History of WYSIWYG

By Chris Kinzel
What is WYSIWYG?

- Key features of WYSIWYG
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- Key features of WYSIWYG
  - Content preview optimized for a particular type of output allowing users to visualize what they are producing
What is WYSIWYG?

- Key features of WYSIWYG
  - Content preview optimized for a particular type of output allowing users to visualize what they are producing
  - User interface to manipulate content
What is WYSIWYG?

- Preview not always a faithful reproduction
What is WYSIWYG?

- Preview not always a faithful reproduction
  - Sometimes not always possible to reproduce with 100% fidelity
What is WYSIWYG?

- Preview not always a faithful reproduction
  - Sometimes not always possible to reproduce with 100% fidelity
  - Performance tradeoffs
What is WYSIWYG?

- Preview not always a faithful reproduction
  - Sometimes not always possible to reproduce with 100% fidelity
  - Performance tradeoffs
  - Errors/bugs
The first WYSIWYG

- Before WYSIWYG
The first WYSIWYG

- Before WYSIWYG
  - Text appeared in editors using system typeface
The first WYSIWYG

● Before WYSIWYG
  ○ Text appeared in editors using system typeface
  ○ No margins, spacing, bold, italic etc.
The first WYSIWYG

- Before WYSIWYG
  - Text appeared in editors using system typeface
  - No margins, spacing, bold, italic etc.
  - Users specify formatting using special control characters or markup
The first WYSIWYG

- Bravo
The first WYSIWAYG

- Bravo
  - Document preparation program invented by Xerox PARC for the Alto in 1974
The first WYSIWYG

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  - Supported displaying justification, fonts, proportional spacing
The first WYSIWYG

- Bravo
  - Document preparation program invented by Xerox PARC for the Alto in 1974
  - Supported displaying justification, fonts, proportional spacing
  - The Alto monitor was a portrait design so 1 full page of text could be displayed as would be printed
Bravo

- Made extensive use of the mouse for selecting and marking text
Bravo

- Made extensive use of the mouse for selecting and marking text
  - Interestingly not used for “command entry”
Bravo

- Made extensive use of the mouse for selecting and marking text
  - Interestingly not used for “command entry”
  - Considered too ambitious at the time to use a purely graphical approach for entering commands
Bravo

- When text was laid out on the screen 72ppi font files were used, for printing 300ppi files were used
Bravo

- When text was laid out on the screen 72ppi font files were used, for printing 300ppi files were used
  - This could cause words and characters to appear slightly off
Moving around the document is mostly intuitive. There's a hidden scroll bar to the left of the document text. It behaves a little like the old X-Windows scroll bars: a click on the left button scrolls you up, a click on the right button scrolls you down. This makes sense if you know that one version of the Alto's mouse had the buttons in a vertical column rather than a horizontal row.

We mentioned that Bravo is a WYSIWYG editor with multiple type-faces and font sizes. You access them via the Look mode. After entering the Look mode by pressing the 'T' key, you select from a small collection of type-faces and font sizes by pressing the number keys.

0 Times Roman, 10 pt (default)
1 Times Roman, 8 pt
2 XEROX Logo
3 Math, 10 pt
4 Greek, 10 pt
5 Times Roman, 12 pt
6 Helvetica, 10 pt
7 Helvetica, 8 pt
8 Gothic, 10 pt (fixed-pitch typeface)
9 Helvetica, 16 pt

type styling in Bravo is very, very odd.

If type styling in Bravo is odd, then paragraph styling is completely insane. Maybe it's not as insane as all that: to style a paragraph, you select the paragraph, enter the Look mode and then select the look you want for the paragraph. But the way you select a paragraph is somewhat non-obvious.

First, you have to define a paragraph. In Bravo, paragraphs are all text between Control-CR's. So to get a paragraph, you append or insert a Control-CR, some text and then another Control-CR. Once you've done that, you select the paragraph by hitting the middle (yellow) button just to the left of the text (but not so far that you're in the invisible scroll bar.)

As an example, here's some centered text.

Filing Documents
Bravo

- Text selection with mouse
- Text rendering
Bravo

- Text selection with mouse
- Text rendering
Bravo
- Text selection with mouse
- Text rendering

1974

Gypsy
- Copy, cut, paste
- Mouse support!

Electric pencil
- Word wrap

1975
Bravo
- Text selection with mouse
- Text rendering

1974

1975

Gypsy
- Copy, cut, paste
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1980

Electric pencil
- Word wrap
Bravo
- Text selection with mouse
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1974

Gypsy
- Copy, cut, paste
- Mouse support!

