# *Seminar*

# *Lexicography: Projects and Principles*

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# *Lexicon types – informal overview*

- Word lists (including comparative word lists)
- Thesauri
- Wordnets
- Framenets
- Concordances
- Dictionaries:
  - bilingual and multilingual dictionaries
  - terminologies
  - onomasiologies
  - phrasal idiom lexica
  - Pronunciation dictionaries
- Linguistic inventories:
  - Phonemes
  - Prosody: tones, pitch accents, lexicons of intonation tunes.

… and everybody knows what "the dictionary" is ...

# *Main lexicography Projects since 1989*

Verbmobil – lexicography coordinator (German National)

- multilingual lexicographic model for speech-to-speech translation
- lexicographic infrastructure for German and international research institutes and companies

Ulex – cooperation on language documentation (VWF)

- Ubiquitous comprehensive online dictionary
- Uyghur case study

Uyo Ibibio Dictionary – curriculum development (DAAD)

- bilingual dictionary of a Niger-Congo language

ILEX (Integrated Inheritance Lexicon) – long-term research

- DATR, Inheritance Lexicon Language
  - morphology, prosody, idioms

# *Lexicographic Reports and Publications 1992 - 2007*


Gibbon, Dafydd (1992). ILEX: A Linguistic Approach to Computational Lexica. *Computatio Linguae, Zeitschrift für Dialektologie und Linguistik*, 73:32-53.

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Gibbon, Dafydd, Thorsten Trippel, Felix Sasaki and Benjamin Hell (2003). Acquiring Lexical Information from Multilevel Temporal Annotations. *Proceedings of Eurospeech 2003*, Geneva.

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# *Main lexicography Projects since 1989*

## Verbmobil

- multilingual lexicographic model for speech-to-speech translation
- Lexicographic infrastructure for German research institutes and companies

## ULex:

- Ubiquitous comprehensive online dictionary
- Uyghur case study

## Uyo Ibibio Dictionary:

- bilingual dictionary of a Niger-Congo language

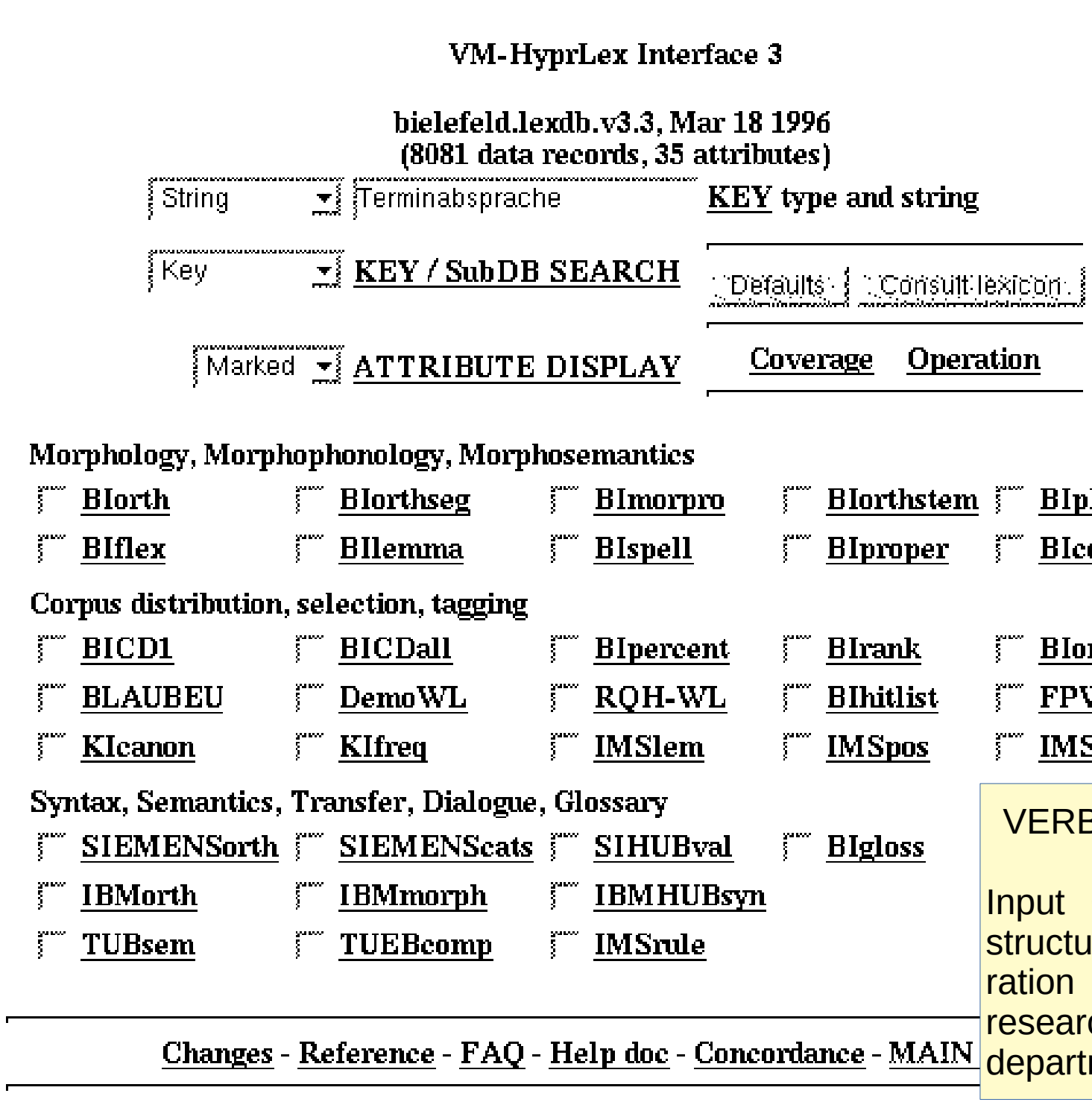
## ILEX (Integrated Inheritance Lexicon):

