DAISY, the Best Way to Author Sign Language books?

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by

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Connecting with the Future.

Presentation Structure

- Introduction
- Background
  - Daisy Books in Sign Languages
  - Open Source Daisy Players
  - Video for Sign Languages
- Sign Language DAISY Book & Player
  - Content Creation and Authoring
  - Experimentations : Video DBR, DAISY 2.02 / 3
  - Future Work
- Conclusion

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DAISY Books in Sign Language

- Need for SL books:
  - Digital Heritage, SL Libraries, AIDS Awareness, Disaster Preparedness
- Need for structured
  - Sign Language documents
- Need for distribution
- Need for
  - structured multimedia accessible to all

DEAFSA
(formerly known as the South African National Council for the Deaf)

- "I want to further my skills in DAISY and become an international trainer. The Deaf will definitely benefit."

(Kawamura 2008, 28)

In most EU countries, signing book productions are still largely semi-professional or amateur, 'ad-hoc' productions, made by schools for the deaf, organisations for the deaf, or organisations of parents of deaf children.

(Pyfers 1998, 6)

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Open-source DAISY Players (1)

- Amis
  - AmisCore for Linux isn't up-to-date and compiling and linking Ambulant is not trivial
- Daisy-delite
  - Well-designed Python engine/interface.
    Only simple MP3 2.02 DAISY books
    (not full-text, not maintained)
- Idair
  - Unix Text-based, Text/MP3, not maintained, most 2.02.
- Listen-up
  - Unix Text-based, Text/Audio, not maintained and not up to standard

Open-source DAISY Players (2)

- DBR
  - Python+GStreamer
  - Plays most modified 2.02 due to bad XML parsing and limited navigation ability but functional
  - Originally MP3 only, no full-text/full-audio
  - Maintained / Recent
- Emerson
  - Java+javax.sound
  - Good 2.02 handling, limited maintenance/doc
  - Great features, some navigation missing (level switching)

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Which DAISY player to extend?

- Extend Existing or Build from scratch?
  - Starting from a functional base to work from
  - Good candidates for DAISY 2.02 (but not 3!)
- Between Emerson and DBR?
  - Use of Gstreamer and Rapid Python prototyping
  - Indecisive about Java media framework
- Using Open Source software to contribute, build on and extend community players
  - Rather than yet another player just for video
  - To make a proof of concept for <video> with current implementations

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Video for Sign Languages

Books

- structured video documents
- Main or Alternative content?
- profiles: full-video, full-audio and texts.
- authoring processes: from text, from video

Players

- design implications
  - Place of Video in GUI
  - Decoding new codecs
- video rendering:
  - Video viewport instances
  - Portability between OS
  - Compatible Audio Playback

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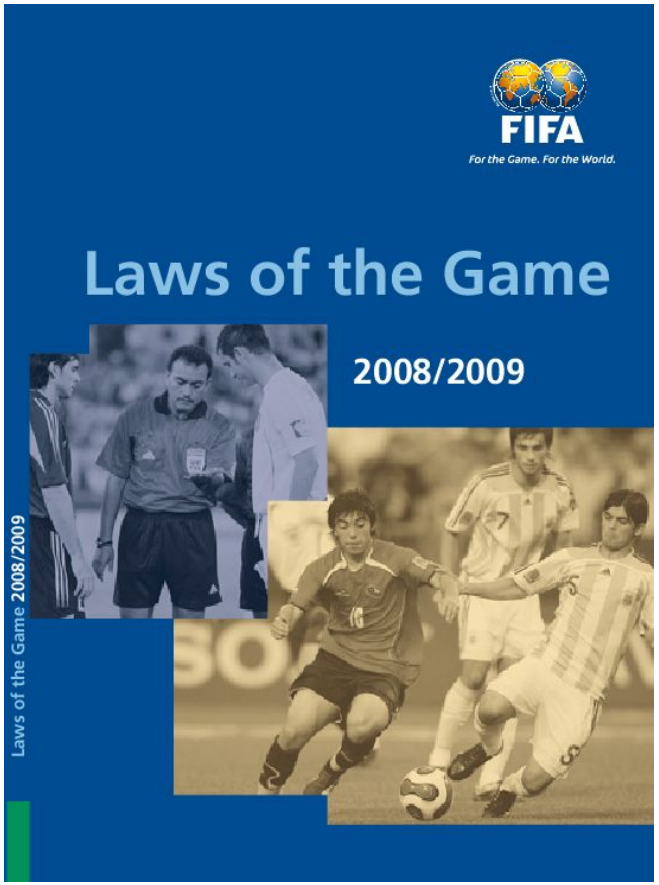
Content Creation and Authoring

- Authored a Full-text DAISY 3 book by hand
- Used latest Obi to record and export Full-Audio 2.02
- Filmed SASL (Sign Language)
- Derived Full-video SASL DAISY book
- Further experimentations with AbTi project



