

# **Cascaded Speech Styles**

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## Outline

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- **Formatting conveys structure.**
- **Audio formatting.**
- **Separating presentation from content.**



## **Electronic Information**

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**Documents not just for printing!**

<b>Electronic</b>	<b>Printed</b>
<b>Logical Structure</b>	<b>Layout Structure</b>
<b>Dynamic</b>	<b>Static</b>
<b>Customizable</b>	<b>Fixed</b>
<b>Interactive</b>	<b>Non-Interactive</b>
<b>Active</b>	<b>Passive</b>

**Information Comes Alive!**



## Formatting Structure

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### Formatted output:

- **Permits direct perception.**
- **Reduces cognitive load.**

**Enables effective communication.**



## Example

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<p><b>a, plus the fraction whose numerator is, b plus c, end numerator, and whose denominator is, d plus e, end denominator, plus x.</b></p>	
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## Example

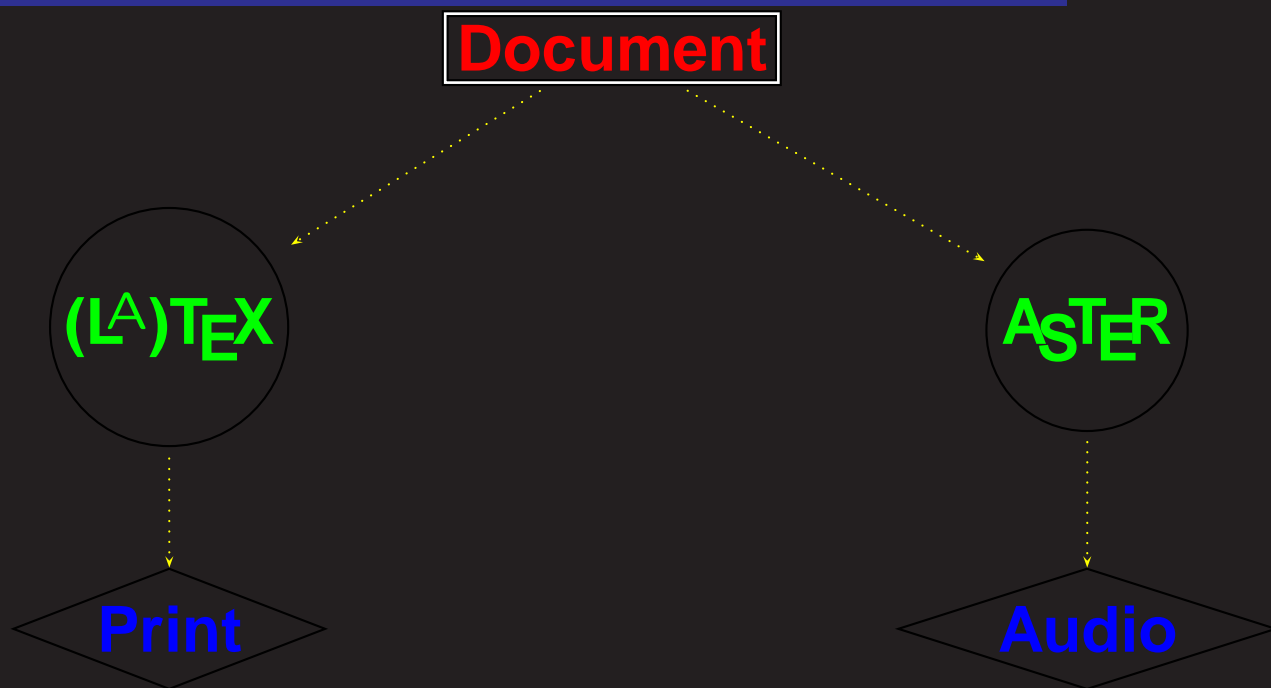
**a, plus the fraction  
whose numerator is,  
b plus c, end  
numerator, and  
whose denominator  
is, d plus e, end  
denominator, plus x.**

$$a + \frac{b + c}{d + e} + x$$





**Information is display independent.**



## Speech Enabled WWW

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- **Audio formatted WWW pages.**
- **Effective aural browsing.**
- **User customizable presentations.**

**Web surfing without a monitor!**





## Interface Design

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**Direct speech access.**

- **Speak information, not visual display.**
- **Exploit structure of WWW pages.**

**Tailor presentation to output medium.**



## Requirements

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- **Well structured WWW pages.**
- **Separate content from presentation.**

**Preserve client-server separation.**



# Client Server Systems

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Enable users access information:

- Where they want,
- When they want,
- The way they want!



## CSS

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- **Separate content from presentation.**
- **Enable consistent site design.**
- **Enable user to tune presentation.**

**Content survives browsers.**



## Speech Style Sheets

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- Specify eyes-free presentation.
- Enable personal customizations.
- Consistent site-wide *sound and feel*.

**Surf the WWW on a speech board!**



## CSS Advantages

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Speech style sheets afford:

- **Device independence.**
- **Research tool for audio formatting.**

**Design high-quality aural presentations.**



## Concrete Example

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Speech styles have been implemented:

- **Emacspeak and the Emacs W3 browser.**
- **CSS compliant implementation.**

**Provide direct speech feedback.**



## Obtaining Software

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- **W3:**

<http://cs.indiana.edu/pub/elisp>

- **Emacspeak:**

<http://cs.cornell.edu/home/raman>

