python-textops3 Documentation

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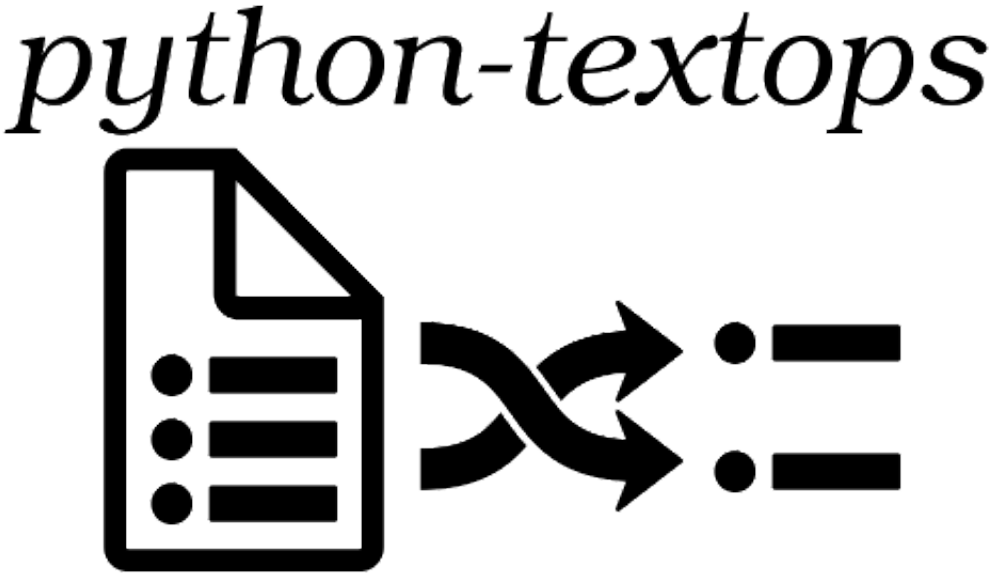
Contents



python-textops3 provides many text operations at string level, list level or whole text level.
These operations can be chained with a 'dotted' or 'piped' notation.
Chained operations are stored into a single lazy object, they will be executed only when an input text will be provided.

Here is a simple example to count number of mails received from spammer@hacker.com since May 25th:

```
>>> '/var/log/mail.log' | cat().grep('spammer@hacker.com').since('May 25').lcount()
37
```

python-textops3 is used into some other projects like python-nagios-helpers3

CHAPTER 1

Install

To install:

```
pip install python-textops3
```

CHAPTER 2

Quickstart

The usual way to use textops is something like below. IMPORTANT : Note that textops library redefines the python **bitwise OR** operator | in order to use it as a 'pipe' like in a Unix shell:

```
from textops import *

result = "an input text" | my().chained().operations()

or

for result_item in "an input text" | my().chained().operations():
   do_something(result_item)

or

myops = my().chained().operations()
# and later in the code, use them :
result = myops("an input text")
or
result = "an input text" | myops
```

An "input text" can be :

- a simple string,
- a multi-line string (one string having newlines),
- a list of strings,
- a strings generator,
- a list of lists (useful when you cut lines into columns),
- a list of dicts (useful when you parse a line).

So one can do:

```
>>> 'line1line2line3' | grep('2').tolist()
['line1line2line3']
>>> 'line1\nline2\nline3' | grep('2').tolist()
['line2']
>>> ['line1','line2','line3'] | grep('2').tolist()
['line2']
>>> [['line','1'],['line','2'],['line','3']] | grep('2').tolist()
[['line', '2']]
>>> [{'line':1},{'line':'2'},{'line':3}] | grep('2').tolist()
[{'line': '2'}]
```

Note: As many operations return a generator, they can be used directly in for-loops, but in this documentation we added `.tolist()` to show the result as a list.

Textops library also redefines >> operator that works like the | except that it converts generators results into lists:

```
>>> 'a\nb' | grep('a')
<generator object extend_type_gen at ...>
>>> 'a\nb' | grep('a').tolist()
['a']
>>> 'a\nb' >> grep('a')
['a']
>>> for line in 'a\nb' | grep('a'):
...     print(line)
a
>>> 'abc' | length()
3
>>> 'abc' >> length()
3
```

Note: You should use the pipe | when you are expecting a huge result or when using for-loops, otherwise, the >> operator is easier to handle as you are not keeping generators.

Here is an example of chained operations to find the first line with an error and put it in uppercase:

```
>>> from textops import *
>>> myops = grepi('error').first().upper()
```

Note: str standard methods (like 'upper') can be used directly in chained dotted notation.

You can use unix shell 'pipe' symbol into python code to chain operations:

```
>>> from textops import *
>>> myops = grepi('error') | first() | strop.upper()
```

If you do not want to import all textops operations, you can only import textops as `op`:

```
>>> import textops as op
>>> myops = op.grepi('error') | op.first() | op.strop.upper()
```

Note: str methods must be prefixed with `strop.` in piped notations.

Chained operations are not executed (lazy object) until an input text has been provided. You can use chained operations like a function, or use the pipe symbol to "stream" input text:

```
>>> myops = grepi('error').first().upper()
>>> print(myops('this is an error\nthis is a warning'))
THIS IS AN ERROR
>>> print('this is an error\nthis is a warning' | myops)
THIS IS AN ERROR
```

Note: python generators are used as far as possible to be able to manage huge data set like big files. Prefer to use the dotted notation, it is more optimized.

To execute operations at once, specify the input text in parenthesis after chained operation as they were a function:

```
>>> print(grepi('error').first().upper()('this is an error\nthis is a warning'))
THIS IS AN ERROR
```

A more readable way is to use ONE pipe symbol, then use dotted notation for other operations : this is the **recommended way to use textops**. Because of the first pipe, there is no need to use special textops Extended types, you can use standard strings or lists as an input text:

```
>>> print('this is an error\nthis is a warning' | grepi('error').first().upper())
THIS IS AN ERROR
```

You could use the pipe everywhere (internally a little less optimized, but looks like shell):

```
>>> print('this is an error\nthis is a warning' | grepi('error') | first() | strop.
↪upper())
THIS IS AN ERROR
```

To execute an operation directly from strings, lists or dicts *with the dotted notation*, you must use textops Extended types : `StrExt`, `ListExt` or `DictExt`:

```
>>> s = StrExt('this is an error\nthis is a warning')
>>> print(s.grepi('error').first().upper())
THIS IS AN ERROR
```

Note: As soon as you are using textops Extended type, textops cannot use gnerators internally anymore : all data must fit into memory (it is usually the case, so it is not a real problem).

You can use the operations result in a 'for' loop:

```
>>> open('/tmp/errors.log','w').write('error 1\nwarning 1\nwarning 2\nerror 2')
35
>>> for line in '/tmp/errors.log' | cat().grepi('warning').head(1).upper():
...   print(line)
WARNING 1
```

A shortcut is possible : the input text can be put as the first parameter of the first operation. nevertheless, in this case, despite the input text is provided, chained operations won't be executed until used in a for-loop, converted into a string/list or forced by special attributes:

```
# Just creating a test file here :
>>> open('/tmp/errors.log','w').write('error 1\nwarning 1\nwarning 2\nerror 2')
35

# Here, operations are excuted because 'print' converts into string :
# it triggers execution.
>>> print(cat('/tmp/errors.log').grepi('warning').head(1).upper())
WARNING 1

# Here, operations are excuted because for-loops or list casting triggers execution.
>>> for line in cat('/tmp/errors.log').grepi('warning').head(1).upper():
...   print(line)
WARNING 1

# Here, operations are NOT executed because there is no for-loops nor string/list␣
↪cast :
# operations are considered as a lazy object, that is the reason why
# only the object representation is returned (chained operations in dotted notation)
>>> logs = cat('/tmp/errors.log')
>>> logs                              # the cat() is not executed, you see only its␣
↪python representation :
cat('/tmp/errors.log')
>>> print(type(logs))
<class 'textops.ops.fileops.cat'>

# To force execution, use special attribute .s .l or .g :
>>> open('/tmp/errors.log','w').write('error 1\nwarning 1')
17
>>> logs = cat('/tmp/errors.log').s  # '.s' to execute operations and get a string␣
↪(StrExt)
>>> print(type(logs)                  )# you get a textops extended string
<class 'textops.base.StrExt'>
>>> print(logs)
error 1
warning 1

>>> logs = cat('/tmp/errors.log').l  # '.l' to execute operations and get a list␣
↪(ListExt)
>>> print(type(logs))
<class 'textops.base.ListExt'>
>>> print(logs)
['error 1', 'warning 1']

>>> logs = cat('/tmp/errors.log').g  # '.g' to execute operations and get a generator
>>> print(type(logs))
<class 'generator'>
>>> print(list(logs))
['error 1', 'warning 1']
```

Note:

`.s` : execute operations and get a string
`.l` : execute operations and get a list of strings
`.g` : execute operations and get a generator of strings

your input text can be a list:

```
>>> print(['this is an error','this is a warning'] | grepi('error').first().upper())
THIS IS AN ERROR
```

textops works also on list of lists (you can optionally grep on a specific column):

```
>>> l = ListExt([['this is an','error'],['this is a','warning']])
>>> print(l.grepi('error',1).first().upper())
['THIS IS AN', 'ERROR']
```

... or a list of dicts (you can optionally grep on a specific key):

```
>>> l = ListExt([{ 'msg':'this is an', 'level':'error'},
... {'msg':'this is a','level':'warning'}])
>>> print(l.grepi('error','level').first())
{'msg': 'this is an', 'level': 'error'}
```

textops provides DictExt class that has got the attribute access functionnality:

```
>>> d = DictExt({ 'a' : { 'b' : 'this is an error\nthis is a warning'}})
>>> print(d.a.b.grepi('error').first().upper())
THIS IS AN ERROR
```

If attributes are reserved or contains space, one can use normal form:

```
>>> d = DictExt({ 'this' : { 'is' : { 'a' : {'very deep' : { 'dict' : 'yes it is'}}}}}
↪)
>>> print(d.this['is'].a['very deep'].dict)
yes it is
```

You can use dotted notation for setting information in dict BUT only on one level at a time:

```
>>> d = DictExt()
>>> d.a = DictExt()
>>> d.a.b = 'this is my logging data'
>>> print(d)
{'a': {'b': 'this is my logging data'}}
```

You saw `cat`, `grep`, `first`, `head` and `upper`, but there are many more operations available.

Read The Fabulous Manual !

CHAPTER 3

Run tests

Many doctests as been developped, you can run them this way:

```
cd tests
python ./runtests.py
```

CHAPTER 4

Build documentation

An already compiled and up-to-date documentation should be available here. Nevertheless, one can build the documentation :

For HTML:

```
cd docs
make html
cd _build/html
firefox ./index.html
```

For PDF, you may have to install some linux packages:

```
sudo apt-get install texlive-latex-recommended texlive-latex-extra
sudo apt-get install texlive-latex-base preview-latex-style lacheck tipa

cd docs
make latexpdf
cd _build/latex
evince python-textops3.pdf   (evince is a PDF reader)
```

- genindex
- modindex
- search

CHAPTER 5

strops

This module gathers text operations to be run on a string

5.1 StrOp

class textops.**StrOp**

5.2 cut

class textops.**cut**(*sep=None*, *col=None*, *default=''*)

Extract columns from a string or a list of strings

This works like the unix shell command 'cut'. It uses `str.split()` function.

- if the input is a simple string, cut() will return a list of strings representing the splitted input string.
- if the input is a list of strings or a string with newlines, cut() will return a list of list of strings : each line of the input will splitted and put in a list.
- if only one column is extracted, one level of list is removed.

Parameters

- **sep** (*str*) – a string as a column separator, default is None : this means 'any kind of spaces'
- **col** (*int or list of int or str*) – specify one or many columns you want to get back, You can specify :
  - an int as a single column number (starting with 0)
  - a list of int as the list of colmun

  - a string containing a comma separated list of int
  - None (default value) for all columns
- **default** (*str*) – A string to display when requesting a column that does not exist

Returns A string, a list of strings or a list of list of strings

Examples

```
>>> s='col1 col2 col3'
>>> s | cut()
['col1', 'col2', 'col3']
>>> s | cut(col=1)
'col2'
>>> s | cut(col='1,2,10',default='N/A')
['col2', 'col3', 'N/A']
>>> s='col1.1 col1.2 col1.3\ncol2.1 col2.2 col2.3'
>>> s | cut()
[['col1.1', 'col1.2', 'col1.3'], ['col2.1', 'col2.2', 'col2.3']]
>>> s | cut(col=1)
['col1.2', 'col2.2']
>>> s | cut(col='0,1')
[['col1.1', 'col1.2'], ['col2.1', 'col2.2']]
>>> s | cut(col=[1,2])
[['col1.2', 'col1.3'], ['col2.2', 'col2.3']]
>>> s='col1.1 | col1.2 |  col1.3\ncol2.1 | col2.2 | col2.3'
>>> s | cut()
[['col1.1', '|', 'col1.2', '|', 'col1.3'], ['col2.1', '|', 'col2.2', '|',
↪ 'col2.3']]
>>> s | cut(sep=' | ')
[['col1.1', 'col1.2', ' col1.3'], ['col2.1', 'col2.2', 'col2.3']]
```

5.3 cutca

class textops.**cutca**(*sep=None*, *col=None*, *default=''*)

Extract columns from a string or a list of strings through pattern capture

This works like *textops.cutre* except it needs a pattern having parenthesis to capture column. It uses `re.match()` for capture, this means the pattern must start at line beginning.

- if the input is a simple string, cutca() will return a list of strings representing the splitted input string.
- if the input is a list of strings or a string with newlines, cut() will return a list of list of strings : each line of the input will splitted and put in a list.
- if only one column is extracted, one level of list is removed.

Parameters

- **sep** (*str or re.RegexObject*) – a regular expression string or object having capture parenthesis
- **col** (*int or list of int or str*) – specify one or many columns you want to get back, You can specify :
  - an int as a single column number (starting with 0)

- a list of int as the list of colmun
- a string containing a comma separated list of int
- None (default value) for all columns

- **default** (*str*) – A string to display when requesting a column that does not exist

Returns a list of strings or a list of list of strings

Examples

```
>>> s='-col1- =col2= _col3_'
>>> s | cutca(r'[^-]*-([^-]*)-[^=]*=([^=]*)=[^_]*_([^_]*)_')
['col1', 'col2', 'col3']
>>> s=['-col1- =col2= _col3_','-col11- =col22= _col33_']
>>> s | cutca(r'[^-]*-([^-]*)-[^=]*=([^=]*)=[^_]*_([^_]*)_','0,2,4','not␣
↪present')
[['col1', 'col3', 'not present'], ['col11', 'col33', 'not present']]
```

5.4 cutdct

class textops.**cutdct**(*sep=None*, *col=None*, *default=''*)

Extract columns from a string or a list of strings through pattern capture

This works like *textops.cutca* except it needs a pattern having *named* parenthesis to capture column.

- if the input is a simple string, cutca() will return a list of strings representing the splitted input string.
- if the input is a list of strings or a string with newlines, cut() will return a list of list of strings : each line of the input will splitted and put in a list.
- if only one column is extracted, one level of list is removed.

Parameters

- **sep** (*str or re.RegexObject*) – a regular expression string or object having *named* capture parenthesis
- **col** (*int or list of int or str*) – specify one or many columns you want to get back, You can specify :
  - an int as a single column number (starting with 0)
  - a list of int as the list of colmun
  - a string containing a comma separated list of int
  - None (default value) for all columns
- **default** (*str*) – A string to display when requesting a column that does not exist

Returns A string, a list of strings or a list of list of strings

Examples

```
>>> s='item="col1" count="col2" price="col3"'
>>> s | cutdct(r'item="(?P<item>[^"]*)" count="(?P<i_count>[^"]*)" price=
↪"(?P<i_price>[^"]*)"')
{'item': 'col1', 'i_count': 'col2', 'i_price': 'col3'}
>>> s='item="col1" count="col2" price="col3"\nitem="col11" count="col22"␣
↪price="col33"'
>>> s | cutdct(r'item="(?P<item>[^"]*)" count="(?P<i_count>[^"]*)" price=
↪"(?P<i_price>[^"]*)"') # doctest: +ELLIPSIS, +NORMALIZE_WHITESPACE
[{'item': 'col1', 'i_count': 'col2', 'i_price': 'col3'},
{'item': 'col11', 'i_count': 'col22', 'i_price': 'col33'}]
```

5.5 cutkv

class textops.**cutkv**(*sep=None*, *col=None*, *default=''*)

Extract columns from a string or a list of strings through pattern capture

This works like *textops.cutdct* except it return a dict where the key is the one captured with the name given in parameter 'key_name', and where the value is the full dict of captured values. The interest is to merge informations into a bigger dict : see `merge_dicts()`

Parameters

- **sep** (*str or re.RegexObject*) – a regular expression string or object having *named* capture parenthesis
- **key_name** (*str*) – specify the named capture to use as the key for the returned dict Default value is 'key'

Note: `key_name=` must be specified (not a positionnal parameter)

Returns A dict or a list of dict

Examples

```
>>> s='item="col1" count="col2" price="col3"'
>>> pattern=r'item="(?P<item>[^"]*)" count="(?P<i_count>[^"]*)" price="(?
↪P<i_price>[^"]*)"'
>>> s | cutkv(pattern,key_name='item')
{'col1': {'item': 'col1', 'i_count': 'col2', 'i_price': 'col3'}}
>>> s='item="col1" count="col2" price="col3"\nitem="col11" count="col22"␣
↪price="col33"'
>>> s | cutkv(pattern,key_name='item')
↪                    # doctest: +ELLIPSIS, +NORMALIZE_WHITESPACE
[{'col1': {'item': 'col1', 'i_count': 'col2', 'i_price': 'col3'}},
{'col11': {'item': 'col11', 'i_count': 'col22', 'i_price': 'col33'}}]
```

5.6 cutm

class textops.**cutm**(*sep=None*, *col=None*, *default=''*)

Extract exactly one column by using `re.match()`

It returns the matched pattern. Beware : the pattern must match the beginning of the line. One may use capture parenthesis to only return a part of the found pattern.

- if the input is a simple string, *textops.cutm* will return a strings representing the captured substring.
- if the input is a list of strings or a string with newlines, *textops.cutm* will return a list of captured substring.

Parameters

- **sep** (*str or re.RegexObject*) – a regular expression string or object having capture parenthesis
- **col** (*int or list of int or str*) – specify one or many columns you want to get back, You can specify :
  - an int as a single column number (starting with 0)
  - a list of int as the list of colmun
  - a string containing a comma separated list of int
  - None (default value) for all columns
- **default** (*str*) – A string to display when requesting a column that does not exist

Returns a list of strings or a list of list of strings

Examples

```
>>> s='-col1- =col2= _col3_'
>>> s | cutm(r'[^=]*=[^=]*=')
'-col1- =col2='
>>> s | cutm(r'=[^=]*=')
''
>>> s | cutm(r'[^=]*=([^=]*)=')
'col2'
>>> s=['-col1- =col2= _col3_','-col11- =col22= _col33_']
>>> s | cutm(r'[^-]*-([^-]*)-')
['col1', 'col11']
>>> s | cutm(r'[^-]*-(badpattern)-',default='-')
['-', '-']
```

5.7 cutmi

class textops.**cutmi**(*sep=None*, *col=None*, *default=''*)

Extract exactly one column by using `re.match()` (case insensitive)

This works like *textops.cutm* except it is case insensitive.

- if the input is a simple string, *textops.cutmi* will return a strings representing the captured substring.

- if the input is a list of strings or a string with newlines, *textops.cutmi* will return a list of captured substring.

Parameters

- **sep** (*str or re.RegexObject*) – a regular expression string or object having capture parenthesis
- **col** (*int or list of int or str*) – specify one or many columns you want to get back, You can specify :
  - an int as a single column number (starting with 0)
  - a list of int as the list of colmun
  - a string containing a comma separated list of int
  - None (default value) for all columns
- **default** (*str*) – A string to display when requesting a column that does not exist

Returns a list of strings or a list of list of strings

Examples

```
>>> s='-col1- =col2= _col3_'
>>> s | cutm(r'.*(COL\d+)',default='no found')
'no found'
>>> s='-col1- =col2= _col3_'
>>> s | cutmi(r'.*(COL\d+)',default='no found')  #as .* is the longest␣
↪possible, only last column is extracted
'col3'
```

5.8 cutre

class textops.**cutre**(*sep=None*, *col=None*, *default=''*)

Extract columns from a string or a list of strings with re.split()

This works like the unix shell command 'cut'. It uses `re.split()` function.

- if the input is a simple string, cutre() will return a list of strings representing the splitted input string.
- if the input is a list of strings or a string with newlines, cut() will return a list of list of strings : each line of the input will splitted and put in a list.
- if only one column is extracted, one level of list is removed.

Parameters

- **sep** (*str or re.RegexObject*) – a regular expression string or object as a column separator
- **col** (*int or list of int or str*) – specify one or many columns you want to get back, You can specify :
  - an int as a single column number (starting with 0)
  - a list of int as the list of colmun

  - a string containing a comma separated list of int
  - None (default value) for all columns
- **default** (*str*) – A string to display when requesting a column that does not exist

Returns A string, a list of strings or a list of list of strings

Examples

```
>>> s='col1.1 | col1.2 | col1.3\ncol2.1 | col2.2 | col2.3'
>>> print(s)
col1.1 | col1.2 | col1.3
col2.1 | col2.2 | col2.3
>>> s | cutre(r'\s+')
[['col1.1', '|', 'col1.2', '|', 'col1.3'], ['col2.1', '|', 'col2.2', '|',
↪ 'col2.3']]
>>> s | cutre(r'[\s|]+')
[['col1.1', 'col1.2', 'col1.3'], ['col2.1', 'col2.2', 'col2.3']]
>>> s | cutre(r'[\s|]+','0,2,4','-')
[['col1.1', 'col1.3', '-'], ['col2.1', 'col2.3', '-']]
>>> mysep = re.compile(r'[\s|]+')
>>> s | cutre(mysep)
[['col1.1', 'col1.2', 'col1.3'], ['col2.1', 'col2.2', 'col2.3']]
```

5.9 cuts

class textops.**cuts**(*sep=None*, *col=None*, *default=''*)

Extract exactly one column by using `re.search()`

This works like *textops.cutm* except it searches the first occurence of the pattern in the string. One may use capture parenthesis to only return a part of the found pattern.

