

How you should have done your LEL1 Language Assignment:

An introduction to using FLEx for morphological
analysis.

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The University of Edinburgh
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What is FLEx?

- An XML database to help with managing linguistic (and anthropological) data
- Primarily designed to help linguistic field workers document and analyse languages
- Will be useful for anyone working with a text corpus, and/or extensive interlinearisation

What can FLEx do?

- Organise a corpus of texts
- Create a lexical database from your texts
 - Lexical database can ultimately be used to create a dictionary
- Analyse your texts from your lexical database
- Link to audio files
- Import/export data to other software (e.g. Elan, Lexus, etc)
- Record anthropological field notes

What **can't** FLEx do?

- The original linguistic analysis!

Installing the software

- FieldWorks can be downloaded for free from <http://fieldworks.sil.org/download/>
- Latest stable release:
 - Windows: *FieldWorks* 8.1.2
 - Linux: *FieldWorks* 8.0.5 (beta)
 - Mac: FieldWorks does not currently support any Mac OS:
 - FieldWorks will work with Bootcamp, or on a Windows emulator (Parallels, VMware Fusion, Virtual Box).
 - Fieldworks does not currently work with Wine.

In today's workshop, you will learn how to....

- Start a new project
- Enter data into a corpus
- Interlinearise the data from the vernacular language using an analysis language
- Create and manage a lexicon
- Enter information about the grammar of the vernacular language
- Use the semi-automatic parser

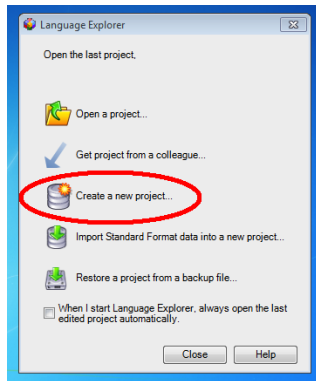
Some terminology:

- Vernacular language: The language you are studying or analysing.
 - Today our vernacular languages will be Swahili and a closely-related (and made-up) language, Ilihaws
- Analysis language: The language you are using to describe the vernacular language.
 - Today our analysis language will be English

1. Starting a new project

Starting a new project

- Start > All programs > FieldWorks 8 > Language Explorer > Language Explorer



- Click 'Create a new project'

New project properties

New FieldWorks Project

This dialog helps you create a new FieldWorks project, into which you can then enter data using FieldWorks applications.

Name the project

Enter the name for this project. For example, use the name of a language or culture.

Swahili

Specify Writing Systems

In FieldWorks, you need to set up a writing system in order to enter data in a particular language.

Vernacular language writing system

These are the languages used for translations, texts, lexical headwords, example sentences, people, location names, etc. Select, or define, a default vernacular language writing system.

French Define New...

Analysis language writing system

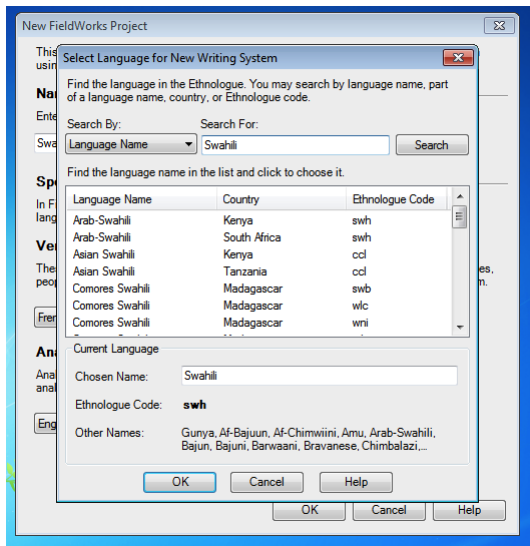
Analysis languages are the languages for notes, back translations, glosses, definitions, analyses, etc. Select, or define, a default analysis language writing system.

English Define New...

Tip: You may add additional writing systems and edit existing ones in the Project Properties dialog box.

OK Cancel Help

New project properties



New project properties

New FieldWorks Project

Writing System Properties

Language: _____

Name: Swahili Ethnologue code: **swh**

[Ethnologue entry for swh](#)

Writing Systems:
Hidden writing systems are italicized

- Swahili

General Font Keyboard Converters Sorting Characters

Abbreviation: Swa

Usually, you only need to use the following fields in order to distinguish writing systems for the same language.

Script name: _____ Script Abbreviation (4 char.): _____

Region name: _____ Region abbreviation (2 or 3 char.): _____

Variant name: _____ Variant abbreviation: _____

Direction:
 Left-to-right
 Right-to-left

Spelling dictionary:
<NONE SELECTED>

Internal Code: swh

New project properties

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Swahili

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Swahili Define New...

Analysis language writing system

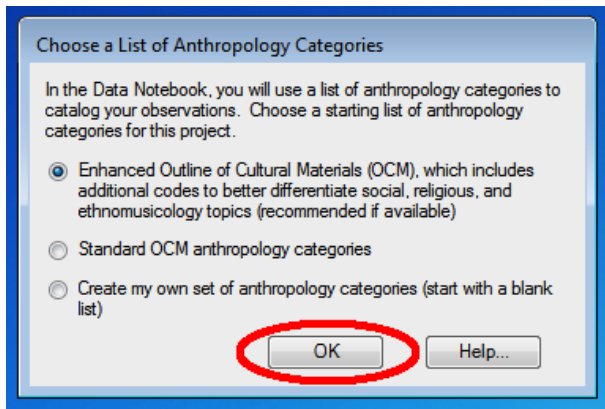
Analysis languages are the languages for notes, back translations, glosses, definitions, analyses, etc. Select, or define, a default analysis language writing system.

English Define New...

Tip: You may add additional writing systems and edit existing ones in the Project Properties dialog box.

