

# **AFRICAN LANGUAGES, ICTs AND THE ACADEMY: Perspectives from Lexicography, Terminology and Living Heritage**

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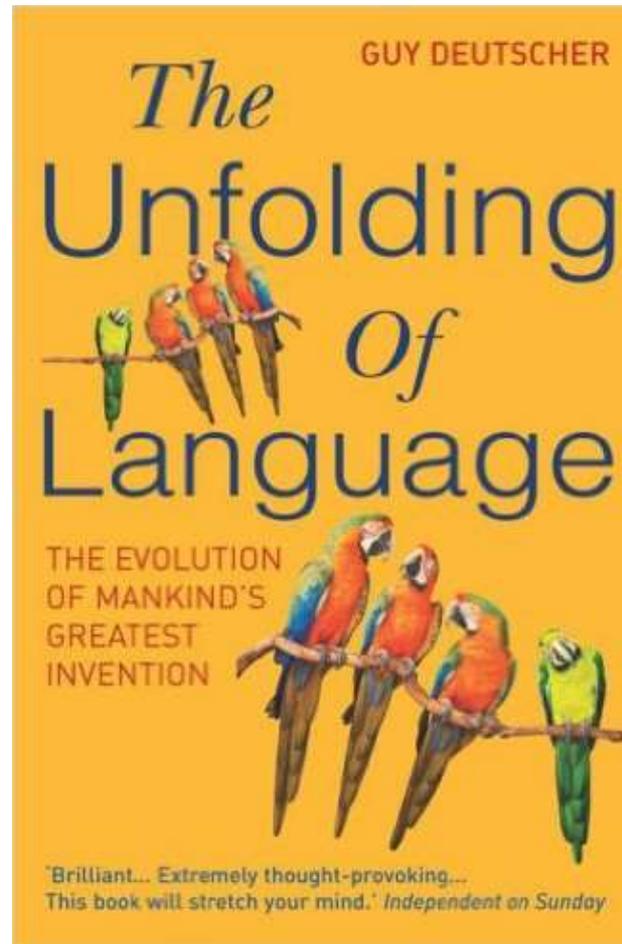
# THEME & PLENARY PANEL

- Theme:  
*“Re-imagining Higher Education Policy Implementation: Can policy learn from practice? Complexities, challenges and possibilities.”*
- Plenary Panel sub-theme:  
*“Language policy, planning and implementation in Higher Education: How far have we come; how much further do we have to go?”*

# OUTLINE OF THE PRESENTATION

- Preliminaries
- The bigger picture
  - Language and everything else
  - African languages in African universities
  - Issues from PACC4
- Perspectives from one cluster of disciplines
  - Lexicography & Terminology
  - From **ALLEX** to **CROBOL** (historical)
  - From **HLT** to Zambezia HLT & Heritage (speculative – CLCS & SAICH Platform at CUT)
  - Living Heritage (Intangible Cultural Heritage)
- The role of the academy
  - Linking HLT\_IKS\_ICH with other areas
  - Policy framework & support system
- Invoking HLT:
  - How far have we come?
  - How much further do we need to go?
- Conclusion
  - Issues and challenges (including **ethnocentrism**)
  - Futures (institutionalisation of the work; major collaborative and business ventures)

# THE EVOLUTION OF LANGUAGE AND TECHNOLOGY APPLICATIONS



# LANGUAGE AND EVERYTHING ELSE

- Language and culture
- Africa and African languages
- Technology and development
- Sustainable development
- Human language technology and language raising
- Language and technology as cross-cutting enablers

# ON THE POWER OF LANGUAGE

- **Languages are the most powerful instruments of preserving and developing our tangible and intangible heritage. All moves to promote the dissemination of mother tongues will serve not only to encourage linguistic diversity and multilingual education but also to develop fuller awareness of linguistic and cultural traditions throughout the world and to inspire solidarity based on understanding, tolerance and dialogue.**
- <http://www.lifebridge.org/undays/february21.htm>

# ON THE POWER OF TECHNOLOGY :

## What is technology anyway?

- English word ‘technology’ ← two Greek words, *techne*, ‘art, craft, or skill’ and *logos* ‘to speak of’; cp. Greek derived English suffix *-ology*, ‘study of’
- “Application of knowledge to the practical aims of human life or to changing and manipulating the human environment. Technology includes the use of materials, tools, techniques, and sources of power to make life easier or more pleasant and work more productive. Whereas science is concerned with how and why things happen, technology focuses on making things happen.”

