The Ntikuma syndrome: ICT-supported mediation of local knowledge and its global benefits

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Abstract

Access to ICT has become a crucial aspect of demarginalizing local communities across the world. But unlike the unidirectional move characterizing e.g. the outreach of food aid to the underfed, the *synthesis of local and global knowledge*, itself a prerequisite to sustainable development and global survival, presupposes a two-way communicative process based on communicative equality across cultural and linguistic boundaries.

The paper presents a model of cross-cultural research tele-cooperation being developed by the African languages e-learning program at the University of Zurich and currently being field-tested in Africa. Its main foci are:

(a) empowerment of local experts to share their knowledge without fear of alienation due to linguistic discrimination (the *Ntikuma* principle);

(b) cost-sensitive language-engineering for overcoming the digital divide "from the far end";

(c) a plea for a "linguistic turn" in Third-World-centered research.

The Ntikuma syndrome

Let me begin with one of the famous Ananse stories whose main protagonist is a character called Spider, *Kwaku Ananse* in the Akan language of Ghana (Kropp-Dakubu 1990). Such stories, called *Anansesem* in Akan, "Acts of Spider", are one of several oral literary genres in which ancestral wisdom and experience are transmitted and kept alive in Black Africa.

> Once upon a time, Kwaku Ananse collected all the wisdom of the earth into one bottle. He intended to hide it so that no one could get at it. He went with it deep into the bush. When he arrived there, he tied the bottle to his chest. He tried to climb up a tree but he was not able to. His son Ntikuma who had followed him secretly came out of the bush and told him: "Father, put the bottle onto your back! Then you will be able to climb up the tree." Ananse saw that some wisdom had remained outside the bottle, namely in his son's head. In an outburst of anger, he threw the bottle to the ground and it broke. This is how wisdom spread all over the earth.[2]

Ananse is the wise, the experienced, the crafty character, the one who holds the keys to knowledge and wisdom. His son Ntikuma's name is compound. Its second component *kumaa* denotes the younger of any subset of human categories in the Akan social order, which by

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[2] Adjusted from a version due to Justin Frempong , from Tamale (Ghana), reproduced in Bearth et al. (1999).

abductive reasoning is tantamount to saying that he is the less wise and inexperienced character, intellectually speaking a minor.

One point of the story is the disclaimer on account of Ananse's pretension to exclusive ownership of knowledge. Transposing this idea from the local Akan context to the vast domain of international relations, one may think of changing assumptions and pretensions underlying the development ideology that has dominated postcolonial North-South relations for nearly half a century. The earlier assumption that Western society has the monopoly in solving not only its own but the world's problems was called into question rather radically in recent years (see e.g. Rahnema & Bawtree 1997). The modernization paradigm prevailing in the early postcolonial era with its belief in one-way transfer of Western know-how and technologies as the key to planetary wellbeing has given way to a model of development whose collaborative nature is epitomized by such terms as participation, contextualization and local knowledge: these are today thought to be indispensable prerequisites to sustainable development (Servaes et al. 1996; Diawara 2000). At the end of the road, however, the notion of development itself may be reversed. An emergent trend of speculative thinking in anthropological and sociological circles indicates that the tide may turn in the opposite direction, Ntikuma coming to the rescue of Ananse, as suggested by the title of French author Anne-Cecil Robert's recent book *L'Afrique au Secours de l'Europe* (Robert 2004).

Focussing on another aspect of the story, we may find further enlightenment in the allegory of Ananse's bottling "all the wisdom of the earth", and in his stratagem for withdrawing it from the public eye. In its original setting, the allegory points to the indissoluble link between knowledge, secrecy and power in African traditional society. In the absence of an initiate worthy in their eyes, keepers of traditional knowledge, e.g. healers, often take their treasure with them to the grave rather than disclosing it to fellow community members who might otherwise have benefitted from it.

The respective mindsets of the African fairy tale's Ananses, and the modern real world ICT technocrats are perhaps not as far apart from each other as it may seem. Transposing the bottling metaphor to make it fit the latter frame of reference, the straightforward digital analogy which comes to mind is the database. Ananse's hiding stratagem translates rather well into the utopia of an ultimate backup of all connected knowledge. But isn't the motivation quite different, we may ask.

