Markless Specification

v0.9

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1 Preamble

Markless is a new markup standard that focuses on being intuitive and fast to parse. Being a purely text-based markup, no complicated editor software is required to create documents in it. With its focus on intuition and consistency it should also be a good fit as a markup choice for text based platforms such as chat, forums, etc. Markless does not specify its results based on another document format, meaning that an implementation could be written to turn a Markless document into practically any other format. Markless is strict and does not allow for any ambiguities in its markup. This both makes it less confusing for the user, and easier to parse for a program. Being based on a specification rather than a reference implementation, Markless also offers the users a much more stable and reliant source to turn to in case of questions about the behaviour of an implementation.

This document specifies the way a Markless *document* is treated and how the various markup *directives* are to be *interpreted*. It does not describe the technological aspects of writing an *implementation* for Markless. It should also not be used as a guide or introduction on how to write Markless documents, but rather as a reference if you should want to write a new *implementation* or are unsure about the behaviour of an existing one. This document also describes the terminology to allow talking about Markless terms unambiguously. See the *glossary* for reference.

Included in most sections are one or more examples. These examples exist purely for illustrative purposes and are not normative. An *implementation* may deviate from the behaviour illustrated by the examples as long as it adheres to the actual description of this specification.

2 Identifier Syntax

In order to concisely specify *identifiers* we use a special syntax, of which the full grammar and semantics are reflected here using BNF notation.

`rule`	::=	“`(`”? (`matcher quantifier`?)+ “`)` ”?
		`rule` | `string` | `some-characters`
`matcher`	::=	| `any-character` | `not` | `either` | `binding`
		| `binding-reference` | `identifier-reference`
`string`	::=	`character`+
`char-class`	::=	“`~`” `character`
`some-characters`	::=	“`[`” `character`+ “`]`”
`any-character`	::=	“`.`”
`not`	::=	“`!`” `matcher`
`either`	::=	`rule` “`|`” `rule`
`binding`	::=	“`<`” `name` “ ” `rule` “`>`”
`binding-reference`	::=	“`<`” `name` “`>`”
`identifier-reference`	::=	“`{`” `name` “`}`”
`quantifier`	::=	`one-or-more` | `none-or-more` | `one-or-none`
`one-or-more`	::=	`rule` “`+`”
`none-or-more`	::=	`rule` “`*`”
`one-or-none`	::=	`rule` “`?`”
`name`	—	Some *alphanumeric string* to identify the text matched by the `rule`.
`character`	—	A *character*.

Appearing within the “” quotes are *characters* to be found in the *identifier specifier*.

If a backslash appears anywhere within the *identifier specifier*, it is ignored and the *character* immediately after it is taken literally without being interpreted as one of the *characters* in the syntax rules and without being interpreted using this backslash rule. Thus two backslashes immediately after one another are interpreted as a single, literal backslash *character*.

In order for a `rule` to *match*, the `quantifier` supplied with the `matcher` must match. If no `quantifier` is included in a `rule`, the `rule` *matches* if the `matcher` *matches* exactly once.

In order for a `string` to *match*, the exact sequence of *characters* must be found.

In order for a `char-class` to *match*, a *character* specified by the *character class* associated with the given `character` must be found. The following classes are specified: `a` for *alphabetic*, `n` for *numeric*, `_` for *whitespace*, and `w` for *alphanumeric*.

In order for `some-characters` to *match*, one of the *characters* must be found.

In order for `any-character` to *match*, a single *character* must be found, but it matters not which *character* it is.

In order for `not` to *match*, the following `matcher` must not *match*.

In order for `either` to *match*, either the `rule` left to it, or the `rule` right to it must *match*.

In order for `one-or-more` to *match*, the `rule` must be *matched* at least once, but may be *matched* an arbi-

trary number of times immediately after each other. The `rule` is only repeatedly *matched* until the `rule` immediately after the `one-or-more` is *matched*.

In order for `none-or-more` to *match*, the `rule` does not have to be *matched* at all, but may be *matched* an arbitrary number of times immediately after each other. The `rule` is only repeatedly *matched* until the `rule` immediately after the `none-or-more` is *matched*.

In order for `one-or-none` to *match*, the `rule` does not have to be *matched* at all, but if it is, it is only *matched* exactly once.

In order for a `binding` to *match*, the `rule` contained must *match*. The specific *string matched* by the `rule` is then associated with the `name` of the `binding`.

In order for an `identifier-reference` to *match*, the *identifier* corresponding to the `name` must *match*. The effect is as if the according *identifier specifier* was used in place of the `identifier-reference`.

In order for a `binding-reference` to *match*, the exact *string* associated with the `name` of the `binding` must be found.

3 Documents

Markless describes a number of *directives* to transform a *document* from its bare *string* representation into that of a *textual component*. While the *directives* are described in this specification using Unicode *characters*, the specification does not enforce any particular *encoding* on the *document*. However, in order for an *implementation* to be *conforming*, *characters* used to identify a *directive* in a *document* must be *equivalent* to those in this specification.

The effect of a *textual component* on its *text* applies on all *levels*. In the case of conflicting *styles*, the *style* of the *textual component* on the closest *level* above the *text* applies. In effect this means that a *textual component* on a lower *level* can override a *style* for its *text*.

An *implementation* may choose to compose multiple *textual components* in order to achieve the effect of a single *specified textual component*. It may also insert *textual components* at any point in the *document* if necessary by the resulting *document format*. An *implementation* may also ignore any *style* of a *specified textual component* if the resulting *document format* cannot support its effect.

4 Interpretation

This section describes the procedure by which an *implementation interprets* a *document*. This procedure is used as a reference to allow verification of correctness. An *implementation* does not necessarily have to follow this procedure as long as the output it produces is equivalent with an *implementation* that does.

