Using JOD Regular Expressions

December 14, 2021

1 Using JOD Regular Expressions

1.0.1 Introduction

JOD's regular expressions are built on J's `regex` class. [regex is documented on the J wiki.](url) I would recommend familiarizing yourself with J's `regex` facilities before using `rxs`.

`rxs` calls only three `regex` verbs: `rxfirst`, `rxall` and `rxmatches`. If you understand how to use these verbs you will quickly master `rxs`.

```
[1]:  NB. display J version
      9!:14''
```

```
j903/j64avx2/windows/beta-w/commercial/www.jsoftware.com/2021-12-05T18:25:00/cla
ng-13-0-0/SLEEF=1
```

```
[2]:  NB. load JOD in a clear base locale
      load 'general/jod' [ clear ''
```

```
NB. Converting Jupyter notebooks to LaTeX is
NB. simplified by ASCII box characters.
portchars ''

NB. show JOD version
JODVMD_ajod_
```

```
+-----------+--+-------------------+
|1.0.22 - dev|35|14 Dec 2021 08:32:08|
+-----------+--+-------------------+
```

[3]:
```
NB. The distributed JOD profile automatically RESETME's.
NB. To safely use dictionaries with many J tasks they must
NB. be READONLY. To prevent opening the same put dictionary
NB. READWRITE comment out (dpset) and restart this notebook.
dpset 'RESETME'

NB. Verb to show large boxed displays in
NB. the notebook without ugly wrapping.
sbx=: ' ... ' ,"1~ 73&{."1@":

NB. Create a test put dictionary for this notebook.
NB. The use of (didnum) insures it does not exist.
rxsDemo=: 'rxsdemo',":didnum_ajod_''
newd rxsDemo

NB. unregisters any extant rxsdemo's
NB. 3 regd&> s #~ (s=. }. od '') +./@E.&>~ <'rxsdemo'

NB. open some JOD dictionaries to search
od ;:rxsDemo,' joddev jod utils' [ 3 od ''
sbx did ~ 0
```

```
+-+------------------------------------------------------------------- ...
```

2

```
|1|+-----------------------------------------------+--+-----+-----+------- ...
| ||                                                |--|Words|Tests|Groups* ...
| |+-----------------------------------------------+--+-----+-----+------- ...
| ||rxsdemo2294660591680701324144474127686545587241|rw|0    |0    |0       ...
| |+-----------------------------------------------+--+-----+-----+------- ...
| ||joddev                                          |rw|31   |4    |6       ...
| |+-----------------------------------------------+--+-----+-----+------- ...
| ||jod                                             |ro|841  |76   |23      ...
| |+-----------------------------------------------+--+-----+-----+------- ...
| ||utils                                           |ro|419  |8    |23      ...
| |+-----------------------------------------------+--+-----+-----+------- ...
+-+-------------------------------------------------------------------- ...
```

1.0.2 `rxs` **searches only nonnoun JOD text objects**

JOD dictionaries can store all types of J objects. It's not unusual to store binary data in JOD. The following saves some nouns in the demo dictionary.

```
[4]: intTablerxsDemo=: i. 2 3 4
     floatMerxsDemo=: (100?100) % 7.71
     boxMerxsDemo=: ;:'I do what I do because I am what I am'
     bigNumsrxsDemo=: (x: i. 10) ^ 300
     smoutput charMerxsDemo=: 'even though I am text I will not be searched by rxs because I am a noun'
```

```
even though I am text I will not be searched by rxs because I am a noun
```

```
[5]: NB. store nouns
     put ;:'charMerxsDemo intTablerxsDemo floatMerxsDemo boxMerxsDemo bigNumsrxsDemo'
```

```
+-+-------------------+-----------------------------------------------+
|1|5 word(s) put in ->|rxsdemo2294660591680701324144474127686545587241|
+-+-------------------+-----------------------------------------------+
```

```
[6]: NB. list all objects with suffix rxsDemo
     0 3 dnl 'rxsDemo'
```

```
+-+--------------+-----------+------------+--------------+---------------+
|1|bigNumsrxsDemo|boxMerxsDemo|charMerxsDemo|floatMerxsDemo|intTablerxsDemo|
+-+--------------+-----------+------------+--------------+---------------+
```

Search for the string `rxs` in all nonnoun path words. `rxs` only displays hits in nonempty text. Observe that `charMerxsDemo` is not in the match table.

