

# Templates are dead! Long live templates!

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# Wikitext pop quiz!

{{echo|#foo}}{{echo|#foo}}

*How does this render?*

1. foo
2. foo

```
<ol>
<li>foo</li>
<li>foo</li>
</ol>
```

**WAT**

[T14974](#) (behavior changed on [January 3, 2008](#) to fix bug [529](#))  
Implicit newline insertion at start of template

# Wikitext pop quiz! (2)

`{{echo| foo}}{{echo| foo}}`

*How does this render?*

foo foo

`<pre>foo foo</pre>`

**WAT**

Where did the implicit newline go?

Implicit newline only inserted before \* # : ; { |

I want to color my text.

2+2

*How do I write this in wikitext?*

`{{Font color|black|yellow|2 + 2}}`

I want to color my text.

2+2 = 4

How do I write this in wikitext?

`{{Font color|black|yellow|2 + 2 = 4}}`

**RIGHT?**

No, this produces:

yellow

**WAT**

# I want to color my text.

2+2 = 4

*How do I write this in wikitext?*

`{{Font color|black|yellow|<nowiki>2 + 2 = 4</nowiki>}}`  “nowiki”

or

`{{Font color|black|yellow|2 + 2 {{=}} 4}}`  “braces”

or

`{{Font color|black|yellow|3=2 + 2 = 4}}`  “named parameters”

or

`{{Font color|black|yellow|2 + 2 &#61; 4}}`  “entities”

# Wikitext pop quiz! (3)

[[{{echo|:443}}\]](http://example.com)

*How does this render?*

[<http://example.com>  
443]

**WAT**

Oh, right:

Implicit newline inserted before \* # : ; { |

# Wikitext pop quiz! (4) “nowiki”

[<http://example.com>{echo|<nowiki>:443</nowiki>}]]

*How does this render?*

:443

WAT

<nowiki> breaks link

# Wikitext pop quiz! (5) “braces”

[http://example.com{{echo|{{:}}443}}]

*How does this render?*

As a link to <http://example.com{{:}}443>

**WAT**

(or same as previous if Template:: actually existed)

# Wikitext pop quiz! (6) “named param”

[<http://example.com{{echo|1=:443}}>]

*How does this render?*

[<http://example.com>  
443]

**WAT**

(yeah, no surprise here)

# Wikitext pop quiz! (7) “entity”

[http://example.com{{echo|&#58;443}}]

*How does this render?*

[\[1\]](#)

**(This is actually correct!)**

So, you're saying that we should always use entities for escapes?

# I want to make a table.

Hello	world!
-------	--------

*How do I write this in wikitext?*

```
{|  
| Hello | world  
|}  
|}
```

# But I want to use a template!

Hello	world!
-------	--------

*How do I generate the contents with a template?*

```
{  
{{echo|| Hello || world}}  
}
```

**RIGHT?**

No, silly, this produces:

<nothing>

# But I want to use a template! “nowiki”

Hello	world!
-------	--------

*How do I generate the contents with a template?*

```
{  
{{echo|<nowiki>| Hello || world</nowiki>}}  
}
```

**RIGHT?**

No, this produces:

| Hello | world

# But I want to use a template! “entities”

Hello	world!
-------	--------

*How do I generate the contents with a template?*

```
{  
{{echo|&#124; Hello &#124;&#124; world}}  
|}
```

**RIGHT?**

No, this produces:

| Hello | world

# But I want to use a template! “braces”

Hello	world!
-------	--------

*How do I generate the contents with a template?*

```
{  
{{echo|{{|}} Hello {{|}}{|}} world}}  
|}
```

**RIGHT?**

No, this produces:

`{{|}} Hello {{|}}{|}} world`

**WAT**

# But I want to use a template! “braces”

Hello	world!
-------	--------

*How do I generate the contents with a template?*

```
{  
{{echo|{{!}}}} Hello {{!}}{{!}} world}}  
|}
```

**RIGHT?**

Yes, finally.

# Congratulations!

You are a wikitext expert.

# Don't get me started...

Not included in this talk:

- Whitespace stripping of parser function arguments (vs template args, not stripped)
- Interaction of templates and extension tags (eg, nested refs)
- Parser functions/magic words
  - For example: {{urlencode}}
- Lua / Scribunto (it's own argument/result escape mechanisms)
- Wikitext issues unrelated to templates
  - Entity inconsistencies, category whitespace, etc.