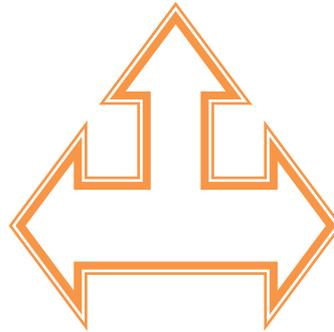
Merriam-Webster]<http://www.cantechletter.com/2013/01/what-is-technology0103/>

# **LINKING PHYSICAL/HARDWARE AND SOCIAL TECHNOLOGIES**

## TECHNOLOGY

### PHYSICAL/HARDWARE

- ICTs
- HLT
- Social technologies
- Simple technologies
- New Media



### SOCIAL TECHNOLOGIES

- Social innovation
- Entrepreneurship
- Creative economy
- Technopreneurship
- Cultural industries

## Physical Technologies

- Adoption
- Appropriation
- Innovation
- Adaptation
- Promotion

## Social Technologies

# ON GLOBALISATION

- **Globalisation** (or **globalization**) is the process of international integration arising from the interchange of world views, products, ideas, and other aspects of CULTURE. Advances in transportation and telecommunications infrastructure, including the rise of the telegraph and its posterity the Internet, are major factors in globalization, generating further interdependence of economic and CULTURAL ACTIVITIES.

<http://en.wikipedia.org/wiki/Globalization>

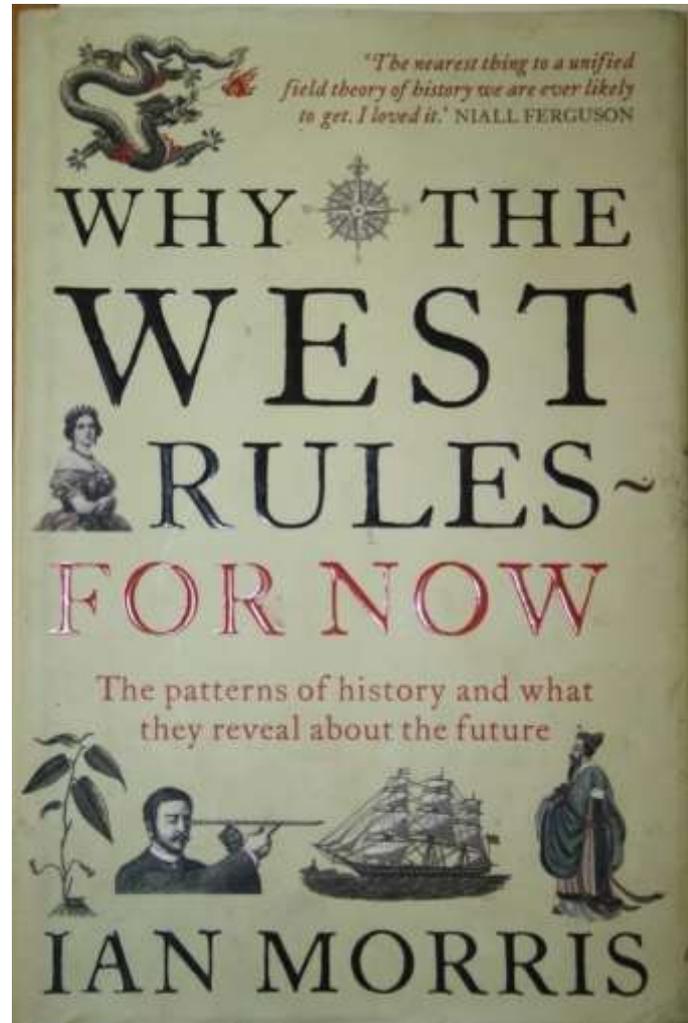
- The tendency of investment funds and businesses to move beyond domestic and national markets to other markets around the globe, thereby increasing the interconnectedness of different markets. Globalization has had the effect of markedly increasing not only international trade, but also CULTURAL EXCHANGE.

