

Language Technology Overview

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@SIL Cameroon

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**A copy of this presentation
can be found at:**

<http://LangTechCameroon.info/mt>



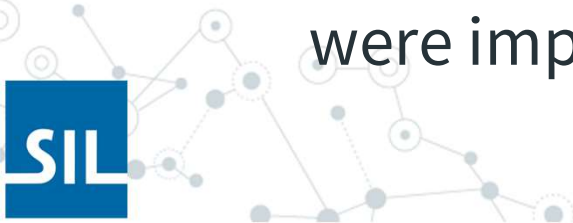
Introduction

- ◎ Just after independence, language developers began developing Cameroonian mother tongues (MT) in order to make them viable and learnable. Before independence, little or no attention was paid to most MTs at the levels of; sociolinguistics, phonology, morphology, lexicography, grammar, and syntax, which could eventually result in language endangerment and loss.



Introduction

- ◎ Language developers, notably the Summer Institute of Linguistics (SIL), the National Association of Cameroonian Languages Committee (NACALCO), the Cameroon Bible Translation Association and Literacy (CABTAL), communities, and some state universities coupled with a favourable linguistic political atmosphere and this resulted in efforts of learning and teaching the MTs. In line with the attempted efforts, technological endeavours were implied.



Introduction

- ◎ The implication of technology establishes the basis for the examination of how it was/could be used in multilingual learning within the present era coupled with some challenges and opportunities. This discussion will also encompass who the learner is, how he/she uses technology, what elements of technology are used, and the location of the user.





What can LangTech do for you?

Computers by Frank Herbert

What do such machines really do?

They increase the number of things we can do without thinking.

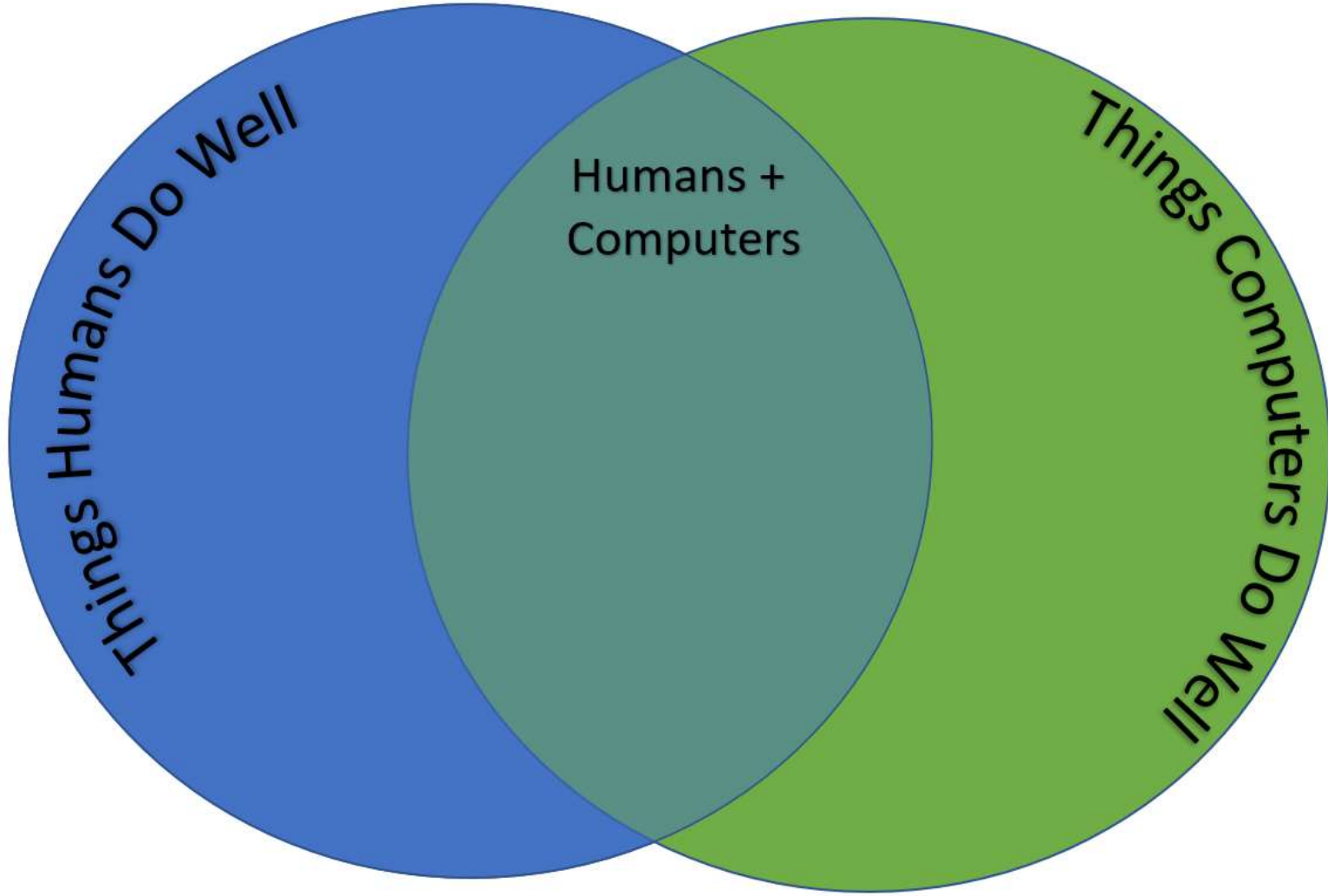
Things we do without thinking — there's the real danger.

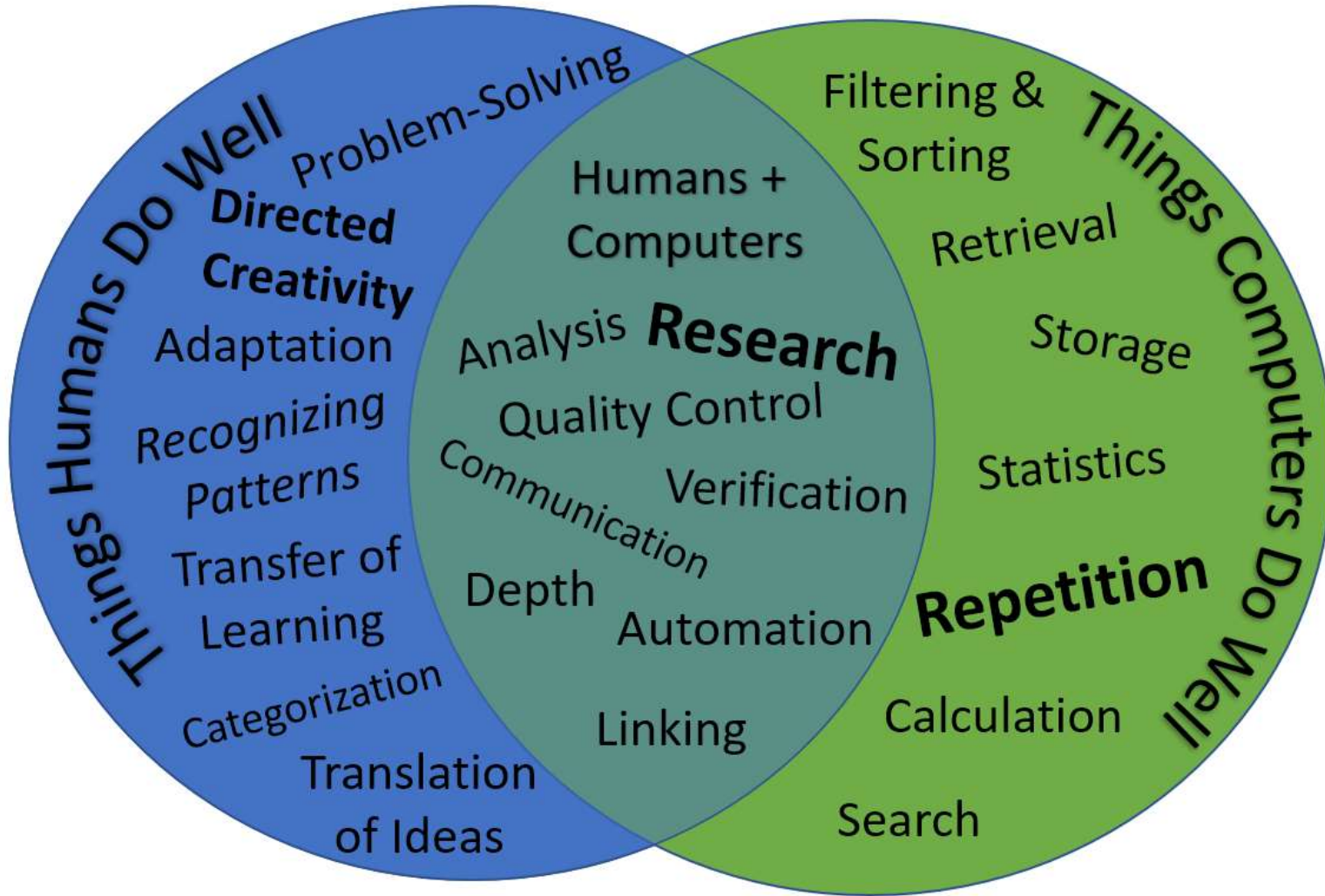
À quoi servent de telles machines, en réalité?