OK Cancel Help

New project properties



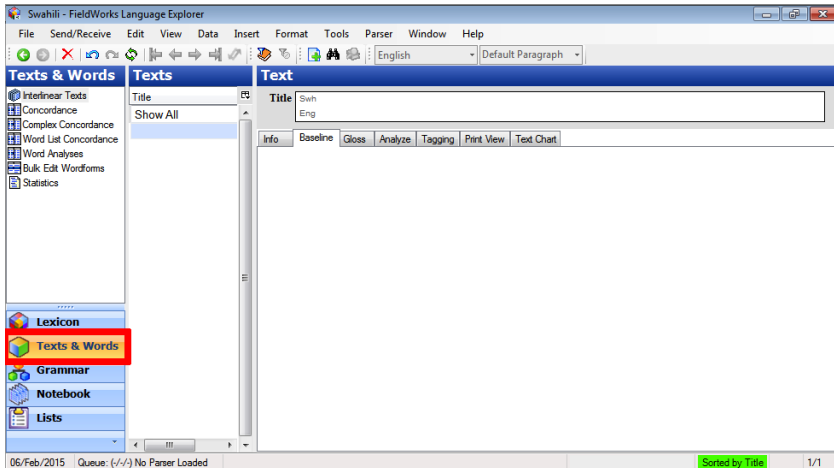
The FLEx window

The screenshot displays the Swahili - FieldWorks Language Explorer (FLE) window. The title bar reads "Swahili - FieldWorks Language Explorer". The menu bar includes "File", "Send/Receive", "Edit", "View", "Data", "Insert", "Format", "Tools", "Parser", "Window", and "Help". The toolbar contains various icons for file operations and editing. The main window is divided into several panes:

- Lexicon**: A sidebar on the left containing a list of tools: "Lexicon Edit", "Browse", "Dictionary", "Collect Words", "Classified Dictionary", "Bulk Edit Entries", "Reversal Indexes", and "Bulk Edit Reversal Entries". The "Lexicon" tool is highlighted with a red box.
- Entries**: The central pane, currently showing "No Entries". It has a header with columns: "Headword", "Lexeme Form", "Glosses", and "Grammatical Inf.". Below the header are four "Show All" dropdown menus.
- Bottom Panel**: A vertical stack of buttons: "Lexicon" (highlighted with a red box), "Texts & Words", "Grammar", "Notebook", and "Lists".

The status bar at the bottom right shows "No Entries" and "Show Hidden Fields".

The FLEx window



2. Entering our first data

Entering our first data

- We've been out in the field, collecting data from speakers of Swahili.
- So far, we have the following sentences:
 - (1) ugari unafika 'The cars are arriving.'
 - (2) igari idogo itafika 'The little car will arrive.'
 - (3) mutafika 'You (pl.) will arrive.'
 - (4) tumefika 'We have arrived.'
 - (5) kikombe kizuri kilifika 'The nice cup arrived.'
- We want to enter these sentences and the translations into our corpus.

Entering our first data

- Give your text a title
- Transcribe the data in the 'Baseline' tab:

The screenshot shows a web interface for entering text data. At the top is a blue header bar with the word "Text" in white. Below this is a form with a "Title" label. The title is split into two lines: "Swh" on the first line and "Eng 001: Amiving" on the second line. Below the title form is a horizontal menu with several tabs: "Info", "Baseline", "Gloss", "Analyze", "Tagging", "Print View", and "Text Chart". The "Baseline" tab is currently selected. Below the menu, the text "ugani unafika" is displayed in a monospaced font. The word "ugani" is underlined with a red dotted line, and the word "unafika" is underlined with a blue dotted line. A vertical cursor is positioned at the end of the text.

Entering our first data

- Translate the data in the 'Gloss' tab:

Text Add Words to Lexicon

Title Swh
Eng 001: Amiving

Info Baseline **Gloss** Analyze Tagging Print View Text Chart

1	Word	ugari	unafika
	Word Gloss	***	***
	Word Cat.	***	***

Free The cars are amiving]

The data fully transcribed

Text

Title Swh
Eng 001: Arriving

Info Baseline Gloss Analyze Tagging Print View Text Chart

ugari unafika
igari idogo itafika
mutafika
tumefika
kikombe kizuri kilifika

The data fully translated

Text Add Words to Lexicon

Title Swh
 Eng 001: Amiving

Info Baseline Gloss Analyze Tagging Print View Text Chart

1 **Word** ugani unafika
Word Gloss *** **
Word Cat. *** **

Free The cars are arriving.

2 **Word** igari idogo itafika
Word Gloss *** ** *
Word Cat. *** ** *

Free The little car will arrive.

3 **Word** mutafika
Word Gloss ***
Word Cat. ***

Free You will arrive.

4 **Word** tumefika
Word Gloss ***
Word Cat. ***

Free We have arrived.

5 **Word** kikombe kizuri kilifika
Word Gloss *** ** *
Word Cat. *** ** *

Free The nice cup arrived|

Glossing words

- Type the word gloss under the appropriate word in the **Word Gloss** field
- Choose a part of speech by clicking on the little arrow in the **Word Cat.** field

1	Word	ugari	<input type="checkbox"/> unafika
	Word Gloss	the cars	<input type="checkbox"/> are arriving
	Word Cat.	n	<input checked="" type="checkbox"/> v
			<input type="button" value="v"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Free	The cars are arriving.		

- It's to you how much detail you put in at this stage - this is where to record your first impressions on the data.

