

# WikiCreole: A Common Wiki Markup

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## ABSTRACT

In this paper, we describe the wiki markup language WikiCreole, how it was developed, and related work. Creole does not replace existing markup, but instead enables wiki users to transfer content seamlessly across wikis, and for novice users to contribute more easily. In proposing a subset of markup elements that is as non-controversial as possible, this markup has evolved from existing wiki markup, hence the name Creole: a stable language that originated from a non-trivial combination of two or more languages.

## Categories and Subject Descriptors

H.5.4 [Hypertext/Hypermedia]: Architectures, Navigation, Theory and User issues.

**General Terms:** Documentation, Design, Experimentation, Human Factors, Standardization, Languages

**Keywords:** Wiki, Markup, Standardization, Implementation.

## 1. INTRODUCTION

Many wiki engines exist; at the time of this writing, WikiMatrix.org compares 86 wiki engines. In most wiki systems, authors do not use a WYSIWYG (“What You See Is What You Get”) editor to modify the content of a page. Instead they use a text area to modify text that is marked up using a very simple syntax called wiki markup. Compared to HTML, wiki markup is a lightweight markup language that reduces the amount of possible choices in favor of simplicity and speed in writing. The speed that results from the concentration on the content rather than the formatting and the simplicity (the “this is all it takes to format text?” effect) still make many advanced users prefer wikitext editing over WYSIWYG editors [1]. Therefore it is likely that advanced users will want to continue to use wiki markup in the future. Unfortunately most wiki engines have similar, but not identical markup languages. This is also known as the *wiki markup mess*. There have been many attempts to standardize wiki markup languages, but none so far have been successful (see section 2). This paper describes the work that has been done on a new attempt called WikiCreole. Like wiki markup standard attempts before, it is supposed to allow visitors from

one wiki engine to edit pages on other wikis without having to learn a new wiki syntax. WikiCreole however does not try to be a “standard” that replaces all other existing markups, we therefore do not refer to WikiCreole as a markup standard.

Ward Cunningham, the founder of wikis, coined the term *Creole*, just like he coined the name *wiki* from the Hawaiian *WikiWiki* [2]. He suggested this name at Wikimania 2006 in Boston, the international Wikipedia conference, where we presented our first empirical analysis on existing markup variants [3]. Cunningham’s and our idea was to create a common markup that was not standardization of an arbitrary existing markup, but rather a new markup language that was created out of the common elements of existing engines. Ward Cunningham drew the comparison to the linguistic term “A creole language, or simply a creole, is a stable language that originated from a non-trivial combination of two or more languages, typically with many features that are not inherited from any parent” Creole languages start out as pidgin. “However, if a pidgin manages to be learned by the children of a community as a native language, it usually becomes fixed and acquires a more complex grammar” [4]. In that sense Creole is thought of not as a replacement for native markups, but a second language that evolved from them, and now can be used as a common language.

WikiCreole’s spirit is to be open to other points of view. No wiki developer chose a particularly bad markup. Those markup languages evolved from other markups and serve their purpose. Therefore it would be wrong to suggest an arbitrary standard that tries to replace all those proven markup languages, which is an impossible task. They are already used by a very large community. Instead we ask the engine developers to offer their users WikiCreole as a second language they can choose when editing a page. Therefore it is not replacing existing markup, but complementing it. It is meant for novice users of wikis and users that come over from a different wiki engine. Creole is designed to offer the least conflict possible with existing languages, so several implementation modes are possible that allow easy migration. To learn more about implementation possibilities, see section 3.5. This paper will describe the research that has been conducted and the community process we went through towards the current Creole spec.

The remainder of the paper is organized as follows. Section 2 briefly reviews related work, in particular previous standardization attempts. In section 3, we describe the process we went through from the early analysis to the wiki markup workshop and initial setup of the goals and first draft to the final WikiCreole spec which evolved in an open wiki. Section 4 includes a detailed analysis of the markup elements and conclusions. We present the results of this analysis as concisely as possible. We explain controversial community discussions we had during this process.

## 2. RELATED WORK

### 2.1 Wiki Standardization Attempts

#### 2.1.1 Meatball WikiMarkupStandard discussion

This was mostly a theoretical discussion listing all possible wiki markups and their advantages and disadvantages. There was never an attempt at consensus, nor were any conclusions made [5].

#### 2.1.2 TikiWiki RFC

The Tiki Working Group Franck Martin submitted the Internet-Draft of the IETF RFC Draft for standardization of the Wiki Syntax in March 2004. It was basically proposing that the TikiWiki syntax be the “standard” wiki syntax and as thus, did not make much of an impression on the wiki community [6].

#### 2.1.3 Mediawiki syntax reform draft

Seeing the difficulty and confusion of MediaWiki syntax, on 2005-Jun-10, Daniel Lee Crocker proposed a reform. This syntax has many elements in common with Creole: headings, bold, italics and line breaks. It is worth noting here that Crocker wanted to change Wikipedia’s semantic system of double and triple quotes to the presentational double asterisk and double slash syntax [7].

#### 2.1.4 WikiByte interchange format

WikiByte is a wiki interchange format, which is not meant for humans to see, but as a structurally sound format between computers. It should also be noted that WikiByte seeks to complement WikiCreole, and gives its examples in Creole [8].

