UNIFYING THE EDITING EXPERIENCE
Improved tools
The Muppet Christmas Carol is a 1992 American musical fantasy comedy-drama film and an adaptation of Charles Dickens's 1843 novel A Christmas Carol. It is the fourth in a series of live-action musical films featuring [[Michael Caine]] starring as [[Ebenezer Scrooge]]. Although it is a comedic film with songs, The Muppet Christmas Carol otherwise follows Dickens's original story closely.

**Plot**

On Christmas Eve, in New York City as narrators through the mistletoe, Scrooge encounters the ghosts of his late business partners [[Jacob Marley]] and his friend [[Rizzo]], warning him to repent his wicked ways or he will be condemned in the afterlife like they were. Scrooge rejects his nephew Fred's invitation to Christmas dinner, dismisses two gentlemen's collectible money for charity, and tosses a wreath at a carol singing [[Bertie Bassett]] and [[Bean Bunny]]. His loyal employee [[Bob Cratchit]] and other bookkeepers request that Christmas Day off since there will be no business for Scrooge on the day, which he reluctantly agrees. Scrooge leaves for home while the bookkeepers celebrate Christmas. In his house, his wife [[Martha Cratchit]] and his children [[Tom Cratchit]] and Clarice {{sister | }} are preparing Christmas dinner, including [[Christmas pudding]], while Martha's parents, [[Isaac Cratchit]] and [[Sarah Cratchit]], also help. Scrooge is[[REDIRECT|redirected]] to the [[Charles Dickens Museum]] in London.
Images
Citations: before
Citations: after

finds and replace

Scrooge

Narrators throughout the film, Ebenezer Scrooge, a sly money-lender, does not share the merriment of Christmas. Scrooge rejects his nephew Fred's invitation to Christmas dinner, dismisses two gentlemen's collecting money for charity, and tosses a wreath at a carol singing Bob Cratchit and the other bookkeepers request to have Christmas Day off since there will be no business for Scrooge on the day, to which he reluctantly agrees. Scrooge leaves for home while the bookkeepers celebrate Christmas. In his house, Scrooge encounters the ghosts of his late business partners Jacob and Robert Marley, who warn him to repent his wicked ways or he will be...
De-duplication
Special characters
Undo!

1. Use a tool
2. Try to undo
3. (╯°□°)╯︵ ┻━┻
Accessibility

No keyboard shortcuts
Mode switching
Different interfaces

Editing The Muppet Christmas Carol

The Muppet Christmas Carol is a 1992 American musical fantasy comedy-drama film and an adaptation of Charles Dickens's 1843 novel A Christmas Carol. It is the fourth in a series of live-action musical films featuring The Muppets, with Michael Caine starring as Ebenezer Scrooge. Although it is a comedic film with contemporary songs, The Muppet Christmas Carol otherwise follows Dickens's original story closely. The film was produced and directed by Brian Henson for Jim Henson Productions and released by Walt Disney Pictures.

The Muppet Christmas Carol was dedicated to the memory of Muppets creator Jim Henson and fellow puppeteer Richard Hunt, who died during pre-production.

Plot
"The Muppet Christmas Carol" is a 1992 American [[Musical film|musical]] [[Fantasy film|fantasy]] [[comedy-drama]] film and an [[Film adaptation|adaptation]] of [[Charles Dickens]]'s 1843 novel "[[A Christmas Carol]]". It is the fourth in a series of live-action musical films featuring [[The Muppets]], with [[Michael Caine]] starring as [[Ebenezer Scrooge]]. Although it is a comedic film with contemporary songs, 'The Muppet Christmas Carol' otherwise follows Dickens's original story closely.