- if the input is a simple string, *textops.cuts* will return a strings representing the captured substring.
- if the input is a list of strings or a string with newlines, *textops.cuts* will return a list of captured substring.

Parameters

- **sep** (*str or re.RegexObject*) – a regular expression string or object having capture parenthesis
- **col** (*int or list of int or str*) – specify one or many columns you want to get back, You can specify :
  - an int as a single column number (starting with 0)
  - a list of int as the list of colmun
  - a string containing a comma separated list of int
  - None (default value) for all columns
- **default** (*str*) – A string to display when requesting a column that does not exist

Returns a list of strings or a list of list of strings

Examples

```
>>> s='-col1- =col2= _col3_'
>>> s | cuts(r'_[^_]*_')
'_col3_'
>>> s | cuts(r'_([^_]*)_')
'col3'
>>> s=['-col1- =col2= _col3_','-col11- =col22= _col33_']
>>> s | cuts(r'_([^_]*)_')
['col3', 'col33']
```

5.10 cutsa

class textops.**cutsa**(*sep=None*, *col=None*, *default=''*)

Extract all columns having the specified pattern.

It uses `re.finditer()` to find all occurences of the pattern.

- if the input is a simple string, `textops.cutfa` will return a list of found strings.
- if the input is a list of strings or a string with newlines, `textops.cutfa` will return a list of list of found string.

Parameters

- **sep** (*str or re.RegexObject*) – a regular expression string or object having capture parenthesis
- **col** (*int or list of int or str*) – specify one or many columns you want to get back, You can specify :
  - an int as a single column number (starting with 0)
  - a list of int as the list of colmun
  - a string containing a comma separated list of int
  - None (default value) for all columns
- **default** (*str*) – A string to display when requesting a column that does not exist

Returns a list of strings or a list of list of strings

Examples

```
>>> s='-col1- =col2= _col3_'
>>> s | cutsa(r'col\d+')
['col1', 'col2', 'col3']
>>> s | cutsa(r'col(\d+)')
['1', '2', '3']
>>> s=['-col1- =col2= _col3_','-col11- =col22= _col33_']
>>> s | cutsa(r'col\d+')
[['col1', 'col2', 'col3'], ['col11', 'col22', 'col33']]
```

5.11 cutsai

class textops.**cutsai**(*sep=None*, *col=None*, *default=''*)

Extract all columns having the specified pattern. (case insensitive)

It works like *textops.cutsa* but is case insensitive if the pattern is given as a string.

Parameters

- **sep** (*str or re.RegexObject*) – a regular expression string or object having capture parenthesis
- **col** (*int or list of int or str*) – specify one or many columns you want to get back, You can specify :
  - an int as a single column number (starting with 0)
  - a list of int as the list of colmun
  - a string containing a comma separated list of int
  - None (default value) for all columns
- **default** (*str*) – A string to display when requesting a column that does not exist

Returns a list of strings or a list of list of strings

Examples

```
>>> s='-col1- =col2= _col3_'
>>> s | cutsa(r'COL\d+')
[]
>>> s | cutsai(r'COL\d+')
['col1', 'col2', 'col3']
>>> s | cutsai(r'COL(\d+)')
['1', '2', '3']
>>> s=['-col1- =col2= _col3_','-col11- =col22= _col33_']
>>> s | cutsai(r'COL\d+')
[['col1', 'col2', 'col3'], ['col11', 'col22', 'col33']]
```

5.12 cutsi

class textops.**cutsi**(*sep=None*, *col=None*, *default=''*)

Extract exactly one column by using `re.search()` (case insensitive)

This works like *textops.cuts* except it is case insensitive.

Parameters

- **sep** (*str or re.RegexObject*) – a regular expression string or object having capture parenthesis
- **col** (*int or list of int or str*) – specify one or many columns you want to get back, You can specify :
  - an int as a single column number (starting with 0)
  - a list of int as the list of colmun

  - a string containing a comma separated list of int
  - None (default value) for all columns
- **default** (*str*) – A string to display when requesting a column that does not exist

Returns a list of strings or a list of list of strings

Examples

```
>>> s='-col1- =col2= _col3_'
>>> s | cuts(r'_(COL[^_]*)_')
''
>>> s='-col1- =col2= _col3_'
>>> s | cutsi(r'_(COL[^_]*)_')
'col3'
```

5.13 echo

class textops.**echo**

identity operation

it returns the same text, except that is uses textops Extended classes (StrExt, ListExt . . .). This could be usefull in some cases to access str methods (upper, replace, . . .) just after a pipe.

Returns length of the string

Return type int

Examples

```
>>> s='this is a string'
>>> type(s)
<class 'str'>
>>> t=s | echo()
>>> type(t)
<class 'textops.base.StrExt'>
>>> s.upper()
'THIS IS A STRING'
>>> s | upper()
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
NameError: name 'upper' is not defined
>>> s | echo().upper()
'THIS IS A STRING'
>>> s | strop.upper()
'THIS IS A STRING'
```

5.14 length

class textops.**length**

Returns the length of a string, list or generator

Returns length of the string

Return type int

Examples

```
>>> s='this is a string'
>>> s | length()
16
>>> s=StrExt(s)
>>> s.length()
16
>>> ['a','b','c'] | length()
3
>>> def mygenerator():yield 3; yield 2
>>> mygenerator() | length()
2
```

5.15 matches

class textops.**matches**(*pattern*)

Tests whether a pattern is present or not

Uses re.match() to match a pattern against the string.

Parameters **pattern** (*str*) – a regular expression string

Returns The pattern found

Return type re.RegexObject

Note: Be careful : the pattern is tested from the beginning of the string, the pattern is NOT searched somewhere in the middle of the string.

Examples

```
>>> state=StrExt('good')
>>> print('OK' if state.matches(r'good|not_present|charging') else
↪'CRITICAL')
OK
>>> state=StrExt('looks like all is good')
>>> print('OK' if state.matches(r'good|not_present|charging') else
↪'CRITICAL')
CRITICAL
>>> print('OK' if state.matches(r'.*(good|not_present|charging)') else
↪'CRITICAL')
OK
>>> state=StrExt('Error')
>>> print('OK' if state.matches(r'good|not_present|charging') else
↪'CRITICAL')
CRITICAL
```

5.16 searches

class textops.**searches**(*pattern*)

Search a pattern

Uses re.search() to find a pattern in the string.

Parameters **pattern** (*str*) – a regular expression string

Returns The pattern found

Return type re.RegexObject

Examples

```
>>> state=StrExt('good')
>>> print('OK' if state.searches(r'good|not_present|charging') else
↪'CRITICAL')
OK
>>> state=StrExt('looks like all is good')
>>> print('OK' if state.searches(r'good|not_present|charging') else
↪'CRITICAL')
OK
>>> print('OK' if state.searches(r'.*(good|not_present|charging)') else
↪'CRITICAL')
OK
>>> state=StrExt('Error')
>>> print('OK' if state.searches(r'good|not_present|charging') else
↪'CRITICAL')
CRITICAL
```

5.17 splitln

class textops.**splitln**

Transforms a string with newlines into a list of lines

It uses python str.splitlines() : newline separator can be \n or \r or both. They are removed during the process.

Returns The splitted text

Return type list

Example

```
>>> s='this is\na multi-line\nstring'
>>> s | splitln()
['this is', 'a multi-line', 'string']
```

CHAPTER 6

listops

This module gathers list/line operations

6.1 after

class textops.**after**(*pattern*, *get_begin=False*)

Extract lines after a patterns

Works like *textops.before* except that it will yields all lines from the input AFTER the given pattern has been found.

Parameters

- **pattern** (*str or regex or list*) – start yielding lines after reaching this pattern(s)
- **get_begin** (*bool*) – if True : include the line matching the pattern (Default : False)
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str or list or dict* – lines after the specified pattern

Examples

```
>>> ['a','b','c','d','e','f'] | after('c').tolist()
['d', 'e', 'f']
>>> ['a','b','c','d','e','f'] | after('c',True).tolist()
['c', 'd', 'e', 'f']
>>> input_text = [{'k':1},{'k':2},{'k':3},{'k':4},{'k':5},{'k':6}]
>>> input_text | after('3',key='k').tolist()
[{'k': 4}, {'k': 5}, {'k': 6}]
>>> input_text >> after('3',key='k')
[{'k': 4}, {'k': 5}, {'k': 6}]
```

6.2 afteri

class textops.**afteri**(*pattern*, *get_begin=False*)
Extract lines after a patterns (case insensitive)

Works like *textops.after* except that the pattern is case insensitive.

Parameters

- **pattern** (*str or regex or list*) – no more lines are yield after reaching this pattern(s)
- **get_begin** (*bool*) – if True : include the line matching the pattern (Default : False)
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str or list or dict* – lines before the specified pattern

Examples

```
>>> ['a','b','c','d','e','f'] | after('C').tolist()
[]
>>> ['a','b','c','d','e','f'] | afteri('C').tolist()
['d', 'e', 'f']
>>> ['a','b','c','d','e','f'] | afteri('C',True).tolist()
['c', 'd', 'e', 'f']
>>> ['a','b','c','d','e','f'] >> afteri('C',True)
['c', 'd', 'e', 'f']
```

6.3 aggregate

class textops.**aggregate**(*having*, *same_key=False*, *join_str='|'*)
aggregate several lines into one depending on arguments

This is useful when some messages are splitted into several lines and one want to have them on one single line back (to do some grep for instance).

Parameters

- **having** (*str or regex or callable*) – The lines having the specified pattern are merged with the previous one. The pattern must include two named groups : `(?<key>pattern1)` that must match the pattern which tells the line must be aggregated or not, and `(?<msg>pattern2)` that specifies what part of the line have to be aggregated (the whole line is not present). One can also specify a callable that accepts as arguments : the buffer and the line being tested and returns a `key,msg` tuple. `key` must contain the string that is the criteria to have the line aggregated or be `None` if the line is not to be aggregated. `msg` must be the part of the line to be aggregated
- **same_key** (*bool*) – if False (Default) : lines are aggregated only if key is not None, if True, lines are aggregated only if the key is not None AND with the same value as the previous one. This is useful for log files with timestamp : a message block has usualy the same timestamp on all the lines.
- **join_str** (*str*) – Join string when merging lines (Default: ‘, ‘)

Returns aggregated input text

Return type generator

Examples

```
>>> s='''Message 1
... Message 2 : This is a multiple line message :
... > In this example,
... > lines to be aggregated begin with '> '
... > use '(?P<msg>pattern)' in regex to select what should be aggregated
... > default join string is '|'
... Message 3
... Message 4
... '''
>>> print(s | aggregate(r'(?P<key>> )(?P<msg>.*)').tostr())
Message 1
Message 2 : This is a multiple line message :|In this example,|lines to␣
↪be aggregated begin with '> '|use '(?P<msg>pattern)' in regex to␣
↪select what should be aggregated|default join string is '|'
Message 3
Message 4
```

```
>>> s='''2016-02-16 11:39:03 Message 1
... 2016-02-16 11:40:10 Message 2 info 1
... 2016-02-16 11:40:10 info 2
... 2016-02-16 11:41:33 Message 3 info A
... 2016-02-16 11:41:33 info B
... 2016-02-16 11:41:33 info C
... 2016-02-16 11:44:26 Message 4
... '''
>>> print(s | aggregate(r'(?P<key>\d+-\d+-\d+ \d+:\d+:\d+) (?P<msg>.*)').
↪tostr())
Message 1|Message 2 info 1|info 2|Message 3 info A|info B|info C|Message␣
↪4
>>> print(s | aggregate(r'(?P<key>\d+-\d+-\d+ \d+:\d+:\d+) (?P<msg>.*)',
↪same_key=True).tostr())
2016-02-16 11:39:03 Message 1
2016-02-16 11:40:10 Message 2 info 1|info 2
2016-02-16 11:41:33 Message 3 info A|info B|info C
2016-02-16 11:44:26 Message 4
```

6.4 before

class textops.**before**(*pattern*, *get_end=False*, *key=None*)

Extract lines before a patterns

Works like *textops.between* except that it requires only the ending pattern : it will yields all lines from the input text beginning until the specified pattern has been reached.

Parameters

- **pattern** (*str or regex or list*) – no more lines are yield after reaching this pattern(s)

- **get_end** (*bool*) – if True : include the line matching the end pattern (Default : False)
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str or list or dict* – lines before the specified pattern

Examples

```
>>> ['a','b','c','d','e','f'] | before('c').tolist()
['a', 'b']
>>> ['a','b','c','d','e','f'] | before('c',True).tolist()
['a', 'b', 'c']
>>> input_text = [{'k':1},{'k':2},{'k':3},{'k':4},{'k':5},{'k':6}]
>>> input_text | before('3',key='k').tolist()
[{'k': 1}, {'k': 2}]
>>> input_text >> before('3',key='k')
[{'k': 1}, {'k': 2}]
```

6.5 beforei

class textops.**beforei**(*pattern*, *get_end=False*, *key=None*)

Extract lines before a patterns (case insensitive)

Works like *textops.before* except that the pattern is case insensitive.

Parameters

- **pattern** (*str or regex or list*) – no more lines are yield after reaching this pattern(s)
- **get_end** (*bool*) – if True : include the line matching the pattern (Default : False)
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str or list or dict* – lines before the specified pattern

Examples

```
>>> ['a','b','c','d','e','f'] | before('C').tolist()
['a', 'b', 'c', 'd', 'e', 'f']
>>> ['a','b','c','d','e','f'] | beforei('C').tolist()
['a', 'b']
>>> ['a','b','c','d','e','f'] | beforei('C',True).tolist()
['a', 'b', 'c']
>>> ['a','b','c','d','e','f'] >> beforei('C',True)
['a', 'b', 'c']
```

6.6 between

class textops.**between**(*begin*, *end*, *get_begin=None*, *get_end=None*, *key=None*)

Extract lines between two patterns

It will search for the starting pattern then yield lines until it reaches the ending pattern. Pattern can be a string or a Regex object, it can be also a list of strings or Regexs, in this case, all patterns in the list must be matched in the same order, this may be useful to better select some part of the text in some cases.

`between` works for any kind of list of strings, but also for list of lists and list of dicts. In these cases, one can test only one column or one key but return the whole list/dict.

Parameters

- **begin** (*str or regex or list*) – the pattern(s) to reach before yielding lines from the input
- **end** (*str or regex or list*) – no more lines are yield after reaching this pattern(s)
- **get_begin** (*bool*) – if True : include the line matching the begin pattern (Default : False)
- **get_end** (*bool*) – if True : include the line matching the end pattern (Default : False)
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str or list or dict* – lines between two patterns

Examples

```
>>> 'a\nb\nc\nd\ne\nf' | between('b','e').tostr()
'c\nd'
>>> 'a\nb\nc\nd\ne\nf' | between('b','e',True,True).tostr()
'b\nc\nd\ne'
>>> ['a','b','c','d','e','f'] | between('b','e').tolist()
['c', 'd']
>>> ['a','b','c','d','e','f'] >> between('b','e')
['c', 'd']
>>> ['a','b','c','d','e','f'] | between('b','e',True,True).tolist()
['b', 'c', 'd', 'e']
>>> input_text = [('a',1),('b',2),('c',3),('d',4),('e',5),('f',6)]
>>> input_text | between('b','e').tolist()
[('c', 3), ('d', 4)]
>>> input_text = [{'a':1},{'b':2},{'c':3},{'d':4},{'e':5},{'f':6}]
>>> input_text | between('b','e').tolist()
[{'c': 3}, {'d': 4}]
>>> input_text = [{'k':1},{'k':2},{'k':3},{'k':4},{'k':5},{'k':6}]
>>> input_text | between('2','5',key='k').tolist()
[{'k': 3}, {'k': 4}]
>>> input_text = [{'k':1},{'k':2},{'k':3},{'k':4},{'k':5},{'k':6}]
>>> input_text | between('2','5',key='v').tolist()
[]
>>> input_text = [('a',1),('b',2),('c',3),('d',4),('e',5),('f',6)]
>>> input_text | between('b','e',key=0).tolist()
[('c', 3), ('d', 4)]
>>> input_text = [('a',1),('b',2),('c',3),('d',4),('e',5),('f',6)]
>>> input_text | between('b','e',key=1).tolist()
[]
>>> s='''Chapter 1
... ------------
... some infos
```

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```
...
... Chapter 2
... ---------
... infos I want
...
... Chaper 3
... --------
... some other infos'''
>>> print(s | between('---',r'^\s*$').tostr())
some infos
>>> print(s | between(['Chapter 2','---'],r'^\s*$').tostr())
infos I want
```

6.7 betweenb

class textops.**betweenb**(*begin*, *end*, *get_begin=None*, *get_end=None*, *key=None*)

Extract lines between two patterns (includes boundaries)

Works like *textops.between* except it return boundaries by default that is get_begin = get_end = True.

Parameters

- **begin** (*str or regex or list*) – the pattern(s) to reach before yielding lines from the input
- **end** (*str or regex or list*) – no more lines are yield after reaching this pattern(s)
- **get_begin** (*bool*) – if True : include the line matching the begin pattern (Default : False)
- **get_end** (*bool*) – if True : include the line matching the end pattern (Default : False)
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str or list or dict* – lines between two patterns

Examples

```
>>> ['a','b','c','d','e','f'] | betweenb('b','e').tolist()
['b', 'c', 'd', 'e']
>>> ['a','b','c','d','e','f'] >> betweenb('b','e')
['b', 'c', 'd', 'e']
```

6.8 betweenbi

class textops.**betweenbi**(*begin*, *end*, *get_begin=None*, *get_end=None*, *key=None*)

Extract lines between two patterns (includes boundaries and case insensitive)

Works like *textops.between* except patterns are case insensitive and it yields boundaries too. That is get_begin = get_end = True.

Parameters

- **begin** (*str or regex or list*) – the pattern(s) to reach before yielding lines from the input
- **end** (*str or regex or list*) – no more lines are yield after reaching this pattern(s)
- **get_begin** (*bool*) – if True : include the line matching the begin pattern (Default : False)
- **get_end** (*bool*) – if True : include the line matching the end pattern (Default : False)
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str or list or dict* – lines between two patterns

Examples

```
>>> ['a','b','c','d','e','f'] | betweenb('B','E').tolist()
[]
>>> ['a','b','c','d','e','f'] | betweenbi('B','E').tolist()
['b', 'c', 'd', 'e']
>>> ['a','b','c','d','e','f'] >> betweenbi('B','E')
['b', 'c', 'd', 'e']
```

6.9 betweeni

class textops.**betweeni**(*begin*, *end*, *get_begin=None*, *get_end=None*, *key=None*)

Extract lines between two patterns (case insensitive)

Works like *textops.between* except patterns are case insensitive

Parameters

- **begin** (*str or regex or list*) – the pattern(s) to reach before yielding lines from the input
- **end** (*str or regex or list*) – no more lines are yield after reaching this pattern(s)
- **get_begin** (*bool*) – if True : include the line matching the begin pattern (Default : False)
- **get_end** (*bool*) – if True : include the line matching the end pattern (Default : False)
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str or list or dict* – lines between two patterns

Examples

```
>>> ['a','b','c','d','e','f'] | between('B','E').tolist()
[]
>>> ['a','b','c','d','e','f'] | betweeni('B','E').tolist()
['c', 'd']
>>> ['a','b','c','d','e','f'] >> betweeni('B','E')
['c', 'd']
```

6.10 doformat

class textops.**doformat**(*format_str='{0}n'*, *join_str=''*, *context={}*, *defvalue='-'*)

Formats list of strings

Useful to convert list of string into a simple string It converts each string of the list with the `format_str` ({0} will receive the string to format), then it joins all the strings with `join_str` to get a unique simple string. One can specify a context dictionary and a default value : they will be used into the format string : see examples.

Parameters

- **format_str** (*str*) – format string, default is '{0}n'
- **join_str** (*str*) – string to join all strings into one unique string, default is ''
- **context** (*dict*) – additional context dictionary
- **defvalue** (*str or callable*) – default string to display when a key or an index is unreachable.

Returns formatted input

Return type str

Examples

```
>>> print(['Eric','Guido'] | doformat('First name : {0}','\n'))
First name : Eric
First name : Guido
>>> ['Eric','Guido'] | doformat('{0} <{0}@github.com>',',')
'Eric <Eric@github.com>,Guido <Guido@github.com>'
>>> ctx = {'hostname' : 'pcubuntu'}
>>> print(['eth0','eth1'] | doformat('{hostname}/network/{0}','\n',
↪context=ctx))
pcubuntu/network/eth0
pcubuntu/network/eth1
>>> print(['eth0','eth1'] | doformat('{nodename}/network/{4}','\n',ctx,
↪'(unknown)'))
(unknown)/network/(unknown)
(unknown)/network/(unknown)
```

6.11 doreduce

class textops.**doreduce**(*reduce_fn*, *initializer=None*)

Reduce the input text

Uses python reduce() function.

Parameters

- **reduce_fn** (*callable*) – a function or a callable to reduce every line.
- **initializer** (*object*) – initial accumulative value (Default : None)

Returns reduced value

Return type any

Examples