[7]: ```
'rxs' rxs }. dnl ''
```

```
+-+--------------+
|1|+---------+---+|
| ||rxs      |rxs||
| |+---------+---+|
| ||rxsget   |rxs||
| |+---------+---+|
| ||rxssearch|rxs||
| |+---------+---+|
+-+--------------+
```

1.0.3 Empty `rxs` patterns return all nonempty search text

If `rxs` is given an empty pattern it returns all the text that would be searched by a nonempty pattern. This is useful for debugging complex regular expressions.

[8]: ```
NB. all nonempty short (EXPLAIN_ajod_ = 8) explanation texts
smoutput ('';0 8 1) rxs }. dnl 'si'

NB. all nonempty long (DOCUMENT_ajod_ = 9) test documents
sbx ('';1 9 2) rxs }. 1 dnl ''
```

```
+-+---------------------+
|1|+----+--------------+|
| ||sin |sine radians  ||
| |+----+--------------+|
| ||sind|sin degrees   ||
| |+----+--------------+|
```

```
| ||sinh|hyperbolic sine||
| |+----+--------------+|
+-+----------------------+
+-+------------------------------------------------------------------------ ...
|1|+-------+--------------------------------------------------------------- ...
| ||doctest|*doctest v-- test text for documentation (doc) verb.  This te ...
| |+-------+--------------------------------------------------------------- ...
+-+------------------------------------------------------------------------ ...
```

1.0.4 `rxs` **searches word text by default**

If `rxs` is given a character list (x) argument it searches word text. To search documents, tests and macros `rxs` requires option codes.

```
[9]: NB. words starting with s with at least one occurrence of string ex
     'ex' rxs }. dnl 's'
```

```
+-+--------------------+
|1|+---------------+--+|
| ||setbuilddirs   |ex||
| |+---------------+--+|
| ||setifacelinks  |ex||
| |+---------------+--+|
| ||setifacesummary|ex||
| |+---------------+--+|
| ||setifacetargs  |ex||
| |+---------------+--+|
| ||setjodliterate |ex||
| |+---------------+--+|
| ||seturlsha256   |ex||
| |+---------------+--+|
| ||setwwwbrowser  |ex||
| |+---------------+--+|
| ||sexpin         |ex||
| |+---------------+--+|
| ||strexp         |ex||
```

```
|  |+---------------+--+|
+-+-------------------+
```

NB. show all ex matches (option 2) for words starting with s
`smoutput opts=: WORD_ajod_,DEFAULT_ajod_,2`
`('ex';opts) rxs }. dnl 's'`

```
0 7 2
+-+-------------------------------------------------+
|1|+--------------+---------------------------+|
| ||setbuilddirs  |+--+--+--+--+              ||
| ||              ||ex|ex|ex|ex|              ||
| ||              |+--+--+--+--+              ||
| |+--------------+---------------------------+|
| ||setifacelinks |+--+--+--+--+--+--+         ||
| ||              ||ex|ex|ex|ex|ex|ex|         ||
| ||              |+--+--+--+--+--+--+         ||
| |+--------------+---------------------------+|
| ||setifacesummary|+--+                       ||
| ||              ||ex|                        ||
| ||              |+--+                        ||
| |+--------------+---------------------------+|
| ||setifacetargs |+--+--+--+--+--+--+         ||
| ||              ||ex|ex|ex|ex|ex|ex|         ||
| ||              |+--+--+--+--+--+--+         ||
| |+--------------+---------------------------+|
| ||setjodliterate|+--+--+--+--+--+--+--+--+--+||
| ||              ||ex|ex|ex|ex|ex|ex|ex|ex|ex|||
| ||              |+--+--+--+--+--+--+--+--+--+||
| |+--------------+---------------------------+|
| ||seturlsha256  |+--+--+--+--+--+            ||
| ||              ||ex|ex|ex|ex|ex|            ||
| ||              |+--+--+--+--+--+            ||
| |+--------------+---------------------------+|
| ||setwwwbrowser |+--+--+                     ||
```

```
| ||                 ||ex|ex|                      ||
| ||                 |+--+--+                      ||
| |+--------------+--------------------------+|
| ||sexpin        |+--+--+                      ||
| ||                 ||ex|ex|                      ||
| ||                 |+--+--+                      ||
| |+--------------+--------------------------+|
| ||strexp        |+--+--+--+                    ||
| ||                 ||ex|ex|ex|                   ||
| ||                 |+--+--+--+                    ||
| |+--------------+--------------------------+|
+-+--------------------------------------------+
```

