The ethics of artificial intelligence, UNESCO and the African Ubuntu perspective

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Abstract

Purpose – This paper aims to demonstrate the relevance of worldviews of the global south to debates of artificial intelligence, enhancing the human rights debate on artificial intelligence (AI) and critically reviewing the paper of UNESCO Commission on the Ethics of Scientific Knowledge and Technology (COMEST) that preceded the drafting of the UNESCO guidelines on AI. Different value systems may lead to different choices in programming and application of AI. Programming languages may acerbate existing biases as a people's worldview is captured in its language. What are the implications for AI when seen from a collective ontology? Ubuntu (I am a person through other persons) starts from collective morals rather than individual ethics.

Design/methodology/approach – Literature overview on the African philosophy of Ubuntu as applied to artificial intelligence. Application of it to the United Nations Educational, Scientific and Cultural Organisation (UNESCO) debates on establishing guidelines to the ethics of artificial intelligence.

Findings – Metaphysically, Ubuntu and its conception of social personhood (attained during one's life) largely rejects transhumanism. When confronted with economic choices, Ubuntu favors sharing above competition and thus an anticapitalist logic of equitable distribution of AI benefits, humaneness and nonexploitation. When confronted with issues of privacy, Ubuntu emphasizes transparency to group members, rather than individual privacy, yet it calls for stronger (group privacy) protection. In democratic terms, it promotes consensus decision-making over representative democracy. Certain applications of AI may be more controversial in Africa than in other parts of the world, like care for the elderly, that deserve the utmost respect and attention, and which builds moral personhood. At the same time, AI may be helpful, as care from the home and community is encouraged from an Ubuntu perspective. The report on AI and ethics of the UNESCO World COMEST formulated principles as input, which are analyzed from the African ontological point of view. COMEST departs from "universal" concepts of individual human rights, sustainability and good governance which are not necessarily fully compatible with relatedness, including future and past generations. Next to rules based approaches, which may hamper diversity, bottom-up approaches are needed with intercultural deep learning algorithms.

Research limitations/implications – There is very few existing literature on AI and Ubuntu. Therefore, this paper is of an explorative nature.

Practical implications – The ethics of Ubuntu offers unique vantage points in looking at the organization of society and economics today, which are also relevant for development of AI, especially in its tenet of relatedness rather than individuality (and practical use of AI for individuals), taking responsibility for society as a whole (such as analyzing the benefit of AI for all strata of society), and embodying true inclusiveness. Whether looking at top-down guidelines for the development and implementation of AI or the bottom-up ethical learning process of AI (deep learning), ethics of the Global South can have an important role to play to combat global individualist tendencies and inequity, likely reinforced by AI. This warrants far more research.

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Social implications – Applications of AI in Africa are not contextualized, do not address the most pressing needs of the African continent, lead to cybersecurity issues and also do not incorporate African ethics. UNESCO's work in this regard is important but expert inputs are largely centered around Western "universal" principles and Organisation for Economic Cooperation and Development and EU precedence. African ethics have, so far, a small role to play in global ethics and philosophy and therefore risk to be overlooked in the discussion on AI and ethics. This is why the consultation process of UNESCO on ethics of AI was of paramount importance. However, it does not automatically lead to consultation of African philosophers or sages, as many are educated in Western (ized) education systems. See further details under practical implications.

Originality/value – This is a new area of research in which little work has been done so far. This paper offers the opportunity to widen the debate on AI and ethics beyond the conventional discourse, involving multiple worldviews, of which Ubuntu is just one.

Keywords Africa, Ubuntu, Artificial intelligence, Ethics, Community, Relationality

Paper type Research paper

Introduction

Africa has had little part so far in designing the new algorithms for artificial intelligence (AI) or drawing up ethical guidelines for its application. The companies and researchers involved are mainly in the West or China and ethical guidelines have been issued mainly in North America, Canada, the EU, Council of Europe and Organisation for Economic Cooperation and Development (OECD), as argued below. AI can lead to biases, as machine learning is based on collecting examples of the past. It is often better suited for men than women and also may have biases against people of color and thus invisibly perpetuates discrimination [United Nations Educational, Scientific and Cultural Organisation (UNESCO), 2018]. Recently there is more attention for these problems, amongst others within UNESCO. This issue however runs much deeper when seen from a postcolonial, counter hegemonic, perspective where decolonization of the mindset is still in its infancy when it comes to debates of development, sustainability and human rights. Are African philosophers involved in the AI discussion or simply (Western-trained) AI experts from Africa?

This article takes the report (2019) of the UNESCO World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) as a starting point to look at what philosophical, epistemological and ontological issues African ethics would raise for AI. It argues that the ethical consequences of AI are far greater than simply new dependencies or lacking (African) solutions for African problems, as identified by COMEST; it may further hamper *decolonization* of the (Westernized) mindset, which 60 years after African independence is still a major issue, and deter us from further "humanization."