```
>>> import re
>>> 'a1\nb2\nc3\nd4' | doreduce(lambda x,y:x+re.sub(r'\d','',y),'')
'abcd'
>>> 'a1\nb2\nc3\nd4' >> doreduce(lambda x,y:x+re.sub(r'\d','',y),'')
'abcd'
```

6.12 dorender

class textops.**dorender**(*format_str='{0}n'*, *context={}*, *defvalue='-'*)

Formats list of strings

It works like *doformat* except it does NOT do the final join.

Parameters

- **format_str** (*str*) – format string, default is '{0}n'
- **context** (*dict*) – additional context dictionary
- **defvalue** (*str or callable*) – The replacement string or function for unexisting keys when formating.

Yields *str* – formatted input

Examples

```
>>> ['Eric','Guido'] >> dorender('First name : {0}')
['First name : Eric', 'First name : Guido']
>>> ['Eric','Guido'] >> dorender('{0} <{0}@github.com>')
['Eric <Eric@github.com>', 'Guido <Guido@github.com>']
>>> ctx = {'mail_domain' : 'gmail.com'}
>>> ['Eric','Guido'] >> dorender('{0} <{0}@{mail_domain}>',context=ctx)
['Eric <Eric@gmail.com>', 'Guido <Guido@gmail.com>']
>>> ['Eric','Guido'] >> dorender('{0} <{0}@{key_not_in_context}>',
↪context=ctx, defvalue='N/A')
['Eric <Eric@N/A>', 'Guido <Guido@N/A>']
```

6.13 doslice

class textops.**doslice**(*begin=0*, *end=sys.maxint*, *step=1*)

Get lines/items from `begin` line to `end` line with some `step`

Parameters

- **begin** (*int*) – first line number to get. must be None or an integer: 0 <= x <= maxint
- **end** (*int*) – end line number (get lines up to end - 1). must be None or an integer: 0 <= x <= maxint
- **step** (*int*) – get every `step` line (Default : 1)

Returns A slice of the original text

Return type generator

Examples

```
>>> s='a\nb\nc\nd\ne\nf'
>>> s | doslice(1,4).tolist()
['b', 'c', 'd']
>>> s >> doslice(1,4)
['b', 'c', 'd']
>>> s >> doslice(2)
['c', 'd', 'e', 'f']
>>> s >> doslice(0,4,2)
['a', 'c']
>>> s >> doslice(None,None,2)
['a', 'c', 'e']
```

6.14 dostrip

class textops.**dostrip**

Strip lines

Works like the python `str.strip()` except it is more flexible it that way it works on list of lists or list of dicts.

Yields *str* – the stripped lines from the input text

Examples

```
>>> ' Hello Eric \n Hello Guido ' | dostrip().tostr()
'Hello Eric\nHello Guido'
```

6.15 findhighlight

class textops.**findhighlight**(*pattern*, *line_prefix=' '*, *line_suffix=''*, *hline_prefix='-> '*, *hline_suffix=''*, *found_prefix='>>>'*, *found_suffix='<<<'*, *nlines=0*, *blines=0*, *elines=0*, *ellipsis='...'*, *findall=True*, *ignorecase=False*, *line_nbr=False*)

find one or more pattern in a text then higlight it

This returns lines with found pattern with surrounding lines. By default, it surrounds found pattern with >>> <<< and its lines with ->. This can be redefined for console (to add color escape sequence) or for the web (html tags).

Parameters

- **pattern** (*str or regex*) – the pattern to search in the input text
- **line_prefix** (*str*) – the prefix string to add on every line except the lines where the pattern has been found. You may use `{line}` to add the line number.
- **line_suffix** (*str*) – the suffix string to add on every line except the lines where the pattern has been found. You may use `{line}` to add the line number.
- **hline_prefix** (*str*) – the prefix string to add on lines where the pattern has been found. You may use `{line}` to add the line number.
- **hline_suffix** (*str*) – the suffix string to add on lines where the pattern has been found. You may use `{line}` to add the line number.
- **found_prefix** (*str*) – The prefix to be added at the found pattern start position.
- **found_suffix** (*str*) – The suffix to be added at the found pattern end position.
- **nlines** (*int*) – the number of lines to display before and after the line with the found pattern. If `0` is specified (This is the Default) : all lines are displayed. If you want not the same number of lines before and after, do not specify this parameter and use `blines` and `elines`
- **blines** (*int*) – number of lines to display before
- **elines** (*int*) – number of lines to display after
- **ellipsis** (*str*) – the string to display between groups of lines (Default : `...`)
- **findall** (*bool*) – Find all pattern (Default) otherwise only find the first line with the pattern.
- **ignorecase** (*bool*) – if True, the given pattern is case insensitive) (Default : False)
- **line_nbr** (*bool*) – add line numbers in line_prefix and hline_prefix (Default : False)

Yields *str* – lines with found pattern with surrounding lines

Examples

```
>>> s='''
... this is
... a big
... listing
... with some ERROR
... and I want to know
... where are
... located
... this error in
... the
... whole
... text'''
>>> print(s | findhighlight('error',line_nbr=True,ignorecase=True).
↪tostr() )# doctest: +NORMALIZE_WHITESPACE
```

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```
   1
   2    this is
   3    a big
   4    listing
   5 -> with some >>>ERROR<<<
   6    and I want to know
   7    where are
   8    located
   9 -> this >>>error<<< in
  10    the
  11    whole
  12    text
>>> print(s | findhighlight('error',line_nbr=True,ignorecase=True,
↪nlines=1).tostr() )# doctest: +NORMALIZE_WHITESPACE
   4    listing
   5 -> with some >>>ERROR<<<
   6    and I want to know
...
   8    located
   9 -> this >>>error<<< in
  10    the
```

6.16 first

class textops.**first**

Return the first line/item from the input text

Returns the first line/item from the input text

Return type *StrExt*, *ListExt* or *DictExt*

Examples

```
>>> 'a\nb\nc' | first()
'a'
>>> ['a','b','c'] | first()
'a'
>>> [('a',1),('b',2),('c',3)] | first()
('a', 1)
>>> [['key1','val1','help1'],['key2','val2','help2']] | first()
['key1', 'val1', 'help1']
>>> [{'key':'a','val':1},{'key':'b','val':2},{'key':'c','val':3}] |␣
↪first()
{'key': 'a', 'val': 1}
```

6.17 formatdicts

class textops.**formatdicts**(*format_str='{key} : {val}\n'*, *join_str=''*, *context={}*, *defvalue='-'*)

Formats list of dicts

Useful to convert list of dicts into a simple string. It converts the list of dicts into a list of strings by using the `format_str`, then it joins all the strings with `join_str` to get a unique simple string. One can specify a context dictionary and a default value : they will be used into the format string : see examples.

Parameters

- **format_str** (*str*) – format string, default is '{key} : {val}n'
- **join_str** (*str*) – string to join all strings into one unique string, default is ''
- **context** (*dict*) – additional context dictionary
- **defvalue** (*str or callable*) – The replacement string or function for unexisting keys when formating.

Returns formatted input

Return type str

Examples

```
>>> input = [{'key':'a','val':1},{'key':'b','val':2},{'key':'c'}]
>>> input | formatdicts()
'a : 1\nb : 2\nc : -\n'
>>> input | formatdicts('{key} -> {val}\n',defvalue='N/A')
'a -> 1\nb -> 2\nc -> N/A\n'
```

```
>>> input = [{'name':'Eric','age':47,'level':'guru'},
... {'name':'Guido','age':59,'level':'god'}]
>>> print(input | formatdicts('{name}({age}) : {level}\n')    )#doctest:␣
↪+NORMALIZE_WHITESPACE
Eric(47) : guru
Guido(59) : god
>>> print(input | formatdicts('{name}', ', '))
Eric, Guido
>>> ctx = {'today':'2015-12-15'}
>>> print(input | formatdicts('[{today}] {name}({age}) : {level}','\n',
↪context=ctx))
[2015-12-15] Eric(47) : guru
[2015-12-15] Guido(59) : god
>>> del input[0]['name']
>>> print(input | formatdicts('[{today}] {name}({age}) : {level}','\n',
↪ctx,'Unknown'))
[2015-12-15] Unknown(47) : guru
[2015-12-15] Guido(59) : god
```

6.18 formatitems

class textops.**formatitems**(*format_str='{0} : {1}n', join_str='', context={}, defvalue='-'*)

Formats list of 2-sized tuples

Useful to convert list of 2-sized tuples into a simple string It converts the list of tuple into a list of strings by using the `format_str`, then it joins all the strings with `join_str` to get a unique simple string. One can specify a context dictionary and a default value : they will be used into the format string : see examples.

Parameters

- **format_str** (*str*) – format string, default is '{0} : {1}n'
- **join_str** (*str*) – string to join all strings into one unique string, default is ''
- **context** (*dict*) – additional context dictionary
- **defvalue** (*str or callable*) – default string to display when a key or an index is unreachable.

Returns formatted input

Return type str

Examples

```
>>> [('key1','val1'),('key2','val2')] | formatitems('{0} -> {1}\n')
'key1 -> val1\nkey2 -> val2\n'
>>> [('key1','val1'),('key2','val2')] | formatitems('{0}:{1}',', ')
'key1:val1, key2:val2'
>>> ctx = {'hostname' : 'pcubuntu'}
>>> d = [['Dimm1','1024'],['Dimm2','512']]
>>> print(d | formatlists('{hostname}/{0} : {1} MB','\n',ctx))
pcubuntu/Dimm1 : 1024 MB
pcubuntu/Dimm2 : 512 MB
>>> print(d | formatlists('{nodename}/{0} : {4} MB','\n',ctx,'??'))
??/Dimm1 : ?? MB
??/Dimm2 : ?? MB
```

6.19 formatlists

class textops.**formatlists**(*format_str*, *join_str=''*, *context={}*, *defvalue='-'*)

Formats list of lists

Useful to convert list of lists into a simple string It converts the list of lists into a list of strings by using the `format_str`, then it joins all the strings with `join_str` to get a unique simple string. One can specify a context dictionary and a default value : they will be used into the format string : see examples.

Parameters

- **format_str** (*str*) – format string
- **join_str** (*str*) – string to join all strings into one unique string, default is ''
- **context** (*dict*) – additional context dictionary
- **defvalue** (*str or callable*) – default string to display when a key or an index is unreachable.

Returns formatted input

Return type str

Examples

```
>>> [['key1','val1','help1'],['key2','val2','help2']] | formatlists('{2}
↪: {0} -> {1}\n')
'help1 : key1 -> val1\nhelp2 : key2 -> val2\n'
>>> [['key1','val1','help1'],['key2','val2','help2']] | formatlists('{0}:
↪{1} ({2})',', ')
'key1:val1 (help1), key2:val2 (help2)'
>>> ctx = {'hostname' : 'pcubuntu'}
>>> d = [['Dimm1','1','GB'],['Dimm2','512','MB']]
>>> print(d | formatlists('{hostname}/{0} : {1} {2}','\n',ctx))
pcubuntu/Dimm1 : 1 GB
pcubuntu/Dimm2 : 512 MB
>>> print(d | formatlists('{nodename}/{0} : {1} {4}','\n',ctx,'??'))
??/Dimm1 : 1 ??
??/Dimm2 : 512 ??
```

6.20 greaterequal

class textops.**greaterequal**(*value*, **args*, ***kwargs*)

Extract lines with value strictly less than specified string

It works like *textops.greaterthan* except the test is "greater than or equal to"

Parameters

- **value** (*str*) – string to test with
- **key** (*int or str or callable*) – Specify what should really be compared:
  - None : the whole current line,
  - an int : test only the specified column (for list or lists),
  - a string : test only the dict value for the specified key (for list of dicts),
  - a callable : it will receive the line being tested and return the string to really compare.

  Note : key argument *MUST BE PASSED BY NAME*

Yields *str or list or dict* – lines having values greater than or equal to the specified value

Examples

```
>>> logs = '''2015-08-11 aaaa
... 2015-08-23 bbbb
... 2015-09-14 ccc
... 2015-11-05 ddd'''
>>> logs | greaterequal('2015-09-14 ccc').tolist()
['2015-09-14 ccc', '2015-11-05 ddd']
>>> logs >> greaterequal('2015-09-14 ccc')
['2015-09-14 ccc', '2015-11-05 ddd']
```

6.21 greaterthan

class textops.**greaterthan**(*value*, **args*, ***kwargs*)

Extract lines with value strictly less than specified string

It works like *textops.lessthan* except the test is "greater than"

Parameters

- **value** (*str*) – string to test with
- **key** (*int or str or callable*) – Specify what should really be compared:
  - None : the whole current line,
  - an int : test only the specified column (for list or lists),
  - a string : test only the dict value for the specified key (for list of dicts),
  - a callable : it will receive the line being tested and return the string to really compare.

  Note : `key` argument *MUST BE PASSED BY NAME*

Yields *str or list or dict* – lines having values greater than the specified value

Examples

```
>>> logs = '''2015-08-11 aaaa
... 2015-08-23 bbbb
... 2015-09-14 ccc
... 2015-11-05 ddd'''
>>> logs | greaterthan('2015-09-14 ccc').tolist()
['2015-11-05 ddd']
>>> logs >> greaterthan('2015-09-14 ccc')
['2015-11-05 ddd']
```

6.22 grep

class textops.**grep**(*pattern=None*, *key=None*, *has_key=None*, *attr=None*, *has_attr=None*)

Select lines having a specified pattern

This works like the shell command 'egrep' : it will filter the input text and retain only lines matching the pattern.

It works for any kind of list of strings, but also for list of lists and list of dicts. In these cases, one can test only one column or one key but return the whole list/dict. before testing, the object to be tested is converted into a string with str() so the grep will work for any kind of object.

Parameters

- **pattern** (*str*) – a regular expression string (case sensitive, Optionnal)
- **key** (*int or str*) – test the pattern only one column or one key (optional)
- **has_key** (*int or str*) – test only if the test_key is in the inner list or dict (optional)

- **attr** (*str*) – for list of objects, test the pattern on the object *attr* attribute (optional)
- **has_attr** (*int or str*) – For list of objects, test if the attribute *has_attr* exists (optional)

Yields *str, list or dict* – the filtered input text

Examples

```
>>> input = 'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | grep('error')  #doctest: +ELLIPSIS
<generator object extend_type_gen at ...>
>>> input | grep('error').tolist()
['error1', 'error2']
>>> input >> grep('error')
['error1', 'error2']
>>> input | grep('ERROR').tolist()
[]
>>> input | grep('error|warning').tolist()
['error1', 'error2', 'warning1', 'warning2']
>>> input | cutca(r'(\D+)(\d+)')                          #doctest:␣
↪+NORMALIZE_WHITESPACE
[['error', '1'], ['error', '2'], ['warning', '1'],
['info', '1'], ['warning', '2'], ['info', '2']]
>>> input | cutca(r'(\D+)(\d+)').grep('1',1).tolist()
[['error', '1'], ['warning', '1'], ['info', '1']]
>>> input | cutdct(r'(?P<level>\D+)(?P<nb>\d+)')  #doctest: +NORMALIZE_
↪WHITESPACE
[{'level': 'error', 'nb': '1'}, {'level': 'error', 'nb': '2'},
{'level': 'warning', 'nb': '1'}, {'level': 'info', 'nb': '1'},
{'level': 'warning', 'nb': '2'}, {'level': 'info', 'nb': '2'}]
>>> input | cutdct(r'(?P<level>\D+)(?P<nb>\d+)').grep('1','nb').tolist()␣
↪ #doctest: +NORMALIZE_WHITESPACE
[{'level': 'error', 'nb': '1'}, {'level': 'warning', 'nb': '1'},
{'level': 'info', 'nb': '1'}]
>>> [{'more simple':1},{'way to grep':2},{'list of dicts':3}] | grep('way
↪').tolist()
[{'way to grep': 2}]
>>> [{'more simple':1},{'way to grep':2},{'list of dicts':3}] | grep('3
↪').tolist()
[{'list of dicts': 3}]
```

6.23 grepc

class textops.**grepc**(*pattern=None*, *key=None*, *has_key=None*, *attr=None*, *has_attr=None*)

Count lines having a specified pattern

This works like *textops.grep* except that instead of filtering the input text, it counts lines matching the pattern.

Parameters

- **pattern** (*str*) – a regular expression string (case sensitive, Optionnal)
- **key** (*int or str*) – test the pattern only one column or one key (optional)

- **has_key** (*int or str*) – test only if the test_key is in the inner list or dict (optional)
- **attr** (*str*) – for list of objects, test the pattern on the object *attr* attribute (optional)
- **has_attr** (*int or str*) – For list of objects, test if the attribute *has_attr* exists (optional)

Returns the matched lines count

Return type int

Examples

```
>>> input = 'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | grepc('error')
2
>>> input | grepc('ERROR')
0
>>> input | grepc('error|warning')
4
>>> [{'more simple':1},{'way to grep':2},{'list of dicts':3}] | grepc('3
↪')
1
>>> [{'more simple':1},{'way to grep':2},{'list of dicts':3}] | grepc('2
↪','way to grep')
1
```

6.24 grepci

class textops.**grepci**(*pattern=None*, *key=None*, *has_key=None*, *attr=None*, *has_attr=None*)

Count lines having a specified pattern (case insensitive)

This works like *textops.grepc* except that the pattern is case insensitive

Parameters

- **pattern** (*str*) – a regular expression string (case insensitive)
- **key** (*int or str*) – test only one column or one key (optional)

Returns the matched lines count

Return type int

Examples

```
>>> input = 'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | grepci('ERROR')
2
```

6.25 grepcv

class textops.**grepcv**(*pattern=None*, *key=None*, *has_key=None*, *attr=None*, *has_attr=None*)

Count lines NOT having a specified pattern

This works like *textops.grepc* except that it counts line that does NOT match the pattern.

Parameters

- **pattern** (*str*) – a regular expression string (case sensitive)
- **key** (*int or str*) – test only one column or one key (optional)

Returns the NOT matched lines count

Return type int

Examples

```
>>> input = 'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | grepcv('error')
4
>>> input | grepcv('ERROR')
6
```

6.26 grepcvi

class textops.**grepcvi**(*pattern=None*, *key=None*, *has_key=None*, *attr=None*, *has_attr=None*)

Count lines NOT having a specified pattern (case insensitive)

This works like *textops.grepcv* except that the pattern is case insensitive

Parameters

- **pattern** (*str*) – a regular expression string (case insensitive)
- **key** (*int or str*) – test only one column or one key (optional)

Returns the NOT matched lines count

Return type int

Examples

```
>>> input = 'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | grepcvi('ERROR')
4
```

6.27 grepi

class textops.**grepi**(*pattern=None*, *key=None*, *has_key=None*, *attr=None*, *has_attr=None*)

grep case insensitive

This works like *textops.grep*, except it is case insensitive.

Parameters

- **pattern** (*str*) – a regular expression string (case insensitive)
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str, list or dict* – the filtered input text

Examples

```
>>> input = 'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | grepi('ERROR').tolist()
['error1', 'error2']
>>> input >> grepi('ERROR')
['error1', 'error2']
```

6.28 grepv

class textops.**grepv**(*pattern=None*, *key=None*, *has_key=None*, *attr=None*, *has_attr=None*)

grep with inverted matching

This works like *textops.grep*, except it returns lines that does NOT match the specified pattern.

Parameters

- **pattern** (*str*) – a regular expression string
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str, list or dict* – the filtered input text

Examples

```
>>> input = 'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | grepv('error').tolist()
['warning1', 'info1', 'warning2', 'info2']
>>> input >> grepv('error')
['warning1', 'info1', 'warning2', 'info2']
>>> input | grepv('ERROR').tolist()
['error1', 'error2', 'warning1', 'info1', 'warning2', 'info2']
```

6.29 grepvi

class textops.**grepvi**(*pattern=None*, *key=None*, *has_key=None*, *attr=None*, *has_attr=None*)

grep case insensitive with inverted matching

This works like *textops.grepv*, except it is case insensitive.

Parameters

- **pattern** (*str*) – a regular expression string (case insensitive)

- **key** (*int or str*) – test only one column or one key (optional)

Yields *str, list or dict* – the filtered input text

Examples

```
>>> input = 'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | grepvi('ERROR').tolist()
['warning1', 'info1', 'warning2', 'info2']
>>> input >> grepvi('ERROR')
['warning1', 'info1', 'warning2', 'info2']
```

6.30 haspattern

class textops.**haspattern**(*pattern=None*, *key=None*, *has_key=None*, *attr=None*, *has_attr=None*)

Tests if the input text matches the specified pattern

This reads the input text line by line (or item by item for lists and generators), cast into a string before testing. like *textops.grepc* it accepts testing on a specific column for a list of lists or testing on a specific key for list of dicts. It stops reading the input text as soon as the pattern is found : it is useful for big input text.

Parameters

- **pattern** (*str*) – a regular expression string (case sensitive)
- **key** (*int or str*) – test only one column or one key (optional)

Returns True if the pattern is found.

Return type bool

Examples

```
>>> input = 'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | haspattern('error')
True
>>> input | haspattern('ERROR')
False
```

6.31 haspatterni

class textops.**haspatterni**(*pattern=None*, *key=None*, *has_key=None*, *attr=None*, *has_attr=None*)

Tests if the input text matches the specified pattern

Works like *textops.haspattern* except that it is case insensitive.

Parameters

- **pattern** (*str*) – a regular expression string (case insensitive)
- **key** (*int or str*) – test only one column or one key (optional)

Returns True if the pattern is found.

Return type bool

Examples

```
>>> input = 'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | haspatterni('ERROR')
True
```

6.32 head

class textops.**head**(*lines*)

Return first lines from the input text

Parameters **lines** (*int*) – The number of lines/items to return.