Adding a new part of speech

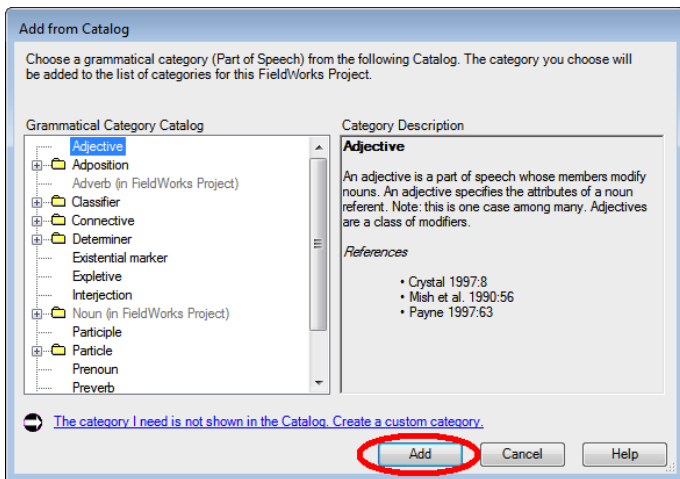
2	Word	igari	idogo	@@ itafika
	Word Gloss	the car	little	will arrive
	Word Cat.	n	***	v
Free	The little car will arrive.			
3	Word	mutafika		
	Word Gloss	you will arrive		
	Word Cat.	v		
Free	You will arrive.			
4	Word	tumefika		
	Word Gloss	we have arrived		
	Word Cat.	v		
Free	We have arrived.			

idogo

little

- ... Adverb
- ... Noun
- + ... Pro-form
- ... Verb
- ... <Not sure>
- ... More...

Adding a new part of speech



Entering our first data

- Our first data, transcribed, translated, and with a first gloss:

Text
■ Add Words to Lexicon

Title Swh
Eng 001: Amiving

Info
Baseline
Gloss
Analyze
Tagging
Print View
Text Chart

1 **Word** ugari unafika
Word Gloss the cars are amiving
Word Cat. n v
Free The cars are amiving.

2 **Word** igari idogo itafika
Word Gloss the car little will amive
Word Cat. n adj v
Free The little car will amive.

3 **Word** mutafika
Word Gloss you will amive
Word Cat. v
Free You will amive.

4 **Word** tumefika
Word Gloss we have amived
Word Cat. v
Free We have amived.

5 **Word** kikombe kizuri kilifika
Word Gloss the cup nice arrived
Word Cat. n adj v
Free The nice cup arrived.

3. Interlinearisation

Interlinearisation

- Here's a data set we prepared earlier!
- 'Ilihaws'
 - Closely related to Swahili....
 - ...and also very made-up.
- File > Open > Select the database 'Ilihaws'
 - We won't be working with the Swahili database again, so you can close it if you like. It will have automatically saved to your computer.

Interlinearisation

- In the 'Texts & Words' window, click on the 'Analyze' tab:

The screenshot shows the 'Ilihuw3 - FieldWorks Language Explorer' application. The 'Texts & Words' window is active, displaying a list of texts on the left and a detailed view of a selected text on the right. The 'Analyze' tab is highlighted in the right-hand pane. The 'Texts & Words' window is circled in red.

The interface includes a menu bar (File, Send/Receive, Edit, View, Data, Insert, Format, Tools, Parser, Window, Help) and a toolbar. The 'Texts & Words' window is divided into three panes: 'Texts & Words' (left), 'Texts' (middle), and 'Text' (right). The 'Text' pane shows the 'Analyze' tab selected, displaying the following information:

Text: Title: [Empty], Eng Text 001

Info | Baseline | Gloss | Analyze | Tagging | Print View | Text Chart

1 Word kitabu kinaanguka

Morphemes *** **

Lex. Entries *** **

Lex. Gloss *** **

Lex. Gram. Info. *** **

Word Gloss *** **

Word Cat. *** **

Free The book is falling.

2 Word umefika

Morphemes umefika

Lex. Entries ***

Lex. Gloss ***

Lex. Gram. Info. ***

Word Gloss ***

Word Cat. ***

Free You (sg.) have arrived]

The status bar at the bottom shows '19/Feb/2015 Queue: (---) No Parser Loaded' and 'Sorted by Title 1/1'.

Interlinearisation

- On the basis of our analysis of Ilihaws, we want give sentence 2 the following gloss:

/umefika/

u-me-fika

2.SG-PERFECT-arrive

'You (sg.) have arrived'

Interlinearisation

- Creating morpheme breaks in the **Morphemes** field:
 - **Stems**: [aa] : stem; [*aa] : bound stem
 - **Affixes**: [a-] : prefix; [-a] : suffix; [-a-] : infix
 - **Clitics**: [a=] : proclitic; [=a] : enclitic
 - **Other**: [=a=] : simulfix; [~a~] : suprafix

2 Word

Morphemes

Lex. Entries

Lex. Gloss

Lex. Gram. Info.

Word Gloss

Word Cat.

▼ umefika		
▼ u-	me-	fika
▼ ***	▼ ***	▼ ***
***	***	***
***	***	***
▼ ***		
<input type="button" value="⊖"/> <input type="button" value="+"/> <input checked="" type="button" value="✓"/>		

Free You have arrived.

Interlinearisation

- Creating a new entry for a root or stem:
 1. Click the little arrow on the **Lex. Entries** field under /fika/
 2. Select 'Create New Entry'

2 **Word**
Morphemes
Lex. Entries
Lex. Gloss
Lex. Gram. Info.
Word Gloss
Word Cat.

umefika
u- me- fika
*** *** ***
*** ***
*** ***

+ ✓

Free You have arrived.

Interlinearisation

- Creating a new entry for a root or stem:
 3. From the drop-down menu 'Morpheme Type', select 'Root'
 4. From the drop-down menu 'Category', select 'Verb'
 5. Enter the gloss 'arrive' in the 'Gloss' field
 6. Click 'Create'

Interlinearisation

New Entry

Entry Properties

Lexeme Form:

fika

Morpheme Type: **root** Complex Form Type: <Not Applicable>

Gloss

ative Inflectional Affix Gloss Builder

Grammatical Info.