À accroître le nombre des choses que nous pouvons faire sans y penser.

Voilà le vrai danger... les choses que nous faisons sans y penser.









Challenges



Personnel Challenges of Using Technology in Learning MTs:

- ◎ There is an imbalance in digital divide (urban and rural area folk disparity)
- ◎ Limited qualified trained personnel (many teachers/learners are not computer literate)
- ◎ Time demanding (Presentation preparation at home requires time)





Infrastructure Challenges of Using Technology in Learning MTs:

- ◎ Financial barriers (e.g., purchase of equipment by have-nots)
- ◎ Absence of power supply in typical rural settings
- ◎ Limited connectivity (internet connection access hampers distance learning and research)



Language-Specific Tech Problems

- ◎ Some languages do not have established orthographies
- ◎ Mother Tongue fonts are limited in circulation
 - ◎ Few computers in public places have good MT fonts.
- ◎ Computers and phones do not currently assist with spelling in the mother tongue.
- ◎ Keyboards are not simplified for MTs
- ◎ Stress in combining characters to produce certain letters.



How can SIL Language Technology help?

Tool Hierarchy



Advanced Tools

Machine Learning, AutoCorrect, Text-to-speech, Speech Recognition



Training and Resources

Videos, Blogs, Training Manuals, Personal Support, Resources



Content Creation and Sharing Tools

Bloom, AlphaChart, Reading App Builder, etc.



Linguistics Tools

FLEx, PrimerPrep, Phonology Assistant, etc.



Foundational Technologies

Fonts, Keyboards, Encoding, Display Technologies

LangTechCameroon.info



Language Technology in Cameroon
La Technologie Linguistique au Cameroun

Promoting the mother tongues of Cameroon!
Promouvons les langues maternelles du Cameroun!

A Blog from
Un blog de

SIL
CAMEROON

[Home](#) [Cameroon Keyboard/Clavier](#) [Fonts/Polices](#) [General Alphabet](#) [Tools](#) [About](#) [Contact](#)

Welcome to LangTechCameroon.info

Posted on [July 12, 2016](#) by [Matthew](#)

- If you want to quickly download the **Cameroon Keyboard**, click [here](#)!
- If you are more interested in appropriate **fonts** for Cameroonian languages, click [here](#).
- Si vous désirez vite télécharger le **Clavier camerounais**, cliquez [ici](#)!
- Si vous vous intéressez plus aux **polices** pour les langues camerounaises, cliquez [ici](#).

External

- [Cameroon Keyboard for Android](#)
- [Detailed Language Software Information](#)
- [Lingtran Language Technology Training Website \(English\)](#)
- [LingTranSoft Language Technology Community](#)
- [Outilingua Formation en Technologie Linguistique \(Français\)](#)



<https://langtechcameroon.info/>



Foundational Technologies

Encoding Support

Font Encoding Support

Wød

~~wød~~

~~W□d~~

Character Fallback

Just because a font has all of the characters, that doesn't mean it will display correctly.

ı ı

Foundational Technologies: Fonts

© Charis SIL

- <https://software.sil.org/charis/>

Charis SIL



Aḅḁàáǵīḽḽ
Aḅḁàáǵīḽḽ

Charis SIL est l'une des premières polices conçues pour les imprimantes laser. Il fournit un texte clair et concis. (Recommandé pour les livres imprimés, la littérature et des textes longs).

Charis SIL Literacy

Abɔ̀àəḡĩ̀w̃̀

Abɔ̀àəḡĩ̀w̃̀



<https://software.sil.org/lcgfonts/download/>



Foundational Technologies: Fonts

© Doulos SIL

- <https://software.sil.org/doulos/>

Doulos SIL



ΑβδὰέḡϊῶϷ

ΑβδὰέḡϊῶϷ

Doulos SIL est une police Unicode sérif semblable à Times New Roman. **Doulos SIL** est recommandé pour les transcriptions phonétiques, comme les caractères sont clairs et sans ambiguïté.



Doulos SIL Literacy (Alphabétisation)

Αβδὰέḡĩᵛᵗ

Αβδὰέḡĩᵛᵗ



<https://software.sil.org/lcgfonts/download/>



Foundational Technologies: Fonts

© Andika

- <https://software.sil.org/andika/>

Andika



A b d à á ġ ı ÷ ı

A b d à á ġ ı ÷ ı

Andika est une police d'Unicode sans-sérief conçue spécialement pour l'utilisation dans l'alphabétisation et pour les besoins des lecteurs débutants. L'accent est mis sur des lettres claires qui ne seront pas facilement confondus avec d'autres. **Andika** est recommandé pour les primeurs, livres pour enfants et ressources pour les lecteurs débutants.



Foundational Technologies: Fonts

- © PrimaryLines

- <https://langtechcameroon.info/primarylines/>

Welcome to Cameraeroon!

εϞəœʏɥɪɔ ødæ ɑçβη

ΕϞƏœʏɥɪɔøɔæɑβη

áḡáḡáḡáḡáḡ



Foundational Technologies: Cameroon Keyboards

- ◎ AZERTY and QWERTY
 - MSKLC for Windows
 - ◎ <https://langtechcameroon.info/cam-keyboard-msk/>
 - Cameroon Keyboard for Android
 - ◎ <https://play.google.com/store/apps/details?id=info.langetechcameroon.keyboard>
 - Keyman for Windows, Mac, Linux, Android, iOS
 - ◎ <https://keyman.com/keyboards/h/cameroon/>

Cameroon QWERTY (Desktop)



https://help.keyman.com/keyboard/sil_cameroon_qwerty/



Cameroon AZERTY (Desktop)

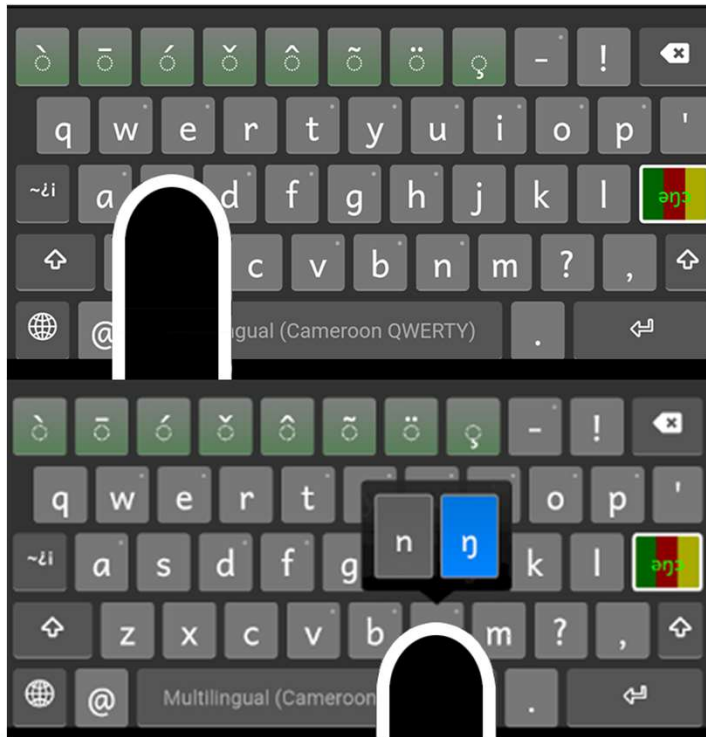


https://help.keyman.com/keyboard/sil_cameroon_azerty/





Cameroon AZERTY and QWERTY Touch



<https://play.google.com/store/apps/details?id=info.langtechcameroon.keyboard>

Foundational Technologies: Minimum

- ◎ SIL maintains fonts and keyboards that cover all languages under the GALC
 - <https://www.sil.org/resources/archives/32295>
- ◎ There is an opportunity for simplified single-language keyboards and more decorative fonts.
- ◎ Word lists from languages can be added to Keyman keyboards to enable autocorrect.



IPA Keyboards

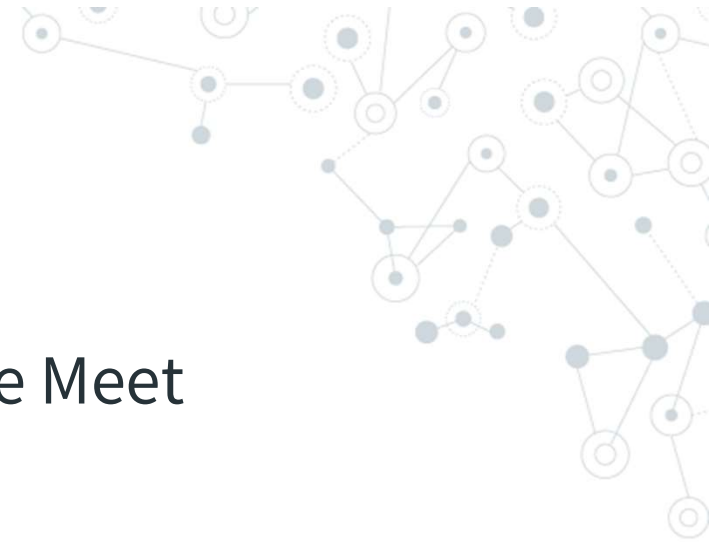
- ◎ Mature IPA Keyboards for QWERTY/QWERTZ
 - Keyman:
 - ◎ https://keyman.com/keyboards/sil_ipa
 - Microsoft:
 - ◎ https://scripts.sil.org/cms/scripts/page.php?site_id=nrsi&id=uniipakeyboard
- ◎ Neither version is ideal for AZERTY
 - Need help!



