine is free for all, but public space needs to be built and maintained.

Singular optimizations sustain competition and the destruction of competitors. But what about the overall economic system and the wellbeing of citizens? Optimizing parts may cause an overall disastrous waste of resources. Adam Smith (1723–1790) claimed there is an overall order in the chaos [3]. He proclaimed that the totality of self-interested actions would eventually cause unintended social benefits. A prudent reader may recollect that the “invisible hand” of markets was not all that invisible: Smith worked for the monopoly at the time, the East India Company.

Governing the national economy is now executed according to the same logic as single ventures. It is boiled down to a restricted number of indicators, like the GNP, and aims at optimizing economic growth. Growth is an end in itself, and the focus of public and general interest. In political rhetoric, positive as well as negative growth lend themselves to very far-reaching conclusions as to their alleged effects on human matters.

GNP reflects the sum of its constitutive parts, which are thought to be optimizable. Nonetheless, a considerable part of the economy is no target for optimizing at all. Common and public goods, being related to public interests such as the smooth running of everyday life, care for tax-payers money and public revenues, are optimized by the political system. The “political system” is a very vague term that may reflect anything from particular interests to the whole body of citizens, or even to humanity as listed in human rights. Insofar as politicians optimize their commitments, they usually focus on the lengths of their tenures.

Human intelligence seemed to escape us, but so does artificial intelligence! For the majority of people, GNP and its annual fluctuations is a very poor indicator for quality of life. Nor does the investor-driven use of artificial intelligence for programming maximum revenues at the stock exchange say much about the utility of the exchange for citizens in general. Maybe the question to ask ourselves is not how artificial intelligence can be humanized, but rather why human life has been reduced to forms that can be optimized by artificial intelligence?

3. Rationale and rationality

To conduct oneself intelligently in a rational manner, one has to relate one's actions to a given context. What is the context and how is it formed? Is it something to be made up from case to case, or is it more general? Does rationality change according to context? How to choose when one has to? Does choice by necessity indicate moral judgement? What is the role of science in all this?

3.1 Rationale

Rationale refers to controlling principles of opinion, belief, practice, or phenomena. To be rational refers to having reason or understanding, or to something being agreeable to reason. Controlling principles are not perforce agreeable to reason as they may be structural and unintended outcomes of very complicated social processes. Nobody can escape being bound to some sort of overall principles of action, but few can claim to act rationally in every instance.

Dr. Pangloss is a stunning character in Voltaire's novel *Candide*, published in 1759 [4]. Voltaire (1694–1778) is thought to have used the character for ridiculing Leibnizian optimism. Nonetheless, Dr. Pangloss certainly makes sense as a representative of the breaking times when the traditional teleological world view - the purposefulness of everything - had to confront a causal world view, based on science. But Dr. Pangloss is more than a caricature of naïve optimism, he mirrors an existential dilemma as well.

According to the doctor, “all is for the best”, because we live in “the best of all possible worlds”. God is the ultimate good so why would not his creation be the best as well? Thus, it is reasonable to claim that everything that occurs is for the best. Dr. Pangloss firmly professed causality within an overall scheme of teleology, thereby reflecting a view of God as the Creator, not as the Intervener. At the time, the existence of God was not questioned, but his nature was.

A problem with Pangloss' ethical position is that everything turns out both acceptable and obligatory, in accordance with the initial ruling of the Creator. It is not Pangloss' fatalism that gives rise to moral doubts, but his opportunism. Actually, his character may be seen as an embodiment of alleged Jesuitical sentiments: End justifies means! If the initial creation is the best of all worlds, then every derivative of that creation, good and bad, is for the eventual good. Only human shortsightedness would blur that post-factum.

As final explanations, the concepts of cause and purpose may appear to us mutually exclusive. But, if we define the purpose of our universe to be causal, there is no contradiction. If the purpose of the universe is defined not to be causal, a contradiction arises. Consequently, to be considered rational we have to avoid thinking and acting in a way that would offend the rationale of our basic guiding principles, whether religious, atheistic or agnostic. Human characters who possess the quality of not being self-contradictory, are thought to have integrity.

