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Of Masters and Machines

Anthropological Reflections on Invention and Intelligence

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Anthropological Reflections on Invention and Intelligence

For many years now, I have been carrying out research on technology and the city in Kinshasa. And, ever since I began to think about the relationship between technology (electronic devices – what I call «machines» – in particular) and society, I have been haunted by the question: «Could the novel *Frankenstein* have been written by an African author?» I understand that this might seem a puzzling question coming from an anthropologist, yet there are fundamental social questions underlying it nonetheless.

In this paper, I start from the premise that each society is constantly renegotiating the possibilities and challenges of invention, creation, and human-made things. In order to understand the co-habitation of humans with objects of their own making, I will bring the notion of «the technology contract» to bear on this discussion. Based on a re-reading of some classics in the library of our discipline, social and cultural anthropology, combined with recent writings in the field, I aim to propose a method, an analytical lens on societal dynamics related to technological invention. I am interested in engagements with technological invention and innovation not only in the Global

South, one of the main «fields» of anthropological research, but also here in the Global North. My focus is on «electronic modernity». This is a form of modernity that derives, to a great extent, from mathematical and computational thinking as it was developed in the Global North, but that now governs many people's lives in intimate ways all around the world.

All in all, «electronic modernity» is this era where, to a great extent, knowledge acquisition and circulation depend on electronic devices; information and communication technologies offer unprecedented platforms for imagining and presenting the self (think of our various avatars on social media platforms). Mobility, the movement of humans, goods, and money, is becoming increasingly electronic; think about smart cars and electric bicycles, but also the electric and electronic systems that structure air traffic, trains, and ships. But let's also think about the global financialscape which can only exist thanks to electronic communication; it depends on the constant connections among stock exchange markets in New York, London, Tokyo, and elsewhere.

Also contemporary religious lives have been modified by electronic media. For a few decades already, electronic devices have been inserted

into the organization of Muslim lives, from Indonesia to Mecca as fascinating research by, among others, Bart Barendregt (2012), evidences. Broader research on electronic modernity and Islam in India by Patrick Eisenlohr (2018), and in Indonesia by Martin Slama (2017), informs us that global centers such as Dubai and Kuala Lumpur play a fundamental role in transnational trade and Muslim global society. Pentecostal-Charismatic Christianity mobilizes a sensuous field through the usage of video and film in proselytization practices (Meyer 2015).

All these worlds, -scapes as Arjun Appadurai (1996) would have called them, thrive on their own rhythms, and play with simultaneity and synchronization. All of them nowadays are literally impossible without the use of electronic devices. We need to take seriously the ways in which electronic devices anywhere and everywhere lead to confrontations between various knowledge systems, between cultural approaches to control, mastery and intervention; and to new configurations of space.

The overall goal of my presentation, therefore, is to shine a specifically anthropological light on *homo faber* in electronic modernity. The notion of *homo faber* was a concept initially coined by the French philosopher Henri Bergson indicating «man the creator». This notion considers humankind as tool-makers, tool-users, workers and craftsmen. In *L'Évolution Créatrice* ([1907] 1998:139), Bergson writes that «human intelligence

is the faculty of fabricating artificial objects, in particular tools, and varying indefinitely in their fabrication».

The question «could the novel *Frankenstein* have been written by an African author?» is relevant as the *Frankenstein* story ultimately speaks about a living creature created by a human being, and who overwhelms its creator to such an extent that it even threatens the survival of the human species.

We have our own Frankenstein risks in electronic modernity. In 2017, news (or was it fake news?) came out that both Facebook and Google had to shut down certain artificial intelligence systems, as these systems they had designed began to interact with one another in a language unintelligible to the developers (Bradley 2017; Walker 2017). Interestingly enough, Facebook and Google very quickly issued press statements in which they claimed that this was «fake news», and that such a thing never happened (McKay 2017; Novet 2017). Tech-entrepreneurs vented their frustrations on Twitter and other media platforms, accusing the journalists who had issued the initial reports of being «irresponsible», looking for «sensation», and saying that they should be «ashamed».