(There are some bonus slides at the end if you're interested!)

So, it's hard to properly escape content,  
and escaped content is hard to read.  
Is that all?

# The perils of string concatenation

```
 {{{!}}
{{!}} class{{echo|ss}}=fo{{echo|o}} {{!}} Hello {{!}}{{!}} world
{{!}}}
```

```
<table>
<tr>
<td class="foo"> Hello </td>
<td> world </td>
</tr>
</table>
```

# The perils of string concatenation

```
{ {{!}} } ?  
{ {{!}} } class{{echo|ss}}=fo{{echo|o}} { {{!}} } Hello { {{!}} }{ {{!}} } world  
{ {{!}} }  
?
```

```
<table>  
<tr>  
<td class="foo"> Hello </td>  
<td> world </td>  
</tr>  
</table>
```

# There be monsters

- Escaping and sanitization
- Efficient transclusion
- Visual editing
- Mangle separation of code/data/layout

And language converter makes things worse!

- Conversion rules take effect from point of insertion, no matter how deeply nested the transclusion ([RFC](#))

# Save me!

# The road ahead.

Steps towards improving templated markup:

- Enforcing well-structured templates
- Alternative argument passing mechanisms
- Separating code, data, and presentation
- First-class infoboxes from wikidata
  - Wikia, WMF, and Wikidata implementations
- Content widgets
- Semantic image styling

# <tidy>/<domscope>/<domparse>/\_\_SAFE\_\_

Let's add a marker to well-behaved templates.

- Encourage authoring of templates that are editable in Visual Editor (*example in next slide*).
- Run tidy to enforce hygiene.
- Sales pitch: parse/render performance.
- Templates without the marker will render correctly, just more slowly.
- Bikeshed color:
  - XMLish tag, or magic word
  - Name of tag or word

*“Hygienic templates”*

# Hygienic templates. What they might look like:

Now:

[T51400](#)

```
[[File:Foo.jpg|  
{{largethumb}}|  
caption]]
```

[T46498](#)

```
{| class="wikitable"  
| {{Yes}} (with caveats)  
|}
```

Becomes:

```
{{Largethumb|  
Foo.jpg|  
caption}}
```

```
{| class="wikitable"  
{{Yes|Yes (with caveats)}}  
|}
```

# A fly in the ointment

But what about that example:

`{{Largethumb|Foo.jpg|caption}}`

Didn't we just agree that the escaping rules for template contents were baroque and painful?

Why are you making me escape the caption?

**Save me!**

# A better way to escape arguments.

Now:

```
{{Largethumb|  
Foo.jpg|  
caption}}
```

Becomes:

```
{{>Largethumb|Foo.jpg}}  
caption  
{{<Largethumb}}
```

# A better way to escape arguments.

Now:

```
{{tablestart}}  
| Hello || world  
{{tableend}}
```

Becomes:

```
{{>Table}}  
| Hello || world  
{{<Table}}
```

# An example for Brion Vibber

From [Future of structured documents: VisualEditor, Citations and Wikidata, oh my!](#) (Wikimania 2015); article [[[Nahuatl](#)]]:

```
 {{>cite id="32412"}}
```

First person plural pronouns in Isthmus-Mecayapan Nahuat:

```
: ''nejamēn'' ({{IPA|[nehame:n]}}) "We, but not you"  
 (= me & them)
```

```
: ''tejamēn'' ({{IPA|[tehame:n]}}) "We along with  
 you" (= me & you & them)
```

```
 {{<cite}}
```

*Easy to move citations into template arguments, since you don't have to worry about escapes.*

# Do we need more arguments?

```
 {{>If| {{{1}}}} }}
```

```
option 1
```

```
 {{else}}
```

```
option 2
```

```
 {{<If}}
```

```
 {{>Largethumb}}
```

```
 {{>file}} Foo.jpg {{<}}
```

```
 {{>caption}} yeah {{<}}
```

```
 {{<}}
```

Let's paint that bikeshed, folks!

Just give me a way to pass an unescaped argument.

*“Hygienic arguments”*

I love you, but we need to break up.

