

Online lexicons, LEXUS and ViCoS

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Content



Online lexicons: a general and brief introduction

LEXUS: a web based tool for the creation of multi media encyclopedic dictionaries and lexica

ViCoS: a web based tool for constructing and visualizing conceptual spaces. Enrichment of lexical information with conceptual knowledge



Lexicon:

Works, made for humans, about words

Main content is divided into lexical entries, each of which is about a word

Examples:

Standard dictionaries

Bi-lingual dictionaries (=maybe 2 lexicons?)

Ethnographic dictionaries



The design of online lexicons

Burke, Sean Michael

1998

Online:

Move from product (book) to a service: one single database (vs. many copies) supply services (access, search, constomization)







Online dictionary **MACRO STRUCTURE**:

Printed form: designed arrangement entries

via sorted word list (alphabet)

Online form: **procedural structure**

how the user can access the lexicon

word list (any sorting)

search engine options (=, b, e, c)

filtering

fuzzy matching



Online dictionary **MACRO STRUCTURE**:

Requires a well thought of lexicon structure!

dog \'do.g\ n. often attrib [ME, fr. OE docga] 1a: a highly variable carnivorous domesticated mammal (Canis familiaris) prob. Descended from the commonn wolf; broadly: any animal of the dog family (Canidae) to which this mammel belongs b: a male dog 2a: a worthless fellow: b: CHAP, FELLOW <a gay ~> 3a: any of various usu. simple mechanical devices for holding, gripping, or fastening consisting of a spike, rod or bar 3b: ANDRION 4a: SUN DOG 4b: WATER DOG 4c: FOGBOW dog.like \'do.gli-k\ adj



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Entry: dog

Pronounced as: \'do.g\

This entry defines the word when used as: n.

The word occurs in [ME]

The word is derived from [OE docga]

Senses

1a: a highly variable carnivorous domesticated mammal (*Canis familiaris*) prob. Descended from the commonn wolf; broadly: any animal of the dog family (*Canidae*) to which this mammel belongs

b: a male dog

2a: a worthless fellow:

b: CHAP, FELLOW <a gay ~>

3a: any of various usu. simple mechanical devices for holding, gripping, or fastening consisting of a spike, rod or bar

3b: ANDRION 4a: SUN DOG 4b: WATER DOG 4c: FOGBOW dog.like \'do.gli-k\ adj

SPACE!



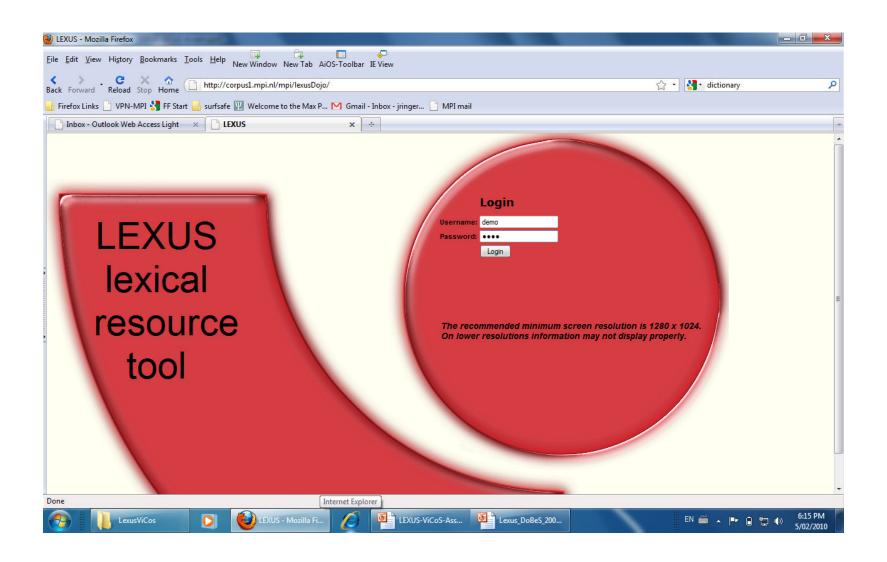
Online dictionary **MACRO STRUCTURE**: Requires a well thought of lexicon structure!

Lexicographer needs to decide on the structure

- 1. Printed version CAN be a starter
- Additional:
 example sentences
 encyclopedic information
 multi media
 relational linking
- 3. Constomization: define different views for different users



LEXUS





LEXUS & ViCoS: From lexical to conceptual spaces

Some history:

2006: Do we (&you) need a lexicon tool?