Artificial intelligence, its moral panics, and the whole media circus embedded in it, are lived realities that provide us as anthropologists exciting material to think through, as we try to understand how human beings live with others, animate others, as

well as «mechanical others» who are included in this category of «animate others» and who might become, or who already are, smarter than ourselves.

While the topic of artificial intelligence and machine worlds might seem very far from classic anthropological concerns, it is not. Ever since the beginning of the discipline, anthropologists have explored human-non-human interactions, usually involving religious and spiritual others. Mechanical and electronic modernity have indeed introduced «machines» as «significant others».

In order to understand human-machine cohabitation, I wish to propose the notion of the «technology contract» as a heuristic analytical tool. This notion draws on Benetta Jules-Rosette's understanding of the «computer contract» as she develops it in her 1990 ethnography on computer education in Ivory Coast and Kenya (*Terminal Signs. Computers and Social Change in Africa*, De Gruyter Mouton). Hers was among the earliest sociological studies of IT on the African continent. By «computer contract» Jules-Rosette means the end of negotiations, i.e. the moment indicating either a mandate of acceptance or a violation of previous understandings (1990:9). The contract marks the moment when the machine's role in an enterprise is clearly established. The situation may either be positive (conjunctive) or negative (disjunctive). A positive contract links everyday practices to public discourse about computers and

is filled with computer-related *success* stories.

Drawing on Jules-Rosette's definition of the «computer contract», I understand the «technology contract» as the outcome of negotiations that speak to a society's acceptance, refusal, or partial acceptance of technological innovations. I argue that we need to attend to the various technology contracts that societies are negotiating. Thus we need to analyze the discursive realms surrounding such contracts, and the entire set of practices embedded in the negotiations of such contracts. A «contract» is the end goal of a process of technological experimentation, as well as of reflections on appropriate usages.

This analytical attention offers a heuristic means of peering into the social possibilities of technology. It allows us to move beyond utopian and dystopian representations of technologies. In particular, such a perspective on the making of technology contracts helps us, first, to understand the social realm of technology: who the main actors are in setting up this contract, the terms of agreement, how these negotiations are framed, and in which networks these debates take place. Second, trust is a major component of any contract. Important questions to ask deal with how issues of trust and control are experienced, described, and possibly tested, validated and sanctioned (in case of transgressions). Third, we need to understand how «masters» and «users» relate to one another, what forms of interaction are agreed

upon, and how technology mediates in these relationships.

All in all, these questions are not new to our discipline. Tools and technologies have been studied ethnographically for a long time. I will now revisit some ethnographies, and read them through the lens of the «technology contract». I will end this talk with some reflections about ethnographic praxis because, as field researchers, we are all also familiar with setting up technology contracts with our interlocutors.

I. Masters

Who are the major players in a technology contract? Who are the masters of manufactured goods? Revisiting the anthropological literature on technology, it becomes clear that in certain societies technology experts make contracts with the spirit world.

Probably the best-known technology expert in the Africanist literature is the blacksmith. In many African societies, blacksmiths are closely tied to ritual experts (as they often provide the ritual objects); sometimes they are ritual experts themselves, such as when they become healers and chiefs because of their alliances with spirits. Often, it is the blacksmiths who produce «culture»; they are the ones who domesticate the world. Consider the Greek figure of Prometheus who gave fire to humankind and who is the god of invention and technical creation. The blacksmith thus is an interesting figure. He acts as a «connector» (Lattour 2005, Pype 2016) between the undomesticated world and society.

Among the most incisive ethnographies of blacksmiths is *The Mande Blacksmiths* (McNaughton 1993). Patrick McNaughton (1993:18) argues that «blacksmiths and spirits are almost colleagues in the eyes of the Mande.» The blacksmith's tasks often send him into the undomesticated outside world that can only be tamed – so Mande people hold – after one has made alliances with the spirits. Spirits are masters of the undomes-

ticated world. And success, or even survival in this world of the non-human, requires alliances with these spirits, these «masters» of the world. The technology contract at stake among the Mande group thus depends on alliances (themselves a type of contract) between blacksmiths and spirits.