Presentation != Code != Data

- Code should manipulate data or structured DOM (not wikitext strings)
- String data is automatically escaped
  - Your function can return “<a>” or “[[Foo]]” and it will appear literally
  - Return \$( ‘<a>’ ) or something similar if you want to emit a link
- Data is JSON or a wikidata query, not a wikitext string
- Presentation is editable with VisualEditor
  - Minimal markup, eg [Spacebars](#) variant of [Handlebars](#)
  - Structured semantics, not string concatenation

**property names in the data context**

event	gold	silver	bronze
Shotput	USA	GER	MEX
Discus	MEX	USA	GER
Javelin	GER	MEX	USA

Data is data



Transformation of data context

```
1 export default function(events) {
2     // events is an array; each item has event, gold, silver, and bronze props
3     var totals = new Map(), countries = new Set();
4     function mget(m, key, defaultval) {
5         if (!m.has(key)) {
6             m.set(key, defaultval);
7         }
8         return m.get(key);
9     }
10    function inc(country, color) {
11        var old = mget(mget(totals, country, new Map()), color, 0);
12        totals.get(country).set(color, old + 1);
13        countries.add(country);
14    }
15    events.forEach( (e) => {
16        inc(e.gold, 'gold');
17        inc(e.silver, 'silver');
18        inc(e.bronze, 'bronze');
19    });
20    var rows = Array.from(countries).sort( (a,b) => {
21        var aa = totals.get(a), bb = totals.get(b);
22        var c = aa.gold - bb.gold;
23        if (c!==0) { return c; }
24        c = aa.silver - bb.silver;
25        if (c!==0) { return c; }
26        c = aa.bronze - bb.bronze;
27        return c;
28    }).map( (c) => totals.get(c) );
29    return { row: rows };
30 }
31 export function caption() { return document.createTextNode("caption"); }
```

Additional block helpers

2:75

Scribunto/JS (ES6 module syntax) is Code

JavaScript reduces barriers to entry



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“” Cite

E

Insert

H

Q

?

!

M

Save page

## User:Cscott/Template:medals

From Wikipedia, the free encyclopedia

< [User:Cscott](#)

Country	Gold	Silver	Bronze
{{#each row}}			
{{country}}	{{gold}}	{{silver}}	{{bronze}}
{{/each}}			
{{#caption}} Block helper invocation			

“row” is from data context

Block helper invocation

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Visual Editor with placeholders ([Handlebars syntax](#)) is Presentation

# Alternatives to Templates

# Wikidata-driven infoboxes

A talk at Wikimania this year:

- Making Infoboxes easier to edit and maintain with the help of Wikidata (Sun 9am)

Also:

- An alpha feature from the mobile team
- In production at Wikia

# Jon Robson's implementation for mobile

Code at: [.../mobile.infobox/Infobox.js](#)

Live demo:

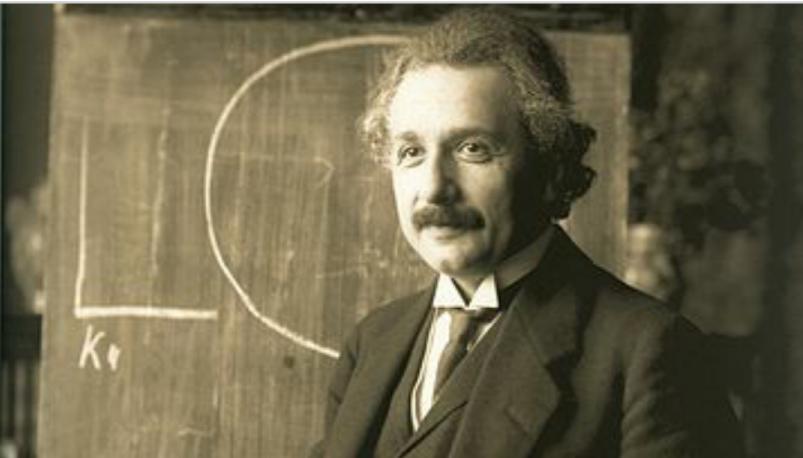
[https://en.m.wikipedia.org/wiki/Albert\\_Einstein?mobileaction=alpha](https://en.m.wikipedia.org/wiki/Albert_Einstein?mobileaction=alpha)



<https://en.m.wikipedia.org>



WIKIPEDIA



## Albert Einstein



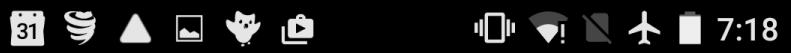
German-American physicist and founder of  
the theory of relativity



### More information...

"Einstein" redirects here. For other uses, see [Albert Einstein \(disambiguation\)](#) and [Einstein \(disambiguation\)](#).