Not necessarily, perhaps. After all, esoterism and materialism are not that strange bedfellows. The conspiracy of user ID, password, and dissuasive fees for the right of access is likely to be perceived by African traditionalists in similar terms as the amalgam of initiation rites and compulsory donations imposed by traditional practitioners as a precondition to sharing their secrets. While security may be the reason most likely to be invoked in public, a yearn for ultimate control may be rather high on the hidden personal agenda of the Ananses on both sides of the digital divide.

The problem Ananse runs into in trying to carry out his stratagem is not a *prima facie* scientific problem but a trivially procedural one, or if we prefer, a merely human one. But then also, what causes his outburst of anger, is not the human problem as such, but the fact that his favourite axiom pertaining to the exhaustiveness of the knowledge stored in his bottle - alias database - is falsified, and that it is his closest follower, Ntikuma, who proves it wrong. (In passing we are reminded that theories implying a new "global understanding" of processes affecting our world tend to be ultimately based on a specifically local experience of globalization, and therefore are in need, in order to justify their claims, to be complemented by different, equally local views of the global phenomena they pretend to explain.)

It is hard, finally, to resist the temptation to reflect on the motive of the destruction of the bottle as the cause of wisdom's spread throughout the world. Could the current trend to de-construct myths of science and myths about science be a hidden blessing causing the dissemination of science in its more beneficial aspects? Indeed, in the vein of classic

etiological tales, the story does not claim to show the reasons for lack of wisdom but, to the contrary, pretends to explain why there is (so much?) wisdom in the world.[3]

The nature of local knowledge

It is not the case that there is no wisdom on Ntikuma's side. Quite the contrary, the story seems to authorize an interpretation of his role according to which the particular kind of wisdom he contributes is the grain of salt without which Ananse's accumulated knowledge would ultimately be of no use to mankind. At the same time, it serves the purpose of revealing the true fallacy in Ananse's character and in his assumptions about the nature of science. Ananse's egotistic reaction when being challenged by his junior as to the rationality of the procedure he chooses betrays the deeper cause of his failure to achieve his plan – a total lack of a quite different type of knowledge, less readily saved in bottles and databases, such as the modesty of true scholarship and the gift of humour.[4]

The knowledge Ntikuma brings to bear on the situation is local and practical. This sets the stage for a reflection on the complementary role of local knowledge, particularly in the field of development strategies. While it is given some recognition as an indispensable resource in relation to development (Brokensha et al. 1980; Diawara 2000; Honerla & Schröder 1995; Warren et al. 1995), its role tends still to be perceived as minor and subsidiary on the basis that it is not scientific in Ananse's preconceived sense. Local knowledge, in conjunction with, rather than abstracted from local language with which it is in an intensely symbiotic relationship, while by no means indiscriminately recyclable to fit contemporary needs,[5] is a major neglected factor on which sustainability in development hinges. Its rejection or downgrading inevitably generates a communication rift, resulting in a "parallel local discourse" (Bearth 2000), which in turn becomes easily subversive and in any case diminishes the chances of success even of development projects which would otherwise be best adapted to local needs.

Local knowledge has been characterized in terms of its form of existence and availability as "implicit" (Antweiler 1995) and "circumstantial" (Diomandé Fan, p.c.). I find it generally useful to relate the scale of implicitness to a typology distinguishing between practice-oriented knowledge (P-knowledge), explanatory knowledge (E-knowledge), and ontological knowledge (O-knowledge). It must be remembered that the implicit is always by definition amenable to being made explicit under given circumstances. In traditional societies, generally speaking, P-categories are more easily amenable to explication and discussion, whereas E- and O-categories tend to be more deeply presupposed, and therefore less easily talked about, and yet at the same time, no less relevant to decision-making at the individual and collective level. A fourth category, communicative knowledge (C-knowledge) is orthogonal to the first three and determines how and when to communicate about what, and to

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[3] According to a less optimistic reading of the same story, people were allowed to gather the disaggregated bits and pieces of wisdom. Those who did became the wise, and those who did not became the stupid people. (Aye 1978.)

[4] These days, according to a broadcast of Swiss radio DRS ("Echo der Zeit", 1st of July, 2004), the famous clown training school set up by Dimitri in the Swiss village of Verscio (Teatro Dimitri, CH-6653 Verscio, www.teatrodimitri.ch) has been accredited as a full-fledged teaching program within the dramatic art curriculum jointly offered by the Arts Faculties of several Swiss universities. What some will no doubt criticize as a desparate move to respond to the current crisis of the humanities by reducing its substance to the demands of the entertainment industry, could also, and perhaps preferably, be seen as a genuine recognition of the need for the kind of wisdom incarnated in the African parable by Ntikuma, the need for critical instances beyond "pure science" as a prerequisite to making science palatable to society. Dimitri's own comment in his radio interview - "I am not a wise man" - fits well into this pattern. The parallel ends here: Neither do I mean to deny comical art its intrinsic interest as an object of study in its own right, nor do I intend to reduce local knowledge to a function of jester at the royal court of science.