This connection with the spiritual world, and especially the blacksmiths' ability to manipulate fire, and energy (*nyama*) in general, positions blacksmiths – and with them, some other technology professionals, ambiguously in Mande society. The blacksmiths are part of the *nyamakala* group, which also includes bards, leather workers, and sculptors. The etymology of the concept of *nyamakala* is worth pausing at. McNaughton (1993:18) writes that «[c]ontrol is the idea underpinning the word *nyamakala*: *kala* is the word for handle, such as the handle of a hoe or a knife. So, the *nyamakala* clans are handles of power, points of access to the energy that animates the universe». As a consequence, blacksmiths are feared. Here, we arrive at another dimension of technology use: The display of expertise over manufactured objects can induce fear and awe, separate those «with knowledge» from those «without knowledge», and introduce dynamics of power, distinction, and authority (Pype 2017).

Nyama is stored in all living things (animals and humans included) and informs a moral law, one which informs humans' interactions with animals, but that also undergirds

society. In order to protect oneself from the *nyama* of others, one must «never indulge in wrongful acts and always prove oneself full of goodness, kindness, humility, passivity, patience, and submission.» (McNaughton 1993: 17).

We can make some – perhaps provocative – parallels with contemporary society, which, as Max Weber ([1905] 1930) once so eloquently put it, is governed by «the Spirit of Capitalism». This Spirit, the law of capital accumulation, underlies the industrial revolution and generates various technological innovations, of which currently «mobile money» captivates much research (among others Kusimba 2018). How are contemporary electronic innovations related to this deep, untamable force that governs national and international markets, investment schemes and industrial innovations in many parts of the world? Should we consider Elon Musk's recent and very public breakdown, in which he claimed that he hardly sleeps anymore, and is continuously awake trying to fine-tune the programs for the electric Tesla car, as sacrifices to this «Spirit of Capitalism»? Are the accidents with the first automatic cars, which led to a number of human deaths, human sacrifices to the same «Spirit of Capitalism»? For all we know, this man is a visionary, someone who sees more than others. To use a familiar trope, he is a witch and produces his witchcraft, which, as most of us know, requires sacrifices as part of a contract with the «Spirit of Capitalism».

Religion and Technology

Technological creativity does not only occur within the blacksmith's workshop or the engineer's lab. Rather, ethnographic research indicates how religious spaces also become spaces of technological experimentation.

In particular, Tulasi Srinivas' exploration of the intertwinement of the technological and theological is fascinating. In a recently published book, *The Cow in the Elevator* (2018), Srinivas recounts about the construction of «a robotic Devi» – a female Hindu goddess – in the city of Bangalore, India's IT city, in which innovation occupies the heart of both public sphere and ambiance. As she argues, «the culture of the city is oriented aspirationally around new technologies and the skill required to create them.» (2018:216) Vishwanatha, one of Srinivas' interlocutors, worked secretly on a mechanical apparatus: he produced a robotic Devi. Srinivas describes a scene in which the robotic Devi was presented for the first time to the audience:

... the goddess could lift her right arm high. In her raised hand, she clutched a shining, tinfoil trident, while at her feet lay a papier-mâché image of the buffalo, its severed head smeared with red ink. Light bulbs within the sanctum flashed, and the right arm of the deity thudded down, causing the trident to strike the buffalo's body. On the opening evening, as the assembled devotees were observ-

ing the «wonder» of technology, they gasped audibly in sheer delight; children burst into scattered applause and laughter. (Srinivas 2018:213)

Srinivas subsequently emphasizes how what she calls «the dynamic of wonder» sits within this city of Bangalore; this seems important for the technology contract. The technological apparatus is embedded in a society that «enjoys rather than eschews technology and engages with technological apparatus and the ethos of newness» (DeNapoli 2017:2–5 in Srinivas 2018:216).