Because epistemic injustice (the systematic undervaluing of knowledge systems other than Western ones) has not been at the forefront of academic debates in general, discussions on the bias of AI are often limited to pointing at existing mechanisms of discrimination and gender bias. As the COMEST report states:

> AI systems have significant implications for gender equality, since they may reflect existing *societal biases,* with the potential to exacerbate them. Most AI systems are built using datasets that reflect the real world – one which can be flawed, unfair, and discriminatory (Marda, 2018). Recently, a hiring tool used by Amazon was found to be sexist, as it prioritized male applicants for technical jobs (Reuters, 2018). Such systems can be dangerous, not only because they perpetuate gender *inequalities* in society, but also because they embed these inequalities in opaque ways, while at the same time being hailed as 'objective' and 'accurate' (O'Neil, 2018). (UNESCO/COMEST, 21, emphasis added)

Thus, AI poses the risk of veiling the colonization of our mindset, in one universal human rights paradigm and one "sustainable" capitalist socioeconomic paradigm, even further.

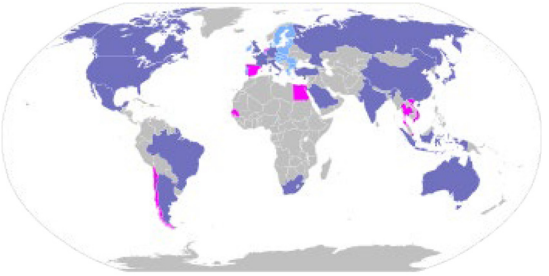
Guidelines

So far, ethics of artificial intelligence has been mainly discussed in EU, Council of Europe and OECD frameworks: such as in the *Resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics* (the European parliament, 2017); *Statement on AI, Robotics, and Autonomous Systems* (European Group on Ethics in Science and New Technologies EGE, 2018); *Communication on AI for Europe* [European Commission (EC), 2018]; *Assessment List for Trustworthy Artificial Intelligence (ALTAI) for self-assessment* [European Commission (EC), 2020]; *Recommendation on the human rights impacts of algorithmic systems* by the Committee of Experts of the Council of Europe for Human rights dimensions of automated data processing and different forms of artificial intelligence (Council of Europe and Committee of Ministers, 2020) and *Declaration by the Committee of Ministers on the manipulative capabilities of algorithmic processes* (Council of Europe and Committee of Ministers, 2019); *Human rights in the robot age* by the Rathenau institute (Van Est and Gerritsen, 2017); and the *OECD principles on AI* in the OECD Council Recommendation on Artificial Intelligence (OECD, 2019) [1].

In June 2019, the G20 adopted human-centered AI principles (G20, 2019) that draw from the OECD AI principles. When one looks at the map of the G20, it is clear that Africa is the least represented continent, with the exception of South Africa (Figure 1). Moreover, most publications are originating in the West (Figure 2), of which one can extract eleven overarching ethical values and principles:

> These are, by frequency of the number of sources in which they were featured: transparency, justice and fairness, non-maleficence, responsibility, privacy, beneficence, freedom and autonomy, trust, dignity, sustainability, and solidarity. (Jobin *et al.*, 2019).

In 2017, UNESCO-COMEST published its first report on the Ethics of Robotics. In 2019, followed the Preliminary Study on the Ethics of Artificial Intelligence, after which UNESCO decided in 2019 to launch consultations on an instrument for the Ethics of Artificial Intelligence, adopted in 2021. Consultations included experts, member states and civil society. The new UNESCO guideline of 2021 focuses on "aspects that are generally neglected such as culture, education, science and communication" [World Commission on the ethics of scientific knowledge and technology (UNESCO-COMEST), 2019, p. 23] [2]. Whether the cultural aspect of Ubuntu was reflected in the UNESCO consultations remains an open question. No amendments were made by African countries to the UNESCO guideline of 2021 [3].



Notes: Member countries in the G-20; members of the European Union not individually represented; 2019 guests
Source: https://en.wikipedia.org/wiki/G20

Figure 1.
G20 countries

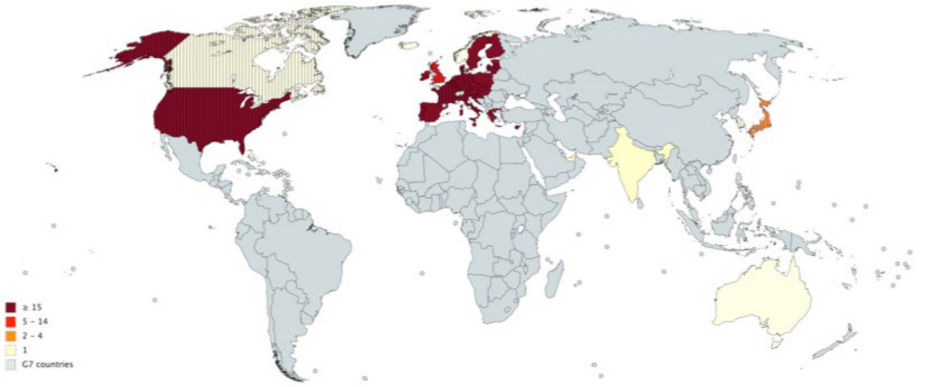


Figure 2.
Geographic distribution of issuers of ethical AI guidelines by number of documents released

Source: Jobin *et al*. (2019), https://arxiv.org/ftp/arxiv/papers/1906/1906.11668.pdf

Challenges of AI

The ethical problems that AI raises are numerous. Yet, there is no legal framework to guide global research, while technical possibilities are advancing at a lightning speed. Questionable practices of AI include: facial recognition algorithms identifying supposed "hostile" behavior which may include racial prejudice, data collection impacting on privacy and autonomous lethal weapons such as through military drones (UNESCO, 2018). Other than access to data, selection and classification of data are also a sociocultural issue [Crawford, 2017; World Commission on the ethics of scientific knowledge and technology (UNESCO-COMEST), 2019, p. 7].