The film was produced and directed by [[Brian Henson]] for [[The Jim Henson Company|Jim Henson Productions]] and released by [[Walt Disney Pictures]]. "The Muppet Christmas Carol" was dedicated to the memory of Muppets creator [[Jim Henson]] and fellow puppeteer [[Richard Hunt (puppeteer)|Richard Hunt]], who died during pre-production.
Integration options

Add tools to the 2010 editor

- Need to re-interface toolbar with surface
- Need to re-interface inspector with surface
- Still on a separate page
- Requires CSS duplication and maintenance

Add wikitext to the visual editor

- Re-uses lots of code for user interfaces
- UI identical to visual editor for free
- Tools work by default by converting VE data model output back to WikiText
Making it all work
Overview

Editing tool generates VE data model

Surface fragment Generates transactions

Data model Applies transactions
Overview

- **Editing tool** generates VE data model
- **Surface fragment**
  - Generates transactions
- **Data model**
  - Applies transactions
- **Hidden document model**
  - Applies transactions
- **Converter & Parsoid**
  - Converts data model to HTML then wikitext
Some code

```javascript
/* @inheritdoc */

ve.dm.MWWikiTextSurfaceFragment.prototype.convertFromSource = function ( source ) {
  var parsePromise;
  if ( !source ) {
    parsePromise = $.Deferred().resolve(
      ve.dm.Document.static.newBlankDocument()
    ).promise();
  } else {
    parsePromise = new mw.Api().post( {
      action: 'visualeditor',
      paction: 'parsefragment',
      page: mw.config.get( 'wgRelevantPageName' ),
      wikitext: source
    }).then( function ( response ) {
      return ve.dm.converter.getModelFromDom( ve.createDocumentFromHtml( response.visualeditor.content )
    });
  }
  return parsePromise;
};
```
The future
To-do

- Performance
- APIs
- Feedback from editors on WikiText-specific editing tools
- Client-side tools
- Editing content (not just inserting).
VISUAL DIFFS
Outline

- Introduction to visual diffs
  - What and why
  - Where they are used
- Why they’re complicated
- Different solutions
- Our solution
- Still to do
The MP since 1983, Jeremy Corbyn, had his smallest majority (15.3%) in 1983 and his largest (55.6%) in 1997. In four elections during Corbyn's tenure the runners up party have been the [[Liberal Democrats (UK)|Liberal Democrats]]. The 2015 result made the seat the 28th safest of Labour's 232 seats by percentage of majority.<ref>[http://www.ukpolitical.info/labour-mps-elected-2015.htm List of Labour MPs elected in 2015 by % majority] UK Political.info. Retrieved 2017-01-29</ref>

The MP since 1983, Jeremy Corbyn, had his smallest majority (15.3%) in 1983 and his largest (60.5%) in 2017. In the eight elections during Corbyn's tenure, the [[Conservative Party (UK)|Conservatives]] have finished in second place four times while the [[Liberal Democrats (UK)|Liberal Democrats]] have also been runners up on four occasions. The 2015 result made the seat the 28th safest of Labour's 232 seats by percentage of majority.<ref>[http://www.ukpolitical.info/labour-mps-elected-2015.htm List of Labour MPs elected in 2015 by % majority] UK Political.info. Retrieved 2017-01-29</ref>
The MP since 1983, Jeremy Corbyn, had his smallest majority (15.3%) in 1983 and his largest (55.6% 60.5%) in 1997 2017. In four the eight elections during Corbyn's tenure, the runners-up party have been Conservatives have finished in second place four times while the Liberal Democrats have also been runners up on four occasions. The 2015 result made the seat the 26th safest of Labour's 232 seats by percentage of majority.[1]
Imperial College London is a public research university located in London, United Kingdom. Its founder, Prince Albert, envisioned an area composed of the Victoria and Albert Museum, Natural History Museum, Royal Albert Hall, and the Imperial Institute. His wife, Queen Victoria, laid the foundation stone for the Imperial Institute in 1888. Imperial College London was granted Royal Charter in 1907. In the same year, the college joined the University of London, before leaving it a century later. Through merging with several historic medical schools, the curriculum expanded to include medicine. In 2004, Queen Elizabeth II opened the Imperial College Business School.

The main campus is located in South Kensington. Imperial is organised into faculties of science, engineering, medicine, and business. The university's main emphasis is on emerging technology and its practical application.