Yields *str, lists or dicts* – the first 'lines' lines from the input text

Examples

```
>>> 'a\nb\nc' | head(2).tostr()
'a\nb'
>>> for l in 'a\nb\nc' | head(2):
...   print(l)
a
b
>>> ['a','b','c'] | head(2).tolist()
['a', 'b']
>>> ['a','b','c'] >> head(2)
['a', 'b']
>>> [('a',1),('b',2),('c',3)] | head(2).tolist()
[('a', 1), ('b', 2)]
>>> [{'key':'a','val':1},{'key':'b','val':2},{'key':'c','val':3}] |␣
↪head(2).tolist()
[{'key': 'a', 'val': 1}, {'key': 'b', 'val': 2}]
```

6.33 iffn

class textops.**iffn**(*filter_fn=None*)

Filters the input text with a specified function

It works like the python filter() fonction.

Parameters

- **filter_fn** (*callable*) – a function to be called against each line and returning a boolean.
- **means** (*True*) – yield the line.

Yields *any* – lines filtered by the filter_fn function

Examples

```
>>> import re
>>> 'line1\nline2\nline3\nline4' | iffn(lambda l:int(re.sub(r'\D','',l))
↪% 2).tolist()
['line1', 'line3']
>>> 'line1\nline2\nline3\nline4' >> iffn(lambda l:int(re.sub(r'\D','',
↪l)) % 2)
['line1', 'line3']
```

6.34 inrange

class textops.**inrange**(*begin*, *end*, *get_begin=True*, *get_end=False*, **args*, ***kwargs*)

Extract lines between a range of strings

For each input line, it tests whether it is greater or equal than `begin` argument and strictly less than `end` argument. At the opposite of *textops.between*, there no need to match begin or end string.

`inrange` works for any kind of list of strings, but also for list of lists and list of dicts. In these cases, one can test only one column or one key but return the whole list/dict.

Each strings that will be tested is converted with the same type of the first argument.

Parameters

- **begin** (*str*) – range begin string
- **end** (*str*) – range end string
- **get_begin** (*bool*) – if True : include lines having the same value as the range begin, Default : True
- **get_end** (*bool*) – if True : include lines having the same value as the range end, Default : False
- **key** (*int or str or callable*) – Specify what should really be compared:
  - None : the whole current line,
  - an int : test only the specified column (for list or lists),
  - a string : test only the dict value for the specified key (for list of dicts),
  - a callable : it will receive the line being tested and return the string to really compare.

  Note : `key` argument *MUST BE PASSED BY NAME*

Yields *str or list or dict* – lines having values inside the specified range

Examples

```
>>> logs = '''2015-08-11 aaaa
... 2015-08-23 bbbb
... 2015-09-14 ccc
... 2015-11-05 ddd'''
>>> logs | inrange('2015-08-12','2015-11-05').tolist()
['2015-08-23 bbbb', '2015-09-14 ccc']
```

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```
>>> logs >> inrange('2015-08-12','2015-11-05')
['2015-08-23 bbbb', '2015-09-14 ccc']
```

```
>>> logs = '''aaaa 2015-08-11
... bbbb 2015-08-23
... cccc 2015-09-14
... dddd 2015-11-05'''
>>> logs >> inrange('2015-08-12','2015-11-05')
[]
>>> logs >> inrange('2015-08-12','2015-11-05',key=lambda l:l.cut(col=1))
['bbbb 2015-08-23', 'cccc 2015-09-14']
```

```
>>> logs = [ ('aaaa','2015-08-11'),
... ('bbbb','2015-08-23'),
... ('ccc','2015-09-14'),
... ('ddd','2015-11-05') ]
>>> logs | inrange('2015-08-12','2015-11-05',key=1).tolist()
[('bbbb', '2015-08-23'), ('ccc', '2015-09-14')]
```

```
>>> logs = [ {'data':'aaaa','date':'2015-08-11'},
... {'data':'bbbb','date':'2015-08-23'},
... {'data':'ccc','date':'2015-09-14'},
... {'data':'ddd','date':'2015-11-05'} ]
>>> logs | inrange('2015-08-12','2015-11-05',key='date').tolist()
[{'data': 'bbbb', 'date': '2015-08-23'}, {'data': 'ccc', 'date': '2015-
↪09-14'}]
```

```
>>> ints = '1\n2\n01\n02\n11\n12\n22\n20'
>>> ints | inrange(1,3).tolist()
['1', '2', '01', '02']
>>> ints | inrange('1','3').tolist()
['1', '2', '11', '12', '22', '20']
>>> ints | inrange('1','3',get_begin=False).tolist()
['2', '11', '12', '22', '20']
```

6.35 last

class textops.**last**

Return the last line/item from the input text

Returns the last line/item from the input text

Return type *StrExt*, *ListExt* or *DictExt*

Examples

```
>>> 'a\nb\nc' | last()
'c'
>>> ['a','b','c'] | last()
'c'
>>> [('a',1),('b',2),('c',3)] | last()
('c', 3)
```

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```
>>> [['key1','val1','help1'],['key2','val2','help2']] | last()
['key2', 'val2', 'help2']
>>> [{'key':'a','val':1},{'key':'b','val':2},{'key':'c','val':3}] |␣
↪last()
{'key': 'c', 'val': 3}
```

6.36 lcount

class textops.**lcount**

Count lines

Returns number of lines

Return type int

Examples

```
>>> input = 'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | lcount()
6
```

6.37 less

class textops.**less**(*lines*)

Return all lines from the input text except the n last lines

Parameters **lines** (*int*) – The number of ending lines/items to remove.

Yields *str, lists or dicts* – all lines except the n last

Examples

```
>>> 'a\nb\nc' | less(1).tostr()
'a\nb'
>>> for l in 'a\nb\nc' | less(1):
...   print(l)
a
b
>>> ['a','b','c'] | less(1).tolist()
['a', 'b']
>>> ['a','b','c'] >> less(1)
['a', 'b']
>>> [('a',1),('b',2),('c',3)] | less(1).tolist()
[('a', 1), ('b', 2)]
>>> [{'key':'a','val':1},{'key':'b','val':2},{'key':'c','val':3}] |␣
↪less(1).tolist()
[{'key': 'a', 'val': 1}, {'key': 'b', 'val': 2}]
```

6.38 lessequal

class textops.**lessequal**(*value*, **args*, ***kwargs*)

Extract lines with value strictly less than specified string

It works like *textops.lessthan* except the test is "less or equal"

Parameters

- **value** (*str*) – string to test with
- **key** (*int or str or callable*) – Specify what should really be compared:
  - None : the whole current line,
  - an int : test only the specified column (for list or lists),
  - a string : test only the dict value for the specified key (for list of dicts),
  - a callable : it will receive the line being tested and return the string to really compare.

  Note : `key` argument *MUST BE PASSED BY NAME*

Yields *str or list or dict* – lines having values less than or equal to the specified value

Examples

```
>>> logs = '''2015-08-11 aaaa
... 2015-08-23 bbbb
... 2015-09-14 ccc
... 2015-11-05 ddd'''
>>> logs | lessequal('2015-09-14').tolist()
['2015-08-11 aaaa', '2015-08-23 bbbb']
>>> logs >> lessequal('2015-09-14')
['2015-08-11 aaaa', '2015-08-23 bbbb']
>>> logs | lessequal('2015-09-14 ccc').tolist()
['2015-08-11 aaaa', '2015-08-23 bbbb', '2015-09-14 ccc']
```

6.39 lessthan

class textops.**lessthan**(*value*, **args*, ***kwargs*)

Extract lines with value strictly less than specified string

It works for any kind of list of strings, but also for list of lists and list of dicts. In these cases, one can test only one column or one key but return the whole list/dict.

Each strings that will be tested is temporarily converted with the same type as the first argument given to `lessthan` (see examples).

Parameters

- **value** (*str*) – string to test with
- **key** (*int or str or callable*) – Specify what should really be compared:
  - None : the whole current line,
  - an int : test only the specified column (for list or lists),

- a string : test only the dict value for the specified key (for list of dicts),
- a callable : it will receive the line being tested and return the string to really compare.

Note : `key` argument *MUST BE PASSED BY NAME*

Yields *str or list or dict* – lines having values strictly less than the specified reference value

Examples

```
>>> logs = '''2015-08-11 aaaa
... 2015-08-23 bbbb
... 2015-09-14 ccc
... 2015-11-05 ddd'''
>>> logs | lessthan('2015-09-14').tolist()
['2015-08-11 aaaa', '2015-08-23 bbbb']
>>> logs = [ ('aaaa','2015-08-11'),
... ('bbbb','2015-08-23'),
... ('ccc','2015-09-14'),
... ('ddd','2015-11-05') ]
>>> logs | lessthan('2015-11-05',key=1).tolist()
[('aaaa', '2015-08-11'), ('bbbb', '2015-08-23'), ('ccc', '2015-09-14')]
>>> logs = [ {'data':'aaaa','date':'2015-08-11'},
... {'data':'bbbb','date':'2015-08-23'},
... {'data':'ccc','date':'2015-09-14'},
... {'data':'ddd','date':'2015-11-05'} ]
>>> logs | lessthan('2015-09-14',key='date').tolist()
[{'data': 'aaaa', 'date': '2015-08-11'}, {'data': 'bbbb', 'date': '2015-
↪08-23'}]
>>> ints = '1\n2\n01\n02\n11\n12\n22\n20'
>>> ints | lessthan(3).tolist()
['1', '2', '01', '02']
>>> ints | lessthan('3').tolist()
['1', '2', '01', '02', '11', '12', '22', '20']
```

6.40 linetester

class textops.**linetester**(**args*, ***kwargs*)

Abstract class for by-line testing

6.41 mapfn

class textops.**mapfn**(*map_fn*)

Apply a specified function on every line

It works like the python map() function.

Parameters **map_fn** (*callable*) – a function or a callable to apply on every line

Yields *any* – lines modified by the map_fn function

Examples

```
>>> ['a','b','c'] | mapfn(lambda l:l*2).tolist()
['aa', 'bb', 'cc']
>>> ['a','b','c'] >> mapfn(lambda l:l*2)
['aa', 'bb', 'cc']
```

6.42 mapif

class textops.**mapif**(*map_fn*, *filter_fn=None*)

Filters and maps the input text with 2 specified functions

Filters input text AND apply a map function on every filtered lines.

Parameters

- **map_fn** (*callable*) – a function or a callable to apply on every line to be yield
- **filter_fn** (*callable*) – a function to be called against each line and returning a boolean.
- **means** (*True*) – yield the line.

Yields *any* – lines filtered by the filter_fn function and modified by map_fn function

Examples

```
>>> import re
>>> 'a1\nb2\nc3\nd4' | mapif(lambda l:l*2,lambda l:int(re.sub(r'\D','',
↪l)) % 2).tolist()
['a1a1', 'c3c3']
>>> 'a1\nb2\nc3\nd4' >> mapif(lambda l:l*2,lambda l:int(re.sub(r'\D','',
↪l)) % 2)
['a1a1', 'c3c3']
```

6.43 merge_dicts

class textops.**merge_dicts**

Merge a list of dicts into one single dict

Returns merged dicts

Return type dict

Examples

```
>>> pattern=r'item="(?P<item>[^"]*)" count="(?P<i_count>[^"]*)" price="(?
↪P<i_price>[^"]*)"'
>>> s='item="col1" count="col2" price="col3"\nitem="col11" count="col22"␣
↪price="col33"'
>>> s | cutkv(pattern,key_name='item')                                    ␣
↪                  # doctest: +ELLIPSIS, +NORMALIZE_WHITESPACE
```

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```
[{'col1': {'item': 'col1', 'i_count': 'col2', 'i_price': 'col3'}},
{'col11': {'item': 'col11', 'i_count': 'col22', 'i_price': 'col33'}}]
>>> s | cutkv(pattern,key_name='item').merge_dicts()
↪                    # doctest: +ELLIPSIS, +NORMALIZE_WHITESPACE
{'col1': {'item': 'col1', 'i_count': 'col2', 'i_price': 'col3'},
'col11': {'item': 'col11', 'i_count': 'col22', 'i_price': 'col33'}}
```

6.44 norepeat

class textops.**norepeat**

Remove line repetitions that follows

If a line is the same as the previous one, it is not yield. Works also with list of lists or dicts. Input order is preserved and it can be used on huge files.

Returns Unrepeated text line by line.

Return type generator

Examples

```
>>> s='f\na\nb\na\nc\nc\ne\na\nc\nf'
>>> s >> norepeat()
['f', 'a', 'b', 'a', 'c', 'e', 'a', 'c', 'f']
>>> l = [ [1,2], [3,4], [1,2], [1,2] ]
>>> l >> norepeat()
[[1, 2], [3, 4], [1, 2]]
>>> d = [ {'a':1}, {'b':2}, {'a':1}, {'a':1} ]
>>> d >> norepeat()
[{'a': 1}, {'b': 2}, {'a': 1}]
```

6.45 outrange

class textops.**outrange**(*begin*, *end*, *get_begin=False*, *get_end=False*, **args*, ***kwargs*)

Extract lines NOT between a range of strings

Works like *textops.inrange* except it yields lines that are NOT in the range

Parameters

- **begin** (*str*) – range begin string
- **end** (*str*) – range end string
- **get_begin** (*bool*) – if True : include lines having the same value as the range begin, Default : False
- **get_end** (*bool*) – if True : include lines having the same value as the range end, Default : False
- **key** (*int or str or callable*) – Specify what should really be compared:
  - None : the whole current line,
  - an int : test only the specified column (for list or lists),

- a string : test only the dict value for the specified key (for list of dicts),
- a callable : it will receive the line being tested and return the string to really compare.

Note : `key` argument *MUST BE PASSED BY NAME*

Yields *str or list or dict* – lines having values outside the specified range

Examples

```
>>> logs = '''2015-08-11 aaaa
... 2015-08-23 bbbb
... 2015-09-14 ccc
... 2015-11-05 ddd'''
>>> logs | outrange('2015-08-12','2015-11-05').tolist()
['2015-08-11 aaaa', '2015-11-05 ddd']
>>> logs | outrange('2015-08-23 bbbb','2015-09-14 ccc').tolist()
['2015-08-11 aaaa', '2015-11-05 ddd']
>>> logs | outrange('2015-08-23 bbbb','2015-09-14 ccc', get_begin=True).
↪tolist()
['2015-08-11 aaaa', '2015-08-23 bbbb', '2015-11-05 ddd']
```

6.46 renderdicts

class textops.**renderdicts**(*format_str='{key} : {val}'*, *context={}*, *defvalue='-'*)

Formats list of dicts

It works like *formatdicts* except it does NOT do the final join.

Parameters

- **format_str** (*str*) – format string, default is '{key} : {val}n'
- **context** (*dict*) – additional context dictionary
- **defvalue** (*str or callable*) – The replacement string or function for unexisting keys when formating.

Yields *str* – formatted string

Examples

```
>>> input = [{'key':'a','val':1},{'key':'b','val':2},{'key':'c'}]
>>> input >> renderdicts()
['a : 1', 'b : 2', 'c : -']
>>> input >> renderdicts('{key} -> {val}',defvalue='N/A')
['a -> 1', 'b -> 2', 'c -> N/A']
```

```
>>> input = [{'name':'Eric','age':47,'level':'guru'},
... {'name':'Guido','age':59,'level':'god'}]
>>> input >> renderdicts('{name}({age}) : {level}')    #doctest:␣
↪+NORMALIZE_WHITESPACE
['Eric(47) : guru', 'Guido(59) : god']
>>> input >> renderdicts('{name}')
```

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```
['Eric', 'Guido']
>>> ctx = {'today':'2015-12-15'}
>>> input >> renderdicts('[{today}] {name}({age}) : {level}', ctx)
↪#doctest: +NORMALIZE_WHITESPACE
['[2015-12-15] Eric(47) : guru', '[2015-12-15] Guido(59) : god']
>>> input >> renderdicts('[{to_day}] {name}({age}) : {level}', ctx,
↪'unknown')
['[unknown] Eric(47) : guru', '[unknown] Guido(59) : god']
```

6.47 renderitems

class textops.**renderitems**(*format_str='{0} : {1}'*, *context={}*, *defvalue='-'*)

Renders list of 2-sized tuples

It works like *formatitems* except it does NOT do the final join.

Parameters

- **format_str** (*str*) – format string, default is '{0} : {1}'
- **context** (*dict*) – additional context dictionary
- **defvalue** (*str or callable*) – The replacement string or function for unexisting keys when formating.

Yields *str* – formatted string

Examples

```
>>> [('key1','val1'),('key2','val2')] >> renderitems('{0} -> {1}')
['key1 -> val1', 'key2 -> val2']
>>> [('key1','val1'),('key2','val2')] >> renderitems('{0}:{1}')
['key1:val1', 'key2:val2']
>>> ctx = {'today':'2015-12-15'}
>>> [('key1','val1'),('key2','val2')] >> renderitems('[{today}] {0}:{1}',
↪ctx)
['[2015-12-15] key1:val1', '[2015-12-15] key2:val2']
>>> [('key1','val1'),('key2','val2')] >> renderitems('[{to_day}] {0}:{1}
↪',ctx,'unknown')
['[unknown] key1:val1', '[unknown] key2:val2']
```

6.48 renderlists

class textops.**renderlists**(*format_str*, *context={}*, *defvalue='-'*)

Formats list of lists

It works like *formatlists* except it does NOT do the final join.

Parameters

- **format_str** (*str*) – format string, default is '{0} : {1}'
- **context** (*dict*) – additional context dictionary

- **defvalue** (*str or callable*) – The replacement string or function for unexisting keys when formating.

Yields *str* – formatted string

Examples

```
>>> input = [['key1','val1','help1'],['key2','val2','help2']]
>>> input >> renderlists('{2} : {0} -> {1}')
['help1 : key1 -> val1', 'help2 : key2 -> val2']
>>> input >> renderlists('{0}:{1} ({2})')
['key1:val1 (help1)', 'key2:val2 (help2)']
>>> ctx = {'today':'2015-12-15'}
>>> input >> renderlists('[{today}] {0}:{1} ({2})',ctx)
['[2015-12-15] key1:val1 (help1)', '[2015-12-15] key2:val2 (help2)']
>>> input >> renderlists('[{to_day}] {0}:{1} ({2})',ctx,'unknown')
['[unknown] key1:val1 (help1)', '[unknown] key2:val2 (help2)']
```

6.49 resplitblock

class textops.**resplitblock**(*pattern*, *include_separator=0*, *skip_first=False*)

split a text into blocks using `re.finditer()`

This works like *textops.splitblock* except that is uses `re` : it is faster and gives the possibility to search multiple lines patterns. BUT, the whole input text must fit into memory. List of strings are also converted into a single string with newlines during the process.

Parameters

- **pattern** (*str*) – The pattern to find
- **include_separator** (*int*) – Tells whether blocks must include searched pattern
  - 0 or SPLIT_SEP_NONE : no,
  - 1 or SPLIT_SEP_BEGIN : yes, at block beginning,
  - 2 or SPLIT_SEP_END : yes, at block ending

  Default: 0
- **skip_first** (*bool*) – If True, the result will not contain the block before the first pattern found. Default : False.

Returns splitted input text

Return type generator

Examples

```
>>> s='''
... this
... is
... section 1
... ================
```

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```
... this
... is
... section 2
... ================
... this
... is
... section 3
... '''
>>> s >> resplitblock(r'^======+$')
['\nthis\nis\nsection 1\n', '\nthis\nis\nsection 2\n',
↪'\nthis\nis\nsection 3\n']
>>> s >> resplitblock(r'^======+$',skip_first=True)
['\nthis\nis\nsection 2\n', '\nthis\nis\nsection 3\n']
```

```
>>> s='''Section: 1
... info 1.1
... info 1.2
... Section: 2
... info 2.1
... info 2.2
... Section: 3
... info 3.1
... info 3.2'''
>>> s >> resplitblock(r'^Section:',SPLIT_SEP_BEGIN)      # doctest:␣
↪+ELLIPSIS, +NORMALIZE_WHITESPACE
['', 'Section: 1\ninfo 1.1\ninfo 1.2\n', 'Section: 2\ninfo 2.1\ninfo 2.
↪2\n',
'Section: 3\ninfo 3.1\ninfo 3.2']
>>> s >> resplitblock(r'^Section:',SPLIT_SEP_BEGIN,True)      # doctest:␣
↪+ELLIPSIS, +NORMALIZE_WHITESPACE
['Section: 1\ninfo 1.1\ninfo 1.2\n', 'Section: 2\ninfo 2.1\ninfo 2.2\n',
'Section: 3\ninfo 3.1\ninfo 3.2']
```

```
>>> s='''info 1.1
... Last info 1.2
... info 2.1
... Last info 2.2
... info 3.1
... Last info 3.2'''
>>> s >> resplitblock(r'^Last info[^\n\r]*[\n\r]?',SPLIT_SEP_END)      #␣
↪doctest: +ELLIPSIS, +NORMALIZE_WHITESPACE
['info 1.1\nLast info 1.2\n', 'info 2.1\nLast info 2.2\n', 'info 3.
↪1\nLast info 3.2']
```

```
>>> s='''
... =========
... Section 1
... =========
... info 1.1
... info 1.2
... =========
... Section 2
... =========
... info 2.1
... info 2.2
```

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```
... '''
>>> s >> resplitblock('^===+\n[^\n]+\n===+\n')
['\n', 'info 1.1\ninfo 1.2\n', 'info 2.1\ninfo 2.2\n']
>>> s >> resplitblock('^===+\n[^\n]+\n===+\n',SPLIT_SEP_BEGIN)  #␣
↪doctest: +ELLIPSIS, +NORMALIZE_WHITESPACE
['\n', '=========\nSection 1\n=========\ninfo 1.1\ninfo 1.2\n',
'=========\nSection 2\n=========\ninfo 2.1\ninfo 2.2\n']
>>> s >> resplitblock('^===+\n[^\n]+\n===+\n',SPLIT_SEP_BEGIN, True)  #␣
↪doctest: +ELLIPSIS, +NORMALIZE_WHITESPACE
['=========\nSection 1\n=========\ninfo 1.1\ninfo 1.2\n',
'=========\nSection 2\n=========\ninfo 2.1\ninfo 2.2\n']
```

6.50 rmblank

class textops.**rmblank**(*pattern=None*, *key=None*, *has_key=None*, *attr=None*, *has_attr=None*)

Remove any kind of blank lines from the input text

A blank line can be an empty line or a line with only spaces and/or tabs.