Yes:

- (1) standardization for interoperability between lexica data exchange archive exploitation.
- (2) community needs to participate in the construction of lexica



LEXUS

Based on two ISO TC 37 standards for linguistic resources

LMF: Linguistic Markup Framework (lexicon structure)

DCR: set of standardized data categories to be used as a reference for the definition of linguistic annotation schemes or any other formats used in the area of language resources (concept naming)

LMF/DCR:

- A modular structure for content interoperability between lexical resources.
- Archiving exploitation framework, XML based

Web based (!):

- Users work in LEXUS workspaces
- Workspaces can be shared by users with different rights (read-only, editor)
- Workspaces can contain multiple lexica



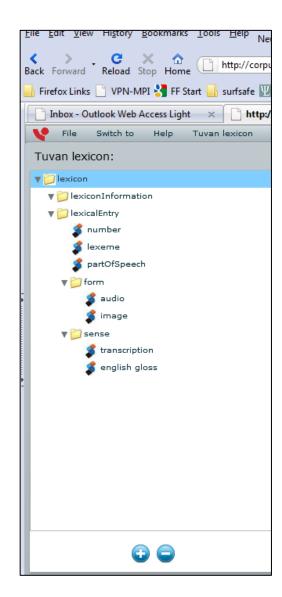
Show lexus lexicon first!

Lexicon

STRUCTURE and CONTENT

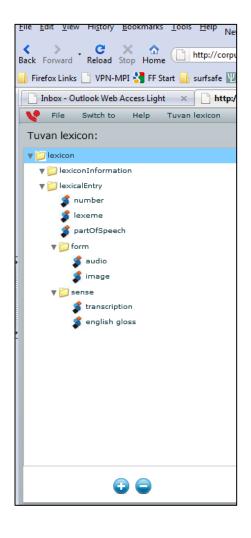
A lexicon needs a lexicon structure:

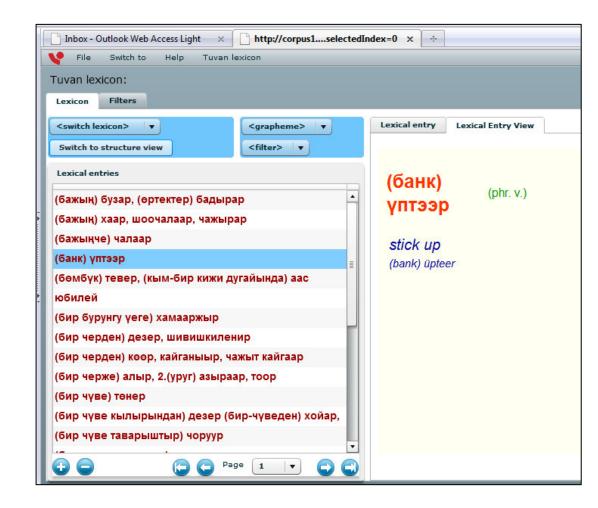
- elements of the lexical entries
- 2. the hierarchy between them
- the value domains





Content of the lexicon is build on the structure:



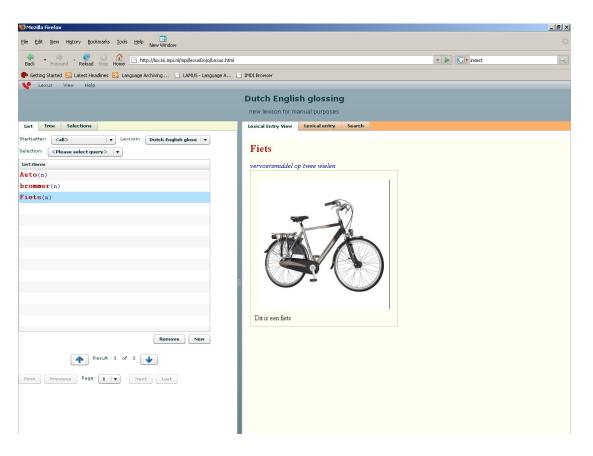




• Creation of lexica from scratch, import lexica from other formats (Toolbox, XML, Chat)



- Creation of lexica from scratch, import lexica from other formats (Toolbox, XML, Chat)
- User can costumiza views of word list and lexical entries
- Linking multi media fragments to lexical entries