4.1 State

The following state is kept and updated as the procedure advances.

- The input stream from which characters are read.
- The parser state variables such as the *line break mode*.
- A *cursor*.
- A stack wherein each entry is composed of a *directive* and a *textual component*.
- A list of *disabled directives*.
- A table associating *labels* to *textual components*.

4.2 Procedure

1. A "root-directive" and a "root-component" are pushed onto the stack.
2. If the input stream has things to read:
   - 2.1. A *line* is read from the input stream.
   - 2.2. The *cursor* is set to the beginning of the *line*.
   - 2.3. The stack is traversed upwards from the bottom:
     - 2.3.1. The *directive* at the current stack entry attempts to *match*.
     - 2.3.2. If the *match* succeeds:
       - 2.3.2.1. The *cursor* is advanced by the *matched characters*.
       - 2.3.2.2. The current stack entry is advanced upwards.
       - 2.3.2.3. Go to 2.3.1.
     - 2.3.3. The stack is unwound down to and including the current stack entry. See *Stack Unwinding*.
   - 2.4. The *directive* on top of the stack is invoked:
     - 2.4.1. If an *applicable directive matches*:
       - 2.4.1.1. The *matched directive* may enter *textual components* into the *current component*.
       - 2.4.1.2. The *matched directive* may push itself and a *textual component* onto the stack or perform other changes to the state as specified.
       - 2.4.1.3. The *cursor* is advanced by the *matched characters*.
       - 2.4.1.4. Go to 2.4.
     - 2.4.2. The *character* at the *cursor* is added to the *current component*.
     - 2.4.3. The *cursor* is advanced by the *character*.
   - 2.5. If the *cursor* is not yet at the end of the *line*:
     - 2.5.1. Go to 2.4.
   - 2.6. If the *line break mode* is `show`, a *newline* is added to the *current component*.

2.7. Go to 2.

3. The stack is unwound fully. See *Stack Unwinding*.

4. The interpretation is complete. The "root-component" represents the resulting *document*.

4.2.1 Stack Unwinding

1. If the stack is taller than the desired height:

   1.1. If the directive on top of the stack is a *inline directive*:

      1.1.1. The *current component* is converted to one that has no *style*.

      1.1.2. *Characters* that have been consumed by the prefix match of the *directive* are prepended to the *current component*.

      1.1.3. Other potentially necessary actions to undo the match of the *directive* are performed.

   1.2. The top of the stack is popped off.

   1.3. Go to 1.

4.2.2 Root Directive

The root directive always *matches* but is never considered an *applicable directive*.

5 Line Directives

In order for a *directive* to be a *line directive*, its *identifier* must *match* the beginning of a *line*.

A *textual component* specified by a *line directive* can potentially contain any other *textual component*. Therefore, any *directive* is potentially recognisable within a *line directive*, including other *line directives*. However, a *line directive* may explicitly restrict which *directives* are recognised within itself. A *line directive* cannot cross the boundaries of another *line directive* of a different kind. If such a case were to occur, the current *line directive* is forcibly ended without regard for any possible trailing *match*.

5.0.1 Singular Line Directives

A *line directive* is a *singular line directive* if it is only ever active for a single *line*. If it is matched on two consecutive *lines* this results in two separate *resulting textual components*.

When a *singular line directive* is *processed*, processing begins anew over the *content binding* until the end of the *line* is reached, at which point the *resulting textual component* is ended. After that, control is handed back to the *standard processing loop*.

5.0.2 Spanning Line Directives

A *line directive* is a *spanning line directive* if the *identifier* contains a *content binding*, and if *matches* on consecutive *lines* of the *identifier* are interpreted as a single *match*. The semantics of such a spanning match are as follows: Only a single *resulting textual component* is produced for all the consecutively *matching lines*. The *text* of this *resulting textual component* is produced by concatenating the contents of the *content binding* on each *line*. If the *content binding* does not *match* the *newline* on every *line*, the *newline* must be inserted between each *string* of the *content binding*.

When a *spanning line directive* is *processed*, processing begins anew over the *content binding* until the end of the *line* is reached. Standard end of *line interpretation* proceeds. If the following *line matches* the same *spanning line directive* as before, processing begins anew over the *content binding* thereof without any new *resulting textual components* being started or inserted. If the following *line* does not *match* the same *spanning line directive* as before, the *resulting textual component* is ended and control is handed back to the *standard processing loop*.

5.0.3 Guarded Line Directives

A *line directive* is a *guarded line directive* if its *matched* region is specified by two *identifiers* that each match a single *line*. The *text* of the *resulting textual component* is the *text* from the *line* immediately after the *line* the first *identifier matches* until and including the *line* immediately before the *line* the second *identifier matches*.

When a *guarded line directive* is *processed*, processing begins anew over the *content binding* until the the part of the *identifier* after the *content binding* is *fully matched*, at which point the *resulting textual component* is ended and control is handed back to the *standard processing loop*.

5.1 Paragraph

Identifier **Paragraph**:

```
<spaces [ ]*><content![ ].*>
```

Textual Component **Paragraph**: `margin: top, bottom`

The paragraph can only be *matched* if no other *line directive matches*. *Lines* belong to the same paragraph until the length of `spaces` changes, a new *inline directive* is recognised, or an *empty line* is encountered. The paragraph is a *spanning line directive*.

Paragraphs are visually distinguished by a margin above and below the *text*. An *implementation* may additionally employ indentation rules to distinguish the beginning of a paragraph.

Examples:

```
This is a paragraph
that spans multiple lines

This is another paragraph.
```

⇒

This is a paragraph
that spans multiple lines.