### 2.2 WikiMatrix

WikiMatrix is an online comparison engine for wikis (see Figure 1). They have worked with Creole by attending the Wiki Markup Standard workshop during WikiSym 2006 and by adding requested markup elements to engine description. They even created a markup compare tool which helps us easily research markup as well as promoting Creole. The task of creating Creole would have been much more difficult without WikiMatrix [9].

### 2.3 Are Wikis Usable?

Many of Creole’s usability issues were addressed by this project which researched wiki usage among grade 4 students (ages 8 and 9) at a public school. This research was most useful when there was an argument on the Creole spec whether a space after a bullet point or number list should be required. Many users will not put a space after a bullet point or number list item, so it is optional in the spec [10].

### 2.4 Other lightweight markups

We also researched other markups, and not just wiki markup in our analysis.



Figure 1: WikiMatrix Markup Compare

*Markdown* is a wiki-like syntax which was designed by John Gruber and Aaron Swartz to easily be able to create readable output and source text. Its syntax is heavily influenced by txt documents and email conventions. One of the more interesting attributes of Markdown, is its overloading of the asterisk. A single asterisk around text is used for italics and a double asterisk for bold. Asterisks are also used to make bullet lists. Its idea is to let writers quickly write content, and if they want special presentational elements, then they may mix HTML as they wish [11].

*Textile* is a wiki-like markup which has identical markup to Creole for lists and very similar markup for bold and tables. Although originally written in PHP, Textile libraries are now also available for Perl, Python, Ruby, ASP, Java and C# [12][13].

*Crossmark* is a syntax for the One Laptop Per Child project and was heavily influenced by the Markdown team. Its biggest differences with Creole are its usage of single characters for markup such as a single slash for italics, instead of a double slash like Creole. It also puts the

description first in links, which its designers consider to be more intuitive. However, since twice as many wiki engines currently use link first, the link is first in Creole (see 4.3.6) [14].

### 3. CREOLE DESIGN

#### 3.1 Empirical Analysis of Markup Variants

Before the Wiki Markup Standard Workshop and during the evolution of the spec on wikicreole.org, we conducted empirical analysis of the common markup elements and the characters chosen for the elements themselves. For each element, we tried to use WikiMatrix to determine what syntax is currently used in wiki engines, so that we can help Creole be as easy to implement in wiki engines as possible and to be more intuitive for the user. Sometimes wiki engines do not support an element, or just use HTML for it, and in these cases, those wiki engines are not counted. To see a list of individual wiki engines for each element, please see our sub-pages at [15]. We also compiled a list of wiki engines by popularity using Google (see 4.2.1).

#### 3.2 Wiki Markup Standard Workshop

Instead of suggesting an arbitrary chosen markup, we extensively analyzed existing wiki markup, and came up with a subset of elements that would be as non-controversial as possible. This subset was introduced at the workshop. We invited practitioners and wiki developers to come together in this workshop at WikiSym 2006 in Denmark to introduce the idea of Creole and to discuss how to proceed. We first defined goals by brainstorming what a common markup should be. During the workshop, we went through the different markup elements we wanted to unify and added them to a wiki we set up for this purpose. In the end we had a wiki with the basic pages to suggest a first version of the Creole spec. We then called the spec Version 0.1. Many participants of the workshop agreed to implement this spec into their software [16].

#### 3.3 Goals and First Spec

The following goals were formulated at the Wikisym 2006. Every participant then had three votes to determine which were the most important to them for discussion. Goals that had more than four votes are in bold. These were then used as the key goals around which the later discussions were formulated: if we got stuck when trying to make a decision, we'd look at the goals again and see which of our choices matched mostly closely to the 4 top goals.

Markup should be:

- **Collision Free** (Principle of least conflict), 7 votes
- **Cover the common things people need**, 6 votes
- **Extensible by omission** (Don't specify things), 5 votes
- **Not new** (Principle of least innovation), 5 votes
- Fast to type, 3 votes

- Clear separation of markup & content, 3 votes
- Less principles than markup, 3 votes
- Readable, 2 votes
- Easy to learn/teach, 2 votes
- Non-destructive on current page structure (editing does not remove elements), 2 votes
- Stable for the next three years, 2 votes
- Avoiding Text Tags (Principle of i18n), 1 vote
- Avoiding difficult key combos (Principle of Foreign Keyboards), 1 vote
- Distinction between images and pages, 1 vote
- There's no wrong way to implement Creole, 1 vote

These goals were then used to start discussions about the elements we would like to standardize, and which elements are important. We used a wiki at the workshop to write down the elements and the decisions we made. At the workshop we used the previous analysis we did on wiki markup variants in the form of posters to have a foundation for the decisions [17].

#### 3.4 Evolving the Spec in an Open Wiki

After the workshop, we started by setting up a wiki with the results from the workshop. We used this wiki to give people that did not attend the Wiki Markup Standard Workshop the opportunity to discuss decisions made, and to be able to make their own proposals. We introduced a workflow that incrementally discussed and introduced those proposals into the spec. Discussion pages were used to talk about each topic. At the end of an iteration we added a new version number to the spec.

An iteration lasted from 4 to 8 weeks, depending on the level of agreement on the points of the agenda. Our decisions were consensus-driven, this means we tried not to vote, instead we had opinion polls and tried to find an agreement afterwards. After many long months of cooperation, we finally reached a point where we were not able to find any more commonalities. Increasing disagreements and the subsequent Creole 0.6 Poll showed that we couldn't reach consensus anymore. At this point we proposed in a last iteration the move to Creole 1.0 which was accepted by the community. The wiki now has extensive reasoning through documentation of the empirical analysis and discussions of the elements that back up the spec.