Audio

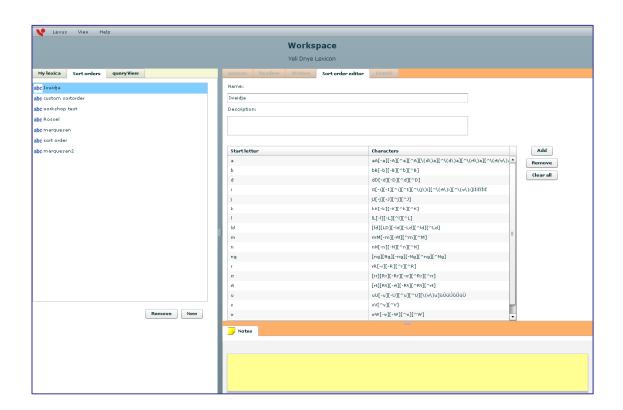
Video

Image

Link to archived files



- Creation of lexica from scratch, import lexica from other formats (Toolbox, XML, Chat)
- User definable views of word list and lexical entries
- Linking multi media fragments to lexical entries
- Setting sort orders at workspace level



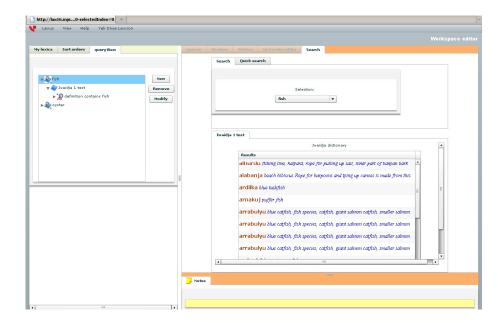


- Creation of lexica from scratch, import lexica from other formats (Toolbox, XML, Chat)
- User definable views of word list and lexical entries
- Linking multi media fragments to lexical entries
- Setting sort orders for each data category
- Using different character sets (UTF-8 is required)





- Creation of lexica from scratch, import lexica from other formats (Toolbox, XML, Chat)
- User definable views of word list and lexical entries
- Linking multi media fragments to lexical entries
- Setting sort orders for each data category
- Using different character sets (UTF-8 is required)
- Search all lexica in the workspace or
- Setting filters on the word list of one lexicon



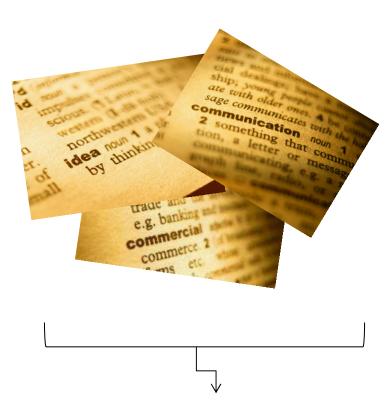


- Creation of lexica from scratch, import lexica from other formats (Toolbox, XML)
- User definable views of word list and lexical entries
- Linking multi media fragments to lexical entries
- Setting sort orders for each data category
- Using different character sets (UTF-8 is required)
- Search all lexica in the workspace or
- Setting filters on the word list of one lexicon
- Access rights (read/write) for registered users



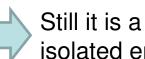
ViCoS: the conceptual space

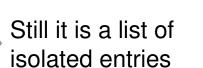
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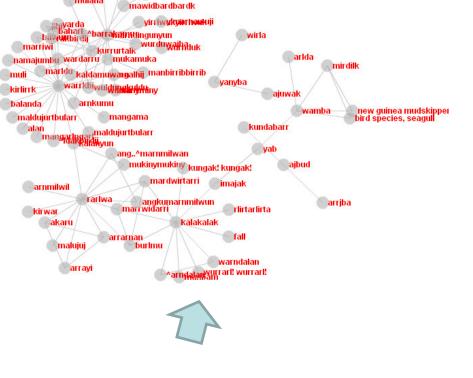
LEXUS:

