Data Sovereignty: A Perspective From Zimbabwe

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ABSTRACT

This paper applies a trans-disciplinary analysis on the issue of data sovereignty, from an African perspective. The paper interrogates the residence of data and the African prerogatives for its processing. Harvesting from experiences in Zimbabwean health systems, this paper suggests that African governments can steward the collection and appropriate use of data resources, applying the principles of data sovereignty.

CCS CONCEPTS

• **Information Systems**; • **World Wide Web**; • **Web Applications**; • **Social Networks**; • **Social and Professional Topics**; • **User Characteristics; Computing / Technology Policy**; • **Applied Computing**; • **Human-Centered Computing**;

KEYWORDS

sovereignty, data, platforms, Africa

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1 INTRODUCTION

In African contexts, issues of sovereignty – whether social, political technological or otherwise – are pregnant and contested concepts, subject of ongoing discussions. The foundations of the systems of the nation-state and the articulation of concepts of national sovereignty are a result of non-African histories. The Westphalia accords came to pass without African involvement in the towns of Münster and Osnabrück in 1648. These accords set the foundations for the demarcation of autonomous states in Africa. Colonial, bilateral and multilateral agreements established the state boundaries, drawn up outside of Africa, without any African consent or representation. The social and political realities in Europe resulted in the demarcations that exist in Africa, up to the present time. They were solidified in the General Act of the Berlin Conference, in 1884–85. This confirmation of the arbitrary borders authorised Europe's Scramble for Africa. Founding nationalists in Africa imported the resulting bondages through the principles of the Organisation of African Unity (OAU) – the precursor of the African Union – that emphasised the inviolability of colonially-inherited African borders.

Sovereignty in the African contexts is a two-pronged enterprise, existing both in the context of the nation-state and as existing in so-called traditional systems, guided by narratives of identity and culture. The guardians of the nation-state are the national governments in Africa. Their powers are often vested in a democratically elected President. In the so-called traditional structures, authoritative guardianship resides in the Chieftainship.

In this paper, we focus on the state as a core unit for regulatory powers. Nevertheless, with Olayode Kehinde Olusola [32], we concur that this unit of analysis remains inadequate to address the full scale of multiple realities existing in contemporary African politics. In this paper, we choose to limit the interrogation to the perspectives from a nation-state because information and communications technologies seem exclusively and narrowly conceptualised to exist in the legal frameworks set in nation-states and omits any reference to customary laws.

There is a clear void for critical literature on the storage, African agencies in the harbouring and processing of digital data, the use of data from Africa, and the growing exploits of data platforms outside of Africa. Datafication in the Global South, Linnet Taylor and Dennis Broeders [43] show, are resources to an avaricious informational capitalism that fuels new power structures propelling "digital representations of social phenomena and/or territories that are created in parallel with, and sometimes in lieu of, national data and statistics." (page 229). In this paper, we approach the subject matter by interrogating the consequences of the *positionality* (location) of information. Also, we assess what is *at stake* in the handling of digitised information while reflecting on the issues of sovereign choice and agency in Zimbabwe. Underlying questions are "who benefits in contemporary platforms?" and "who's interests are technologies, data, and platforms serving"?

We conceive 'data' as things known or assumed as facts that are the basis of reasoning or calculation, and, therefore, subject to philosophy and contextuality. The framings of the constitution of quantities, characters, or symbols in the fields of calculation and computing, invariably negate philosophies, ontologies, and epistemologies from Africa [39]. Definitions appear set in a normative epistemology that assesses the benefits of an action by its essentialised results. Such an epistemology is foreign to most African communities. It omits the dynamic and integral nature of African epistemologies [3] and the relational qualities of 'things' [24]. Data sovereignty refers to the self-determination of individuals and organisations – and, we argue, countries and communities – concerning the use of their data [13].

It is from our African positions, set in a complex context of competing philosophies and practices affecting sovereignty and

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accountability that we discuss the issue of data sovereignty. We derive our empirics from the Zimbabwean setting, where the authors have been studying and working for the last decennia.

