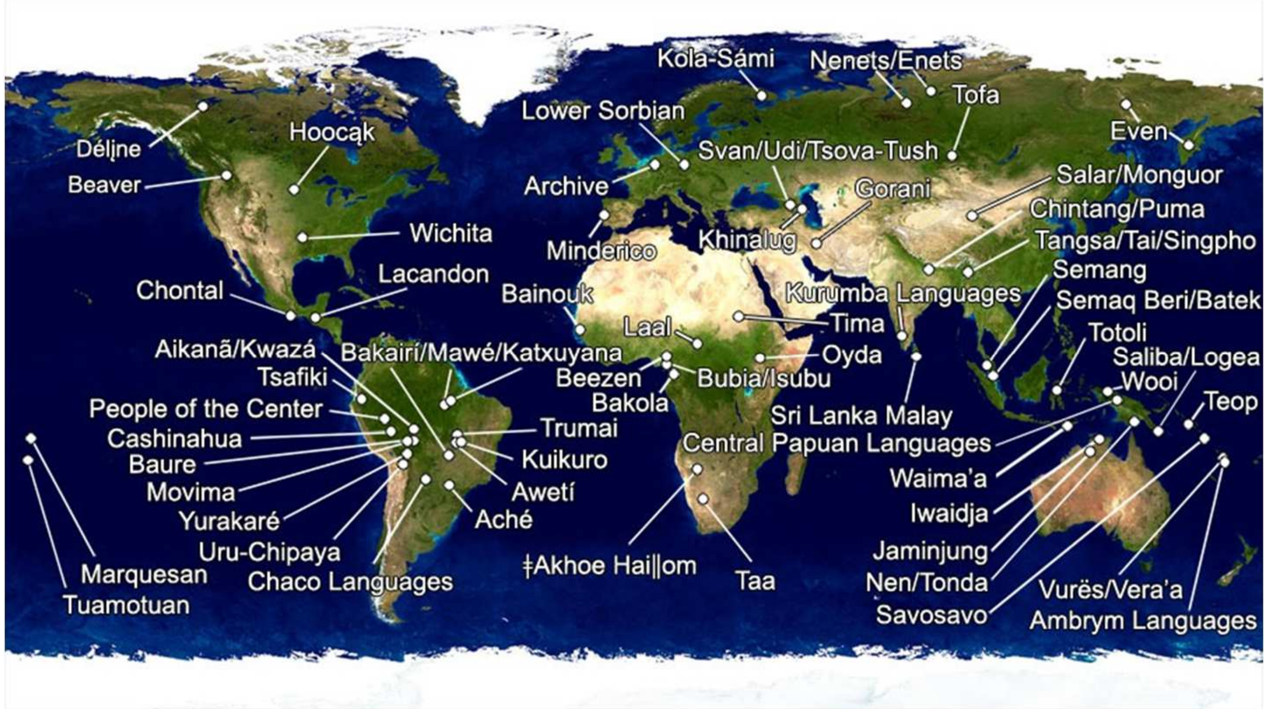
Inter-disciplinary Curation and Use of Language Data
Experiences from the DOBES Programme

Sebastian Drude, Peter Wittenburg, Daan Broeder
The Language Archive – Max Planck Institute for Psycholinguistics
Nijmegen, The Netherlands

DOBES



- DOBES: Dokumentation bedrohter Sprachen (documentation of endangered languages)
- Linguistic diversity is disappearing dramatically
- Since the late 90ies: “Language Documentation”: building lasting collections of recordings of language use

Some DOBES Facts

- More than 50 teams working independently
- Primary agreement: a copy of all data goes into the DOBES archive at the MPI-PL (Nijmegen)
- Result so far: ca. 15 TB of online accessible data
- Teams are interdisciplinarily composed
- Many different data types – highly interrelated at various levels
- DOBES is a fairly coherent part of a 80 TB large structured repository at the MPI-PL
- There are other initiatives and archives (e.g., HRELP at SOAS in London)

The Societal Challenge 1

- DOBES material is about an important part of our cultural heritage
- Some purposes of documenting these languages:
  - Help maintaining language diversity
  - Preserve material for future generations
    - There is still much language diversity worldwide – so let’s create a “language bank” (like a seed bank)
    - The (descendants of) speakers themselves (will) have much interest
    - Language revitalization based on language use

