CENTRALIZED WORKFLOW PROCESS FOR MULTILANGUAGE SUBTITLING OF LIVE EVENTS

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• INTRODUCTION
• PROPOSED METHODS
• SOCCER EXAMPLE
• FUTURE WORKS
INTRODUCTION

- The Nurse and persons with disabilities.
- Recommendations
- TV subtitling
- Problems for TV subtitling in live events
- Multilanguage subtitling
- Live TV contribution
- Objective
INTRODUCTION

• The Nurse and persons with disabilities.
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INTRODUCTION

• The Nurse and persons with disabilities
  • A Privileged position
  • Detect problems in the day-to-day in the persons with disabilities
  • We present an example of how nurses can detect and provide solutions
  • Interdisciplinary work
INTRODUCTION

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• Recommendations
  – File subtitling formats:
    • Advanced SubStation Alpha (.ASS)
    • AQ Title (.AQT)
    • DKS Subtitle Format (.DKS)
    • MicroDVD (.SUB)
    • Sami Captioning (.SMI)
    • SubStation Alpha (.SSA)
    • SubRip (.SRT)
    • WEBVTT (.VTT)
    • Subviewer (.SUB)
INTRODUCTION

• Recommendations
  – Examples

SUBVIEWER (.SUB)
INTRODUCTION

- Recommendations
  - Examples
INTRODUCTION

• Recommendations
  – Examples

ADVANCED SUBSTATION ALPHA (.ASS)
INTRODUCTION

• Recommendations
  – File subtitling formats:
    • Timed Text Markup Language (TTML)
      – Last version: 24 September 2013
INTRODUCTION

• Recommendations
  – File subtitling formats:
    • **Timed Text Markup Language TTML**
      – Structure

```xml
<tt xml:lang=""
xmlns="http://www.w3.org/ns/ttml">
  <head>
    <metadata/>
    <styling/>
    <layout/>
  </head>
  <body/>
</tt>
```

Source: W3C
INTRODUCTION

• Recommendations
  – File subtitling formats:
    • Timed Text Markup Language TTML
    – Styling

<style xml:id="s1"
    tts:color="white"
    tts:fontFamily="proportionalSansSerif"
    tts:fontSize="22px"
    tts:textAlign="center"
/>

Source: W3C
INTRODUCTION

• Recommendations
  – File subtitling formats:
    • Timed Text Markup Language TTML
  – Layout

Source: W3C
INTRODUCTION

• Recommendations
  – File subtitling formats:
    • Timed Text Markup Language TTML
  – Body

```xml
<body region="subtitleArea">
  <div>
    <p xml:id="subtitle1" begin="0.76s" end="3.45s">
      It seems a paradox, does it not,
    </p>
    <p xml:id="subtitle2" begin="5.0s" end="10.0s">
      that the image formed on<br/>
      the Retina should be inverted?
    </p>
    <p xml:id="subtitle3" begin="10.0s" end="16.0s" style="s2">
      It is puzzling, why is it<br/>
      we do not see things upside-down?
    </p>
  </div>
</body>
```

Source: W3C
Subtitle 1 – Time Interval [0.76, 3.45)

It seems a paradox, does it not,

Subtitle 2 – Time Interval [5.0, 10.0)

that the image formed on
the Retina should be inverted?

Subtitle 3 – Time Interval [10.0, 16.0)

It is puzzling, why is it
we do not see things upside-down?

Source : W3C
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TV Subtitling (Introduction)

• Pre-recorded Programs
• Live Programs
TV Subtitling (Introduction)

- Pre-recorded Programs
  - Content Distribution
TV Subtitling (Introduction)

• Pre-recorded Programs
  – Subtitling broadcast

[Diagram showing the process of TV subtitling, including steps from film to broadcast copy, data, subtitle data file, TV monitor, and user interaction.]
TV Subtitling

• Live Programs
  – Programs with scripts (text)
    • Eg: Opera, news
  – Without script
    • Eg: Soccer match
TV Subtitling

- Programs with scripts (text)

Teleprompter

Newsroom Systems

Close Caption System

TV Playout
TV Subtitling

- Programs without script (without text)
  - Subtitle generation:
    - Speech recognition
    - Stenography
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Problems for TV subtitling in live events

- **Speech recognition**
  - Delay
  - Errors

- **Stenography**
  - Production cost
  - A person need 2 years of experience.
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MULTILANGUAGE SUBTITLING IN LIVE EVENTS

• Several efforts have been made in specific areas.
  – Problems:
    » Delay
    » Errors
    » Computer resources
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Live TV Contribution

Event Producer

Video + Audio

Decoder

TV CHANNEL 1

Play out
Output

Decoder

TV CHANNEL 2

Play out
Output

Decoder

TV CHANNEL N

Play out
Output
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Objective

• Subtitle of Live events
  – Program with scripts
    » multilanguage subtitling
  – Program without scripts (SPORTS)
    » Cheaper and faster Subtitling
    » multilanguage subtitling
CONTENT

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PROPOSED METHODS

• Multilanguage subtitling
  – Live event with script
  – Live event without script (SPORTS)
PROPOSED METHODS

- **Multilanguage subtitling**
  - Live event with script
  - Live event without script (SPORTS)
What is best?

With signer or subtitle?
Let me show you a detail....... Teleprompter

Usually We have the text. Why don´t use it?
LIVE EVENT WITH SCRIPT

• Remember
  – We can subtitle all programs
    • We don´t need special or complicated technology
    • Why don´t use it instead signer?
    • Why don´t subtitled all this types of programs as default production process?
LIVE EVENT WITH SCRIPT

• Why don’t add subtitles with the video and audio data as normal procedure?
LIVE EVENT WITH SCRIPT

Why don´t add subtitles with the video and audio data as normal procedure?
LIVE EVENT WITH SCRIPT

• Multilanguage subtitling


– Preproduction
  • Each phrase has a code
  • The entire text is translated to all languages desired
    – It could be done by producer or broadcaster
LIVE EVENT WITH SCRIPT

• Multilanguage subtitling


– Production
PROPOSED METHODS

- Multilanguage subtitling
  - Live event with script
  - Live event without script (SPORTS)
LIVE EVENT WITHOUT SCRIPT (SPORTS)

• **Basis:**
  
  – **Sport has a set of phrases:**
    
    • We use “Predefined phrases” in Controlled Natural Language (CNL)
    
    • Producer send the identification number + [variables]
    
    • The system generates the phrases in all the languages supported
LIVE EVENT WITHOUT SCRIPT (SPORTS)
LIVE EVENT WITHOUT SCRIPT [SPORTS]

• Commentator terminal [Soccer]
Event Detection

- Change situation
- Phrase selection
- Player selection
- Team selection

Decision:
- Need Player
- Title waiting

Waiting

Send Title

Sow Title

- Change Situat.
- Change team.

Load Sentences

Load Players

Wait Event
LIVE EVENT WITHOUT SCRIPT (SPORTS)

• For one match
LIVE EVENT WITHOUT SCRIPT (SPORTS)

- Server Flowchart

- Msg from commentator program

- Phrase ID (Var_1, Var_2,..., VarN)

- Inbox

- Data Extractor

- Phrase Selector

- Phrase Conf.

- Send msg WS clients

- HTTP clients

- HTML PAGE

- LANGUAGE module 1

- LANGUAGE module M
LIVE EVENT WITHOUT SCRIPT (SPORTS)

• Entire system (for several matches)
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FUTURE WORKS

• Refine the phrase types
• Aggregate more phrases to phrase types
• Create Levels of subtitling
• Aggregate lenguajes
• Aggregate sports
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Thank you