2 METHOD

This paper is located within a decolonial research paradigm, recognising the primacy of community [40], heritage, and conviviality [31]. We focus critically on the development and evolvement of models and theories from Africa. These bearings need to be wrestled from a non-African ontological and epistemic hegemony. To achieve this, we utilise the method of Living Research [42]. For this paper, we adhered to the method by:

1. invitation to develop this paper by specialists in various Ministries and professional societies in Zimbabwe, who called for this research and asked for its execution;
2. guidance by the introduction and recommendations of critical offices and persons in Zimbabwean academia and in health;
3. developing the concepts, proposals and execution processes within the context of and with the communities of practice in Zimbabwe, specifically within Zimbabwean Universities and the Zimbabwe Ministry of Health and Child Care, through methods of co-creation;
4. regular monitoring and looping of the ongoing development of the research in the (geographical) location of the communities concerned;
5. disclosure of the progress of the study in Community-of-Practice meetings in diverse settings, in and outside of Zimbabwe;
6. co-development, discussions, and write-ups, continuously communicated in the community, who subsequently encouraged dissemination further afield (as, for instance, through this paper) and to audiences elsewhere;
7. being fully synchronised with relevant Zimbabwean authorities.

This paper draws from previous work in African settings and beyond Africa (in that sequence), both in literature and the experiences of implementing and reviewing eHealth and related activities in Zimbabwe over the last 15 years. Our speciality encompasses research in development studies, social anthropology, philosophy, culture studies and decoloniality. We deem the intersectionality of the lived experiences, and a quest with, in, and for theory allows participation while observing [6].

3 DATA, PLATFORMS, ALGORITHMS AND ICTS

Data-processing, technology-using industries purport their activities as a-political or a-historical: as purely *mechanical*. Nevertheless, these performances are political as the constitution and handling of data set in a particular set of ideologies and politics, and associated measures of success. The composition of data is set extraneously, like the data handling processes that are framed by foreign designs. The production of data and their computing is contingent on choices on what to include and what to omit. Technology producing companies embed decisions in their plans and choose what information to process and whatnot. In the current digital world, such choices appear to be made mostly made in the United States of America's Bay Area. That context is particularly blind to other forms of identity or culture than that are common in a dominant capitalistic, white, male, management class. The handling of data is subject to hegemonic master narratives, where the range of ideas tolerated in public discourse – known as the Overton window - is firmly centred along with neo-liberal ideas on wealth creation. These ideas inform government-policies to mainstream private market competition in an embrace of capricious capitalism.

From her investigative and autoethnographic research and intersectional critique, Safiya Noble [30] argues that algorithmically based digital platforms are reliant on broad cultural power dynamics. The result is algorithmic oppression. She convincedly makes the case that a single view on identity that fuels the design thinking of technology handling industries can result in material forms of abuse.

For the conceptualisations of data, contemporary narratives borrow words from natural phenomena. Such metaphors are attractive and go well in conversation. The nature of data is conceptualised as *flowing*. When assessing the magnitude of data – especially in big data – we *fathom depths*. And, the location of data is perceived as seated or gathering in *clouds*. Of course, these narratives frame – reify – the constitution of data and its existence, affecting the way of thinking, looking, and, subsequently, actions. In Africa, however, data does not flow proportionally because there are black holes in the information society [20]. The fathoming of big data is obsolete as most data is not harvested. Data-clouds do not gather because data centres are scarce. Some of the widely-used internet protocol implementations are unconducive for the transfer of data over huge distances [14].

Digital platforms are designed mechanisms for extracting and using data. They provide the architecture and infrastructure for digital intermediation between different groups of interlocutors. Platforms place themselves in a position in which they can monitor and obtain all the interactions between these groups. Platforms accumulate economic and political powers [36]. Dominant digital platforms rose from the opportunities of an unregulated World Wide Web and a libertine Internet [9]. After leaving developments to the private sector, large non-African companies claim to own the – mostly public-funded – knowledge and infrastructures. They seek to usurp and privatise the intellect developed in 'the commons' in areas such as agriculture, plants and food, financial methods of doing business, and on the *algorithms* that drive the digital revolution [26, 35]. The wholesome outsourcing of Africa's data to digital platforms governed outside of the African continent has already allowed for scandals like Cambridge Analytical. This company used data from Kenya as a laboratory for insidious political meddling, for instance, affecting the 2013 and 2017 presidential campaigns [17].