There is a fascinating twist in the usage of technology by so-called «amateur experts» such as Vishwanatha, who set up the robotic Devi. In India, the concept of *jugaad* refers to «frugal engineering». Jauregui (2014) defines *jugaad* as «goal-oriented improvisation», and especially the use of informal social networks for advancing one's interests. It is often conflated with corruption, as *jugaad* is also conceived as necessary for «getting by». Yet, in the domain of creation, invention, fabrication, this concept suggests that a solution is sought by circumventing the problem «while attempting to retain the essence of what is required, rather than cutting through the problem or rendering it null and void» (Srinivas 2018:227). In the world of formal engineering, business and Bangalore's larger industrial spheres, how-

ever, *jugaad* is not valued. Rather, in those spaces, *jugaad* has antisocial and unethical connotations. In a religious context, in contrast, this «ad hoc hack» is applauded, and encouraged (Srinivas 2018:227) for, «[bringing] to the forefront a new reality in which the present became invigorated with new and joyful potentialities for change, expansion, and transformation.»

Here, we apprehend that a technology contract within the Hindu world requires that the creation, be it a robot or any other technological invention, should «allow for a transformation, i.e. the creative augmentation of mundane reality or the production of <wonder>, and that it render the individual aware of his or her intersubjective ties to the universe, which is the central animating principle of Hindu philosophy» (Srinivas 2018:229). In this context, then, «ritual practitioners (...) engage technology as theology» (ibid.), a practice which is encouraged.

«Nature» – «Culture» – «Waste»

The technology contracts I just have discussed, present particular configurations of «nature» and «culture». The bush, the wilderness, the spirit world, is a cultured space of nature, as argued by anthropologist of Igbo society in Nigeria Misty Bastian (2018). In these societies, the spiritual domain, and those who are closely allied with it, are readily identified as masters of technology. Therefore, cautionary tales exist about keeping one's place in «the world», i.e. the space of culture.

Modernity brings its own spaces of danger and risk, which come from culture itself. With modern technologies such as trains and the gun, death was not something from nature, and rather «nature» became a place to hide out – as so vividly described by historian Clapperton Mavhunga in *Transient Workspaces* (2014), a historical ethnography of technology in south-eastern Zimbabwe.

Indeed, every society, every era delineates its own demarcations between the tamed and the undomesticated, between safe and unsafe spaces; and culture heroes are the ones that cross these dangerous lines. New configurations between «nature» and «culture» through technological interventions have recently appeared in secularized societies. For example, the maker culture, which appeared first in the US in the 1970s as part of the hippie movement, and its current avatar, fablab spaces («fabrication laboratories») speak to the

desire of establishing a transformed relationship between «nature» and «culture». The onset of the US-based maker culture is a rejection of modernity's claim that the human dominates «nature», is the master, and is in control. This is similar language as used in the Anthropocene movement and the ecological turn, both of which generate technological innovations in order to *protect* nature.

All over the world, we observe how participants in maker spaces and hackatons attempt to reconfigure material worlds, literally to design the environment via ad hoc means, in cheaper ways, through inventive and innovative «hacks». This movement of fablabs, maker spaces and hackatons collides with a DIY-trend which has also conquered the Global South through activities initiated by national embassies (at the forefront are the U.S. and French embassies), and other brokers between the Global North and Global South, including NGOs and diaspora returnees.

In its essence, DIY-culture refers to organized and self-conscious practices of building, modifying and repairing things without the direct intervention of experts or professionals. This movement provides an alternative to the modern consumer culture, where the «Spirit of Capitalism» dictates the primacy of engineers, industrial designers, and automated systems. In these worlds of maker spaces, DIY cultures, and fablabs, «waste» – a cultural and political category in its

own right (Eriksen and Schober 2017) – becomes re-imagined, redesigned, refashioned, re-used, and repurposed, thus significantly redrawing the boundaries between the «useful» and «useless». Waste, the negative of «modern man» or «pollution» of modernity (Cooper 2010), to invoke Mary Douglas (1966), gains new value and new meanings.