[5] It is for instance hard to imagine how the widespread custom of scaring the spirit supposedly causing a moon eclipsis by drumming and insults in order to chase it away, although ultimately successful in all known cases, could be made a part of a contemporary scheme of plausible action for development.

whom. The last-mentioned constraint – to whom? – tends to be particularly relevant to development communication: discourse taboos affecting sensitive E- and O-elements of local knowledge often prevent domains which may be decisive for local action to be taken in response to external stimuli from being addressed in the presence of foreign experts.[6]

There are excellent reasons for considering language (L-knowledge), due to its inferential nature, as the mediating factor par excellence in causing implied knowledge to bear on argumentation and negotiation carried out according to the norms and rules of local C-knowledge.[7] It is reasonable to think that the success of an innovative development project depends to a large extent on prior successful renegotiation of local norms, and hence on local discourse activity carried out in the default medium available to local constituencies when dealing with live issues affecting their daily lives.

Local language hermeneutics and the crisis of the humanities

The coupling of local language (L-knowledge) and cultural knowledge has potentially far-reaching consequences in re-thinking basic epistemology in the humanities as applied to Third-World oriented research. The rediscovery of the independent value of the study of classical languages and the texts coded in them lies at the heart of the scientific revolution of the Renaissance as well as the spiritual revolution triggered by the Reformation half a millennium ago; not to forget the parallel rehabilitation of the European national languages as vehicles of scientific thought.[8] As a result, *source text methodology*, including textual criticism applied to written sources, became the cornerstone of a new scientific approach to the multiple disciplinary facets of the humanities, ranging from philosophy and religion to literature and (in due course) the social sciences and psychology. This "philological", source text-based approach to the humanities has revolutionized, among other things, the understanding of our own intellectual heritage.

Starting in the first half of the 20th century, another epistemological revolution took place. As a by-product of research on unwritten cultures and languages spearheaded by ethnographers and linguists such as Boas, Sapir, and more recently Pike and Hymes, accompanied by the technical innovation of the tape-recorder, it turned basic working assumptions of classical philology upside down. The scope of humanities began to move away from its earlier script-bound methodological bias, extending its field of inquiry beyond the limits to include oral sources as valid objects of scientific research (Zima, *in press*). As a further result, even in the traditional fields of philological research, including the study of classical language documents themselves, recordings of oral discourse, or its reconstruction in the absence of such recordings, were not only recognized as equivalent sources in their own right, but are taking epistemological priority over the written artefact, the latter being considered to be derived from underlying interaction-driven verbal activity.

Adapting the source text principle to African oral discourse and supplementing it with the methods of inferential discourse analysis, though still in its beginnings, could have far-reaching consequences for the scope and method of humanities redefining its role and its tasks in a global context. Gaining momentum and supported by broadly accessible multi-

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[6] As a preliminary result of research carried out as part of the project "Language, gender and development" (LAGSUS, see note 1), it was found that, in typical expert-village encounters technical aspects of development projects could be easily addressed at any time, but past failure of development efforts could not, especially if they had negative implications for current issues. Religious matters impinging on development would only be addressed if speakers felt that they were in full control of the communicative situation, which meant that certain subjects of great practical significance were confined to "development target language only" environments and would as a matter of principle never cross the language barrier in the presence of external experts, because "they won't understand anyway".

[7] This is well illustrated by the Kono principle of the Tura. See Bearth & Fan (2002).

[8] See Leonardo Bruni's early programmatic statement in his *Vita di Dante* (1436): "... ciascuna lingua ha la sua perfezione e suo suono e suo parlare limato e scientifico". (Every language has its perfection and its specific sonority, and is capable of expressing elevated and scientific thought. <Translation TB.>)

dimensional recording and archiving technology,[9] it is due to similarly revolutionize our approach to, our relationships within, and our understanding of global scientific partnership, and, as a consequence, the scientific output resulting from such partnership. Just as the rediscovery of the ancient languages in which the source documents were transmitted was crucial from a methodological viewpoint to the emergence of modern humanities, the integration of *local language hermeneutics* is a strategically indispensable prerequisite to global humanities freed from its euro-centric straightjacket.