Algorithms are the hegemonic tools of quantification in societies [11]. The term algorithm applies to any sequence of actions that lead from inputs to outputs. Algorithms, however, are mostly known as (complex) mathematical functions that produce numbers that, presumably, are coherent with outcomes/scores/chances in a homogenised, contemporary society. These mathematical functions are inductive or reiterative, where computer programmers code

algorithms, or where algorithms develop themselves, as through Machine Learning/Artificial Intelligence. The British mathematician Hanna Fry [10] argues that algorithms have four distinct functions:

- They prioritise, for instance, which posting is shown on the top of lists (for example, by Facebook);
- They classify, where, for example, potential criminals are identified in the general public (for example, face recognition at UK police, in Booth [5]);
- They associate, matching prospect products to your history (for instance, by Amazon);
- Filter, where specific patterns are filtered out for transfer of particular objects (for example, in noise-cancelling headphones).

There is a wealth of evidence that suggests that these functions are biased to Western situations, and, therefore, are not informed by African settings. For instance, the faces of people of colour are not readily recognised [15]. Neither do search-results give references to contributions to the Body of Knowledge from Africa. From Africa, one is confronted with a persistent white-washing of the imaginary in digital platforms [1]. In combination, algorithms act as an integral part of a super-colonising toolbox for oppression [41].

Algorithms do make the (Western) news where they appear score individuals, for instance, in the social scoring of people for creditworthiness or criminality. The narrative of 'the surveillance society' is persistent and growing [47]. Issues of privacy are subject of debate, especially when algorithms score people upon their propensity of reaching a special status (as a defaulter or criminal, as per previous examples). Civil rights movements argue that these discussions are not thoroughgoing to capture the gist of what they should. In the meantime, government agencies appear to react irritated as algorithms are seen more and more as helpful in delivering on their mandate when viewed in the framing of sovereignty as a Responsibility-to-Protect [45].

4 THE SILENCING OF THE AFRICAN VOICE AND INTERESTS

The leaking of data from Africa does not feature on the global agenda. This appropriation of such an African resource by non-Africans can be regarded as an additional means of plunder from Africa [21, 37, 41]. This preying is somewhat shocking given that data security is a top priority in many parts of the Global North. Worse still, the African context for ICTs has got specific parameters that are mostly absent – neglected – in Euramerican literature. Why this is the case remains a cause of great concern and indeed, an issue that warrant careful examination. It underscores the skewed nature of global security. The master narrative emphasising the need to protect human security allows the global elite and neo-imperial 'masters of data' to mine African data willy-nilly without paying regard to equity and security concerns of the people of Africa [12]. The critical question that arises here is "Why African security interests should be conflated with the security interests of rapacious global capital and elites, some of whom induce shocks that generate insecurities for Africans?" [29]. Here below, we provide some selected examples that are part of a long list of issues and reasons why African voices and interests around the question of data production and consumption matter:

- The non-conduciveness of (Western) technologies for general use in Africa, as the design neglect Africa's substantial *latencies*, *scarcity* of bandwidth leading to ubiquitous *congestion*, and the sumptuous *variety* of hard and software;
- The metaphysical and epistemological discordance of Western philosophy, for instance, with its anthropocentric focus on an individual instead of the African emphasis on community and communal expressions.
- The competing perspectives on any activities in Africa, for Africa, for instance, in the field of Digital Health.