These maker spaces become locally appropriated when moved elsewhere, e.g. in India, where they easily connect with the aforementioned culture of *jugaad*. The local appropriation of maker spaces in other areas has also meant a reconfiguration of the relationship between «nature» and «culture». This is a second reconfiguration of this «nature» – «culture» binary (the first one began in the 1970s, as mentioned before). Telling in this regard is Ron Eglash and Ellen Foster's recent analysis of societal dynamics in Senegalese and Ghanaian maker spaces (2017), in which they discuss the spiritual origins of «fixing», or repairing, as mentioned by a fixer in Dakar's Colobane market. The repairer can only carry out his work if he has pleased the spirit of the market. Here, makerspaces have become inserted in spiritual worlds that assert their own configurations of domesticated and undomesticated worlds, of nature-culture.

Gender

Contracts with the spiritual world can at times mitigate male experts' powers. In Nigeria's Onitsha market, for instance, car repairers working on broken down cars and motor trucks need to negotiate contracts with the Onitsha market women, in order to work there. These women themselves have contracts with the «spirit of the market» (Bastian 1992; Devisch 2018), and must carry out sacrifices of their own. Another example concerns the team producing traffic robots in Kinshasa, which is called an «all-female» team, despite the fact that most of the workers in the lab are male. This emphasis on women giving life to robots coincides with recent attention to the gender politics of NGOs and international organizations that want to draw girls towards STEM disciplines (Science, Technology, Engineering and Mathematics).

Yet, there is more to this. There is a deeper connection between women giving life and technology expertise. Is it a coincidence that the novel *Frankenstein* was written by a woman, Mary Shelley? Is it a coincidence that Srinivas' interlocutor produced a robotic devi (i.e. a female god), instead of one of the male gods? What does it say when the *Black Panther* film (Coogler 2018) positions Okoye as the head of intelligence, the general of the army, and the leader of the all-female security force protecting Wakanda? Indeed, one of the most exciting accounts in

the history of computers shows that women actually were the first «human computers». During the second World War, American female mathematicians were working closely with the first electronic machines. They were calculating, refining the accuracy of weaponry, carrying out ballistics analysis. They were not only the masters of the computers, they were the computers themselves!

This deeper connection between women and the origins of technological creation and expertise becomes apparent in ethnographies about technology in Africa, especially when closely reading linguistic and ritual descriptions.

As an example of linguistic descriptions, I refer once more to Clapperton Mavhunga's book *Transient Workspaces*. In Zimbabwe's Shona language, Mavhunga (2014: 30) writes, the word for «expert» *vamazvikokota* means «mother of a hyena», i.e. a woman of talent, and is based on the fact that young hyenas go everywhere with their mothers, who wean them only after their instruction is complete and they are able to take care of themselves. This Shona word for «expert» *vamazvikokota* embodies all elements of expertise: in building (men), ceramics (women), being a gifted speaker, a prolific hunter, a smith, etc. (Mavhunga 2014: 31).

For an example of ritual descriptions, I turn to the work of the late Stefan Bekaert, who carried out ethnographic research among the Saka-

ta community in northwest Congo in the mid-1990s. Stefan Bekaert (2000:146-147) wrote the following description for Sakata blacksmithing:

... the semantic construction of iron working among the Sakata contains a metaphorical transposition of human procreative activities. There is a striking resemblance between iron work and sexual work. The smith is a kind of obstetrician helping to «deliver» the iron; What is at stake is the appropriation by men of female reproductive power. The male blacksmith succeeds in manipulating the female reproductive forces, instead of being taken by them, he becomes a culture hero mediating between human and supra-human, between male and female, between culture and nature. He is a very powerful sorcerer who appears to control the power to give and to take life.

Among the Congolese Yaka (Dumon & Devisch 1991), blacksmiths also appear in healing rituals, and take on the role of «life-giver», thus a female role. A widow can only re-enter society after a blacksmith has brokered between the world of the dead (to which she belongs after her husband's death) and the world of the living. At the end of the mourning period, the widow visits the blacksmith's workshop. The fire of the blacksmith literally blows new life into her body. It chases away the soul of her deceased husband. When the blacksmith visits the hut in which the widow is seclud-

ed, she needs to crawl through his legs, and can then leave the hut that had been built for her marriage. Thus, a new phase, with a new homestead can begin for her.