This is another paragraph.

```
Paragraph One
  Paragraph Two
```

⇒

Paragaph One

Paragraph Two

5.2 Blockquote

Identifier **Blockquote Header**:

`\~ <content .+>`

Identifier **Blockquote Body**:

`\| <content .*>`

Textual Component **Blockquote Header**: `margin: left; font-weight: bold`
Textual Component **Blockquote Body**: `margin: left`

The blockquote header is a *singular line directive* that identifies the source of a quote. Only the *text* held by the *content binding* is outputted into the *resulting textual component*. The blockquote header can only contain *inline directives*.

The blockquote body is a *spanning line directive* that identifies a body of *text* that is being quoted. The blockquote body can contain any *directive* with the condition that the *directives* are matched against the *text* of the *resulting textual component*.

An implementation may choose to group the *blockquote header* and *blockquote body* together and reorder them if they are found consecutive to one another. However, a body can only ever be grouped together with a single header. In the case where a header lies between two bodies, the header is counted to belong to the second body. If a header is found without a corresponding body, the *implementation* may *signal* a *warning*.

Examples:

```
~ This Document
| The blockquote header is a \
| singular line directive.
```

⇒

The blockquote header is a singular line directive.

— This Document

```
| Unattributed text.
```

⇒

Unattributed text.

5.3 Lists

Identifier **Ordered List**:

```
<number ~d+>\.<content .*>
(<spacing ~_+> <content .*>)*
```

Identifier **Unordered List**:

```
- <content .*>
(<spacing ~_+> <content .*>)*
```

Textual Component **Ordered List**: `margin: left`
Textual Component **Ordered List Item**: `display: list-item; list-item-prefix: number`
Textual Component **Unordered List**: `margin: left`
Textual Component **Unordered List Item**: `display: list-item; list-item-prefix: dot`

The lists are *spanning line directives* and mark the enumeration of one or more items of a list. They can contain any *directive* with the condition that the *directives* are matched against the *text* of the *resulting textual component*.

After the respective list *identifier* has been *matched*, a new respective item *textual component* in which the higher *level text* is contained, is inserted for each *match* into the spanning *resulting textual component*. A single *match* may span over multiple *lines* if the *text matched* by the `spacing` *binding* is of the same length as that of the `number` *binding*. In such a case, each item *match* itself is treated like a *spanning line directive* where the *content binding* is concatenated.

Ordered list items must be numbered by the *decimal number* given by the `number` *binding*, even if there is no order to how the numbers appear in the list or if there are duplicates.

Examples:

```
- Finish this spec
- Implement a parser
```

⇒

- Finish this spec
- Implement a parser

```
1.Buy some ingredients
2.Clean the kitchen
  Don't forget the sink!
5.Watch TV
```

⇒

1. Buy some ingredients
2. Clean the kitchen
   Don't forget the sink!
5. Watch TV

5.4 Header

Identifier **Header**:

```
<level #+> <content .+>
```

Textual Component **Header**: `font-weight:bold; font-size: 1-level; indent: true; label: content`

The header is a *singular line directive*. It represents a section heading. Only the *text* held by the *content binding* is outputted to the *resulting textual component*. The header can only contain *inline directives*.

The length of the `level` *binding* determines the level of the heading. The level may potentially be infinitely high, though the *implementation* may represent levels above a certain number in the same manner. It must however support a different representation for at least levels 1 and 2. Generally, the higher the level, the smaller the font size of the heading should be.

An *implementation* may choose to number each header, where this number prefix is put together by the number prefix of the header on a level one higher followed by a dot and a counter representing how many headers of the same level have appeared until and including the current one since the last header of a higher level. In the case of a level one heading only the counter is used, as there is no higher level prefix to prepend. In the case where no level one higher is contained in the *document*, the level is treated as if it existed with the counter for it being 0.

The *resulting textual component* is associated with a *label* of the same name as the *text* of the *resulting textual component*.

Examples:

```
# Header
The header is a singular line
directive
## Subsection
That allows neat sectioning!
```

⇒

Header

The header is a singular line directive.

Subsection

That allows neat sectioning!

```
# Cooking a Lasagna
Here's what you have to buy:
## Ingredients
A buncha stuff!
## Steps
It's a lengthy recipe, but finally \
you'll have to
#### Bake it
```

⇒

1 Cooking a Lasagna

Here's what you have to buy:

1.1 Ingredients

A buncha stuff!

1.2 Steps

It's a lengthy recipe, but finally you'll have to

1.2.0.1 Bake it

5.5 Horizontal Rule

Identifier **Horizontal-rule**:

```
==+
```

Textual Component **Horizontal-rule**: `display: line`

The horizontal rule is a *singular line directive*. It is translated into a *resulting textual component* that represents a horizontal rule or break on the page. This must span the entire width of the document and could be represented by a thin line. If the *document* cannot support the drawing of lines, the horizontal rule may instead be approximated through other means.

Examples:

```
==
```

⇒

```
And now, for a brief break.
=====
Back to the show!
```

⇒

And now, for a brief break.

Back to the show!

5.6 Code block

Identifier **Code Block**:

```
<prefix ::+><language ![,]+>?<options .*>
```

```
<content .*>
<prefix>
```

Textual Component **Code Block**: `font-family: monospace; white-space: preserve`

The code block is a *guarded line directive*. It marks the *text* to belong to a *textual component* that somehow distinguishes the block as source code. Only the *text* held by the *content binding* is outputted to the *resulting textual component*. The code block *directive* cannot contain any other *directives*.

The *newlines* and *whitespace* must be represented exactly as in the source text. Multiple consecutive *whitespace characters* cannot be combined and must be individually represented. A *newline character* cannot be escaped and must always result in a new line being started. *Escaping* is deactivated within the content, meaning backslashes are output literally in the *resulting textual component*.