#### 3.5 Good Practices

After the publication of the goals and while working together on the spec in the wiki, people identified some "good practices" derived from the goals, that guided the process further. Below are those practices. For a more detailed description, see [18].

Creole covers markup for some common text elements. The markup should be easy to learn and easy to teach, as well as fast to type and should use readable markup which is non-destructive. It should cover the common things people need. The special role of common markup requires it to be extensible by omission, not new and collision free with markup used commonly on wikis. A markup should not be designed around edge cases.

The internationalization concerns require it to avoid text tags and avoid characters which are hard to type on international keyboards. Because we want Creole to be widely adopted, we need to make it easy to parse using common wiki parsing techniques, and also easy to explain, preferably using a prepared simple cheat sheet.

Both goals *easy to explain* and *easy to parse* sometimes contradict each other. It is generally good practice for developers to listen to their users and *make the machine work harder* in that case. On the Ambiguities page we collect possible markup collisions and strategies to handle them.

### 3.6 Implementation Modes

One of our goals was *there is no wrong way to implement Creole*. Concerning this, we developed three potential implementation scenarios. As of this writing, mixed mode is the most popular method while a few engines use native mode. No engine currently uses Edit Creole Mode, but MediaWiki was originally planning to implement this mode, but is now considering Native Mode.

#### 3.6.1 Mixed Mode

Mixed mode is one possible implementation of Creole markup in an existing wiki engine. The basic idea is to allow both the native wiki markup and the Creole markup to coexist on the pages -- preferably with the Creole markup slowly replacing the native one where possible.

Creole is being designed especially to allow such an implementation in most popular wiki engines. In particular, we try to avoid any markup or rules that are different across many engines, and could create conflicts.

When conflicts cannot be resolved, there are several possible solutions. The first and preferred way is to just leave the more advanced and non-critical issues out of Creole, and allow the wikis to handle them with their native markup. This is the rule of *extensible by omission*. The second way -- when there are several competing, but not conflicting, markups -- is to allow them all, interchangeably. This is, for example, used in the heading markup, where trailing “=” characters are optional. The third way is the hardest one for us: when there are several competing, conflicting markups, and the feature is too important and common to leave out, we need to make a decision, and choose one of them. This is the case with the link syntax, at least in the first few versions of Creole. The last, fourth way is to give up mixed mode for the particular, problematic family of wiki engines and resort to a different

implementation. Examples of prototype implementations for a mixed mode are Alex Schroeder’s plugin for Oddmuse, Radomir Dopieralski’s plugin for MoinMoin, and the i3G Institute’s JSPWiki Creole Page Filter [19].

#### 3.6.2 Native Mode

Another possible implementation would be native Creole, which means that Creole is the only language for this wiki. It is suited for new software -- new wiki engines or other software that need a lightweight markup language. Existing wiki engines could offer administrators the choice with which markup to run new wikis. Wiki communities that are set up for the first time (where no pages yet exist) then could use Creole as their native language.

Since the core WikiCreole is meant to be small and easy to learn, it will only reflect the common denominator of all wiki engine markups. Engine developers might want to extend it with more elements from their native markup (gradual alignment). Creole Additions are meant to help engine developers who would also like to have unification of those extended elements.

#### 3.6.3 Edit Creole Mode

One way to implement Creole for engine developers would be to implement an alternative parser and let administrators, who set up a new wiki, choose whether to use native Creole markup or run their wikis in Mixed Mode. That approach, however, would only work with new wikis. In this option, implementers would have to write converters, in case they would like to switch existing wikis to Creole. It is one of the mission statements of Creole to not replace existing markups, but to be a second markup which wikis can offer visitors from other engines. At the Wiki Markup Standard Workshop, a second option was discussed, that lets wikis with a large amount of existing pages, like Wikipedia, easily migrate to Creole.

This second option offers users two “edit page” links, one offers the page in native markup, the other offers the user the page in Creole markup. While the first edit link is intended for “native speakers” -- long time users of this wiki -- the second one is intended for new visitors who only speak Creole. Native markup elements that are not supported in Creole and therefore cannot be transferred from the native markup to Creole, will be displayed with the Placeholder element of Creole (see 4.3.12).

If people new to wikis hopefully only have to learn one markup language in the future, it has to be obvious for them which one offers them the wiki text in their familiar format.

## 4. RESULTS

### 4.1 Creole Markup Summary

A goal of Creole was to get an easy to learn and teach markup language that only consisted of a small set of elements which were easy to remember. One measurement for this goal was if the core Creole elements would adhere to

the famous  $7 \pm 2$  rule, the number of elements people could remember at the same time [20].