In previous work, Mawere et al. [20] show the persistent existence of 'black holes' in the information society. Black holes are prevalent, especially in African environments where lack of electricity or internet connectivity is a common feature. Consistently, literature positions Africa as incapable. As an example stands the proclamation of *The Economist* [44] on its front cover: "Africa, a hopeless continent". In the academy, this master narrative is undergirded by writings of David Hume, Emmanuel Kant, Georg Hegel and Lévy-Bruhl, among others. This claim of inadequacy causes Africa to be vulnerable and, indeed, to be a subject for the surveillance society. Voices affirming African agency and its sovereignty on how to deal with data and the continent's other resources, with its choices of what data to produce, what data to process, and what data to omit, are positioned as 'in opposition of the greater good'. We argue that this positioning and characterisation is nothing other than nefarious overtures of the same force as the hegemonic overtures in colonial Africa. It is out of such realisation that demand for 'own sovereignty', for instance, done by the Office of the President of Tanzania, are framed as (geo-) political positions, opposing 'free flow of information', as proof of 'dictatorial tendencies' [8] that should chunked out of the continent once and for all. The prioritised agency of transnational cooperations to judge which characteristics are a suitable indication for categorisations can be likened to the prioritisations proposed by Western institutes in their self-appointed mission of 'civilising Africa'. One wonders how this can be possible and whether this is not an anomaly. Elsewhere, Mawere [18] questions the legitimacy of the West positioning itself to oversee the execution of democracy and institutions in an Africa which they once colonised. Concerning the practice of African Studies, Mawere argues that contributions remain suspicious as long as Africans do not lead such a field of enquiry. On the same note, we argue that as long as Africans do not administer the security of African data, then African sovereignty remains fragile. Given the issue above, the use of international digital platforms, therefore, surpasses problems of privacy and mistakes in the entry of data, or their handling, processing and analysis. We reiterate that these are nudging issues of sovereignty.

Algorithms can exist of mathematical calculations but also quantified behavioural observations, for instance, using swipe data, location data, sequence and timing of inputs. Due to the machine-component of digital platforms, algorithms assess using lines of computer-language. Here, 'if/then/else' or iterative 'for' statements feature for each variable used in the algorithm. In contemporary platforms, algorithms can be nested and assume complexities, much like the real-life, embedded and nested health systems.

Algorithms, of course, are fruitful to sift through massive amounts of data. Such 'big data' analysis is crucial in complex systems like health systems. Real-life examples show that algorithms are upcoming in health analysis, for instance, in the assessments of tuberculosis in chest X-rays, or the assessment of moles for melanoma. However, the critical concern is that algorithms are potentially disruptive if practised outside the contextual cultural, moral and epistemological parameters of a people where they are deployed. An example is Google, who (mis-)scored flue-epidemics [16]. There is no knowing if these kinds of scorings did not continue, and the Snowden revelations [12] give ample indications that these might well be taking place.

5 DISCUSSION

In this paper, we grapple with the issues of positionality, choice and, poignantly, 'who benefits'. When reflecting on contemporary practices of digital platforms, we recognise an underlying ontological, political shaping of the digital world that disempowers African meaning-making and sovereignty. We agree with Sabelo Ndlovu-Gatsheni and Brilliant Mhlanga [28] that many of the attributes ascribed to 'Africa' are "rooted in Western modernity, a product of deliberate actions of Westerners and their ideologies of coloniality of power" (pp. 5). Africa's borders and contemporary essentialistic reductions of African achievements are cases in point. Throughout literature, (the use of) digital platforms appear set in a Euromerican narrative, void of African inputs. As a result, it is not surprising that when exploring data and technologies from an African positionality, the outcomes that are presented as authoritative *knowledge* appear to provide little embodied *knowing*. Embodied knowing - described through oratio - is a manner in which many in non-Western setting recognise information to exist [23]. This clash of paradigms is amplified by the forceful disposition of hegemonic, Western-based philosophies and the epistemic violence that goes with that. As a result, data, platforms and algorithms developed outside of African influence are potent actors in knowledge politics.

Annemarie Mol [25] positions *ontological politics* in the conditions of the possibilities one lives and how practices of interaction shape them. In a digital world, data-platforms and their (data extraction) facilities set the conditions. Aligned with the thinking of Catherine Boone [4] we argue that the operations of foreign digital platforms are, in effect, an importation of administrative ideologies and structures from super-colonial metropoles. These imports are sovereignty-disempowering in Africa. The hegemonic building blocks of the digital world, however, are not permanent and multiple realties do exist. To open the road towards data-sovereignty in Africa, active anthropologic research and technical developments must recognise local ontologies located in African philosophies. Such research can craft (the use of) technologies that make sense in African epistemologies, cf. [7].

