UNIFYING THE EDITING EXPERIENCE

Improved tools

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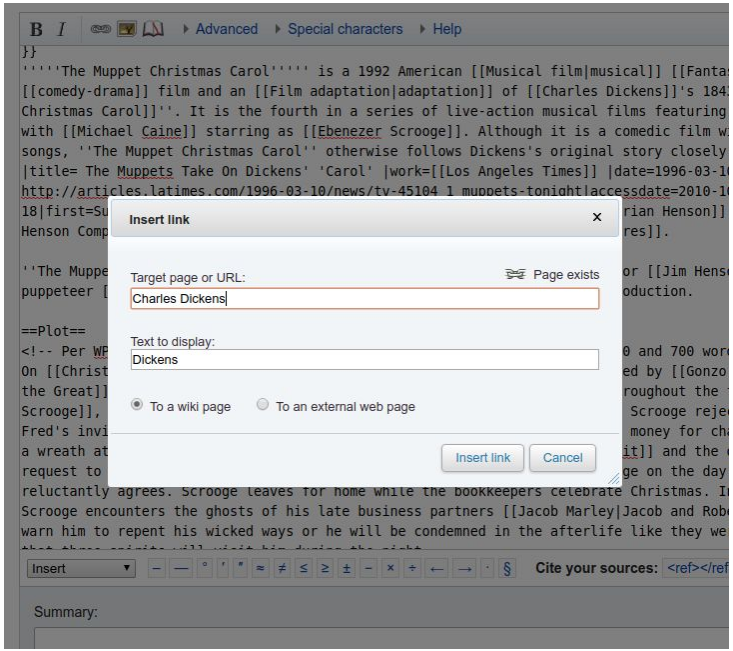
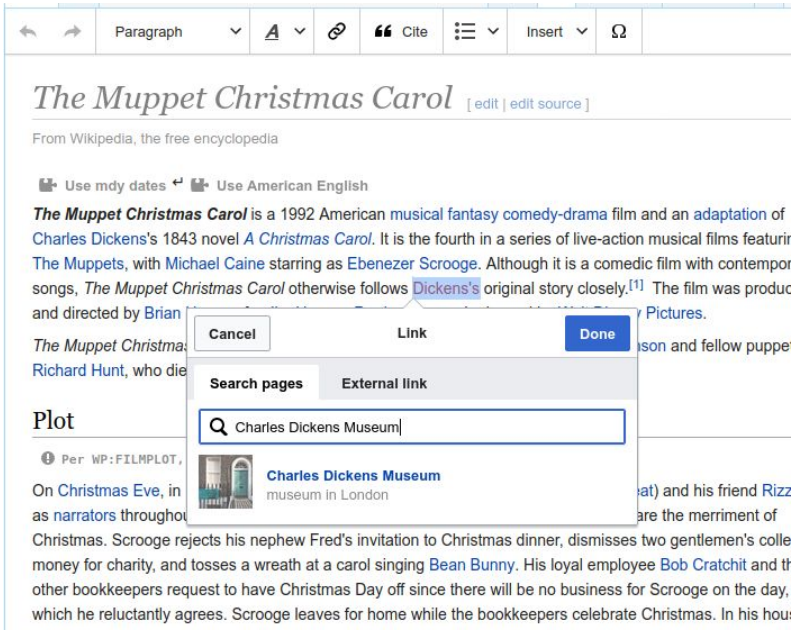
Links





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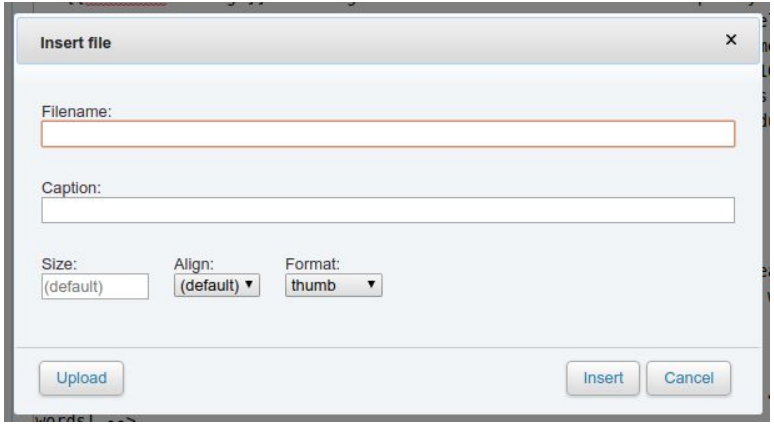
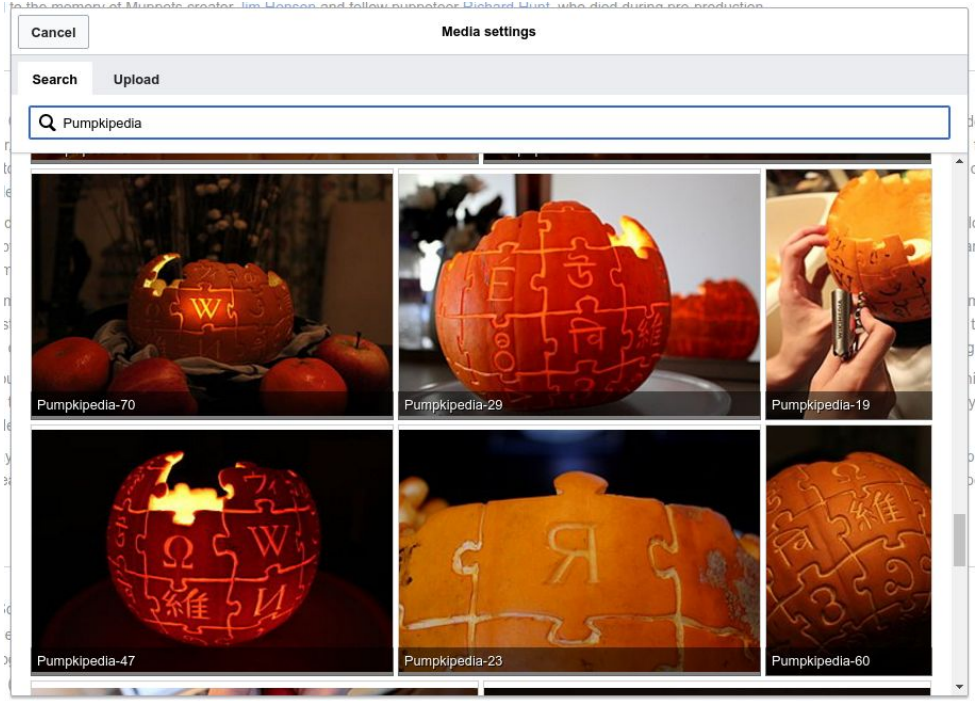
Images