Imperial is consistently placed among the top universities in the world. In 2017, it ranked 8th in the Times Higher Education World University Rankings, 8th in the QS World University Rankings, and 22nd in the Academic Ranking of World Universities. In 2015, Imperial was ranked the most innovative university in Europe. Staff and alumni include 15 Nobel laureates, 2 Fields Medalists, 70 Fellows of the Royal Society, 82 Fellows of the Royal Academy of Engineering, and 78 Fellows of the Academy of Medical Sciences.
Imperial College London: Difference between revisions

In *The World's Most Innovative Universities Rankings* by Reuters, Businessweek, and the Financial Times, Imperial ranks 1st in innovation and entrepreneurship in Europe.[6][40][41][42]

Outline

- Introduction to visual diffs
- Why they’re complicated
  - Showing the diff
  - Computing the diff
- Different solutions
- Our solution
- Still to do
Composers with an association with Canterbury include

* "[[Thomas Tallis]]" (c. 1505–1585), became a lay clerk (singing man) at Canterbury Cathedral c. 1540 and was subsequently appointed a Gentleman of the [[Chapel Royal]] in 1543.<ref name="Bowers" />

* "[[John Ward (composer)]]" (1571–1638), born in Canterbury, a chorister at Canterbury Cathedral, composed madrigals, works for viol consort, services, and anthems.

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In accordance with an [[Enclosure Act]] of 1770, promoted by the Duchy of Lancaster, the Royal Forest of Knaresborough was enclosed. The Enclosure Award of 1778 clarified ownership of land in the Harrogate area. Under the Award {{convert|200|acre}} of land, which included the springs known at that time, were reserved as a public common, the Stray, which has remained public open space. <ref>[http://www.harrogate.gov.uk/harrogate-3360 Harrogate Borough Council: the Stray]</ref> The Enclosure Award of 1778 clarified ownership of land in the Harrogate area. Under the Award {{convert|200|acre}} of land, which included the springs known at that time, were reserved as a public common, [[the Stray (Harrogate)|The Stray]], which has remained public open space. <ref>[http://www.harrogate.gov.uk/harrogate-3360 Harrogate Borough Council: the Stray]</ref>
<table>
<thead>
<tr>
<th>Line 300:</th>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2016</td>
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</tr>
<tr>
<td>55.7</td>
<td>96.3</td>
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<tr>
<td>88.0</td>
<td>-</td>
</tr>
<tr>
<td>196.3</td>
<td>-</td>
</tr>
<tr>
<td>2015</td>
<td>2015</td>
</tr>
</tbody>
</table>
HTML differencing

Old:
<p>Hello</p>

New:
<p>Hello</p><p>there</p>

Display:
<p>Hello</p><ins><p>there</p></ins>
Old:
<p>Hello</p><p>there</p>

New:
<p>Hello</p><p><b>there</b></p>

Display?
<p>Hello</p><p><ins><b>there</b></ins></p>
**HTML diffing**

Old:
```html
<p>Hello</p><p>there</p>
```

New:
```html
<p>Hello</p><p><b>there</b></p>
```

Display:
```html
<p>Hello</p><p><del>there</del> <ins><b>there</b></ins></p>
```

Hello

there there
HTML diffing

Old:
<p>Hello</p><p>there</p>
New:
<p>Hello there</p>

Display?
<p>Hello<del></p><p></del><ins> </ins>there</p>
Not so simple
Outline

- Introduction to visual diffs
- Why they’re complicated
- **Different solutions**
  - Advantages and disadvantages
- Our solution
- Still to do
Different possible approaches

- **Diff the HTML**
  - Advantage: generic
  - Disadvantage: generic

- **Diff the visual editor data model**
  - Advantages:
    - built-in distinction between content and structure
    - complex trees represented as single templates (e.g., block images)
    - better semantic description of the document
  - Disadvantage: not generic to historical revisions
Different possible approaches

- **Linear-diff then (parse)**
  - Advantage: diff step is simple, relatively quick
  - Disadvantage: parsing step lengthy, specific

- **Use the transaction history**
  - Advantage: ignoring unchanged parts saves a lot of time
  - Disadvantage: removing then retyping, doesn't work on history diffs

- **Diff as a tree**
  - Advantage: conceptually “correct” since document is a tree, therefore generic
  - Disadvantage: high performance cost
Outline