What does it mean if women (or «female actors» as in the blacksmith's case) become significant mediators for the technology contract? Does it mean that, when women are involved in the production of technology, these tools and machines become more easily accessible, as these are more readily associated with societal reproduction, renewal, and the possibilities for viable new futures? Are women the real «masters» of technology and of invention? These observations unsettle the taken for granted associations of technology and masculinity; and they show us that we need deeper genealogies of gendered configurations within the technology contracts that societies have established, disputed, and/or renegotiated.

II. Negotiations

In this second part, I aim to look deeper into the ways we interpret negotiations. So far, I have looked at the main actors of technological invention, inventors, and masters. Negotiations can take the form of heated debates, and even moral panics. Usually, however, they are more banal, and lead to the gradual acceptance of innovations, and technologies' gradual insertion in daily lives. In *Breaking up 2.0. Disconnecting over New Media* (2010), an exciting study of breaking up over Facebook among students on the Indiana University campus, in the United States, Ilana Gershon offers an incisive account of how people adapt to new technologies, from the written letter, to email, Facebook posts, and Messenger and WhatsApp messages. Gershon observed how these new technologies present people with a new range of social and technological problems. For example, is it appropriate to break up over a WhatsApp message? Should children allow their parents to become their Facebook friends? etc. Gershon argues that people look for solutions for these problems. People develop new skills – e.g. arguing by text message is something that people in their early twenties are learning, as they try to figure out moral and appropriate ways of using different media. By observing and talking to people, they come to a consensus. It is here, in reaching this consensus, which is a particular form of

«contract», that what Gershon calls «idioms of practice» are established. These idioms of practice are the outcomes of engagements with new technology forms; they are explorations of what these allow for acting upon the world, and of social reflections on appropriate interactions through technology.

These idioms of practice are also observable in other technological realms; and they are constantly under revision. Each time a new technology (or platform) comes up, these idioms can be revised and either rejected, extended, or confirmed. A fascinating account of how technology contracts are under constant revision is Srivinas' description of the gradual acceptance of her own taking pictures of the deities. In her aforementioned book, *Cow in the Elevator*, Srivinas describes how, in the 1990s until early 2000s, she was not allowed to take pictures of the statues of Hindu deities in Bangalore. During fieldwork, she learned she should always point her camera away from the deity for fear of photographing the god (2018:237). Srivinas writes about that period, the mid-1990s until 2000s: «the technologies themselves are seen as causing degeneracy – fragmenting attention, distraction to worship» (ibid.). This situation, however, had changed drastically by the time social media became popular, even to the extent that Hindu priests and healers also allow for live

Facebook postings in temples. Hindu leaders now embrace the new technologies rather than reject them.

Dis/Trust

A final characteristic of technology contracts, as is true of any contract, holds that technology users must have credence with the other(s) with whom the contract is negotiated. Here, we come to the issues of trust, control, and balance. The use of «machines» requires trust in the machine, in the engineers/designers, and in those who have enabled its fabrication. The latter can be spirits or gods, but also political and social others. The machine itself, its designers and producers, and those who commissioned it are all, in their own ways, «masters of the machine».

The controversy about voting machines in DR Congo around the 2018 elections is a telling example of the users' uncertainty, lack of trust, and even outright distrust in the «masters of the machine». With presidential and provincial elections that took place in late December 2018, the nation is entering a new phase in its political culture. The Congolese state technologically prepared for this moment, which meant the end of 16 years of Joseph Kabila's rule. In order to render the elections possible over the enormous national territory, the government had ordered electronic voting machines designed and assembled in South Korea. Ever since Kinshasa (inhabitants of Kinshasa) learned that South Korean voting machines would be used during the country's next elections, there have been expressions of skepticism and doubt. On September 3 2018, for example,

the LUCHA protest movement took to the streets against these voting machines. Others have written against their usage, and have shared conspiracy theories through gossip and online.