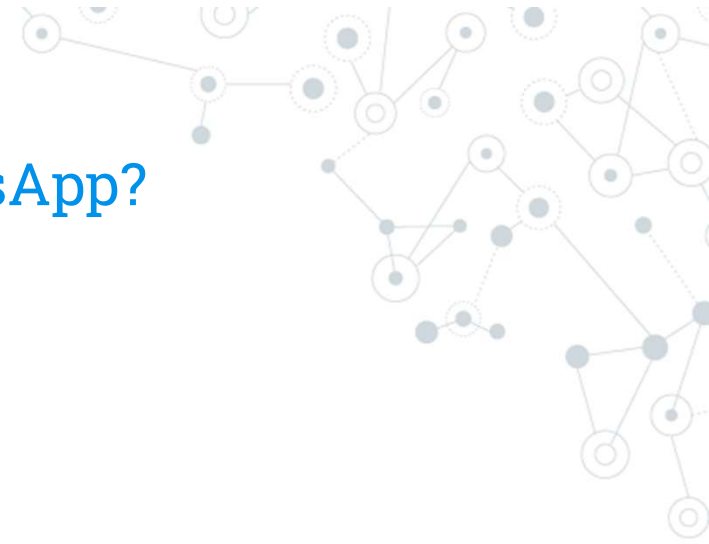
Communication Tools

- ◎ Social Media:
 - WhatsApp
 - Telegram
 - Facebook
 - Ayoba
 - Instagram
 - TikTok

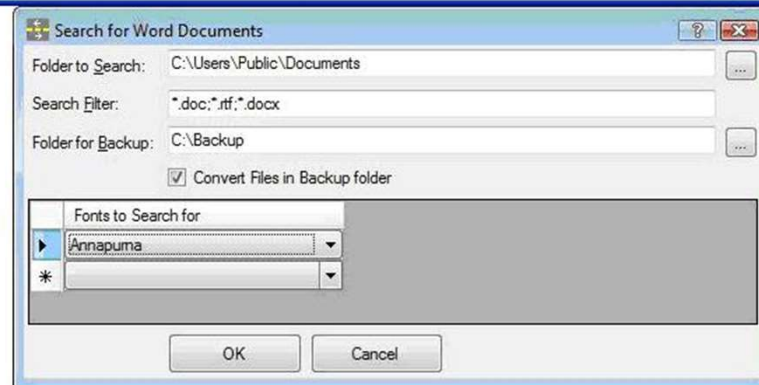
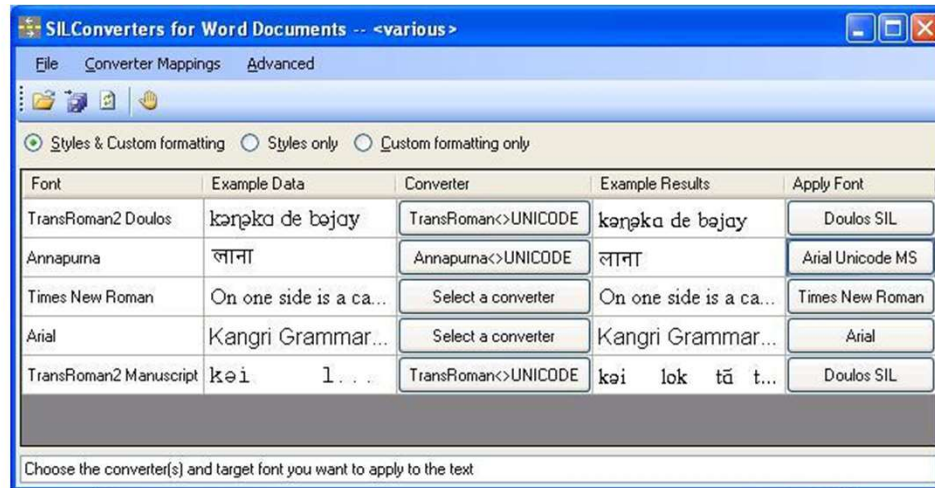
- ◎ Google Meet
- ◎ Zoom
- ◎ Moodle



Taking it Online: Literacy Classes on WhatsApp?



SIL Converters





Linguistic Tools

Linguistic Tools: Fieldworks Language Explorer (FLEx)

The screenshot displays the FLEx interface with a sidebar on the left containing navigation options: Lexicon Edit, Browse, Dictionary, Categorized Entry, Classified Dictionary, Bulk Edit Entries, Reversal Indexes, and Bulk Edit Reversal Entries. Below these are icons for Lexicon, Texts & Words, Grammar, and Notebook.

The main window is divided into three panes:

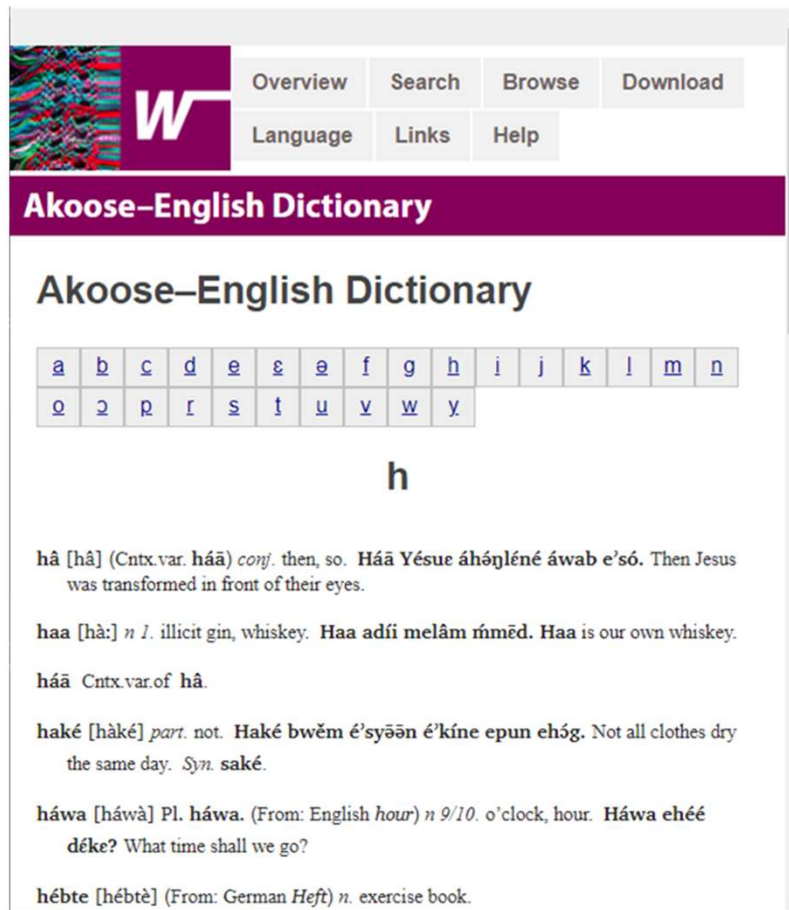
- Lexicon:** A table listing words with their forms and glosses. The entry for 'nkuz' is highlighted.
- Entries:** A detailed view of the selected entry, showing its headword, lexeme form, and glosses in English and Portuguese.
- Entry:** A detailed view of the selected entry, showing its morphological and grammatical information.

Headword	Lexeme Form	Glosses (Eng)	Glosses (Por)
nkuz	nkuz	make grow raise magnify	fazer crescer criar magnificar
nkhabe	nkhabe	not 1	não 1
nkhodolo	nkhodolo	back of head	nuca
nkhomole	nkhomole	dial	precipício
nkolo	nkolo	hemorrhoids	hemorroides
nkono-nkono	nkono-nkono	right side	a direita
nkuzano	nkuzano	day after tomorrow	depois de amanhã
nkudra	nkudz	become great	engrandecer
nomwe	nomwe	seven	sete
noza	noz	sharpen	afiar
nsanga	nsanga	fast	depressa
nsanga-nsanga	nsanga-nsanga	very fast	muito depressa
nsua	nsua	island	ilha
nsunga	nsunga	yeast liquid	fermento
nsuzi	nsuzi	gravy	molho
nzali	nzali	far in	muito dentro
nzhalaunda	nzhalaunda	area	area
nzanda	nzanda	a sickness	uma doença

The detailed entry for 'nkuz' shows:

- Lexeme Form:** nkuz
- Morph Type:** root
- Citation Form:** nkuz
- Components:**
- Note:**
- Singular Plural:**
- Sense 1:** Gloss: make grow / raise / magnify; Definition: make grow
- Grammatical Info:** Verb
- Sense 2:** Gloss: raise / criar; Definition: raise a child / criar criança

Webonary



Overview Search Browse Download
Language Links Help

Akoose-English Dictionary

Akoose-English Dictionary

a	b	c	d	e	ɛ	ə	f	g	h	i	j	k	l	m	n
o	ɔ	p	r	s	t	u	v	w	y						

h

hâ [hâ] (Cntx.var. háã) *conj.* then, so. Háã Yésue áhòh̄léné áwab e'só. Then Jesus was transformed in front of their eyes.