- DATR, Inheritance Lexicon Language
  - morphology, prosody, idioms

***VERBMOBIL: Speech-to-Speech Translation***

***Objectives:***
***End-to-end speech translation coordination***
***Languages: German, English, Japanese***

***Subproject: Lexicon***
***Lexicographic coordination and integration between international research institutions and companies***




VERBMOBIL ONLINE LEXICON

Input GUI for access to micro-structure for collaborative integration of lexica from different research institutes and research departments of companies.

| *Category* | *Value* |
|---|---|
| BIorth: | Terminabsprache |
| BIorthseg: | Termin#ab#sprach#+e |
| BImorpro: | tE6.m'i:n#?''ap#Spr''a:.x#+@ |
| BIorthstem: | Termin#ab#sprach |
| BIphonstem: | tE6.m'i:n#?''ap#Spr''a:x |
| BIflex: | N,akk,sg,fem;N,dat,sg,fem;N,gen,sg,fem;N,nom,sg,fem |
| BIlemma: | Terminabsprache |
| BIspell: | -- |
| BIproper: | -- |
| BIcompsem: | ObjEreig |
| BICD1: | cd1=2_cd12=7_cd3=2_cd4=3_cd5=1 |
| BICDall: | 15 |
| BIpercent: | 0.00568005% |
| BIrank: | 977 |
| BIortherror: | Termin-Absprache,- |
| BLAUBEU: | -- |
| DemoWL: | demo-wl |
| RQH-WL: | -- |
| BIhitlist: | hit#977=15 |
| FPWL3: | fpwl |
| KIcanon: | tE6m'i:n#Q"ap#Spr"a:x@ |
| KIfreq: | 14 |
| IMSlem: | Terminabsprache |
| IMSpos: | NN |
| IMSfreq: | 8 |
| SIEMENSorth: | Terminabsprache |
| SIEMENScats: | sem_lex(nr,terminabsprache) & nr:rel=terminabsprache&sortal_Terminabsprache(nr) & count_noun_norm(nr) & subst_klasse2_1(nr)terminabsprache & sortal_einigen_auf & count_noun_norm&subst_klasse2_1 |
| SIHUBval: | -- |
| BIgloss: | appointment_scheduling |
| IBMorth: | -- |
| IBMmorph: | -- |
| IBMHUBsyn: | [gender:fem,number:sg,case:ncase_v, syn_ibm: [phon:'Terminabsprache',cuf_macro:common_noun_syn], person:3] |
| TUBsem: | terminabsprache & communicating & - |
| TUEBcomp: | terminabsprache: compound(terminwoche,first(termin), second(absprache), semrel(arg3_rel)). |
| IMSrule: | terminabsprache:[H:terminabsprache(I)] <-> [H:scheduling(I), H1:indef(Y,H2), H2:appointment(Y), H3:of(I,Y)]. |

VERBMOBIL ONLINE LEXICON

Microstructure for collaborative integration of lexica from different research institutes and research departments of companies.