We may face another problem as well: What are those entities that generate controlling principles of opinion, belief and practice? Dr. Pangloss was a character of a firmly Christian country of Christian Europe. In a hierarchical manner, any entity can of course be thought of as being part of a greater totality. The Christian solution is to close the hierarchy by referring to this world, the Creation, as the target of human reasoning. The Heaven or Paradise are per definition out of reach, and conceivable only as part of eternity, and so are our understanding of the deeds of the Lord. Any endeavor to bridge the gap may provide ample room for speculation, accompanied by a never-ending stream of self-promoting prophets and wizards.

The Christian world view is by no means unique, rather the contrary. Most of us seek - consciously or unconsciously - to build our identities based on some kind of view of a world that we can and want to live with. Are we free to choose? The gospel of the modern world is: Yes! In reality, experience transmits a more complicated story. Only madmen are able to extrapolate their madness into the big world. The sane ones must go the other way around. Societies and cultures provide rationales, the task of individuals and single ventures is to provide matching thoughts and deeds.

3.2 Rationality

In his *Utopia*, Thomas More (1478–1535) sought to find a rational, explicit and measurable expression for the rationale of Christian society [5]. He was decapitated by his King, Henry VIII, who usurped the religious power of the Pope, and robbed the Catholic Church of its wealth. Maybe the modern world was born in 1535 CE? What are the fundamentals of our modern world? Heaven got lost because eternity got lost. Now, our haven (short of the e) is located in this world, but in the future. Remarkably, the end was changed, but the idea of Christian eschatology is still there.

The first to make the switch were the people of the Renaissance. They started to look ahead by looking back. Nonetheless, they applied a conception of time that was linear, albeit opposite to ours. The great discoveries of the early modern time brought about global trade, and in its wake, colonial subjugation, looting and plunder of the Americas, Africa and the East. Economic wealth in Europe brought about a surplus that was reinvested for the sake of further surplus. The future in this world was eventually found.

The corporate form of capitalism that emerged during the 17th century, indicates a rationality narrowed down to optimizing the revenues of single ventures [6]. Over time, some part of the aggregated surpluses has been invested in political ventures labelled charity, corruption or money laundry according to prevailing conjuncture. Concentration of wealth caused by necessity the need for controlling politics, which is now equally obvious in democratic and nondemocratic countries.

During the Renaissance, Antiquity was thought to represent the ultimate achievements of mankind. Social progress is an idea of the 17th century, but the concern was limited to the economy [7]. Towards the turn of the century, a debate in the French Academy between the “Moderns” and the “Antiques” reflected a broader understanding. The issue at stake was the very essence of change: Is all change for the better? After decades, a reasonable conclusion was reached: Quantifiable knowledge can be accumulated, like mathematics and science. Knowledge involving judgement like questions regarding moral and beauty, are skills that individuals acquire, and the knowledge of those cannot be accumulated [8]. There is an endless growth of applicable criteria for making judgement, but that does not indicate improved quality of factual judgements.

Only the Enlightenment of the 18th century, with Voltaire and others, brought to the fore a notion of overall progress, and Dr. Pangloss became a ridiculed figure [9]. He was stuck to the eternal heaven, not the haven of the future. During the heydays of the Enlightenment, progress turned limitless as well as endless, and a purpose in itself. Consequently, the 19th century brought with it progress and regress as ideological and political concepts. In the 20th century, when progress was boiled down to economic growth as indicated by GNP, every economy of the globe could be integrated into a common ranking list with regard to overall output per year and person.

The eventual point of reference is the future of this world. Nevertheless, like the gospel, the future is unverifiable. But it is an offer one cannot refuse as there is nothing to lose, only to gain - except for infidels refusing to give up their integrity. There is a difference between eternity and the future in that the future is even more abstract than eternity. As the case of More shows, his utopia was firmly anchored in Christian ethic. Considering history, it is hard to discern how our future, being a battleground for ideologies and countries of all shadings, has anything to do with particular moral sentiments or ethical considerations.

However, even the haven of future may have an end. When most aspects of human life are increasingly bound up to external order and control, the prospects

of single individuals are narrowed down. Now, the wealthiest 10 percent of the global population owns 81.7 percent of global wealth, and the wealthiest 1.0 percent have 45 percent [10, 11]. What happens when 0.1 percent of the global population will own everything? The future could then be not to gaze into the future, but to return to the initial state of human history of here and now. *Carpe Diem*, catch the day!