But let us clearly state that this will not just happen, unless at least two serious caveats are taken into account:.

1. By and large, apart from occasional glimpses behind the curtain, Ntikuma's realm remains closed off, still essentially unconnected. One reason is, as the first two words of the term *local language hermeneutics* suggest, that Ntikuma's wisdom is coded preferentially in less well studied languages of the planet, recordings from which very few academically trained experts, from whatever discipline, are mentally and scientifically prepared to seriously consider as sources of knowledge in their own right, or even as objects worthy of the investment of time necessary for detailed analysis. This is true not just of Western academia but just as much of Third-World universities given their prevalent funding-driven dependency on their affluent partners' learning and research agendas. To circumvent this obstacle, as our example below will show, educated speakers of such idioms can be trained to become experts, mediators and communicators themselves in almost any field of knowledge. This strategy of circumvention does not replace the need for academically trained experts, but may reduce their role to a training and monitoring function, which, while vital and indispensable, can hopefully be obtained at a more readily conceded cost.[10]

2. Academia's inertia is only one side of the coin. Local knowledge is separated from the "bottled lot" by what has come to be known, in a simplistic view, as the "digital divide". As I will show in the following section, the new technologies in the hands of local experts may play a strategic role in providing step-by-step procedures for overcoming the multiple divides which hide behind this handy notion, and eventually, in restoring Cinderella to her (alias Ntikuma to his) dignity.

Crossing the digital divide from the far end – a multi-dimensional challenge

For convenience, we may talk of local knowledge as being deposited in the memories of people living out of reach of the internet. Extrapolating again from the frame set by the story, it might be said that Ntikuma knowledge is typically located at the far end of the digital divide, and hence, as suggested in the preceding chapter, is typically "unconnected". Ntikuma type knowledge tends to be regarded as unscientific, or pre-scientific at best, and in any case as irrelevant to scientific answers to the problems of the world, and as subsidiary at best in solving local ones.

Looking at it from Ananse's monopolistic vantage point, we might pose the problem of the demarginalization of Ntikuma type expertise in terms of the bottling metaphor and ask: Is there a way of capturing such unconnected knowledge in view of making it accessible for google search on a universal database? Is it possible to meaningfully categorize and technically connect knowledge generated – and owned - by fellow inhabitants of this planet deprived of access to ICT - knowledge moreover which, more often than not, is coded in a linguistic medium not commonly used on the internet, let alone keyboardable in ASCII?

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[9] See for instance the DOBES program of standardized techniques for documentation of endangered languages developed at Max Planck Institute in Njimengen in co-operation with the German Society for Endangered Languages and the Volkswagen Foundation (Hannover, Germany): <www.mpi.nl/DOBES>.

[10] In this connection, one should not overlook the potential contribution of the African diaspora living in Europe or in other parts of the world outside of Africa, many of whom have not cut their linguistic and cultural roots.

At first glance, why not? After all, *cybercafés* are by now found in many of the remotest corners of the world, and this trend is on the increase. But here comes the first caveat: the technical hurdles for processing documents beyond straightforward e-mails are still formidable in many places. Worse, costs are prohibitive by local standards and will most likely remain so for the foreseeable future.

There are other factors which stand in the way of a quick realization of the vision of an indiscriminately connected world. These are factors any strategy aiming at overcoming the ICT gap from the far end will have to address individually. Taken together, they constitute what we might see as the version of the digital divide experienced - though, for good reasons, rarely articulated - by the Ntikumas of our world:

- *language barriers*. The constraining effects of linguistic diversity in terms of epistemic, cognitive and social restrictions on cross-linguistic communication are not generally recognized in their full impact, nor can they be compensated by any degree of bilingualism of a few speakers. These effects tend to be strengthened by perceptions of inequality of status and role of languages and their speakers within multilingual settings.
- the *literacy divide:* even the simplest e-mail communication presupposes basic literacy skills. *Literacy skills in local languages* where they exist tend to be limited in scope and regarded as unsuitable for communication with the outside world, and hence as unsuitable for use on the net.
- the *orthography dilemma*. Suppression of characters incongruent with Latin-based alphabets of the European matrix languages often leaves African writing systems in an anemic state, unable to represent vital distinctions, and is the worst single cause of literacy death in Africa (Zima, in press). The undeniable fact that languages are different and therefore need to choose different subsets from the orthography character toolbox, while no longer a problem of keyboarding, may be a psychological obstacle precisely to potential local experts who are already literate in the matrix language.
- and finally, the *technological divide*. It is reflected in the unequal distribution of available technological and communicative resources for participation in supra-local networks of knowledge production and sharing.