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ULex:

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ILEX (Integrated Inheritance Lexicon):

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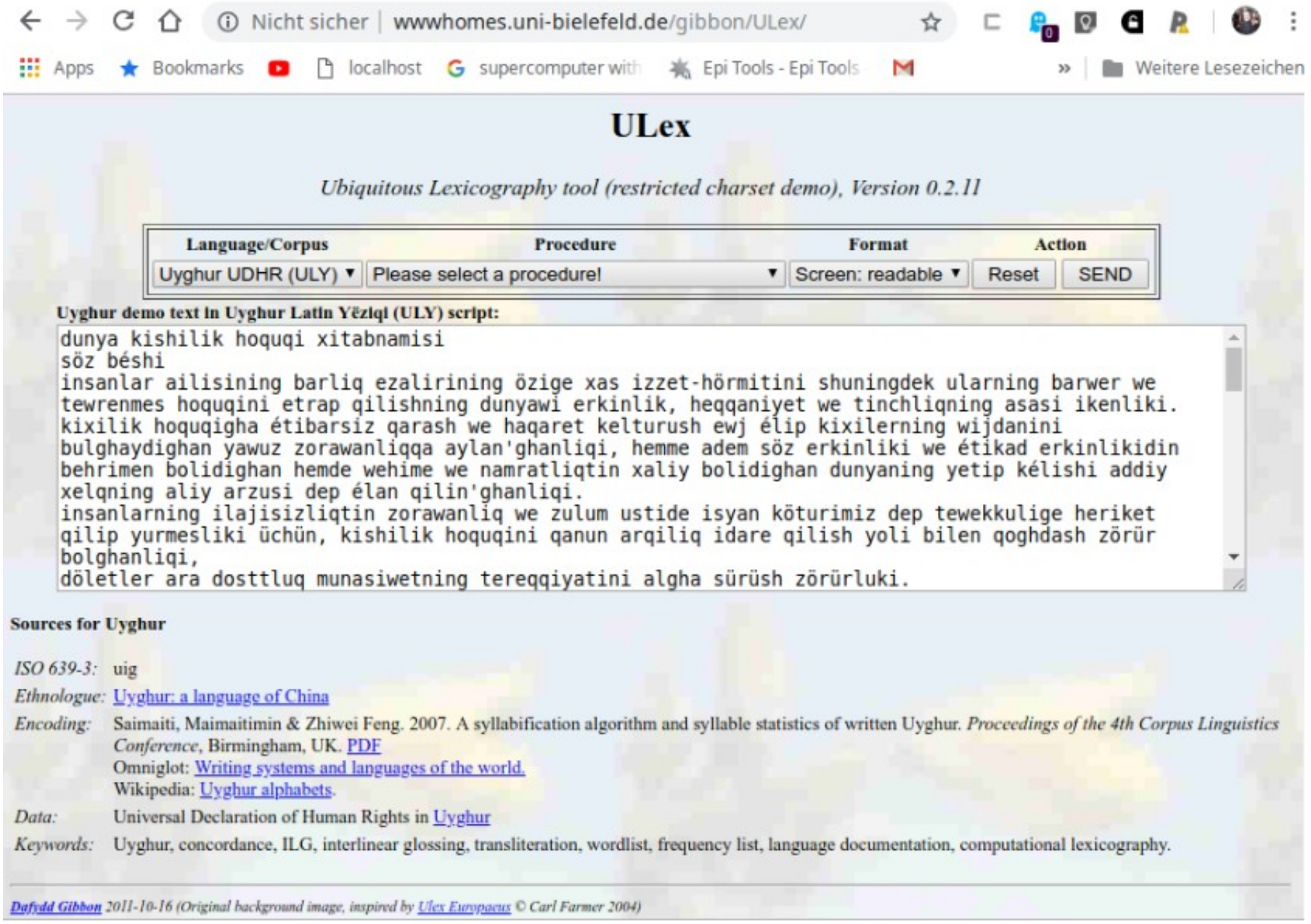
## *Ulex: Ubiquitous Lexicon*

