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Opening up access to online documents using essentiality tracks

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Opening up Access to Online Documents using Essentiality Tracks

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22nd May 2006



Current Problems

- Essentiality and Proficiency
- DocBook XML
- **Essentiality Tracks**
- Application in the "Real World"
- Future Work
- Summary
- References

Current Problems

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Information Exclusion

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- ▶ Standards Compliance ≠ Usability [Mohamad et al., 2004]

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On the other hand...

The DRC2004 [Disability Rights Commission, 2004] provides us with motivation to use accessibility as a benchmark for site usability -35% of sites are easier for **everyone** to use if they are made accessible!

Essentiality and Proficiency

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Essentiality and Proficiency Tool [Dhiensa et al., 2005].

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- Essentiality and Proficiency Tool [Dhiensa et al., 2005].
- System for web page mark-up and display.
- Designed for uses such as:
 - Mobile 'phone and PDA users.
 - Accessibility improvements.
- Useful for when space or time is at a premium.
- Essentiality filtering and personalised rendering is carried out as a proxy service.

Basic Principles

Essentiality and Proficiency

A page contains information of varying relevance to the reader.

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 - All items with an equal or more important essentiality rating are then displayed.
- ▶ Rendering subject to "Proficiency" of the user or device.
- User profiles stored centrally.

Example: User's Point of View – Before



Done

۵

Example: User's Point of View – After



[View https://co-teach.lboro.ac.uk/corgs/essen/nationwide/default.html without filter] [Essentiality filter Home] [Essentiality level: 1 / 2 / 3 / 4 / 5 / -6- / 7 / 8 / 9 / 10]

Done

co-teach.lboro.ac.uk 🚊 🐵

Example: Author Mark-Up

🐮 Applications Places Desktop 📓 🔲 🌘			Fri 21 Oct, 17:13 🔮
👻 FrontPage - AGRIP Wiki - Mozilla Firefox 📃 🗖 🗙			
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more detailed update information.	produce.		
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Are you interested in funding research that will change the way we deal with information and improve accessibility issues for the bind and vision-impaired? Please visit <u>•</u> <u>my home page</u> for more information and become one of the first to benefit.	mainstream games - a tools - accessible. We that sighted people do that surround them ar applications with them great deal over the ye Over the past two years, QuakeWorld which allows collection of online player	nd their associated extension want blind people to not only blind be extend them, creating m is something that sighted peop ars. we have developed an accessible both single and multi-player game statistics. In the future we will add	and development play the games ine communities aw games and ole have enjoyed a version of Quake and s, including the immersive 3D audio
Done 🔊			
🔯 🕒 [FrontPage - AGBIP Wiki - Mozilla	Firefox1 ScontPage	- AGRIP Wiki - Mozilla Firefox	

Essentiality and Proficiency

Benefits and Limitations

Essentiality and Proficiency

Only one version of site needed.

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Dynamic Content

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- Dynamic Content
 - "Facts"
 - "Prose"

- Only one version of site needed.
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- Dynamic Content
 - "Facts"
 - "Prose"
- Scalability

DocBook XML

DocBook XML

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► A standard (DTD) for writing (technical) documentation.
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- A set of filters (XSLT) to convert DocBook to many other formats.

- Separation of content from formatting.
- (Easy) Extensibility.

- A simple implementation of essentiality was added to DocBook XML.
- Proficiency taken care of by (XSLT) filter modifications.

DocBook XML

```
<essn level="7">
  <para>Under no circumstances must any employee:</para>
</essn>
<essn level="5">
  <itemizedlist>
    <listitem>
      <para>
        Stay in the building after the alarm has
        sounded. <essn level="9">Leave the building
        immediately if there is a fire.</essn>
      </para>
    </listitem>
    . . .
  </itemizedlist>
</essn>
```

DocBook XML

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 Sample (X)HTML output from the above DocBook XML source,

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- ▶ if user-specified essentiality level is between 6 and 9...

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- ▶ if user-specified essentiality level is between 6 and 9...

Under no circumstances must any employee:

Leave the building immediately if there is a fire.

. . .

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- ▶ if user-specified essentiality level is between 6 and 9...

Under no circumstances must any employee:

Leave the building immediately if there is a fire.

. . .

These problems can be avoided.

► A way around the problem of scalability.

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```
<essn track="manager" level="3">
```

- A way around the problem of scalability.
- People have different roles.
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Benefits and Limitations



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▶ Helpful to "normal" as well as disabled users.

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- Expected improved productivity¹

¹currently being tested

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for the author

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- Helpful to "normal" as well as disabled users.
- Expected improved productivity¹

More complex

- for the author
- filtering algorithm

¹currently being tested

Proposed Implementations

Application in the "Real World"



Web Form

- Web Form
- Transformation

- Web Form
- Transformation
 - Central Proxy

- Web Form
- Transformation
 - Central Proxy
 - Client

- Web Form
- Transformation
 - Central Proxy
 - Client
- Delivery (and Proficiency)

- Web Form
- Transformation
 - Central Proxy
 - Client
- Delivery (and Proficiency)
 - ► (X)HTML

- Web Form
- Transformation
 - Central Proxy
 - Client
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 - ► (X)HTML
 - PDF

- Web Form
- Transformation
 - Central Proxy
 - Client
- Delivery (and Proficiency)
 - ► (X)HTML
 - ► PDF
 - Plain Text


The Proxy Approach: Challenges

Application in the "Real World"

Transformations overridden

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- Bandwidth

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- Lots of "Undoing" work

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- Lots of "Undoing" work
- Tolerance of non-compliant sites

- Transformations overridden
- Bandwidth
- Lots of "Undoing" work
- Tolerance of non-compliant sites
- Most web sites are not annotated to provide extra accessibility information

Inherent Solutions

Application in the "Real World"

► All style information is embedded in XSLT/CSS.

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- Bandwidth or processing time (on the client) can be saved.

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- Bandwidth or processing time (on the client) can be saved.
- No "undoing" work is necessary; only the transformations appropriate to the user are carried out.
- No tolerance of non-conformance is required
- No absolute need for annotation, but already established a business case for it.

Future Work

Future Work

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Extensions

Error Checking

- Error Checking
- Track Grouping

- Error Checking
- Track Grouping
- Track Relationships

- Error Checking
- Track Grouping
- Track Relationships
- Overview

- Extensions
 - Error Checking
 - Track Grouping
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 - Other output formats (RTF, Braille)

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- Scaling and other mark-up guidelines

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 - Error Checking
 - Track Grouping
 - Track Relationships
 - Overview
 - Other output formats (RTF, Braille)
- Scaling and other mark-up guidelines
- Adoption

Summary

Summary

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Essentiality and Proficiency

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- Scalability improvements with Essentiality Tracks

- Essentiality and Proficiency
- How they can be applied in other areas
- Scalability improvements with Essentiality Tracks
- Possible uses

Thanks for listening! Any Questions?



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