1975

WordStar
- Accurate line, page breaks, and margins
- Typeface rendering

1980

Electric pencil
- Word wrap
1. Introducing WordStar

WordStar is highly flexible and very visible. Watch the screens as you give commands, and information in various parts of the screen will guide you. You won’t see all the information all the time, but it will be there when you need it.

WHERE YOU ARE

The seven WordStar menus are your greatest aids. They are like signposts at the top of your screen, showing you where you are.
Bravo
- Text selection with mouse
- Text rendering

1974

Gypsy
- Copy, cut, paste
- Mouse support!

1975

Electric pencil
- Word wrap

1981

Microsoft Word
- Undo/redo support
- Find/replace
- Macros

WordStar
- Accurate line and page breaks
- Typeface rendering

1980
Other WYSIWYG Domains

- Photo editing
Other WYSIWYG Domains

- Photo editing
- Video editing
Other WYSIWYG Domains

- Photo editing
- Video editing
- Audio editing
Other WYSIWYG Domains

- Photo editing
- Video editing
- Audio editing
- Building websites
Other WYSIWYG Domains

- Photo editing
- Video editing
- Audio editing
- Building websites
- Building software (no code)
Other WYSIWYG Domains

- Photo editing
- Video editing
- Audio editing
- Building websites
- Building software (no code)
- Database queries
Other WYSIWYG Domains

- Photo editing
- Video editing
- Audio editing
- Building websites
- Building software (no code)
- Database queries
- Presentations
Other WYSIWYG Domains

- Photo editing
- Video editing
- Audio editing
- Building websites
- Building software (no code)
- Database queries
- Presentations
- Spreadsheets
BRUNO

- Overhead slide production

1979
BRUNO
- Overhead slide production

1979

1980
BRUNO
- Overhead slide production

1979

1980
Lotus 1-2-3
- Spreadsheets
- Drag and drop cell margins and define ranges
BRUNO
- Overhead slide production

Lotus 1-2-3
- Spreadsheets
- Drag and drop cell margins and define ranges
- Charting/graphing
BRUNO

- Overhead slide production

1979

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- Drag and drop cell margins and define ranges
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1983
BRUNO
- Overhead slide production

MacPaint
- “Marching ants” selection

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- Implemented many familiar graphics tools: lasso, paint bucket, eraser, shape drawing

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- 1-level undo support

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Photoshop
- Soft edges for paint brushes and selection

Timeline:
- 1979: BRUNO
- 1980: Lotus 1-2-3
- 1983: MacPaint
- 1987: Photoshop
BRUNO
- Overhead slide production

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- Implemented many familiar graphics tools: lasso, paint bucket, eraser, shape drawing
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- Soft edges for paint brushes and selection
- Clone stamp, curves, levels, and filters

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HoTMetaL
- HTML WYSIWYG
BRUNO
- Overhead slide production

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- Clone stamp, curves, levels, and filters

1983

HoTMetaL
- HTML WYSIWYG
- Show HTML preview with “Tags-On” view

1987

1994
Sources for your questions on HTML and the Web

1. Information on HTTP (HyperText Transfer Protocol):

2. Information on HTML Specification:
   - [http://www.html.com/user/compiler.html] Spec 1.0
   - [http://www.html.com/user/compiler.html] Spec 1.1
   - [http://www.html.com/user/compiler.html] Spec 1.2

3. Information on setting up forms functionality:
   - [http://www.html.com/user/compiler.html] Common Gateway Interface
   - [http://www.html.com/user/compiler.html] CGI
   - [http://www.html.com/user/compiler.html] ISAPI

4. Information on setting up ISMAP functionality:
   - [http://www.html.com/user/compiler.html] ISMAP Tutorial

5. Overview on using Clickable Image Maps:

6. Virtual Library/CyberWeb/WWW Development:
   - [http://www.html.com/user/compiler.html] Virtual Library
   - [http://www.html.com/user/compiler.html] CyberWeb
   - [http://www.html.com/user/compiler.html] WWW Development
Modern WYSIWYG
2006

Wix

- Drag and drop WYSIWYG for web pages
2006

Wix
- Drag and drop WYSIWYG for web pages
- Simple column and grid layout for positioning
The Street Is My Runway

Shop the Collection
Wix

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2006

- Drag and drop WYSIWYG for web pages
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2014

- Overleaf
  - WYSIWYG LaTeX editor
Wix
● Drag and drop WYSIWYG for web pages
● Simple column and grid layout for positioning

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● WYSIWYG LaTeX editor
● Removes LaTeX environment setup

2006

2014
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would be 2. If convergence rate is quadratic, then
\[
V^{\text{[tree]}},_0(\Delta t) = V^{\text{[exact]}},_0 + \alpha (\Delta t)^2 + o((\Delta t)^2)
\]
where $\alpha$ is some constant independent of $\Delta t$. What is the ratio when convergence is quadratic? Does your convergence table indicate a linear or quadratic convergence rate? Explain.