Just addressing one of these factors rather than all of them together, will make things worse, and will eventually deepen the divide. Negative results of such efforts will be perceived by the target audiences themselves and by others as further confirmation of the *idée reçue* according to which the backyards of global village are inherently unsuitable for being connected, no matter what measures are being taken in their favour. Providing the technological infrastructure will not do, as long as the language gap persists. Making people literate will not do, as long as there is no simple straightforward way of handling the orthographic interface in the cybercafé environment. At the same time, while the latter problem has been theoretically solved thanks to universally applicable character inventories such as unicode, a solution in order to be acceptable and practically applicable must also be user-oriented in terms of cost-efficiency and ease of learnability.

Let us therefore reframe the opening question of this section, shifting from Ananse's to the Ntikumas' perspective: Is there a suitable tool which would fit the unconnected producers' conditions of knowledge production, allowing them to "connect" knowledge sources which they control, and make these sources, if not synthesizable with, at least relatable to Ananse's global knowledge? And if such a tool exists, what are the implications in terms of local attitudes to knowledge? Can the strong sense of ownership which might have led some of its practitioners to keep their bottles in hiding be translated into an ethic of give-and-take which

may at the same time satisfy local needs for maintaining a reasonable degree of control and ensure them the sustainable benefit they are entitled to receive from being connected.?

Software design for Ntikuma: the making of a local expert

In the course of field work carried out from the University of Zurich particularly in West Africa over the past few years, both the need and the potential of extending tele-cooperation in research beyond its current limits became apparent. Integrating research capacities at various levels in participative research via the internet became increasingly inescapable,[11] and at the same time new solutions to problems of transcription and transmission began to emerge. For the purpose of illustration, let me take the field of lexicography in African languages. Its distinct advantage is that it is the ideal interface between what people know implicitly and are generally able to make explicit about their language – essentially, native words and their use - on the one hand, and encyclopedic cultural and ecological knowledge shared by the language community on the other.

I will again start with the picture of a man standing in front of a tree in quest of knowledge. Only 15 miles across the border from Ananse's kingdom into neighbouring Ivory Coast, but this time in the real world which the Akan people's imaginary universe typified by the Ananse stories is supposed to mirror, a college teacher stands in front of a tree, just as in the story Ananse stands in front of "his" tree. But by contrast, Mr. Barthélemy's – let's call him by his real name - intention is not to lift his bag full of wisdom up onto the tree in order to remove it from popular access. Rather his aim is to get wisdom down from the trees to put in within the reach of the people. Knowledge about plants and their uses, of course, is not, literally speaking, to be gathered from the top of the trees, but from people's heads and mouths. However, in order to ensure the "portability" of this kind of knowledge, it needs not only to be digitalized, but also to be explicitly connected with the physical reality it represents. For instance, a plant known by its indigenous name needs to be minimally identified by its physical distinctives and by its scientific designation. For this purpose, Mr. Barthélemy had hired two of his pupils whom he had climb the trees and get the specimens he needed for identifying the trees by their physical distinctives.

He puts the leaves into a herbarium which he takes to Abidjan, the economic capital, for identification by the botanist of the university of Cocody. Back home he writes the comments in order to send them to the dictionary editor.

This is the point in the production process where low-cost ICT technology becomes crucial. First, Mr. Barthélemy has to travel by bush taxi from his place to the next big city, Abengourou, where there is a cybercafé, about 100 miles to the south. Now just a few months ago, it would have been impossible for him to send a message of this kind. In fact, although a trained college teacher, prior to October 2003 he had no computer experience whatsoever. And although he had been reading his own language, Tura,[12] since his boyhood, he had never written it. Now his second-hand PC happens to be out-of-service. But on his way to the cybercafé, alongside his handwritten notes, he carries a diskette with the 106 kb ATP-2 program, the "African Language Textpad", which had been developed by H. Hirzel at the University of Zurich. [13]

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[11] This need for virtual interaction in scientific research became even more evident when, due to a persistent political crisis, a key research area became closed off from foreign researchers while low profile local research personnel could continue to be active in the area.