Category:

Verb

Similar Entries

Headword	Glosses	Reversals	Definitions
----------	---------	-----------	-------------

Add allomorph to similar entry

Create Cancel Help

Interlinearisation

- Creating a new entry for an affix:
 1. Click the little arrow on the **Lex. Entries** field under /me-/
 2. Select 'Create New Entry'
 3. Check that the 'Morpheme Type' is 'prefix-' (this should be automatic)
 4. From the drop-down menu 'Affix Type', select 'Inflectional'
 5. From the drop-down menu 'Attaches to Category', select 'Verb'
 6. Enter the gloss for the affix, 'PERFECT'
 7. Click 'Create'

Interlinearisation

New Entry

Entry Properties
Lexeme Form:
me-

Morpheme Type: prefix- Complex Form Type: <Not.Applicable>

Gloss
PERFECT [Inflectional Affix Gloss Builder](#)

Grammatical Info.
Affix Type: Inflectional Attaches to Category: Verb Fills Slot:

Similar Entries

Headword	Glosses	Reversals	Definitions
----------	---------	-----------	-------------

Add allomorph to similar entry

Create Cancel Help

Interlinearisation

- Creating a new entry for an affix using the Inflectional Affix Gloss Builder:
 1. Click the little arrow on the **Lex. Entries** field under /u-/
 2. Select 'Create New Entry'
 3. Check the 'Morpheme Type' is 'prefix-' (this should be automatic)
 4. From the drop-down menu 'Affix Type', select 'Inflectional'
 5. From the drop-down menu 'Attaches to Category', select 'Verb'
 6. Click on 'Inflectional Affix Gloss Builder' (next to the Gloss field)

Interlinearisation

New Entry

Entry Properties
Lexeme Form:
u-

Morpheme Type: prefix- Complex Form Type: <Not Applicable>

Gloss
[Inflectional Affix Gloss Builder](#)

Grammatical Info.
Affix Type: Inflectional Attaches to Category: Verb Fills Slot:

Similar Entries

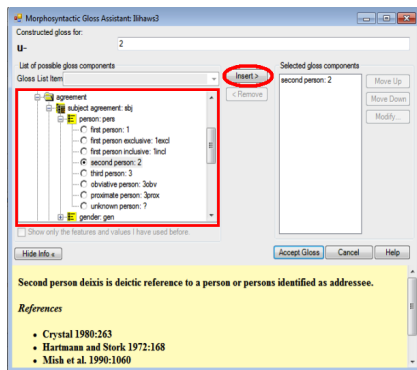
Headword	Glosses	Reversals	Definitions
----------	---------	-----------	-------------

Add allomorph to similar entry

Create Cancel Help

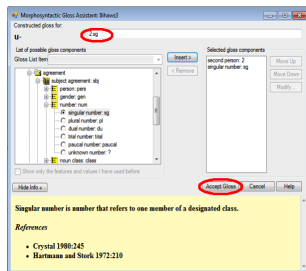
Interlinearisation

- Creating a new entry for an affix using the Inflectional Affix Gloss Builder:
 7. Verb-related > Agreement > Subject agreement > Person > Second person > Click 'Insert'



Interlinearisation

- Creating a new entry for an affix using the Inflectional Affix Gloss Builder:
 8. Verb-related > Agreement > Subject agreement > Number > Singular number > Click 'Insert'
 9. When you're happy with the gloss given in the top field, click 'Accept Gloss', and then 'Create' on the 'New Entry' window



Interlinearisation

- Your fully glossed word /umefika/ should now look like this:

2 Word

Morphemes

Lex. Entries

Lex. Gloss

Lex. Gram. Info.

Word Gloss

Word Cat.

umefika		
u-	me-	fika
u-	me-	fika
2.sg	PERFECT	arrive
v:Any	v:Any	v
arrive		
v		

Free You have arrived.

Interlinearisation

- There are two options in the bottom right corner:

2 Word
Morphemes
Lex. Entries
Lex. Gloss
Lex. Gram. Info.
Word Gloss
Word Cat.

umefika		
u-	me-	fika
u-	me-	fika
2.sg	PERFECT	amive
v:Any	v:Any	v
amive		
v		

Free You have amived.

- Click 'Approve Throughout this Text'.

Gloss these sentences

- Use the Interlinear Affix Gloss Builder where relevant

7 /mutafika/
mu-ta-fika
2PL-FUT-arrive
'You (pl.) will arrive'

8 /utaanguka/
u-ta-anguka
2SG-FUT-fall
'You (sg.) will fall'

11 /tutakufa/
tu-ta-kufa
1PL-FUT-die
'We will die'

13 /nimefika/
ni-me-fika
1SG-PERFECT-arrive
'I have arrived'

16 /tumefika/
tu-me-fika
1PL-PERFECT-arrive
'We have arrived'

19 /unakufa/
u-na-kufa
2SG-PRS-die
'You are dying'

Allomorphs

- The prefix /me-/, which we have glossed as ‘PERFECT’, has an allomorph /men-/ when preceding a vowel:
 1. In the Texts and Words view on the Analyze tab, scroll down to sentence 21. We want to gloss this sentence as:

/umenanguka/
u-men-anguka
2.SG-PERFECT-fall
‘You have fallen.’

2. Enter the morpheme breaks
 - FLEx should automatically gloss /u-/ as ‘2.sg’, and /anguka/ as ‘fall’

Allomorphs

- Entering an allomorph:
 3. Click on the small arrow in the **Lex. Gloss** field under /men-/, and select 'Allomorph of...'

