NSParagraphStyle Class Reference

Cocoa > Text & Fonts

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NSParagraphStyle Class Reference

Inherits from	NSObject
Conforms to	NSCoding NSCopying NSMutableCopying NSObject (NSObject)
Framework	/System/Library/Frameworks/AppKit.framework
Availability	Available in Mac OS X v10.0 and later.
Companion guide	Rulers and Paragraph Styles
Declared in	NSParagraphStyle.h
Related sample code	FilterDemo iSpend Quartz Composer WWDC 2005 TextEdit TextEditPlus TipWrapper

Overview

`NSParagraphStyle` and its subclass `NSMutableParagraphStyle` encapsulate the paragraph or ruler attributes used by the `NSAttributedString` classes. Instances of these classes are often referred to as paragraph style objects or, when no confusion will result, paragraph styles.

The mutable subclass of `NSParagraphStyle` is NSMutableParagraphStyle.

Adopted Protocols

NSCoding

- `- encodeWithCoder:`
- `- initWithCoder:`

NSCopying

- `- copyWithZone:`

NSMutableCopying

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```
- mutableCopyWithZone:
```

Tasks

Creating an NSParagraphStyle

`+ defaultParagraphStyle` (page 7)
Returns the default paragraph style.

Accessing Style Information

`- alignment` (page 8)
Returns the text alignment of the receiver.

`- firstLineHeadIndent` (page 10)
Returns the indentation of the first line of the receiver.

`- headIndent` (page 10)
Returns the indentation of the receiver's lines other than the first.

`- tailIndent` (page 15)
Returns the trailing indentation of the receiver.

`- tabStops` (page 14)
Returns the receiver's tab stops.

`- defaultTabInterval` (page 9)
Returns the document-wide default tab interval.

`- lineHeightMultiple` (page 11)
Returns the line height multiple.

`- maximumLineHeight` (page 12)
Returns the receiver's maximum line height.

`- minimumLineHeight` (page 13)
Returns the receiver's minimum height.

`- lineSpacing` (page 12)
Returns the space between lines in the receiver (commonly known as leading).

`- paragraphSpacing` (page 13)
Returns the space after the end of the paragraph.

`- paragraphSpacingBefore` (page 14)
Returns the distance between the paragraph's top and the beginning of its text content.

Getting Text Block and List Information

`- textBlocks` (page 15)
Returns an array specifying the text blocks containing the paragraph.

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- `textLists` (page 15)
  Returns an array specifying the text lists containing the paragraph.

Getting Line Breaking Information

- `lineBreakMode` (page 11)
  Returns the mode that should be used to break lines in the receiver.
- `hyphenationFactor` (page 11)
  Returns the paragraph's threshold for hyphenation.
- `tighteningFactorForTruncation` (page 16)
  Returns the threshold for using tightening as an alternative to truncation.

Getting HTML Header Level

- `headerLevel` (page 10)
  Specifies whether the paragraph is to be treated as a header for purposes of HTML generation.

Writing Direction

+ `defaultWritingDirectionForLanguage:` (page 8)
  Returns the default writing direction for the specified language.
- `baseWritingDirection` (page 9)
  Returns the base writing direction for the receiver.

Class Methods

defaultParagraphStyle

Returns the default paragraph style.

```
+ (NSParagraphStyle *)defaultParagraphStyle
```

Discussion
The default paragraph style has the following default values:

Subattribute	Default Value
Alignment	`NSNaturalTextAlignment`
Tab stops	12 left-aligned tabs, spaced by 28.0 points
Line break mode	`NSLineBreakByWordWrapping`
All others	0.0

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See individual method descriptions for explanations of each subattribute.

Availability
Available in Mac OS X v10.0 and later.

Related Sample Code
FilterDemo
iSpend
Quartz Composer WWDC 2005 TextEdit
TextEditPlus
TipWrapper

Declared In
`NSParagraphStyle.h`

defaultWritingDirectionForLanguage:

Returns the default writing direction for the specified language.