<http://www.investopedia.com/terms/g/globalization.asp>

# IN THE JUNGLE CALLED PLANET EARTH



# HISTORY POINTING TO THE FUTURE



# Multilingualism & African Language Families

## LANGUAGES:

Whole world: before 7 000 - 8 000, now +/- 6 000,  $\frac{1}{2}$  < speakers 10 000,  $\frac{1}{4}$  < speakers 1 000

Africa: +/- 2 000 in 5 families, speakers 430m in 1997 (Crystal, 1997)

Zimbabwe: African 12-16 (Hachipola, 1998); Other 7-10 (Chimhundu, 2002 & NLPAP, 1998); Officially recognized “national” 16 (2013 Constitution).

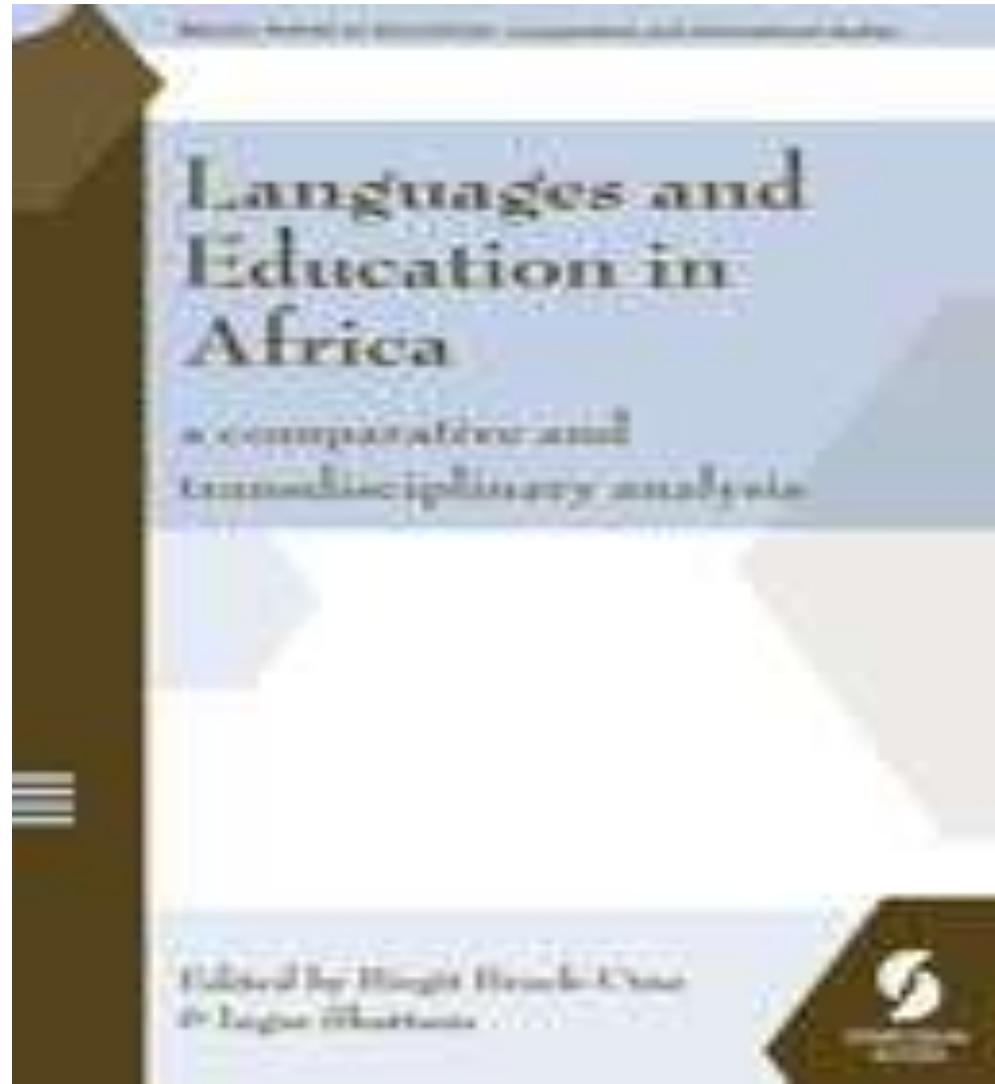
## AFRICAN LANGUAGE FAMILIES (from north to south):

- Afro-Asiatic
- Nilo-Saharan
- Niger-Congo A
- Niger-Congo B: Bantu
- Khoisan
- [Austronesian]