- Accessible online
- Rich in multimedia
- Adjustable display







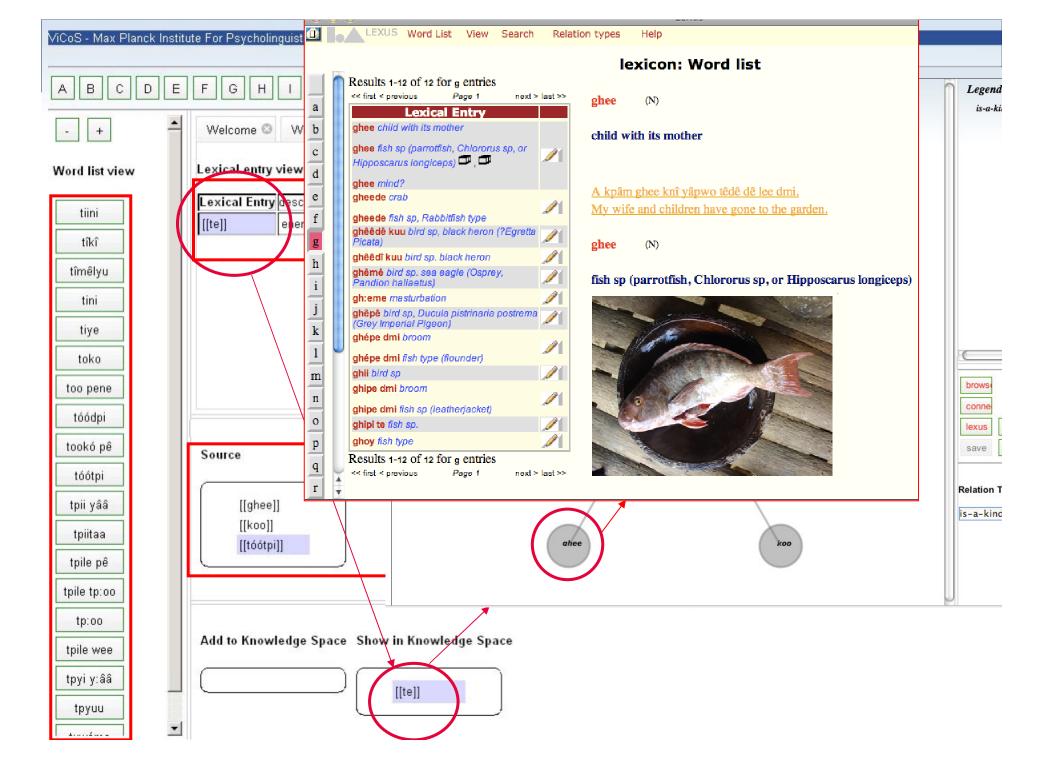


VICOS

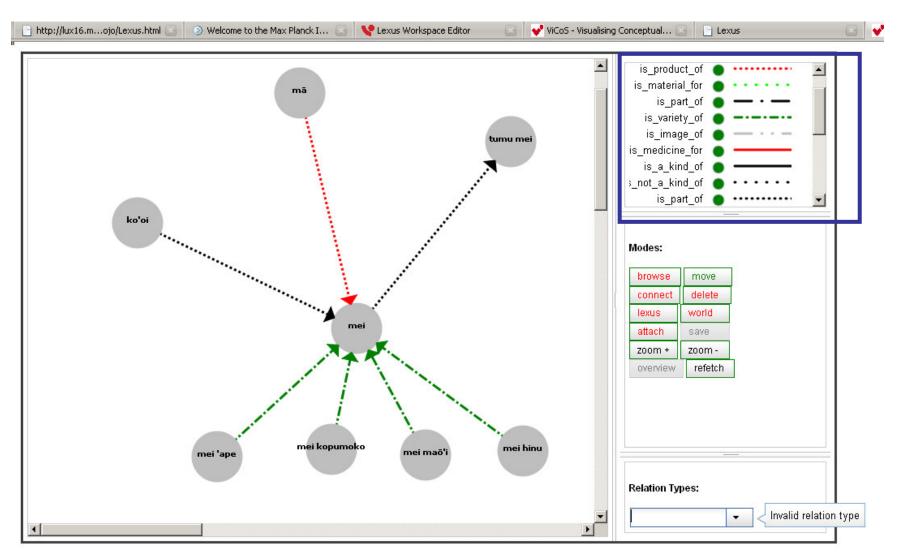


ViCoS: the conceptual space

- Existing lexical resource is starting point
 - Words offer key access
- ViCoS is technology to link words and the associations they evoke – to other words
- Ease-of-use to empower community members to
 - actively describe their language & culture
 - and to learn from such resources
 - → resources targeted for human consumption
- Resulting Conceptual Spaces = sort of informal ontology of fuzzily-defined concepts and relationships
 - but where concept nodes are anchored in corresponding formal resources (lexica)