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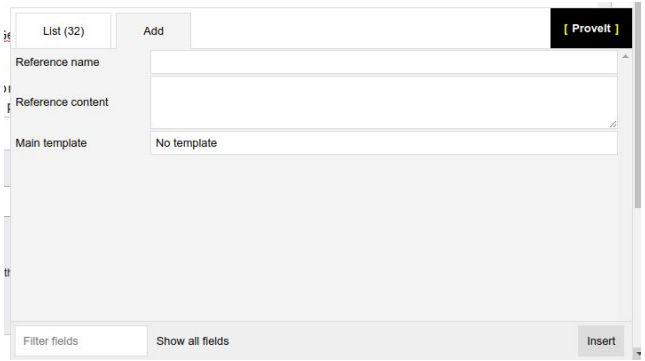
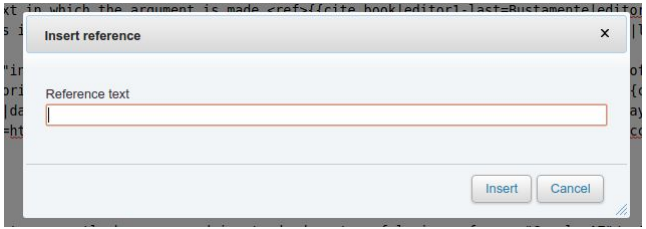
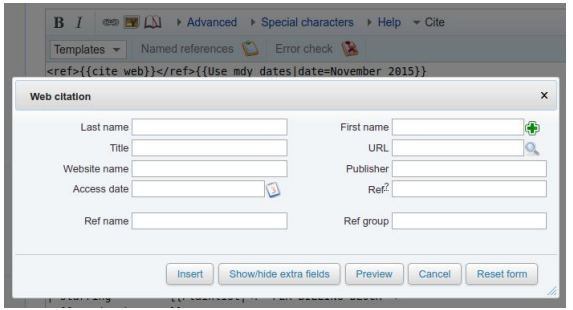
Citations: before







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Citations: after

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Find and replace

Scro{3,}ge 1 of 3 Aa (.*) “” ã

Scrooge Replace Replace all Done

narrators throughout the film. Ebenezer Scrooge, a surly money-lender, does not share the merriment of Christmas. Scroooooge 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 Bean Bunny. His loyal employee Bob Cratchit and the other bookkeepers request to have Christmas Day off since there will be no business for Scroooge 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

Theatrical release poster

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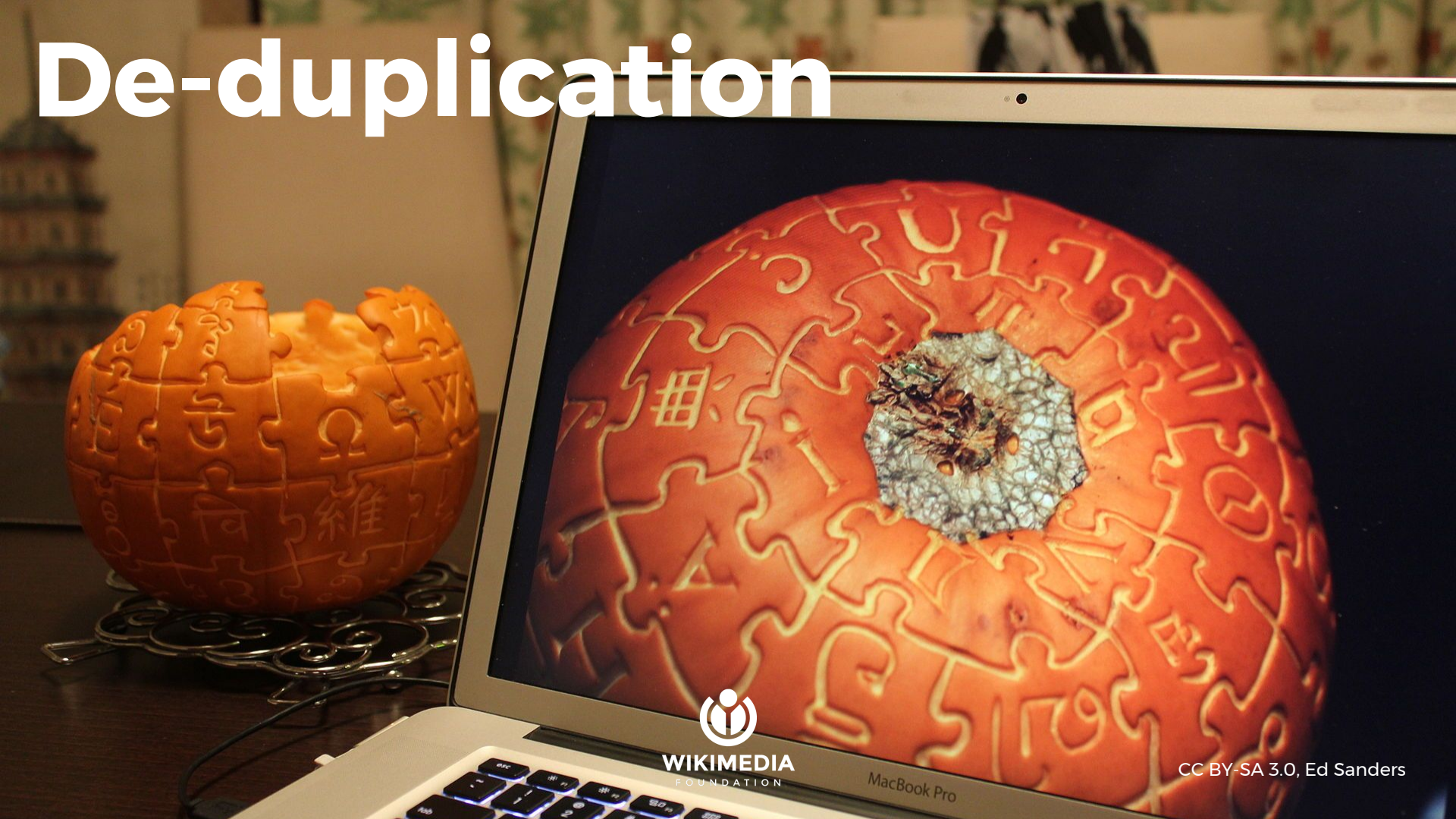
De-duplication



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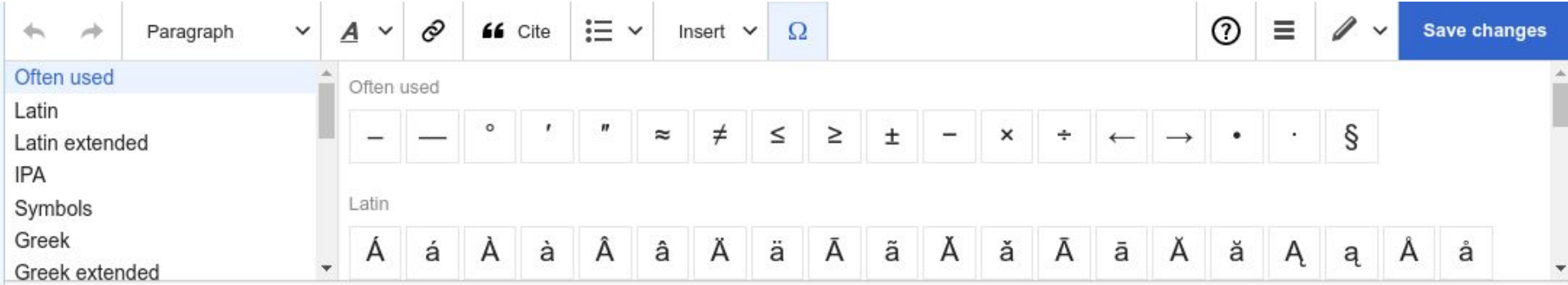
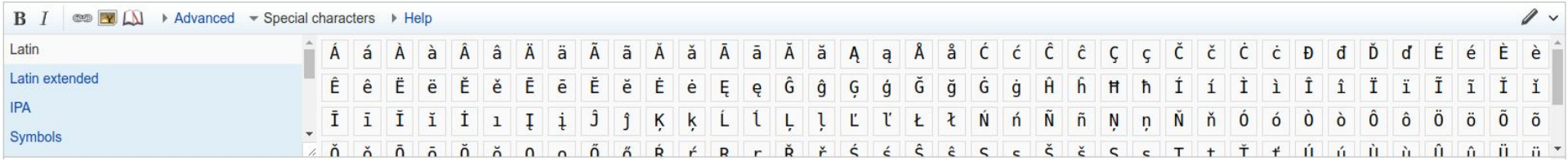
Special characters





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Failures

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Undo!