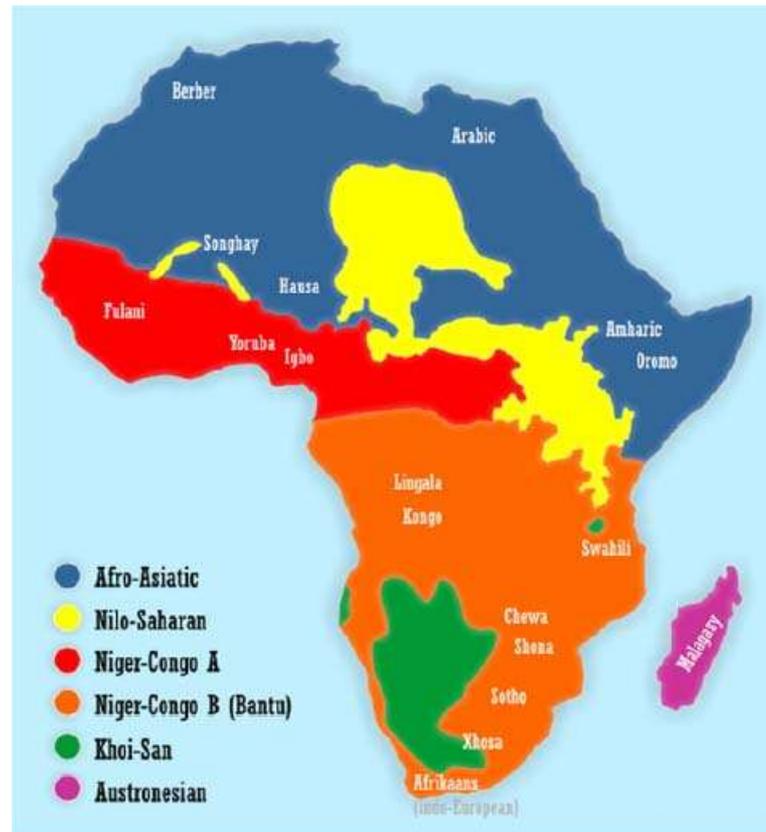
(Greenberg 1971, Crystal 1997 & UNESCO 2006)

# Markers of Ethnicity

(Chimhundu, “Language, Dialect and Region: the handling of language variation in Shona dictionaries“, in Birgit Brock-Utne & Ingse Skattum, eds. 2009, 237-252)