21 **Word**
Morphemes
Lex. Entries
Lex. Gloss
Lex. Gram. Info.
Word Gloss
Word Cat.

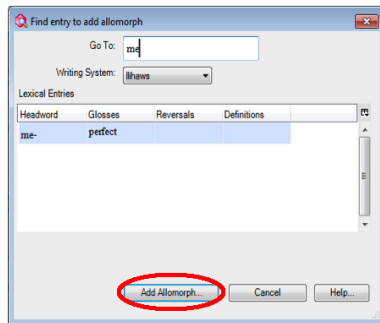
▼ umenanguka
▼ u- men- anjuka
▼ u- ▼ *** ▼ anjuka
2.sg
v:Any
▼ fall
▼ v

Unknown
Create New Entry...
Variant of
Allomorph of...

Free You (sg.) have fallen.

Allomorphs

- Entering an allomorph:
 4. In the pop-up window, search for /me-/. Select the prefix and click 'Add allomorph'



Allomorphs

- Entering an allomorph:
 5. It is possible to add the environments that the allomorph occurs in, in the Lexicon view...
 - ...but we won't go into that today.

The screenshot shows a web-based form for entering a lexicon entry. The title bar reads "Entry" and "Show Hidden Fields". The entry is for "me- v: TAM perfect". The form contains several fields:

Lexeme Form	me
Morph Type	prefix
Citation Form	
Components	
Note	Eng
Messages	

Below this is a section for "Sense 1 - perfect - v:TAM". Underneath is a section for "Variants".

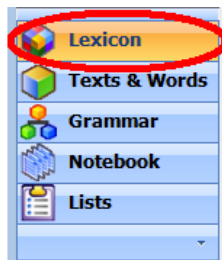
Allomorphs	
Affix Allomorph	men
Morph Type	prefix
Environments	[_[V]

The "Environments" field and its value "[_[V]" are circled in red in the original image.

4. The Lexicon

Admiring your lexicon

- Switch to Lexicon view by clicking on the 'Lexicon' tab



Admiring your lexicon

The screenshot shows the FieldWorks Language Explorer interface. The 'Lexicon' pane on the left contains a table of entries. The 'Entry' pane on the right shows the details for a selected entry, 'a- v 3.sg'. Two red boxes highlight the ability to browse and edit entries.

Lexicon Table:

Headword	Lexeme Form	Glosses	Grammatical Inf.
a-	a	3.sg	v:
anguka	anguka	fall	Verb
fika	fika	arrive	Verb
kufa	ku	die	Verb
li-	li	pst	v:
me-	me	PERFECT	v:
mu-	mu	2.pl	v:
ni-	ni	1.sg	v:
ta-	ta	fut	v:
tu-	tu	1.pl	v:
u-	u	2.sg	v:

Entry Details (a- v 3.sg):

- Lexeme Form: **a**
- Morph Type: **prefix**
- Citation Form: **li**
- Components: **Eng**
- Note: **Eng**
- Messages: **+**
- Sense 1**
 - Gloss: **Eng 3.sg**
 - Definition: **Eng**
 - Grammatical Info.: **v:Any**
 - Example: **v:Any**
 - Semantic Domains: **v:Any**
 - Lexical Relations: **v:Any**
- Inflection Features: **[sbj[num:sg pers:3]]**

You can browse your entries in this pane...

...and edit a selected entry in this pane

09/Feb/2015 09/Feb/2015 Queue: (-/-) No Parser Loaded 1/11

Creating a new lexical entry

- Insert > Entry
 - or click on the red hexagon with a green plus sign in the toolbar
- The 'New Entry' pop-up window is the same as the one we saw before in 'Texts and Words':

New Entry

Entry Properties
Lexeme Form:
gert

Morpheme Type: stem Complex Form Type: <Not Applicable>

Gloss: car Inflectional Affix Gloss Builder

Grammatical info.
Category: Noun

Similar Entries

Headword	Glosses	Reversals	Definitions
----------	---------	-----------	-------------

Go to similar entry

Create Cancel Help

Creating a new lexical entry

- Add the following items to your lexicon:

Lexeme form:	Gloss:	Morpheme type:	Category:
gari	car	root	noun
ti	tree	root	noun
tabu	book	root	noun
kombe	cup	root	noun
toto	child	root	noun
zuri	nice	root	adjective
dogo	little	root	adjective
kubwa	big	root	adjective
cafu	dirty	root	adjective

Sorting your data and finding a lexical entry

- Your data is by default sorted alphabetically by headword
 - You can sort by any of the columns in the 'Entries' browse pane by clicking on the header.
- To find a lexical entry, you can also use the search function:
 - Edit > Find lexical entry

Deleting a lexical entry

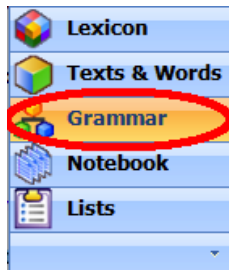
- Deleting a lexical entry is easy: Select the entry in the 'Entries' browse pane, and either
 - click on the red cross in the tool bar
 - or right-click the entry and select 'Delete selected entry'

Headword	Lexeme Form	Glosses	Grammatical Inf.
a ₁	a	3.sg	v:
a ₂	a	1/2.sg	v:subject agreement
aguka	aguka	fall	Verb
dogo	dogo	little	Adjective
fika	fika	arrive	Verb
gari	gari		
i ₁	i	7/8.sg	v:subject agreement
i ₂	i	5/6.pl	v:subject agreement
i-	i	appl	v:appl
ki-	ki	3/4.sg	n:class
		3/4.sg	adj:agreement
		3/4.sg	v:subject agreement
kombe	kombe	cup	Noun
kubwa	kubwa	big	Adjective
kufa	kufa	die	Verb
li-	li	pst	v:TAM
m ₁	m	1/2.sg	n:class