**Table 1: Cheat Sheet [21]**

//italics//	→	<i>italics</i>
**bold**	→	<b>bold</b>
* Bullet list * Second item ** Sub item	→	• Bullet list • Second item ..• Sub item
# Numbered list # Second item ## Sub item	→	1. Numbered list 2. Second item 2.1 Sub item
Link to [[wiki page]]	→	Link to <a href="#">wiki page</a>
[[URL link name]]	→	<a href="#">link name</a>
== Large heading === Medium heading ==== Small heading	→	<b>Large heading</b> <b>Medium heading</b> <b>Small heading</b>
No linebreak!	→	No line break!
Use empty line		Use empty line
Forced\\linebreak	→	Forced line break
Horizontal line: ----	→	Horizontal line: =====
{{Image.jpg title}}	→	Image with title
=table =header   a table row   b table row	→	Table
{{{ == [[Nowiki]]: /**don't** format// }}}}	→	== [[Nowiki]]: /**don't** format//

If you group elements to functional areas we almost achieved that goal:

1. **Emphasis** (bold/italics)
2. **Lists** (Numbered/Unnumbered Lists)
3. **Links** (Internal and External Links)
4. **Headings**
5. **Paragraphs** (Paragraph Separation, Forced Line break, Horizontal Rule)
6. **Images** (as a specialized form of Transclusion)
7. **Tables**

The remaining elements could be seen as part of an advanced use case.

8. **Nowiki** (Escaping whole areas)
9. **Placeholder** (For EditCreoleMode, see Implementation Modes)

Those elements that belong to Creole therefore fit on a small cheat sheet, that can be attached next to the edit area of a wiki (see Table 1). Placeholders are not on the cheat sheet as they are currently not implemented by any wiki engine.

## 4.2 Data Collection

### 4.2.1 Wiki Popularity

To prepare for the Wiki Markup Standard Workshop, we tried to get an idea of the popularity of wiki engines. Therefore, we conducted research on Google to get estimates. While we realize that searching on Google is not a sound research method, we believe an accurate stratified sampling is beyond our means and this data is only used for estimations. For every term we added “wiki”, e.g. “MediaWiki wiki”, “MoinMoin wiki” in an effort to exclude ambiguity. We searched in Google without quotes. Searches were conducted in Germany using an English interface. Note that Incentive, Perspective and SamePage were not included since they use common English words, giving unreasonable results.

**Table 2: Wiki Popularity**

#	Wiki Engine	Google Results	License
1	MediaWiki	133000000	GPL
2	TiddlyWiki	1420000	BSD
3	PukiWiki	1220000	GPL2
4	MoinMoin	1180000	GPL
5	DokuWiki	1160000	GPL 2
6	JotSpot	1140000	
7	TWiki	1120000	GPL
8	PmWiki	1100000	GPL2
9	TikiWiki	1090000	LGPL
10	Socialtext	1090000	
11	PBwiki	1070000	
12	Wetpaint	1030000	
13	Wikka Wiki	919000	GPL
14	Confluence	878000	Commercial
15	JSPWiki	875000	LGPL
16	SnipSnap	702000	GPL
17	PhpWiki	615000	GPL
18	MoniWiki	603000	GPL
19	Instiki	530000	Ruby GPL
20	Wikispaces	480000	
21	XWiki	440000	LGPL
22	Friki	408000	ASL or LGPL
23	UseMod	386000	GPL
24	WackoWiki	339000	BSD
25	StikiPad	323000	

(Google results from 20 Feb 2007)

In this paper we only show the top 25 engines, for a longer list see [22]. Although this analysis was made, it only affected the decisions where there were hard collisions of the markup with engines like MediaWiki, so that suggestions could be made.

## 4.3 Data Analysis

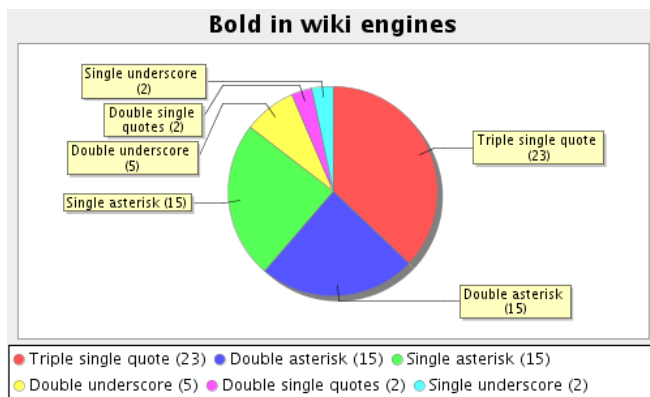
### 4.3.1 Bold

A star (\*) is the most used symbol to bold text online. Double symbols are generally used in Creole to avoid accidentally parsing text not meant to be parsed.

Bold options:

\*bold\* Single asterisk  
 \*\*bold\*\* Double asterisk  
 \_\_bold\_\_ Double underscore  
 '''bold''' Triple single quote

Chart 1: Bold in wiki engines



'''	Triple single quote	MediaWiki, MoinMoin
**	Double asterisk	DokuWiki
*	Single asterisk	Confluence, Socialtext, Twiki
__	Double underscore	JSPWiki, SnipSnap
''	Double single quotes	TiddlyWiki
_	Single underscore	XWiki

There are no collisions (in the 26 wikis analysed) for bold, i.e. there are no cases where \*\* is used for something other than bold.