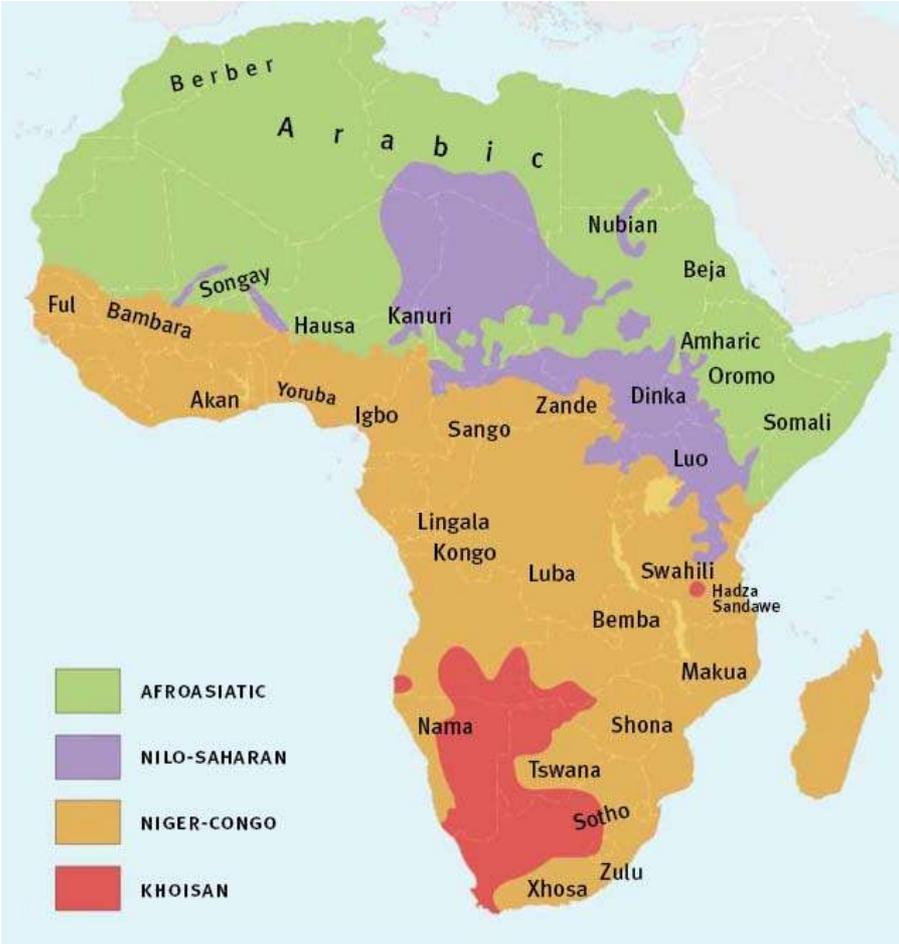


# African Language Families: Map 1



Map of the major African language families and some major African languages

# African Language Families: Map 2



# HERITAGE AND TECHNOLOGY

- Natural Heritage
- Cultural Heritage
  - Tangible Cultural Heritage
  - Intangible Cultural Heritage (Living Heritage)
- Heritage Technology
- Hospitality Industry
- Tourism Industry

# THE INTANGIBLE CULTURAL HERITAGE (ICH)

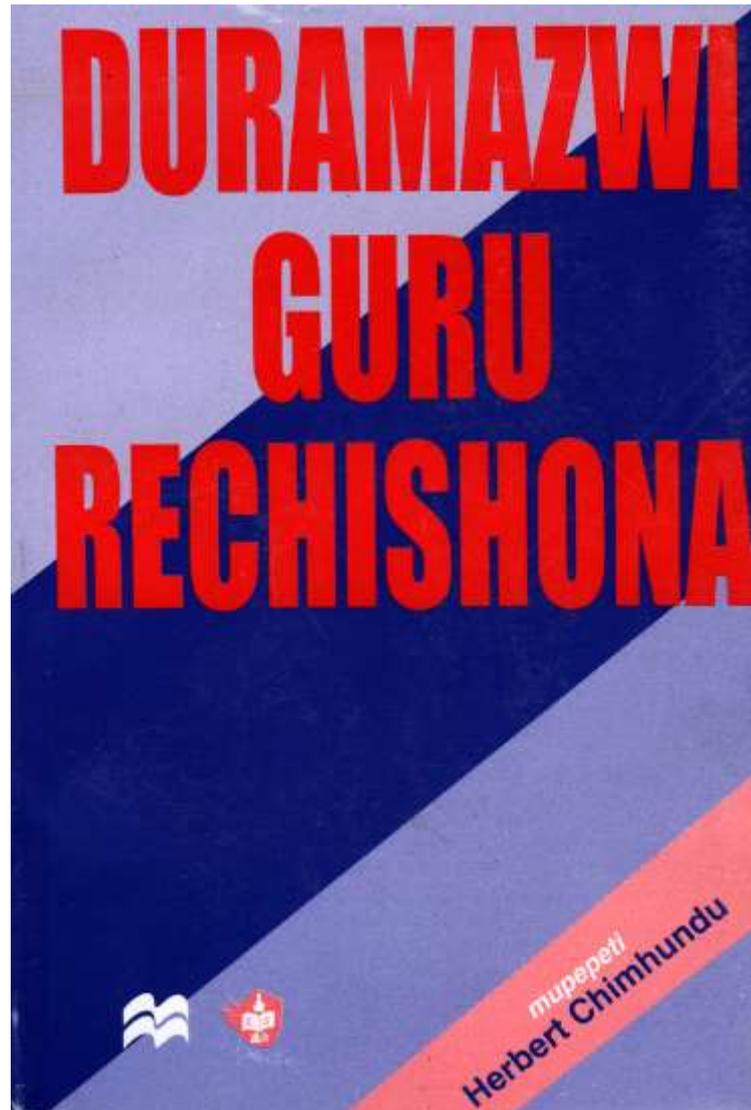
- Definition – The UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003) defines the ICH as the practices, representations, expressions, as well as the knowledge and skills (including instruments, objects, artefacts, cultural spaces), that communities, groups and, in some cases, individuals recognise as part of their cultural heritage. It is sometimes called living cultural heritage.
- Manifestations – ICH is manifested inter alia in the following domains:
  - oral traditions and expressions, including language as a vehicle of the intangible cultural heritage;
  - performing arts;
  - social practices, rituals and festive events;
  - knowledge and practices concerning nature and the universe;
  - traditional craftsmanship.
- Transmission – It is transmitted from generation to generation, and is constantly recreated by communities and groups, in response to their environment, their interaction with nature, and their history. It provides people with a sense of identity and continuity, and promotes respect for cultural diversity and human creativity.