The `options` *binding* holds potential parameters that can configure the *style* of the *resulting textual component*. The syntax and effect of the options is *implementation dependant*.

Examples:

```
Some unexciting code:
:: common-lisp
(print "Hello world")
::
```

⇒

Some unexciting code:

```
(print "Hello world")
```

5.7 Instruction

Identifier **Instruction**:

```
\! <instruction .*>
```

The instruction is a *singular line directive*. Its purpose is to interact with the *implementation* and cause it to perform differently. There is no corresponding *resulting textual component* for the instruction *directive*.

An *implementation* is allowed to add further instructions. If an instruction is not recognised, the *implementation* must *signal* an *error*.

5.7.1 Set

Instruction **Set**: `set <variable ![ ]+> <value .+>`

Sets the state of the *variable* of the given name to a certain value. An *implementation* may check the value for validity and *signal* an *error* if it is invalid. An *implementation* is allowed to add further variables. If a variable is not recognised, the *implementation* must *signal* an *error*.

5.7.1.1 Line Break Mode

Variable **line-break-mode**: `show`

The *line-break-mode* variable may only assume two values: `show`, and `hide`. If the line break mode is `show`, when the processor encounters an unescaped *newline*, a new *line* is started in the output *document*.

Examples:

```
! set line-break-mode show
foo
bar\
baz                          ⇒   barbaz
! set line-break-mode hide      badaboom
bada
boom
```

5.7.1.2 Metadata

Variable **author**:
Variable **copyright**:
Variable **language**:

Declares *metadata* about the *document*. The *implementation* may use this information and embed it into the output *document*.

5.7.2 Message

Instruction **Info**: `info <message .*>`
Instruction **Warn**: `warn <message .*>`
Instruction **Error**: `error <message .*>`

The *info* instruction causes the *implementation* to *signal* the given message. The *warn* instruction causes the *implementation* to *signal* a *warning* with the given message. The *error* instruction causes the *implementation* to *signal* an *error* with the given message.

5.7.3 Include

Instruction **Include**: `include <file .*>`

Causes the implementation to *interpret* the contents of the given file. If the file is not accessible for some reason, the *implementation* must *signal* an *error*.

5.7.4 Directives

Instruction **Disable**: `disable <directive ![ ]+>( <directive ![ ]+>)*`
Instruction **Enable**: `enable <directive ![ ]+>( <directive ![ ]+>)*`

The *disable* and *enable* instructions cause the *implementation* to respectively disable or enable the named *directives*. If a given name is not recognised, the *implementation* may *signal* a *warning*.

Examples:

```
! disable instruction
! error Exit!          ⇒   ! error Exit!
```

5.7.5 Label

Instruction **Label**: `label <name .*>`

Associates a *label* with the component that immediately precedes this instruction.

5.8 Comment

Identifier **Comment**:

`;+ .*`

The comment is a *singular line directive*. If the *comment identifier* is *matched*, the entire line is skipped and discarded. There is no corresponding *resulting textual component* for the comment *directive* and as such it must not have any effect on the *document*.

Examples:

```
; This is a stupid thing to say.
Sometimes
;forever
```
⇒
Sometimes
;forever

5.9 Embed

Identifier **Embed**:

`\[ <type .*> <target .*>(, *<parameter ![,]*>)*( *\])?`

Textual Component **Embed**: `display: block;target: target`

The embed is a *singular line directive*. The content of the `type` binding determines the embed's type, and the `parameter` bindings determine the embed's parameters. The style of the *resulting textual component* is dynamically dependant on the given type.

Unless the *embed-property-width* or *embed-property-height* parameters are present, the size of the embed *resulting textual component* is constrained to be smaller than the width and height of the *page* it is output to while preserving the embed content's aspect ratio. If the *page* has no width or height, or the embed content's dimensions are smaller than both of those, then the embed content is sized to its own dimensions. The *resulting textual component* must not be split across multiple *pages*.

5.9.1 Embed Types

An *implementation* must at least support the types specified in this section if permitted by the output *document*, but may add additional options the implications of which are completely *implementation dependant*. If the output *document* does not support a particular type, a *paragraph* containing a single *url textual component* is outputted with its target and content set to the `target` *binding*'s value and a *warning* is *signalled*. If the *implementation* does not support the requested type at all, an *error* is *signalled*.

5.9.1.1 Image

Identifier **Embed-type-image**: `image`
Style **Embed-type-image**: `interaction: image`

Embeds the image pointed to by the `target` into the document. The supported image formats are *implementation dependant*. If the format of the target is not supported by the *implementation*, the *directive* is treated as if it were given an unknown type.

Examples:

`[ image markless-logo.png ]` ⇒ 

5.9.1.2 Video

Identifier **Embed-type-video**: `video`
Identifier **Embed-property-loop**: `loop`
Identifier **Embed-property-autoplay**: `autoplay`
Style **Embed-type-video**: `interaction: video`

Embeds the video pointed to by the `target` into the document. The supported video formats are *implementation dependant*. If the format of the target is not supported by the *implementation*, the *directive* is treated as if it were given an unknown type. The *resulting textual component* must be interactive in such a way that the *user* is presented with a way to start, pause, seek, and change the volume of the video. The video should not play automatically, unless the *embed-property-autoplay* flag property is present. If the *embed-property-loop* flag property is present, the video should start over from the beginning once it reaches the end.