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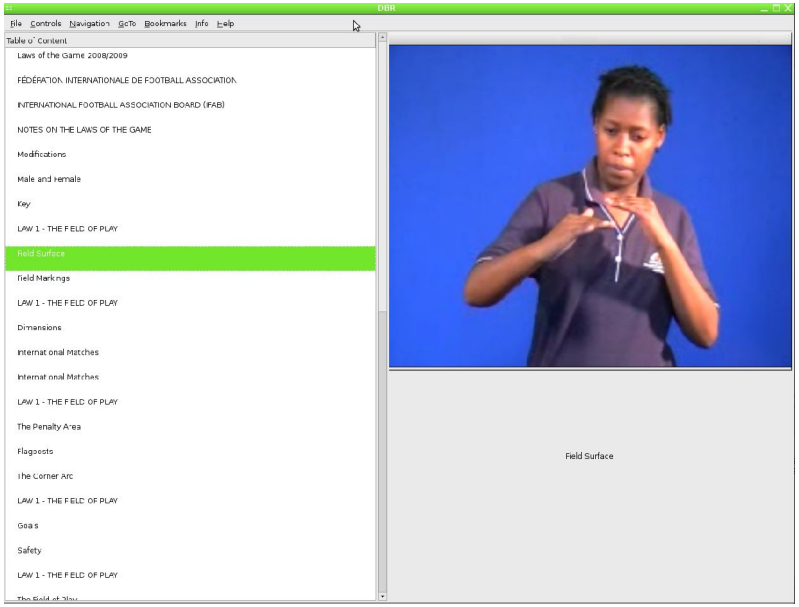
DBR with Video

- Used a more generic Gstreamer pipeline - PlayerBin
  - Can handle any media types, WAV, OGG, MP3, Speex ... and video
- Added Video and Text/Captions viewports



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Changes in DBR Implementation

1. Using a video file in a SMIL <audio>
2. Initializing the interface before the decoder
    1. For video, the interface must be readied so the decoder can be attached to the renderer
3. Book handling
    1. Adding parsing for both <video> or <audio> elements, ... <audiovisual>, <multimedia> superclass?
    2. Opening Dtbook other than ncc.html (2.02/3)
    3. Various fixes (free spaces and indentation in XML parsing)

Emerson

What constitutes a good video rendering API for Emerson?

- JMF?
- Java and Gstreamer?
- Any POJO mediax API?

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Relations between Text and Video

- Typed Texts in SMIL to provide additional synchronization with video and audio.
  - Should alternative texts reside in SMIL?
  - [original text | transcript | timed text [subtitles, captions,gloss] | descriptions | annotations]
- Main or Alternative content?
  - Full-Text/Full-Video VS Full-Video/Full-Text
  - In one case, the video is the main content and the text can be captions
  - In the second case, the text is the main content with Sign Language Video a secondary or alternative content.

Types of Videos: SL, Animation ..

- We need a specific <video> element
  - For players implementations to know what media to expect and build GUI accordingly
- We need further qualification of <video>
  - <video> VS <audiovisual> : best practice to always have audio track separate?
  - Attribute <video type=”sign_language”
  - Tests < video SystemSignLanguageVideo=”on” and systemSignLanguageSiGML=”on” (Eberius 2008, 33-37)
  - Various approaches in MPEG7, HTML5 with <video> accessibility