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

Accessibility

No keyboard shortcuts

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Mode switching

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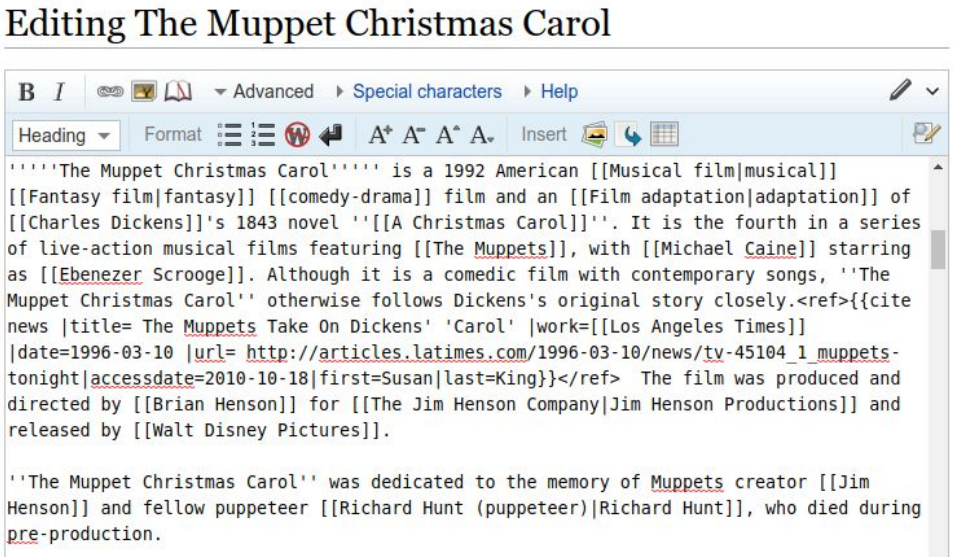
Different interfaces



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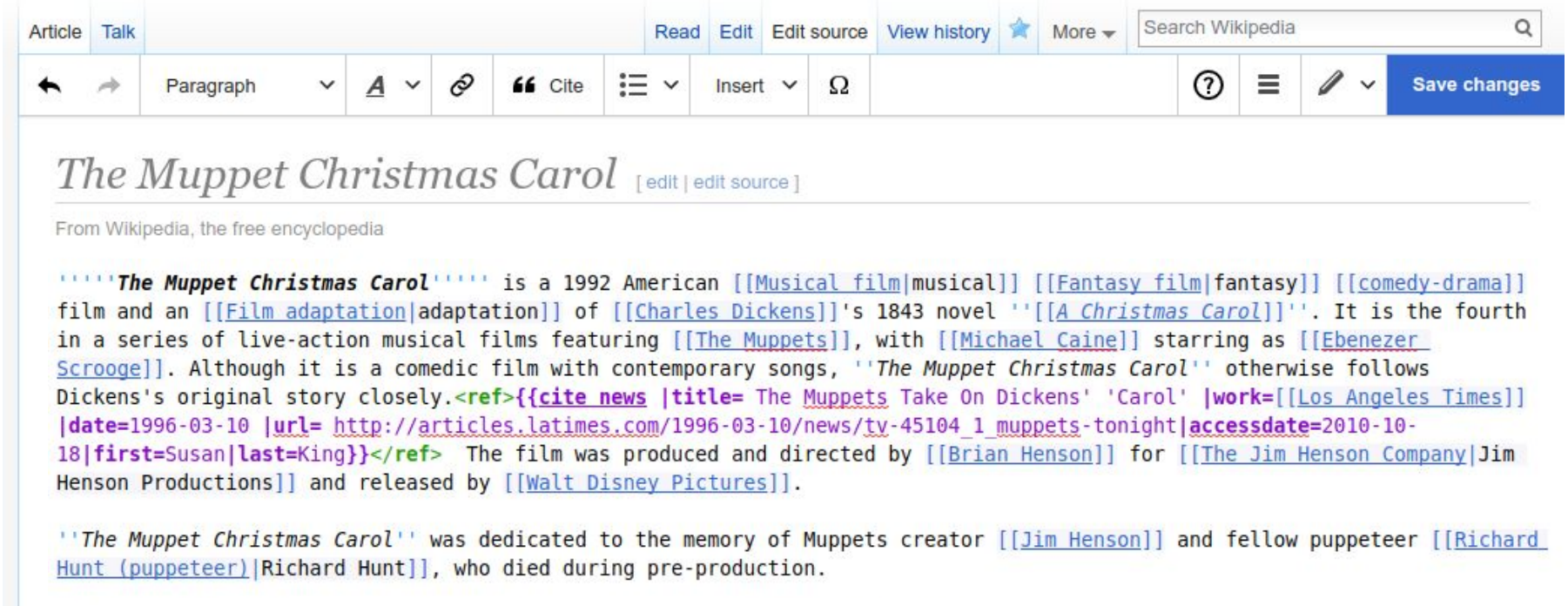
Different interfaces



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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**

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Making it all work

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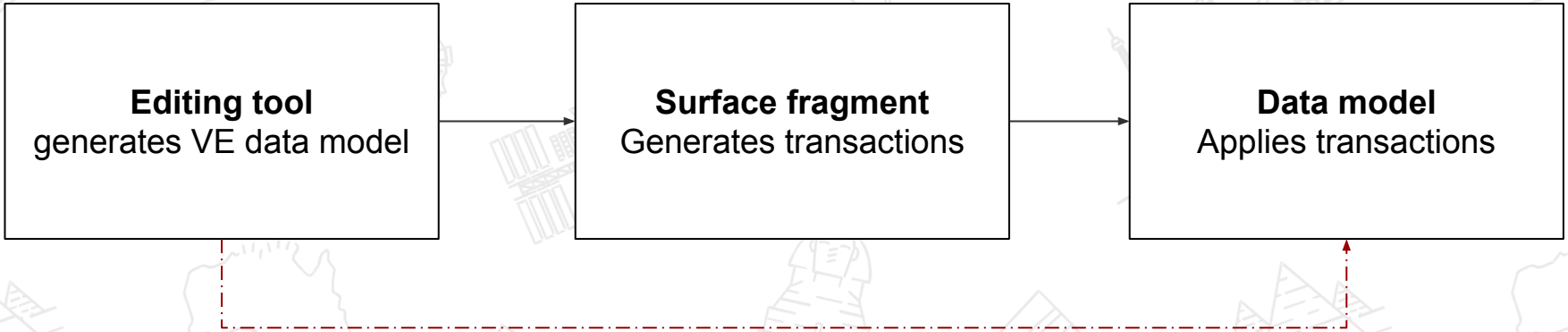
Overview