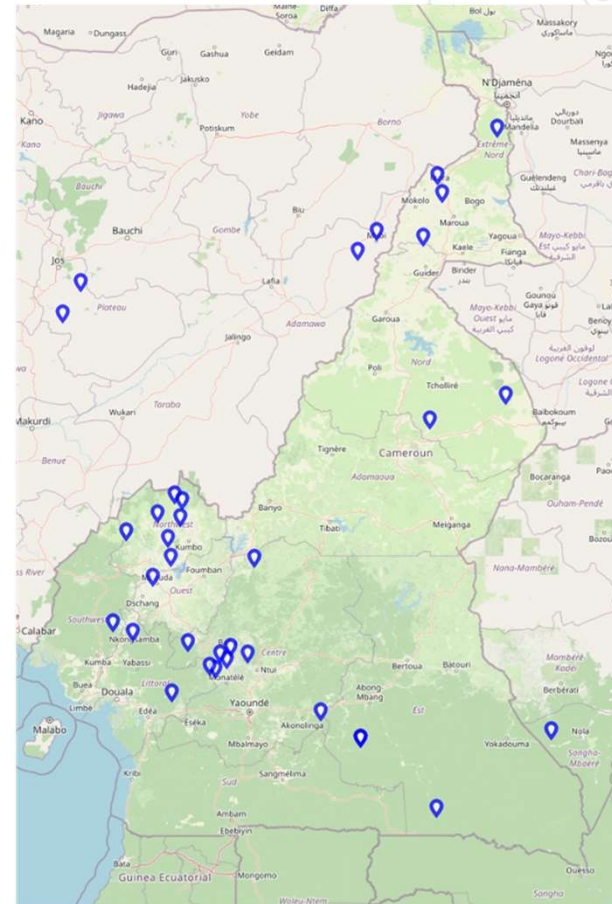
haa [hà:] *n f.* illicit gin, whiskey. Haa adíi melâm ímméd. Haa is our own whiskey.

háã Cntx.var.of hâ.

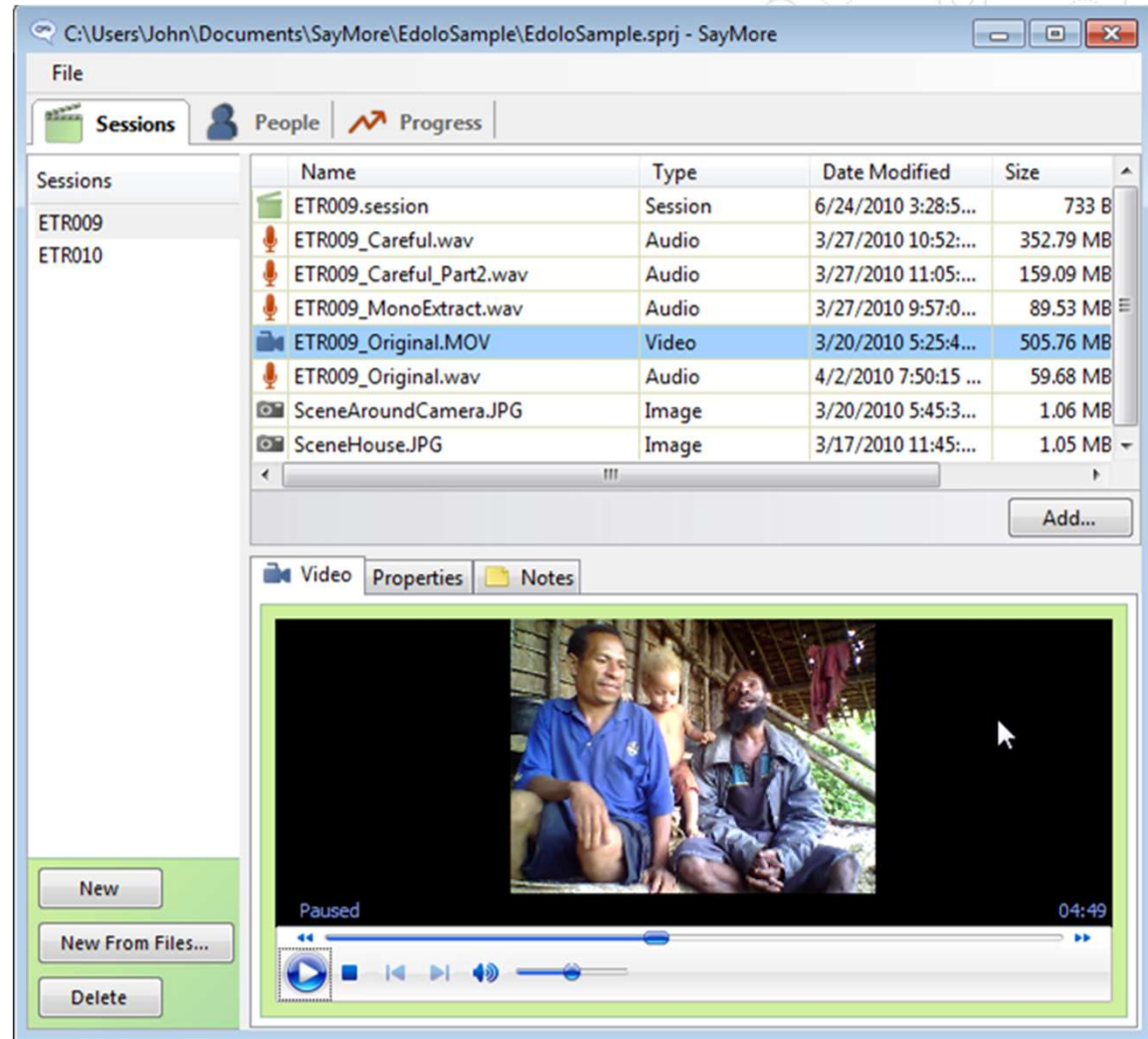
haké [hàké] *part. not.* Haké bwēm é'syōn é'kine epun ehóg. Not all clothes dry the same day. *Syn.* saké.

háwa [háwà] *Pl.* háwa. (From: English hour) *n* 9/10. o'clock, hour. Háwa ehéé déke? What time shall we go?

hébte [hébtè] (From: German *Heft*) *n.* exercise book.



SayMore



WordSurv

WordSurv 6.0 (Current Database = "Y:\asad.mdb")

File Help

Word List Management Comparisons Comparison Analysis Phonostatical Analysis Comparativist's Assistant (COMPASS)

Gloss Dictionary

All Glosses

New Edit Delete

All Glosses

Name
all
ant (biting/safari)
arm
arrow
ash(es)
ask
awaken
axe
back
bad
bark
bark (of a tree)
belly
bin

Sort: Alphanumeric

Save Save As Delete

Add Gloss(es) to Dictionary

Delete Gloss from Dictionary

Survey

New Edit Delete

Word List Explorer

- Kayui
 - Description: Researcher: Pe
 - Start Date:
 - End Date:
 - Surveyors:
 - Consultants:
 - + Language Helper
 - + Language: Kayui
 - Location
 - Reliability: ?

Add Selected Gloss -->

Add All Glosses -->>

<-- Remove Selected Gloss

<<-- Remove All Glosses

Gloss Information (Word List)

Name: ask
Definition:

Language:
Part of Speech:
Creation Date: 8/26/2004 5:40:48 PM

[Edit This Gloss](#)

Word List

New Edit Delete Duplicate

Kayui

Name	Transcription
all	
all	entsi
ant (biting/safari)	nsilax u
arm	mox ono
arrow	
arrow	isoŋə
ash(es)	ma uu
ask	^w u li jə
awaken	lavila
axe	ntemo

Glosses & Synonyms (316) / Transcriptions: (313)