It is not so much the machine in itself that is so distrusted, rather it is its makers and producers, its various «masters». Kinois doubted that the machine would do the work for which it is assumed to be designed: a conventional understanding of a voting machine suggests that the machine would transmit the vote of the voter, who has indicated, in all privacy and confidence and with the touch of a fingertip, her choices for president and members of parliament. However, it is commonly held that the voting machines would merely act out the agency of the «makers», here an amalgam of commissioner and engineers, and thus would help the leadership to remain in power.

There is no magic or spirituality in this story, although what Kinois' anxieties imply – and here I am applying Alfred Gell's social theory of art (1998) –, is that the voting machine is a container of distributed personhood, where the user's agency (the voter) is minimized and even to some extent annulled, by the intentions of those who have commissioned the machine, i.e. the ruling elite.¹ Trust, or its lack, relates to perceptions of «masters'» intentions regarding one's well-being. Trust here goes beyond trust in the «machine» itself, but rather is an intersubjective experience that projects intentions

and purposes on the makers, creators and sponsors of new technologies. The «machine» is literally a mediator between various social actors. Bringing the story back to the technology contract, the controversy about voting machines in Kinshasa, in particular the refusal of these devices, is a story where lack of trust in the machine is a metonym for lack of trust in the government. It is not a refusal of the technology as such, rather, it is a refusal to accept the «masters» of the machine as trustworthy partners in the negotiations.

1 It is important to emphasize that this distrust in «the machine» also leads to confusion and frustration elsewhere. The following footage from «The Simpsons» shows that the same is true for the U.S. elections: «Homer Simpson tries to vote for Obama w/ electronic voting machine.flv» – available on https://www.youtube.com/watch?v=EV_c1-YTk8M – last accessed on October 29 2018.

Ethnographic Research

To conclude, I would like to dwell briefly on the ways in which the technology contract also shapes our own praxis, especially fieldwork. When recording our conversations, taking pictures, filming, and typing notes on our computers, we rely on technological objects for the storage of our data, impressions, and initial reflections.

While carrying out field research, we are constantly setting up technology contracts with our research interlocutors. This can happen implicitly, but very often this is done rather explicitly. Indeed, best practices in our discipline also include negotiations with our interlocutors about these «machines», about who will have access to them and to the archives they carry. Sometimes the outcome of these negotiations is clear rejection. Our interlocutors are often well aware of the possibility of extending their personhood via technology to powers close by that may harm them or others in their social proximity, or extend parts of their person/self to worlds unknown to them.

Perhaps one of the best known, albeit most exoticizing, technological differences is captured in the notion of soul theft. When about a decade ago I conducted archival research in Tervuren's Afrika-museum around media and evangelisation in colonial Congo, I read a footnote, in a missionary's account, in which he wrote that he had wanted to tape a conversation with a newly married

couple, but that the couple did not allow him to tape them as the wife was afraid that her voice – a manifestation of her invisible body – would wander around and connect to material and spiritual worlds unknown to her, thus beyond her control. Renaat Devisch, one of my professors at KU Leuven, told me how during his initial fieldwork among Yaka communities in western Congo between 1971 and 1974, it took him about 4 to 5 months to gradually introduce the tape recorder. He asked children to tell stories, which he recorded. Gradually, the Yaka community became familiar with this unfamiliar device.

Indeed, as researchers, when we bring advanced technological equipment with us, we project ourselves as more technologically advanced. An exception to this is, of course, research conducted among technology communities, such as engineers and tech experts, which drastically transform these relationships, as we become these experts' apprentices. Nonetheless, we must constantly negotiate what we will and can do with the technologies and data retrieved through these. If our interlocutors seem to worry that their digital or electronic selves (even if it is only in an acoustic form) can provide «access» to their «person» or «self», then we are obliged to include how the technologies will be handled in the contract.