Examples:

`[ video sample.mp4 ]` ⇒ file://./sample.mp4

5.9.1.3 Audio

Identifier **Embed-type-audio**: `audio`
Identifier **Embed-property-loop**: `loop`
Identifier **Embed-property-autoplay**: `autoplay`
Style **Embed-type-audio**: `interaction: audio`

Embeds the audio file pointed to by the `target` into the document. The supported audio formats are *implementation dependant*. If the format of the target is not supported by the *implementation*, the *directive* is treated as if it were given an unknown type. The *resulting textual component* must be interactive in such a way that the *user* is presented with a way to start, pause, seek, and change the volume of the audio. The audio track should not play automatically, unless the *embed-property-autoplay* flag property is present. If the *embed-property-loop* flag property is present, the audio track should start over from the beginning once it reaches the end. Since an audio file does not have any dimensions associated with it, the *implementation* is free to choose the sizing it deems appropriate.

Examples:

`[ audio sample.mp3 ]` ⇒ file://./sample.mp3

5.9.2 Embed Parameters

The parameters are processed in the order they are given and can effect both the content of the *resulting textual component* as well as its *style*. A parameter may also affect the processing of parameters after

it. Two general types of parameters are defined: flag parameters and value parameters. Flag parameters are single parameters that add or remove an attribute from the *resulting textual component*'s *style*. Value parameters add an attribute whose value is determined by the parameter following the current one. The following parameter is then skipped over and thus not processed.

An *implementation* must at least support the parameters specified in this section if permitted by the output *document*, but may add additional parameters the implications of which are completely *implementation dependant*. If the output *document* does not support a particular parameter, a *warning* is *signalled*.

5.9.2.1 Float

Identifier **Embed-property-float**: `float <orientation left|right>`
Style **Embed-property-float**: `float: orientation`

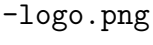
Causes the embed to float on either the left or right side of the *document*. All the *resulting textual components* after it will flow around it.

5.9.2.2 Width

Identifier **Embed-property-width**: `width (<pixels ~n+px>|<percent ~n+%>)`
Style **Embed-property-width**: `width: size`

Causes the embed content's width to be fixed to the specified size. The size can be given in either `pixels` or `percent` where `pixels` will set the width to be the exact amount of pixels given if the document is viewed at its native resolution. `percent` will scale the width to the given percentage of the width of the *document*. If the *document* should not have a width, the `percent` specification does nothing. Unless the *embed-property-height* is also specified, the embed content's aspect ratio must be preserved.

Examples:

`[ image markless-logo.png width 50px ]` ⇒ 

5.9.2.3 Height

Identifier **Embed-property-height**: `height (<pixels ~n+px>|<percent ~n+%>)`
Style **Embed-property-height**: `height: size`

Causes the embed content's height to be fixed to the specified size. The size can be given in either `pixels` or `percent` where `pixels` will set the height to be the exact amount of pixels given if the document is viewed at its native resolution. `percent` will scale the height to the given percentage of the height of the *document*. If the *document* should not have a height, the `percent` specification does nothing. Unless the *embed-property-width* is also specified, the embed content's aspect ratio must be preserved.

Examples:

`[ image markless-logo.png width 50px height 100px ]` ⇒ 

5.10 Footnote

Identifier **Footnote**:

`\[<number ~n+>\] <content .+>`

Textual Component **Footnote**:

The footnote is a *singular line directive*. Outputted to the *resulting textual component* is the *text* held by the `number` *binding* followed by a : (`U+3A`), followed by the *text* held by the *content binding*. The footnote can only contain *inline directives*.

Unlike other *directives* the footnote's *resulting textual component* cannot be placed where the *identifier* is found. It must be placed such that it is at the end of a *page* in the *document*.

The *resulting textual component* is associated with a *label* with the name being the content of the `number` *binding*.

Examples:

```
Examples[1] are not authoritative.

[1] Examples are things like this.
```

⇒

Examples[1] are not authoritative.

1: Examples are things like this.

6 Inline Directives

A *directive* is an *inline directive* if its identification is not bound to *lines*. Unlike *line directives* therefore it can potentially be identified at any point in a string and span any length.

Any *textual component* specified by an *inline directive* can only contain *textual components* specified by *inline directives*. Furthermore, an *inline directive* cannot contain another *inline directive* of its own type at any *level*. An *inline directive* may further restrict which *directives* may appear within itself. An *inline directive* cannot cross the boundaries of another *directive* of a different kind. If such a case were to occur, the current *inline directive* is forcibly ended without regard for any possible trailing *match*. A special exception is made in the case of *spanning line directives*: since a *spanning line directive* is the combination of multiple matches of the same kind on consecutive lines into a singular *textual component*, an *inline directive* must be allowed to span over multiple matches.

6.0.1 Surrounding Inline Directives

An *inline directive* is a *surrounding inline directive* if its *identifier* contains syntactical features around a *content binding*.

When a *surrounding inline directive* is *processed*, processing begins anew over the *content binding* until the the part of the *identifier* after the *content binding* is *fully matched*, at which point the *resulting textual component* is ended and control is handed back to the *standard processing loop*.

6.0.2 Entity Inline Directives

An *inline directive* is an *entity inline directive* if its *identifier* does not contain any `binding`s and instead the *text* of the *resulting textual component* is entirely dependant on the *entity inline directive* specification.

When a *entity inline directive* is *processed*, the *resulting textual component* is ended once the *identifier* has been *fully matched*. Then control is handed back to the *standard processing loop*.

6.0.3 Compound Inline Directives

An *inline directive* is a *compound inline directive* if its *identifier* consists of multiple `binding`s the contents of which are in some form outputted to the *resulting textual component*.

6.1 Bold

Identifier **Bold**: `\*\*<content .*>\*\*`
Textual Component **Bold**: `font-weight: bold`

The bold *directive* is a *surrounding inline directive* that marks the *text* to belong to a *textual component* that sets the weight of the font to bold. Only the *text* held by the *content binding* is outputted to the *resulting textual component*.