### 4.3.2 Italics

A slash (/) looks like slanted italics, so it is intuitive and thus easier to remember. The double single quote (") and triple single quote (") were not chosen, because they could be confused for a regular quote mark (") and is not clear that

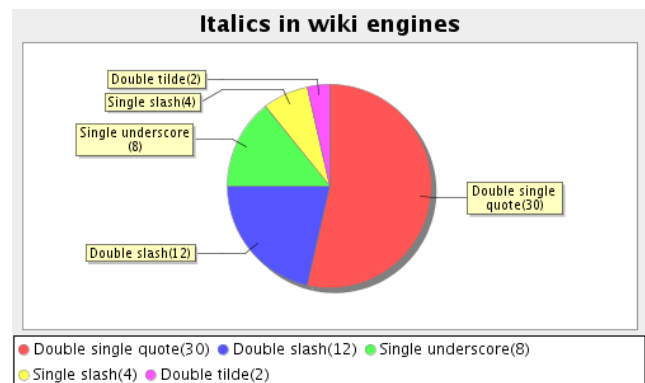
these single quotes are for emphasis. Also, having to use quintuple quotes (""") to open and close bold italics gets confusing for most users (see semantics discussion later).

The underscore ( ) was not chosen, since that could be confused for underlining.

Italic options:

/italics/ Slash  
 //italics// Double slash  
 \_italics\_ Single underscore  
 'italics' Double single quote

Chart 2: Italics in wiki engines



"	Double single quote	MediaWiki, MoinMoin
//	Double slash	DokuWiki, TiddlyWiki
_	Single underscore	Confluence, TWiki
/	Single slash	DidiWiki
~	Double tilde	SnipSnap

There are no collisions (in the 26 wikis analyzed) for italic, i.e. there are no cases where // is used for something other than italic.

### 4.3.3 Unordered Lists

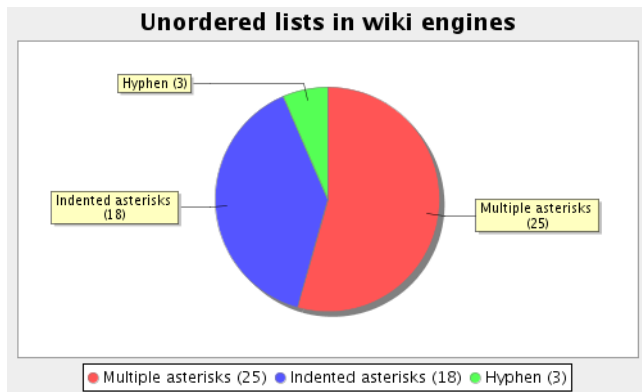
The multiple character approach for sublists was the first wiki syntax for sublists. Users do not need to count leading spaces like in markups where a sublist level is determined by the number of its leading spaces.

Ignoring the indentation makes at least the first-level (most common) lists work across practically all wiki engines that use asterisks for lists, and is also friendly for users who indent their lists reflexively.

Two options:

- \* Asterisk
- Hyphen

**Chart 3: Unordered lists in wiki engines**



*	Multiple Asterisks	MediaWiki, PBWiki, TiddlyWiki
*	Indented Asterisks	DokuWiki, MoinMoin, Twiki
-	Hyphen	SnipSnap

Hyphens (-) were not chosen due to the following reasons:

1. asterisks are considerably more popular in current wiki syntaxes
2. if you have a list of numbers, how do you know which numbers are negative?
3. many people sign their names on wiki using a hyphen or a double hyphen
4. dashes are used to write dialogs

#### 4.3.4 Ordered Lists

The number sign (#) is used for ordered lists in most wikis. Using the same rules as for unordered lists makes it easier to learn and remember the markup.

The number was not chosen as it defeats the point of having ordered lists, since you have to number your items anyway. Also, you would have to type two characters instead of just one.

Two options:

- #
- 1.

#### 4.3.5 Headings

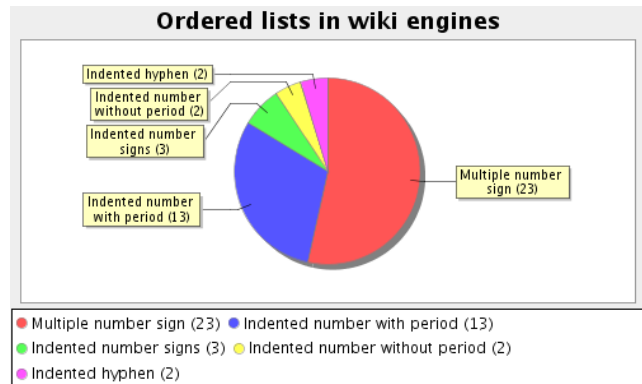
Using equal signs (=) is the most popular wiki heading markup. Since there are more equal signs for smaller headers, subheaders will become more indented making it easier to get a visual overview from the markup alone. Closing equal signs are optional, making Creole more flexible since many wiki engines do not use them.

Options:

- == header == equals before and after
- == header equals before

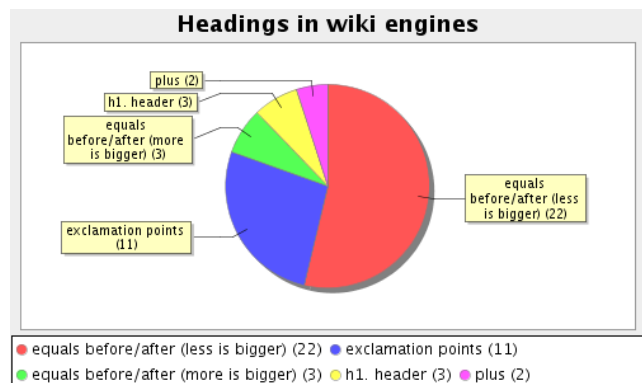
- !! header exclamation points
- h2. header

**Chart 4: Ordered lists in wiki engines**



##	multiple number sign	Confluence, JSPWiki, MediaWiki
1.	indented number sign with period	MoinMoin, Twiki
#	indented number sign	VQWiki
1	indented number without period	WikiSH
-	hyphen	DokuWiki

**Chart 5: Headings in wiki engines**



=	equals, less is bigger	MediaWiki, MoinMoin
!!	exclamation points	PWiki, PhpWiki, TiddlyWiki
=	equals, more is bigger	DokuWiki
h1.	header	Confluence
+	plus	MicKI

There was a complaint for exclamation points (!! ) that they do not indent further headers, making it difficult to keep an overview of the document content. Also, stripping



exclamation marks from the end can lead to a change of meaning. Syntax like `h2 .` looks too much like HTML.