<https://en.m.wikipedia.org>



	Luitpold-Gymnasium
occupation	<b>Physicist</b> philosopher of science inventor non-fiction writer
	<b>Astronomer</b>
	educationist
employer	<b>Swiss Federal Institute of Intellectual Property</b> Charles University in Prague
religion	<b>Agnosticism</b>
signature	<i>Albert Einstein</i>

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https://en.m.wikipedia.org



Albert Einstein

Save

**educated at**

ETH Zurich

Alte Kantonsschule Aarau

Luitpold-Gymnasium

Mexico city

Mexico City

*capital city of Mexico*

Mexico City

Mexico City

*Wikimedia disambiguation page*

Mexico City

1968 Summer Olympics

*games of the XIX Olympiad, celebrated in I*

Mexico City Metro

# Wikia grapples with mobile

“Infobox templates are among the most-used on Wikia. They’re nearly ubiquitous, and for good reason: they’re easy to understand and pack a lot of information into a small area. [...]”

The problem? They translate very poorly to mobile experiences. [...]”

That’s why we’re releasing this new early beta markup for infoboxes. [...]”

I’ve uploaded several examples of the new markup to communitytest.wikia.com [...]”

- [Infoboxes are evolving - can you help guide their progress?](#)  
(May 21, 2015)

# Wikia demo

Infobox preview tool built by Inez Korczyński:

<http://infoboxpreview.appspot.com/>

Wiki domain

killbill.wikia.com

Template name

Infobox Character

```
<infobox>
    <title source="name" />

    <image source="image">
        <alt source="caption" />
    </image>

    <data source="full_name">
        <label>Full name</label>
    </data>
    <data source="alias">
        <label>Alias</label>
    </data>
    <data source="age">
        <label>Age</label>
    </data>
    <data source="born">
        <label>Born</label>
    </data>
    <data source="death">
        <label>Death</label>
    </data>
    <data source="occupation">
        <label>Occupation</label>
    </data>
    <data source="affiliation">
        <label>Affiliation</label>
    </data>
    <data source="title">
        <label>Title</label>
    </data>
    <data source="family">
        <label>Family</label>
    </data>
    <data source="residence">
        <label>Residence</label>
    </data>
```

Preview

Bill



**Full name**

Bill

**Alias**

Snake Charmer

**Age**

63

**Born**

1941

**Death**

2004

# Content widgets

Rough ideas at [https://www.mediawiki.org/wiki/Parsoid/Content\\_widgets](https://www.mediawiki.org/wiki/Parsoid/Content_widgets)

Syntax strawman:

```
<datatable src="wikidata:query-383190" options="..."/>
```

With inline data:

```
<datatable options="...">>{ .. inline JSON data .. }</datatable>
```

# Semantic image styling ([T90914](#))

Alternative displays of article content would like to restyle images, but images don't have enough semantic information.

For example:

- “Lead image” on mobile
- “Feature image” in PDF output, gets own page
- “Full width” images, eg timelines, Earth/moon
- “Large thumb” (used on nlwiki)
- “Smart crop” (focus data, from wikidata)
- Consistency! (discourage px-level manipulation)

# Semantic image styling ([T90914](#))

Strawman syntax:

`[[File:Foo.jpg|style=thumb]]`

replaces the existing 'thumb' option

`[[File:Foo.jpg|style=largethumb]]`

used by nlwiki to apply a second "larger" thumbnail size

`[[File:Foo.jpg|style=fullwidth]]`

appropriate for wide figures, timelines, etc

How do we define these styles?

If they are templates, can we make them hygienic?

# Recap

# To recap.

Lots of ideas about improving templated markup.

Some general:

- Hygienic templates
- Hygienic arguments
- Code/data/presentation splits

Some specific to particular uses:

- Infoboxes
- Content widgets
- Summary

# Thank you!

C. Scott Ananian  
[cscott@cscott.net](mailto:cscott@cscott.net)  
[[User:cscott]]

More WAT

# Don't get me started...

Not included in this talk:

- Inconsistent behavior of %xx and &...; escapes
- Inconsistent behavior of various kinds of whitespace (& stripping it in parser functions)
- Strings of single quotes
- Extension tags (eg, nested refs)
- Parser functions/magic words
  - For example: {{urlencode}}
- Lua / Scribunto

(But there are some bonus slides at the end if you want!)