My convergence table does not show either a linear or a quadratic convergence rate. The ratio does not appear to be converging to any specific value. I believe this is because smoothing is required due to the lattice not having a node at the strike price.

(b) Generate tables of fair values of the same call and put options using $\Delta t = 0.005$, assuming dividend yield $\rho = 0, 5, 10$ respectively. How do call and put values change with the dividend yield $\rho$?
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- Rapid high fidelity prototypes
- Drag and drop interface
- Scalable vector graphics
- Springs and struts positioning as well as flexbox style layout

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Overleaf
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- Removes LaTeX environment setup
- Collaborative

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2006

Figma
- Collaborative design prototyping tool
- Rapid high fidelity prototypes
- Drag and drop interface
- Scalable vector graphics
- Springs and struts positioning as well as flexbox style layout
- Supports simple animations and triggers on user events
WYSIWYG and the Future
AI/Machine Learning

- Recent advances in deep learning are making it possible to build systems that can learn from examples
AI/Machine Learning

- Recent advances in deep learning are making it possible to build systems that can learn from examples.
- Image, audio, and natural language domains can now be processed in complex ways that were not possible before.
StyleGAN

- Special type of Generative Adversarial Network created by NVIDIA in December 2018
StyleGAN

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- Technique for creating realistic synthetic images based on a set of sample images
StyleGAN

- Special type of Generative Adversarial Network created by NVIDIA in December 2018
- Technique for creating realistic synthetic images based on a set of sample images
- Extended into audio and video domains, NVIDIA has created a GAN to recreate Pac-Man from gameplay frames
GPT-3

- Autoregressive language model
GPT-3

- Autoregressive language model
- Largest NLP model ever produced with over 175 billion parameters
GPT-3

- Autoregressive language model
- Largest NLP model ever produced with over 175 billion parameters
- Trained on a large corpus of text obtained from web crawlers (includes text from websites, Wikipedia, and books)
GPT-3

- Capable of few-shot learning, produces interesting output from small prompts:
GPT-3

- Capable of few-shot learning, produces interesting output from small prompts:
  - Writing short essays
GPT-3

- Capable of few-shot learning, produces interesting output from small prompts:
  - Writing short essays
  - Answering questions
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- Capable of few-shot learning, produces interesting output from small prompts:
  - Writing short essays
  - Answering questions
  - Producing snippets of code
GPT-3

- Capable of few-shot learning, produces interesting output from small prompts:
  - Writing short essays
  - Answering questions
  - Producing snippets of code
  - Generating images (DALL-E)
an armchair in the shape of an avocado, an armchair imitating an avocado.
Describe your layout:

a black button saying "OpenAI" and an orange button saying "Themesberg":

Generated code:

```html
<button class="btn bg-black text-white rounded py-2 px-2"> OpenAI </button>
<button class="btn bg-orange-600 bg-black text-white rounded py-2 px-2"> Themesberg </button>
```

Result:

OpenAI Themesberg
Payments infrastructure for the internet

Millions of businesses of all sizes—from startups to large enterprises—use Stripe's software and APIs to accept payments, send payouts, and manage their businesses online.
Issues with WYSIWYG

- Vendor lock-in
Issues with WYSIWYG

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- Generated output often bloated and inefficient
Issues with WYSIWYG

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- Generated output often bloated and inefficient
- Content preview may not actually match what the output will display
Issues with WYSIWHYG

- Vendor lock-in
- Generated output often bloated and inefficient
- Content preview may not actually match what the output will display
- Work can be repeated or duplicated
Advantages of WYSIWYG

- Fast prototyping and visualization of final result
Advantages of WYSIWYG

- Fast prototyping and visualization of final result
- Easy to make and preview changes
Advantages of WYSIWYG

● Fast prototyping and visualization of final result
● Easy to make and preview changes
● Easy to use and requires no special skills to use
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- Easy to use and requires no special skills to use
- Lowers entry barriers for beginners
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- Fast prototyping and visualization of final result
- Easy to make and preview changes
- Easy to use and requires no special skills to use
- Lowers entry barriers for beginners
- Often provides templates to make it easy to get started quickly
Thanks for listening!