[11]: *NB. repeat previous search but now show position array (option 3) with matched text*
```
sbx ('ex';0 7 3) rxs }. dnl 's'
```

```
+-+------------------------------------------------------------------------ ...
|1|+--------------+------+----------------------------------------------- ...
| ||setbuilddirs  |1204 2|3 : 0  NB.*setbuilddirs v-- sets/creates paths ...
| ||              |      |                                                 ...
| ||              |1497 2|                                                 ...
| ||              |      |                                                 ...
| ||              |1762 2|                                                 ...
| ||              |      |                                                 ...
| ||              |2659 2|                                                 ...
| |+--------------+------+----------------------------------------------- ...
| ||setifacelinks |162 2 |4 : 0  NB.*setifacelinks v--  set  hyperref   ...
| ||              |      |                                                 ...
| ||              |175 2 |                                                 ...
| ||              |      |                                                 ...
| ||              |229 2 |                                                 ...
| ||              |      |                                                 ...
| ||              |255 2 |                                                 ...
| ||              |      |                                                 ...
| ||              |302 2 |                                                 ...
```

```
| ||                |       |                                                ...
| ||                |374 2 |                                                ...
| |+--------------+------+------------------------------------------------ ...
| ||setifacesummary|76 2  |4 : 0   NB.*setifacesummary v-- replace markdow ...
| |+--------------+------+------------------------------------------------ ...
| ||setifacetargs | 63 2 |4 : 0   NB.*setifacetargs v-- set hyperlink tar ...
| ||                |      |                                                ...
| ||                |116 2 |                                                ...
| ||                |      |                                                ...
| ||                |207 2 |                                                ...
| ||                |      |                                                ...
| ||                |331 2 |                                                ...
| ||                |      |                                                ...
| ||                |419 2 |                                                ...
| ||                |      |                                                ...
| ||                |549 2 |                                                ...
| |+--------------+------+------------------------------------------------ ...
| ||setjodliterate | 473 2|3 : 0   NB.*setjodliterate v-- prepare LaTeX pr ...
| ||                |      |                                                ...
| ||                | 503 2|                                                ...
| ||                |      |                                                ...
| ||                | 569 2|                                                ...
| ||                |      |                                                ...
| ||                | 599 2|                                                ...
| ||                |      |                                                ...
| ||                |1186 2|                                                ...
| ||                |      |                                                ...
| ||                |1255 2|                                                ...
| ||                |      |                                                ...
| ||                |1281 2|                                                ...
| ||                |      |                                                ...
| ||                |1334 2|                                                ...
| ||                |      |                                                ...
| ||                |1434 2|                                                ...
```

```
| |+--------------+------+---------------------------------------------- ...
| ||seturlsha256  |166 2 |4 : 0  NB.*seturlsha256 v-- set url and sha-25 ...
| ||             |      |                                                ...
| ||             |175 2 |                                                ...
| ||             |      |                                                ...
| ||             |537 2 |                                                ...
| ||             |      |                                                ...
| ||             |683 2 |                                                ...
| ||             |      |                                                ...
| ||             |707 2 |                                                ...
| |+--------------+------+---------------------------------------------- ...
| ||setwwwbrowser |334 2 |3 : 0  NB.*setwwwbrowser v-- tests and sets th ...
| ||             |      |                                                ...
| ||             |363 2 |                                                ...
| |+--------------+------+---------------------------------------------- ...
| ||sexpin        |11 2  |3 : 0 NB.*sexpin v-- single line explicit defi ...
| ||             |      |                                                ...
| ||             |33 2  |                                                ...
| |+--------------+------+---------------------------------------------- ...
| ||strexp        | 14 2 |3 : 0  NB.*strexp v-- returns a boxed list of  ...
| ||             |      |                                                ...
| ||             |127 2 |                                                ...
| ||             |      |                                                ...
| ||             |150 2 |                                                ...
| |+--------------+------+---------------------------------------------- ...
+-+---------------------------------------------------------------------- ...
```

[12]: *NB. show first J quoted text in JOD tests with names that begin with r and t*
(Jchar_jregex_;1) rxs }. (1 dnl 'r') , }. 1 dnl 't'

```
+-+--------------------------------------------------+
|1|+------------------+---------------------------+|
| ||releasejod        |'ijod'                     ||
| |+------------------+---------------------------+|
| ||restdBasic01      |'createtestdictionaries'   ||
```