The digitising world relies upon a rationalising – thinking in categorisations, processes and systems – of the social. This rationalisation involves negations of social values and moral argumentations [27]. For example, Ubuntu – a crystallisation of African philosophy, current in many African societies – stands against the capitalistic philosophy of competition, nor aligns with people being regarded individualists about which information can be gathered to 'define the person' [22, 34]. Globally, platforms are at the forefront of 'the new revolutions', with the seats of Artificial Intelligence (AI) and the Internet-of-Things (IoT), the latest frontiers in software and hardware taking centre stage. The development of these platforms is driven in the West, and it is people located in the West that decide whether or not projects take place or shape (for an example in 5G mobile developments, see van Stam [38]). Most developments, therefore, can be seen as a political statement that should influence the (bilateral) relationships between Africans and non-African institutions (and countries).

The benefits of network effects, where the value of a network grows quadratically with the number of participants (Metcalfe's law), have led to some digital platforms acquire state-like characteristics. They govern their digital domain through state-like means of punishment and reward, adjudication of disputes, and moderation of content. Subsequently, these digital platforms engage in state-like negotiations (e.g. Facebook's proposed introduction of Libra currency). These positions are based upon the privatisation of semi-automatically captured data. This capturing is negotiated, executed and monitored for contractual and legal compliance that is based upon norms and values mostly foreign to many African communities. US-centric standards, corporate responsibilities, the primacy of 'markets', and, most significantly, an unapologetic profit-motive govern the modelling of leading, contemporary digital platforms. Such motives are contrary to the 'modern' gospel of human security and freedom often preached by the Global North. That narrative appears to invoke the same innuendoes as those cited by colonialism. No wonder Kwasi Wiredu [46] argues thus: "We live in times marked by a certain [. . .] anomaly in a cultural flux characterised by a confused interplay between an indigenous cultural heritage and foreign cultural legacy of a colonial origin. Implicated at the deepest reaches of this cultural amalgam is the superimposition of Western conceptions of the good upon African thought and conduct." The statements by Wiredu are critical in this digital age. The data extraction by commercial, opaque transnational companies and non-accountable non-African institutions from African environments seems to be threatening sovereignties in the African continent. These statements by a respected African, thus, challenge us to re-imagine and rethink data mining in Africa by outsiders, to make sure that it is not "part of the colonial legacy exerted towards plundering, siphoning and expatriation of African riches" [19].

As the custodian data on health for the people of Zimbabwe, the Ministry of Health and Child Care in Zimbabwe is to harness whatever is at its disposal within precincts and dictates of the laws of Zimbabwe. Transnational companies, however, are not bound to such requirements, which then raises many questions about data sovereignty. We note that even public global institutes like the World Health Organisation (WHO) has fallen prey to transferring data supplied by sovereign states to US-based digital platforms [2]. This outsourcing is unacceptable practice if issues of personal and national data sovereignty and security as well as ethics are to be taken into account. Information-sharing arrangements between platform conglomerates and the government of their jurisdiction facilitate wholesale surveillance, bypassing constitutional constraints [33]. International corporate platforms are profit-seeking entities. The acceptance of their operations depends on a narrative of public authority, as said, having gained geopolitical influence comparable

to states. Geopolitical practices, for instance, summons for discussions in the European parliament, show how the involvement of digital platform operators is considered necessary in talks on sovereignty. Platforms can pursue (geo-)political goals. And, although public platforms argue that the involvement of 'human in the loop' should avoid unethical behaviour, such a human is mostly not – if ever – located in an African country, nor accountable to African sovereignties. Therefore, the 'human in the loop', for instance in the case of WHO's outsourcing of national health data to calculations performed on digital platforms the USA, is compromising data sovereignty. Of course, Zimbabwe, as most – if not all – African countries lack the leverage to impose regulations on most powerful digital platforms.

From the precept of sovereignty, one must recognise the existence of choices to be made by Africans. From her studies, the previously cited Safiya Noble [30] advocated "I am trying to make the case, through mounting evidence, that unregulated digital platforms cause harm" (page 166). The contemporary situation grew from super-colonial behaviours, through imports from outside African sovereignties and, therefore, is a product of history. In a decolonised setting, where a focus on community is prime, alternatives do prevail. These alternatives, of course, come with specific interferences. However, current norms and values in the discourse surrounding digital platforms are overtly Euramerica-centric. As mentioned, contemporary, hegemonic data-platforms engage in a privatisation of the commons. The results of data machinations are positioned as private property instead of a public good. The balancing of all goods and bads involved in the production of data and its manipulation in digital platforms is complicated and needs simultaneous balancing of national, sovereign priorities (in local development, for instance). With this paper, we call for facing these issues and running the gauntlet from a position of African agency.