```
+ (NSWritingDirection)defaultWritingDirectionForLanguage:(NSString *)languageName
```

Parameters

languageName

The language specified in ISO language region format. Can be `nil` to return a default writing direction derived from the user's defaults database.

Return Value
The default writing direction.

Availability
Available in Mac OS X v10.2 and later.

See Also
`- baseWritingDirection` (page 9)
`- setBaseWritingDirection:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

Instance Methods

alignment

Returns the text alignment of the receiver.

```
- (NSTextAlignment)alignment
```

Return Value
The text alignment.

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Discussion
Natural text alignment is realized as left or right alignment depending on the line sweep direction of the first script contained in the paragraph.

Availability
Available in Mac OS X v10.0 and later.

See Also
- `setAlignment:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

baseWritingDirection

Returns the base writing direction for the receiver.

```
- (NSWritingDirection)baseWritingDirection
```

Return Value
The base writing direction for the receiver.

Availability
Available in Mac OS X v10.2 and later.

See Also
+ `defaultWritingDirectionForLanguage:` (page 8)
- `setBaseWritingDirection:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

defaultTabInterval

Returns the document-wide default tab interval.

```
- (CGFloat)defaultTabInterval
```

Return Value
The default tab interval in points. Tabs after the last specified in `tabStops` (page 14) are placed at integer multiples of this distance (if positive). Default return value is 0.0.

Availability
Available in Mac OS X v10.3 and later.

See Also
- `setDefaultTabInterval:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

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firstLineHeadIndent

Returns the indentation of the first line of the receiver.

```
- (CGFloat)firstLineHeadIndent
```

Return Value
The distance in points from the leading margin of a text container to the beginning of the paragraph's first line. This value is always nonnegative.

Availability
Available in Mac OS X v10.0 and later.

See Also
- `headIndent` (page 10)
- `tailIndent` (page 15)
- `setFirstLineHeadIndent:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

headerLevel

Specifies whether the paragraph is to be treated as a header for purposes of HTML generation.

```
- (NSInteger)headerLevel
```

Return Value
Returns 0 (the default value), if the paragraph is not a header, or from 1 through 6 if the paragraph is to be treated as a header.

Availability
Available in Mac OS X v10.4 and later.

See Also
- `setHeaderLevel:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

headIndent

Returns the indentation of the receiver's lines other than the first.

```
- (CGFloat)headIndent
```

Return Value
The distance in points from the leading margin of a text container to the beginning of lines other than the first. This value is always nonnegative.

Availability
Available in Mac OS X v10.0 and later.

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See Also
- `firstLineHeadIndent` (page 10)
- `tailIndent` (page 15)
- `setHeadIndent:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

hyphenationFactor

Returns the paragraph's threshold for hyphenation.

```
- (float)hyphenationFactor
```

Return Value
A value between 0.0 and 1.0 inclusive. The default value is 0.0.

Discussion
Hyphenation is attempted when the ratio of the text width (as broken without hyphenation) to the width of the line fragment is less than the hyphenation factor. When the paragraph's hyphenation factor is 0.0, the layout manager's hyphenation factor is used instead. When both are 0.0, hyphenation is disabled.

Availability
Available in Mac OS X v10.4 and later.

See Also
- `setHyphenationFactor:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

lineBreakMode

Returns the mode that should be used to break lines in the receiver.

```
- (NSLineBreakMode)lineBreakMode
```

Return Value
The line break mode to be used laying out the paragraph's text.

Availability
Available in Mac OS X v10.0 and later.

See Also
- `setLineBreakMode:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

lineHeightMultiple

Returns the line height multiple.

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```
- (CGFloat)lineHeightMultiple
```

Return Value
The line height multiple. The natural line height of the receiver is multiplied by this factor (if positive) before being constrained by minimum and maximum line height. Default return value is 0.0.

Availability
Available in Mac OS X v10.3 and later.

See Also
- `maximumLineHeight` (page 12)
- `minimumLineHeight` (page 13)
- `setLineHeightMultiple:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

lineSpacing

Returns the space between lines in the receiver (commonly known as leading).

```
- (CGFloat)lineSpacing
```

Return Value
The space in points added between lines within the paragraph. This value is always nonnegative.