Examples:

`not **bold** at all`	⇒	not **bold** at all
`and **some *things* are bad**`	⇒	and **some *things* are bad**

6.2 Italic

Identifier **Italic**: `//<content .*>//`
Textual Component **Italic**: `font-style: italic`

Italic is a *surrounding inline directive*. It marks the *text* to belong to a *textual component* that sets the style of the font to italic. Only the *text* held by the *content binding* is outputted to the *resulting textual component*.

Examples:

`I //really// don't care.`	⇒	I *really* don't care.
`//call/cc// is important.`	⇒	*call/cc* is important.

6.3 Underline

Identifier **Underline**: `__<content .*>__`
Textual Component **Underline**: `text-decoration: underline`

Underline is a *surrounding inline directive*. It marks the *text* to belong to a *textual component* that sets the style of the text to underline. Only the *text* held by the *content binding* is outputted to the *resulting textual component*.

Examples:

`We __must__ finish this.`	⇒	We must finish this.
`This __CONSTANT_VALUE__ is variable.`	⇒	This CONSTANT_VALUE is variable.

6.4 Strikethrough

Identifier **Strikethrough**: `\<-<content .*>-\>`
Textual Component **Strikethrough**: `text-decoration: strikethrough`

Strikethrough is a *surrounding inline directive*. It marks the *text* to belong to a *textual component* that sets the style of the text to strikethrough. Only the *text* held by the *content binding* is outputted to the *resulting textual component*.

Examples:

`To Do: <-nothing->`	⇒	To Do: ~~nothing~~
`<-Solve LOAD-TIME-VALUE problem->`	⇒	~~Solve LOAD-TIME-VALUE problem~~
`<-Go -\> there->`	⇒	~~Go -> there~~

6.5 Code

Identifier **Code**: ``` ``<content .*>`` ```
Textual Component **Code**: `font-family: monospace`

Code is a *surrounding inline directive*. It marks the *text* to belong to a *textual component* that sets the font-family to monospace. Only the *text* held by the *content binding* is outputted to the *resulting textual component*. The code *directive* cannot contain any other *directives*.

Examples:

`Call ``compile```	⇒	Call `compile`
`Earmuffs ``*around*`` your specials.`	⇒	Earmuffs `*around*` your specials.
`This: ``\``` is a backtick.`	⇒	This: ` is a backtick.

6.6 Dashes

Identifier **Em-dash**: `--`
Textual Component **Em-dash**: `display: em-dash`

Em-dash is a *entity inline directive*. If the *document* does not have direct support for em-dashes, a fallback character may be used when appropriate instead. In unicode encoded documents, this should be — (`U+2014`).

Examples:

`A game -- or gamble, if you will.` ⇒ A game — or gamble, if you will.

6.7 Subtext

Identifier **Subtext**: `v\(<content .*>\)`
Textual Component **Subtext**: `vertical-align: sub`

Subtext is a *surrounding inline directive*. It marks the *text* to belong to a *textual component* that sets the style of the text to appear smaller and below the default text line. Only the *text* held by the *content binding* is outputted to the *resulting textual component*.

Examples:

`This is an example v(just so you know)` ⇒ This is an example $_{\text{just so you know}}$

`Sometimes you have to be discreet v(or so they say \(I wouldn't know\)).`

⇒ Sometimes you have to be discreet $_{\text{or so they say (I wouldn't know)}}$.

6.8 Supertext

Identifier **Supertext**: `^\(<content .*>\)`
Textual Component **Supertext**: `vertical-align: super`

Supertext is a *surrounding inline directive*. It marks the *text* to belong to a *textual component* that sets the style of the text to appear smaller and above the default text line. Only the *text* held by the *content binding* is outputted to the *resulting textual component*.

Examples:

`This is a good example ^([citation needed])`	⇒	This is a good example $^{\text{[citation needed]}}$
`Nesting ^(supertext ^(is silly))`	⇒	Nesting $^{\text{supertext }^{\text{is silly}}}$

6.9 URL

Identifier **Url**: `<target ~a(~w|[+-.])*://(~w|[$-_.+!*'()&+,/:;=?@%#])+>`
Textual Component **Url**: `interaction: link; target: target`

URL is an *inline directive* that marks the *text* to belong to a *textual component* that sets its interaction to allow following to the URL target. The user must be presented with an action that allows them to follow to the URL target. The exact manner in which the target is followed as well as the way in which the action is presented are *implementation dependant*. The *text* of the *resulting textual component* must be exactly the same as that of the `target` *binding*.

Examples:

```
Come chat with us at irc://irc.freenode.net/%23shirakumo !
```

⇒ Come chat with us at irc://irc.freenode.net/%23shirakumo !

6.10 Compound

Identifier **Compound**: `"<content .>"\(<option .*>(, *<option .*>)*\)`
Textual Component **Compound**:

The compound *directive* is a *compound inline directive*. It determines its *style* dynamically by the additive combination of present options in the `option` binding. In the case where the style combination of two options conflicts, the style of the last option has priority.

Only the *text* held by the *content binding* is outputted to the *resulting textual component*. The `option` binding cannot contain any other *directives*.

An *implementation* must at least support the options specified in this section, but may add additional options the syntax and implications of which are completely *implementation dependant*. If an option is found that the *implementation* does not support, it is ignored and a *warning* may be *signalled*.

When a compound *directive* is *processed*, processing begins anew over the *content binding*. Once the `options` binding has been *fully matched*, the *resulting textual component* is ended and control is handed back to the *standard processing loop*.

6.10.1 Bold

Identifier **Compound-bold**: `bold`
Style **Compound-bold**: `font-weight: bold`

If given, this option marks the *style* to bold the *text*.

Examples:

```
Not "again"(bold)!
```

⇒ Not **again**!

6.10.2 Italic

Identifier **Compound-italic**: `italic`
Style **Compound-italic**: `font-style: italic`

If given, this option marks the *style* to italicise the *text*.