- Introduction to visual diffs
- Why they’re complicated
- Different solutions
  - Our solution
    - Tree diffing
    - Time saving
    - Examples
- Still to do
Tree differencing
Tree diffing

Old:

<document>
  <p>Hello</p>
  <p>there</p>
</document>

New:

<document>
  <p>Hello there</p>
</document>

Display?
Tree diffing

Available moves:

- Remove
- Insert
- Change
Tree diffing

Available moves:

- Remove
- Insert
- Change

8 moves
Tree diffing

Available moves:

- Remove
- Insert
- Change
Tree diffing

Available moves:

- Remove
- Insert
- Change

Dennis Shasha and Kaizhong Zhang, 1990.
github.com/Tchanders/treeDiffer.js
Tree diffing

Available moves:

- Remove
- Insert
- Change
Tree diffing

Available moves:

- Remove
- Insert
- Change

3 moves
Tree diffing

Old:
<document>
  <p>Hello</p>
  <p>there</p>
</document>

New:
<document>
  <p>Hello there</p>
  <p>there</p>
</document>

Display:
<document>
  <p>Hello there</p>
  <p>there</p>
</document>
Tree diffing

Old:

<document>
   <p>Hello</p>
   <p>there</p>
</document>

New:

<document>
   <p>Hello there</p>
</document>

Display:

Hello there

there
Time saving
Time saving
Time saving

Break the document into subtrees and discard any identical pairs
Time saving

Break the document into subtrees and discard any identical pairs
Time saving

Break the document into subtrees and discard any identical pairs
Time saving

Tree diff the subtrees. When a pair of subtrees is close enough, stop diffing them.
Time saving

Linear diff any changed nodes within each tree diff *iff they contain content*

Freebie: moves

github.com/edg2s/google-diff-match-patch
Creating a different world is a literary device used by authors to illustrate ideas. By placing the story in the setting of a different world, the author can change the way that things happen. For example, the author might imagine a world that has very little water or a world that has very little dry land. Deciding what a world looks like and how the world works is called world-building. Thinking about their world helps the author make good choices about what happens to the characters in the story.

Some authors think about many details, such as what languages the characters speak and what the architecture is on the world.
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Time saving

Tree diff the subtrees. When a pair of subtrees is close enough, stop diffing them.

Freebie: removes/inserts
Time saving

Use a time limit

- For the tree diff
- For the linear diff

May not get minimal diff
Composers with an association with Canterbury include

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In accordance with an Enclosure Act of 1770, promoted by the Duchy of Lancaster, the Royal Forest of Knaresborough was enclosed. The Enclosure Award of 1778 clarified ownership of land in the Harrogate area. Under the Award 200 acres (81 ha) of land, which included the springs known at that time, were reserved as a public common, the Stray The Stray, which has remained public open space.[13] The Enclosure Award facilitated development around the Stray. During the 19th century, the area between High Harrogate and Low Harrogate, which until then had remained separate communities a mile apart, was developed, and what is now the central area of Harrogate was built on high ground overlooking Low Harrogate.[16] An area to the north of the developing
The Stray is a long area of public parkland in the centre of Harrogate, North Yorkshire, comprising 200 acres of contiguous open land linking the spa town's curative springs and wells. The contiguous area of land, not all of which is officially designated part of The Stray, forms an approximately U-shaped area of land in the Harrogate area. Under the Award 200 acres (81 hectares) of land, which until then had remained separate communities a mile apart, was developed, and what is now the central area of Harrogate was built on high ground overlooking Low Harrogate. An area to the north of the developing
### Table diff

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<tbody>
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## Table diff

A-Level Results: last five years[87]

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<td>98.5</td>
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</table>

In addition, Westminster School graduates secure places at universities.
Outline

- Introduction to visual diffs
- Why they’re complicated
- Different solutions
- Our solution
- Still to do
  - Specific design
  - Specific diff computation
Still to do

- Specific design
  - E.g. moves, comment nodes, invisible templates
- Specific diffs (everything is a tree, but not everything is best as a tree)
  - E.g. conceptually, lists are linear, tables are 2D
  - Reference diffs already specific
- Template references, etc.
Summary

The visual diff complements the wikitext diff

Diffing is a balance between perfection and speed