The nucleus of wealth accumulation is now finance. The value of money, when being a commodity exchanged on a market, is subjected to fluctuations determined by supply over demand. With concurrent fiat money, the logic changes insofar as investments do not by necessity concern productive measures at all. Finance becomes a club good. By the financial transactions of the biggest players, the value of existing wealth can be manipulated for the sake of more wealth. When the total amount of indebtedness grows faster than productive output, a further concentration of wealth to the club members seems inevitable. A recent estimate suggests a global debt burden of 272 trillion USD, that is 365 percent of total GDP [12].

Rationality seeks its rationale among available possibilities. In the various phases of human development, options at hand may have increased in absolute terms, but they may decrease further in relative terms. The employed criteria of judgement may still expand and improve over time when based on expanding sets of data. The quality of judgement is up to prudence. Individuals are prudent, not nations, and judgement skills can be improved only during a lifetime.

3.3 Moral choice

For half a millennium, European science has been developed to encompass most aspects of life, but still there seems to be no theoretical consensus on judgement. In order to make a judgement, one needs criteria, but to figure out criteria, one needs to make judgements. The idea of “value” is self-referential. To evaluate, we need to evaluate and choose applicable criteria, in absurdum [13]. All of us have to make choices, no matter how informed we are. Most choices are moral ones and based on considerations about right or wrong. Moral considerations are not always manifest, but unavoidable and omnipresent.

The Sisyphus-work of redesigning morality is manifest in the ways scientists and philosophers have tried to grip the task. The initial phase was filled with optimism. The grand utilitarian, Jeremy Bentham (1747–1832) aspired in vain to elaborate a felicific calculus, but it would not have included “natural and imprescriptible rights”, which he considered “nonsense upon stilts” [14]. His position is rational as utilitarianism was embedded in the economy and politics of his time. The recognition of human rights would certainly have been obtrusive as human labor was supposed to be a commodity of the marketplace.

John Stuart Mill (1806–1873) expressed the idea that the rules of thumb of everyday morality would get endorsed by the systematic utilitarian method, but such derivations are still on their way. The futility of expecting a feasible algorithm of moral values for global cost–benefit analysis is as obvious as ever before. Utilitarian calculations face many problems. Considering positive effects as benefits seems to be obvious, but what about negative effects? In the short run they are costs, but in a longer perspective they may turn out to be beneficial. By switching the perspective, short term positive effects may later on turn out to be negative.

In all, to judge and weight all moral consequences in terms of benefits and drawbacks is impossible. Moreover, even to weight practical results in terms of benefits and drawbacks is impossible, except for limiting the scope to a short period of time and a narrow place. This means utilitarianism reflects a rationality that is conceivable only within the clearly defined limits of single projects.

The Kantian tradition - stressing principles of conduct - has likewise paid tribute to practicality, and resented the impracticality of utilitarianists. The maxims, such as the Categorical Imperative, are open in a similar way as the utilitarian endeavor for benefits. They require an actor to consider and select relevant maxims to match actions or to select relevant actions to match maxims. A truly thoughtful person may not be able to take any actions at all as uncertainty is our companion.

A somewhat sloppy conclusion would be that sincere moral thinking requires understanding, knowledge and imagination, which is not achieved by applying formulae. The complexity of real-world problems is impossible to compute. We can never consider all things, or all times for that matter. In practice, capitalism, and to some extent representative democracy, mostly set a time front that is as long as an investment period or political tenure. Those may be optimized. The positive and direct effects, and alleged positive externalities, are annealed while negative externalities are easily unrecognized or silenced.

Is there a single point of departure, one perspective from where to assess ideal rationality? The traditional answer is yes, common interest. In practice, hardly any political party would miss to refer to public or common interest. The idea of a common interest is illustrated by the Prisoner's Dilemma [15]. To optimize his situation, the rationally acting suspect would judge his fellow suspects and probably find out that some of them are somewhat irrational, and therefore unreliable. The shortsighted self-interest of some accused would obstruct the possibility to find an optimal solution, common for all. Consequently, the ideally rational player would have to turn less rational, not to lose too much. Is that rational? Nonetheless, it seems to be part and parcel of politics, rhetoric and modern life.