^wu li jə

Sort: Alphanumeric

Save Save As Delete

Add New Gloss

Add Synonym

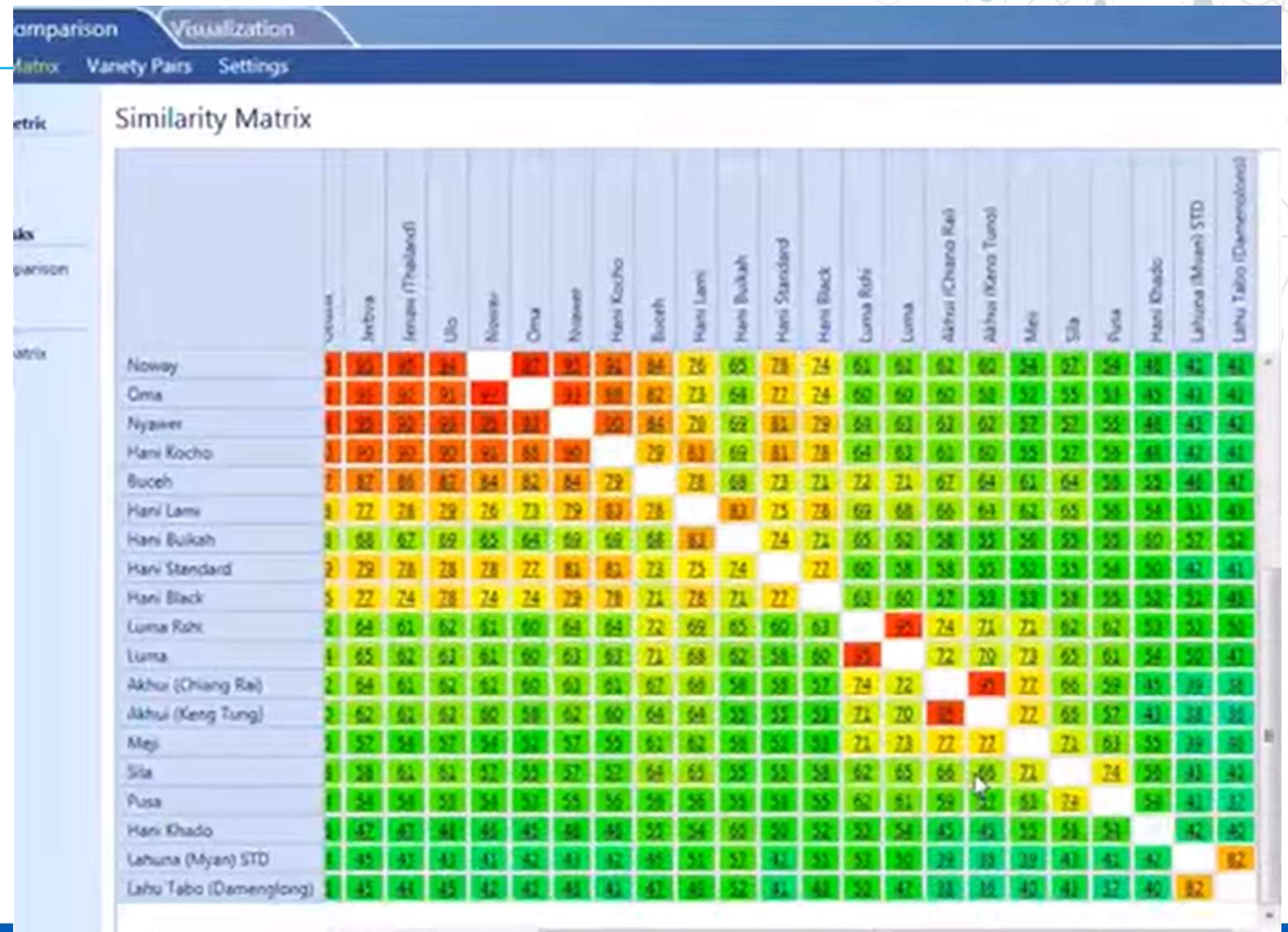
Remove Synonym

Search Word List



Cog

<https://software.sil.org/cog/>

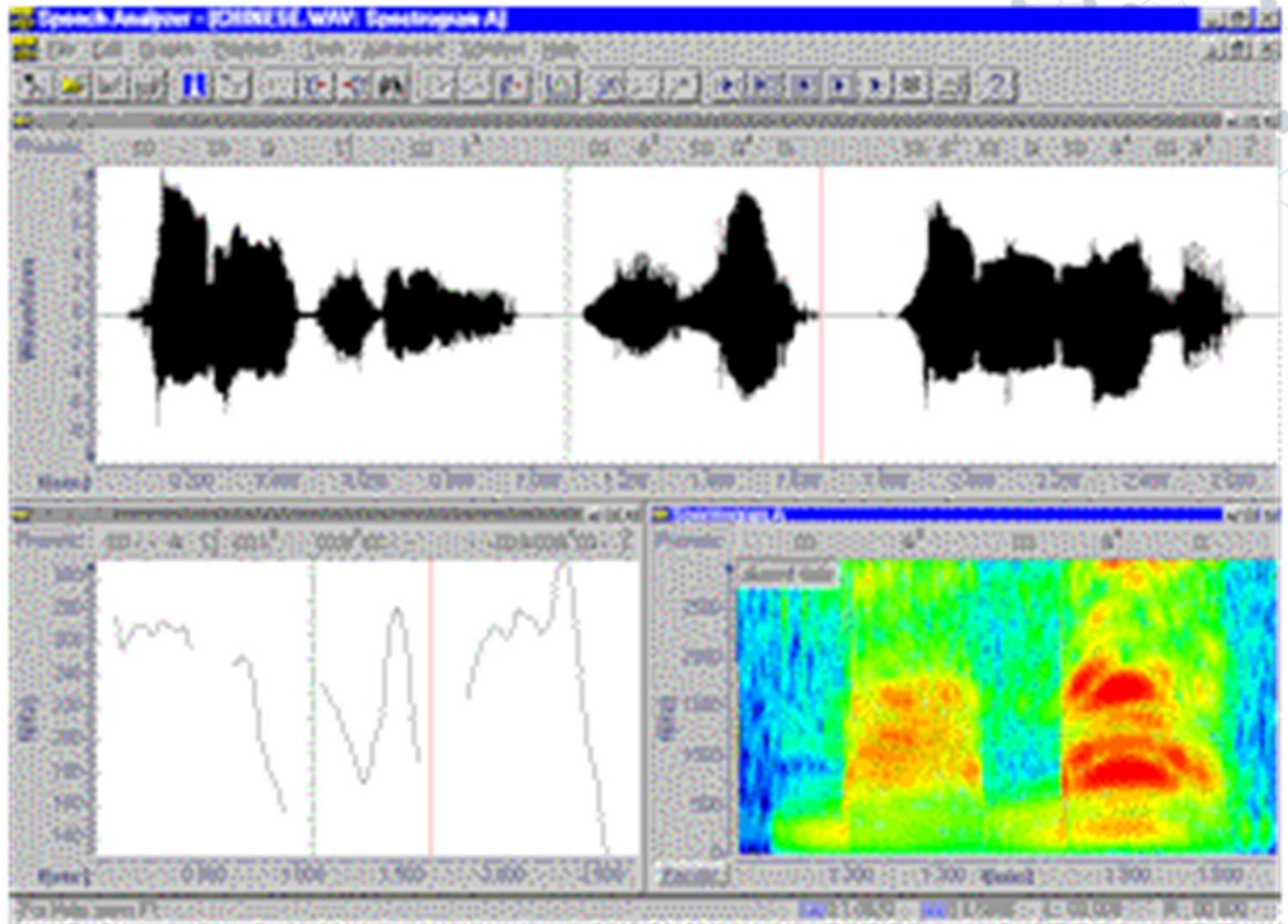


Prestige

The screenshot displays the Prestige application interface. On the left, a video player shows a man speaking. Below the video are three audio waveform tracks labeled 'Original', 'Careful', and 'Translation'. The main right panel contains a table with columns for 'Start', 'Careful Clip', 'Transcription', 'Trans. Clip', and 'Translation'. The table lists several segments of audio with their corresponding French and English transcriptions. At the bottom, there are buttons for 'Choose File', 'No file chosen', and 'Load Folder'.

Start	Careful Clip	Transcription	Trans. Clip	Translation
0:		%ignore%		
0.863:		Salut à tous. Dans cette nouvelle et petite serie d'episodes nous allons faire ensemble le tour de ce qu'on appelle le système Internationale d'unité, ou S.I.		Hello everyone, in this new and short series of episodes, we will do together a tour of what is called the International System of Units, or SI.
7.491:		Il s'agit d'un standard universel unitaire afin que partout dans le monde on peut s'appeler un chat un chat.		It is a universal standard so that everywhere in the world we can call "a cat a cat".
12.012:		Et ceux qu'elles-soit sa langue, eh bien sûr, quand je dit partout dans le monde, c'est sans compter le Myanmar, le Liberia,		and these no matter their language, and of course when I say everywhere in the world, that's without counting Myanmar, Liberia,
17.49:		et les États-unis d'Amerique.		and the United States of America.
19.062:		Et pour ce premier episode, on va commencer par le commencement		And for this first episode, we will start at the beginning,
21.362:		avec le metre.		with the meter.