Markup inside headings is not required, because the headings are already emphasized, so no bold or italic markup is required, they can't contain wiki markup, so nowiki markup is not needed, and the text from headings is often used as links in table of contents, or the headings themselves can be marked as links to themselves -- so link markup would conflict here.

4.3.6 Links

Almost all wikis use square brackets (`[[ ]]`) to make links. Using double square brackets allows single square brackets to be used freely without worry of turning them into links.

Using the same markup for both internal and external links makes it easier to learn and remember.

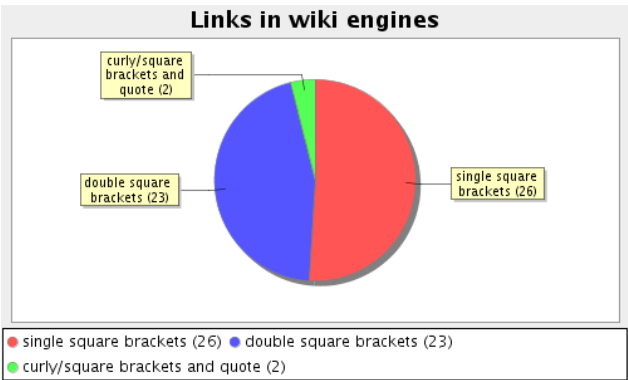
`[[Link|Description]]`

was chosen since most wikis put the link before the text and this is also a precedence of HTML. Raw URLs included in text are distinctive enough to be detected easily. Turning them into links saves the users some hassle.

Options:

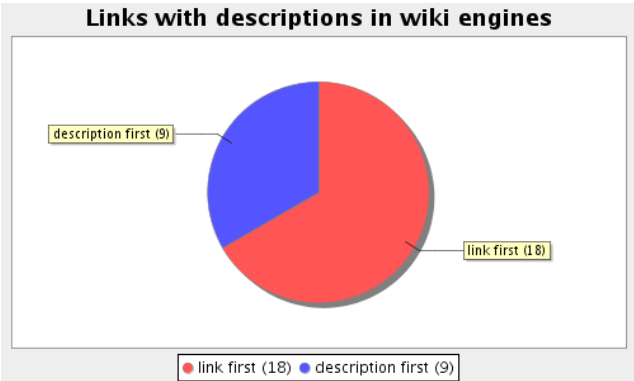
- `[Link]`
- `[[Link]]`
- `[Link|Text]`
- `[Text|Link]`
- `[[Link|Text]]`
- `[[Text|Link]]`

Chart 6: Links in wiki engines



[ ]	single brackets	Confluence, JSPWiki
[[ ]]	double brackets	MediaWiki, DokuWiki
[,“”]	brackets with quotes	MoinMoin

Chart 7: Links with descriptions in wiki engines

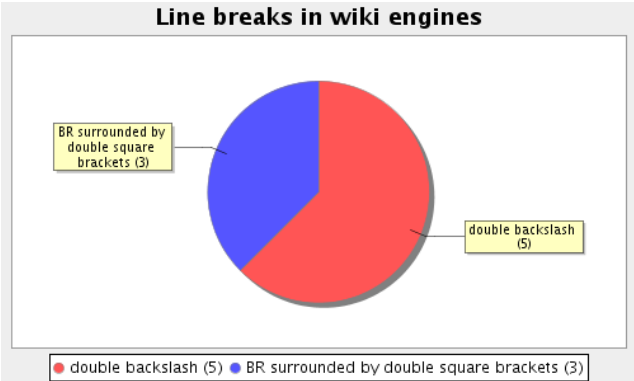


link first	MediaWiki, Twiki, DokuWiki
description first	Confluence, JSPWiki

4.3.7 Paragraphs and Line Breaks

The original 0.1 spec decided to treat line breaks as line breaks (as they function in blogs) in a wiki, not using a forced line break syntax. It turned out however that all wikis use a forced line break character for it, and therefore the double backslash was chosen. See 4.4 for an extensive discussion of the issue.

Chart 8: Line breaks in wiki engines



\\	backslashes	DokuWiki, JSPWiki, SnipSnap
[[BR]]	BR brackets	MoinMoin, TracWiki

4.3.8 Nowiki

There must be a way for users to enter text which will not be formatted by the wiki engine. Triple curly brackets (`{{{ code }}}`) were chosen due to their visibility and unlikeliness to be in the “code” itself.