COMEST calls for attention to the specific challenges for Africa, based on local cultures [World Commission on the ethics of scientific knowledge and technology (UNESCO-COMEST), 2019, pp. 8 and 22]: "AI should be integrated into national development policies and strategies by drawing on endogenous cultures, values and knowledge in order to develop African economies." Though the implications of digitization for *Africa* are being discussed, this is often not from an African philosophical vantage point. For example, the world science forum in 2019 reports: "the limited number of African researchers and the underrepresentation of African people and data, as well as the lack of full broadband coverage, are causing concern." AI often does not address challenges faced by the Global South: "I term all those technological advances that are in the realm of reality in the West 'white people's problems'." Senegalese Moustapha Cissé states, "In Africa, but also in many parts of Asia and South America, people have other problems to deal with on a daily basis, the solutions of which depend on technologies that are much less sophisticated, and yet are non-existent" (UNESCO, 2018, 20). Lucilla Spini of the International Science Council points at "the fact that most private sector initiatives that transfer technology to Africa do not consider ethics [. . .] has led to continent-wide cybersecurity problems. Cultural aspects are also brought in with the import of technology, but African cultural values need to be taken into account when defining a framework for AI on the continent." [World Science Forum (WSF), 2019, p. 1]. Jana el-Baba (Cairo Office of UNESCO) therefore highlighted "that regional frameworks are as important as global ones since countries with different normative backgrounds might identify themselves better with regional approaches," although "UNESCO addresses the issue of ethical AI through an inclusive, global approach" [World Science Forum (WSF), 2019, p. 1]. Development economist Dorothy Gordon warned:

> The most important concern for Africa is to avoid creating *new dependencies* as a result of technology. Technology is moving so fast that we might not have time to bring all stakeholders to the table. Although there are no global norms, the universal declaration of human rights should be the bedrock of any future document on the ethics of AI. [World Science Forum (WSF), 2019, p. 1]

It is specifically this aspect that *human rights* will automatically cover African ethics that is problematic. The African interpretation of rights and duties is different from the Western one (Van Norren, 2017; Van Norren, 2019). It is also questionable whether regional approaches will be adequate in addressing issues of AI and ethics, because many of the AI technologies are produced outside Africa.

Making artificial intelligence *inclusive, responsible* and *transparent* is also stressed by the African Centre of Excellence for Information Ethics, which organized a meeting in August 2019 in Pretoria, South Africa, on the Preliminary study (UNESCO, 2018) emphasizing "the importance of Information Scientists and the larger academic, industry and civil society community" in. making this happen (UNESCO-IFAP, 2019, p. 1). However, it also states: "The human rights framework and the *Sustainable Development Goals* provide a consistent way to orient the development of Artificial Intelligence" (UNESCO-IFAP, 2019, p. 1). It is crucial to understand that although the SDGs were signed by UN member states, including Africa, a framework designed from an African perspective of Ubuntu would have looked quite different, and the SDGs are still premised on Western modernist notions of economics (Van Norren, 2020).

Ubuntu

Ubuntu can be described as the root of African philosophy, in particular, the philosophy of the Bantu-speaking peoples of sub-Sahara Africa. It forms the ontological and epistemological basis of all Nguni languages and thought of the Bantu people. It features in various variations in different African languages (Ramose, 2005). It commonly signifies: A person is a person through other persons or in popular vernacular "I am because we are" (though some feel this trivializes the deeper philosophical meaning Ubu-Ntu) (Tembe, 2020). It can be called "human-ness" in motion or action. The philosophical depth of the hyphenated word Ubu-Ntu is much deeper however: "ubu" signifying abstract being and "ntu" life force being, the two forces meeting and creating the continuous enfoldment of the universe (Ramose, 2005). Because Ntu, the connecting life force, underlies many words, Ubuntu represents a *relational world view* where nothing can be viewed in isolation. Individuality exists in Ubuntu (Oyeshile, 2006; Eze, 2008; Kimmerle, 2008), but not without the community, the ecosystems and the spiritual world, of which the individual is part.

The community consists of the living–dead (ancestors) and the future generations and as such Ubuntu is also connected to *respect for the Earth* and its natural resources (Ramose, 2005, p. 106). People have a moral and spiritual responsibility for all that is part of the web of life, to care for it as a parent (Behrens, 2014, pp. 1 and 5; Haenen, 2012, p. 93, referring to "parental earth ethics" of Odera Oruka). Living–dead do not go to heaven, as in Christianity, they are connected to the land and Earth, and present generations are connected to them, must revere and look after them and Earth. We are furthermore connected to earth through the life force Ntu, underlying all things. Mistreating the land is therefore also referred to as violating Ubuntu.

Environmental degradation, as practiced in modern economy especially in the rich "developed" industrialized countries, is an example of the disregard for harmonious relations between human beings and nature, from the Ubuntu point of view. It contradicts the Ubuntu quest for a balanced and harmonious relationship between human beings on the one hand and, human beings and the environment on the other. The quest is not for its own

sake but for the "mothofatso," *continual humanization* – becoming human beings in the ethical sense – of the human being (Ramose, 2020b) ("motho" or "muntu" means human). This is also called developing personhood. One develops personhood by fulfilling one's role in the community, looking after the well-being of others. Education therefore foremost strives at acquiring such moral personhood, which one does not automatically possess at birth but one can acquire during one's life (Metz and Gaie, 2010, pp. 273–290). As Uleanya (2020, p. 33) expresses (see below), further unchecked economic "modernization" including robotization risks unraveling this very fabric of society. Robotics in the life of human beings introduces impersonal and distanced relationships between human beings. It is the construction of alienation. It may engender alienation between and among human beings on the one hand and between human and other beings.