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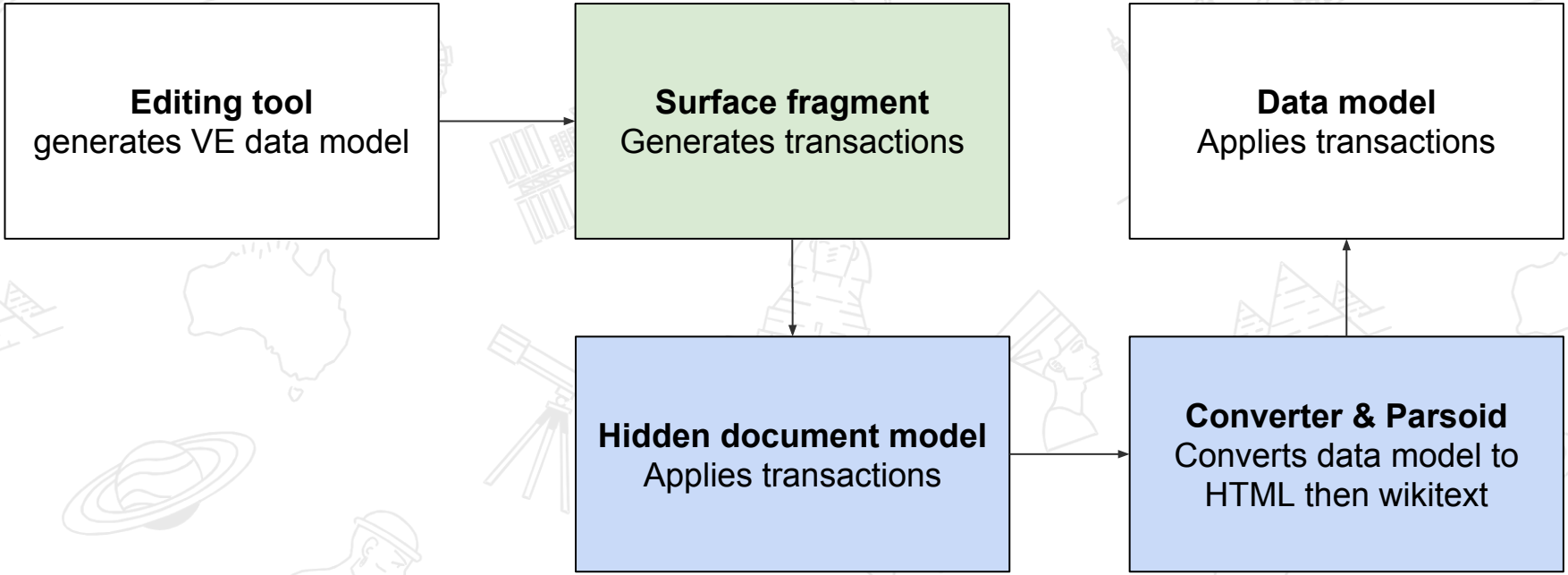
Overview



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Some code

```
/**
 * @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;
};
```

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The future

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To-do

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

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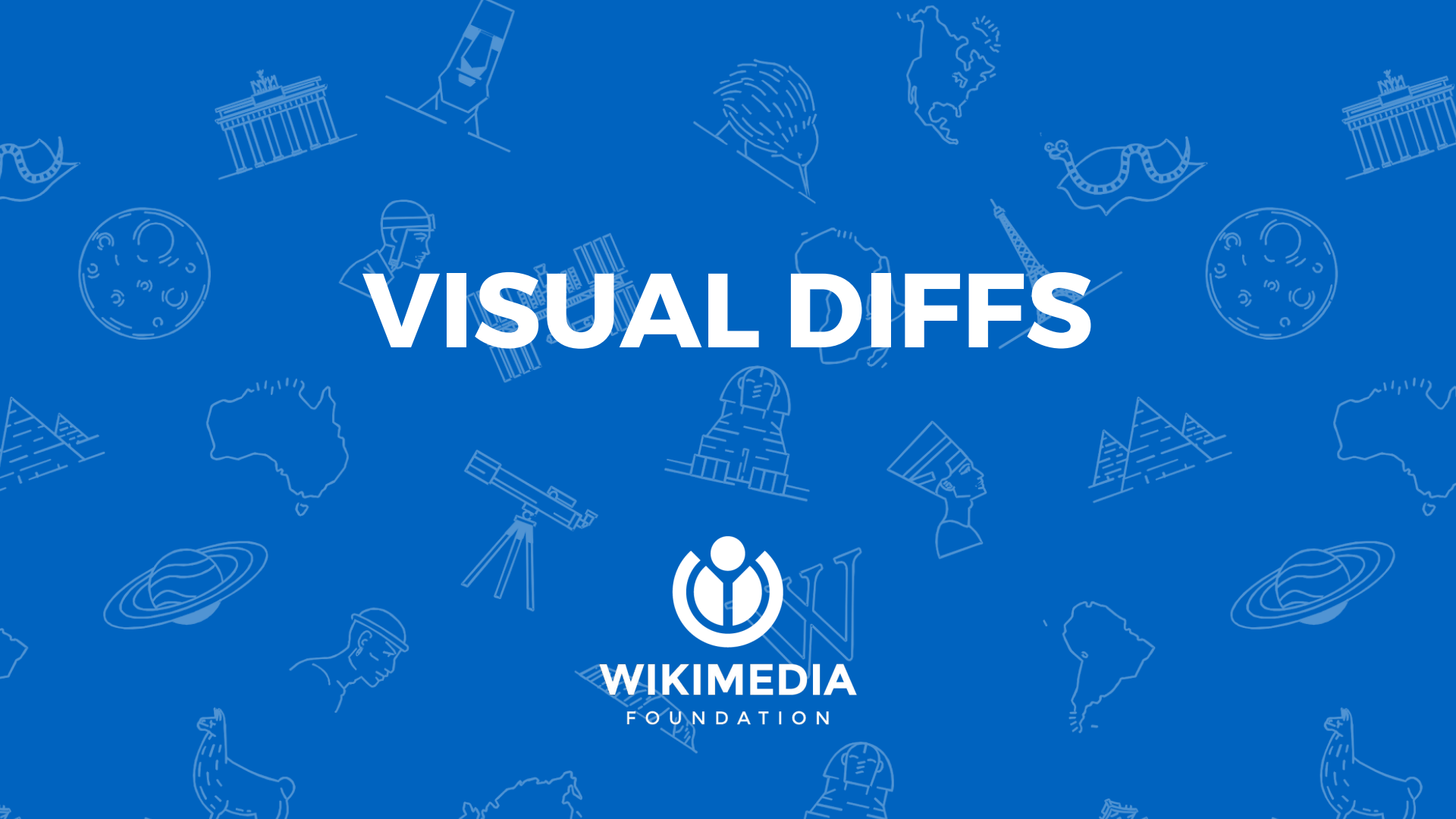
VISUAL DIFFS



Outline

- Introduction to visual diffs
  - What and why
  - Where they are used
- Why they're complicated
- Different solutions
- Our solution
- Still to do

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Wikitext diff

−

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 26th 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 26th 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>

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Visual diff

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]