3.4 Accumulation of knowledge

Scientific institutions worldwide try to safeguard the academic virtues in order to contribute to the accumulation of knowledge [16, 17]. This can be seen as a moral prerogative for science and its global body of researchers. It is also an example of the match between the rationale of science and the rationality of academia. The academic routines include dissertation and publishing of findings, peer reviewing and critical scrutiny, acceptance to prove or disprove arguments regardless the status of the speaker, demand for theoretically anchored hypotheses, reliability of data, application of credible methods, inherent logical consistency of the work, willingness to rework one's findings, etc.

With the increased strategical and commercial impact of science, such traditions are evaporating for the sake of circumscribing and monopolizing the use of knowledge. This is particularly true for breaking research in technology and big pharma in closed institutions, where foreseen benefits are astronomical in terms of revenues and strategic power. In absolute terms, scientists may be more and more knowledgeable, but in relative terms, the opposite prevails as research and development is out of reach for the public, and for most researchers as well.

4. Ambience

The lexical definition of ambience is a feeling or mood associated with a particular place. Environment is a token of history, and an analysis may bring understanding of the rationale that drives the present development of ambient intelligence. Firstly, ambience relates to perceived integrity of the environment,

but in what sense? Secondly, what changes are obvious when comparing the way production of modern urban environment is organized compared with the traditional ways of building and planning? Thirdly, how does urban form indicate the rationale of economics as well as social and political control?

4.1 Traditional integrity

Differences in ambience usually play out to the advantage of historical settings. This is not only a matter of opinion, but reflected in the concept of gentrification, which indicates the preservation and upgrading of historical urban settings, and associated with an influx of new inhabitants and soaring real estate prices [18]. Much of travelling and tourism is based on the fact that historical environments offer a kind of ambience that modern urban settings are void of [19].

Why are historical urban environments so sought after? Why do they please people? One reason is that they associate to important historical events, which are integrated into nationalistic rhetoric. A feeling of nostalgia is probably globally present in the sense that it may remind us of childhood, passed times and our identity.

However, there is another and more tangible reason for the attractiveness of historical urban settings. They are results of handicraft, built out of local materials, following local building traditions, erected by local labor force, which generate overall unity. The finest of historical buildings have pursued a very long life [20, 21]. Representing handicraft, traditional architecture possesses an additional quality. Details of buildings are to some extent distinguishable at a distance shorter than 300 meters [22]. When one approaches them, new and smaller details unfold at closer distance. Handmade environments offer continuously new excitement for a pedestrian despite the fact that she or he may have lived in the surrounding for decades.

The first cities known to history were built in a way reflecting the rationale of tribal society. Each group and segment of the local society managed and controlled its own territory. The first European cities breaking this pattern were the Greek cities of the Antique at the time when the city states and citizenship emerged. Those cities were unlocked in the sense that all parts except the privately controlled plots became available for the citizenry. Houses continued to be produced by the inhabitants for their own purposes. Plans were laid out in advance and lots were distributed by means of negotiations and consent, not as commodities exchanged on a market. Ideally, the control was executed in a communal way by the citizenry for the citizenry [23].

The earliest indication of the idea of landed value is a map of central Florence of the early 15th century, showing the taxation value of properties [24]. At about the same time, the central perspective was introduced into visual arts as a new innovation. Both of these phenomena indicate a novel way of distancing oneself. The use value of the physical setting acquired an additional exchange value. The central perspective provided the viewer with a position that used to be reserved for celestial figures and the Omnipotent. Economic and visual alienation seem to have occurred in correlation.

The relation between the citizenry and the ruler remained in some sense reciprocal. Even in the case of the Baroque city plans of the 17th and early 18th century, the people had visual access to the palace of the Prince who likewise could see every corner of the city from his palace. The religious justifications of worldly inequalities did not diminish the need for overall community. The ambience of historical urbanism expresses integrity.