Examples:

```
This is "really"(italic) important!
```

⇒ This is *really* important!

6.10.3 Underline

Identifier **Compound-underline**: `underline`
Style **Compound-underline**: `text-decoration: underline`

If given, this option marks the *style* to be set to underline the *text*.

Examples:

`Solve it "today"(underline)!` ⇒ Solve it today!

6.10.4 Strikethrough

Identifier **Compound-strikethrough**: `strikethrough`
Style **Compound-strikethrough**: `text-decoration: strikethrough`

If given, this option marks the *style* to be set to strikethrough the *text*.

Examples:

`"This is a good idea"(strikethrough).` ⇒ ~~This is a good idea~~.

6.10.5 Spoiler

Identifier **Compound-spoiler**: `spoiler`
Style **Compound-spoiler**: `display: hidden`

If given, this option marks the *style* to obscure the *text* in such a manner that the *user* must perform an *action* in order to reveal the *text*.

Examples:

`This is a "secret"(spoiler)!` ⇒ This is a [redacted]!

6.10.6 Font

Identifier **Compound-font**: `font <font .+>`
Style **Compound-font**: `font-family: font`

If given, this option marks the *style* to change the font family. If the specified font is not available to the *user* for one reason or another, either no font change occurs, or an *error* is *signalled*. The *implementation* may make an effort to include the font in the *document* in such a way that it is not necessary for the user to have a copy of the font, but it is not required to.

Examples:

```
"Comic sans"(font Comic Sans Ms) is a good font to annoy people.
```

⇒ Comic sans is a good font to annoy people.

6.10.7 Color

Identifier **Compound-color**: `(color (<hex #.+>|<r ~n+> <g ~n+> <b ~n+>))|<name .+>`
Style **Compound-color**: `color: color`

If given, this option marks the *style* to change the colour. The colour can be given in three ways:

1. Through a hexadecimal notation, contained in the `hex` *binding*. The *hexadecimal number* following the `#` must be exactly six *characters* long.

2. Through a red, green, blue component notation, contained in the `r`,`g`, and `b` *bindings*. Each of these bindings must contain a *decimal number* that may only range between 0 and 255. If the number lies outside this range, it is clamped to the nearest boundary.

3. Through an explicit colour name, contained in the `name` *binding*. The name must be *case insensitive*. The set of supported colour names is *implementation dependant*.

If the specified colour value is invalid or unknown to the *implementation* according to the above restrictions, an *error* is *signalled*. If the *document* does not support the specified colour, the *implementation* must choose an alternative colour that approximates the specified one as closely as possible.

Examples:

`This is "blue"(blue).`	⇒	This is blue.
`"Magic!"(color #9D0ECC)`	⇒	Magic!
`Now in "technicolor"(color 145 16 16).`	⇒	Now in technicolor.

6.10.8 Size

Identifier **Compound-size**: `(size (<point ~n+pt>|<em ~n+?(\.~n+?)?em>))|<name .+>`
Style **Compound-size**: `font-size: size`

This option marks the *style* to change the font size. The size can be given in three ways:

1. Through a point value, contained in the `point` *binding*. The *real number* must be greater than zero.

2. Through an em value, contained in the `em` *binding*. The *real number* must be greater than zero. The font size is scaled according to the *real number* multiplied by the font size of the *textual component* one *level* below.

3. Through a name, contained in the `name` *binding*. The name must be *case insensitive*. At least the following names, corresponding to scaling factors, must be supported by the *implementation*:

   - Microscopic 0.25em
   - Tiny 0.5em
   - Small 0.8em
   - Normal 1.0em
   - Big 1.5em
   - Large 2.0em
   - Huge 2.5em
   - Gigantic 4.0em

   An implementation may support additional names, the exact sizing effects of which are *implementation dependant*.

If the specified size value is invalid or unknown to the *implementation* according to the above restrictions, no size change occurs.

Examples:

```
Oh "shit!"(huge)        ⇒  Oh shit!
In "20pt."(size 20pt)   ⇒  In 20pt.
Well "uh, "I don't know..."(size 0.5em)"(in size 0.8em)
```

⇒ Well uh, I don't know...

6.10.9 Hyperlink

Identifier **Compound-hyperlink**: `{url}|(#<internal .+>)|(link <external .+>)`
Style **Compound-hyperlink**: `interaction: link;target: target`

This option marks the *style* to set the interaction to allow following to the target. The user must be presented with an action that allows them to follow to the target. The exact manner in which the target is followed as well as the way in which the action is presented are *implementation dependant*. The target can be given in three ways:

1. As an URL, contained in the `target` *binding*. In this case the semantics are the same as for the *URL textual component*.
2. As an external reference, contained in the `external` *binding*. The exact semantics and allowed values for external references are *implementation dependant*.
3. As an internal reference, contained in the `internal` *binding*. The target is set to the position of the *textual component* associated with the *label* of the same name as the contents of the *binding*.

If the specified target is invalid or unknown to the *implementation* according to the above restrictions, no interaction change occurs.

Examples:

```
The "hyperspec"(http://l1sp.org/cl/) is very useful.
```

⇒ The hyperspec is very useful.

```
And in "part 2"(#identifier-syntax)...          ⇒  And in part 2...
I drew "something"(~/drawings/test.jpg) today.  ⇒  I drew something today.
```

6.11 Footnote-Reference

Identifier **Footnote-reference**: `\[<target ~n+>\]`
Textual Component **Footnote-reference**: `interaction:link;target:target;vertical-align:super`

The footnote-reference is a *surrounding inline directive* that marks the *text* to belong to a *textual component* that sets its interaction to allow following to the *label* with the name held by the *text* of the `target` *binding*. The user must be presented with an action that allows them to follow to the corresponding label. The exact manner in which the target is followed as well as the way in which the action is presented are *implementation dependant*. The *text* of the *resulting textual component* must be exactly the same as that of the entire *identifier*.