## *Objectives:*

***Language documentation***
***Ubiquitous – Portable***
***Reusable***
***Sustainable***
***Interoperable***

## *Case Study: Uyghur UN declaration*

# *Ulex: Ubiquitous Lexicon - Uyghur*



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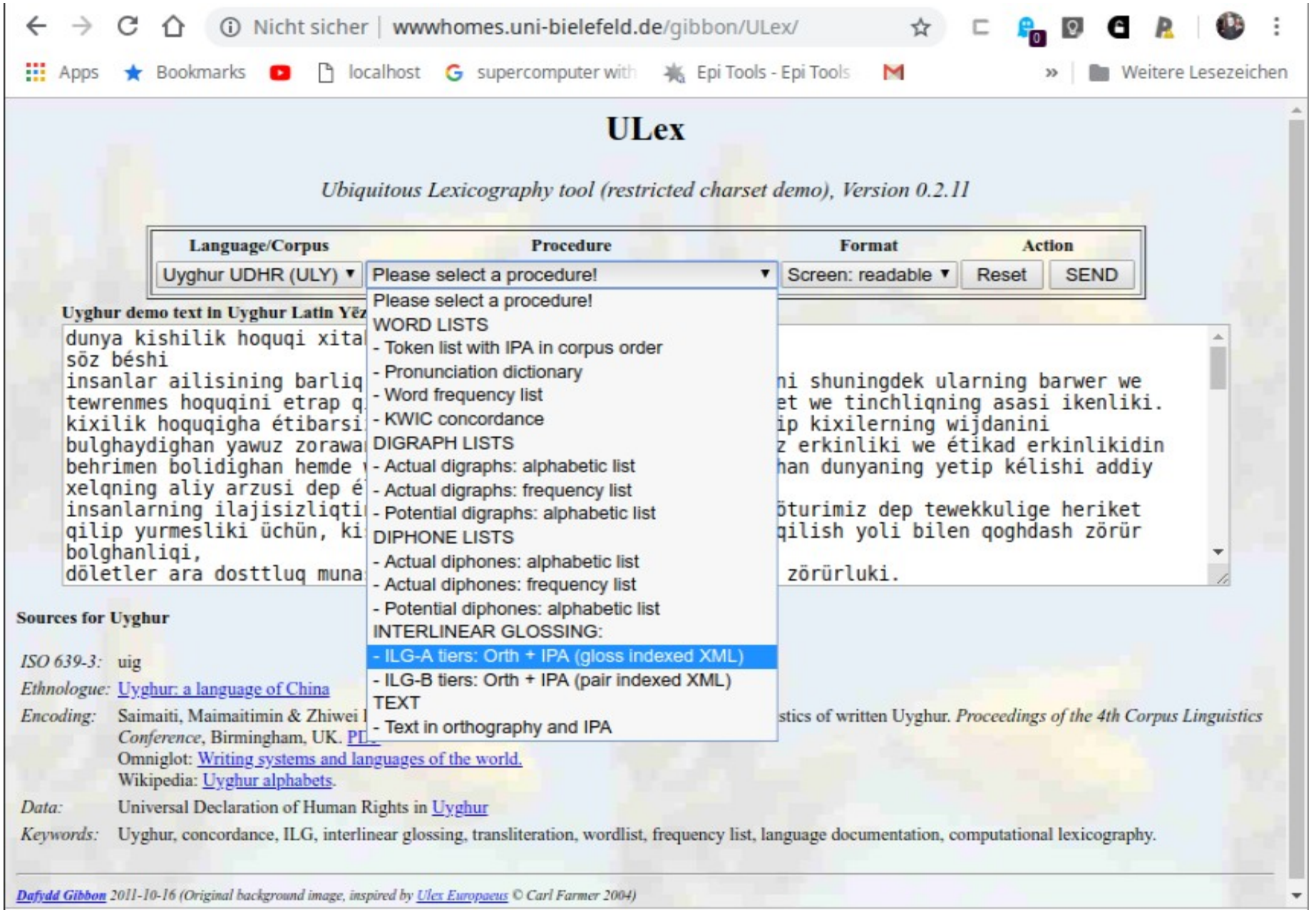

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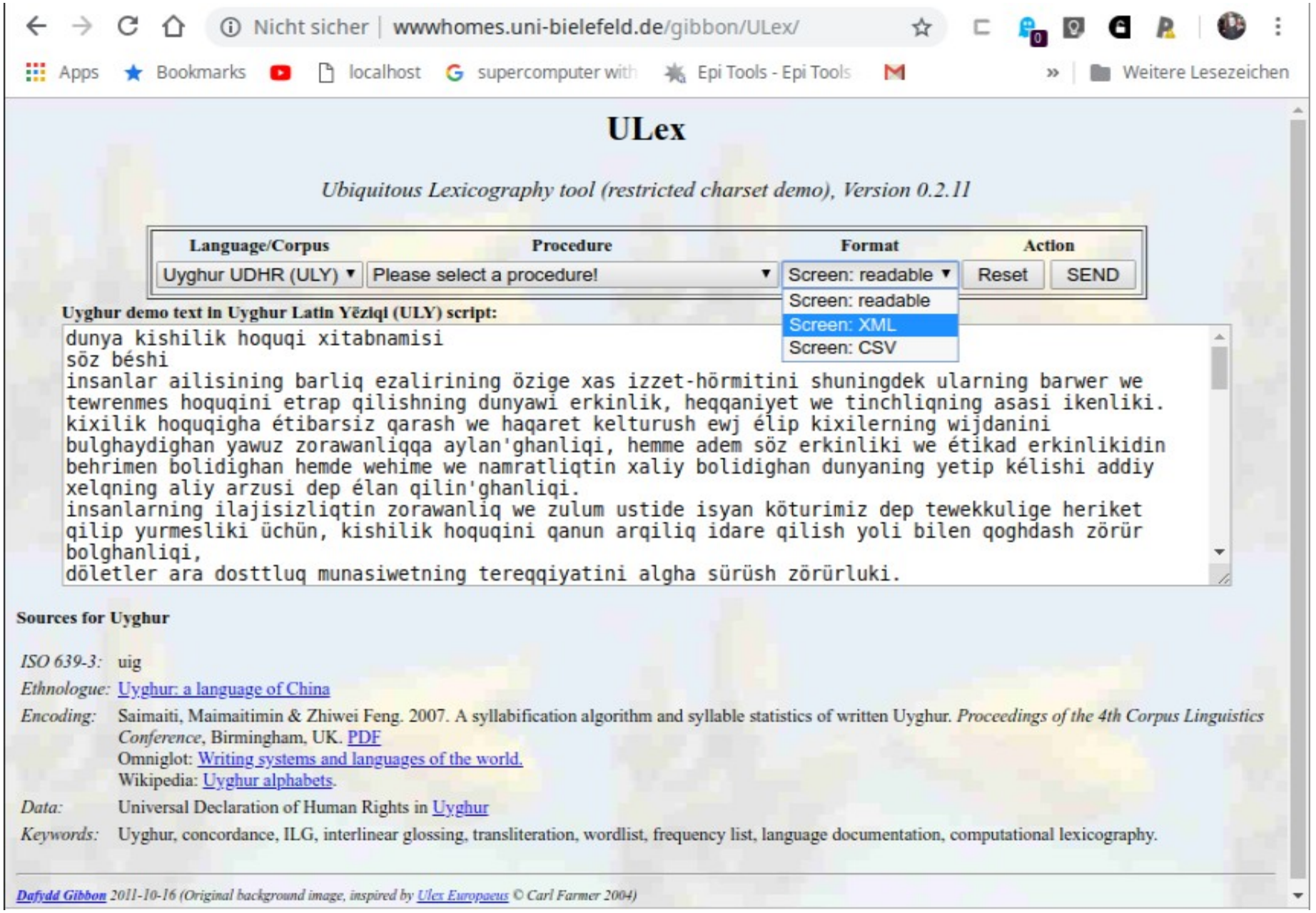