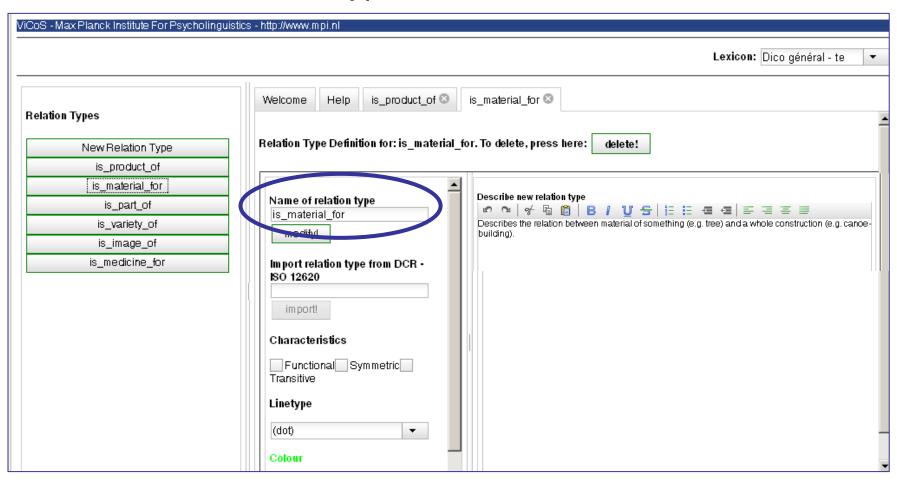






ViCoS functionalities – conceptual spaces

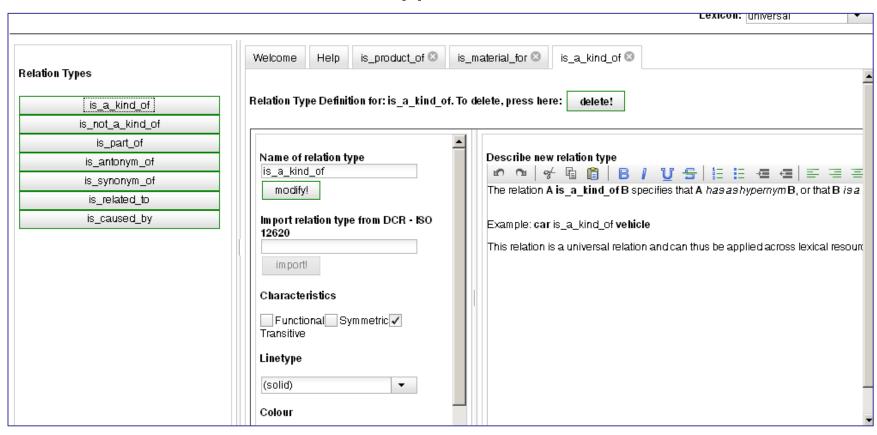
User definable relation types



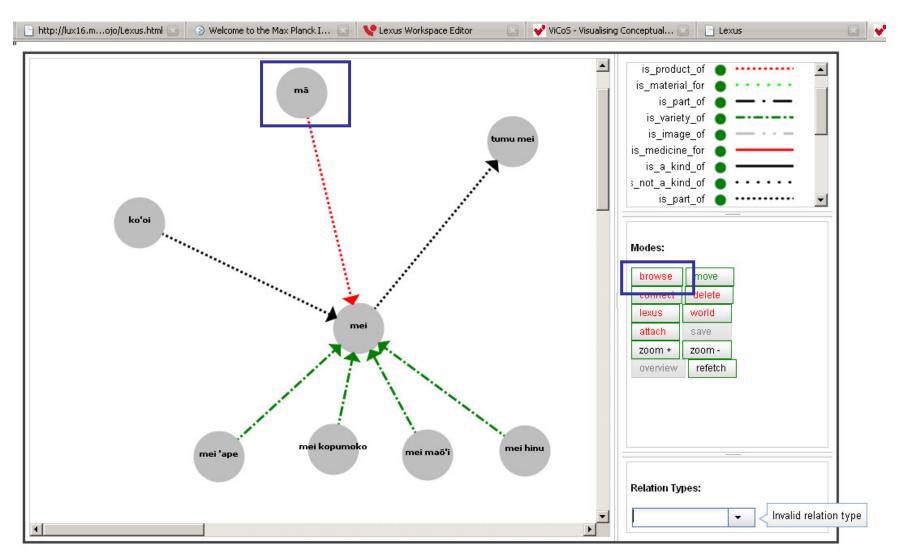


ViCoS functionalities – conceptual spaces

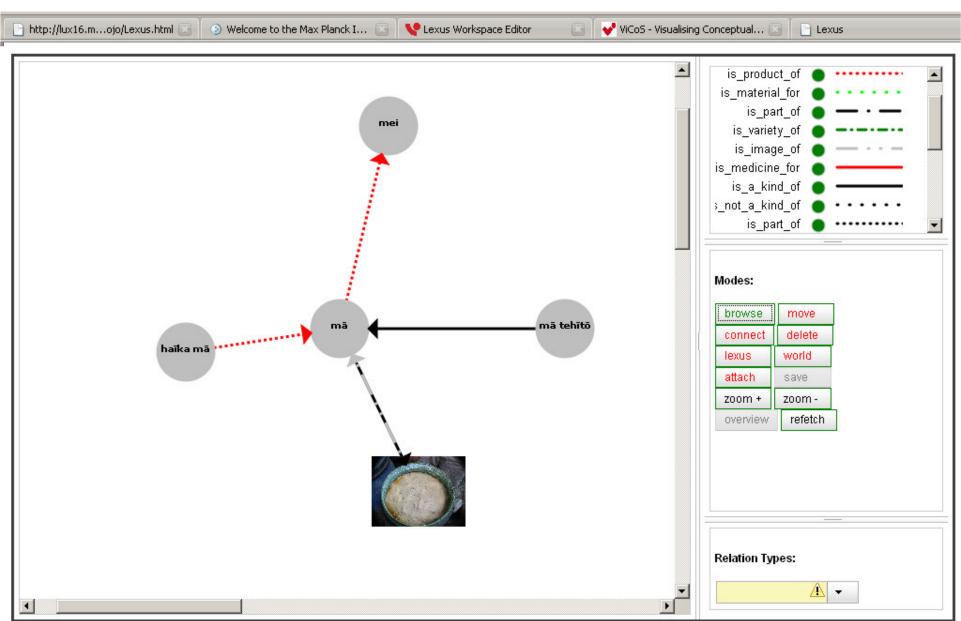
Default 'Universal' relation types

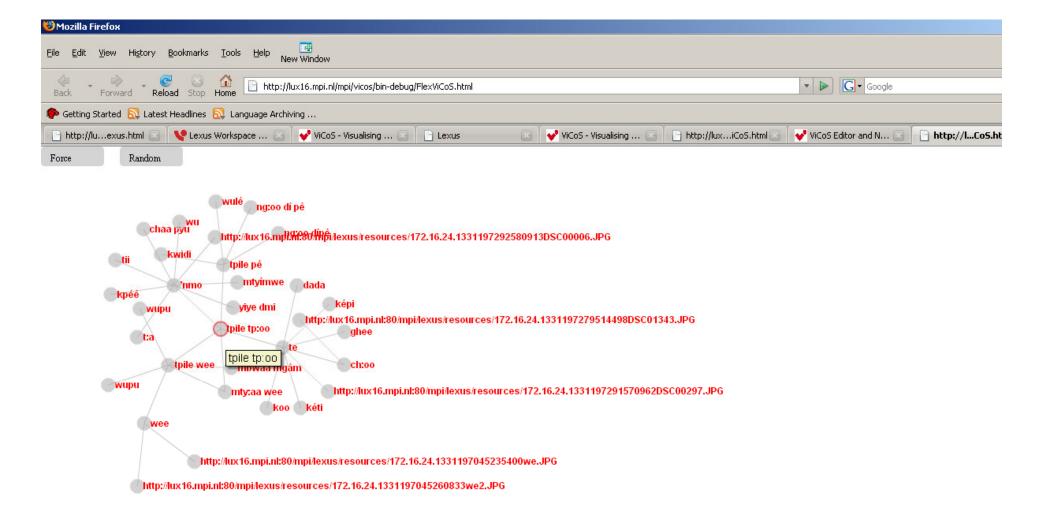












ViCoS demo



From Toolbox to LEXUS

The Iwaidja language of the Cobourg Peninsula, Northern Territory, Australia (approximately 200 speakers)



Hans-Juergen Sasse - Koln Nick Evans - Melbourne Linda Barwick - Sydney Bruce Birch - Melbourne

Dr Murray Garde - Jabiru Joy Williams - Minjilang Janet Fletcher - Melbourne



C	Marrgu	Iwaidja	llgar	Tiwi	Kunwinjku
'eye'	dhalda	yarta	yarta	pijara	kun-mim
'eyebrow'	bunurri	umburnuri	umburnurri	wumuringa	kun-milhngalk
'elbow'	waharti	waharti	waharti	jimpunga	kun-ney
'(his) foot'	hi-rlud	ruli	yi-rlduli	kintanga	kun-denge
'moon'	rrana	gurrana	hali	japarra	dird
"long ago"	larrud	wularrud	wularrud	parlingarri	korroko
'water'	wubaj	wubaj	wubaj	kukkuni	kukku