Feeling engagement with the other is a central tenet of the African view of life, as you only come into yourself through the other. This involves both listening with the analytical mind, as well as listening through intuition (the brainy "warrior mind" and the pelvic "mother mind") [4] and ultimately balancing both in the heart. Ubuntu does not seek to replace Western philosophy on morality or "personhood," but represents the African position on human-ness and interconnectedness rooted in a strong community centered view of life (as articulated by staff members of the United Nations Economic Commission for Africa; Van Norren, 2017, p. 475).

Ubuntu thus represents an *ontology with a collectivist outlook*. In its socioeconomic dimension Ubuntu strives at cooperation (mutual aid) and respecting human relations. Economic and social well-being of the community is more important than (personal) accumulation of wealth (or growth). This means that property has to be equally distributed. The place of the economy in the entire African values system is much less significant than in the Western system. It is oriented to other higher goals of African brotherhood or familyhood or communality.

A few more significant features are:

- having a family and children is seen as a core duty;
- Ubuntu emulates the principle of transparency to group members in all spheres; and
- in the legal sphere restoring harmony and doing (intrinsic) justice is the leading principle (Metz and Gaie, 2010, pp. 273–290).

Ubuntu is mostly *practiced* at home and in the communities, townships and rural places. It is also implemented through *official policies,* such as the truth and reconciliation process in inter alia South Africa (after apartheid), Rwanda (after the genocide) and Nigeria. South African also promotes "Ubuntu diplomacy" [Government of South Africa. Department of International Relations and Cooperation (DIRCO), 2011], based on respecting human rights, democracy, justice, international peace, reconciliation, the eradication of poverty and underdevelopment and Pan-Africanism, in sum "Building a better world." "Ubuntu reflects the belief that it is in our national interest to also promote and support the positive development of others. South Africa is multifaceted, multicultural and multiracial, and embraces the concept of Ubuntu to define who we are and how we relate to others" (South African Embassy, 2011, p. 5) [5]. Ubuntu was however omitted from the Constitution of South Africa (after having been part of its draft); therefore, one may question whether it is fully embraced by South Africa. South Africa's white paper on foreign policy contains a one-page Ubuntu preamble that is, however, not consistently articulated throughout the document [Government of South Africa. Department of International Relations and Cooperation (DIRCO), 2011]. It relates mainly to "our common humanity" and

"interconnectedness and interdependency." The relationship between democracy and human rights and Ubuntu is treated as a given. The document does not explain the relationship between African integration and common African values. South Africa also has the Batho Pele policies (a Sesotho expression meaning People First) to rectify apartheid government conduct (Batho is also a Sotho word for Ubuntu), encouraging accountable government. (South) Africa does however so far not seem to be engaged in the search for a new development paradigm based on cultural values. Agenda 2063 [6] of the African Union does pay attention to common cultural values (Van Norren, 2017, p. 182).

Criticism at Ubuntu, such as that it represents traditional ideas of a romantic past, can be countered by various arguments (van Norren, 2014) and deny Ubuntu to present an alternative epistemology.

Ethics of artificial intelligence and Ubuntu

Metaphysical questions

UNESCO rightly points out that the question of AI is fundamentally a question of metaphysical or spiritual origins of life (below). Some believe that machines can replace humans (*transhumanism*) or can at least create genuine intelligence (strong AI) in future. COMEST points at this:

> What is meant by 'intelligence' and how to distinguish 'natural' from 'artificial' intelligence? Is symbolic language necessary for thought processes? Is it possible to create 'strong AI' (*genuine* intelligence of the same kind and level of generality as human intelligence) as opposed to 'weak AI' (intelligence that only *mimics* human intelligence and is able to perform a limited number of narrowly defined tasks)? Although questions like these are theoretical or scientific, they involve a number of *metaphysical or spiritual concerns* (e.g. about human uniqueness or the freedom of will) which themselves have indirect, but nonetheless serious, ethical implications. [World Commission on the ethics of scientific knowledge and technology (UNESCO-COMEST), 2019, p. 5]

On the question whether machines can replace humans, Ubuntu would, in my interpretation, definitely answer in the negative. The transhumanistic way of thinking is the ultimate Western ideology of "Cogito ergo sum" (I am because I think) of Rene Descartes taken to its extreme, separating "intelligence" from bodily existence and locating intelligence in the brain:

> Already in the seventeenth century, the French philosopher René Descartes, for whom the body was a machine, had imagined the possibility of thought without a body. It is a human temptation to dream that, through science, we will free ourselves of our bodies and their limitations – something that transhumanists believe they will finally achieve. (Benasayag UNESCO, 2018, 17)

Needless to say, Ubuntu (I am because we are) is fundamentally opposed to this stream of thought, as it believes in collective consciousness. Ubuntu posits the meaning of life from living through other people and *connectedness* and feeling engagement with others. Can a machine live through other machines? Can it feel, sympathize with another? Can it create meaning? "The question of whether a machine can substitute humans is, in fact, absurd. It is living beings that create meaning, not computation," argues Argentinian philosopher Benasayag (UNESCO, 2018, p. 15). Furthermore, Ubuntu may not necessarily locate intelligence in the mind only, it locates intelligence in the mind (ratio), pelvic area (intuition) and mediating between those two: the heart (sympathizing with the other). "The Negro-African sympathizes (sym-pathises: feels with), abandons his personality to become identified with the Other" (Senghor, 1964, pp. 72–73).

