

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Accessibility Metadata

Accessibility Meta-data IMS ACCLIP, ACCMD : concepts and applications

ePortfolio 2004

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Overview

- Accessibility Definitions
- Some work to minimise problems
 - W3
 - IMS
 - Implementations
- References

Accessibility ?

- Inclusion ?
- Economic Equity ?
- Disabled Persons ?
- AccessForAll ?
- Environment ?
- Legal - Oz, UK (DDA), US (508)

Disability in Learning Context

- Disability= Mismatch between learner needs and education offered
- Not a personal trait but artifact of relationship between the learner and the learning environment or education delivery
- Accessibility= The ability of the learning environment to adjust to the needs of all learners

Accessibility =

- Flexibility of education environment, curriculum and delivery
- Availability of adequate alternative-but-equivalent content and activities

Serving...

- Learners with disabilities
- Learners with diverse learning approaches
- Learners with diverse hardware and software
- Learners in disabling environments
- Learners with diverse cultural or linguistic requirements
- Anyone who diverges from the hypothetical norm

Typical problems

- Can't see screen
- Can't see colours
- Can't read text
- Can't hear
- Can't control cursor
- Can't type

Typical Problems (for techies)

- Restricted interface choices and flexibility
- Each person with a disability is potentially a unique
- Must respond to a huge array of interfaces, which change frequently
 - E.g. Browsers - 35 commonly in use
- Need consistent way to find personal info

Jason White

QuickTime™ and a
Cinepak decompressor
are needed to see this picture.

W3C Guidelines

- Accessibility guidelines
- Techniques
- Checkpoints
- Checkpoint techniques
- QA and Certification
- for authors, authoring tools, user agent

W3C Technologies that work

- Cascading style sheets (CSS1)
- eXtensible Markup Language and CSS2
- Scalable Vector Graphics (SVG)
- Synchronised Multimedia Integration Language (SMIL)
- eXtensible Stylesheet Language (XSLT)
- ChemML, MathML, MusicML, ...

SVG example



SVG example

- Image is represented as vectors in text
- Sub-images can be identified
- Metadata can be added
- Rights management can be used
- Behaviours can be controlled
 - Eg an interactive knee dissection linked to external resources

Technologies that work (contd.)

- XML \Rightarrow MathML, ChemML, etc
- MathML as an example
 - The equation $x^2 + 4x + 4 = 0$

MathML is like HTML...

- `<mrow>`
- `<mrow>`
- `<msup> <mi>x</MI> <mn>2</mn> </msup> <mo>+</MO>`
- `<mrow>`
- `<mn>4</mn>`
- `<MO>⁢</MO>`
- `<MI>x</MI>`
- `</mrow>`
- `<MO>+</MO>`
- `<mn>4</mn>`
- `</mrow>`
- `<MO>=</MO>`
- `<mn>0</mn>`
- `</mrow>`

Screen presentation

$$\lim_{x \rightarrow \infty} \int_0^x e^{-y^2} dy = \frac{\sqrt{\pi}}{2}$$

- It can be read aloud by screen readers
- It can be used in maths applications
- It can be programmed for interactivity
- It can be programmed for feedback
- But it can't yet be used in Braille.

Technologies that work (contd.)

XML and RDF and EARL

XML - human readable, schemas etc

RDF - this 'object' has property 'this'

EARL - this 'agent' said this 'object' has this 'property' on this 'date'

Eg "The application 'Lift' evaluated this page as accessible (didn't fail) on 3/9/2002".

Technologies that work (contd.)

XML and RDF and EARL

XML - human readable, schemas etc

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Eg "The application 'Lift' evaluated this page as accessible (didn't fail) on 3/9/2002".

Author support

- W3C described what to do, how to do it, when and why,...
- Automatic support is required ->
- W3C Authoring Tools Accessibility Guidelines - note s. 508

Accessibility tools

- Accessible tools
- Tools for accessible authoring
- Validators ie code validators
- Evaluators ie compliance with guidelines producing metadata (EARL)
- Digital repositories for descriptive metadata
- (re-usable metadata??)
- On-the-fly repair tools (SWAP, TILE, ..)

Specifications to Support Accessibility

(IMS "AccessForAll" Specifications)

- A way to state what you need/prefer as a learner or user (ACCLIP)
- A way to match up what you need with the right resources (ACCMD)
- Can be used with or independently of LIP and IEEE LOM Metadata



AccessForAll Element

Accessibility for LIP (Learner information Package) or ACCLIP

- How do I want/need things to be displayed?
- How do I want/need things to be controlled?
- What content alternatives, equivalents or helpful tools do I want/need?
- In what context?