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Uyo Ibibio Dictionary:

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ILEX (Integrated Lexicon, Inheritance Lexicon):

- DATR, Inheritance Lexicon Language
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## *Uyo Ibibio Lexicon*

## *Objectives:*
## *Semasiological dictionary of a local language*
## *Data mining of a legacy print dictionary*
## *Automatic generalisation of online & print dictionaries*

## *Case:*
## *Ibibio, ISO 639-3*

***Niger-Congo > Atlantic-Congo > Volta-Congo > Benue-Congo > Cross River > Delta Cross > Lower Cross***

# *Ibibio – official language of Akwa Ibom State, Nigeria*

Uyo, capital of Akwa Ibom State

# *Ibibio Dictionary*

*ABUILD Language Documentation Curriculum Materials #1*
*COURSE: LEXICOGRAPHY*

**Uyo Ibibio Dictionary**

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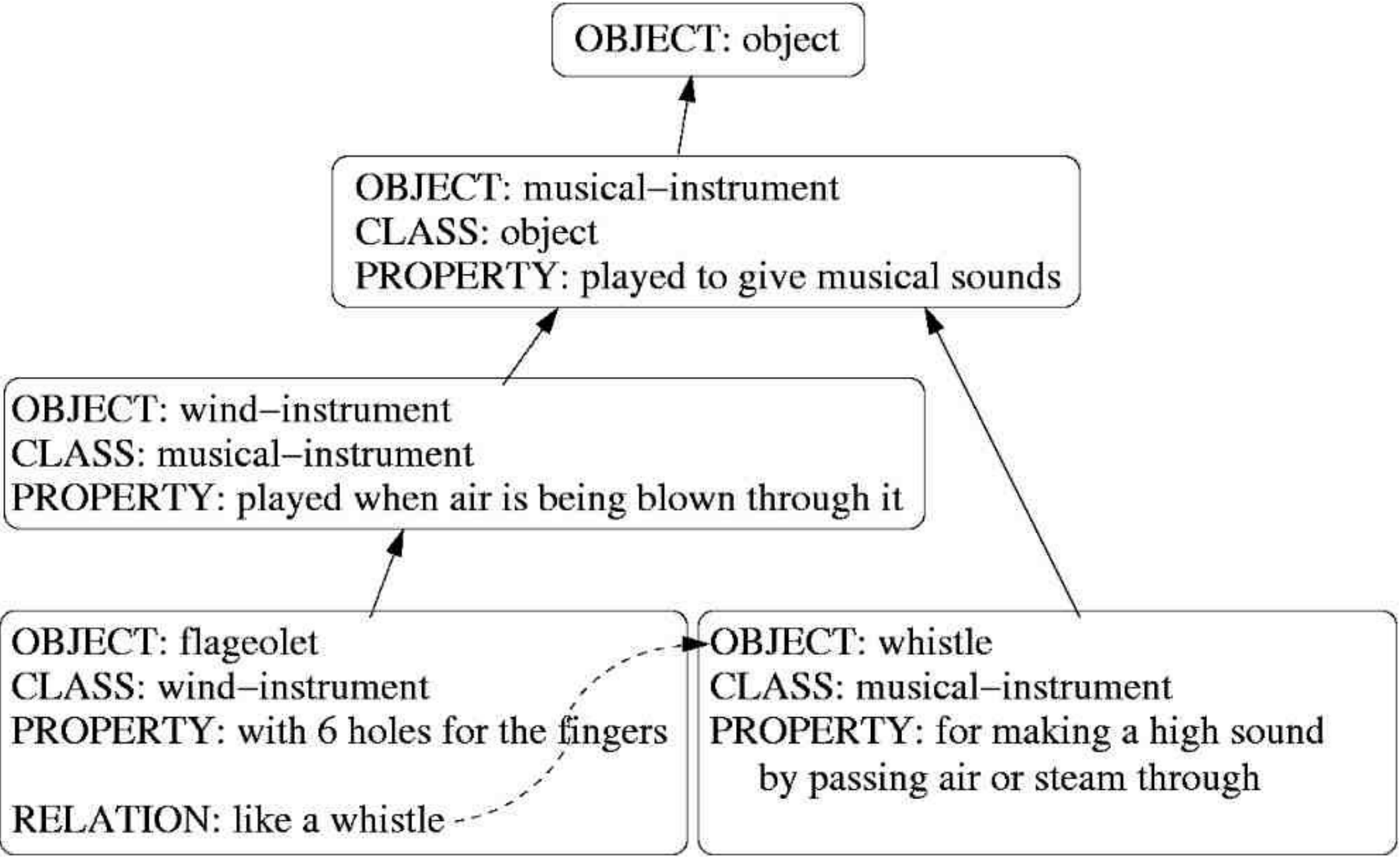
***ILEX: Integrated Lexicon***