5. Agreement

Agreement

- Ilihaws is a Bantu language, and has a rich system of gender agreement.
- We are going to set up a template so that FLEx will automatically parse this agreement.
- Switch to Grammar view by clicking on the 'Grammar' tab



Setting up an affix template

1. First, we need to set up an affix template to tell FLE_x the shape of a fully inflected word.
2. For nouns, we know the template is:

CLASSIFIER-STEM

3. Select 'Category Edit' from the 'Grammar' pane; select 'Noun'; then click 'Insert Affix Template'

Setting up an affix template

The screenshot shows the Grammar tool interface. On the left, the 'Grammar' sidebar is visible, with 'Category Edit' and 'Noun' circled in red. The main window displays the 'Category (or Part of Speech)...' dialog for 'Noun'. The 'Description' field contains the text: 'A noun is a broad classification of parts of speech which include substantives and nominals.' The 'Affix Templates' section has the 'Insert Affix Template' button circled in red. The 'Subcategories' section shows 'Eng Proper Noun'.

Grammar

- Category Edit
- Compound Rules
- Phonemes
- Phonological Features
- Bulk Edit Phoneme Featu...
- Natural Classes
- Environments
- Phonological Rules
- Ad hoc Rules
- Inflection Features
- Exception "Features"
- Grammar Sketch
- Problems

Category (or Part of Speech)... Show Hidden Fields

Name Eng Noun
Abbreviation Eng n
Description Eng A noun is a broad classification of parts of speech which include substantives and nominals.

Affix Templates Insert Affix Template

Affix Slots

Inflection Class Info
Default Inflection Class

Features

Stem Names

Subcategories
Subcategory Eng Proper Noun

Lexicon

Texts & Words

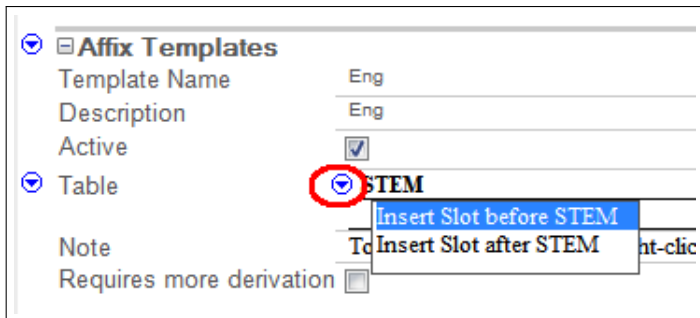
Grammar

Notebook

Lists

Setting up an affix template

- Click on the small blue arrow in a circle next to 'STEM', and select 'Insert slot before STEM'

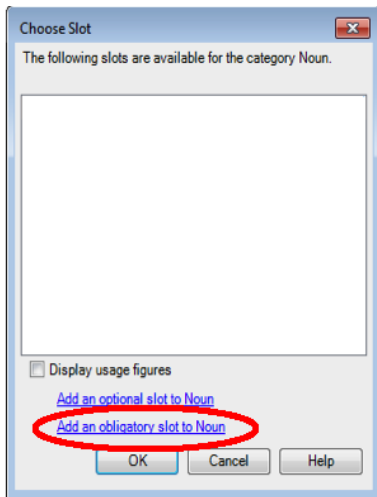


The screenshot shows a software interface for defining affix templates. It features a tree view on the left with a blue arrow icon next to 'Affix Templates' and another next to 'Table'. The main area displays the details for the 'STEM' template, including fields for 'Template Name', 'Description', 'Active' (checked), and 'Note'. A dropdown menu is open next to the 'STEM' label, showing two options: 'Insert Slot before STEM' (highlighted in blue) and 'Insert Slot after STEM'. A red circle highlights the blue arrow icon in the dropdown menu.

Template Name	Eng
Description	Eng
Active	<input checked="" type="checkbox"/>
Table	STEM
Note	To Insert Slot after STEM
Requires more derivation	<input type="checkbox"/>

Setting up an affix template

5. Click on 'Add an obligatory slot to Noun'



Setting up an affix template

6. Give the slot a name

- Here, we'll go with 'class-'

☏ Affix Templates		Insert Affix Template
Template Name	Eng	
Description	Eng	
Active	<input checked="" type="checkbox"/>	
☏ Table	☏ class-	☏ STEM
Note	To edit the template table: right-click on STEM, on a slot name, or on a morpheme.	
Requires more derivation	<input type="checkbox"/>	

Entering an inflection feature

- We have just told FLEx what the template of an inflected noun is in Ilihaws. Now we need to tell FLEx the functions of the affixes that can attach to a noun.
 1. On the left side of the window, select 'Inflection Features', and then Insert > Feature

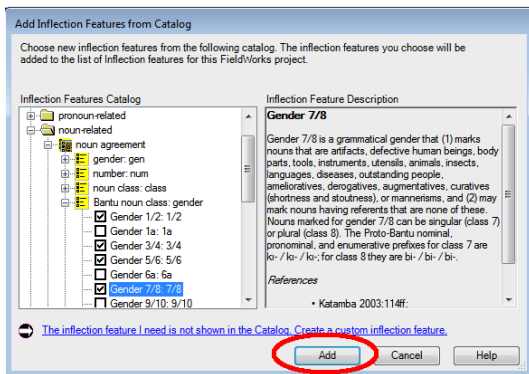
Entering an inflection feature

The screenshot shows the 'Ilihuw2 - FieldWorks Language Explorer' application. The 'Inflection Features' window is active, displaying a table of features. The 'Insert' menu is open, and the 'Feature...' option is selected. The 'Inflection Features' table is as follows:

Kind	Name	Value	Description	Notes
Complex Feature	subject agreement	sbj	This contains the set of features used in subject agreement.	Subject agreement
Feature	number	num	Number is a grammatical category of nouns, pronouns, and verb agreement that expresses count distinctions (such as "one" or "more than one"). The count distinctions typically, but not always, correspond to the actual count of the referents of the marked noun or pronoun.	plural number singular number
Feature	absolute tense	absten	Absolute tense is a tense that refers to a time in relation to the moment of utterance.	future tense past tense
Feature	person	pers	Person denits is deictic reference to the participant role of a referent, such as the speaker, the addressee, and referents which are neither speaker nor addressee.	first person second person third person

Entering an inflection feature

2. noun-related > noun agreement > Bantu noun class > Select Gender 1/2, Gender 3/4, Gender 5/6, and Gender 7/8 > Add



Entering an inflectional paradigm

- Now we have to tell FLE_x the forms of the different nominal classifiers.
 1. Navigate back to the noun template we created (category edit > noun)
 2. Right-click on the small blue arrow next to 'class-' in the affix template. Select 'Add inflectional affix(es) to class'

Entering an inflectional paradigm

FieldWorks Language Explorer

File Send/Receive Edit View Data Insert Format Tools Parser Window Help

English Default Paragraph

Grammar

- Category Edit
- Categories browser
- Compound Rules
- Phonemes
- Phonological Features
- Bulk Edit Phoneme Feat.
- Natural Classes
- Environments
- Phonological Rules
- Ad hoc Rules
- Inflection Features
- Exception "Features"
- Grammar Sketch
- Problems

Adjective

Adverb

Coordinating connective

Noun

- Proper Noun

Pro-form

- Pronoun

Verb

Category (or Part of Speech)... Show Hidden Fields

Name Eng Noun

Abbreviation Eng n

Description Eng A noun is a broad classification of parts of speech which include substantives and nominals.

Affix Templates [Insert Affix Template](#)

Template Name Eng

Description Eng

Active

Table

class	STEM
Add inflectional affix(es) to class	
Insert Slot before class	
Insert Slot after class	
Change Optionality of class Slot	
Remove class Slot	

Note on STEM, on a slot name, or on a morpheme.

Requires more derivation

Affix Slots

Slot Name Eng

Description Eng

Optional

Inflection Class Info

Default Inflection Class

Features

Stem Names

Subcategories

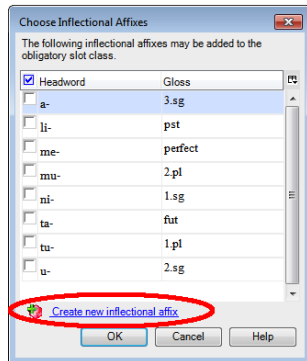
Subcategory Eng Proper Noun

06/Feb/2015 11/Feb/2015 Queue: (-/-) No Parser Loaded

Sorted by Name 4/8

Entering an inflectional paradigm

3. In the pop-up window, you can choose from inflectional affixes that are already in your lexicon. As we haven't added any nominal classifiers to our lexicon yet, we will have to create entries for them.
4. Click 'Create new inflectional affix'



Entering an inflectional paradigm

- The first classifier affix that we want to enter is /m-/, which attaches to singular class 1/2 nouns:
 5. Enter the form of the prefix, and then use the Inflectional Affix Gloss Builder to give it a gloss
 - noun-related > noun agreement > Bantu noun class > Gender 1/2
 - noun-related > noun agreement > number > singular number
 6. When you're happy with the new entry, click 'Create'.

Entering an inflectional paradigm

New Entry

Entry Properties
Lexeme Form:
m-


Morpheme Type: prefix- Complex Form Type: <Not Applicable>

Gloss
1/2.sg [Inflectional Affix Gloss Builder](#)

Grammatical Info.
Affix Type: Inflectional Attaches to Category: Noun Fills Slot: class

Similar Entries

Headword	Glosses	Reversals	Definitions
me-	perfect		
mu-	2.pl		

 [Go to similar entry](#)

Create Cancel Help

Entering an inflectional paradigm

- Enter the rest of the paradigm for nominal classifiers:

Form	Gloss
wa-	1/2.pl
ki-	3/4.sg
vi-	3/4.pl
m-	5/6.sg
mi-	5/6.pl
i-	7/8.sg
u-	7/8.pl

Entering an inflectional paradigm

Category (or Part of Speech)... Show Hidden Fields

Name	Eng Noun	
Abbreviation	Eng n	
Description	Eng A noun is a broad classification of parts of speech which include substantives and nominals.	
<hr/>		
<input checked="" type="checkbox"/> Affix Templates	Insert Affix Template	
Template Name	Eng	
Description	Eng	
Active	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Table	<input checked="" type="checkbox"/> class- m- 1/2.sg wa- 1/2.pl ki- 3/4.sg vi- 3/4.pl m- 5/6.sg mi- 5/6.pl i- 7/8.sg u- 7/8.pl	<input checked="" type="checkbox"/> STEM
Note	To edit the template table: right-click on STEM, on a slot name, or on a morpheme.	
Requires more derivation	<input type="checkbox"/>	
<hr/>		
<input checked="" type="checkbox"/> Affix Slots		
Slot Name	Eng class	
Description	Eng	
Optional	<input type="checkbox"/>	
<hr/>		
<input checked="" type="checkbox"/> Inflection Class Info		

Assigning an inflectional feature to a root

- Finally, we need to tell FLEx what gender the root nouns in our corpus are.
 1. Return to Lexicon view
 2. Find the nouns in your lexicon
 - HINT: remember you can sort your database by grammatical information
 3. Select the root /kombe/ 'cup' for editing (gender 3/4)
 4. In the Entry pane on the right, click 'Show hidden fields'
 5. Scroll down to **Grammatical Info Details** and click on the three small dots next to the 'Inflectional Features' field.