Examples:

```
Examples[1] are not authoritative.

[1] Examples are things like this.
```

⇒

Examples[1] are not authoritative.

1: Examples are things like this.

6.12 Newline

Identifier **Newline**: `-/-`
Textual Component **Newline**: `display: newline`

Newline is a *entity inline directive*. The following text in the *resulting textual component* should start on a new *line*.

Examples:

`This-/-and that` ⇒
This
and that

Issues

issues/accidental directive invocation.mess

```
# Problem Description
Currently some inline directives are prone to accidental invocation, leading to
frustrating behaviour for users. Notable for this are:

~ Bold
| It's quite elegant: e^(i*pi)+1 = 0

Arguably for the above case the inline code block should be employed, but for the
italics there's no such excuse:

~ Italic
| There's problems/solutions to be found.

While the examples here only illustrate single uses which would not lead to a
successful match, it isn't hard to imagine that multiple separate uses like this
could occur in close vicinity.

# Solution Proposals
## Double Identifiers (Accepted)
Simply double the number of characters in the identifiers to disambiguate:

~ Bold
| This is now **bold**.

~ Italic
| This is //italic//.

## Strikethrough-like
~ Bold
| <*thing*>

~ Italic
| </thing/>

## Immediate Recurrence Escapes
If the content binding is empty, simply output the corresponding character instead
, or make the content have at least one character and introduce corresponding
entity inline directives. This would not fix the problem directly but would make
it a bit less awkward to type the given characters.

~ Bold
| *A times B* is: a**b.

This behaviour could also be seen as more surprising than less so, however.

# Issue Status
Resolved.
```

issues/line breaks.mess

```
# Problem Description
Back when Markless was first designed, the question came up on how to accommodate
two rather different styles of line breaking. The styles are basically the
following:

~ Editor Style
| This is made for people who hate to resize their
| windows and thus manually insert line breaks
| everywhere to force the file into a specific width.
| Thus, this paragraph is made of a single line.

~ WYSIWYG Style
| This is made for people who are just typing stuff in a browser.
| They are not accustomed to weird coding practises, and thus expect this to have
two lines.

In order to account for both, Markless introduced "line modes" that can be
switched using an instruction. At the same time, it allowed for temporarily
switching between them for a single line by escaping the newline. Thus the
following:

~ Editor Style
| Should you ever want to explicitly insert a new
| line, you would do it with an escape \
| like that.

~ WYSIWYG Style
| Should you ever want to break something up over multiple lines, you'd do it \
| line this, without having to incur a newline.

This is all fine and good, but as soon as you start interpreting the escaped
newline as a way to continue a directive onto the next line, it stops making sense
. To illustrate:

~ Editor Style
| # Is this a header with a single line \
| or does it have two lines? What if you want to
| continue the header without incurring a new line?

~ WYSIWYG Style
| # The same problem here. Is this a header with a single line \
| or does it have two lines after all? What if you want the opposite?

Due to the inherent contradictory nature in both cases I conclude that continuing
a directive and controlling line breaks are two orthogonal features. Now the
question becomes: how do we deal with this?

# Solution Proposals
## Doubling the Line Modes
By having each line mode also specify the behaviour for the continuing of
directives onto the next line, each case could be addressed. This does not
particularly help with the intuitiveness of the entire problem however, as users
might come to expect different defaults. The explanation of what each mode means
```

exactly would also be complicated further.

Eliminating Editor Style
In WYSIWYG style the behaviour of "escaping ignores the newline entirely" is an acceptable approach and makes intuitive sense. By eliminating editor style altogether, this problem falls away.

Eliminating Singular Line Directives
By instead forcing singular line directives to become either guarded- or spanning line directives this problem also falls away, as the behaviour is logically defined in both cases. An example:

| ## This is a single header
| ## in both line modes.

Don't Allow Newlines
Another solution would be to disallow newlines in the content binding of a singular line directive, thus again making every case unambiguous.

Absolute Escape Consistency (Accepted)
Escaping a newline never produces a newline in the resulting textual component and always continues the line onto the next one as if both lines were as one. This means that \LF is the same as neither character existing at all, regardless of the line mode.

This also means it is impossible to emit newlines in editor mode. To reconcile this, a new entity inline directive should be added that does this unquestioningly.

Issue Status
Resolved.

issues/line directive simplicity.mess

Problem Description
One of the primary goals of Markless is to be relatively easy to parse. As a part of this, a strong focus was put on making line directives fast to recognise. Many of them thus follow a scheme of being identified by the first two characters on a line. This is a very desirable property.

However, some of the directives do not currently use this scheme, and instead require much more intricate parsing. A good example is the ordered line directive, which starts out with an arbitrary number. Since the number can easily grow beyond 10, the two characters are quickly exceeded, and much more is needed to parse.

Much worse still is the embed directive, which currently requires a scan of the full line in order to determine whether a match occurred. This is strongly in opposition to the intended goal.

Furthermore, while the spec currently says that "An implementation may optimise the matching process of directives in the following manner: if the part of the identifier before the content binding matches, then the whole identifier may be considered matched" a more specific explanation of which match is necessary would

```
be good. Putting a hard constraint to the "first two characters" for line
directives would be optimal.

Alternate schemes should be devised for the ordered list, embed, and footnote
directives to work around this issue.

# Solution Proposals
## Footnote
### 1 (Accepted)
| [~d

## Embed
### 1
| [~w

### 2 (Accepted)
| [

## Ordered Line
### 1
| .~d

### 2 (Accepted)
| ~d(~d|.)

# Issue Status
Resolved.
```