Returns input text without blank lines

Return type generator

Examples

```
>>> input = 'error1\n\n\nerror2\nwarning1\n   \t \t␣
↪\ninfo1\nwarning2\ninfo2'
>>> input | rmblank().tostr()
'error1\nerror2\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input = ['a','','b','   ','c','  \t\t','d']
>>> input | rmblank().tolist()
['a', 'b', 'c', 'd']
```

6.51 sed

class textops.**sed**(*pats*, *repls*)

Replace pattern on-the-fly

Works like the shell command 'sed'. It uses `re.sub()` to replace the pattern, this means that you can include back-reference into the replacement string. if you specify a list of search patterns, all matches will be replaced by the same replace string specified. If you specify a list of string as replacement, pattern N from pattern list will be replaced by string N from replace string list.

Parameters

- **pats** (*str or list*) – a string (case sensitive) or a regular expression or a list of that for the pattern(s) to search
- **repls** (*str or list*) – the replace string or a list of strings for a list of search patterns.

Yields *str* – the replaced lines from the input text

Examples

```
>>> 'Hello Eric\nHello Guido' | sed('Hello','Bonjour').tostr()
'Bonjour Eric\nBonjour Guido'
>>> [ 'Hello Eric','Hello Guido'] | sed('Hello','Bonjour').tolist()
['Bonjour Eric', 'Bonjour Guido']
>>> [ 'Hello Eric','Hello Guido'] >> sed('Hello','Bonjour')
['Bonjour Eric', 'Bonjour Guido']
>>> [ 'Hello Eric','Hello Guido'] | sed(r'$',' !').tolist()
['Hello Eric !', 'Hello Guido !']
>>> import re
>>> [ 'Hello Eric','Hello Guido'] | sed(re.compile('hello',re.I),'Good␣
↪bye').tolist()
['Good bye Eric', 'Good bye Guido']
>>> [ 'Hello Eric','Hello Guido'] | sed('hello','Good bye').tolist()
['Hello Eric', 'Hello Guido']
>>> [ ['Hello','Eric'],['Hello','Guido'] ] | sed('Hello','Good bye').
↪tolist()
[['Good bye', 'Eric'], ['Good bye', 'Guido']]
>>> [ 'Hello Eric','Hello Guido'] >> sed(['Eric','Guido'],'Mister')
['Hello Mister', 'Hello Mister']
>>> [ 'Hello Eric','Hello Guido'] >> sed(['Eric','Guido'],['Padawan',
↪'Jedi'])
['Hello Padawan', 'Hello Jedi']
```

6.52 sedi

class textops.**sedi**(*pats*, *repls*)

Replace pattern on-the-fly (case insensitive)

Works like *textops.sed* except that the string as the search pattern is case insensitive.

Parameters

- **pat** (*str*) – a string (case insensitive) or a regular expression for the pattern to search
- **repl** (*str*) – the replace string.

Yields *str* – the replaced lines from the input text

Examples

```
>>> [ 'Hello Eric','Hello Guido'] | sedi('hello','Good bye').tolist()
['Good bye Eric', 'Good bye Guido']
>>> [ 'Hello Eric','Hello Guido'] >> sedi('hello','Good bye')
['Good bye Eric', 'Good bye Guido']
```

6.53 since

class textops.**since**(*pattern*, *key=None*)

Extract lines beginning with and after a patterns

Works like *textops.after* except that it includes the first parttern found.

Parameters

- **pattern** (*str or regex or list*) – start yielding lines after reaching this pattern(s)
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str or list or dict* – lines after the specified pattern

Examples

```
>>> ['a','b','c','d','e','f'] | since('c').tolist()
['c', 'd', 'e', 'f']
```

6.54 skess

class textops.**skess**(*begin*, *end*)

skip x lines at the beginning and y at the end from the input text

This will do a *skip* and a *less* in a single operation.

Parameters

- **begin** (*int*) – The number of begining lines/items to remove.
- **end** (*int*) – The number of ending lines/items to remove.

Yields *str, lists or dicts* – all lines except the specified number at begin and end

Examples

```
>>> 'a\nb\nc' | skess(1,1).tostr()
'b'
>>> for l in 'a\nb\nc' | skess(1,1):
...   print(l)
b
>>> ['a','b','c'] | skess(1,1).tolist()
['b']
>>> ['a','b','c'] >> skess(1,1)
['b']
>>> [('a',1),('b',2),('c',3)] | skess(1,1).tolist()
[('b', 2)]
>>> [{'key':'a','val':1},{'key':'b','val':2},{'key':'c','val':3}] |␣
↪skess(1,1).tolist()
[{'key': 'b', 'val': 2}]
```

6.55 skip

class textops.**skip**(*lines*)

Skip n lines

It will return the input text except the n first lines

Parameters **lines** (*int*) – The number of lines/items to skip.

Yields *str, lists or dicts* – skip 'lines' lines from the input text

Examples

```
>>> 'a\nb\nc' | skip(1).tostr()
'b\nc'
>>> for l in 'a\nb\nc' | skip(1):
...   print(l)
b
c
>>> ['a','b','c'] | skip(1).tolist()
['b', 'c']
>>> ['a','b','c'] >> skip(1)
['b', 'c']
>>> [('a',1),('b',2),('c',3)] | skip(1).tolist()
[('b', 2), ('c', 3)]
>>> [{'key':'a','val':1},{'key':'b','val':2},{'key':'c','val':3}] |␣
↪skip(1).tolist()
[{'key': 'b', 'val': 2}, {'key': 'c', 'val': 3}]
```

6.56 sortdicts

class textops.**sortdicts**(*key*, *reverse=False*)

Sort list of dicts

Parameters

- **key** (*int or tuple/list*) – The dict key or list of keys as sorting criteria
- **reverse** (*bool*) – Reverse the sort (Default : False)

Returns sorted input

Return type list of dicts

Examples

to come...

6.57 sortlists

class textops.**sortlists**(*col*, *reverse=False*)

Sort list of dicts

Parameters

- **col** (*int or tuple/list*) – The column number or list of columns as sorting criteria
- **reverse** (*bool*) – Reverse the sort (Default : False)

Returns sorted input

Return type list of lists

Examples

to come...

6.58 span

class textops.**span**(*nbcols*, *fill_str=''*)

Ensure that a list of lists has exactly the specified number of column

This is useful in for-loop with multiple assignment. If only simple list or strings are given, they are converted into list of list.

Parameters

- **nbcols** (*int*) – number columns to return
- **fill_str** (*str*) – the value to return for not exsiting columns

Returns A list with exactly nbcols columns

Return type list

Examples

```
>>> s='a\nb c\nd e f g h\ni j k\n\n'
>>> s | cut()
[['a'], ['b', 'c'], ['d', 'e', 'f', 'g', 'h'], ['i', 'j', 'k'], []]
>>> s | cut().span(3,'-').tolist()
[['a', '-', '-'], ['b', 'c', '-'], ['d', 'e', 'f'], ['i', 'j', 'k'], ['-
↪', '-', '-']]
>>> s >> cut().span(3,'-')
[['a', '-', '-'], ['b', 'c', '-'], ['d', 'e', 'f'], ['i', 'j', 'k'], ['-
↪', '-', '-']]
>>> for x,y,z in s | cut().span(3,'-'):
...     print(x,y,z)
a - -
b c -
d e f
i j k
- - -
>>> 'a b' | cut()
['a', 'b']
>>> 'a b' | cut().span(3,'-').tolist()
[['a', 'b', '-']]
```

6.59 splitblock

class textops.**splitblock**(*pattern*, *include_separator=0*, *skip_first=False*)

split a text into blocks

This operation split a text that has several blocks seperated by a same pattern. The separator pattern must fit into one line, by this way, this operation is not limited with the input text size, nevertheless one block must fit in memory (ie : input text can include an unlimited number of blocks that must fit into memory one-by-one)

Parameters

- **pattern** (*str*) – The pattern to find
- **include_separator** (*int*) – Tells whether blocks must include searched pattern
  - 0 or SPLIT_SEP_NONE : no,
  - 1 or SPLIT_SEP_BEGIN : yes, at block beginning,
  - 2 or SPLIT_SEP_END : yes, at block ending

  Default: 0
- **skip_first** (*bool*) – If True, the result will not contain the block before the first pattern found. Default : False.

Returns splitted input text

Return type generator

Examples

```
>>> s='''
... this
... is
... section 1
... ==================
... this
... is
... section 2
... ==================
... this
... is
... section 3
... '''
>>> s >> splitblock(r'^======+$')
[['', 'this', 'is', 'section 1'], ['this', 'is', 'section 2'], ['this',
↪'is', 'section 3']]
>>> s >> splitblock(r'^======+$',skip_first=True)
[['this', 'is', 'section 2'], ['this', 'is', 'section 3']]
```

```
>>> s='''Section: 1
... info 1.1
... info 1.2
... Section: 2
... info 2.1
... info 2.2
... Section: 3
... info 3.1
... info 3.2'''
>>> s >> splitblock(r'^Section:',SPLIT_SEP_BEGIN)      # doctest:␣
↪+ELLIPSIS, +NORMALIZE_WHITESPACE
[[], ['Section: 1', 'info 1.1', 'info 1.2'], ['Section: 2', 'info 2.1',
↪'info 2.2'],
['Section: 3', 'info 3.1', 'info 3.2']]
>>> s >> splitblock(r'^Section:',SPLIT_SEP_BEGIN,True)      # doctest:␣
↪+ELLIPSIS, +NORMALIZE_WHITESPACE
```

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```
[['Section: 1', 'info 1.1', 'info 1.2'], ['Section: 2', 'info 2.1',
↪'info 2.2'],
['Section: 3', 'info 3.1', 'info 3.2']]
```

```
>>> s='''info 1.1
... Last info 1.2
... info 2.1
... Last info 2.2
... info 3.1
... Last info 3.2'''
>>> s >> splitblock(r'^Last info',SPLIT_SEP_END)      # doctest:␣
↪+ELLIPSIS, +NORMALIZE_WHITESPACE
[['info 1.1', 'Last info 1.2'], ['info 2.1', 'Last info 2.2'],
['info 3.1', 'Last info 3.2']]
```

6.60 subitem

class textops.**subitem**(*n*)

Get a specified column for list of lists

Parameters **n** (*int*) – column number to get.

Returns A list

Return type generator

Examples

```
>>> s='a\nb c\nd e f g h\ni j k\n\n'
>>> s | cut().span(3,'-').tolist()
[['a', '-', '-'], ['b', 'c', '-'], ['d', 'e', 'f'], ['i', 'j', 'k'], ['-
↪', '-', '-']]
>>> s | cut().span(3,'-').subitem(1).tolist()
['-', 'c', 'e', 'j', '-']
>>> s >> cut().span(3,'-').subitem(1)
['-', 'c', 'e', 'j', '-']
>>> s >> cut().span(3,'-').subitem(-1)
['-', '-', 'f', 'k', '-']
```

6.61 subitems

class textops.**subitems**(*ntab*)

Get the specified columns for list of lists

Parameters **ntab** (*list of int*) – columns numbers to get.

Returns A list of lists

Return type generator

Examples

```
>>> s='a\nb c\nd e f g h\ni j k\n\n'
>>> s | cut().span(3,'-').tolist()
[['a', '-', '-'], ['b', 'c', '-'], ['d', 'e', 'f'], ['i', 'j', 'k'], ['-
↪', '-', '-']]
>>> s | cut().span(3,'-').subitems([0,2]).tolist()
[['a', '-'], ['b', '-'], ['d', 'f'], ['i', 'k'], ['-', '-']]
>>> s >> cut().span(3,'-').subitems('0,2')
[['a', '-'], ['b', '-'], ['d', 'f'], ['i', 'k'], ['-', '-']]
```

6.62 subslice

class textops.**subslice**(*begin=0*, *end=sys.maxint*, *step=1*)

Get a slice of columns for list of lists

Parameters

- **begin** (*int*) – first columns number to get. must be None or an integer: 0 <= x <= maxint
- **end** (*int*) – end columns number (get columns up to end - 1). must be None or an integer: 0 <= x <= maxint
- **step** (*int*) – get every step columns (Default : 1)

Returns A slice of the original text

Return type generator

Examples

```
>>> s='a\nb c\nd e f g h\ni j k\n\n'
>>> s | cut().span(3,'-').tolist()
[['a', '-', '-'], ['b', 'c', '-'], ['d', 'e', 'f'], ['i', 'j', 'k'], ['-
↪', '-', '-']]
>>> s | cut().span(3,'-').subslice(1,3).tolist()
[['-', '-'], ['c', '-'], ['e', 'f'], ['j', 'k'], ['-', '-']]
>>> s >> cut().span(3,'-').subslice(1,3)
[['-', '-'], ['c', '-'], ['e', 'f'], ['j', 'k'], ['-', '-']]
```

6.63 tail

class textops.**tail**(*lines*)

Return last lines from the input text

Parameters **lines** (*int*) – The number of lines/items to return.

Yields *str, lists or dicts* – the last 'lines' lines from the input text

Examples

```
>>> 'a\nb\nc' | tail(2).tostr()
'b\nc'
>>> for l in 'a\nb\nc' | tail(2):
...   print(l)
b
c
>>> ['a','b','c'] | tail(2).tolist()
['b', 'c']
>>> ['a','b','c'] >> tail(2)
['b', 'c']
>>> [('a',1),('b',2),('c',3)] | tail(2).tolist()
[('b', 2), ('c', 3)]
>>> [{'key':'a','val':1},{'key':'b','val':2},{'key':'c','val':3}] |␣
↪tail(2).tolist()
[{'key': 'b', 'val': 2}, {'key': 'c', 'val': 3}]
```

6.64 uniq

class textops.**uniq**

Remove all line repetitions at any place

If a line is many times in the same text (even if there are some different lines between), only the first will be taken. Works also with list of lists or dicts. Input order is preserved. Do not use this operation on huge data set as an internal list is maintained : if possible, use *textops.norepeat*.

Returns Uniqified text line by line.

Return type generator

Examples

```
>>> s='f\na\nb\na\nc\nc\ne\na\nc\nf'
>>> s >> uniq()
['f', 'a', 'b', 'c', 'e']
>>> for line in s | uniq():
...     print(line)
f
a
b
c
e
>>> l = [ [1,2], [3,4], [1,2] ]
>>> l >> uniq()
[[1, 2], [3, 4]]
>>> d = [ {'a':1}, {'b':2}, {'a':1} ]
>>> d >> uniq()
[{'a': 1}, {'b': 2}]
```

6.65 until

class textops.**until**(*pattern*, *key=None*)
Extract lines before a patterns (case insensitive)

Works like *textops.before* except that get_end=True (includes first found pattern)

Parameters

- **pattern** (*str or regex or list*) – no more lines are yield after reaching this pattern(s)
- **key** (*int or str*) – test only one column or one key (optional)

Yields *str or list or dict* – lines before the specified pattern

Examples

```
>>> ['a','b','c','d','e','f'] | until('c').tolist()
['a', 'b', 'c']
```

6.66 wcount

class textops.**wcount**(*pattern=None*, *key=None*)
Count words having a specified pattern

Parameters

- **pattern** (*str*) – a regular expression string (case sensitive), if None, all words are counted.
- **key** (*int or str*) – test only one column or one key (optional)

Returns the matched words count

Return type int

Examples

```
>>> input = 'error1\nerror2 error3\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | grepc('error')
2
>>> input | wcount('error')
3
>>> input | wcount(None)
7
```

6.67 wcounti

class textops.**wcounti**(*pattern=None*, *key=None*)
Count words having a specified pattern (case insensitive)

Parameters

- **pattern** (*str*) – a regular expression string (case insensitive), if None, all words are counted.
- **key** (*int or str*) – test only one column or one key (optional)

Returns the matched words count

Return type int

Examples

```
>>> input = 'error1\nerror2 error3\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | wcount('ERROR')
0
>>> input | wcounti('ERROR')
3
```

6.68 wcountv

class textops.**wcountv**(*pattern=None*, *key=None*)

Count words NOT having a specified pattern

Parameters

- **pattern** (*str*) – a regular expression string (case sensitive)
- **key** (*int or str*) – test only one column or one key (optional)

Returns the NOT matched words count

Return type int

Examples

```
>>> input = 'error1\nerror2 error3\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | wcountv('error')
4
```

6.69 wcountvi

class textops.**wcountvi**(*pattern=None*, *key=None*)

Count words NOT having a specified pattern (case insensitive)

Parameters

- **pattern** (*str*) – a regular expression string (case insensitive)
- **key** (*int or str*) – test only one column or one key (optional)

Returns the NOT matched words count

Return type int

Examples

```
>>> input = 'error1\nerror2 error3\nwarning1\ninfo1\nwarning2\ninfo2'
>>> input | wcountvi('ERROR')
4
```

CHAPTER 7

fileops

This modules provides casting features, that is to force the output type

7.1 bzcat

class textops.**bzcat**(*context={}*)

Uncompress the bz2 file(s) with the name(s) given in input text

If a context dict is specified, the path is formatted with that context (str.format) The gzipped file must have a textual content.

Parameters **context** (*dict*) – The context to format the file path (Optionnal)

Examples

```
>>> '/var/log/dmesg' | cat() | grep('error') | togzfile('/tmp/errors.log.
↪gz')
```

Note: A list of filename can be given as input text : all specified files will be uncompressed

7.2 cat

class textops.**cat**(*context={}*)

Return the content of the file with the path given in the input text

If a context dict is specified, the path is formatted with that context (str.format) The file must have a textual content.

Parameters

- **context** (*dict*) – The context to format the file path (Optionnal)
- **encoding** (*str*) – file encoding (Default: utf-8)
- **encoding_errors** (*str*) – 'strict', 'ignore', 'replace', 'xmlcharrefreplace', 'backslashreplace' (Default : 'replace')

Yields *str* – the file content lines

Examples

```
>>> open('/tmp/testfile.txt','w').write('here is the file content')
24
>>> '/tmp/testfile.txt' | cat()                  #doctest: +ELLIPSIS
<generator object extend_type_gen at ...>
>>> '/tmp/testfile.txt' | cat().tostr()
'here is the file content'
>>> '/tmp/testfile.txt' >> cat()
['here is the file content']
>>> '/tmp/testfile.txt' | cat().upper().tostr()
'HERE IS THE FILE CONTENT'
>>> context = {'path':'/tmp/'}
>>> '{path}testfile.txt' | cat(context)                 #doctest:␣
↪+ELLIPSIS
<generator object extend_type_gen at ...>
>>> '{path}testfile.txt' | cat(context).tostr()
'here is the file content'
>>> cat('/tmp/testfile.txt').s
'here is the file content'
>>> cat('/tmp/testfile.txt').upper().s
'HERE IS THE FILE CONTENT'
>>> cat('/tmp/testfile.txt').l
['here is the file content']
>>> cat('/tmp/testfile.txt').g                  #doctest: +ELLIPSIS
<generator object extend_type_gen at ...>
>>> for line in cat('/tmp/testfile.txt'):
...     print(line)
...
here is the file content
>>> for bits in cat('/tmp/testfile.txt').grep('content').cut():
...     print(bits)
...
['here', 'is', 'the', 'file', 'content']
>>> open('/tmp/testfile.txt','w').write('here is the file␣
↪content\nanother line')
37
>>> '/tmp/testfile.txt' | cat().tostr()
'here is the file content\nanother line'
>>> '/tmp/testfile.txt' | cat().tolist()
['here is the file content', 'another line']
>>> cat('/tmp/testfile.txt').s
'here is the file content\nanother line'
>>> cat('/tmp/testfile.txt').l
['here is the file content', 'another line']
>>> context = {'path': '/tmp/'}
>>> cat('/{path}/testfile.txt',context).l
['here is the file content', 'another line']
>>> for bits in cat('/tmp/testfile.txt').grep('content').cut():
```

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```
...     print(bits)
...
['here', 'is', 'the', 'file', 'content']
```

7.3 find

class textops.**find**(*pattern='*'*, *context={}*, *only_files=False*, *only_dirs=False*)

Return a list of files/dirs matching a pattern

find recursively files/dirs matching a pattern. The pattern is a unix-like pattern, it searches only against the last part of the path (basename)

Parameters

- **pattern** (*str*) – the file pattern to search
- **context** (*dict*) – The context to format the file path (Optionnal)
- **only_files** (*bool*) – get only files (Default : False)
- **only_dirs** (*bool*) – get only dirs (Default : False)

Yields *str* – file name matching the pattern

Examples

To come ...

7.4 findre

class textops.**findre**(*pattern=''*, *context={}*, *only_files=False*, *only_dirs=False*)

Return a list of files/dirs matching a pattern

find recursively files/dirs matching a pattern. The pattern is a python regex, it searches against the whole file path

Parameters

- **pattern** (*str or regex*) – the file pattern to search
- **context** (*dict*) – The context to format the file path (Optionnal)
- **only_files** (*bool*) – get only files (Default : False)
- **only_dirs** (*bool*) – get only dirs (Default : False)

Yields *str* – file name matching the pattern

Examples

To come ...

7.5 gzcat

class textops.**gzcat**(*context={}*)

Uncompress the gzfile(s) with the name(s) given in input text

If a context dict is specified, the path is formatted with that context (str.format) The gzipped file must have a textual content.

Parameters **context** (*dict*) – The context to format the file path (Optionnal)

Note: A list of filename can be given as input text : all specified files will be uncompressed

---

Note: Password encrypted zip creation is not supported.