Data sovereignty is the concept that digital data is subject to the laws of the country in which it is processed. In this paper, we argue, however, that this understanding of data sovereignty is narrow as it excludes other stages through which data pass through. We, instead, stress that data sovereignty concerns that digital data is subject not only to the laws of the country in which information is processed, but also where they originate and are ultimately used. Colonial history provides ample examples of how external categorisation, analysis, measurements, and systems can result in cruel and barbaric effects.

Technological sovereignty features need ongoing, sovereign assessment and the sovereign handling of its political aspects. An example is the existence of back doors for the National Security Agency (NSA) to assess the content of data stored in digital platforms located in the USA [12]. There is a need for the development of strategic options that align with the norms and values, local principles, and moral arguments current in African communities. A conversation is needed on the use of digital platforms, public and private registers, and information flows to the national government(s). The handling of data profiles and the processes of their computing can be embedded in national consensus first, and international consensus second. Information and communications infrastructure and technology are subject to the laws, needs and interests of the country in which producers and users reside. In this regard, data sovereignty or information sovereignty sometimes overlaps with technological sovereignty. Their distinctions are not clear cut. Technological sovereignty also refers to the subjection of information to the laws of the country in which the data subject is a citizen, where the information is stored or flows.

With a few notable exceptions as, for instance, Tanzania, an African timidity in confronting the onslaught on its data and technological sovereignties can be linked to the "Westphalian 'curse' and worship [of] the 'old ghost' of Berlin that opposed any radial potential to alter the post-colonial spatial order inherited from colonialism." [28]. When adhering to the principles of Ubuntu, the goal is not technological protectionism but a convivial sharing of resources. However, a blind following of the abstractions coming from mesmerising, Euramerican-centric computer science or other sciences with that single orientation should be avoided. Sovereignty necessitates countries and communities to retain the powers on their societal developments. It requires conversation on what is considered ethical behaviour (ubuntu), and negotiations on what is happening with local information, whether or not in digital formats.

EU's General Data Protection Regulation (GDPR, article 22), in force since 2018, mandates a 'right to explanation' of all decisions made by automated/AI systems. This duty is borne by data controllers (i.e. any persons who determine the purposes and means of the processing of personal data). This example vindicates the need for all outsiders interested in fishing data from countries like Zimbabwe to explain in full their motivations and the machinery involved. Fulfilling the demands for stewardship in Zimbabwe, there is a need to validate national sovereignty over data that is mined within the confines of the boundaries of African states. This validation includes, for instance, digital platforms and technologies used in the health sector. For the case of Zimbabwe, this means that:

1. There is a need for a mind-change in the current relying on foreign developed or based digital platforms and depending on their processing of data;
2. The scoring-algorithms performed on data in digital platforms must be subject to scrutiny and public oversight;
3. Scrutiny of the need for the harvesting of data from Zimbabwe, to demand keeping Zimbabwean data in Zimbabwean locations and to be used for local use in national value systems;
4. There is need for 'certification of algorithms' that serve authoritative functions in public institutes, for instance, in public health;
5. There is need for international laws that maintain the sovereignty of data generated in a country regardless of where said data is located to mitigate the issue of foreign platforms.

The processes for data being 'fished' or taken out of Zimbabwe are to be scrutinised for their implications from the cultural, epistemological, moral and security perspectives.

6 CONCLUSIONS

We are living in the age of data platforms that, we have shown in this paper, harvest and extract information on individuals, communities, and their respective geographies. This harvesting happens without much regards to the sovereignties of Africans. In the face of global concerns on issues of national and human security, data

mining invokes a lot of questions surrounding the critical issue of data sovereignty, especially when extended to once colonised nations such as those of Africa. The current Western nurturing of digital platforms necessitate critical academic scrutiny from a variety of philosophies. The necessity to unthink the soothing narratives utilised in super-colonial practices, set in paradigms rooted in Westphalian thought, is crucial to expose the colonial impositions and an 'Africa failing' tale. It is in this light that we have sought to examine the intricacies and implications surrounding data sovereignty and how these could be navigated and dealt with in a manner that does not invoke memories of imperial exploits.

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