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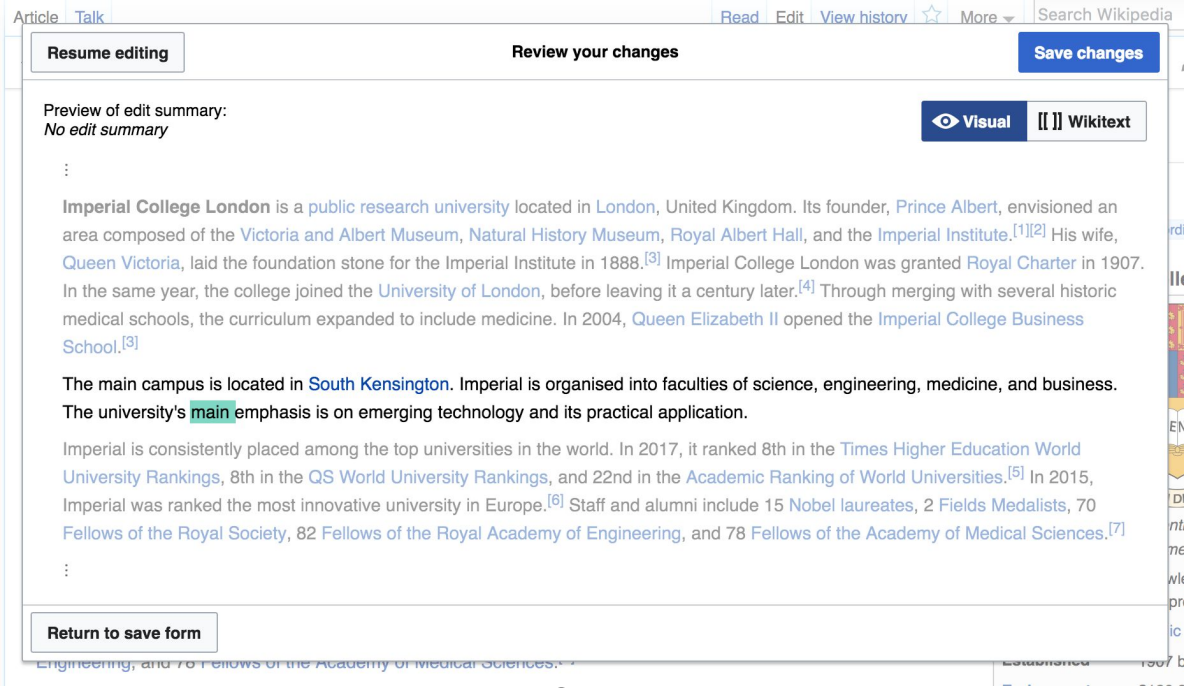
Edit diff



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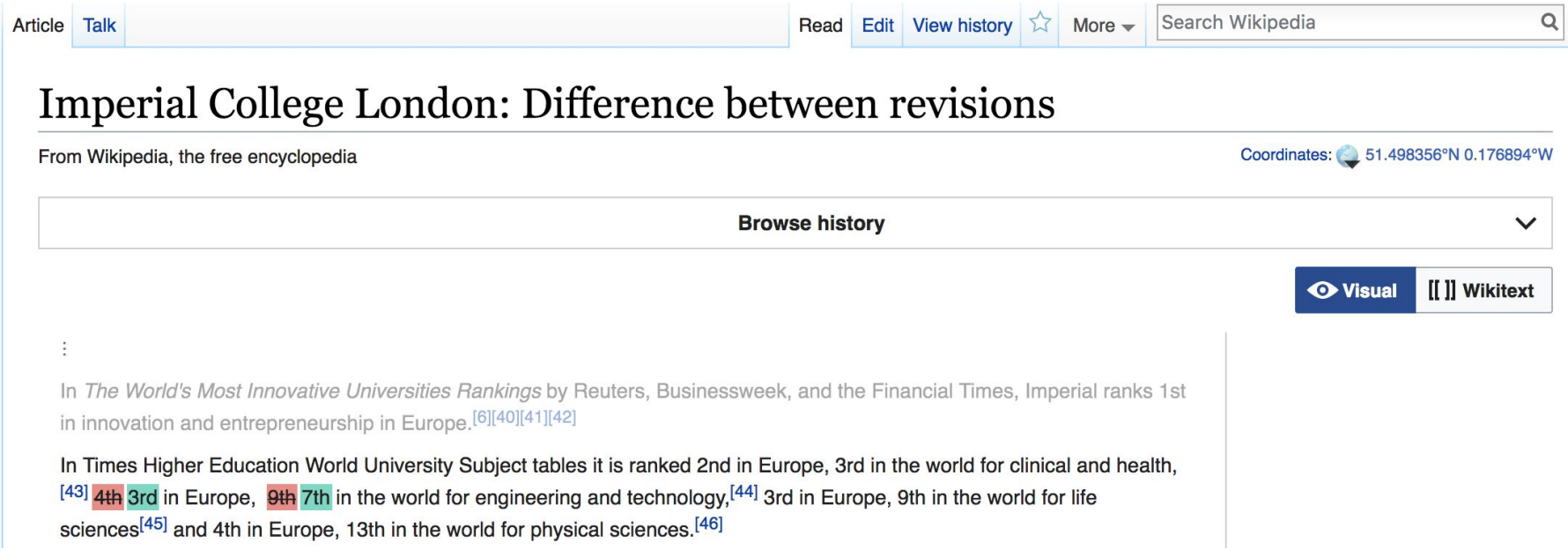
History diff



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Outline

- Introduction to visual diffs
- Why they're complicated
  - Showing the diff
  - Computing the diff
- Different solutions
- Our solution
- Still to do

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List diff

Composers with an association with Canterbury include	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" />	+ # '''[[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)|John Ward]]''' (1571–1638), born in Canterbury, a chorister at Canterbury Cathedral, composed madrigals, works for viol consort, services, and anthems.	+ # '''[[John Ward (composer)|John Ward]]''' (1571–1638), born in Canterbury, a chorister at Canterbury Cathedral, composed madrigals, works for viol consort, services, and anthems.
− * '''[[Orlando Gibbons]]''' (1583–1625), organist, composer and Gentleman of the [[Chapel Royal]], who died in Canterbury and was buried in the cathedral.	+ # '''[[Orlando Gibbons]]''' (1583–1625), organist, composer and Gentleman of the [[Chapel Royal]], who died in Canterbury and was buried in the cathedral.

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Link diff

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

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 **(Harrogate)|The Stray]]**, which has remained public open space.<ref> [http://www.harrogate.gov.uk/harrogate-3360 Harrogate Borough

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Table diff

Line 300:	Line 300:
! style="WIDTH: 20%" ! YEAR	! style="WIDTH: 20%" ! YEAR
! style="WIDTH: 20%" ! %A*	! style="WIDTH: 20%" ! %A*
− ! style="WIDTH: 20%" ! %A*A	
! style="WIDTH: 20%" ! %A*AB	! style="WIDTH: 20%" ! %A*AB
!-	!-
! 2016	! 2016
! 55.7	! 55.7
− ! 88.0	
! 96.3	! 96.3
!-	!-
! 2015	! 2015

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HTML diffing

Old:

```
<p>Hello</p>
```

New:

```
<p>Hello</p><p>there</p>
```

Display:

```
<p>Hello</p><ins><p>there</p></ins>
```

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HTML diffing

Old:

```
<p>Hello</p><p>there</p>
```

New:

```
<p>Hello</p><p><b>there</b></p>
```

Hello
???