Benasayag further observes: "Human intelligence is not conceivable separately from all other cerebral and corporeal processes" (UNESCO, 2018, p. 15). Ubuntu would take this

argument one step further: individual human intelligence is also not separable from other human beings and life forms. According to Ubuntu, we are all connected through "seriti," an invisible force that constitutes the web of life. It is the life forces" that connect human and other beings on earth ("life forces," Battle, 2009; Griaule, 1975; "vital force," Tempels, 1945). "There is no distinction between the body and soul, both are determined in the field of life forces" (Battle, 2009, p. 116). Black (2018, p. 37) points at the *individualist assumptions* of technology developers versus African communal thinking and observes "Such a shift [away from the primacy of individual agency towards community] has potentially profound implications for our understanding of consciousness, and our conception of intelligence, as no longer purely products of individualized biological aptitude, but rather as products of relational being." Forster (2006, p. ii) argues with Ray Kurzweil on the possibility of strong AI and the question of whether machines can emulate a person's conscious experience of being (being a person "based on memory, emotion, understanding and other subjective realities"). He puts it thus: There is "the need for an approach which is not only based on individual data (i.e. the objectivist – you are, or subjectivist – I am)." There is a need for an approach integrating both; a model integrating the objectivist and subjectivist approaches to consciousness. "Rather, it [this model] requires an intersubjective knowing of self in relation to others" (Forster, 2006, p. ii, emphasis added). Ubuntu ethics embrace relational being and knowing oneself in connection to the other. This is not necessarily limited to Africa. Forster links it to Christianity: "The Christian belief that true identity is both shaped by, and discovered in, relationship with others."

Benasayag already hints at the importance of the *collective understanding of life* and social personhood (Douglas and Ney, 1998):

> Love and friendship exist beyond the individual, and even beyond the interaction between two people. When I speak, I am participating in something that we share in common, language. It is the same for love, friendship and thought– these are symbolic processes in which humans participate. Nobody thinks only for themselves. A brain uses its energy to participate in thinking. (UNESCO, 2018, p. 15)

Ideas such as that of David Bamps that AI will guide us in developing a new *moral compass*, or moral balance (Schoonen, 2020, p. 14; Bamps, 2020), with AI in a monitoring role guiding humans, from an Ubuntu vantage point negates the issues of human connectedness. Connectedness makes us experience empathy and set norms in which we respect the other, motivated by the "meeting" of the other and the meaning that this encounter gives us. Bamps' study does conclude that the more rules are set in a group of people, and the more they are monitored by AI on obeying those rules, the less people feel bound to follow them (sic). Nevertheless, he concludes that when men and machine have built together a new morale, in interaction with one another, ethics become empirical and that the distinction between good and evil can be made by data, not by convictions (though those convictions have to first be used to set up the life rules, that AI is supposed to manage and monitor). He calls it *the* "fyborgisation" *of our moral compass* (the moral unity of man and technology to make a functional cyborg) (Bamps, 2020; Schoonen, 2020, p. 15). The logic of Bamps seems to be that moral decay does not result from disconnectedness and lack of social cohesion in society [or lack of ethical proximity (Ramose, 2020a)], but that it stems from the complexity of our society in which we are supposedly not able to oversee the consequences of our behavior and need to be reminded of it by AI monitoring (e.g. our climate change behavior). Ubuntu, striving for ethical proximity, argues for the contrary.

For partial contrary views, see Fayemi (2018) who contends that "some transhumanist elements are embedded in African normative and ontological conceptions of personhood, some others are not." It does not include that non-humans can attain personhood because

this depends on building one's worth within communal relations (Fayemi, 2018, p. 62). He, however, sees a role for Afrofuturism whereby enhancing certain genes affects the brain and thus can also enhance morality at an individual and societal level; the communal African context may be better predisposed to influence this in a positive direction (Fayemi, 2018, pp. 69 and 73). Technology may address unequal capabilities (Fayemi, 2018, p. 68) and make humans more humane according to Persson and Savulescu (Fayemi, 2018, p. 63). This would suggest that a mentally ill person (i.e. a person with Down syndrome) has less morality than a genetically sound person, which is an unfounded assumption. It goes directly against the African conception that the ill are part of humanity (Ramose, 2005) (and through our care for them may enhance our humanity) and his own quotation of Ikuenobe that "human capacities do not have an inherent moral worth" (Fayemi, 2018, p. 61). His explanation is that the Yoruba "inu" (inner most self that determines character and actions) is amendable and therefore open to transhumanist interventions. He does not explain how genes are related to "enhanced consciousness" and whether African philosophy sustains the idea that consciousness is attained through the brain (not, for example, through the heart or the soul, "emi" in Yoruba, which is connected to Oludumare, the supreme (Fayemi, 2018, p. 64). Wareham (2020) argues that despite being prima facie inimical to personhood, his African account could admit AI as persons: "AI could be both subjects and objects of relationships of identity and solidarity" (Wareham, 2020, p. 8); recognition is urgent as "machines may represent a large category of potential moral agents" (ibid, p. 7). This, however discounts the metaphysical dimension of Ubuntu. A machine can be intelligent and in relation with people and may alter the community, but the definition of a person includes more than thinking, namely, feeling, intuition, animation (the soul dimension) and the capacity to morally grow. And does AI possess "Ntu," the life force-being?