Generic and Specialized Elements

- *Generic*: a set of settings common to most alternative access systems within the category
- *Special*: settings specific to certain technologies within the category

Context

- When I'm tired
- When I'm using my portable
- When I'm at work...

Accessibility Metadata

Information about:

1. The Primary Resource

- Can the display be transformed, is the method of control flexible (EARL statement)?
- Does it require hearing, site or text literacy?
- What are the locations of any known

Accessibility Metadata

Information about..

2. The Equivalent Alternative

- Pointer to the primary resource this is an equivalent for
- A description that parallels the content requirements of ACCLIP

Implementations

- Web4All
- TILE
- uPortal
- Atutor
- Others

E-learning environment that enables learner-centric transformation of learning content and delivery

- Authoring support for transformable content and Metadata
- Browser
- Learning Object Repository
- Learner Preference System

<http://inclusivelearning.ca>

Cross-sector, Pan-Canadian Community of Practice

- Creators of transformable learning objects and activities
- Re-users of transformable learning objects
- Evaluators of the tools and the process

Metric Prefixes

The metric system consists of base units, modified by prefixes that increase or decrease the unit value by factors divisible by 10.

There are different base units for each type of measurement. For example, gram for measuring mass, metre for measuring distance and joule for measuring work. However, sometimes the base units are too small or too large to easily describe the measurement. This

is why we use units, using the prefixes. For example, kilometres for measuring the dimensions of a country or distances between cities. In this case, the prefix kilo, which is 1 000 metres.

Multiplication Factor

$$10^6 = 1,000,000$$

$$10^3 = 1,000$$

$$10^2 = 100$$

$$10^1 = 10$$

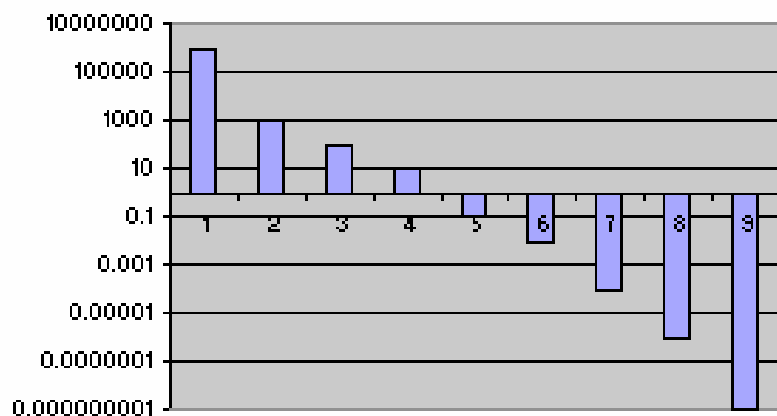
$$10^{-1} = 0.1$$

$$10^{-2} = 0.01$$

$$10^{-3} = 0.001$$

$$10^{-6} = 0.000,001$$

Graph



centi c

milli m

micro μ

measuring the dimensions of a house, but not for calculating distances between cities. In this case, we prefer to use kilometres, each of which is 1000 metres.

Prefix	Symbol	Multiplication Factor
--------	--------	-----------------------

mega	M	$10^6 = 1,000,000$
------	---	--------------------

kilo	k	$10^3 = 1,000$
------	---	----------------

hecto	h	$10^2 = 100$
-------	---	--------------

deka	da	$10^1 = 10$
------	----	-------------

		$10^{-1} = 0.1$
--	--	-----------------

		$10^{-2} = 0.01$
--	--	------------------

		$10^{-3} = 0.001$
--	--	-------------------

micro	<u>μ</u>	$10^{-6} = 0.000,001$
-------	----------	-----------------------

nano	n	$10^{-9} = 0.000,000,001$
------	---	---------------------------

Symbol Info

μ (myoo)

The 12th letter in the Greek alphabet.

or X

nize

t Users:



RJ

PW

guess the most important part is remembering the structure. Which units are above and which are below 1.