Speech Analyzer



Phonology Assistant

Current Search Pattern: {p,b}/#_* Minimal Pairs (Ctrl+M)

Patterns & Pattern Building

Con. Vow. Other Classes De

Recent Patterns

- {p,b}/#_*
- p/#_*
- [plosive]/#_#

Phonetic Gloss CV Pattern Phonetic Source Pa

Phonetic	Gloss	CV Pattern	Phonetic Source	Pa
#_itta (2 records)				
píttá	bark	CVCCV	PronunciationField	No
bittā	acidic/sour	CVCCV	PronunciationField	Adj
#_illo (2 records)				
pilló	to.have.dairrhoea	CVCCV	PronunciationField	Ver
billó	cut.across	CVCCV	PronunciationField	Ver

(no data)

<https://software.sil.org/phonologyassistant/>

https://www.youtube.com/watch?v=IW_nv2kzeeg



Content Creation Tools

Paratext: Bible Translation

Paratext 9.2 Search menus/help

NBS11+ - La Nouv MAT

NBS11+: MAT 1:1 (Enhanced resource)

All Research Terms (NBS11+) ncrM Found Problem

engendra Boes ; Boes, avec Ruth, engendra Yobed ; ^{6f}Yobed engendra Jessé ; Jessé engendra David.

Le roi David, avec la femme d'Urie, engendra Salomon ; ^{7a} Salomon engendra **Roboam** ; **Roboam** engendra Abiya ; Abiya engendra

Asaph ^{prop.n indecl (proper noun indeclinable)} osaphat
^{Lemma: Roboam (Ροβοάμ)} ias ; ^{9h}
 Ozias ^{Rehoboam} engendra
^{Rendering not found in verse (ncrm)}
 Achaz ; Achaz engendra Ezéchias ; ¹⁰ⁱ Ezéchias engendra Manassé ; Manassé engendra Amos ; Amos engendra Josias ; ¹¹ Josias engendra Jékonia et ses frères au temps de l'exil à Babylone.

Current Verse

NBS11+ Source language Defini

▼ Généalogie Βίβλος
 γενέσεως (Biblos genesēōs)
 βίβλος (biblos) ³ communiqué assez bref ...
 Βίβλος
 γενέσεως (Biblos genesēōs)
 γένεσις (genesis) ² persons of successive...
 ▼ fils de David, υἱοῦ Δαυὶδ (huiou Daud)
 Δαυίδ (Daud) roi d'Israël et un des ancêtres...
 υἱοῦ Δαυὶδ

BVM: MAT 1:1 (Standard Translation)

Wo nda Nyii Kurj Təj

^{v1} Nə be ηνω'na no nda i te' da' yie bətiətie Jiso Klai, nda ɔ lo kəlonj Debi, nda ɔ lo kəlonj Ablahaŋ.

^{v2} Ablahaŋ no nə be tie Aisi.

^{v1} Aisi no nə be tie Jak.

^{v1} Jak no nə be tie Juda le'na bəliŋ-bi.

^{v2} Juda no nə be tie Bele ghoŋ Sela nda ηkwe-γə nə be Tama.

^{v1} Bele no nə be tie Hesloŋ.

^{v1} Hesloŋ no nə be tie Alam.

^{v2} Alam no nə be tie Aminada.

^{v1} Aminada nə be tie Nashoŋ.

^{v1} Nashoŋ nə be tie Salmu.

^{v2} Salmu nə be tie Boa nda ηkwe-γə ka be Laha. Boa no nə be tie Obe nda ηkwe-i ka be Lu.

^{v1} Obe ka be tie Jesi.

^{v2} Jesi ka be tie Debi nda ɔ so' foŋ.

^{v1} Debi ka be tie Salamu nda bi ghoŋ woke nda ɔ no' ka foŋ be vi Ulia.

^{v2} Salamu ka be tie Lihobuaŋ.

^{v1} Lihobuaŋ ka be tie Abija.

^{v1} Abija ka be tie Asa.

^{v2} Asa ka be tie Jehoshafa.

^{v1} Jehoshafa ka be tie Jolaŋ.

^{v1} Jolaŋ ka be tie Osia.

^{v2} Osia ka be tie Jotaŋ.

^{v1} Jotaŋ ka be tie Aha.

ncrm: MAT 1:1 (Standard Translation)

Lukas 3:23-38

^{v1} Yaŋ nə məŋkuŋ mə bətsi kinyi ki bə Jiso Klitu wu Nfi wu Nywə ka kaa. Jiso Klitu Nfi ka na mwa yi kinyi ki Nfoŋ Defi wu ka na mwa yi kinyi ki Ablaham. ² Ablaham ka na tsi Ajik, Ajik na tsi Yakob, Yakob na tsi Judas ba boŋ ba tsi, ³ Judas na tsi Beles bə Sela bə ma ba ka na Tama. Beles nə tsi Eslon, Eslon nə tsi Lam. ⁴ Lam nə tsi Aminada, Aminada nə tsi Nashon, Nashon nə tsi Salmon. ⁵ Salmon nə tsi Boas wu me ka nə Lahab. Boas nə tsi Obed wu me ka nə Lut. Obed nə tsi Jese. ⁶ Jese nə tsi Nfoŋ Defi.

^{v1} Nfoŋ Defi nə tsi Salamu wu me ka nə kpee Uliia.

^{v7} Salamu nə tsi Lehubwaŋ, Lehubwaŋ nə tsi Abija, Abija nə tsi Asa. ⁸ Asa nə tsi Jehushəfat, Jehushəfat nə tsi Jolaŋ, Jolaŋ nə tsi Usaya. ⁹ Usaya nə tsi Jotam, Jotam nə tsi Ahas, Ahas nə tsi Esikaya, ¹⁰ Esikaya nə tsi Manase, Manase nə tsi Emos, Emos nə tsi Yosaya. ¹¹ Yosaya nə tsi Jekonaya bə bə mwenshi bə. Bə ka boki bə shiki ɔ nə kisiki bəni bə Babilon ka kwuyə bəni bə Isiael jeŋ bə bə woŋ wuba wu Babilon na.

^{v12} Fəfədzige, nə bə ka kwuyə bəni bə Isiael jeŋ bə bə

nhu: MAT 1:1 (Standard Translation)

(Luka 3:23-38)

³ Eyan nu ediee e bo'icee kfuu di bo Jisos Klistu le. Jisos Klistu to nu waa Nfon Dawe wvù to nu waa Aba'am.


² Aba'am to nu icee Aysik, e Aysik nu icee Yakow, e Yakow nu icee Judas bō boom bo ice le, ³ e Judas nu icee Beles bō Sela bō bwee bō to nu Tama. E Beles nu icee Eslon, e Eslon nu icee Lam. ⁴ E Lam nu icee Aminada, e Aminada nu icee Na'shon, e Na'shon nu icee Salmon. ⁵ E Salmon nu icee Boas wvù bwee to nu La'ab. E Boas nu icee Obed wvù bwee to nu Lut. E Obed nu icee Jese. ⁶ E Jese nu icee Nfon Dawe.

E Nfon Dawe nu icee Saamun wvù bwee to nu kpwɛ Uliia. ⁷ E Saamun nu icee Le'ubwam, e Le'ubwam nu icee Abija, e Abija nu icee Asa. ⁸ E Asa nu icee Je'ushəfat, e Je'ushəfat nu icee Jolaŋ, e Jolaŋ nu icee Usaya. ⁹ E Usaya nu icee Jotam, e Jotam nu icee A'as, e A'as nu icee Esikaya. ¹⁰ E Esikaya nu icee Manase. e Manase nu icee