Iwaidja documentation project

Minjiang Endangered Languages Publication (MELP) project

Lexus multi media lexicon

ViCoS conceptual spaces

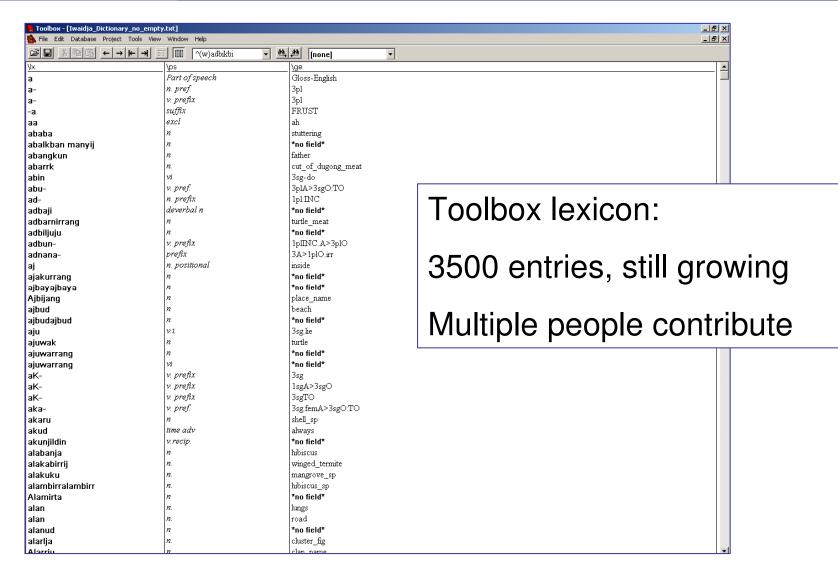
More involvement of the speech community

The creation of an accessible and attractive online dictionary, with multimedia capability and cross-referenced conceptual spaces will contribute to conservation, revitalization and empowerment of the language and community





Iwaidja documentation project



Structure comes from *.typ file

Content comes form *.lex (or *.dic) file

*.typ file consists of marker definitions

```
\+mkr ps
\nam part of speech
\lng Default
\mkrOverThis lx
\-mkr
\+mkr sn
\nam sense number
\lng Default
\mkrOverThis ps
\-mkr
```



Structure comes from *.typ file

Content comes form *.lex (or *.dic) file

*.lex file consists of lexical entries

```
\lx ababa
\lc ababa
\ps n
\de stuttering
\ge stuttering
\dt 26/Dec/2006
```

```
\lx abarrk
\lc abarrk
\ps n.
\de cut of dugong meat taken from side of belly
\ee Unlike most named dugong cuts, there is no
equivalent human part for this one.
\rf IwNo9Ma05
\ge cut_of_dugong_meat
\dt 09/Dec/2005
\sd dugong
\sd butchering
```



Problem!

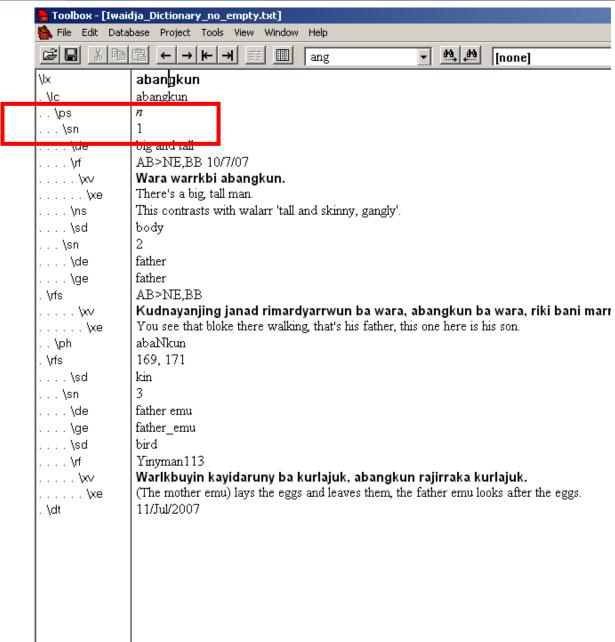
Toolbox is too liberal in allowing the variations in the structure of the lexical entries