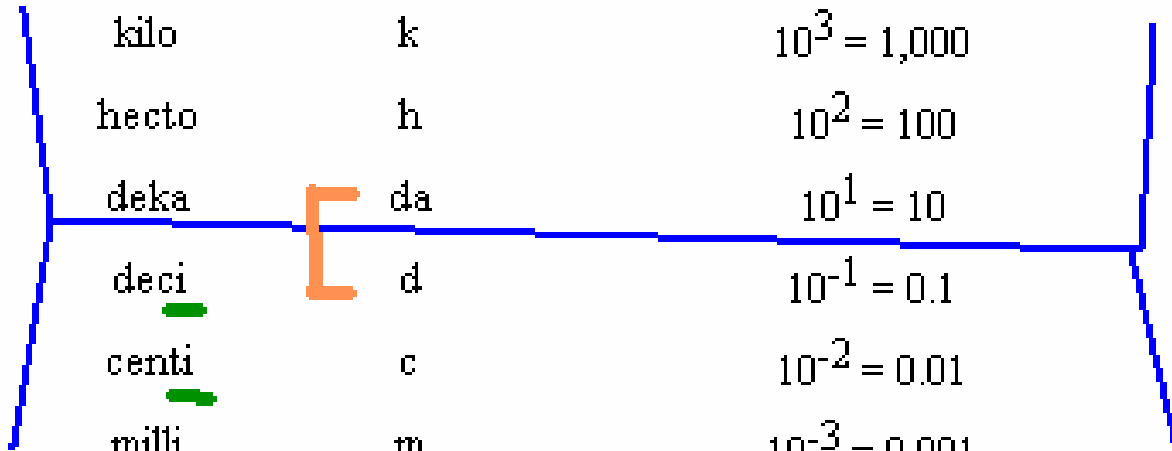
find the deka and deci to be the most difficult to remember.

remember by associating deci and centi which is also smaller than 1.

Metric Prefixes

The metric system consists of base units, modified by prefixes that increase or decrease the unit value by factors divisible by 10.

Prefix	Symbol	Multiplication Factor
mega	M	$10^6 = 1,000,000$
kilo	k	$10^3 = 1,000$
hecto	h	$10^2 = 100$
deka	da	$10^1 = 10$
deci	d	$10^{-1} = 0.1$
centi	c	$10^{-2} = 0.01$
milli	m	$10^{-3} = 0.001$
micro	μ	$10^{-6} = 0.000,001$
nano	n	$10^{-9} = 0.000,000,001$



ng & Note-Taking: Textbooks

ing and Taking: Textbooks

Read text on reading

Survey the chapter ✓

Formulating a question

Read the passage

Answer your questions

Underlining /

ighting main ideas

identifying any words

didn't know

Reading aloud to

self

Reviewing what you

learned

Take a practice quiz

e S3QR process

Review your answers

Links on Reading

Finish

ng Notes

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Reading & Note-Taking: Textbooks

Survey the Chapter

[S]QRRR

As part of the [Reading](#) process, it is advisable to do a brief survey of the chapter you are about to read. This involves reading the chapter title and taking a few moments to consider the subject matter; reading over the chapter outline or summary; looking at all illustrations, diagrams, graphs; and glancing at key words, questions for consideration, problem

Look over the following and post your responses to the **Discussion Board** before reading the [Practice Reading Exercise](#). [option - if not peer to peer/group learning: Jot down your answers on a note pad.]

1. The practice passage on Reading is excerpted from a chapter entitled "The Family."
 - **What are some of the themes that you think might be addressed in this chapter?**
2. The practice passage is from a section entitled "The Family as a Major Institution."
 - **What are some other "major institutions" that you can think of?**
3. Consider, before reading the Practice Reading Exercise, the

Consider subject matter ***before*** reading!

Remove

Add an annotation:

Add

Dictionary:

Search

Thesaurus:

Search



Screen Enhancement

Font Face:

Font Size:

Foreground Colour:

Background Colour:

Highlight Colour:

Invert Colour Selection: Yes No

[[Home](#) | [Search](#) | [Preferences](#) | [vCard](#) | [Login](#) | [Upload](#) | [Save Session](#) | [About TILE](#)]



Reading & Note-Taking: Textbooks

- 1 Read text
- 2 Survey the chapter
- 3 Formulating question
- 4 **Read the passage**
- 5 Answer our questions
- 6 Underlining highlighting main ideas
- 7 Identifying words you don't know

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Reading & Note-Taking: Textbooks

Reading

Read the Passage

SQ[R]RR

With your question(s) in mind, read the following passage:

Defining the Family

Before we examine the diverse forms a family can take, we need a definition of the family that gives us a common starting point for analysis. We can say

Add an annotation:

Add

Dictionary:

Search

Thesaurus:

Search

Equivalent Video Content: Default

Video Control

00:05:33.2



Display Options

- Captions
- Sign Translation
- Audio Description

Edit Preferences...