DAISY 2.02 to DAISY 3 ZedNext

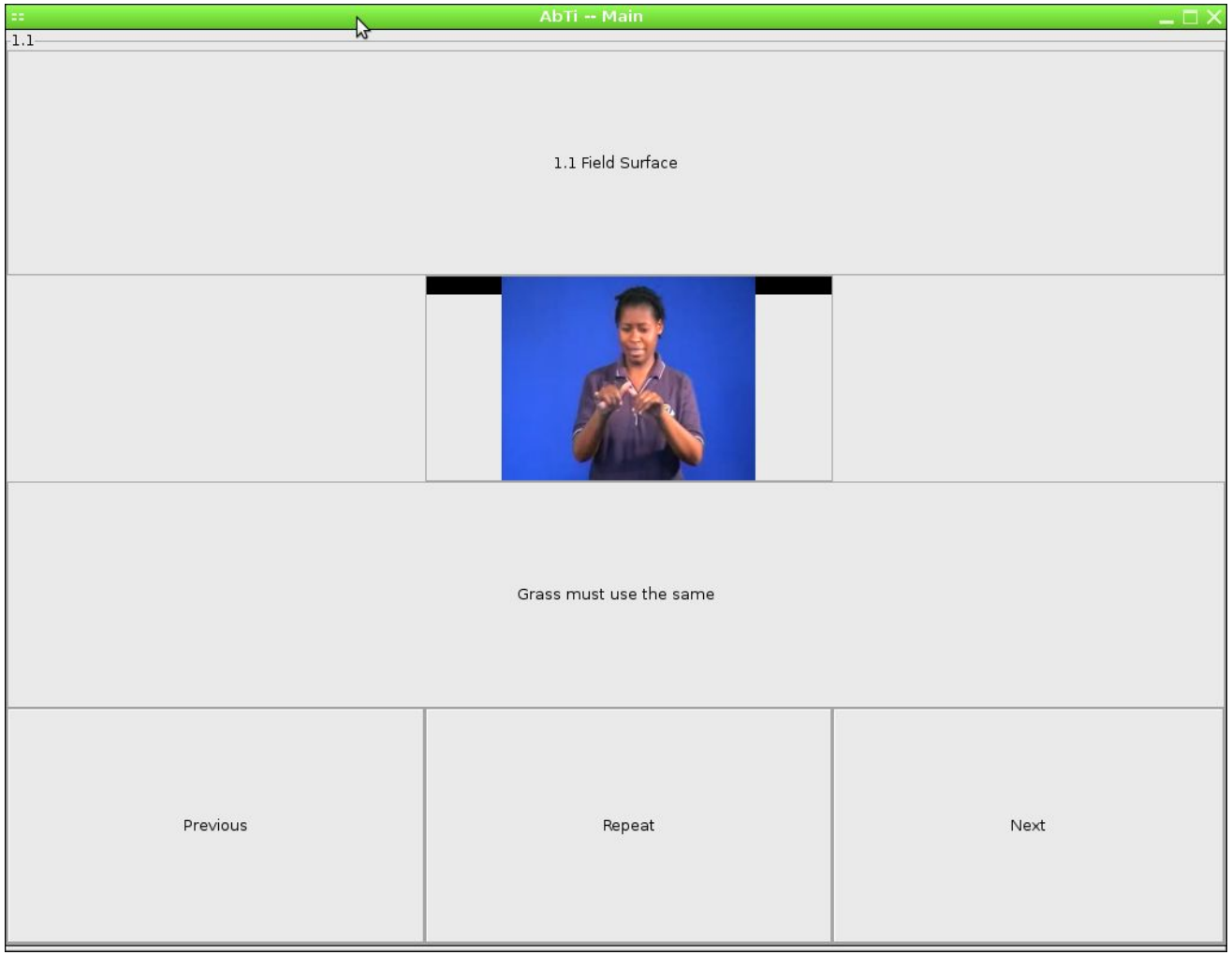
- Most players still don't support DAISY 3,
  - so developers could just as well introduce new functionalities such as video with upgrading ; hence encourages DAISY 3 implementation.
- Can DAISY players explicitly report their compliance and book handling capabilities?
  - When opening a book, the player reports the fact that it cannot handle certain standard features of the book (enf, video, ogg, nav)
  - A generic function `.getPlayerDAISYabilities()`
  - Specify fall-back mechanisms
  - A test-bed of DAISY books to test players

Ability based Training intervention

- The AbTi system provides adaptive content input and output depending on the user:
  - Abilities
    - [canSee, canHear, canTalk, canMakeLargeMovts, canMakeSmallMovts, canUnderstandSASLsmall or large movements, pointerGesture, Braille]
  - Learning styles
    - [visual/aural | activist/reflector/pragmatist/theorist]
  - Literacy level
    - [simplified English | SASL gloss | pictograms]
- Experimental Integration of mixed-media
  - switching on and off, preference, synchronizing

AbTi Demo

Prototype Demonstrator of the AbTi Integrator, currently showing the playback of Sign Language with Captions as well as Narrated Audio Voice.



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Future Work

- Target Platforms
  - Linux (NoteTaker), Symbian (free mobile phones player – e.g. S60 Python 2,5 + audio/speech + DBR), Java (Emerson)
- Authoring Toolkits
  - Video directory to DAISY book (DAISY pipeline)
  - Export plugins in popular applications:
    - OSS Audio Editors : Audacity (audio books in linux),
    - DVD 2 DAISY: AcidRip (for existing SL DVDs),
    - OSS Video Editors: Kino (profile: DAISY video directory structure)
    - OSS Video Players: Mplayer (open a daisy directory/playlist)

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DAISY for ALL South Africa

- DAISY South Africa since December 2008
  - For all disabilities from the start
  - Current proposal between DAISY SA, CSIR Meraka Institute and Department of Public Work to enable DAISY book content in their website
- Variety of Sign Language video production:
  - DVD course material by SLED and Wits
  - Windows program phrase book my DeafNet
  - Online Web Course by Thibologa SL Institution
  - Phrase Book Corpus by Uni. Stellenbosch

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Questions?

Thank you!

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ZedNext : the 2010 revision of the DAISY standard

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DAISY 2009

Goal Keeper
© FÉDÉRATION INTERNATIONALE DE FOOTBALL ASSOCIATION
Authorization obtained to use "The Rules of the Game 2008/2009" content for research on Sign Language content authoring

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