# I want to make a reference.

foo<sup>[1]</sup>

[1] bar

*How do I write this in wikitext?*

foo<ref>bar</ref>

# I want to make a reference.

foo<sup>[1]</sup>

[1] bar<sup>[2]</sup>

[2] bat

*How do I write this in wikitext?*

foo<ref>bar<ref>bat</ref></ref>

**RIGHT?**

No, this produces:

foo</ref>

# I want to make a reference.

foo<sup>[1]</sup>

[1] bar<sup>[2]</sup>

[2] bat

*How do I write this in wikitext?*

foo<ref>bar<ref>bat</ref></ref>

**RIGHT?**

No, this produces:

foo</ref>

# I want to make a reference.

foo<sup>[1]</sup>

[1] bar<sup>[2]</sup>

[2] bat

*How do I write this in wikitext?*

foo<ref>bar{{#tag:ref|bat}}</ref>

**RIGHT?**

No, this produces:

foo<sup>[1]</sup>

[1] bar

# I want to make a reference.

foo<sup>[1]</sup>

[1] bar<sup>[2]</sup>

[2] bat

*How do I write this in wikitext?*

foo{{#tag:ref|bar<ref>bat</ref>}}

**RIGHT?**

No, this produces:

foo<sup>[1]</sup>

[1] bar

(But Parsoid gets this version right.)

# I want to make a reference.

foo<sup>[1]</sup>

[1] bar<sup>[2]</sup>

[2] bat

*How do I write this in wikitext?*

foo{{#tag:ref|bar<ref group="b">bat</ref>}}

**RIGHT?**

**SORT OF.**

**Turns out you can't quite do this in PHP.**

# I want to make a reference.

foo<sup>[1]</sup>

[1] bar<sup>[1]</sup>

[1] bat

*How do I write this in wikitext?*

foo{{#tag:ref|bar<ref group="b">bat</ref>}}

**RIGHT?**

**SORT OF.**

**Turns out you can't quite do this in PHP.**

The second group isn't numbered consecutively.

I want to color my text.

|2+2| = 4

How do I write this in wikitext?

`{{Font color|black|yellow}}|2 + 2| = 4 }}`

RIGHT?

No, this produces:

WAT

Unexpected use of template  `{{4}}` - see Template:4 for details.

I want to color my text.

|2+2| = 4

How do I write this in wikitext?

`{{Font color|black|yellow}}|2 + 2| {{=}} 4 }}`

RIGHT?

No, this produces:

yellow

WAT

I want to color my text.

|2+2| = 4

How do I write this in wikitext?

`{{Font color|black|yellow|{{|}}2 + 2{{|}} {{=}} 4}}`

RIGHT?

No, this produces:

WAT

`{{|}}2 + 2{{|}} = 4`

# I want to color my text.

|2+2| = 4

*How do I write this in wikitext?*

`{{Font color|black|yellow|{{!}}2 + 2{{!}} {{=}} 4}}`

**RIGHT?**

Yes, finally:

|2 + 2| = 4

# Wikitext pop quiz! (5)

`{{urlencode:ac}}`

*How does this render?*

a%3Cb%3Ec

# Wikitext pop quiz! (6)

`{{urlencode:a<pre>c}}`

*How does this render?*

ac

**WAT**

[T105242](#) (behavior changed on July 9, 2015)

# Wikitext pop quiz! (scribunto/lua)

```
{ {{#invoke:BananasArgs|count_fruit|  
bananas={{echo|[]}}{{echo|[]}}Foo|  
apples=Bar{{echo|[]}}}}{{echo|[]}} } }
```

*How does this render?*

I have Foo bananas and Bar apples

**WAT**

# A partial list of strange wikitext corners

- SOL context
- Newline before/after
- Attributes
- Inline/block
- {{FOO}} = # foo
- {{FOO}}{{FOO}}

# Save me from the puns

This plethora of escape mechanisms

- Is an overgrowth of wiki-weed-ia
- Impairs wiki-read-ia