Equivalent Video Content: Captions and Sign Translation

Video Control

00:05:33.2



Display Options

- Captions
- Sign Translation
- Audio Description

Edit Preferences...

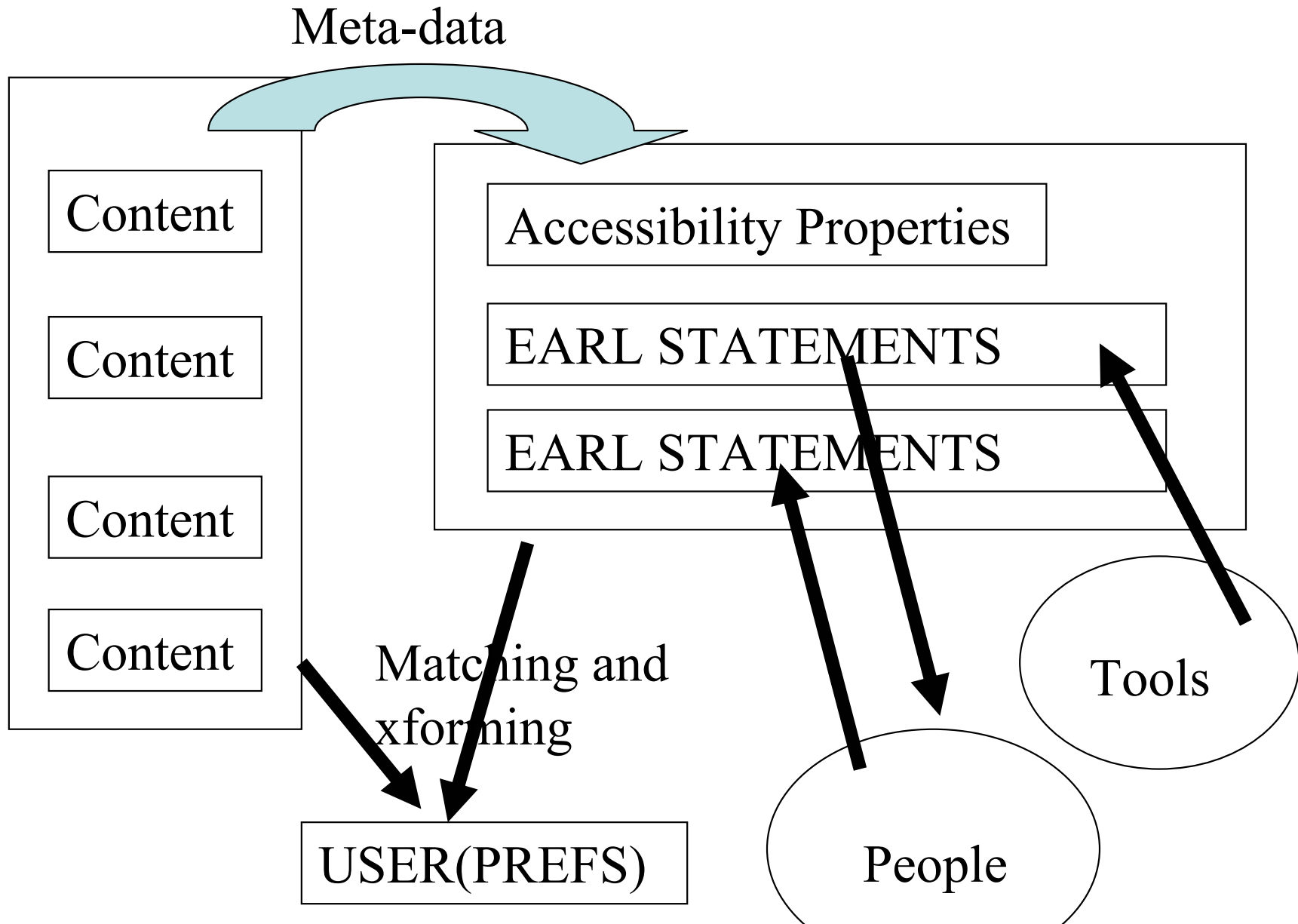


If Boris can hold this landing

Pieces

- **ACCLIP**
 - User Prefs for online content
- **ACCMD**
 - Meta-data for content tagging
- **Accessibility Properties of content**
 - EARL