Bloom: Literacy Books



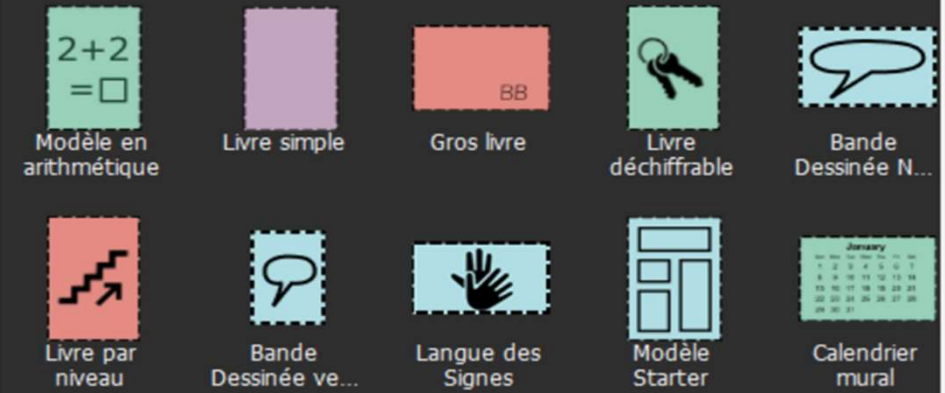
Livres en Français ▾



Les animaux Title Missing Title Missing Title Missing Title Missing

Sources pour des nouveaux livres

Modèles



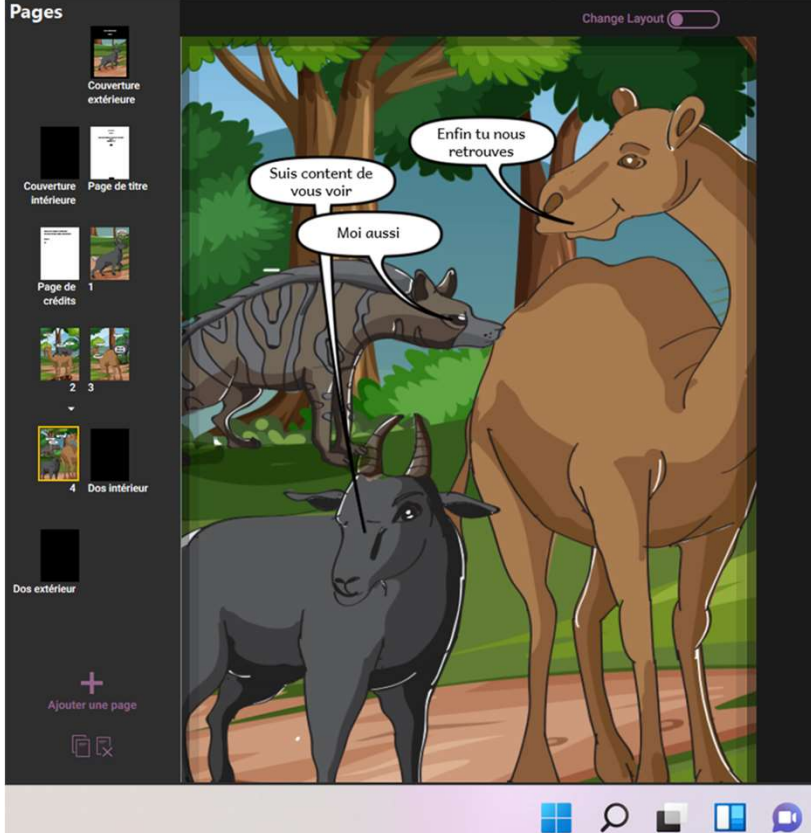
Modèle en arithmétique Livre simple Gros livre Livre déchiffrable Bande Dessinée N...

Livre par niveau Bande Dessinée ve... Langue des Signes Modèle Starter Calendrier mural

Livre canevas type

Bloom: Literacy Books

Pages Change Layout



Couverture extérieure Page de titre

Couverture intérieure Page de crédits

1 2 3

4 Dos intérieur

Dos extérieur

+ Ajouter une page

Suis content de vous voir

Moi aussi

Enfin tu nous retrouves

© <https://BloomLibrary.org>

Livres en Français ▾



Les animaux Title Missing Title Missing Title Missing Title Missing

Sources pour des nouveaux livres

Modèles



Modèle en arithmétique Livre simple Gros livre Livre déchiffrable Bande Dessinée N...

Livre par niveau Bande Dessinée ve... Langue des Signes Modèle Starter Calendrier mural

Livre canevas type



Bloom: Literacy Books

français
- 100% +

X

🎵 Outil Musique

👁️ Overlay Tool

👁️ Visualiseur selon Affaiblissement

📄 Outil Motion

📖 Outil de livre audio

- 1) Vérifiez que vous enregistrez dans le microphone adéquat et que ces niveaux apparaissent en bleu :
- 2) Regardez la phrase surlignée
- 3) Parler
- 4) Vérifiez
- 5) Suivant

Retour

Effacer

Écoutez l'intégralité de la page


Avancés

- Enregistrez toute la zone de texte, puis laissez Bloom la scinder en phrases par la suite.
- Importer Enregistrement
- Afficher les boutons d'ordre de lecture


Créer un livre électronique qui lit des enregistrements audio en surlignant des phrases.

[Aide](#)


© <https://BloomLibrary.org>


 Outil de livre audio


1) Vérifiez que vous enregistrez dans le microphone adéquat et que ces niveaux apparaissent en bleu :




2) Regardez la phrase surlignée


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[Aide](#)

Plus...

Bloom: Literacy Books

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App Builders

- ◎ Scripture App Builder

- <https://software.sil.org/scriptureappbuilder/>

- ◎ Dictionary App Builder

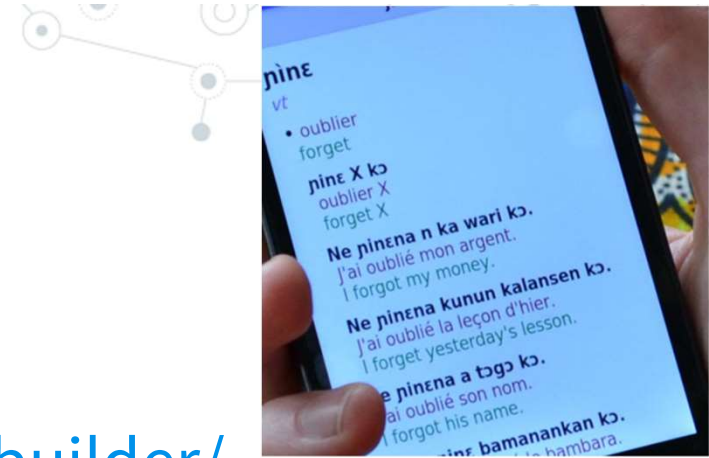
- <https://software.sil.org/dictionaryappbuilder/>

- ◎ Reading App Builder

- <https://software.sil.org/readingappbuilder/>

- ◎ Keyboard App Builder

- <https://software.sil.org/keyboardappbuilder/>



PrimerPrep

PrimerPrep

File Configure Help

Word Discovery Teaching Order Lesson Texts

Texts in the analysis

Add Text(s) 1

Clear All Texts

File name

Chadian Arabic stories 2017.txt 4

Show full path

Affixes should be excluded treated as separate words

Edit Affixes (empty)

When calculating the teaching order, count each word:

each time it occurs (tokens) only once (types)

Configure the Language: Word-Breaking Characters Digraphs

Treat Combining Diacritics Separately

Texts: 1 Unique words: 1226















Filter:

Word	Frequency
wa 2	499
al	424
l	246
fi	173
amne	128
da	80
khalaas	74
ma	71
le	70
achaan	52
am	50
adim	47
be	45
min	45



AlphaChart

Jəkwən lələb ma Daba

a b ɓ c d ɗ e ə f g gb gw h hw i j k kp kw l m mb						
mgb n nd nj ng ngw o p r s sl t u v vb w y z zl						
A a  dahba	B b  bakalaf	ɓ ɓ  ɓaram	C c  cevek	D d  dəvər	ɗ ɗ  ɗawa	E e  beke
ə ə  ərsla	F f  falam	G g  gənaw	Gb gb  gbəl	Gw gw  gwazla	H h  hidi	Hw hw  hwihwil
T t	L l	K k	Kp kp	Kw kw	I i	M m

Zotero

The screenshot shows the Zotero application window titled "Reflexive - Zotero". The interface is divided into several sections:

- Left Panel (Library):** A tree view showing a hierarchy of folders. The "Reflexive" folder is selected and highlighted in blue. Below the folders, there are search filters for "Binding (08930)", "Cognitive Semantics (13000)", "Comparative Linguistics (13850)", and "Diachronic Linguistics (18500)".
- Center Panel (List View):** A table listing items in the library. The selected item is "French and Spanish Se: Underspecified, No..." by Bruhn de Garavito, Joyce. Other items include "A propos des verbes pronominaux" by Stéfanini, "Analyzing Syntax: A Lexical-Functional Ap..." by Kroeger, and "Foundations of French Syntax" by Jones.
- Right Panel (Info View):** A detailed view of the selected item. It shows the "Item Type" as "Document", the "Title" as "French and Spanish Se: Underspecified, Not Reflexive", and the "Author" as "Bruhn de Garavito, Joyce". Other fields include "Publisher" (The University of Western Ohio), "Date" (2002), "Language" (English), "Short Title", "URL" (http://homes.chass.utoronto.ca/~cla-acl/...), "Accessed" (5/11/2014), "Archive", "Loc. in Archive", "Library Catalog", "Call Number", "Rights", "Extra", "Date Added" (5/11/2014, 9:25:55 PM), and "Modified" (5/11/2014, 9:33:40 PM).