Display?

```
<p>Hello</p><p><ins><b></ins>there<ins></b></ins></p>
```

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HTML diffing

Old:

```
<p>Hello</p><p>there</p>
```

New:

```
<p>Hello</p><p><b>there</b></p>
```

Hello
~~there~~ there

Display:

```
<p>Hello</p><p><del>there</del> <ins><b>there</b></ins></p>
```

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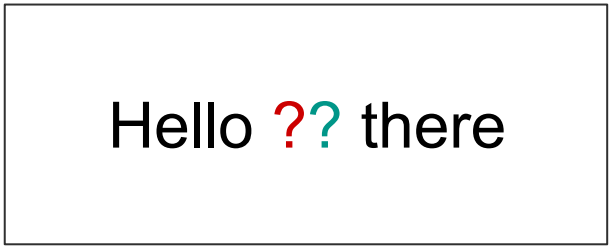
HTML diffing

Old:

```
<p>Hello</p><p>there</p>
```

New:

```
<p>Hello there</p>
```



Display?

```
<p>Hello<del></p><p></del><ins> </ins>there</p>
```

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Not so simple

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Outline

- Introduction to visual diffs
- Why they're complicated
- Different solutions
  - Advantages and disadvantages
- Our solution
- Still to do

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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 (eg 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

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Tree diffing

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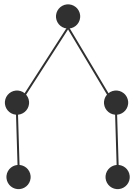
Tree diffing

Old:

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



New:

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

Display?

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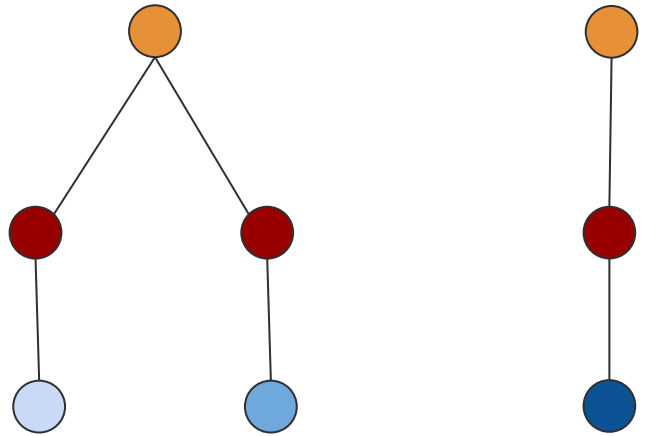
Tree diffing

Available moves:

- Remove
- Insert
- Change



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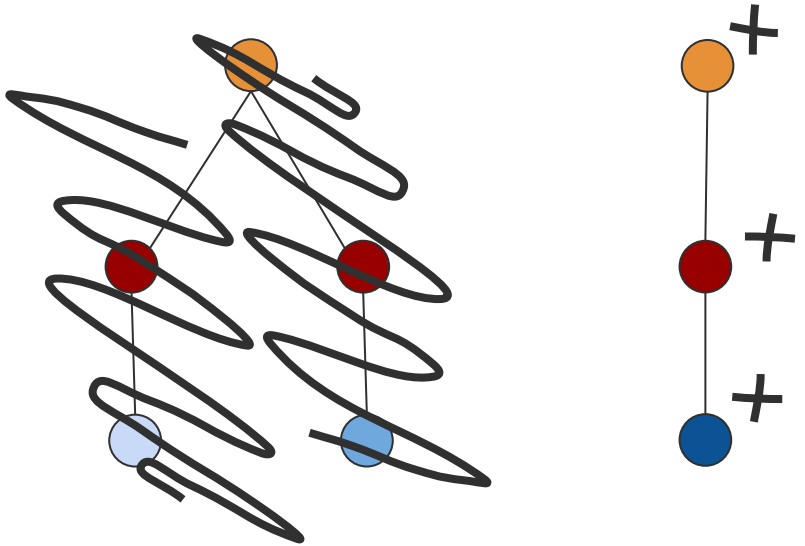
Tree diffing

Available moves:

- Remove
- Insert
- Change



8 moves

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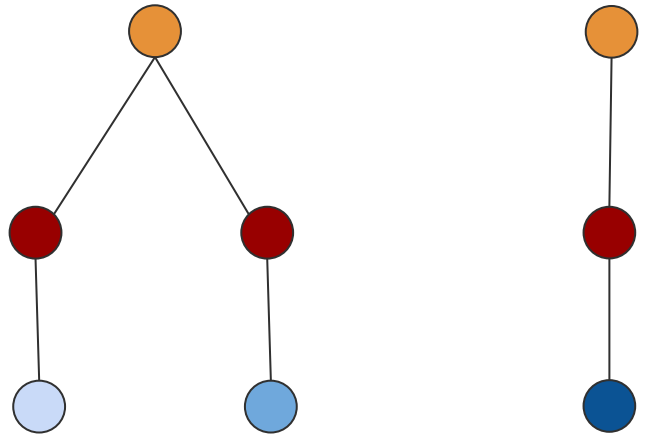
Tree diffing

Available moves:

- Remove
- Insert
- Change



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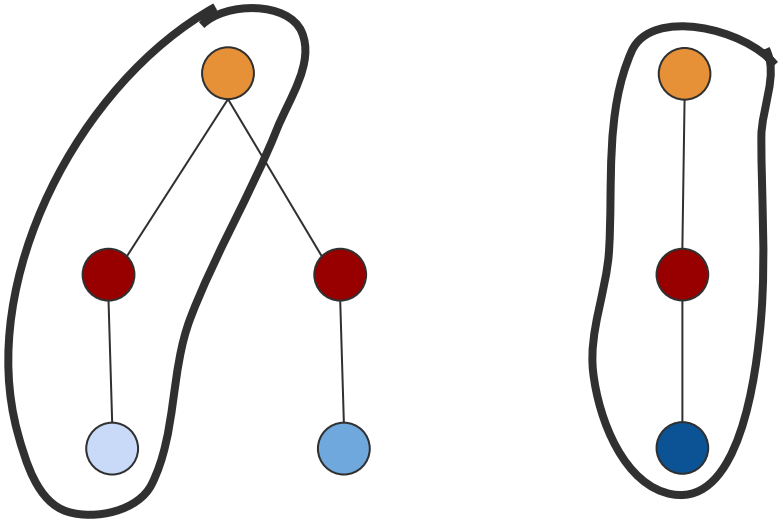
Tree diffing

Available moves:

- Remove
- Insert
- Change



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

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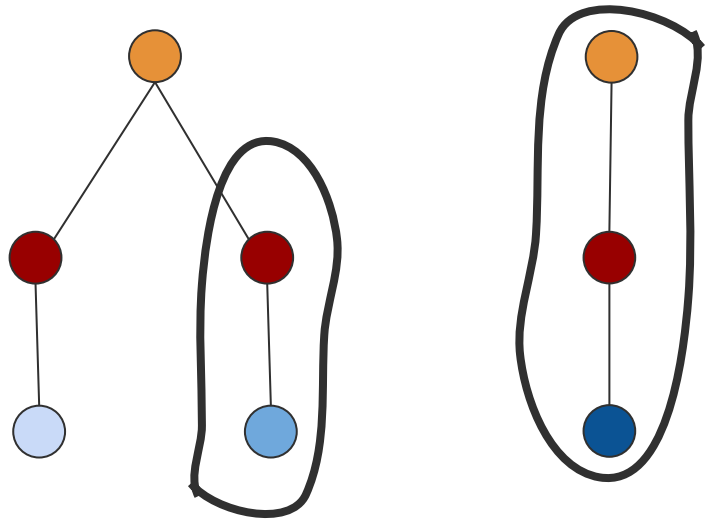
Tree diffing