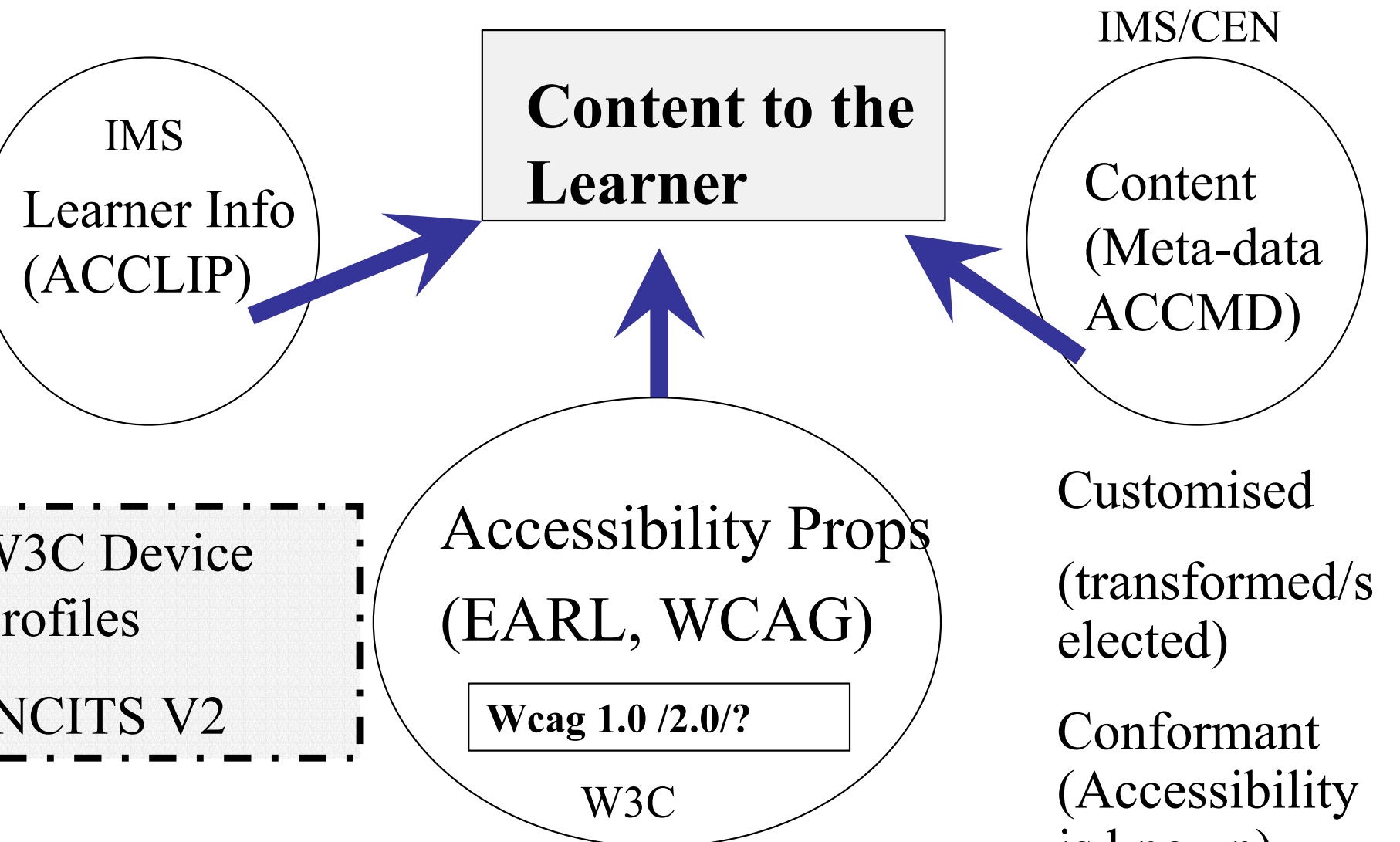
How it can work



The (hopefully near) Future

Glue together

Glue together



Global Jigsaws

- Many organisations, a few of which are
 - IMS:Accessibility (main forum)
 - CEN-ISSS WS-LT APLR
 - DCMI
 - IEEE (LOM)
 - EARL (WAI ER group)
 - W3C (e.g. WCAG, CC/PP etc.)
 - INCITS V2 (URC)
 - BSI
 - Proposed work in ISO IEC JTC1 SC36

Links

<http://w3.org/>

<http://w3.org/WAI/>

<http://www.global.org/accessibility>

<http://dublincore.org/groups/access/>

<http://inclusivelearning.ca>

<http://www.OZeWAI.org/>