The Societal Challenge 2

- Some purposes of documenting these languages:
  - Provide a comprehensive basis for research on big questions:
    - How flexible is the human language capacity?
    - What are the patterns and limits of variation? Are there language universals?
    - How did our languages evolve?
      (→ understanding future development)
  - We don’t know what future generations will do with the material
- **How to do preservation, and how can we offer and maintain access?**

Preservation Challenge 1

Make many “safe” copies of bit-streams and spread them (well known)

- Currently 6 full copies (physical level)
- MPG gives an institutional guarantee of 50 years for 2 of our copies
- Working on safe replication at logical level with iRODS, based on policy rules
- Selective copies to an increasing number of ‘regional archives’ worldwide

The goal: “access archives” – why? Fundamental change:

Analogue era: “don’t touch”
Digital era: “touch frequently”

Preservation Challenge 2

- We are bound to rely on software, which is changing
- We need to make sure that object integrity is maintained (PIDs – DOI, Handles – , checksum, ...)
- Digital archives are a living bodies: additions, updates, changes, extensions, new relations within and to other resources, etc. (“live archives”)
- Access “archives” can be funded from research budgets if they are used in current and future research
- For the DOBES archive and TLA in general:
  all bit-stream preservation costs can be neglected
  as long as the procedures are automatic

Curation Challenge 1

- Achieving and maintaining interpretability is much more costly (see Beagrie results)
- UNESCO: 80% of lang. & cult. recordings endangered
  - digitization is at least real-time – much will be lost?
- Important: context and provenance information (metadata)
- Question: immediate or later data conversion
  - Example: curating a wonderful 5000 entry lexicon into properly structured XML cost about 0.5 person years
  - Later data curation is multiple times more expensive (also see Beagrie results)
  - But do we have time and funds now to curate all resources we get? → **NO**
  - Do we need to take them as well anyways? → **YES**

Curation Challenge 2

How to achieve a coherent and consistent archive?

- Extensive checks when ingesting new data:
  - metadata
  - formats/schemas
  - relations?
  - content? (→ own library, or in future JHOVE2)
- Given the previous slide we have two parts in the archive A "coherent part" and a "unverified part"
- DOBES is mostly part of the coherent part
- Migrating the "unchecked part" may become very expensive, since it can not be done automatically

Curation Challenge 3

Migrating the coherent part can be done widely automatic, but:

- Testing is required as transformations may not be lossless
- Important that provenance information is updated

What about “out-phased” / legacy formats?

- Tapes, cassettes etc.: maintaining old equipment is expensive – some will survive, but we have too little resources to manage transformation of all material
- Digital formats could be maintained –
  in theory, but in praxis it might become quite complex

Economic Aspects 1

- Our data has a value since it is part of researchers' data daily workflow
- Need to add new data to maintain attractiveness
- Costs at bit-stream level w/o. specific issues is close to 0
- Cost of digitization is "real time", but economy of scale factor possible
- Costs of curation are not specifiable
- Whatever can be done automatic is inexpensive
- A coherent and consistent archive needs
  a clear economy of scale

Economic Aspects 2

- Current archive costs per year (without curation):

– 1 FTE archive manager, 0.5 FTE system manager, stud assistens (economy of scale)	120 k€	
– Costs for own storage system (up to PetaBytes):	80 k€	
– Costs for 4 external copies:	~10 k€	
– 1 FTE archive **software** maintenance:	60 k€	**∑ 270 k€**
– Optionally 1 FTE access **software** maintenance:	60 k€	
– Optionally digitization equipment, hardware	10 k€	**∑ 340 k€**

Summary: Technical Aspects

- The “machinery” has been working for several years in a robust way
- As much as possible is automated
- We offer “open archiving” to all researchers with serious language data
- “Unverified part” of the archive remains a point of concern

Societal Aspects

- Research organizations have a duty to maintain accessibility to their data sets
  - Best solution is to maintain an archive relevant for research
  - There may come a moment in time when our language data need to be moved
  - An organization like ANDS may be a choice
- Trust is of key importance (for depositors & users)
  - Therefore we make a clear statement: right of archiving only, respect of personal rights
  - Certification according to RAC or DSA is very important (OAIS)

Inter-disciplinary Curation and Use of Language Data
Experiences from the DOBES Programme

Sebastian Drude, Peter Wittenburg, Daan Broeder
The Language Archive – Max Planck Institute for Psycholinguistics
Nijmegen, The Netherlands