And others

- © Microsoft Office
- © Adobe InDesign
- © LibreOffice
- © Scribus
- © Gimp





Training and Support

Support Sites

- ◎ General Technology
 - <https://community.software.sil.org/>
- ◎ Scripture Software
 - <https://community.scripture.software.sil.org/>



Training Resources

- ◎ Each software website:
 - i.e. <https://paratext.org/training-and-support-links/>
- ◎ Language Technology (English)
 - <https://lingtran.net/>
- ◎ Technologie linguistique: (French)
 - <https://outilingua.net/>



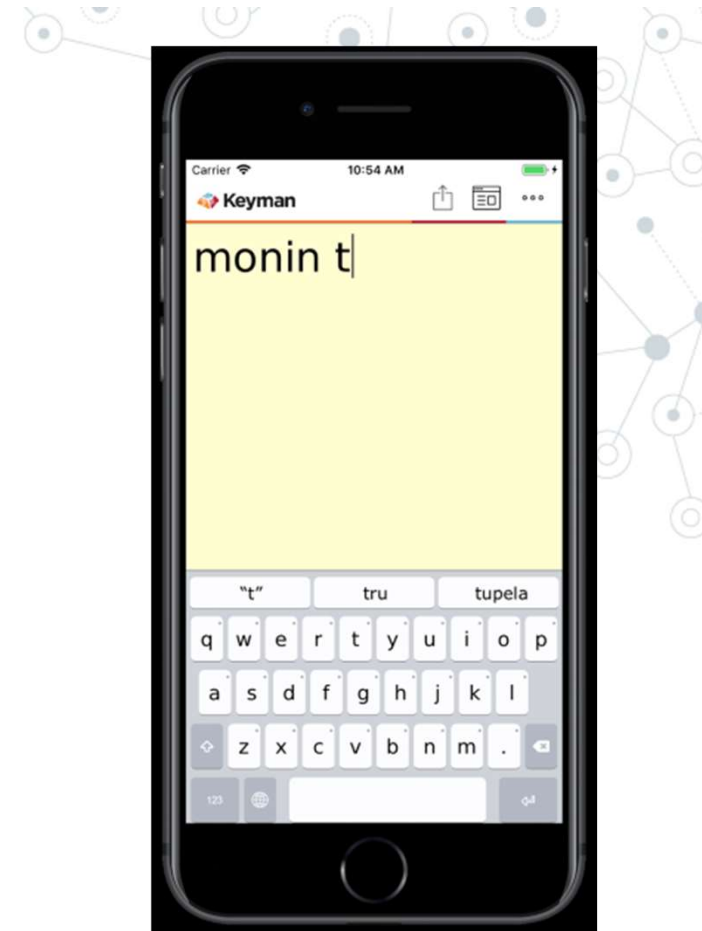


Advanced Tools

Spelling Checking and Predictive Text



LibreOffice Logo Source: <https://www.libreoffice.org/>



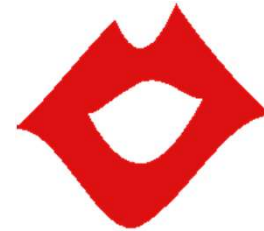
Predictive Text

<https://vimeopro.com/lingtransoft/keydev2020/video/399132672>



Text-to-Speech, Machine Translation, etc.

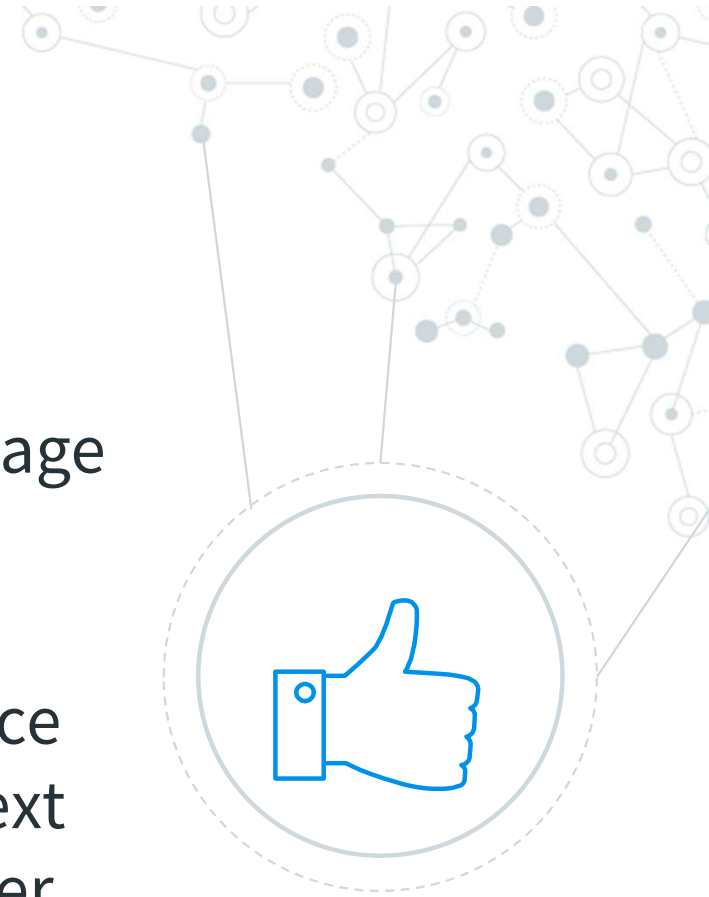
- © eSpeak
 - <http://espeak.sourceforge.net/>
- © Many others...



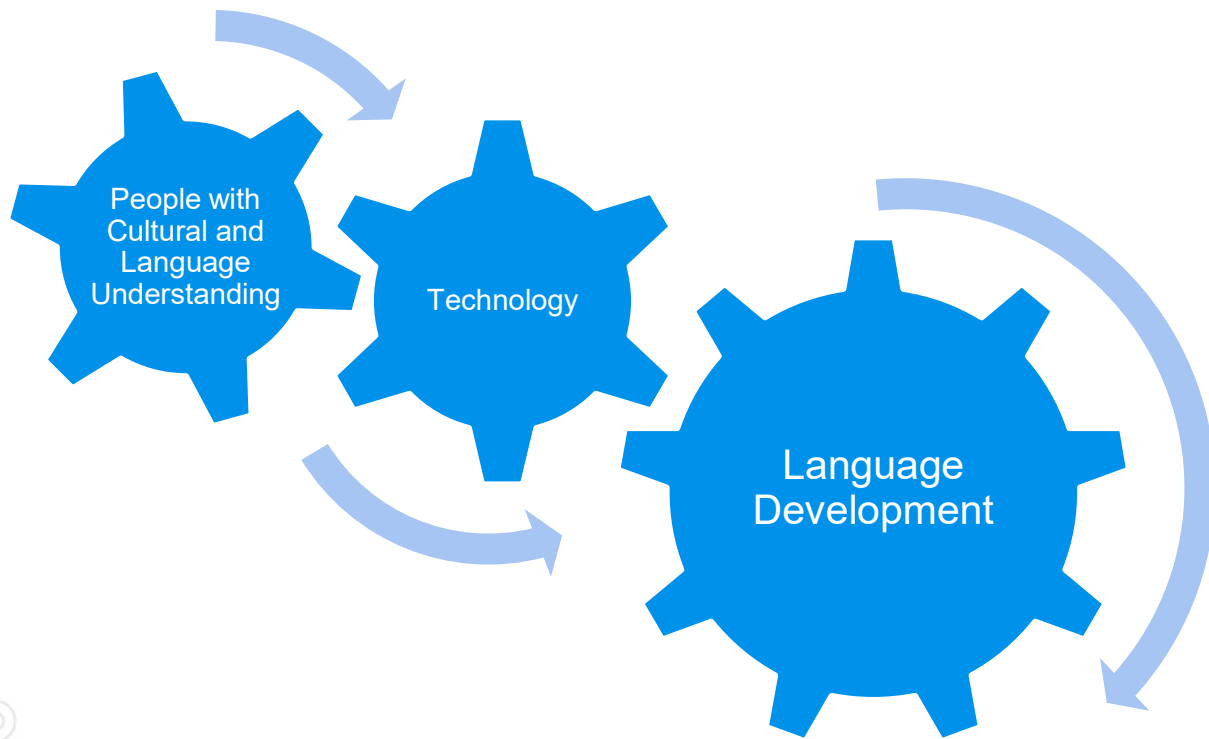
Where are we?


With the mature state of global language technology, developing or promoting a language is no longer a technical impossibility.

Challenges of personnel, communication, logistics, access, training, funding and resource development in the mother tongue are the next hurdles to overcome through working together.



Where are we?





Opportunities

Opportunities for using Technology in MT

- ① Collect wordlists and morphological information to create predictive text dictionaries for keyboards and spellcheck for desktops.
- ① Promote installation and use of the Cameroon Keyboard as high speed which results from practice.
- ① Language communities can create easier to use language-specific keyboards (with SIL's assistance if needed).
- ① Promote use of Cameroon-complete fonts.

Opportunities for using Technology in MT

- ◎ Community members and researchers can create and share base materials using available tools:
 - Books, Primers, Dictionaries, Talking Stories, etc.
- ◎ Government, communities and elites could create philanthropic centres and equip them.
- ◎ Resource centres could spread to cities to grant access to distance learning.
- ◎ Solar panels can provide reliable power for rural folk and schools.

Opportunities for using Technology in MT

- ◎ SIL, CABTAL, NACALCO and Universities are ready to offer help if sought
- ◎ SIL renders training on language technology (hundreds of lang workers are trained in communities and universities)
- ◎ Improve on the use of time through practice and reuse of prepared materials.



Conclusion

- ◎ It is normal to face challenges in using technology for MT learning as it applies in every real-life situation. When there are challenges, efforts are made through research to overcome them. As such, challenges are a motivating factor to seek to exploit existing opportunities.



Conclusion

- ⊙ Above all, communities without orthographies as a starting point can seek needed help from the institutions referred to in this discussion. These partnerships can promote language use and development (of both mother tongue and foreign languages) at home and abroad through domestic and distance education.
- ⊙ Even if SIL cannot boast of having answers for every question, research is continuing to find solutions for further questions and challenges.



Thanks!

Any questions?

A copy of this presentation can be found at:

<http://langtechcameroon.info/mt>