Language embodies meaning and worldviews

The way AI learns is very dependent on the underlying conceptual framework and the programming language and method.

The meaning of Ubuntu is derived from its (Nguni language) grammar, "ubu" the abstract life form, meeting "ntu," the life force being, in an endless cycle of creation and destruction. Therefore, the essence of Ubuntu philosophy is hidden in the structure of African languages (along with numerous proverbs). Yet, programming of AI is often in English. Will it also be done in a Nguni languages? "It is very likely that machine translation, at least in the short term, will be primarily developed for the main world languages, especially English" [World Commission on the ethics of scientific knowledge and technology (UNESCO-COMEST), 2019, p. 16]. English is a noun-based, result-oriented language, whereas African languages are process-oriented verb-based languages and therefore express different meaning or worldviews.

The problem does not end here, as AI is likely to simplify the English language, while transforming it into computer (formal) language, skipping multiple meanings of sentences and words, let alone its ability to address metaphoric meanings or metaphysical understandings of life:

> A central element of the complex relationship between AI and language is the intermediary role of 'formal languages' (languages with words derived from an alphabet). AI technologies often require that words and sentences expressed in any of the many natural languages used around the world have to be *translated into formal languages* that can be processed by computers. The translation of many natural languages into formal languages is not a neutral process, because every translation from natural language into formal language results in the 'loss' of meaning, given the fact that not all the specificities and idiosyncrasies of languages can be entirely formalized.

A loss of meaning in the translation of "other languages" into English acerbates when languages are further removed from one another. The Dutch language may thus experience less loss of meaning than African languages, as they embody a very different, communal philosophy of life: As the COMEST report points out:

> 64. A second element is the *translation between natural languages*, which takes place via these formal languages. There are several intrinsic problems with machine translations: words can have different meanings in different languages, and there can be a lack of linguistic or conceptual correspondence between languages. (UNESCO/COMEST 2019, p. 16)

Economics and society

The principle of relatedness in Ubuntu and moral responsibility for the community of the individual implies that Ubuntu demands that we develop AI for the benefit of the whole society (Black, 2018, p. 27). This in a way complies with Article 27 of the Universal Declaration of Human Rights which stipulates that every human being is entitled to the benefits of scientific progress (though a collectivist view entails more than the sum of individuals and their access). Although I would not go as far as recognizing AI as a new Ntu (life-force being) to which humanity is geared to and reach a "new altered embodiment" (Black, 2018, p. 25), it is undoubtedly so that AI has far-reaching consequences for society. This may amount not only to significant opportunities (such as increased productivity, taking over tasks from humans) but also poses significant risks (like making labor redundant, leading to higher inequalities and more power concentration for those who own AI, as well as its military uses, issues of cyber security, privacy and ethical issues, new digital divides and the need for AI capacity building) (G20, 2019). If society is or remains organized by the capitalist logic of accumulation of wealth, AI risks going at the detriment of those at the bottom of society (Black, 2018, p. 26). When confronted with economic choices, Ubuntu favors sharing above competition, emulated in the proverb that when once must choose between wealth or the preservation of the life of the other, the latter should be prioritized (Ramose, 2005). Ubuntu therefore reminds us of our place as an individual as part of a greater whole, which is essential for both the functioning of the whole as well as of the individual.

Uleanya (2020, p. 33, emphasis added) warns that:

> technological gadgets, which are supposed to be enabling devices for enhancing human endeavors towards higher productivity, tend to serve as a double-edged sword; serving as enabling devices on one end, and aiding the weakening of *social ties and roots,* on the other end.

She pleads for treasuring the culture of bonds and brotherhood within and between communities, tribes, nations and the (African) continent. This may however go further than the African continent and benefit humanity as whole (Van Norren, 2014; Black, 2018, p. 21). Therefore:

> African relational ontology suggests that any technological development, whether it be a 'soft' or a 'concrete' technological development, should be subject to the principles of true *humanness* and Kosmic harmony as expressed in *Ubuntu.* (. . .). Thus no technology that is developed should exploit persons or the wider creation for individual enrichment or gain. (Forster, 2006, p. 326)

Privacy

The UNESCO recommendation of 2021 refers extensively to privacy in the digital age, as defined by the human rights council [7]. The Western concept of individual autonomy and

control over information has largely determined the idea of privacy. Ubuntu would demand a collective protection rather than an individual one, in the common interest (Reviglio and Alunge1, 2020). It also may question what "personal" data are, as opposed to group data, promoting group privacy: "I am because we are" or "I am datafied because we are datafied" (Reviglio and Alunge1, 2020, p. 595). This may also serve Western societies, as the individual informed consent is often disregarded by users and then amounts to an empty shell. Taylor *et al.* (2017, p. 2) discuss different types of groups such as ethnic groups, groups facing a common threat of harm or interest in privacy. They point at the fact that risks may play out on the collective level. Thus, though Ubuntu prima facie may not demand as much privacy as Western societies (transparency to the group is more important), it can amount in stronger protection than the individually based regimes. Western privacy-based ICT may also promote behavior that is more individualistically oriented and thus deeply influence African societies as the Western development model in general has done. Ubuntu can thus contribute to intercultural digital ethics (Aggarwal1, 2020).