4.2 Modern disintegration

The birth of modernist architecture coincided with industrialization of construction. The pioneers designed their works in a style mimicking the design of factory produced items, although the buildings were produced by handicraft [25]. An argument that has been reiterated over and over again concerns integrity of architectural expression. Modernists claim that architecture has to be honest [26]. As honesty is a relative matter, it has to be related to something. The true point of reference for modernists is time, the spirit of our time, heading for the future – whatever that may indicate. The true expression of any era can be confirmed only in hindsight, which would disqualify the assumed spirit of the present and the future as intelligible points of reference. We cannot pretend, if we want to be truthful!

By associating architectural expression with the modern rationale of continuous reinvesting and rebuilding, the destruction of historical settings became acceptable and even preferable. The place, locality and history lost their meaning as points of reference for determining environmental values. Integrity is understood in terms of the future, not in relation to the past and the actual place with its local characteristics and traditions. Consequently, modernistic urban settings and architecture have no homeland, and built environment is globally uniformed – like artificial intelligence.

There has been some opposition to these trends, for instance a quest for *genius loci*, the spirit of the place, for *topophilia* and for critical regionalism as opposed to global design [27–29]. The results are close to neglectable, and do not exceed a limited number of hailed examples. Postmodernism as architectural style is sometimes associated with anti-modernism, but more so it is another expression of modernism. Various approaches that could be summoned under the concept of retro, are also modernistic in the sense that they are integrated parts of modern settings in constant flux, whether exterior or interior.

The Baroque era still expressed reciprocity between controllers and the controlled. This changed only in the late 18th century, when Jeremy Bentham, the utilitarian, introduced the so-called Panopticon for correctional institutions [30]. Due to the design of the precinct, prisoners were constantly surveilled by the guards, who themselves were invisible to the prisoners. Societal control became unilateral. No wonder Bentham ridiculed natural and imprescriptible rights. In a context of unilateral and total control, there can be no room for any inherent right of the subdued, and benefits are much easier to calculate when they concern only those in command. All concurrent systems for urban surveillance are based on the Panopticon principle. Humans are replaced for a huge variety of surveillance technologies, exempt from the controlled.

Planning legislation of the 19th century was still based on the presumption that plot owners would exploit their property for their own needs. In case of purely speculative projects, a developer would have to stick to approved town plans and available plot supply [31]. A century later, planning legislation was turned the other way around to suit large scale speculation in rising land values. Despite the existence of public planning monopolies, developers acquired the right to develop land much as they pleased [32, 33]. The development of planning legislation in Sweden is a case in point. Planning is in practice removed from the public to the corporate sphere and made a club good.

Consider the overall shape of urban environment. Historical cities produced in a traditional way, express an endless variety within an overall unity. This is likely to be the most important single factor that makes historical environments so attractive. That is their ambience. Modern settings express the opposite: Monotonous labyrinths within an overall chaos. Consequently, orientation and identification

are made almost impossible, and the best, if not only way to orientate is to use electronical equipment for navigation. That is certainly a need of today, but it is a previously unknown need that did not exist when human habitats were laid out in an intelligible way.

5. Ambient intelligence

Ambient intelligence is described by providing general outlines and jots of self-criticism, which set the agenda for further discussions [34]. That is not exceptional, but is it credible?

5.1 The phenomenon

Ambient intelligence refers to environments that are sensitive and responsive to the presence of people by means of electronics. In harmony with the modern view of our future haven, it was developed as a corporate initiative in the late 1990s to provide a projection on the future. Information and intelligence were supposed to be hidden in the network that connected different devices. The technological framework behind them was thought to gradually disappear into the surroundings until only the user interfaces remain perceivable by users. The parallel to the Panopticon way of unilateral control is striking!

The ambient intelligence paradigm builds upon computing, profiling, context awareness, and interaction design. Applied systems and technologies are supposed to be context aware as they recognize individuals and their situational context. Moreover, they are personalized and tailored for individual needs, and adaptive as they can respond to individuals. They also anticipate individual desires without conscious mediation. The parallel to an age-old narrative, the life of the master and his servants, is obvious.

Ambient intelligence is said to rely on user experience, and the advancement in sensor technology and sensor networks. In response to operational obstacles, a design emerged that created new technologies and media around the user's personal experience. The user is asked to give feedback to improve the design. Biohacking may be an example that illustrates the most private sides of such applications, which seem to draw the line between private and public inside the body of the users.