7.6 ls

class textops.**ls**(*pattern='*'*, *context={}*, *only_files=False*, *only_dirs=False*)

Return a list of files/dirs

it uses the python `glob.glob()` so it will do a Unix style pathname pattern expansion

Parameters

- **pattern** (*str*) – the file pattern to search
- **context** (*dict*) – The context to format the file path (Optionnal)
- **only_files** (*bool*) – get only files (Default : False)
- **only_dirs** (*bool*) – get only dirs (Default : False)

Yields *str* – file name matching the pattern

Examples

To come . . .

7.7 replacefile

class textops.**replacefile**(*filename*, *mode='w'*, *newline='n'*)

send input to file

Works like *textops.tofile* except it takes care to consume input text generators before writing the file. This is mandatory when doing some in-file textops. The drawback is that the data to write to file is stored temporarily in memory.

This does not work:

```
cat('myfile').sed('from_patter','to_pattern').tofile('myfile').n
```

This works:

```
cat('myfile').sed('from_patter','to_pattern').replacefile('myfile').n
```

Parameters

- **filename** (*str*) – The file to send output to
- **mode** (*str*) – File open mode (Default : 'w')
- **newline** (*str*) – The newline string to add for each line (default: 'n')

Examples

```
>>> cat('myfile').sed('from_patter','to_pattern').replacefile('myfile').n
```

7.8 stats

class textops.**stats**

Return a dict or a list of dicts containing the filename and its statistics

it uses the python `os.stat()` to get file statistics, the filename is stored in 'filename' key

Yields *dict* – file name and file statistics in the same dict

Examples

To come ...

7.9 teefile

class textops.**teefile**(*filename*, *mode='w'*, *newline='n'*)

send input to file AND yield the same input text

Parameters

- **filename** (*str*) – The file to send output to
- **mode** (*str*) – File open mode (Default : 'w')
- **newline** (*str*) – The newline string to add for each line (default: 'n')

Yields *str, list or dict* – the same input text

Examples

```
>>> '/var/log/dmesg' | cat() | teefile('/tmp/dmesg_before') | grep('error
↪') | tofile('/tmp/dmesg_after')
```

7.10 tobz2file

class textops.**tobz2file**(*filename*, *mode='w'*, *newline='n'*)
send input to gz file

`tobz2file()` must be the last text operation

Parameters

- **filename** (*str*) – The gz file to send COMPRESSED output to
- **mode** (*str*) – File open mode (Default : 'wb')
- **newline** (*str*) – The newline string to add for each line (default: 'n')

Examples

```
>>> '/var/log/dmesg' | cat() | grep('error') | togzfile('/tmp/errors.log.
↪gz')
```

Note: Password encrypted zip creation is not supported.

7.11 tofile

class textops.**tofile**(*filename*, *mode='w'*, *newline='n'*)
send input to file

`tofile()` must be the last text operation, if you want to write to file AND continue some text operations, use *textops.teefile* instead. if you want to write the same file than the one opened, please use *textops.replacefile* instead.

Parameters

- **filename** (*str*) – The file to send output to
- **mode** (*str*) – File open mode (Default : 'w')
- **newline** (*str*) – The newline string to add for each line (default: 'n')

Examples

```
>>> '/var/log/dmesg' | cat() | grep('error') | tofile('/tmp/errors.log')
```

7.12 togzfile

class textops.**togzfile**(*filename*, *mode='wb'*, *newline='n'*)
send input to gz file

`togzfile()` must be the last text operation

Parameters

- **filename** (*str*) – The gz file to send COMPRESSED output to
- **mode** (*str*) – File open mode (Default : 'wb')
- **newline** (*str*) – The newline string to add for each line (default: 'n')

Examples

```
>>> '/var/log/dmesg' | cat() | grep('error') | togzfile('/tmp/errors.log.
↪gz')
```

Note: Password encrypted zip creation is not supported.

7.13 tozipfile

class textops.**tozipfile**(*filename*, *member*, *mode='w'*, *newline='n'*)
send input to zip file

`tozipfile()` must be the last text operation.

Parameters

- **filename** (*str*) – The zip file to send COMPRESSED output to
- **member** (*str*) – The name of the file INSIDE the zip file to send UNCOMPRESSED output to
- **mode** (*str*) – File open mode (Default : 'w', use 'a' to append an existing zip or create it if not present)
- **newline** (*str*) – The newline string to add for each line (default: 'n')

Examples

```
>>> '/var/log/dmesg' | cat() | grep('error') | tozipfile('/tmp/errors.
↪log.zip','/tmp/errors.log')
```

Note: Password encrypted zip creation is not supported.

7.14 unzip

class textops.**unzip**(*member*, *topath=None*, *password=None*, *context={}*, *ignore=False*)
Extract ONE file from a zip archive

The zip file name is taken from text input.

Parameters

- **member** (*str*) – the file name to extract from the zip archive
- **topath** (*str*) – the directory path to extract to (Default : current directory)

- **password** (*str*) – The password to open zip if it is encrypted (Optionnal)
- **context** (*dict*) – The context to format the file path and topath argument (Optionnal)
- **ignore** (*bool*) – If True do not raise exception when member does not exist (Default : False)

Yields *str* – the member file path

Examples

To come ...

7.15 unzipre

class textops.**unzipre**(*member_regex*, *topath=None*, *password=None*, *context={}*, *ignore=False*)

Extract files having a specified name pattern from a zip archive

The zip file name is taken from text input.

Parameters

- **member_regex** (*str or regex*) – the regex to find the first file inside the zip to read
- **topath** (*str*) – the directory path to extract to (Default : current directory)
- **password** (*str*) – The password to open zip if it is encrypted (Optionnal)
- **context** (*dict*) – The context to format the file path and topath argument (Optionnal)

Yields *str* – the extracted files path

Examples

To come ...

7.16 zipcat

class textops.**zipcat**(*member*, *context={}*, *password=None*)

Return the content of the zip file with the path given in the input text

If a context dict is specified, the path is formatted with that context (str.format)

Parameters

- **member** (*str*) – the file inside the zip to read
- **context** (*dict*) – The context to format the file path (Optionnal)
- **password** (*str*) – The password to open zip if it is encrypted (Optionnal)

Yields *str* – the file content lines

Examples

To come ...

7.17 zipcatre

class textops.**zipcatre**(*member_regex*, *context={}*, *password=None*)
Return the content of the zip file with the path given in the input text

If a context dict is specified, the path is formatted with that context (str.format) Works like *textops.zipcat* except that the member name is a regular expression : it will cat all member matching the regex

Parameters

- **member_regex** (*str or regex*) – the regex to find the files inside the zip to read
- **context** (*dict*) – The context to format the file path (Optionnal)
- **password** (*str*) – The password to open zip if it is encrypted (Optionnal)

Yields *str* – the file content lines

Examples

To come ...

7.18 ziplist

class textops.**ziplist**(*context={}*)
Return the name of the files included within the zip file

The zip file name is taken from text input

Parameters **context** (*dict*) – The context to format the file path (Optionnal)

Yields *str* – the file names

Examples

To come ...

CHAPTER 8

runops

This module gathers list/line operations

8.1 mrun

class textops.**mrun**(*context={}*)

Run multiple commands from the input text and return execution output

This works like *textops.run* except that each line of the input text will be used as a command.
The input text must be a list of strings (list, generator, or newline separated), not a list of lists.
Commands will be executed inside a shell.
If a context dict is specified, commands are formatted with that context (str.format)

Parameters **context** (*dict*) – The context to format the command to run

Yields *str* – the execution output

Examples

```
>>> cmds = 'mkdir -p /tmp/textops_tests_run\n'
>>> cmds+= 'cd /tmp/textops_tests_run;touch f1 f2 f3\n'
>>> cmds+= 'ls /tmp/textops_tests_run'
>>> print(cmds | mrun().tostr())
f1
f2
f3
>>> cmds=['mkdir -p /tmp/textops_tests_run',
... 'cd /tmp/textops_tests_run; touch f1 f2 f3']
>>> cmds.append('ls /tmp/textops_tests_run')
```

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```
>>> print(cmds | mrun().tostr())
f1
f2
f3
>>> print(cmds >> mrun())
['f1', 'f2', 'f3']
>>> cmds = ['ls {path}', 'echo "Cool !"']
>>> print(cmds | mrun({'path':'/tmp/textops_tests_run'}).tostr())
f1
f2
f3
Cool !
```

8.2 run

class textops.**run**(*context={}*)

Run the command from the input text and return execution output

This text operation use subprocess.Popen to call the command.
If the command is a string, it will be executed within a shell.
If the command is a list (the command and its arguments), the command is executed without a shell.
If a context dict is specified, the command is formatted with that context (str.format)

Parameters **context** (*dict*) – The context to format the command to run

Yields *str* – the execution output

Examples

```
>>> cmd = 'mkdir -p /tmp/textops_tests_run;\
... cd /tmp/textops_tests_run; touch f1 f2 f3; ls'
>>> print(cmd | run().tostr())
f1
f2
f3
>>> print(cmd >> run())
['f1', 'f2', 'f3']
>>> print(['ls', '/tmp/textops_tests_run'] | run().tostr())
f1
f2
f3
>>> print(['ls', '{path}'] | run({'path':'/tmp/textops_tests_run'}).
↪tostr())
f1
f2
f3
```

8.3 xrun

class textops.**xrun**(*cmd*, *context={}*, *defvalue='unknwon'*)

Run the command formatted with the context taken from the input text

Parameters

- **command** (*str*) – The command pattern to run (formatted against the context)
- **context** (*dict*) – additional context dictionary
- **defvalue** (*str or callable*) – default string to display when a key or an index is unreachable.

Yields *str* – the execution output

Examples

to come...

CHAPTER 9

wrapops

This module gathers text operations that are wrapped from standard python functions

9.1 WrapOp

class textops.**WrapOp**

9.2 WrapOpIter

class textops.**WrapOpIter**

9.3 WrapOpStr

class textops.**WrapOpStr**

9.4 resub

class textops.**resub**(*string*, *count=0*, *flags=0*)

Substitute a regular expression within a string or a list of strings

It uses `re.sub()` to replace the input text.

Parameters

- **pattern** (*str*) – Split string by the occurrences of pattern
- **repl** (*str*) – Replacement string.
- **count** (*int*) – the maximum number of pattern occurrences to be replaced

- **flags** (*int*) – regular expression flags (re.I etc...). Only available in Python 2.7+

Returns The replaced text

Return type str or list

Examples

```
>>> 'Words, words, words.' | resub('[Ww]ords','Mots')
'Mots, Mots, Mots.'
>>> ['Words1 words2', 'words', 'words.' ] >> resub('[Ww]ords','Mots',1)
['Mots1 words2', 'Mots', 'Mots.']
```

CHAPTER 10

parse

This module gathers parsers to handle whole input text

10.1 find_first_pattern

class textops.**find_first_pattern**(*patterns*)

Fast multiple pattern search, returns on first match

It works like *textops.find_patterns* except that it stops searching on first match.

Parameters **patterns** (*list*) – a list of patterns.

Returns matched value if only one capture group otherwise the full groupdict

Return type str or dict

Examples

```
>>> s = '''creation: 2015-10-14
... update: 2015-11-16
... access: 2015-11-17'''
>>> s | find_first_pattern([r'^update:\s*(.*)', r'^access:\s*(.*)', r'^
↪creation:\s*(.*)'])
'2015-11-16'
>>> s | find_first_pattern([r'^UPDATE:\s*(.*)'])
NoAttr
>>> s | find_first_pattern([r'^update:\s*(?P<year>.*)-(?P<month>.*)-(?P
↪<day>.*)'])
{'year': '2015', 'month': '11', 'day': '16'}
```

10.2 find_first_patterni

class textops.**find_first_patterni**(*patterns*)

Fast multiple pattern search, returns on first match

It works like *textops.find_first_pattern* except that patterns are case insensitives.

Parameters **patterns** (*list*) – a list of patterns.

Returns matched value if only one capture group otherwise the full groupdict

Return type str or dict

Examples

```
>>> s = '''creation: 2015-10-14
... update: 2015-11-16
... access: 2015-11-17'''
>>> s | find_first_patterni([r'^UPDATE:\s*(.*)'])
'2015-11-16'
```

10.3 find_pattern

class textops.**find_pattern**(*pattern*)

Fast pattern search

This operation can be use to find a pattern very fast : it uses `re.search()` on the whole input text at once. The input text is not read line by line, this means it must fit into memory. It returns the first captured group (named or not named group).

Parameters **pattern** (*str*) – a regular expression string (case sensitive).

Returns the first captured group or NoAttr if not found

Return type str

Examples

```
>>> s = '''This is data text
... Version: 1.2.3
... Format: json'''
>>> s | find_pattern(r'^Version:\s*(.*)')
'1.2.3'
>>> s | find_pattern(r'^Format:\s*(?P<format>.*)')
'json'
>>> s | find_pattern(r'^version:\s*(.*)') # 'version' : no match because␣
↪case sensitive
NoAttr
```

10.4 find_patterni

class textops.**find_patterni**(*pattern*)

Fast pattern search (case insensitive)

It works like *textops.find_pattern* except that the pattern is case insensitive.

Parameters **pattern** (*str*) – a regular expression string (case insensitive).

Returns the first captured group or NoAttr if not found

Return type str

Examples

```
>>> s = '''This is data text
... Version: 1.2.3
... Format: json'''
>>> s | find_patterni(r'^version:\s*(.*)')
'1.2.3'
```

10.5 find_patterns

class textops.**find_patterns**(*patterns*)

Fast multiple pattern search

It works like *textops.find_pattern* except that one can specify a list or a dictionary of patterns. Patterns must contains capture groups. It returns a list or a dictionary of results depending on the patterns argument type. Each result will be the re.MatchObject groupdict if there are more than one capture named group in the pattern otherwise directly the value corresponding to the unique captured group. It is recommended to use *named* capture group, if not, the groups will be automatically named 'groupN' with N the capture group order in the pattern.

Parameters **patterns** (*list or dict*) – a list or a dictionary of patterns.

Returns patterns search result

Return type dict

Examples

```
>>> s = '''This is data text
... Version: 1.2.3
... Format: json'''
>>> r = s | find_patterns({
... 'version':r'^Version:\s*(?P<major>\d+)\.(?P<minor>\d+)\.(?P<build>
↪\d+)',
... 'format':r'^Format:\s*(?P<format>.*)',
... })
>>> r
{'version': {'major': '1', 'minor': '2', 'build': '3'}, 'format': 'json'}
>>> r.version.major
'1'
>>> s | find_patterns({
... 'version':r'^Version:\s*(\d+)\.(\d+)\.(\d+)',
... 'format':r'^Format:\s*(.*)',
... })
{'version': {'group0': '1', 'group1': '2', 'group2': '3'}, 'format':
↪'json'}
```

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```
>>> s | find_patterns({'version':r'^version:\s*(.*)'}) # lowercase
↪'version' : no match
{}
>>> s = '''creation: 2015-10-14
... update: 2015-11-16
... access: 2015-11-17'''
>>> s | find_patterns([r'^update:\s*(.*)', r'^access:\s*(.*)', r'^
↪creation:\s*(.*)'])
['2015-11-16', '2015-11-17', '2015-10-14']
>>> s | find_patterns([r'^update:\s*(?P<year>.*)-(?P<month>.*)-(?P<day>.
↪*)',
... r'^access:\s*(.*)', r'^creation:\s*(.*)'])
[{'year': '2015', 'month': '11', 'day': '16'}, '2015-11-17', '2015-10-14
↪']
```

10.6 find_patternsi

class textops.**find_patternsi**(*patterns*)

Fast multiple pattern search (case insensitive)

It works like *textops.find_patterns* except that patterns are case insensitive.

Parameters **patterns** (*dict*) – a dictionary of patterns.

Returns patterns search result

Return type dict

Examples

```
>>> s = '''This is data text
... Version: 1.2.3
... Format: json'''
>>> s | find_patternsi({'version':r'^version:\s*(.*)'})      # case␣
↪insensitive
{'version': '1.2.3'}
```

10.7 keyval

class textops.**keyval**(*pattern*, *key_name='key'*, *key_update=None*, *val_name=None*)

Return a dictionnay where keys and values are taken from the pattern specify

It is a shortcut for *textops.parsekv* with val_name='val' The input can be a string or a list of strings.

Parameters

- **pattern** (*str*) – a regular expression string.
- **key_name** (*str*) – The key name to optain the value that will be the key of the groupdict ('key' by default)
- **key_update** (*callable*) – function to convert/normalize the calculated key. If None, the keys is normalized. If not None but not callable ,the key is unchanged.

- **val_name** (*str*) – instead of storing the groupdict, on can choose to select the value at the key "val_name'. (by default, None means 'val')

Returns A dict of key:val from the matched pattern groupdict or a list of dicts if the input is a list of strings

Return type dict

Examples

```
>>> s = '''name: Lapouyade
... first name: Eric
... country: France'''
>>> s | keyval(r'(?P<key>.*):\s*(?P<val>.*)')          #doctest:␣
↪+NORMALIZE_WHITESPACE
{'name': 'Lapouyade', 'first_name': 'Eric', 'country': 'France'}
```

```
>>> s = [ '''name: Lapouyade
... first name: Eric ''',
... '''name: Python
... first name: Guido''' ]
>>> s | keyval(r'(?P<key>.*):\s*(?P<val>.*)')          #doctest:␣
↪+NORMALIZE_WHITESPACE
[{'name': 'Lapouyade', 'first_name': 'Eric '}, {'name': 'Python', 'first_
↪name': 'Guido'}]
```

10.8 keyvali

class textops.**keyvali**(*pattern*, *key_name='key'*, *key_update=None*, *val_name=None*)

Return a dictionnay where keys and values are taken from the pattern specify

It works a little like *textops.keyval* except that the pattern is case insensitive.

Parameters

- **pattern** (*str*) – a regular expression string (case insensitive).
- **key_name** (*str*) – The key name to optain the value that will be the key of the groupdict ('key' by default)
- **key_update** (*callable*) – function to convert/normalize the calculated key. If None, the keys is normalized. If not None but not callable ,the key is unchanged.
- **val_name** (*str*) – instead of storing the groupdict, on can choose to select the value at the key "val_name'. (by default, None means 'val')

Returns A dict of key:val from the matched pattern groupdict

Return type dict

Examples

```
>>> s = '''name IS Lapouyade
... first name IS Eric
... country IS France'''
```

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```
>>> s | keyvali(r'(?P<key>.*) is (?P<val>.*)')          #doctest:␣
↪+NORMALIZE_WHITESPACE
{'name': 'Lapouyade', 'first_name': 'Eric', 'country': 'France'}
```

10.9 mgrep

class textops.**mgrep**(*patterns_dict*, *key=None*)

Multiple grep

This works like *textops.grep* except that it can do several greps in a single command. By this way, you can select many patterns in a big file.

Parameters

- **patterns_dict** (*dict*) – a dictionary where all patterns to search are in values.
- **key** (*int or str*) – test only one column or one key (optional)

Returns

A dictionary where the keys are the same as for patterns_dict, the values will contain the *textops.grep* result for each corresponding patterns.

Return type dict

Examples

```
>>> logs = '''
... error 1
... warning 1
... warning 2
... info 1
... error 2
... info 2
... '''
>>> t = logs | mgrep({
... 'errors' : r'^err',
... 'warnings' : r'^warn',
... 'infos' : r'^info',
... })
>>> print(t)  #doctest: +NORMALIZE_WHITESPACE
{'errors': ['error 1', 'error 2'],
'warnings': ['warning 1', 'warning 2'],
'infos': ['info 1', 'info 2']}
```

```
>>> s = '''
... Disk states
... -----------
... name: c1t0d0s0
... state: good
... fs: /
... name: c1t0d0s4
... state: failed
... fs: /home
```

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```
...
... '''
>>> t = s | mgrep({
... 'disks' : r'^name:',
... 'states' : r'^state:',
... 'fss' : r'^fs:',
... })
>>> print(t)  #doctest: +NORMALIZE_WHITESPACE
{'disks': ['name: c1t0d0s0', 'name: c1t0d0s4'],
'states': ['state: good', 'state: failed'],
'fss': ['fs: /', 'fs: /home']}
>>> dict(zip(t.disks.cutre(': *',1),zip(t.states.cutre(': *',1),t.fss.
↪cutre(': *',1))))
{'c1t0d0s0': ('good', '/'), 'c1t0d0s4': ('failed', '/home')}
```

10.10 mgrepi

class textops.**mgrepi**(*patterns_dict*, *key=None*)

same as mgrep but case insensitive

This works like *textops.mgrep*, except it is case insensitive.

Parameters

- **patterns_dict** (*dict*) – a dictionary where all patterns to search are in values.
- **key** (*int or str*) – test only one column or one key (optional)

Returns

A dictionary where the keys are the same as for patterns_dict, the values will contain the *textops.grepi* result for each corresponding patterns.

Return type dict

Examples

```
>>> 'error 1' | mgrep({'errors':'ERROR'})
{}
>>> 'error 1' | mgrepi({'errors':'ERROR'})
{'errors': ['error 1']}
```

10.11 mgrepv

class textops.**mgrepv**(*patterns_dict*, *key=None*)

Same as mgrep but exclusive

This works like *textops.mgrep*, except it searches lines that DOES NOT match patterns.

Parameters

- **patterns_dict** (*dict*) – a dictionary where all patterns to exclude are in values().

- **key** (*int or str*) – test only one column or one key (optional)

Returns

A dictionary where the keys are the same as for patterns_dict, the values will contain the *textops.grepv* result for each corresponding patterns.