9

```
|  |+-----------------+------------------------+|
|  ||rxsBadSmoke00    |'base'                  ||
|  |+-----------------+------------------------+|
|  ||rxsSmoke00       |'testjod00'             ||
|  |+-----------------+------------------------+|
|  ||rxsgetSmoke00    |'base'                  ||
|  |+-----------------+------------------------+|
|  ||testdictionarypaths|'base'                ||
|  |+-----------------+------------------------+|
|  ||teststub         |'/AAAtrash999/AAAsmoke999'||
|  |+-----------------+------------------------+|
|  ||teststubClassGroup |'{~T~}'               ||
|  |+-----------------+------------------------+|
+-+-----------------------------------------------+
```

[13]: *NB. show all J quoted text in JOD tests with names that begin with r and t*
`sbx (Jchar_jregex_;1 7 2) rxs }. (1 dnl 'r') , }. 1 dnl 't'`

```
+-+------------------------------------------------------------------------ ...
|1|+-----------------+----------------------------------------------------- ...
| ||releasejod       |+------+------+------------+------------+------ ...
| ||                 ||'ijod'|'base'|'AAAtrash999'|'AAAtrash999'|'ijod' ...
| ||                 |+------+------+------------+------------+------ ...
| |+-----------------+----------------------------------------------------- ...
| ||restdBasic01     |+----------------------+---------+------+----- ...
| ||                 ||'createtestdictionaries'|'~JODTEST'|'base'|'jodt ...
| ||                 |+----------------------+---------+------+----- ...
| |+-----------------+----------------------------------------------------- ...
| ||rxsBadSmoke00    |+------+----------+----------+----------+------- ...
| ||                 ||'base'|'~JODTEST'|'~JODTEST'|'jodtester'|'AAAsmo ...
| ||                 |+------+----------+----------+----------+------- ...
| |+-----------------+----------------------------------------------------- ...
| ||rxsSmoke00       |+-----------+------------------+------+-------- ...
| ||                 ||'testjod00'|'~JODTEST/testjod00'|'base'|'~JODTES ...
| ||                 |+-----------+------------------+------+-------- ...
```

```
|  |+-----------------+---------------------------------------------- ...
|  ||rxsgetSmoke00    |+------+----------+----------+-----------+------- ...
|  ||                 ||'base'|'~JODTEST'|'~JODTEST'|'jodtester'|'AAAtra ...
|  ||                 |+------+----------+----------+-----------+------- ...
|  |+-----------------+---------------------------------------------- ...
|  ||testdictionarypaths|+------+----------+------------+------------+- ...
|  ||                 ||'base'|'jodtester'|'AAAtrash999'|'AAAtrash999'|' ...
|  ||                 |+------+----------+------------+------------+- ...
|  |+-----------------+---------------------------------------------- ...
|  ||teststub         |+------------------------+--------+------+---- ...
|  ||                 ||'/AAAtrash999/AAAsmoke999'|'newtest'|'base'|'jod ...
|  ||                 |+------------------------+--------+------+---- ...
|  |+-----------------+---------------------------------------------- ...
|  ||teststubClassGroup |+-------+                                     ...
|  ||                 ||'{~T~}'|                                       ...
|  ||                 |+-------+                                       ...
|  |+-----------------+---------------------------------------------- ...
+-+--------------------------------------------------------------- ...
```