Ambient intelligence requires a number of key technologies to exist. These include unobtrusive, user-friendly hardware and human-centric computer interfaces. Computing infrastructure is characterized by interoperability, networks and service-oriented architecture. Systems and devices must be reliable and secure, achieved through self-testing and self-repairing software and privacy ensuring technology. The promises for the future resemble those of salvation of the afterworld.

5.2 Criticism

It is said that any immersive, personalized, context-aware and anticipatory characteristics bring up concerns about the loss of privacy. At the same time, it is claimed that applications of ambient intelligence do not necessarily have to reduce privacy in order to work! In social sciences, the possibility of flaws is a question of probability. Nuclear accidents and related catastrophes offer a realistic analogy. According to safety calculations, nuclear disasters would never happen, because the computed probabilities are neglectable. They still happen! Intrusion is an everyday

phenomenon, and it is difficult to imagine that hacking would decrease when information systems expand and get more complicated and difficult to guard.

Power concentration in large organizations, a fragmented, decreasingly private society and hyperreal environments where the virtual is indistinguishable from the real, are said to be the main topics of critics. But what about the sector as a main factor in the general tendency of concentrating wealth and power? What about the major global technology companies, accountable only to themselves? Should not that be addressed as well?

5.3 The Santa Claus' list

According to the Information Society and Technology Advisory Group (ISTAG), the following characteristics will permit the societal acceptance of ambient intelligence: Ambient intelligence should facilitate human contact, be oriented towards community and cultural enhancement, help to build knowledge and skills for work, better quality of work, citizenship and consumer choice, inspire trust and confidence, be consistent with long term sustainability—personal, societal and environmental—and with lifelong learning, be made easy to live with and controllable by ordinary people [35].

Consider the global social media platforms of today, applying the principle of unilateral control. Now, literally billions of people produce information about themselves, free of charge, to be sold by gigantic operators to other corporations and public authorities. It is surveillance of a magnitude that used to be unimaginable. Here, the essence of artificial intelligence is exposed. It may provide benefits and joy for the billions while enriching global corporations, tightening the straitjackets of ordinary citizens and providing the database for individualized control as well as manipulation of consumer choices and political commodities [36]. The Santa Claus' list appears equally important and naïve.

6. Conclusions

It is easy to laugh at Dr. Pangloss' assertion that our noses are shaped to carry spectacles, therefor we use spectacles. But concurrent designers of spectacles may actually think like the doctor, and so may programmers as well. Designers and programmers are professionals, and the rationale of professions is that they reserve for themselves the right to judge what is accountable knowledge. In their practice, evidence-based knowledge and professional judgement are not necessarily kept apart. Drawing up a list of all the good things ambient intelligence should promote resembles Dr. Pangloss' explanation why his friend drowned in the bay of Lisbon: The bay was created for that purpose!

An obvious parallel is the tenet of business that economic growth must be pursued for the sake of economic growth, because in the best of worlds there is perpetual economic growth. Technological development is of course a constitutive part of that narrative. That part also includes the (professional) presumption that ethical guidelines are a matter for the sector itself. MIT professor, Dr. Tegmark has pointed out the urgent need for ethical guidelines, elaborated by the sector itself [37]. Kindly expressed, he cannot be familiar with avalanches of financial disasters, instigated by the financial sector for some centuries now, under the auspices of self-regulation.

The fundamental dilemma is not whether to promote ambient intelligence or not. It will be developed anyway. But how to work out ethical rules that would safeguard users from intrusion, fraud, blackmailing, trafficking, abduction of identity,

robbery, or commercial, social and political manipulation, or global surveillance of each and every individual – all the horrors of Pandora's box?

As far as ethical rules are concerned, the problem is not only related to artificial intelligence, but to the very essence of modern society. We are living in a world in constant flux, where uncertainty is said to be increasingly replaced by rational decision making, backed by science and new technology. In the best of worlds, that process would eventually make individual judgement and moral choices obsolete. However, we are not quite there yet, and the outspoken idea of modern societies is not to be judgmental. The contradiction between ideology and reality indicates a vast grey zone, where Pandora's box is wide open. Voltaire and Dr. Pangloss may have died, but the Panglossian dilemma lives!

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