Options:

{{{ code }}}	triple curly brackets
```code```	triple backticks

Backticks (`````) were not chosen due to their low visibility and because users might confuse them with regular single quote marks (`' '`)



#### 4.3.9 Horizontal Rule

All non-WYSIWYG wikis use hyphens (----) to denote horizontal rules. Most wikis require four. Some wikis vary the thickness of the line depending on the number of hyphens, but this is rarely used and hard to notice, so we left it out of Creole. Although horizontal rules are hardly used in normal articles, it is useful to separate discussions, and is therefore a highly desired feature in wikis.

#### 4.3.10 Images

Almost every wiki engine has a different syntax for images.

Options:

```
[ [img:image.jpg]]
[[image:image.jpg]]
[[image.jpg]]
{{image.jpg}}
{{image url="image.jpg"}}
!image.jpg!
image:image.jpg
```

{{}} is only used by two wikis, DokuWiki and Qwik. {{img:...}} is used by GeboGebo and {{image url="..."}} is used by UniWakka and WikkaWiki.

Images are a common enough element on modern wiki pages to deserve their own markup. This allows one to also just link to images, without actually displaying them, and to have images with exotic extensions or without extensions at all. This could also be used for other media files such as videos or Flash. This syntax was designed for transclusion, but we did not use this more generic term, since it is confusing for end users.

( {{}} ) collides with some engines, notably MediaWiki, which uses it for page transclusion (inclusion). It was decided at the Wiki Markup Standard Workshop that MediaWiki is unlikely to implement Creole in MixedMode, so this was not an issue for this particular important engine (see 3.6).

Exclamation points (!) were not chosen, because of potential conflicts with wiki engines who use them for headers. Plus, exclamation points insinuate emphasis, which is not correct in regards to images.

Prefix *Image*: wasn't used, because it's not obvious or friendly for non-English users. Wikis are still free to use prefixes in the image names if they are needed for denoting namespace, like in MediaWiki.

#### 4.3.11 Tables

Most wikis use single or double pipes to separate table cells. Single pipes (|) allow better use of space and are faster to type than double pipes since pipes are not usually needed in table cells.

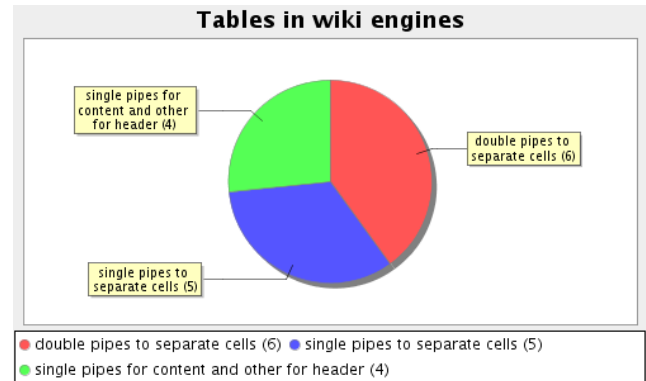


Chart 9: Tables in wiki engines

Single pipes	TWiki, TiddlyWiki
Double pipes	MoinMoin, Oddmuse
Single pipes for content, Others for headers	DokuWiki, JSPWiki

#### 4.3.12 Placeholders

Placeholders were conceived to eliminate “advanced native markup” from users who wish to see pure Creole in Edit Creole Mode. MediaWiki originally planned to implement Creole by having an “Easy Edit” button on each page which will translate a page’s content into Creole and then after the edit will translate the Creole back to that wiki’s native markup. Placeholders are only relevant to engines using the Edit Creole Mode, see section 3.6.3. However, MediaWiki has now decided they would prefer to use Native Mode as an option for new wiki installations.

Example:

*In MediaWiki markup:*

```
{{protected2}}
<!-- Vandalism to this page will be
reverted in seconds, and... Consider
helping. -->
<!-- Editors, ... Thanks.
-->
```

```
'''Wikipedia''' is a [[multilingual]],
[[World Wide Web|Web]]-based [[free
content]] [[encyclopedia]] project.
```

*Converted to Placeholders:*