Assigning an inflectional feature to a root

Ilihuw2 - FieldWorks Language Explorer

File Send/Receive Edit View Data Insert Format Tools Parser Window Help

English

Lexicon

- Lexicon Edit
- Browse
- Dictionary
- Collect Words
- Classified Dictionary
- Bulk Edit Entries
- Reversal indexes
- Bulk Edit Reversal Entries

Entries

Headword	Lexeme Form	Glosses	Grammatical I.
Show All	Show All	Show All	Show All
mu-	mu	2.pl	v:
tu-	tu	1.pl	v:
a-	a	3.sg	v:
u-	u	2.sg	v:
li-	li	pst	v:
ni-	ni	1.sg	v:
kombe	kombe	cup	Noun
gari	gari	car	Noun
ti	ti	tree	Noun
i-	i	7/8.sg	n.class
u-	u	7/8.pl	n.class
m-	m	5/6.sg	n.class
vi-	vi	3/4.pl	n.class
mi-	mi	5/6.pl	n.class
wa-	wa	1/2.pl	n.class
m-	m	1/2.sg	n.class

Entry Show Hidden Fields

kombe n cup

Semantic Domains

Anthropology Categories

Status

Lexical Relations

Import Residue

Variants

Allomorphs

Grammatical Info. Details

Category Info. Noun

Inflection Class

Inflection Features ...

Exception "Features"

Publication Settings

Publish In Main Dictionary

Show As Headword In Main Dictionary

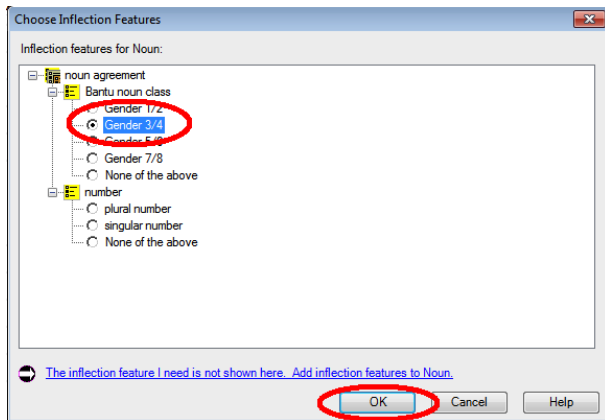
Subentries

Referenced Complex For

13/Feb/2015 13/Feb/2015 Queue: (-/-) No Parser Loaded Sorted by Grammatical Info. (Full) 12/25

Assigning an inflectional feature to a root

6. Select 'Gender 3/4', and click OK



Assigning an inflectional feature to a root

- Repeat for the other nouns in your corpus:

Root	Gloss	Gender
gari	car	7/8
tabu	book	3/4
ti	tree	5/6
toto	child	1/2

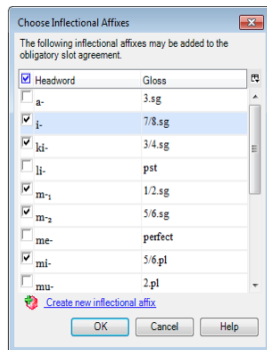
Adjectival morphology

- Now follow the same steps to create this affix template for adjectives:

agreement-		STEM
m-	1/2.sg	
wa-	1/2.pl	
ki-	3/4.sg	
vi-	3/4.pl	
m-	5/6.sg	
mi-	5/6.pl	
i-	7/8.sg	
u-	7/8.pl	

Adjectival morphology

- Note adjective agreement prefixes are the same form as the nominal classifiers, so you in the 'Choose Inflectional Affixes' window, you can simply select the forms that have already been entered.



Verbal morphology

- Now create this affix template for verbs:

subject agreement-		tense-		STEM
a-	1/2.sg	me-	perfect	
wa-	1/2.pl	li-	pst	
ki-	3/4.sg	ta-	fut	
vi-	3/4.pl	na-	prs	
u-	5/6.sg			
i-	5/6.pl			
i-	7/8.sg			
u-	7/8.pl			
ni-	1.sg			
u-	2.sg			
tu-	1.pl			
mu-	2.pl			

6. Parsing

Using the parser

- Now you're ready to see the semi-automated interlinearisation at work!
 1. Switch back to Texts and Words view, and select the Analyze tab.
 2. In the toolbar, select Parser > Parse all words
 3. Sit back and watch what happens...

Using the parser

The screenshot shows the FieldWorks Language Explorer interface. The 'Parser' menu is open, with the following options:

- Parse all words
- Reparse all words
- Reload Grammar / Lexicon
- Stop Parser
- Try a Word...
- Parse Words in Text
- Choose Parser
- Edit Parser Parameters...

The main window displays the analysis of the text 'The book is falling' and 'She has died'. The analysis is structured as follows:

1 Word

Morphemes

Lex. Entries

Lex. Gloss *** **

Lex. Gram. Info. *** **

Word Gloss the book is falling

Word Cat. n v

Free The book is falling|

2 Word amekufa

Morphemes a- me- kufa

Lex. Entries a-₁ me- kufa

Lex. Gloss 3.sg perfect die

Lex. Gram. Info. v:Any v:TAM v

Word Gloss s/he has died

Word Cat. v

Free S/he has died.

3 Word miti imeanguka

Morphemes mi- ti i- me- anguka

Lex. Entries mi- ti i-₂ me- anguka

Lex. Gloss 5/6.pl tree 5/6.pl perfect fall

Lex. Gram. Info. n:class n 5/6 v:subject agreement v:TAM v

Using the parser

...fun, huh?!

Acknowledgements

- Prof Ronnie Cann for allowing us to use the modified Swahili dataset
- The organisers of Innovative Learning Week
- Steve Boyd for I.T. support