Availability
Available in Mac OS X v10.0 and later.

See Also
- `maximumLineHeight` (page 12)
- `minimumLineHeight` (page 13)
- `paragraphSpacing` (page 13)
- `setLineSpacing:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

maximumLineHeight

Returns the receiver's maximum line height.

```
- (CGFloat)maximumLineHeight
```

Return Value
The maximum height in points that any line in the receiver will occupy, regardless of the font size or size of any attached graphic. This value is always nonnegative. The default value is 0.

Discussion
Glyphs and graphics exceeding this height will overlap neighboring lines; however, a maximum height of 0 implies no line height limit. Although this limit applies to the line itself, line spacing adds extra space between adjacent lines.

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Availability
Available in Mac OS X v10.0 and later.

See Also
- `minimumLineHeight` (page 13)
- `lineSpacing` (page 12)
- `lineHeightMultiple` (page 11)
- `setMaximumLineHeight:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

minimumLineHeight

Returns the receiver's minimum height.

```
- (CGFloat)minimumLineHeight
```

Return Value
The minimum height in points that any line in the receiver will occupy, regardless of the font size or size of any attached graphic. This value is always nonnegative.

Availability
Available in Mac OS X v10.0 and later.

See Also
- `maximumLineHeight` (page 12)
- `lineSpacing` (page 12)
- `lineHeightMultiple` (page 11)
- `setMinimumLineHeight:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

paragraphSpacing

Returns the space after the end of the paragraph.

```
- (CGFloat)paragraphSpacing
```

Return Value
The space in points added at the end of the paragraph to separate it from the following paragraph. This value is always nonnegative.

Discussion
This value is determined by adding the previous paragraph's `paragraphSpacing` and the current paragraph's `paragraphSpacingBefore` (page 14).

Availability
Available in Mac OS X v10.0 and later.

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See Also
- `lineSpacing` (page 12)
- `paragraphSpacingBefore` (page 14)
- `setParagraphSpacing:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

paragraphSpacingBefore

Returns the distance between the paragraph's top and the beginning of its text content.

```
- (CGFloat)paragraphSpacingBefore
```

Return Value
The distance in points between the paragraph's top and the beginning of its text content. Default return value is 0.0.

Availability
Available in Mac OS X v10.3 and later.

See Also
- `paragraphSpacing` (page 13)
- `setParagraphSpacingBefore:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

tabStops

Returns the receiver's tab stops.

```
- (NSArray *)tabStops
```

Return Value
The `NSTextTab` objects, sorted by location, that define the tab stops for the paragraph style.

Availability
Available in Mac OS X v10.0 and later.

See Also
- `location` (`NSTextTab`)
- `setTabStops:` (`NSMutableParagraphStyle`)
- `addTabStop:` (`NSMutableParagraphStyle`)
- `removeTabStop:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

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tailIndent

Returns the trailing indentation of the receiver.

```
- (CGFloat)tailIndent
```

Return Value
The distance in points from the margin of a text container to the end of lines.

Discussion
If positive, this value is the distance from the leading margin (for example, the left margin in left-to-right text). If 0 or negative, it's the distance from the trailing margin.

For example, a paragraph style designed to fit exactly in a 2-inch wide container has a head indent of 0.0 and a tail indent of 0.0. One designed to fit with a quarter-inch margin has a head indent of 0.25 and a tail indent of –0.25.

Availability
Available in Mac OS X v10.0 and later.

See Also
- `headIndent` (page 10)
- `firstLineHeadIndent` (page 10)
- `setTailIndent:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

textBlocks

Returns an array specifying the text blocks containing the paragraph.

```
- (NSArray *)textBlocks
```

Return Value
An array of the `NSTextTableBlock` objects containing the paragraph, nested from outermost to innermost.

Availability
Available in Mac OS X v10.4 and later.