1.0.5 rxs **can search short and long object documents**

JOD words, test, groups, suites and macros are often associated with short and long documents.

```
[14]: NB. search all short (EXPLAIN_ajod_ = 8) texts for words starting with wr
      ('r[aeiou]b*';0,EXPLAIN_ajod_,2) rxs }. dnl 'wr'
```

```
+-+-----------------------------------+
|1|+---------------+---------------+|
| ||wrapQtlatex    |+--+--+        ||
| ||               ||ra|ri|        ||
| ||               |+--+--+        ||
| |+---------------+---------------+|
| ||wraplinear     |+--+--+--+--+--+||
| ||               ||ra|re|re|ri|ri|||
| ||               |+--+--+--+--+--+||
```

```
|  |+----------------+----------------+|
|  ||wraplix         |+--+--+         ||
|  ||                ||ra|ra|         ||
|  ||                |+--+--+         ||
|  |+----------------+----------------+|
|  ||wraprgidx       |+--+--+         ||
|  ||                ||ra|re|         ||
|  ||                |+--+--+         ||
|  |+----------------+----------------+|
|  ||wrapvrblong     |+--+            ||
|  ||                ||ra|            ||
|  ||                |+--+            ||
|  |+----------------+----------------+|
|  ||wrapwords       |+--+            ||
|  ||                ||ra|            ||
|  ||                |+--+            ||
|  |+----------------+----------------+|
|  ||wrdglobals      |+--+--+         ||
|  ||                ||ra|ro|         ||
|  ||                |+--+--+         ||
|  |+----------------+----------------+|
|  ||wrdglobalsOLD000|+--+--+         ||
|  ||                ||ra|ro|         ||
|  ||                |+--+--+         ||
|  |+----------------+----------------+|
|  ||wrep            |+--+--+--+      ||
|  ||                ||ra|re|re|      ||
|  ||                |+--+--+--+      ||
|  |+----------------+----------------+|
|  ||write           |+--+            ||
|  ||                ||ri|            ||
|  ||                |+--+            ||
|  |+----------------+----------------+|
|  ||writeas         |+--+--+--+--+   ||
```

```
|  ||                      ||ri|ro|ro|re|     ||
|  ||                      |+--+--+--+--+     ||
|  |+---------------+---------------+|
|  ||writeijs        |+--+--+          ||
|  ||                      ||ri|re|          ||
|  ||                      |+--+--+          ||
|  |+---------------+---------------+|
|  ||writenoun       |+--+            ||
|  ||                      ||ri|            ||
|  ||                      |+--+            ||
|  |+---------------+---------------+|
|  ||writetd         |+--+            ||
|  ||                      ||ri|            ||
|  ||                      |+--+            ||
|  |+---------------+---------------+|
|  ||writetd2        |+--+            ||
|  ||                      ||ri|            ||
|  ||                      |+--+            ||
|  |+---------------+---------------+|
+-+---------------------------------+
```

[15]: *NB. search group (GROUP_ajod_ = 2) long document (DOCUMENT_ajod_ = 9) texts for all patterns*
sbx ('lo....e';GROUP_ajod_,DOCUMENT_ajod_,2) rxs }. 2 dnl ''*

```
+-+------------------------------------------------------------------ ...
|1|+-------+---------------------------------------------------------- ...
| ||doctest|+-----------------------+--------------------------------- ...
| ||       ||long documentation of a te|lobyte strings typical operations ...
| ||       |+-----------------------+--------------------------------- ...
| |+-------+---------------------------------------------------------- ...
| ||jod    |+-------+---------------------------------------------+----- ...
| ||       ||locale|lobs  NB. analyze, report and store global name|loses ...
| ||       |+-------+---------------------------------------------+----- ...
| |+-------+---------------------------------------------------------- ...
| ||sunmoon|+-----------------------+--------------------------------- ...
```

```
| ||          ||loating point table where|longitude in degrees with western  ...
| ||          |+-----------------------+-------------------------------- ...
| |+-------+-----------------------------------------------------------+ ...
+-+------------------------------------------------------------------- ...
```

1.0.6 rxs **can search the dictionary document**

rxs can search the dictionary document.

```
[16]: NB. save a dictionary document (DICTIONARY_ajod_ = 5) for the rxs demo dictionary
      DICTIONARY_ajod_ put ;20 # <' all work and no play make jack a dull boy',LF
      5 disp ''
```

```
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
all work and no play make jack a dull boy
```

```
[17]:  NB. all the dull boys
       sbx ('jack';5 7 2) rxs ''

    +-+----------------------------------------------------------------- ...
    |1|++---------------------------------------------------------------- ...
    | |||+----+----+----+----+----+----+----+----+----+----+----+----+-- ...
    | ||||jack|jack|jack|jack|jack|jack|jack|jack|jack|jack|jack|jack|ja ...
    | |||+----+----+----+----+----+----+----+----+----+----+----+----+-- ...
    | |++---------------------------------------------------------------- ...
    +-+----------------------------------------------------------------- ...
```

1.0.7 Final remarks

rxs performs well for "reasonable" numbers of JOD objects. If you search for a complex pattern in very large dictionaries without restricting your search object list rxs may take some time. It's a good idea to restrict the list of searched objects whenever feasible. Typical uses of rxs search groups, suites and particular macro types.