Available moves:

- Remove
- Insert
- Change



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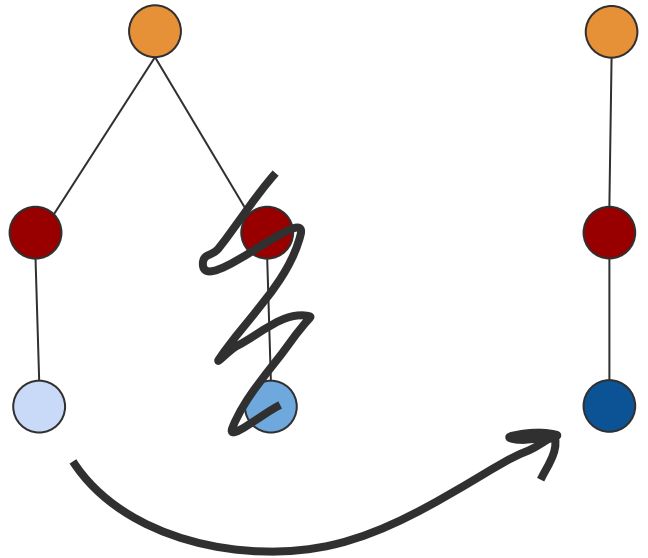
Tree diffing

Available moves:

- Remove
- Insert
- Change



3 moves

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Tree diffing

Old:

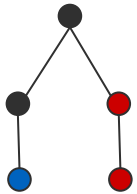
```
<document>
  <p>Hello</p>
  <p>there</p>
</document>
```

New:

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

Display:

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



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Tree diffing

Old:

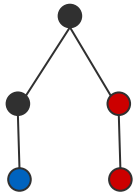
```
<document>
  <p>Hello</p>
  <p>there</p>
</document>
```

New:

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

Display:

Hello there
~~there~~



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Time saving

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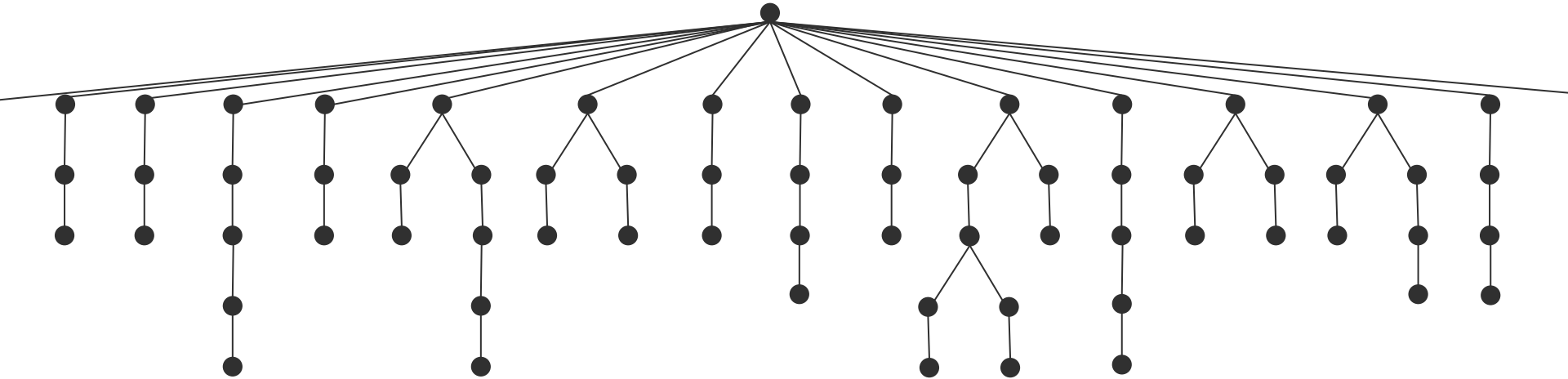
Public Domain,
Thalia Chan

Time saving



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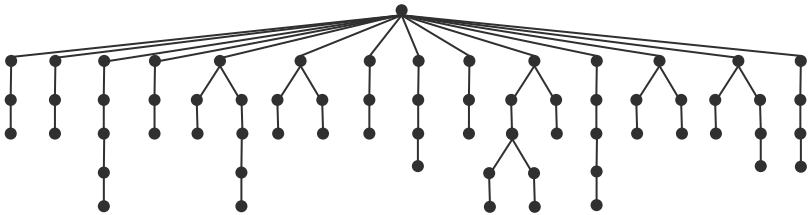
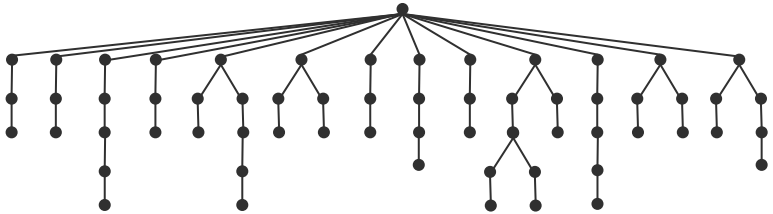
Time saving

Break the document into subtrees and discard any identical pairs





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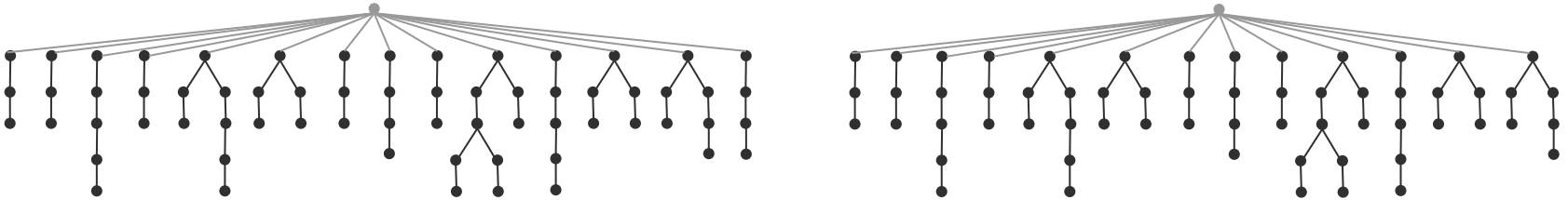
Time saving

Break the document into subtrees and discard any identical pairs



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Time saving

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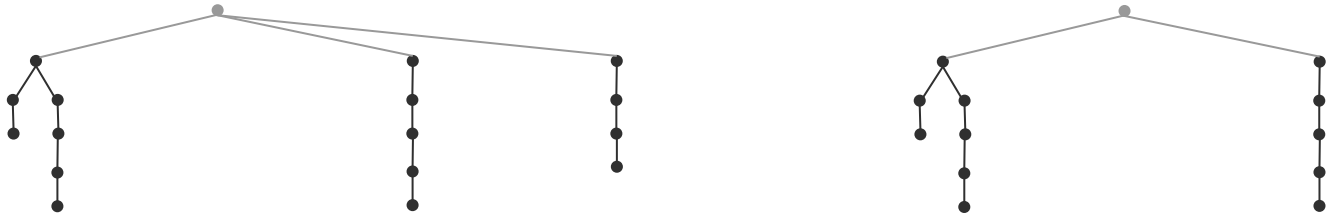