```
<<<protection template>>>
<<<comment 1>>>
<<<comment 2>>>
```

```
**Wikipedia** is a [[multilingual]],
[[World Wide Web|Web]]-based [[free
content]] [[encyclopedia]] project.
```

## 4.4 Line breaks discussion

### 4.4.1 Problem Description

At the Wiki Markup Standard Workshop, we determined that it would be best if wikis were to treat line breaks as hard line breaks rather than have users type a special markup like `\\` or `[[BR]]` for them. We decided at the workshop that Creole should treat line breaks as line breaks, since users generally expect a line break when they push Enter.

However, when we researched wiki engines, none of them treated line breaks as line breaks, and in a way we were trying to reform the way wikis work instead of providing an alternative wiki markup.

### 4.4.2 Chosen Solution

We decided to add the line break markup `\\` so that existing wiki engines would more easily be able to adopt Creole. We have, however, recommended for wikis to keep blog-style line breaks, for those who have already implemented them, so that wiki communities can experiment with this mode.

## 4.5 Bold/Lists ambiguity

### 4.5.1 Problem Description

It was certain that we wanted to use two asterisks for bold text, but almost all wikis use an asterisk to indicate bullet lists, which can cause an ambiguity problem, especially when a bullet item starts with bold text.

Radomir Dopieralski discovered that “there are 5,381,592 first level list items with neither a space or a letter right after the bullet (nor an asterisk, of course). 25% of them were lists starting with bold or italic text.” So, we can see this is not an edge case [23].

Two proposed solutions were to require a space after the bullet or to use a hyphen instead. The space after bullet was not accepted, because it was argued that many users do not put a space there [24]. Tests of Wikipedia data proved this to be true. In this case, engine developers have to make the machine work harder to make wikis more user-friendly [25].

It should be noted that workshop participants recommended to use hyphens since they foresaw ambiguity problems with using asterisks for bold and bullet lists. Therefore we set up a Hyphen List Markup Proposal. The hyphens were not accepted however because of several concerns regarding the ambiguous use of hyphens at the beginning of a line. Hyphens can be used to start lines with special semantics in many already existing wikis, for example to indicate a signature or dialog. Of special concern were software like text editors that inserted hard line breaks to wrap the line and therefore would put hyphens inadvertently at the beginning, like negative numbers. A popular example here is Outlook which wraps incoming emails “hard”. Those editors and editor modes that are breaking the line hard however are a concern to all markup elements since they also could also put

other characters inadvertently as the first character, like equals and number signs. Hence although there were arguments showing a solution to the problems with hyphens, we were not able to reach consensus [26].

### 4.5.2 Chosen Solution

Before the workshop, we had originally chosen the asterisk, since this is what is used by most wikis. Later, because of this ambiguity, the bullet list syntax was changed to hyphen in 0.6, but this presented even more problems. We eventually settled down on the asterisk and decided that if one wants to use bold to start a list item, they must put a space between the bullet and list item. Therefore, the final 1.0 spec returned to asterisks and left the handling of ambiguity to implementers.

## 4.6 Semantic vs. Presentational discussion

### 4.6.1 Problem Description

Many web developers complained that we are straying from the semantic principles of early wiki markup, in that double single quotes should not be thought of as italics, but as soft emphasis whereas triple single quotes should not be thought of as bold, but as hard emphasis.

The counter-argument states that casual users, and even experienced web developers do not understand the “semantic web,” but continue to think in presentational terms such as bold and italic. Also, it was noted that in wiki engines, the writers generally do not have access to CSS, so wiki markup in essence must have a presentation flavor.

It also became clear that not everyone had the same understanding of the semantics. Some thought of both bold and italics in semantic terms, they however used different semantics than strong and stronger emphasis, if both were combined. For them the suggested semantic was new. Depending on the context both can have different unrelated semantics for different people. A good explanation of the difficulties in separating semantics from layout can be found in [27].

### 4.6.2 Chosen Solution

Since we are creating Creole for everyone, and not just for a technical audience, most end users talk in terms of “bold” and “italics” and may never even have heard the word “semantic.” Therefore, in this paradigm, a double slash would look more like italics and a double asterisk would give users a better feel for bold.

The confusion for similar markup for both bold and italics, and their combination leading to counting 5 single quotes was one issue the MediaWiki syntax reform draft tried to change by introducing the new markup of asterisks and slashes. This major usability complaint from Wikipedia users alone should be enough to justify this change.

#### 4.7 Implementations

Creole is a project supported by many different wiki engines, and the wikis who have implemented it are an illustration of that.

More than ten engines now support Creole including DokuWiki, Ghestalt, JSPWiki, Oddmuse, MoinMoin, NotesWiki, Nyctergatis Markup Engine, PmWiki, PodWiki, and TiddlyWiki. Other applications include the PEAR wiki filter (enabling developers to more easily write PHP wiki software), the Drupal CMS (using the PEAR wiki filter), Radeox (a Java wiki rendering engine), WikiWizard (a WYSIWiki editor) and a prototype JavaScript parser. The following wiki engines plan to add support for Creole: C2, InfiniteMonkey, MediaWiki, PurpleWiki, TWiki, SnipSnap uses Radeox, MeatballWiki, Wikka Wiki, and XWiki. For many of the engines who have implemented Creole, one can find a sandbox page in which to test them on our the Engines wiki page [28].

#### 5. CONCLUSION

The participation and support we were given throughout the last year is indicating that the wiki community is starving for a solution to the wiki markup mess. Our research on the common wiki markup elements has shown that there are a lot of commonalities in wiki engine markups and that a common wiki markup only needs some compromise from each side to reach a consensus. We were surprised at the initial number of implementations in the first phase. We think this shows that developers are ready to take that step. The first implementations of WikiCreole, although not supporting all suggested elements, were working well and gave us the possibility to express ourselves using formatted text in wikis with different underlying wiki engines. Being able to use a different wiki engine without even having to look at its markup was an incredible experience. It made us feel at home in a foreign wiki system.

The wikicreole.org wiki itself now uses Creole markup, hence the whole spec is written in its own markup. This shows that even if Creole only standardizes a few easy-to-remember markup elements, it contains the common things people need to get their work done. The implementation of tools that were not directly wiki-related, but rather use WikiCreole as a lightweight markup language, show that this markup can extend beyond its original use case. This, on the other hand, also causes new problems, because Creole was designed to be a common language. Usability and compatibility issues influenced decisions, making work harder for implementers (make the machine work harder) in favor of end users.

We hope we will find a way that makes WikiCreole fit both purposes, being a common forgiving language for end-users, and help pave the way for a stricter interchange language for the future of wikis. Now, however, it is important that engines start implementing and offering Creole to their users.

Wiki engine developers implementing WikiCreole in their parsers give a clear sign to the community of their readiness to cooperate to draw us all closer together, making life easier for everyone in the wiki world.

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