See Also
- `setTextBlocks:` (`NSMutableParagraphStyle`)

Related Sample Code
iSpend

Declared In
`NSParagraphStyle.h`

textLists

Returns an array specifying the text lists containing the paragraph.

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```
- (NSArray *)textLists
```

Return Value
An array of the `NSTextList` objects containing the paragraph, nested from outermost to innermost.

Availability
Available in Mac OS X v10.4 and later.

See Also
`- setTextLists:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

tighteningFactorForTruncation

Returns the threshold for using tightening as an alternative to truncation.

```
- (float)tighteningFactorForTruncation
```

Return Value
The tightening threshold value. The default value is 0.05.

Discussion
When the line break mode specifies truncation, the text system attempts to tighten intercharacter spacing as an alternative to truncation, provided that the ratio of the text width to the line fragment width does not exceed 1.0 + the tightening factor returned by this method. Otherwise the text is truncated at a location determined by the line break mode.

Availability
Available in Mac OS X v10.4 and later.

See Also
`- setTighteningFactorForTruncation:` (`NSMutableParagraphStyle`)

Declared In
`NSParagraphStyle.h`

Constants

NSLineBreakMode

These constants specify what happens when a line is too long for its container.

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```
typedef enum _NSLineBreakMode {
    NSLineBreakByWordWrapping = 0,
    NSLineBreakByCharWrapping,
    NSLineBreakByClipping,
    NSLineBreakByTruncatingHead,
    NSLineBreakByTruncatingTail,
    NSLineBreakByTruncatingMiddle
} NSLineBreakMode;
```

Constants

`NSLineBreakByWordWrapping`

Wrapping occurs at word boundaries, unless the word itself doesn't fit on a single line.

Available in Mac OS X v10.0 and later.

Declared in `NSParagraphStyle.h`.

`NSLineBreakByCharWrapping`

Wrapping occurs before the first character that doesn't fit.

Available in Mac OS X v10.0 and later.

Declared in `NSParagraphStyle.h`.

`NSLineBreakByClipping`

Lines are simply not drawn past the edge of the text container.

Available in Mac OS X v10.0 and later.

Declared in `NSParagraphStyle.h`.

`NSLineBreakByTruncatingHead`

Each line is displayed so that the end fits in the container and the missing text is indicated by some kind of ellipsis glyph.

Available in Mac OS X v10.0 and later.

Declared in `NSParagraphStyle.h`.

`NSLineBreakByTruncatingTail`

Each line is displayed so that the beginning fits in the container and the missing text is indicated by some kind of ellipsis glyph.

Available in Mac OS X v10.0 and later.

Declared in `NSParagraphStyle.h`.

`NSLineBreakByTruncatingMiddle`

Each line is displayed so that the beginning and end fit in the container and the missing text is indicated by some kind of ellipsis glyph in the middle.

Available in Mac OS X v10.0 and later.

Declared in `NSParagraphStyle.h`.

Declared In

`NSParagraphStyle.h`

NSTextTabType

These constants specify the types of tab stops.

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```
typedef enum _NSTextTabType {
    NSLeftTabStopType = 0,
    NSRightTabStopType,
    NSCenterTabStopType,
    NSDecimalTabStopType
} NSTextTabType;
```

Constants

`NSLeftTabStopType`

A left-aligned tab stop.

Available in Mac OS X v10.0 and later.

Declared in `NSParagraphStyle.h`.

`NSRightTabStopType`

A right-aligned tab stop.

Available in Mac OS X v10.0 and later.

Declared in `NSParagraphStyle.h`.

`NSCenterTabStopType`

A center-aligned tab stop.

Available in Mac OS X v10.0 and later.

Declared in `NSParagraphStyle.h`.

`NSDecimalTabStopType`

Aligns columns of numbers by the decimal point.

Available in Mac OS X v10.0 and later.

Declared in `NSParagraphStyle.h`.

Declared In

`NSParagraphStyle.h`

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Document Revision History

This table describes the changes to *NSParagraphStyle Class Reference*.

Date	Notes
2006-05-23	First publication of this content as a separate document.

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