[UNESCO.org](https://www.unesco.org) / [Archives](#) / [Intangible Heritage](#)

# THE ARTS AS FIELDS FOR TECHNOLOGY APPLICATIONS

- Fine/Visual Arts
- Arts & Crafts
- Performing Arts
- Literary Arts
- Culinary Arts
- Design
- Architecture
- Sports & games
- *Film, video & television (digital ← analog)*

# HOW FAR HAVE WE COME? Advanced Shona Dictionary



# Shona Dictionary of Linguistic and Literary Terms

## DURAMAZWI REDUDZIRAMUTAURO NOUVARANOMWE

Herbert Chimhundu naEmmanuel Chabata

Duramazwi rino mudonzvo wakasimba wevadzidzi nevadzidzi vose veChiShona. Rinopa tsanangudzo dzizere dzamazwi ose anoshandiswa pakudzidziswa kwedudziramutauro nouvaranomwe pamatanho ese edzidzo. Nairori duramazwi, zvava kutorenkira munhu wese kupenengura, kupatsanura, kunzwisisa nokutsanangudza mhando dzose

- dzamazwi, zvakamazwi, ndevo nezvirevo zvinoumba mutauro weChiShona.
- dzemhenenguro neongororo dzezvinyorwa zveimarudzi akasiyana-siyana
- dzeuvaranomwe hwakanyorwa nohwemataurwa, hwanhasi nohwechinyakare.

Mazwi ose ari muduramazwi rino netsanangudzo dzawo dzose zvakadzumburudzwa nokuvandudzwa nemafare anyanzvi dzevadzidzisi veChiShona pamatanho ekusekondari, kumakoreji nokumayunivhesiti. Nokudaro, veBazi reDzidzo vakatoona zvakakodzera kushandisa chikamu cheduramazwi rino ku vaumba Dudziramazwi reZvidzidzo zveChiShona (ZIMSEC/CDU 2006), kuitira kuti pave nomuunganidzwa wamazwi neduziro zvinofanira kushandiswa pakudzidziswa nokunyorwa kwebunzo dzeChiShona pamatanho ekusekondari. Saka dudziramazwi racho rinotoda kutsigirwa naDuramazwi reDudziramutauro nouvaranomwe nokuti muduramazwi rino ndimo mune mamwe mazwi ose anoshandiswa panodzidziswa zveumbauro omutauro nezveuvaranomwe, uyezve ndimo mune tsanangudzo dzawo dzose dzizere. Neduramazwi rino iri, tatosvika padanho rokupedzisa ndima yekudzidziswa kweChiShona neChiShona chete chete.

*A dictionary of linguistic and literary terms in Shona, with a reverse index in English.*

## DURAMAZWI REDUDZIRAMUTAURO NOUVARANOMWE

Herbert Chimhundu naEmmanuel Chabata

-vandudzwa mutauro      -batanidza  
rebeso yesakiso      shandikuminya      chinyarikani  
-kafanana  
makafatanwa  
mhenenguro  
ndevehonga  
nzvanyira  
nhengotaurisi  
nzvovera  
taurawega  
uyataya  
zvifanisa

ISBN 0-86922-798-X

# BASIC DESCRIPTION AND DOCUMENTATION

- Orthographies – standardization, harmonization, both revisited.
- Grammars – descriptive, standard, comparative.
- Dictionaries:
  - a) word lists, glossaries, standard
  - b) bilingual, monolingual
  - c) general, **terminological**
  - d) linguistic, **encyclopedic**
  - e) small, medium, **large**, **multi-volume**.

# NORMATIVE ASPECTS

NORMATIVE ← NORMS (RULES, “normally”): identifying the elements of the language and the rules that govern their use and combination in speech and in the writing system → grammar, philology, linguistics:

Core branches:

- Sounds → phonetics and phonology
- Elements in words → morphology
- Combinations → syntax
- Meaning → semantics

ALLEX special interests:

word forms (identification, description, meaning and use) → lexicography, terminology (1 country, 2 languages: Shona & Ndebele)

CROBOL special interests → →

lexicography, terminology and grammar (cross border, 2 countries, 3 languages: Changana, Sena & Shona)

# ADVANCING TO THE THEORETICAL LEVEL

Process and priorities:

- Description of individual languages (data gathering, analysis and writing up for teaching and reference) as grammars (how the language is structured) and dictionaries (compiling, identifying, categorizing and describing word forms and their meanings).
- Comparison (between different languages) and generalizations (about human language), both based on evidence from data ( actual/typical occurrences/usage).
- Developing theories and models that account for both the above, testing and applying them to more data/languages, and constantly reviewing them and developing new ones.