The following are typical rxs searches.

```
[18]:  NB. search group
       ('DEFAULT';0 7 1) rxs }. grp 'jodstore'

    +-+-------------------+
    |1|+---------+-------+|
    | ||bnlsearch|DEFAULT||
    | |+---------+-------+|
    | ||dnlsearch|DEFAULT||
    | |+---------+-------+|
    | ||mnlsearch|DEFAULT||
    | |+---------+-------+|
    +-+-------------------+
```

```
[19]:  NB. search test suite for all negative expected (ner) results
       sbx ('ner';1 7 2) rxs }. 3 grp 'jodsmoketests'

    +-+----------------------------------------------------------------- ...
```

```
|1|+------------------+---------------------------------------------------- ...
| ||abvSmoke00       |+---+---+---+---+---+---+---+---+---+---+---+     ...
| ||                 ||ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|     ...
| ||                 |+---+---+---+---+---+---+---+---+---+---+---+     ...
| |+------------------+---------------------------------------------------- ...
| ||bgetSmoke00      |+---+---+---+---+---+---+---+---+---+---+---+---+ ...
| ||                 ||ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|ner| ...
| ||                 |+---+---+---+---+---+---+---+---+---+---+---+---+ ...
| |+------------------+---------------------------------------------------- ...
| ||bnlSmoke00       |+---+---+---+---+---+---+---+---+---+---+---+---+ ...
| ||                 ||ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|ner| ...
| ||                 |+---+---+---+---+---+---+---+---+---+---+---+---+ ...
| |+------------------+---------------------------------------------------- ...
| ||compjSmoke00     |+---+                                            ...
| ||                 ||ner|                                            ...
| ||                 |+---+                                            ...
| |+------------------+---------------------------------------------------- ...
| ||dnlSmoke00       |+---+---+---+---+---+---+---+---+                 ...
| ||                 ||ner|ner|ner|ner|ner|ner|ner|ner|                 ...
| ||                 |+---+---+---+---+---+---+---+---+                 ...
| |+------------------+---------------------------------------------------- ...
| ||globsSmokeAssign000|+---+---+                                      ...
| ||                 ||ner|ner|                                        ...
| ||                 |+---+---+                                        ...
| |+------------------+---------------------------------------------------- ...
| ||globsSmokeDoc00  |+---+                                            ...
| ||                 ||ner|                                            ...
| ||                 |+---+                                            ...
| |+------------------+---------------------------------------------------- ...
| ||mnlSmokeArgs00   |+---+---+---+---+---+---+---+---+                 ...
| ||                 ||ner|ner|ner|ner|ner|ner|ner|ner|                 ...
| ||                 |+---+---+---+---+---+---+---+---+                 ...
| |+------------------+---------------------------------------------------- ...
| ||rxsBadSmoke00    |+---+---+---+---+---+---+---+---+---+---+---+---+ ...
```

```
|  ||                  ||ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|  ...
|  ||                  |+---+---+---+---+---+---+---+---+---+---+---+---+  ...
|  |+-----------------+----------------------------------------------------  ...
|  ||rxsSmoke00        |+---+---+---+---+---+---+---+                        ...
|  ||                  ||ner|ner|ner|ner|ner|ner|ner|                       ...
|  ||                  |+---+---+---+---+---+---+---+                        ...
|  |+-----------------+----------------------------------------------------  ...
|  ||rxsgetSmoke00     |+---+---+---+---+---+---+---+---+---+---+---+---+  ...
|  ||                  ||ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|ner|  ...
|  ||                  |+---+---+---+---+---+---+---+---+---+---+---+---+  ...
|  |+-----------------+----------------------------------------------------  ...
+-+-------------------------------------------------------------------------  ...
```

[20]:
```
NB. search all (MARKDOWN_ajod_ = 27) macros (MACRO_ajod_ = 4) for J quoted text
sbx (Jchar_jregex_;4 7 1) rxs }. (MACRO_ajod_,1,MARKDOWN_ajod_) dnl ''
```

```
+-+-------------------------------------------------------------------------  ...
|1|+-----------------+----------------------------------------------------  ...
|  ||TODO_jodliterate_md|'s      inflection scheme and will ripple through  ...
|  |+-----------------+----------------------------------------------------  ...
|  ||historyjod        |'_'                                                ...
|  |+-----------------+----------------------------------------------------  ...
|  ||historyjoddoc     |'~addons/general/joddocument/pdfdoc'               ...
|  |+-----------------+----------------------------------------------------  ...
|  ||linuxnotes_TXT    |'john'                                             ...
|  |+-----------------+----------------------------------------------------  ...
|  ||macnotes_TXT      |'joddev jod utils'                                 ...
|  |+-----------------+----------------------------------------------------  ...
+-+-------------------------------------------------------------------------  ...
```