At times, it is impossible to use electronic goods during fieldwork, e.g.

when working with sensitive data. Political safety is among the more obvious reasons why technology could be off limits in certain moments of fieldwork. Other reasons, such as religious dictates, could be included in the technology contract too. The following is an illustrative fieldwork anecdote: A few years ago, I accompanied a young woman to her church. As is often the case in Kinshasa, accompanying someone to her church, and let her introduce you to her spiritual father is one of the greatest signs of respect that you can show a person. That day, I had forgotten my notebook at home, and during the service, I began to take notes in my smartphone. After a while, the ushers (*protocole*) came up to me, asking me to stop surfing on the internet, and to listen to the word of God. I tried to explain, to no avail, that I was actually very much concentrated, and that – just like people sitting next to me, I was taking notes, although was not doing it with pen and paper, but rather with my fingers and my iPhone. After half an hour, I was asked to leave my seat and explain myself to one of the sub-pastors. I was not allowed to return to my seat. This incident is relevant for our discussion of «the technology contract» and the relationship between masters and machines.

In the moment of their refusal of my iPhone as a tool in fieldwork, I could not negotiate the technology contract. I was reminded about the technology contract in force within the space of the Pentecostal church:

usage of electronic technology is allowed within the unidirectional relationship of the sacred words flowing towards the believers (as spectators). The believers are users, not masters. An appropriate attitude is to perform servitude, to be the recipient of sacred messages. It was my performance of handling a technological tool that seemed to be the problem; note-taking in a notebook would have been fine, and there would not have been any doubt that I was listening to the word of God. Rather, the mobile phone, as an intimate object obscuring the sounds and images the user is meant to watch and receive, became a competitor for one's attention that should have been oriented towards the sacred. Thus, the unspoken technology contract within this church, as was shown to me by my removal from the site, was that believers are to listen and remain as open and receptive as possible to the sacred sounds and words.

The conflict also indicated a second relationship: that of master-apprentice; I was an apprentice, while the ushers in church were in power; I was reminded about my role as a student, as someone interested in religious practice and, respecting that role, I should comply with the technology contract that was in place in the site where I entered (intruded?).

This anecdote intimates that we need to be attentive to the amalgam of technology contracts at play in the social groups we are visiting. We need to attend to the various implicit and explicit understandings about ap-

appropriate technology use, which may also interfere with our own assumptions of what technologies can do. These understandings must be made explicit in our studies, as these not only shape our interactions with our interlocutors to a large extent, but also determine what kinds of data we can collect, archive, and, later use for analysis.

Concluding remarks

As I have tried to argue here, technology contracts are all around. They emerge when new devices and tools appear; they are the outcome of collective reflections, debates, and consideration. Sometimes, the negotiated contracts are broken. As scholars, we must constantly observe how people's expectations of technology and humans' positions as «masters» and «users» of «machines», are reconfigured.

To conclude, I have not provided an answer on the provocative question of whether a Frankenstein could have been «imagined» by an African author. What the Frankenstein story commonly recounts is the loss of human control over its own creation. Yet, is the real «problem» of Frankenstein not that, in this novel, there is no technology contract? Is the issue perhaps that the homo faber did not render the invention socially relevant, and thus that there were no social negotiations taking place that could at any time revise a technology contract?

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Die Basler Ethnologie hatte schon lange vor dem 100-jährigen Bestehen der akademischen Ethnologie in Basel (seit 1914) einen gewaltigen intellektuellen Einfluss auf die globale Anthropologie. Zu den **wichtigsten anthropologischen Vordenkern** in Basel gehörte **Johann Jakob Bachofen-Burckhardt**, studierter Jurist und Professor für römisches Recht an der Universität Basel. In seinem 1861 erschienenen Hauptwerk «Das Mutterrecht» stellte er grundlegende Fragen nach der Geschichte und dem Verhältnis der Geschlechter. Er wertete das Matriarchat positiv – damals ein Bruch mit dem dominierenden Patriarchat und entschieden gegen den damaligen anthropologischen Mainstream gedacht. Bachofen wurde mehrfach wiederentdeckt (Ludwig Klages, Rainer Maria Rilke und Walter Benjamin). Seine Thesen sicherten ihm noch in den 1970er Jahren eine intensive Rezeption seitens der Frauenbewegung. Heute werden die Fragen, die Bachofen stellte, anders beantwortet. Relevant sind sie jedoch geblieben. In Anlehnung an diese Tradition stellt die jährlich stattfindende Bachofen Lecture Grundfragen der Ethnologie neu.