# Working on the Ground 1: Priorities

- Development is of from the descriptive level to the *theoretical necessity a process that advances level* as increasing knowledge is acquired from advanced study, research and documentation.
- The first need of a given language community is for *basic literary and reference materials in the mother tongue*. Hence, the prioritization of grammars and dictionaries by the CROBOL Project.
- Prioritization may be a non-issue but the fact of the matter is that *theoretical linguistics cannot be very useful for a community without the basic descriptive and reference materials*, especially in the mother tongue.

# Working on the Ground 2: Output by CASAS and CROBOL

- Unified Standard Orthography of Shona (English, 2006; Shona, 2007) and Unified Standard Orthography of Shona-Nyai (English, 2008; Shona-Nyai, 2008; Portuguese, pending)
- Monographs on various subjects of general interest: as at October 2007: 13 published + 3 in press = 16; 14 in Shona + 2 in English = 16.
- 4 more were being held by the editors pending decision to resume publication.
- 13 monographs for public education published in several broad areas of concern to communities in developmental and social contexts, with particular reference to human rights issues related to those areas: 1 in English on language as indigenous knowledge; 12 in Shona (3 on water-borne diseases, health and hygiene; 1 on HIV and AIDS and home based care; 2 on marriage rites and laws; 2 on inheritance and maintenance; 4 on gender violence, sexual abuse and related laws).
- 1 technical report on SLCA Conference 2006 (Shona 2007)
- 1 academic book on harmonization (Chimhundu Chebanne & Magwa, 2010)
- 2 dictionaries and 1 standard descriptive grammar (forthcoming 2011)

# **CLCS AT CUT - FOCUS AREAS**

The training of mother-tongue speakers who can apply Human Language Technology in research, documentation and development through the National Languages of Zimbabwe in order to empower local communities and to enhance national capacity to utilise indigenous and local knowledge.

# PROPOSED LEGACY PROJECT – ZEILK

- ***Zimbabwe Encyclopedia of Indigenous and Local Knowledge***  
***[Consider also Thesaurus]***
- Omnibus concept for all to contribute → interdisciplinary and multidisciplinary approaches to built infinitely expandable electronic resource.
- Interactive platforms
- Phased and longitudinal project
- Researcher training component at postgraduate levels (taught Masters & MPhil/DPhil)

# PANSALB 2004\_1



# PANSALB 2004\_2



# INVOKING HUMAN LANGUAGE TECHNOLOGY.

## What is HLT anyway?

- HLT/LTA -- the application of knowledge of language to the development of computer systems that can recognize, understand, interpret and generate human language in all forms.
- A multi-disciplinary research area that addresses the automatic processing of human language for a wide range of tasks, including automatic speech recognition, machine translation, and content processing.
- HLT draws on several disciplines, such as computational linguistics or natural language processing, speech processing, information retrieval, machine learning, and pattern recognition.

# PRODUCTS AND SERVICES THAT CAN BE DEVELOPED USING HLT APPLICATIONS

- computerised lexicography (dictionary making)
- terminology development
- dictionary databases
- morphological parsers
- syntactic analysers
- semantic analysers
- spell-checkers
- grammar checkers
- computer-assisted language teaching
- electronic dictionaries and thesauri
- machine translation packages
- corpus building (electronic language corpora)
- computational linguistics
- language policy and planning

# CONCLUSION

- All of the above requires a lot of work to be carried out by a lot of innovative and enterprising people and to be sustained as for generations. It has to become a tradition and it has to be institutionalised.
- you will either give up before you start or you will conclude:
  - A small percent of a huge dream is still a great achievement.
  - A flood starts with a trickle and a trickle starts with a single drop.
  - A journey of a thousand miles begins with a single step.
  - If you want to go far, go together.

# CONCLUSION – SWAHILI, UDSM & ACALAN 2015



**SIYABONGA**  
**TATENDA**  
**THANK YOU ALL**