No need to be consistent with the *.typ file

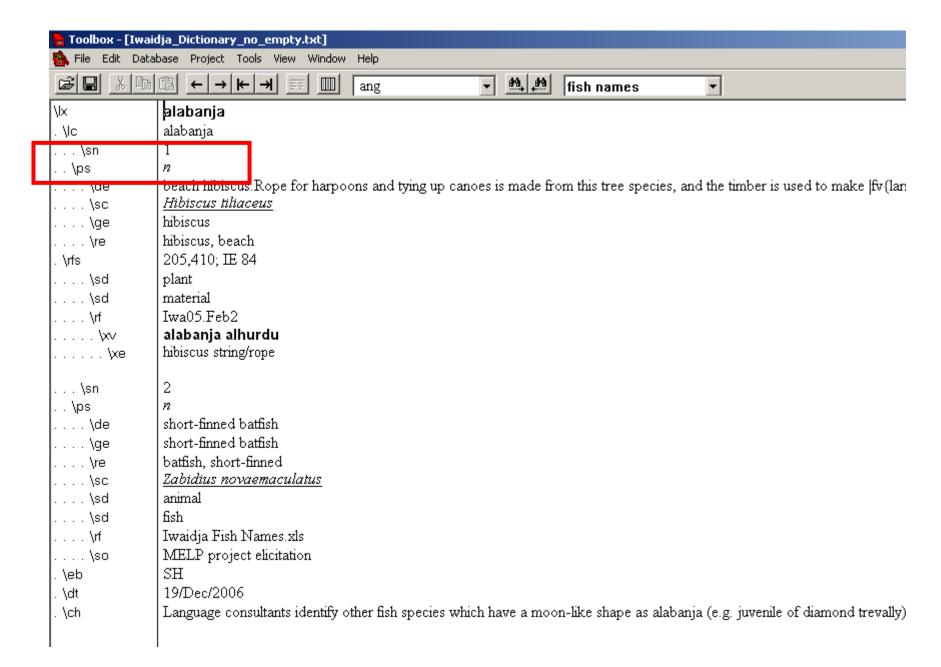
For the human eye: no problem

but: computers cannot make interpretations











Solution: chunking!

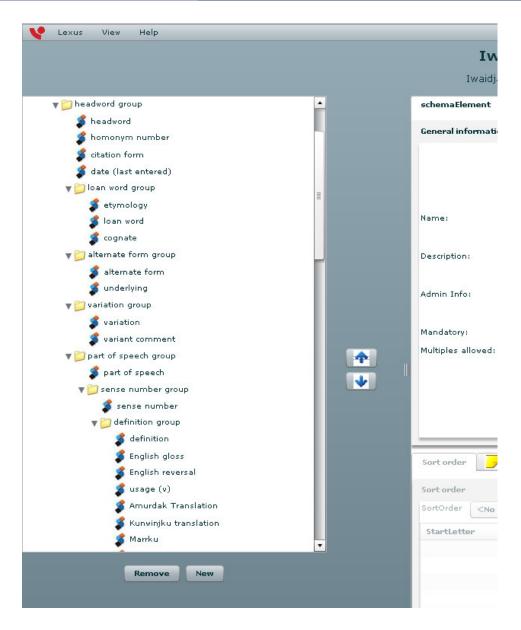
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1 : \lx\lc\a \ps\sn\de\sn\de\xv\xe\qe\qe\qe\qe\qe\a \sn\de\rf\xv\xe\dt\pa\nq\rfs
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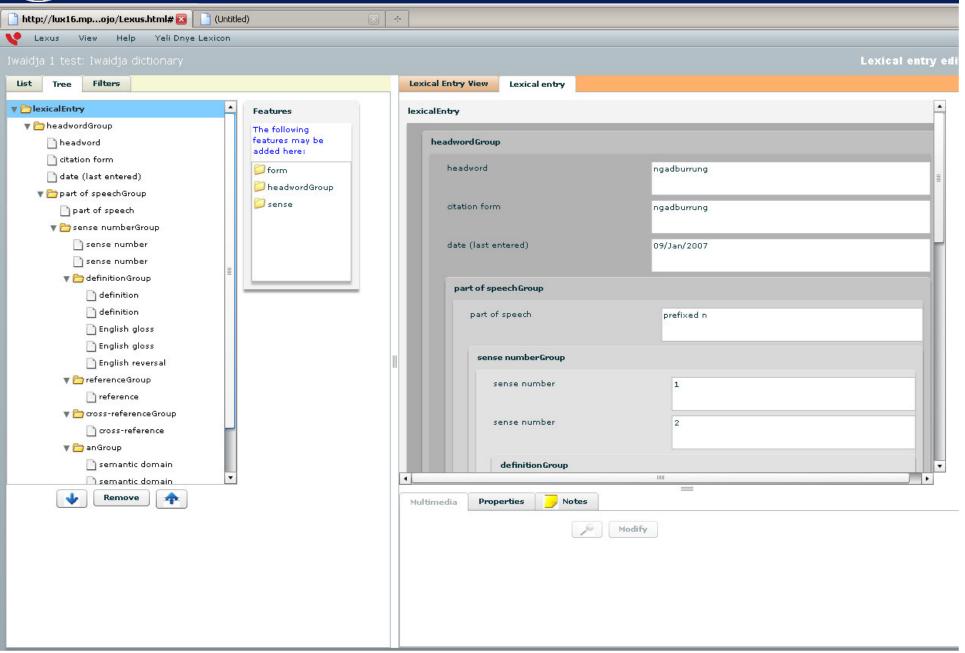
Iwaidja structure in LEXUS



Show structure



Iwaidja entries in LEXUS





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LEXUS user account

LEXUS and ViCoS support

Special functionality requests