Care and robotics

Ubuntu also means that we recognize that labor done by humans in care for other humans contains an aspect of relatedness and meaning that goes beyond the mere tasks at hand. This is to say that when older, disabled or demented people are cared for by care robots or infants by nanny robots, we deprive them of an essential meaningful aspect, namely, of bonding and exchange of "ntu" (life force). In the view of Ubuntu care is therefore much more than simple practical tasks, but is about recognizing *meaning in relatedness* and mutual aid. A lack of relationality leads to isolation, alienation and loneliness, which in the materially wealthy West, for example, the UK, has become a top priority: "the condition being recognized as the UK's most dangerous health issue" [8]. Care is also from the Ubuntu vantage point an essential quality that can contribute to "moral personhood," especially when related to the care of elders (Metz and Gaie, 2010; Menkiti, 1984). *Elders* have accumulated more experience and if they have acted rightly, gained *an elevated status of personhood*. The young can benefit from this experience. The African following proverb illustrates this: "What the elders see while sitting the young ones standing on their toes won't see" (Black, 2018, p. 27). Therefore, the mutual care and sharing of time benefits both members of the community, the elderly and the younger, and benefits the whole of society, in the African system of thought. Likewise, Ubuntu reads meaning into illness or dementia (Ramose, 2005, chapter 5 Medicine through Ubuntu), which means that care also takes on a different significance, such as keeping patients within the community where possible.

Even if the relationship of caring and robotics is a supplemental at first, the logic of the capitalist society may eventually lead to an increasing role of technology over human aid and (priceless) humane-ness in the relationship. Black therefore opposes the Ubuntu idea of "humanity, community and flourishing" to the looming danger of "inhumanity, isolation and floundering" (Black, 2018, pp. 23–29). COMEST (2019, p. 6) equally warns for "general *dehumanization* of human relationships and society at large." In other words, the ethics of AI have to be considered within the larger context of the dominant ethics of society as a whole.

Commission on the Ethics of Scientific Knowledge principles versus Ubuntu

COMEST did not take a stance on above metaphysical or epistemic questions but instead formulated a number of generic AI principles for its development, implementation and use, which are listed in Table 1, and compared with principles of the OECD (2019), the [European Commission (EC), 2019] and Ubuntu.

Table 1. UNESCO/COMEST generic principles for the development, implementation and use of AI

COMEST principles (2019)	Definition (UNESCO/COMEST 2019)	ALTAI principles (EC, 2020)	OECD principles (2019)	Ubuntu principles and bottom-up approaches
a. Human rights	AI should be developed and implemented in accordance with international human rights standards	Human agency and oversight (empowerment and rights)	Human-centered values and fairness	Human relations incl. future and past generations
b. Inclusiveness	AI should be inclusive, aiming to avoid bias and allowing for diversity and avoiding a new digital divide	Diversity, nondiscrimination and fairness	Human-centered values and fairness	"I am because we are" makes inclusivity a given
c. Flourishing	AI should be developed to enhance the quality of life		Inclusive growth, sustainable development and well-being	Well-being of the community and human-ness
d. Autonomy	AI should respect human autonomy by requiring human control at all times		Human-centered values and fairness	Respecting autonomy of group and individual
e. Explainability	AI should be explainable, able to provide insight into its functioning		Transparency and explainability	Explainability toward the group
f. Transparency	The data used to train AI systems should be transparent	Transparency		Transparency toward the group
g. Awareness and literacy	Algorithm awareness and a basic understanding of the workings of AI are needed to empower citizens			Education for moral personhood benefitting the group
h. Responsibility	Developers and companies should take into consideration ethics when developing autonomous intelligent system	Technical robustness and safety	Robustness, security and safety	Duties toward society and AI
i. Accountability	Arrangements should be developed that will make possible to attribute accountability for AI-driven decisions and the behavior of AI systems	Accountability	Accountability	Accountability toward society
j. Democracy	AI should be developed, implemented and used in line with democratic principles		Human-centered values and fairness	Participatory democracy and consensus building
k. Good governance	Governments should provide regular reports about their use of AI in policing, intelligence and security	Privacy and data governance		Contribute to restorative justice and nation building
l. Sustainability	For all AI applications, the potential benefits need to be balanced against the environmental impact of the entire AI and IT production cycle	Environmental and societal well-being	Inclusive growth, sustainable development and well-being	Respect for and living in harmony with nature and future and past generations

The COMEST principles follow closely the earlier OECD guidelines, but add some important dimensions like flourishing, literacy and application in public governance. In observing the principles formulated by COMEST, it stands out that terms like *human rights*, *sustainability* and good governance are Western oriented terms. In Africa, one would rather speak of *human relations, future generations* and *ancestors* as part of this community of people ("Bantu") and keeping harmony in these relations (as well as restoring it when disturbed) including caring for the Earth (Van Norren, 2017). *Good governance* is also a largely Western embraced term; as the SDG negotiations showed that SDG 16 (geared toward the rule of law) initially sparked controversy from the G77+China and was reformed into "peaceful, inclusive societies"; *restorative justice and nation-building* is the Ubuntu term (Van Norren, 2017).