[12] Tura is a highly tonal language of the Mande family spoken by 60-70'000 people in western Ivory Coast. The Tura habitat coincides with the mountain range of the same name north of Man, the regional capital, and spills over in the Savannah region extending towards Touba.

[13] For a short description (presently in French) of versions adapted to specific language groups and for downloading information, see the web page http://atp.cocody2000.net/ by dipl. ing. ETHZ/lic. oec. Hannes Hirzel.

At the cybercafé, he does what he would have normally done on his computer but which, thanks to the ATP-2, he can do on any terminal even when the PC-infrastructure drops out: he writes his Tura data using q-notation.

Q-notation was originally introduced at the University of Zurich for transcribing Akan texts such as the Ananse stories, with full representation of Akan vowel harmony and tonal height distinctions.[14] The principle is quite simple. Each non-ASCII symbol is represented in keyboarding by a pair of ASCII symbols consisting of "q" followed by the non-ASCII symbol's closest orthographic and phonological ASCII counterpart. Thus, "q" before another vowel symbol will be the code for the corresponding non-ASCII vowel symbol, etc. E.g., for the two commonest non-standard vowels used in West African alphabets, we have.

- qe = ɛ

- qo = ɔ

Most West African languages use tone to distinguish both lexical meaning and grammatical categories. In some cases multiple tone marks must be written on a word to distinguish it from an otherwise identical word that bears only a single tone. Since context alone is often insufficient for meaning disambiguation even for native readers, tones have often to be represented fully in the orthography, as is the case for instance in Tura. In q-notation, this is achieved in a learner-friendly way by appending a tonal shortcut to the syllable:

- ql = low tone
- qh = high tone
- qf = falling tone

A similar principle applies to nasalisation

- qn = nasal

Thus the input sequence "qe + qn + qh" yields the complex symbol "ɛ̃́" – a high-toned nasalized open front vowel.

When he was first taught its principles, Mr. Barthélemy had mastered the q-notation in a matter of hours. As he now sits in the cybercafé, having inserted the African textpad ATP-2 into the drive, this enables him to keyboard his text in q-notation and to see it instantly being converted into proper Tura orthography. He now pushes the button ">>>Q" on the function bar of the ATP-2 window and sees his text converted into q-script, conforming now to ASCII standard and ready for export via e-mail. At its destination, it will be reconverted into Tura script, the reverse procedure being applied to it with the help of the same ATP-2 resource.

For the purpose of illustration, let us look at the entry concerning the candle bush tree:

Input in q-notation:

6_ \le Tqoqongboqhqg
  \gl dartier
  \sn Cassia alata (Caesalpinaceae)
*Woql **tqoqongboqhqg** kwqeqh kpqeqhqeqhkpqoql' keqf woql aql biigoqh keqf woql aql miqf naql wqiqfqiqf puqhuqh aqh,e mqeqfqeqf goqf aql taql.*

Output following conversion to standard Tura orthography:

6_ \le Tɔɔngbóŋ
  \gl **dartier** (French for **candle bush**)
  \sn **Cassia alata (Caesalpinaceae)**
*Wò **tɔɔngbóŋ** kwé kpɛ́ɛ́kpɔ' kê wò à biigó kê wò à mî nà wîî púú á,e mêê gô à tà.*

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[14] To the best of my knowledge, q-notation had been used initially by one of my students, Johannes Merz, for transcribing Akan texts.

English equivalent of the comment:

> *Powder made from the leaves of the **candle bush** dissolved in a bit of palm wine is a very efficient laxative.*

Originally developed for distant language learning in a European university network, ATP-2 is a multilingual tool suitable for

- sending unattached messages in non-standard Latin-based scripts using standard computers in a cybercafé or a local communication center type environment, side-stepping the limitations of ASCII and the need to install special fonts and keyboards;

- an easy-to-learn and easy-to-teach way serving the joint purpose of enhancing literacy in African languages and ICT literacy among the educated and the semi-educated;

- making the link between literacy in African languages and ICT literacy an effective tool for demarginalizing African language communities, for allowing them to participate in two-way transfer of knowledge, while at the same time bolstering their linguistic and cultural identity and pride.