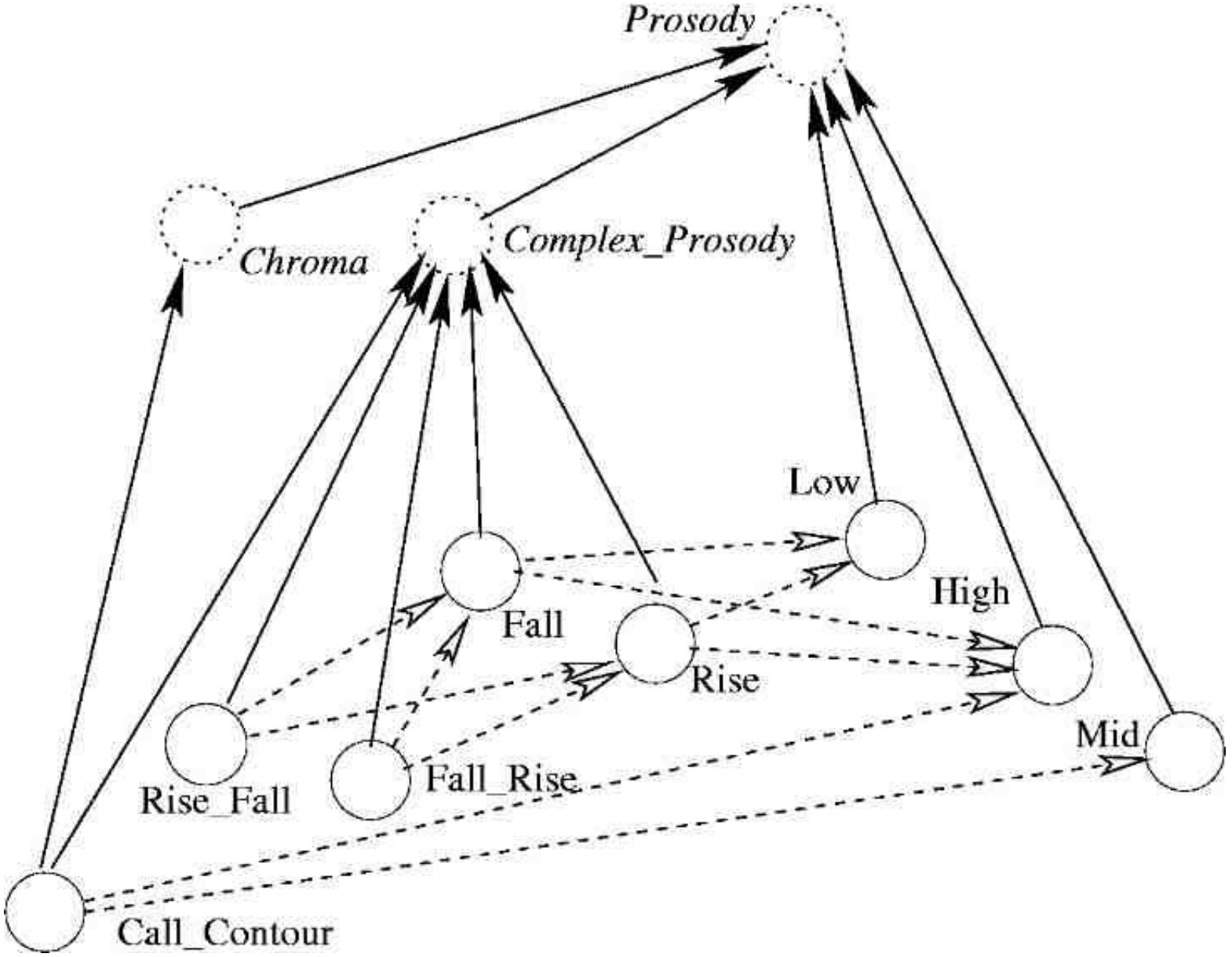
***Objectives:***
***Logical modelling of lexical generalisations***
***Computational integration:***
***macrostructure***
***microstructure***
***mesostructure***