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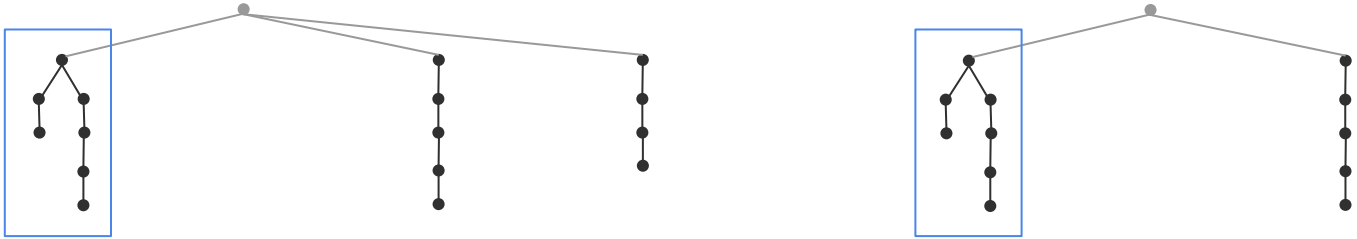
Time saving

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



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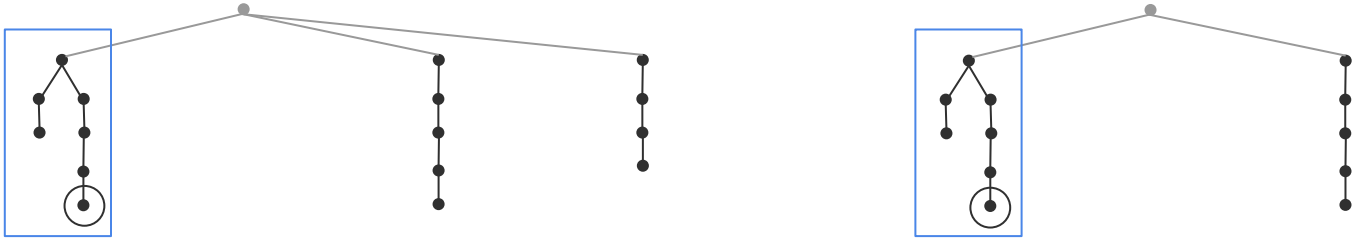
Time saving

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



Freebie: moves

github.com/edg2s/google-diff-match-patch

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Moves

Line 1:

− 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.

−

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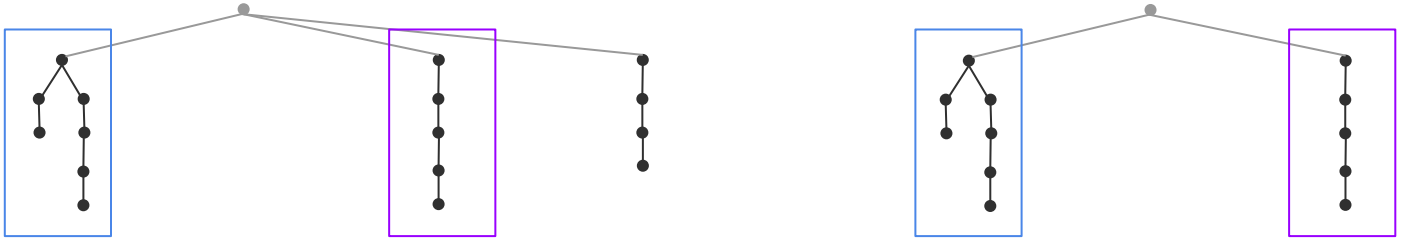

Freebie: removes/inserts

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Time saving

Use a time limit

- For the tree diff
- For the linear diff

May not get minimal diff

List diff

Composers with an association with Canterbury include	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" />	+ # '''[[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)|John Ward]]''' (1571–1638), born in Canterbury, a chorister at Canterbury Cathedral, composed madrigals, works for viol consort, services, and anthems.	+ # '''[[John Ward (composer)|John Ward]]''' (1571–1638), born in Canterbury, a chorister at Canterbury Cathedral, composed madrigals, works for viol consort, services, and anthems.
− * '''[[Orlando Gibbons]]''' (1583–1625), organist, composer and Gentleman of the [[Chapel Royal]], who died in Canterbury and was buried in the cathedral.	+ # '''[[Orlando Gibbons]]''' (1583–1625), organist, composer and Gentleman of the [[Chapel Royal]], who died in Canterbury and was buried in the cathedral.

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List diff

Composers with an association with Canterbury include

1. **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.[67]
2. **John Ward** (1571–1638), born in Canterbury, a chorister at Canterbury Cathedral, composed madrigals, works for viol consort, services, and anthems.
3. **Orlando Gibbons** (1583–1625), organist, composer and Gentleman of the Chapel Royal, who died in Canterbury and was buried in the cathedral.

Bullet list changed to Numbered list

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Link diff

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

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WIKIMEDIA
FOUNDATION

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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-

In the 17th and 18th centuries fu Harrogate, and both chalybeate and sulphur springs were found many visitors. A number of inns were opened for visitors in High , the Granby, the Dragon and the World's End.) In Low Harrogate possibly earlier.[13][12]

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Table diff

Line 300:	Line 300:
! style="WIDTH: 20%" ! YEAR	! style="WIDTH: 20%" ! YEAR
! style="WIDTH: 20%" ! %A*	! style="WIDTH: 20%" ! %A*
− ! style="WIDTH: 20%" ! %A*A	
! style="WIDTH: 20%" ! %A*AB	! style="WIDTH: 20%" ! %A*AB
!-	!-
! 2016	! 2016
! 55.7	! 55.7
− ! 88.0	
! 96.3	! 96.3
!-	!-
! 2015	! 2015

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Table diff

A-Level Results: last five years[87]

YEAR	%A*	%A*A	%A*AB
2016	55.7	88.0	96.3
2015	51.3	85.6	97.6
2014	51.7	83.9	98.4
2013	50.5	88.0	97.8
2012	54.4	88.1	98.5

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

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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.

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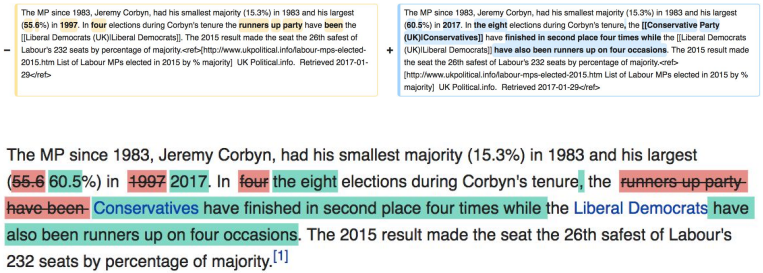
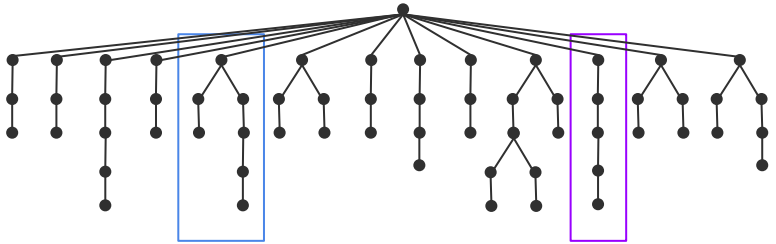
Summary

The visual diff complements the wikitext diff



Diffing is a balance between perfection and speed



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