Return type dict

Examples

```
>>> logs = '''error 1
... warning 1
... warning 2
... error 2
... '''
>>> t = logs | mgrepv({
... 'not_errors' : r'^err',
... 'not_warnings' : r'^warn',
... })
>>> print(t                                                    )#doctest:␣
↪+NORMALIZE_WHITESPACE
{'not_warnings': ['error 1', 'error 2'], 'not_errors': ['warning 1',
↪'warning 2']}
```

10.12 mgrepvi

class textops.**mgrepvi**(*patterns_dict*, *key=None*)

Same as mgrepv but case insensitive

This works like *textops.mgrepv*, except it is case insensitive.

Parameters

- **patterns_dict** (*dict*) – a dictionary where all patterns to exclude are in values().
- **key** (*int or str*) – test only one column or one key (optional)

Returns

A dictionary where the keys are the same as for patterns_dict, the values will contain the *textops.grepvi* result for each corresponding patterns.

Return type dict

Examples

```
>>> logs = '''error 1
... WARNING 1
... warning 2
... ERROR 2
... '''
>>> t = logs | mgrepv({
... 'not_errors' : r'^err',
... 'not_warnings' : r'^warn',
```

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```
... })
>>> print(t                                                    )#doctest:␣
↪+NORMALIZE_WHITESPACE
{'not_warnings': ['error 1', 'WARNING 1', 'ERROR 2'],
'not_errors': ['WARNING 1', 'warning 2', 'ERROR 2']}
>>> t = logs | mgrepvi({
... 'not_errors' : r'^err',
... 'not_warnings' : r'^warn',
... })
>>> print(t                                                    )#doctest:␣
↪+NORMALIZE_WHITESPACE
{'not_warnings': ['error 1', 'ERROR 2'], 'not_errors': ['WARNING 1',
↪'warning 2']}
```

10.13 parse_indented

class textops.**parse_indented**(*sep=':'*)

Parse key:value indented text

It looks for key:value patterns, store found values in a dictionary. Each time a new indent is found, a sub-dictionary is created. The keys are normalized (only keep `A-Za-z0-9_`), the values are stripped.

Parameters **sep** (*str*) – key:value separator (Default : ':')

Returns structured keys:values

Return type dict

Examples

```
>>> s = '''
... a:val1
... b:
...     c:val3
...     d:
...         e ... : val5
...         f ... :val6
...     g:val7
... f: val8'''
>>> s | parse_indented()
{'a': 'val1', 'b': {'c': 'val3', 'd': {'e': 'val5', 'f': 'val6'}, 'g':
↪'val7'}, 'f': 'val8'}
>>> s = '''
... a --> val1
... b --> val2'''
>>> s | parse_indented(r'-->')
{'a': 'val1', 'b': 'val2'}
```

10.14 parse_smart

class textops.**parse_smart**

Try to automatically parse a text

It looks for key/value patterns, store found values in a dictionary. It tries to respect indents by creating sub-dictionaries. The keys are normalized (only keep `A-Za-z0-9_`, the original key value is stored into the inner dict under the '_original_key' key), the values are stripped.

Parameters

- **key_filter** (*func*) – a function that will receive a key before
- **and will return a new key string. The could be useful** (*normalization*) –
- **a chapter title is too long. (Defaut** (*when*) – no filtering)

Returns structured keys:values

Return type dict

Examples

```
>>> s = '''
... Date/Time:       Wed Dec  2 09:51:17 NFT 2015
... Sequence Number: 156637
... Machine Id:      00F7B0114C00
...    Node Id:         xvio6
... Class:           H
... Type:            PERM
...    WPAR:            Global
...    Resource Name:   hdisk21
...       Resource Class:  disk
... Resource Type:   mpioapdisk
... Location:        U78AA.001.WZSHM0M-P1-C6-T1-W201400A0B8292A18-
↪L13000000000000
...
... VPD:
...         Manufacturer................IBM
...         Machine Type and Model......1815      FAStT
...         ROS Level and ID............30393134
...         Serial Number..............
...         Device Specific.(Z0)........0000053245004032
...         Device Specific.(Z1)........
...
... Description
... DISK OPERATION ERROR
...
... Probable Causes
... DASD DEVICE
... '''
>>> parsed = s >> parse_smart()
>>> print(parsed.pretty())
{   'class': 'H',
    'date_time': 'Wed Dec  2 09:51:17 NFT 2015',
    'description': ['DISK OPERATION ERROR'],
    'location': 'U78AA.001.WZSHM0M-P1-C6-T1-W201400A0B8292A18-
↪L13000000000000',
```

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```
    'machine_id': {   '_original_key': 'Machine Id',
                      'machine_id': '00F7B0114C00',
                      'node_id': 'xvio6'},
    'probable_causes': ['DASD DEVICE'],
    'resource_type': 'mpioapdisk',
    'sequence_number': '156637',
    'type': {   '_original_key': 'Type',
                'resource_name': {   '_original_key': 'Resource Name',
                                     'resource_class': 'disk',
                                     'resource_name': 'hdisk21'},
                'type': 'PERM',
                'wpar': 'Global'},
    'vpd': {   '_original_key': 'VPD',
               'device_specific_z0': '0000053245004032',
               'device_specific_z1': '',
               'machine_type_and_model': '1815      FAStT',
               'manufacturer': 'IBM',
               'ros_level_and_id': '30393134',
               'serial_number': ''}}
>>> print(parsed.vpd.device_specific_z0)
0000053245004032
```

10.15 parseg

class textops.**parseg**(*pattern*)

Find all occurrences of one pattern, return MatchObject groupdict

Parameters **pattern** (*str*) – a regular expression string (case sensitive)

Returns A list of dictionaries (MatchObject groupdict)

Return type list

Examples

```
>>> s = '''name: Lapouyade
... first name: Eric
... country: France'''
>>> s | parseg(r'(?P<key>.*):\s*(?P<val>.*)')         #doctest:␣
↪+NORMALIZE_WHITESPACE
[{'key': 'name', 'val': 'Lapouyade'},
{'key': 'first name', 'val': 'Eric'},
{'key': 'country', 'val': 'France'}]
```

10.16 parsegi

class textops.**parsegi**(*pattern*)

Same as parseg but case insensitive

Parameters **pattern** (*str*) – a regular expression string (case insensitive)

Returns A list of dictionaries (MatchObject groupdict)

Return type list

Examples

```
>>> s = '''Error: System will reboot
... Notice: textops rocks
... Warning: Python must be used without moderation'''
>>> s | parsegi(r'(?P<level>error|warning):\s*(?P<msg>.*)')
↪#doctest: +NORMALIZE_WHITESPACE
[{'level': 'Error', 'msg': 'System will reboot'},
{'level': 'Warning', 'msg': 'Python must be used without moderation'}]
```

10.17 parsek

class textops.**parsek**(*pattern*, *key_name='key'*, *key_update=None*)

Find all occurrences of one pattern, return one Key

One have to give a pattern with named capturing parenthesis, the function will return a list of value corresponding to the specified key. It works a little like *textops.parseg* except that it returns from the groupdict, a value for a specified key ('key' be default)

Parameters

- **pattern** (*str*) – a regular expression string.
- **key_name** (*str*) – The key to get ('key' by default)
- **key_update** (*callable*) – function to convert the found value

Returns A list of values corrsponding to *MatchObject groupdict[key]*

Return type list

Examples

```
>>> s = '''Error: System will reboot
... Notice: textops rocks
... Warning: Python must be used without moderation'''
>>> s | parsek(r'(?P<level>Error|Warning):\s*(?P<msg>.*)','msg')
['System will reboot', 'Python must be used without moderation']
```

10.18 parseki

class textops.**parseki**(*pattern*, *key_name='key'*, *key_update=None*)

Same as parsek but case insensitive

It works like *textops.parsek* except the pattern is case insensitive.

Parameters

- **pattern** (*str*) – a regular expression string.
- **key_name** (*str*) – The key to get ('key' by default)
- **key_update** (*callable*) – function to convert the found value

Returns A list of values corrsponding to *MatchObject groupdict[key]*

Return type list

Examples

```
>>> s = '''Error: System will reboot
... Notice: textops rocks
... Warning: Python must be used without moderation'''
>>> s | parsek(r'(?P<level>error|warning):\s*(?P<msg>.*)','msg')
[]
>>> s | parseki(r'(?P<level>error|warning):\s*(?P<msg>.*)','msg')
['System will reboot', 'Python must be used without moderation']
```

10.19 parsekv

class textops.**parsekv**(*pattern*, *key_name='key'*, *key_update=None*, *val_name=None*)

Find all occurrences of one pattern, returns a dict of groupdicts

It works a little like *textops.parseg* except that it returns a dict of dicts : values are MatchObject groupdicts, keys are a value in the groupdict at a specified key (By default : 'key'). Note that calculated keys are normalized (spaces are replaced by underscores)

Parameters

- **pattern** (*str*) – a regular expression string.
- **key_name** (*str*) – The key name to optain the value that will be the key of the groupdict ('key' by default)
- **key_update** (*callable*) – function to convert/normalize the calculated key. If None, the keys is normalized. If not None but not callable ,the key is unchanged.
- **val_name** (*str*) – instead of storing the groupdict, on can choose to select the value at the key ''val_name'. (by default, None : means the whole groupdict)

Returns A dict of MatchObject groupdicts

Return type dict

Examples

```
>>> s = '''name: Lapouyade
... first name: Eric
... country: France'''
>>> s | parsekv(r'(?P<key>.*):\s*(?P<val>.*)')          #doctest:␣
↪+NORMALIZE_WHITESPACE
{'name': {'key': 'name', 'val': 'Lapouyade'},
'first_name': {'key': 'first name', 'val': 'Eric'},
'country': {'key': 'country', 'val': 'France'}}
>>> s | parsekv(r'(?P<item>.*):\s*(?P<val>.*)','item',str.upper)
↪#doctest: +NORMALIZE_WHITESPACE
{'NAME': {'item': 'name', 'val': 'Lapouyade'},
'FIRST NAME': {'item': 'first name', 'val': 'Eric'},
'COUNTRY': {'item': 'country', 'val': 'France'}}
```

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```
>>> s | parsekv(r'(?P<key>.*):\s*(?P<val>.*)',key_update=0)
↪#doctest: +NORMALIZE_WHITESPACE
{'name': {'key': 'name', 'val': 'Lapouyade'},
'first name': {'key': 'first name', 'val': 'Eric'},
'country': {'key': 'country', 'val': 'France'}}
>>> s | parsekv(r'(?P<key>.*):\s*(?P<val>.*)',val_name='val')
↪#doctest: +NORMALIZE_WHITESPACE
{'name': 'Lapouyade', 'first_name': 'Eric', 'country': 'France'}
```

10.20 parsekvi

class textops.**parsekvi**(*pattern*, *key_name='key'*, *key_update=None*, *val_name=None*)

Find all occurrences of one pattern (case insensitive), returns a dict of groupdicts

It works a little like *textops.parsekv* except that the pattern is case insensitive.

Parameters

- **pattern** (*str*) – a regular expression string (case insensitive).
- **key_name** (*str*) – The key name to optain the value that will be the key of the groupdict ('key' by default)
- **key_update** (*callable*) – function to convert/normalize the calculated key. If None, the keys is normalized. If not None but not callable ,the key is unchanged.
- **val_name** (*str*) – instead of storing the groupdict, on can choose to select the value at the key ''val_name'. (by default, None : means the whole groupdict)

Returns A dict of MatchObject groupdicts

Return type dict

Examples

```
>>> s = '''name: Lapouyade
... first name: Eric
... country: France'''
>>> s | parsekvi(r'(?P<key>NAME):\s*(?P<val>.*)')
{'name': {'key': 'name', 'val': 'Lapouyade'}}
```

10.21 sgrep

class textops.**sgrep**(*patterns*, *key=None*)

Switch grep

This works like *textops.mgrep* except that it returns a list of lists. sgrep dispatches lines matching a pattern to the list corresponding to the pattern order. If a line matches the third pattern, it will be dispatched to the third returned list. If N patterns are given to search, it will return N+1 lists, where the last list will be filled of lines that does not match any pattern in the given patterns list. The patterns list order is important : only the first matching pattern will be taken in account. One can consider that sgrep works like a **switch()** : it will do for each line a kind of

```
if pattern1 matches:
    put line in list1
elif pattern2 matches:
    put line in list2
elif patternN matches:
    put line in listN
else:
    put line in listN+1
```

Parameters

- **patterns** (*list*) – a list of patterns to search.
- **key** (*int or str*) – test only one column or one key (optional)

Returns a list of lists (nb patterns + 1)

Return type list

Examples

```
>>> logs = '''
... error 1
... warning 1
... warning 2
... info 1
... error 2
... info 2
... '''
>>> t = logs | sgrep(('^err','^warn'))
>>> print(t                                                    )#doctest:␣
↪+NORMALIZE_WHITESPACE
[['error 1', 'error 2'], ['warning 1', 'warning 2'], ['', 'info 1',
↪'info 2']]
```

10.22 sgrepi

class textops.**sgrepi**(*patterns*, *key=None*)

Switch grep case insensitive

This works like *textops.sgrep* but is case insensitive

10.23 sgrepv

class textops.**sgrepv**(*patterns*, *key=None*)

Switch grep reversed

This works like *textops.sgrep* except that it tests that patterns DOES NOT match the line.

10.24 sgrepvi

class textops.**sgrepvi**(*patterns*, *key=None*)
Switch grep reversed case insensitive

This works like *textops.sgrepv* but is case insensitive

10.25 state_pattern

class textops.**state_pattern**(*states_patterns_desc*, *reflags=0*, *autostrip=True*)
States and patterns parser

This is a *state machine* parser : The main advantage is that it reads line-by-line the whole input text only once to collect all data you want into a multi-level dictionary. It uses patterns to select rules to be applied. It uses states to ensure only a set of rules are used against specific document sections.

Parameters

- **states_patterns_desc** (*tupple*) – descrption of states and patterns : see below for explaination
- **reflags** – re flags, ie re.I or re.M or re.I | re.M (Default : no flag)
- **autostrip** – before being stored, groupdict keys and values are stripped (Default : True)

Returns parsed data from text

Return type dict

The states_patterns_desc :

It looks like this:

```
((<if state1>,<goto state1>,<pattern1>,<out data path1>,<out filter1>),
...
(<if stateN>,<goto stateN>,<patternN>,<out data pathN>,<out filterN>))
```

<if state> is a string telling on what state(s) the pattern must be searched, one can specify several states with comma separated string or a tupple. if <if state> is empty, the pattern will be searched for all lines. Note : at the beginning, the state is 'top'

<goto state> is a string corresponding to the new state if the pattern matches. use an empty string to not change the current state. One can use any string, usually, it corresponds to a specific section name of the document to parse where specific rules has to be used. if the pattern matches, no more rules are used for the current line except when you specify __continue__ for the goto state. This is useful when you want to apply several rules on the same line.

<pattern> is a string or a re.regex to match a line of text. one should use named groups for selecting data, ex: (?P<key1>pattern)

<out data path> is a string with a dot separator or a tuple telling where to place the groupdict from pattern maching process, The syntax is:

```
'{contextkey1}.{contextkey2}. ... .{contextkeyN}'
or
('{contextkey1}','{contextkey2}', ... ,'{contextkeyN}')
or
'key1.key2.keyN'
or
'key1.key2.keyN[]'
or
'{contextkey1}.{contextkey2}. ... .keyN[]'
or
'>context_dict_key'
or
'>>context_dict_key'
or
'>context_dict_key.{contextkey1}. ... .keyN'
or
'>>context_dict_key.{contextkey1}. ... .keyN'
or
None
```

The contextdict (see after the definition) is used to format strings with `{contextkeyN}` syntax. instead of `{contextkeyN}`, one can use a simple string to put data in a static path.

Once the path fully formatted, let's say to `key1.key2.keyN`, the parser will store the value into the result dictionnary at : `{'key1':{'key2':{'keyN' : thevalue }}}`

Example, Let's take the following data path

```
data path : 'disks.{name}.{var}'

if contextdict = {'name':'disk1','var':'size'}

then the formatted data path is : 'disks.disk1.size',
This means that the parsed data will be stored at :
``{'disks':{'disk1':{'size' : theparsedvalue depending on <out filter>
↪ }}}``
```

One can use the string `[]` at the end of the path : the groupdict will be appended in a list ie : `{'key1':{'key2':{'keyN' : [thevalue,...] }}}`

if `'>context_dict_key'` is used, data is not store in parsed data but will be stored in context dict at `context_dict_key` key. by this way, you can differ the parsed date storage. To finally store to the parsed data use `'<context_dict_key'` for `<out filter>` in some other rule. `'>>context_dict_key'` works like `'>context_dict_key'` but it updates data instead of replacing them (in others words : use > to start with an empty set of data, then use >> to update the data set). One can add dotted notation to complete data path: `>>context_dict_key.{contextkey1}. ... .keyN`

if None is used : nothing is stored

`<out filter>` is used to build the value to store,

it could be :

- None : no filter is applied, the re.MatchObject.groupdict() is stored
- a dict : mainly to initalize the differed data set when using `'>context_dict_key'` in `<out data path>`
- `'<context_dict_key'` to store data from context dict at key `context_dict_key`

- a string : used as a format string with context dict, the formatted string is stored
- a callable : to calculate the value to be stored and modify context dict if needed. the re.MatchObject and the context dict are given as arguments, it must return a tuple : the value to store AND the new context dict or None if unchanged

How the parser works :

You have a document where the syntax may change from one section to an another : You have just to give a name to these kind of sections : it will be your state names. The parser reads line by line the input text : For each line, it will look for the *first* matching rule from `states_patterns_desc` table, then will apply the rule. One rule has got 2 parts : the matching parameters, and the action parameters.

Matching parameters: To match, a rule requires the parser to be at the specified state `<if state>` AND the line to be parsed must match the pattern `<pattern>`. When the parser is at the first line, it has the default state `top`. The pattern follow the standard python `re` module syntax. It is important to note that you must capture text you want to collect with the named group capture syntax, that is `(?P<mydata>mypattern)`. By this way, the parser will store text corresponding to `mypattern` to a contextdict at the key `mydata`.

Action parameters: Once the rule matches, the action is to store `<out filter>` into the final dictionary at a specified `<out data path>`.

Context dict :

The context dict is used within `<out filter>` and `<out data path>`, it is a dictionary that is *PERSISTENT* during the whole parsing process : It is empty at the parsing beginning and will accumulate all captured pattern. For exemple, if a first rule pattern contains `(?P<key1>.*),(?P<key2>.*)` and matches the document line `val1,val2`, the context dict will be `{ 'key1' : 'val1', 'key2' : 'val2' }`. Then if a second rule pattern contains `(?P<key2>.*):(?P<key3>.*)` and matches the document line `val4:val5` then the context dict will be *UPDATED* to `{ 'key1' : 'val1', 'key2' : 'val4', 'key3' : 'val5' }`. As you can see, the choice of the key names are *VERY IMPORTANT* in order to avoid collision across all the rules.

Examples

```
>>> s = '''
... first name: Eric
... last name: Lapouyade'''
>>> s | state_pattern( (('',None,'(?P<key>.*):(?P<val>.*)','{key}','{val}
↪'),) )
{'first_name': 'Eric', 'last_name': 'Lapouyade'}
>>> s | state_pattern( (('',None,'(?P<key>.*):(?P<val>.*)','{key}',None),
↪) ) #doctest: +NORMALIZE_WHITESPACE
{'first_name': {'key': 'first name', 'val': 'Eric'},
'last_name': {'key': 'last name', 'val': 'Lapouyade'}}
>>> s | state_pattern((('',None,'(?P<key>.*):(?P<val>.*)','my.path.{key}
↪','{val}'),))
{'my': {'path': {'first_name': 'Eric', 'last_name': 'Lapouyade'}}}
```

```
>>> s = '''Eric
... Guido'''
>>> s | state_pattern( (('',None,'(?P<val>.*)','my.path.info[]','{val}'),
↪) )
{'my': {'path': {'info': ['Eric', 'Guido']}}}
```

```
>>> s = '''
... Section 1
... ---------
...   email = ericdupo@gmail.com
...
... Section 2
... ---------
...   first name: Eric
...   last name: Dupont'''
>>> s | state_pattern( (                                    #doctest:␣
↪+NORMALIZE_WHITESPACE
... ('','section1','^Section 1',None,None),
... ('','section2','^Section 2',None,None),
... ('section1', '', '(?P<key>.*)=(?P<val>.*)', 'section1.{key}', '{val}
↪'),
... ('section2', '', '(?P<key>.*):(?P<val>.*)', 'section2.{key}', '{val}
↪')) )
{'section1': {'email': 'ericdupo@gmail.com'},
'section2': {'first_name': 'Eric', 'last_name': 'Dupont'}}
```

```
>>> s = '''
... Disk states
... -----------
... name: c1t0d0s0
... state: good
... fs: /
... name: c1t0d0s4
... state: failed
... fs: /home
...
... '''
>>> s | state_pattern( (                                    #doctest:␣
↪+NORMALIZE_WHITESPACE
... ('top','disk',r'^Disk states',None,None),
... ('disk','top', r'^\s*$',None,None),
... ('disk', '', r'^name:(?P<diskname>.*)',None, None),
... ('disk', '', r'(?P<key>.*):(?P<val>.*)', 'disks.{diskname}.{key}', '
↪{val}')) )
{'disks': {'c1t0d0s0': {'state': 'good', 'fs': '/'},
'c1t0d0s4': {'state': 'failed', 'fs': '/home'}}}
```