***Cases: idioms, morphology, phonology, prosody***

# *Inheritance Lexicon*



# *ILEX Microstructure for Tonal Inventory: English Call Contour*



# *Lexicon Theory – Lexicon Models – Lexicon Constraints*

# *Lexicon Theory – Lexicon Models – Lexicon Constraints*

Lexicon processing:

- Discovery, acquisition:
  - Induction
  - Abstraction
  - Generalisation
- Access:
  - Technical, ethical, moral, political constraints
  - Database views
  - Semasiological vs. onomasiological views
  - Specialised views:
    - Pronunciation
    - Terminology

Lexicon dissemination

- Standardisation
  - DBMS, CMS
  - ISO
- Commercialisation
- Sustainable format
- Trusted repository
- Interactive vs. Static
- Online vs. Offline
- Print vs. electronic

Gibbon, Dafydd (2005). Spoken language lexicography: an integrative framework. In: Lew Zybatow, ed. (2005), *Translatologie – Neue Ideen und Ansätze*. Frankfurt, etc.: Peter Lang, Europäischer Verlag der Wissenschaften, 247-289.

# *Lexicon Architecture Model*

1. MEGASTRUCTURE

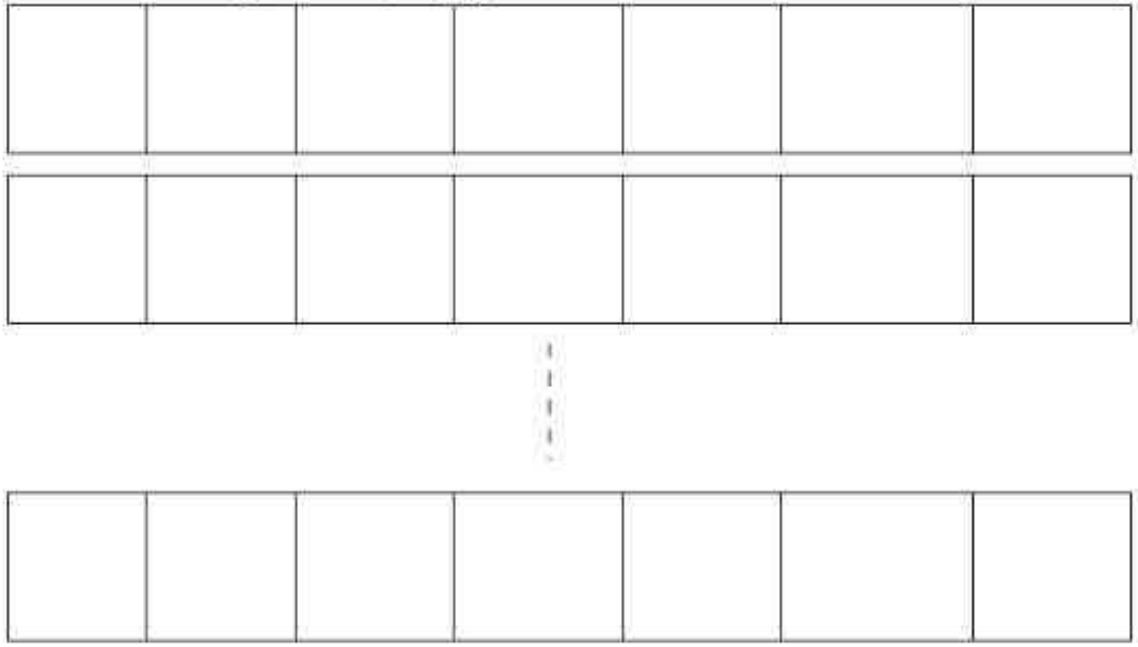
2. METAINFORMATION

Metadata, front matter, back matter

3. MACROSTRUCTURE

4. MICROSTRUCTURE
(data categories, types of lexical information)

Lexical entries

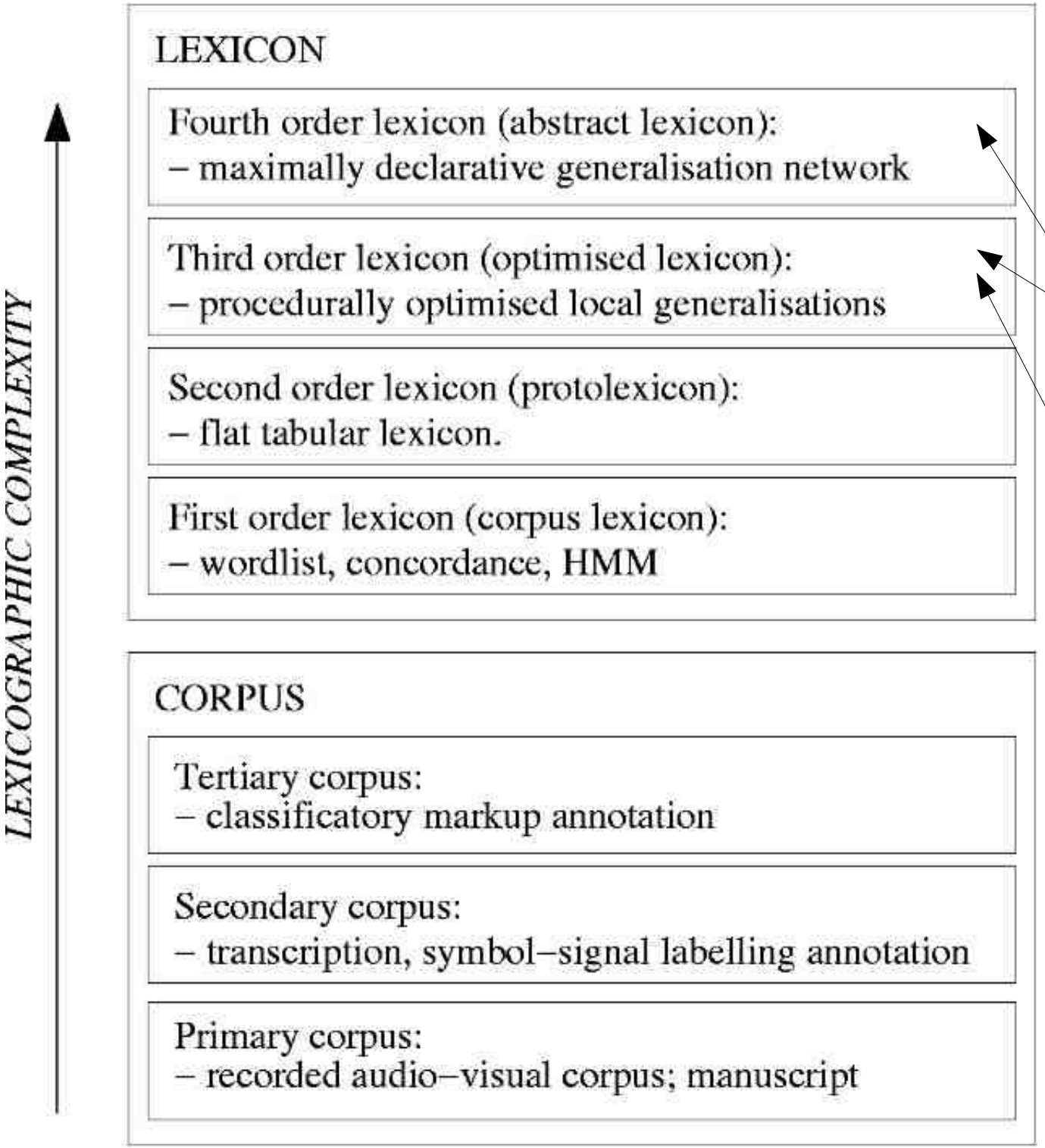


5. MESOSTRUCTURE

Sketch grammar, i.e. conventions for generalisations over microstructure:

- orthography
- pronunciation
- word formation
- syntax
- definitions
- examples

# *Lexicon Discovery Model*




explicit mesostructure:
semasiological thesaurus,
inheritance lexicon

Lemma-structured
standard semasiological
dictionary

# *Summary, Conclusion, Outlook*

- Projects:
  - Projects of different lexicographic sub-genres
  - Use-case orientation
- Principles:
  - Abstraction of shared properties
  - Development of a model of lexicon architecture
  - Development of a model of lexicon acquisition
- Outlook – future essentials:
  - Full-time team effort
  - Intensive coordination
  - Coherent theory basis
  - Efficient computational implementation
  - User satisfaction