Combined with the q-notation for keyboarding, ATP-2 overcomes in a playful manner the symbolic (orthographic) barrier which has effectively kept African idioms and their speakers at a distance from the global net.[15]

It needs to be emphasized that ATP-2 is just one link in a chain of tools whose combined effect is at the basis of a tele-cooperation test project currently being implemented in Ivory Coast.[16] But it symbolizes the beginning of the fulfilment of a vision articulated by a panelist during the final Round-table at the *World Conference on African Languages* held in 1997 at the University of Leipzig (Germany). Panelists were asked about their expectations regarding the role of African languages in the 21st century. The vision expressed on behalf of African language communities was that, regardless of their official status and demographic size, they should be enabled to participate fully in scientific discourse without having to first "switch off" the medium in which they habitually articulate their local knowledge. They should be able not only to be on the receiving end of global knowledge, but also to become providers of innovative experience and knowledge of interest to others around the world.

In spite of the caveats and the divides, the fulfilment of the Leipzig 1997 vision does not seem to be impossible today. The Tura community is not untypical in that its present transition state is characterized by the availability of a still significant reservoir of adult members brought up and rooted in traditional language and culture, embodying firsthand local knowledge, who at the same time, while not necessarily professional academics, enjoy the benefits of modern education and are thus potential partakers of global networks. There is a unique chance, not to be missed, that some of these may grasp the potential of coupling ICT with the L-factor, and act as mediators between their local culture and global society.

It is less unthinkable now than it was thirty years ago - and my guess is: it is also less unthinkable now than it will be in twenty years from now - that the indigenization of internet communication in local languages will have similar effects, and in fact, more far-reaching ones than the introduction of the tape-recorder in a face-to-face communication society half a century ago. Much more than a mere symbol of heightened status, there is a legitimate hope that it will serve as a means of promoting peripheral societies in important aspects of their lives and will eventually allow them to participate meaningfully and without discrimination in

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[15] Note that the q-notation works both ways, encoding and decoding; versions 9 and higher integrate an option for Unicode.

[16] As an extension, supported by the Swiss National Science Foundation (valorisation grant IB 7610-106330), of a joint research project between the universities of St. Petersburg (Russia) and Zurich on "Lexicology of Eastern Mande language in the context of Mande linguistic comparison" (SNSF grant 7SUPJ062156.00).

the production of global science – if the chance globalization of ICT as a powerful ally offers is not missed.

Perhaps the most significant effect, and at the same time the key to convincing the sceptics, is sociological. Remote societies becoming participants in the society of knowledge, not only from the receptive but also from the productive side, the Ntikumas of the digital age will no longer find themselves reduced to the status of mere informants, through whom local knowledge is extracted from their societies.

Thus the blessing of Ntikuma level technology for the community itself may be encapsulated in the term "empowerment", or "enablement" as the World Bank now prefers to call it: "Empowerment is the expansion of assets and capabilities of poor people to participate in, negotiate with, influence, control, and hold accountable institutions that affect their lives."[17]

Conclusion

That participation of peripheral local entities in global communication would involve putting to use local languages was first explicitly suggested, if I am not mistaken, by Naisbitt (1994). Obviously, this involves multilingual technology, but also, as I have tried to show, a low threshold of accessibility in terms of economic cost and learning effort.

Granted that this is feasible, granted also that it is desirable on account of the promise it carries of a significant gain in recognition and ease of access to vital information for the less privileged in Africa and other parts of the world (Bamgbose 2000, ch. 1), one essential question remains: Will there really be a place for Naisbitt's smaller – and even the smallest – players on the virtual planet of global science? "Many factors in addition to language and coding"[18] may stand in the way of the implementation of a model of all-inclusive knowledge sharing, factors that are independent of its technical feasibility and its moral desirability. What must happen to cause Ananse to end up discovering in Ntikuma his inseparable *alter ego* and genuinely seeking his advice on matters vital to himself? There is no blackmail intended in stating that the ultimate motive behind the concern manifested at the center of global society for its backyards is the concern for its own survival. What, then, is the gain to be reckoned with at the planetary level by the integration of remote local codes of language and knowledge into the global circuit of scientific exchange? Or, put in more modest terms, what could be its recognizable gain at some intermediate level of "globality", at national or regional level for instance, but in any case at a level more immediately relevant to the local community itself than the planetary dimension?