The notion of *flourishing,* responsibility and inclusivity on the other hand resonates well in Ubuntu's "moral personhood," constituting of responsibility toward the community and always paying regard to *the flourishing of the* "whole." It is however not clear if with flourishing is meant enhancing the quality of life of the individual or of society as a whole. Likewise, inclusivity is a Western term as Ubuntu is inherently inclusive in its ethical outlook (there is no meaning to life or personhood without the other). *Responsibility* refers only to companies and developers developing ethical AI systems; it does not refer to *who benefits from AI* or where the profits go, which would relate to Ubuntu's preoccupation with sharing.

The principle of *autonomy* once again emphasizes individuality (human control), as it does not refer to the *autonomy of the group* (for example, determining the purpose of AI) which would strengthen the agency of individuals. Equally from the Ubuntu perspective *transparency* is required *to the entire group*. Likewise, the interpretation of *democracy* may vary; the West emphasizes representative democracy, whereas in Africa *participation and consensus-building* receives priority (Wiredu, 1997; Eze, 1997). As regards *awareness and literacy*, the ultimate purpose would be to educate not only in the technical details but mostly to address the question how AI and algorithms contribute (or not) to *moral personhood*, benefitting the group.

Black points at the fact that Western philosophy operates from the premise of universality and lacks *diversity*; it also prioritizes individuality and rationality (2018, pp. 36–37). *Universal rules* may overlook the particular and different ontological realities. It therefore may benefit from counter-hegemonic thought (Graneβ, 2015, pp. 78–88). The degree to which these rules may be adhered to may also increase once they incorporate multiple worldviews:

> Cultures incorporate their implicit agendas [. . .] if we allow for cultural diversity in the public sphere, we must acknowledge that there is bound to be systemic disagreement over fundamental principles. Whole social persons will not be able to resolve disagreement as easily as will the abstract, unsocial persons of the market model [. . .]. (Douglas and Ney, 1998, p. 124)

Another objection against these kinds of rules based approaches to AI may be that rules based systems may not be applied in *practice* (UNESCO guidelines are, for example, nonbinding). "Rules-based approaches to intelligent systems have been variously criticized for lacking robustness in real world application" (Black, 2018, p. 16). Therefore, one may want to apply *bottom-up approaches* by having machines learn ethical theories. However, "The biggest drawback of bottom-up approaches is the difficult task of training machines by having them learn from mistakes" (Black, 2018, p. 16). To undercut this problem, one may apply a combination of top-down rules based and bottom-up *deep learning based approaches*. These deep learning algorithms could incorporate the ethics of Ubuntu, for example, in the realm of care and the position of elders in society (Black, 2018).

Conclusion: Ubuntu relationality as antidote to artificial intelligence's individuation and alienation?

In conclusion, we have seen that artificial intelligence guidelines mainly come from the West (Europe and North America). Applications in Africa are not contextualized, do not address the most pressing needs of the African continent, lead to cybersecurity issues and also do not incorporate African ethics. UNESCO's work in this regard is important but expert inputs are largely centered around Western "universal" principles and OECD and EU precedence. African ethics have, so far, a small role to play in global ethics and philosophy and therefore risk to be overlooked in the discussion on AI and ethics. This is why the consultation process of UNESCO on ethics of AI was of paramount importance. However, it does not automatically lead to consultation of African philosophers or sages, as many are educated in Western(ized) education systems. The ethics of Ubuntu offers unique vantage points in looking at the organization of society and economics today, which are also relevant for development of AI, especially in its tenet of relatedness rather than individuality (and practical use of AI for individuals), taking responsibility for society as a whole (such as analyzing the benefit of AI for all strata of society) and embodying true inclusiveness. Whether looking at top-down guidelines for the development and implementation of AI or the bottom-up ethical learning process of AI (deep learning), ethics of the Global South can have an important role to play to combat global individualist tendencies and inequity, likely reinforced by AI. This warrants far more research.

Notes

1. See also Rathenau Institute, www.rathenau.nl/nl/digitale-samenleving/overzicht-van-ethische-codes-en-principes-voor-ai
2. UNESCO Recommendation on the Ethics of Artificial Intelligence, 2021, https://unesdoc.unesco.org/ark/48223/pf0000377897;
3. Draft text with track changes, https://unesdoc.unesco.org/ark:/48223/pf00003778982?2=null&queryId=N-EXPLORE-ecb4d21e-c339-486b-abc2-ab92b266bae4
4. Zulu Sangoma (healer) Vusamazulu Credo Mutwa, A Message to the World, Global Oneness Project, http://www.globalonenessproject.org/search/node/ubuntu
5. South African Embassy in The Hague (2011). Presentation available to author. See also speech Minister of International Relations and Cooperation Ms. Maite Nkoana-Mashabane in Sofia, Bulgaria, September 2. www.southafrica-newyork.net/consulate/speech_foreign_policy.html
6. "(Aspiration 5: Africa with a Strong Cultural Identity Common Heritage, Values and Ethics; Goal 16) African Cultural Renaissance is pre-eminent; priority areas: Values and Ideals of Pan Africanism; Cultural Values and African Renaissance; Cultural Heritage, Creative Arts and Businesses," African Union, The Africa we want, https://au.int/en/agenda2063/overview
7. Resolution A/HRC/RES/42/15 of 2019.
8. Smith & Joe (2018). Loneliness on its way to becoming Britain's most lethal condition | The Independent | The Independent, April 30, 2018.

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