```
>>> s = '''
... {
... name: c1t0d0s0
... state: good
... fs: /
... },
... {
... fs: /home
... name: c1t0d0s4
... }
... '''
>>> s | state_pattern( (                                     #doctest:␣
↪+NORMALIZE_WHITESPACE
... ('top','disk',r'{','>disk_info',{}),
... ('disk', '', r'(?P<key>.*):(?P<val>.*)', '>>disk_info.{key}', '{val}
↪'),
```

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```
... ('disk', 'top', r'}', 'disks.{disk_info[name]}', '<disk_info'),
... ) )
{'disks': {'c1t0d0s0': {'name': 'c1t0d0s0', 'state': 'good', 'fs': '/'},
'c1t0d0s4': {'fs': '/home', 'name': 'c1t0d0s4'}}}
```

```
>>> s='firstname:Eric lastname=Lapouyade'
>>> s | state_pattern((
... ('top','',r'firstname:(?P<val>\S+)','firstname','{val}'),
... ('top','',r'.*lastname=(?P<val>\S+)','lastname','{val}'),
... ))
{'firstname': 'Eric'}
```

```
>>> s='firstname:Eric lastname=Lapouyade'
>>> s | state_pattern((
... ('top','__continue__',r'firstname:(?P<val>\S+)','firstname','{val}'),
... ('top','',r'.*lastname=(?P<val>\S+)','lastname','{val}'),
... ))
{'firstname': 'Eric', 'lastname': 'Lapouyade'}
```

CHAPTER 11

cast

This modules provides casting features, that is to force the output type

11.1 pretty

class textops.**pretty**

Pretty format the input text

Returns Converted result as a pretty string (uses `pprint.PrettyPrinter.pformat()`)

Return type str

Examples:

```
>>> s = '''
... a:val1
... b:
...     c:val3
...     d:
...         e ... : val5
...         f ... :val6
...     g:val7
... f: val8'''
>>> print(s | parse_indented())
{'a': 'val1', 'b': {'c': 'val3', 'd': {'e': 'val5', 'f': 'val6'}, 'g':
↪'val7'}, 'f': 'val8'}
>>> print(s | parse_indented().pretty())
{   'a': 'val1',
    'b': {'c': 'val3', 'd': {'e': 'val5', 'f': 'val6'}, 'g': 'val7'},
    'f': 'val8'}
```

11.2 todatetime

class textops.**todatetime**

Convert the result to a datetime python object

Returns converted result as a datetime python object

Return type datetime

Examples

```
>>> '2015-10-28' | todatetime()
datetime.datetime(2015, 10, 28, 0, 0)
>>> '2015-10-28 22:33:00' | todatetime()
datetime.datetime(2015, 10, 28, 22, 33)
>>> '2015-10-28 22:33:44' | todatetime()
datetime.datetime(2015, 10, 28, 22, 33, 44)
>>> '2014-07-08T09:02:21.377' | todatetime()
datetime.datetime(2014, 7, 8, 9, 2, 21, 377000)
>>> '28-10-2015' | todatetime()
datetime.datetime(2015, 10, 28, 0, 0)
>>> '10-28-2015' | todatetime()
datetime.datetime(2015, 10, 28, 0, 0)
>>> '10-11-2015' | todatetime()
datetime.datetime(2015, 10, 11, 0, 0)
```

11.3 todict

class textops.**todict**

Converts list or 2 items-tuples into dict

Returns Converted result as a dict

Return type dict

Examples:

```
>>> [ ('a',1), ('b',2), ('c',3) ] | echo().todict()
{'a': 1, 'b': 2, 'c': 3}
```

11.4 tofloat

class textops.**tofloat**

Convert the result to a float

Returns converted result as an int or list of int

Return type str or list

Examples

```
>>> '53' | tofloat()
53.0
>>> 'not a float' | tofloat()
0.0
>>> '3.14' | tofloat()
3.14
>>> '3e3' | tofloat()
3000.0
>>> ['53','not an int','3.14'] | tofloat()
[53.0, 0.0, 3.14]
```

11.5 toint

class textops.**toint**

Convert the result to an integer

Returns converted result as an int or list of int

Return type str or list

Examples

```
>>> '53' | toint()
53
>>> 'not an int' | toint()
0
>>> '3.14' | toint()
3
>>> '3e3' | toint()
3000
>>> ['53','not an int','3.14'] | toint()
[53, 0, 3]
```

11.6 tolist

class textops.**tolist**(*return_if_none=None*)

Convert the result to a list

If the input text is a string, it is put in a list.
If the input text is a list : nothing is done.
If the input text is a generator : it is converted into a list

Parameters **return_if_none** (*str*) – the object to return if the input text is None (Default : None)

Returns converted result as a string

Return type str

Examples

```
>>> 'hello' | tolist()
['hello']
>>> ['hello','world'] | tolist()
['hello', 'world']
>>> type(None|tolist())
<class 'NoneType'>
>>> def g(): yield 'hello'
...
>>> g()|tolist()
['hello']
```

11.7 toliste

class textops.**toliste**(*return_if_none=[]*)

Convert the result to a list

If the input text is a string, it is put in a list.
If the input text is a list : nothing is done.
If the input text is a generator : it is converted into a list

Parameters **return_if_none** (*str*) – the object to return if the input text is None (Default : empty list)

Returns converted result as a string

Return type str

Examples

```
>>> 'hello' | toliste()
['hello']
>>> type(None|toliste())
<class 'textops.base.ListExt'>
>>> None|toliste()
[]
```

11.8 tonull

class textops.**tonull**

Consume generator if any and then return nothing (aka None)

Examples:

```
>>> [ 1,2,3 ] | echo().tonull()
```

11.9 toslug

class textops.**toslug**
Convert a string to a slug

Returns a slug

Return type str

Examples

```
>>> 'this is my article' | toslug()
'this-is-my-article'
>>> 'this%%% is### my___article' | toslug()
'this-is-my-article'
```

11.10 tostr

class textops.**tostr**(*join_str='n'*, *return_if_none=None*)
Convert the result to a string

If the input text is a list or a generator, it will join all the lines with a newline.
If the input text is None, None is NOT converted to a string : None is returned

Parameters

- **join_str** (*str*) – the join string to apply on list or generator (Default : newline)
- **return_if_none** (*str*) – the object to return if the input text is None (Default : None)

Returns converted result as a string

Return type str or None

Examples

```
>>> 'line1\nline2' | tostr()
'line1\nline2'
>>> ['line1','line2'] | tostr()
'line1\nline2'
>>> ['line1','line2'] | tostr('---')
'line1---line2'
>>> def g(): yield 'hello';yield 'world'
...
>>> g()|tostr()
'hello\nworld'
>>> type(None | tostr())
<class 'NoneType'>
>>> None | tostr(return_if_none='N/A')
'N/A'
```

11.11 tostre

class textops.**tostre**(*join_str='n'*, *return_if_none=''*)
Convert the result to a string

If the input text is a list or a generator, it will join all the lines with a newline.
If the input text is None, None is converted to an empty string.

Parameters

- **join_str** (*str*) – the join string to apply on list or generator (Default : newline)
- **return_if_none** (*str*) – the object to return if the input text is None (Default : empty string)

Returns converted result as a string

Return type str

Examples

```
>>> ['line1','line2'] | tostre()
'line1\nline2'
>>> type(None | tostre())
<class 'textops.base.StrExt'>
>>> None | tostre()
''
```

CHAPTER 12

recode

This module gathers operations for text recoding

12.1 list_to_multilinestring

class textops.**list_to_multilinestring**(*in_place=False*, *tag='----------< Multiline string as list >----------'*)

In a data structure, change all tagged list of strings into multiline strings

This is useful to undo data recoded by *multilinestring_to_list*.

Returns Same data structure with tagged lists replaced by multiple line strings.

Examples

```
>>> data=[
...     [
...         "----------< Multiline string as list >----------",
...         "line1",
...         "line2",
...         "line3"
...     ],
...     {
...         "key2": [
...             "----------< Multiline string as list >----------",
...             "lineA",
...             "lineB",
...             "lineC",
...             "lineD"
```

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```
...         ],
...         "key1": "one line"
...     }
... ]
>>> data | list_to_multilinestring()
['line1\nline2\nline3', {'key2': 'lineA\nlineB\nlineC\nlineD', 'key1':
↪'one line'}]
```

12.2 multilinestring_to_list

class textops.**multilinestring_to_list**(*in_place=False*)

In a data structure, change all multiline strings into a list of strings

This is useful for json.dump() or dumps() in order to have a readable json data when the structure has some strings with many lines. This works on imbricated dict and list. Dictionary keys are not changed, only their values. Each generated list of strings is tagged with a first item (MULTIPLELINESTRING_TAG). By this way the process is reversible : see *list_to_multilinestring*

Returns Same data structure with multiple line strings replaced by lists.

Examples

```
>>> data=['line1\nline2\nline3',{'key1':'one line','key2':
↪'lineA\nlineB\nlineC\nlineD'}]
>>> print(json.dumps(data,indent=4))  #doctest: +NORMALIZE_WHITESPACE
[
    "line1\nline2\nline3",
    {
        "key1": "one line",
        "key2": "lineA\nlineB\nlineC\nlineD"
    }
]
>>> print(json.dumps(data | multilinestring_to_list(),indent=4) )
↪#doctest: +NORMALIZE_WHITESPACE
[
    [
        "-------------------------< Multiline string as list >-----------
↪--------------",
        "line1",
        "line2",
        "line3"
    ],
    {
        "key1": "one line",
        "key2": [
            "-------------------------< Multiline string as list >-------
↪------------------",
            "lineA",
            "lineB",
            "lineC",
            "lineD"
        ]
```

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```
    }
]
```

CHAPTER 13

base

This module defines base classes for python-textops3

13.1 activate_debug

textops.**activate_debug**()

Activate debug logging on console

This function is useful when playing with python-textops3 through a python console. It is not recommended to use this function in a real application : use standard logging functions instead.

13.2 add_textop

textops.**add_textop**(*class_or_func*)

Decorator to declare custom function or custom class as a new textops op

the custom function/class will receive the whole raw input text at once.

Examples

```
>>> @add_textop
... def repeat(text, n, *args,**kwargs):
...     return text * n
>>> 'hello' | repeat(3)
'hellohellohello'
```

```
>>> @add_textop
... class cool(TextOp):
...     @classmethod
```

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```
...     def op(cls, text, *args,**kwargs):
...         return text + ' is cool.'
>>> 'textops' | cool()
'textops is cool.'
```

13.3 add_textop_iter

textops.**add_textop_iter**(*func*)

Decorator to declare custom *ITER* function as a new textops op

An *ITER* function is a function that will receive the input text as a *LIST* of lines. One have to iterate over this list and generate a result (it can be a list, a generator, a dict, a string, an int . . .)

Examples

```
>>> @add_textop_iter
... def odd(lines, *args,**kwargs):
...     for i,line in enumerate(lines):
...         if not i % 2:
...             yield line
>>> s = '''line 1
... line 2
... line 3'''
>>> s >> odd()
['line 1', 'line 3']
>>> s | odd().tolist()
['line 1', 'line 3']
```

```
>>> @add_textop_iter
... def sumsize(lines, *args,**kwargs):
...     sum = 0
...     for line in lines:
...         sum += int(re.search(r'\d+',line).group(0))
...     return sum
>>> '''1492 file1
... 1789 file2
... 2015 file3''' | sumsize()
5296
```

13.4 dictmerge

textops.**dictmerge**(**dict_args*)

Merge as many dicts you want

Given any number of dicts, shallow copy and merge into a new dict, precedence goes to key value pairs in latter dicts.

Parameters ***dict_args** (*dict*) – List of dicts

Returns a new merged dict

Return type dict

Examples

```
>>> dictmerge({'a':1,'b':2},{'b':3,'c':4})
{'a': 1, 'b': 3, 'c': 4}
```

13.5 dformat

textops.**dformat**(*format_str*, *dct*, *defvalue='-'*)

Formats a dictionary, manages unkown keys

It works like `string.Formatter.vformat()` except that it accepts only a dict for values and a defvalue for not matching keys. Defvalue can be a callable that will receive the requested key as argument and return a string

Parameters

- **format_string** (*str*) – Same format string as for `str.format()`
- **dct** (*dict*) – the dict to format
- **defvalue** (*str or callable*) – the default value to display when the data is not in the dict

Examples

```
>>> d = {'count': '32591', 'soft': 'textops'}
>>> dformat('{soft} : {count} dowloads',d)
'textops : 32591 dowloads'
>>> dformat('{software} : {count} dowloads',d,'N/A')
'N/A : 32591 dowloads'
>>> dformat('{software} : {count} dowloads',d,lambda k:'unknown_tag_%s'
↪% k)
'unknown_tag_software : 32591 dowloads'
```

13.6 eformat

textops.**eformat**(*format_str*, *lst*, *dct*, *defvalue='-'*)

Formats a list and a dictionary, manages unkown keys

It works like `string.Formatter.vformat()` except that it accepts a defvalue for not matching keys. Defvalue can be a callable that will receive the requested key as argument and return a string

Parameters

- **format_string** (*str*) – Same format string as for `str.format()`
- **lst** (*dict*) – the list to format
- **dct** (*dict*) – the dict to format
- **defvalue** (*str or callable*) – the default value to display when the data is not in the dict

Examples

```
>>> d = {'count': '32591', 'soft': 'textops'}
>>> l = ['Eric','Guido']
>>> eformat('{0} => {soft} : {count} dowloads',l,d)
'Eric => textops : 32591 dowloads'
>>> eformat('{2} => {software} : {count} dowloads',l,d,'N/A')
'N/A => N/A : 32591 dowloads'
>>> eformat('{2} => {software} : {count} dowloads',l,d,lambda k:'unknown_
↪tag_%s' % k)
'unknown_tag_2 => unknown_tag_software : 32591 dowloads'
```

13.7 vformat

Same syntaxe as `string.Formatter.vformat()`

13.8 DictExt

class textops.**DictExt**(**args*, ***kwargs*)

Extend dict class with new features

New features are :

- Access to textops operations with attribute notation
- All dict values (dict, list, str, bytes) are extended on-the-fly when accessed
- Access to dict values with attribute notation
- Add a key:value in the dict with attribute notation (one level at a time)
- Returns NoAttr object when a key is not in the Dict
- add modification on-the-fly *amend()* and rendering to string *render()*

Note: `NoAttr` is a special object that returns always `NoAttr` when accessing to any attribute. it behaves like `False` for testing, `[]` in foor-loops. The goal is to be able to use very long expression with dotted notation without being afraid to get an exception.

Examples

```
>>> {'a':1,'b':2}.items().grep('a')
Traceback (most recent call last):
    ...
AttributeError: 'dict_items' object has no attribute 'grep'
```

```
>>> DictExt({'a':1,'b':2}).items().grep('a')
[('a', 1)]
```

```
>>> d = DictExt({ 'this' : { 'is' : { 'a' : {'very deep' : { 'dict' :
↪'yes it is'}}}}})
>>> print(d.this['is'].a['very deep'].dict)
yes it is
>>> d.not_a_valid_key
NoAttr
>>> d['not_a_valid_key']
NoAttr
>>> d.not_a_valid_key.and_i.can.put.things.after.without.exception
NoAttr
>>> for obj in d.not_a_valid_key.objects:
...     do_things(obj)
... else:
...     print('no object')
no object
```

```
>>> d = DictExt()
>>> d.a = DictExt()
>>> d.a.b = 'this is my logging data'
>>> print(d)
{'a': {'b': 'this is my logging data'}}
```

```
>>> d = { 'mykey' : 'myval' }
>>> d['mykey']
'myval'
>>> type(d['mykey'])
<class 'str'>
>>> d = DictExt(d)
>>> d['mykey']
'myval'
>>> type(d['mykey'])
<class 'textops.base.StrExt'>
```

```
>>> d=DictExt()
>>> d[0]=[]
>>> d
{0: []}
>>> d[0].append(3)
>>> d
{0: [3]}
>>> type(d[0])
<class 'textops.base.ListExt'>
```

amend (**args*, ***kwargs*)

Modify on-the-fly a dictionary

The method will generate a new extended dictionary and update it with given params

Examples

```
>>> s = '''soft:textops
... count:32591'''
>>> s | parse_indented()
{'soft': 'textops', 'count': '32591'}
```

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```
>>> s | parse_indented().amend(date='2015-11-19')
{'soft': 'textops', 'count': '32591', 'date': '2015-11-19'}
```

as_list
Convert to ListExt object

render (*format_string*, *defvalue='-'*)
Render a DictExt as a string

It uses the fonction *dformat()* to format the dictionary

Parameters

- **format_string** (*str*) – Same format string as for str.format()
- **defvalue** (*str or callable*) – the default value to display when the data is not in the dict

Examples

```
>>> d = DictExt({'count': '32591', 'date': '2015-11-19', 'soft':
↪'textops'})
>>> d.render('On {date}, "{soft}" has been downloaded {count} times')
'On 2015-11-19, "textops" has been downloaded 32591 times'
>>> d.render('On {date}, "{not_in_dict}" has been downloaded {count}␣
↪times','?')
'On 2015-11-19, "?" has been downloaded 32591 times'
```

13.9 ListExt

class textops.**ListExt**
Extend list class to gain access to textops as attributes

In addition, all list items (dict, list, str, bytes) are extended on-the-fly when accessed

Examples

```
>>> ['normal','list'].grep('t')
Traceback (most recent call last):
    ...
AttributeError: 'list' object has no attribute 'grep'
```

```
>>> ListExt(['extended','list']).grep('t')
['extended', 'list']
```

as_list
Convert to ListExt object

13.10 StrExt

class textops.**StrExt**
Extend str class to gain access to textops as attributes

Examples

```
>>> 'normal string'.cut()
Traceback (most recent call last):
    ...
AttributeError: 'str' object has no attribute 'cut'
```

```
>>> StrExt('extended string').cut()
['extended', 'string']
```

as_list
Convert to ListExt object

13.11 TextOp

class textops.**TextOp**(**args*, ***kwargs*)
Base class for text operations

All operations must be derived from this class. Subclasses must redefine an `op()` method that will be called when the operations will be triggered by an input text.

f
Execute operations, returns a float.

Examples

```
>>> echo('1789').f
1789.0
>>> echo('3.14').f
3.14
>>> echo('Tea for 2').f
0.0
```

g
Execute operations, return a generator when possible or a list otherwise

This is to be used ONLY when the input text has be set as the first argument of the first operation.

Examples

```
>>> echo('hello')
echo('hello')
>>> echo('hello').g
['hello']
>>> def mygen(): yield 'hello'
>>> cut(mygen(),'l')                                    # doctest:␣
↪+ELLIPSIS
cut(<generator object mygen at ...>,'l')
>>> cut(mygen(),'l').g                                  # doctest:␣
↪+ELLIPSIS
<generator object extend_type_gen at ...>
>>> def mygen(): yield None
```

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```
>>> type(echo(None).g)                                    # doctest:␣
↪+ELLIPSIS
<class 'NoneType'>
```

ge

Execute operations, return a generator when possible or a list otherwise, ([] if the result is None).

This works like *g* except it returns an empty list if the execution result is None.

Examples

```
>>> echo(None).ge                                         # doctest:␣
↪+ELLIPSIS
[]
```

i

Execute operations, returns an int.

Examples

```
>>> echo('1789').i
1789
>>> echo('3.14').i
3
>>> echo('Tea for 2').i
0
```

j

Execute operations, return a string (join = '')

This works like *s* except that joins will be done with an empty string

Examples

```
>>> echo(['hello','world']).j
'helloworld'
>>> type(echo(None).j)
<class 'NoneType'>
```

je

Execute operations, returns a string ('' if the result is None, join='').

This works like *j* except it returns an empty string if the execution result is None.

Examples

```
>>> echo(None).je
''
```

l

Execute operations, return a list

This is to be used ONLY when the input text has be set as the first argument of the first operation.

Examples

```
>>> echo('hello')
echo('hello')
>>> echo('hello').l
['hello']
>>> type(echo(None).g)
<class 'NoneType'>
```

le

Execute operations, returns a list ([] if the result is None).

This works like *l* except it returns an empty list if the execution result is None.

Examples

```
>>> echo(None).le
[]
```

n

Execute operations, do not convert, do not return anything

If _process() returns a generator, it is consumed

Examples

```
>>> echo('1789').length().n
```

classmethod op(*text*, **args*, ***kwargs*)

This method must be overriden in derived classes

pp

Execute operations, return Prettyprint version of the result

Examples:

```
>>> s = '''
... a:val1
... b:
...     c:val3
...     d:
...         e ... : val5
...         f ... :val6
...     g:val7
... f: val8'''
>>> print(parse_indented(s).r)
{'a': 'val1', 'b': {'c': 'val3', 'd': {'e': 'val5', 'f': 'val6'}, 'g
↪': 'val7'}, 'f': 'val8'}
>>> print(parse_indented(s).pp)
{   'a': 'val1',
```

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```
    'b': {'c': 'val3', 'd': {'e': 'val5', 'f': 'val6'}, 'g': 'val7'},
    'f': 'val8'}
```

r

Execute operations, do not convert.

Examples

```
>>> echo('1789').length().l
[4]
>>> echo('1789').length().s
'4'
>>> echo('1789').length().r
4
```

s

Execute operations, return a string (join = newline)

This is to be used ONLY when the input text has be set as the first argument of the first operation. If the result is a list or a generator, it is converted into a string by joinning items with a newline.

Examples

```
>>> echo('hello')
echo('hello')
>>> echo('hello').s
'hello'
>>> echo(['hello','world']).s
'hello\nworld'
>>> type(echo(None).s)
<class 'NoneType'>
```

se

Execute operations, returns a string ('' if the result is None).

This works like *s* except it returns an empty string if the execution result is None.

Examples

```
>>> echo(None).se
''
```

13.12 BytesExt

class textops.**BytesExt**

Extend bytes class to gain access to textops as attributes

Examples

```
>>> b'normal bytes'.cut()
Traceback (most recent call last):
    ...
AttributeError: 'bytes' object has no attribute 'cut'
```

```
>>> BytesExt(b'extended bytes').cut()
[b'extended', b'bytes']
```

as_list
Convert to ListExt object

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