I shall answer this important question as to global benefits hopefully to be reaped from ICT-supported mediation of local knowledge from three vantage points: scientific, practical and economical.:

1.   The paramount job of the human sciences, it has been said, is to make sense out of the world, or to put it differently, to make the world a more meaningful place. My inquiry as a linguist into human speech has led me to extend this premise by claiming that it is precisely one of the motives behind everyday talk not otherwise motivated, and often behind the choice of specific forms of talk, to make the world appear more meaningful, or to make the apparently incoherent look coherent (Bearth 1999:271ff.). Taking a lead from situational semantics, this is done by verbal mediation allowing one situation to shed light on another: "A central claim [...] is that meaning resides in the world, in systematic relations of a special sort between different types of situations, and that linguistic meaning is meaning of just this sort. These systematic constraints are what allow *one situation to contain information about another.* [...] for reality to support intelligent life it must be

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[17] <www.worldbank.org, Nov. 13, 2002..>

[18] I am grateful to one of the anonymous reviewers to have struck this note of caution so clearly.

highly structured. *What happens at one place and time must contain information about what has happened or will happen, elsewhere and elsewhen."* <Barwise & Perry 1983: 94; italics TB.> Doing everything to let Ntikuma's voice be heard, and knowledge from the margin to be connected, will bring an incalculable benefit to the rest of humanity: *meaning*. No price should be too high to achieve this.

2. To speak of more immediate practical benefits, whether or not a remote situation different from ours contains information of practical interest and use beyond its local context, might at first glance seem to be a mere matter of chance. As far as the example used for demonstration above is concerned, it contains nothing substantially new which could not have been known otherwise. In fact, it teaches us rather less than what could already now be gleaned from Ananse's bottle about *Cassia alata* and its healing effects[19] - apart from the trivial fact that some of these effects are familiar to Tura tradition. However, identifying the species alongside a hundred others has paved the way for an in-depth inquiry due to take place in the Tura heartland with the participation of local experts. We may therefore hope that this preliminary information will turn out to be the entry point for *additional input in terms of local knowledge,* some of which might be less trivial or even straightforwardly innovative as compared to what is accessible on the net so far.[20]

3. Should the question of economic benefits be raised at all? The global joint venture of Third World development, which above provided the context for a first analogy to Ntikuma's emergence from the bush behind Ananse's back, also seems to offer a fruitful testing-ground for possible economic implications of a better connection of Ntikuma-type knowledge. As Martens et al. (2002) argue, the failure to achieve objectives set in overseas development co-operation must be traced to quite an extent to what they call a "broken information feedback loop" (p. 154; *passim*), i.e. a deficit in the flow of communication *not from the sponsors to the local community, but from the latter back toward the sponsors.*[21] While Martens and his colleagues are to be commended for shifting emphasis from an expert-centered towards a target-centered approach to development communication, they remain stuck with a purely, and by their own admission, not very promising administrative solution to a problem which they diagnosed in the first place as a problem of communication. It is surprising that neither language divergence nor unequal access to communicative resources such as ICT are envisioned as a possible source of disrupted communication and its momentous economic consequences.

I suggest that if these forgotten factors were recognized in their key role – as the University of Zurich e-research program very modestly attempts to do – this could open up new ways to closing the communication gap identified by Martens et al., and thereby

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[19] <http://www.tropilab.com/cassia-ala.html>.

[20] In a more recent ATP-coded message received from local discourse recorded in a politically unstable region of Africa, we learn that people of the area, comparing their present predicament to precolonial armed conflicts, explicitly distinguish between ancient wars involving "people speaking the same language", and wars initiatied by allogenes speaking languages which were not locally understood. (Source: Group interview in the village of D., S/P Biankouma, on "Crisis and development", LAGSUS document Tou-D-102-JB. Transcript by J. Baya, Man.) This is an example of unbiased information with direct bearing on the current "language deconstruction" debate about representations and relevance of language divergence in ancient Africa, with possible far-reaching consequences for language planning and language policies in present-day Africa and other parts of the world. - See the publications of the *Center for the Advanced Study of African Society* (Cape Town) <http://www.casas.co.za>. See also Prah (1999, ed.) and the special issue *Langues déliées* of *Cahiers d'Études africaines 163-164* (2001) <http://etudesafricaines.revues.org>.

[21] "The geographical and political dislocation between donors and beneficiaries results in a broken information feedback loop that induces performance bias in aid programmes because it has an asymmetric impact. It effectively neutralises the influence of the final beneficiaries in the recipient country on political decision–making in the donor country." (Maartens et al. 2002: 154.)

improving cost-benefit ratios in development co-operation, while at the same time fostering self-esteem among, and true dialogue with the Ntikuma community around the globe.

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