

```

/*=====*/
/*                               BM.TST                               */
/*=====*/

/***** 1 *****/
/***** blt\b`rgr>d *****/
/*****

/*-----*/
/*                               1: Test BM with Quick Search algorithm                               */
/*-----*/
c:> bm [-Q] blt\b`rgr>d

```

```

===== BUILDING NEW BM =====
PARSE INPUT STRING ...
      blt\b`rgr>d

```

DUMP of BM table piDelta[] ...

```

0[.]:11.0
1[ ]:11.0  2[ ]:11.0  3[ ]:11.0  4[ ]:11.0  5[ ]:11.0  6[ ]:11.0
7[ ]:11.0  8[ ]:11.0  9[.]:11.0  a[.]:11.0  b[
]:11.0  c[.]:11.0
d[.]:11.0  e[.]:11.0  f[ ]:11.0  10[ ]:11.0  11[ ]:11.0  12[ ]:11.0
13[ ]:11.0  14[ ]:11.0  15[ ]:11.0  16[ ]:11.0  17[ ]:11.0  18[ ]:11.0
19[ ]:11.0  1a[.]:11.0  1b[ ]:11.0  1c[ ]:11.0  1d[ ]:11.0  1e[-]:11.0
1f[ ]:11.0  20[ ]:11.0  21[!]:11.0  22["]:11.0  23[#]:11.0  24[$]:11.0
25[%]:11.0  26[&]:11.0  27[']:11.0  28[( ):11.0  29[ )]:11.0  2a[*]:11.0
2b[+]:11.0  2c[,]:11.0  2d[-]:11.0  2e[.]:11.0  2f[/]:11.0  30[0]:11.0
31[1]:11.0  32[2]:11.0  33[3]:11.0  34[4]:11.0  35[5]:11.0  36[6]:11.0
37[7]:11.0  38[8]:11.0  39[9]:11.0  3a[:]:11.0  3b[;]:11.0  3c[<]:11.0
3d[=]:11.0  3e[>]:11.0  3f[?]:11.0  40[@]:11.0  41[A]:11.0  42[B]:11.0
43[C]:11.0  44[D]:11.0  45[E]:11.0  46[F]:11.0  47[G]:11.0  48[H]:11.0
49[I]:11.0  4a[J]:11.0  4b[K]:11.0  4c[L]:11.0  4d[M]:11.0  4e[N]:11.0
4f[O]:11.0  50[P]:11.0  51[Q]:11.0  52[R]:11.0  53[S]:11.0  54[T]:11.0
55[U]:11.0  56[V]:11.0  57[W]:11.0  58[X]:11.0  59[Y]:11.0  5a[Z]:11.0
5b[ ]:11.0  5c[\\]:11.0  5d[ ]:11.0  5e[^]:11.0  5f[_]:11.0  60[ `]:11.0
61[a]:11.0  62[b]:07.0  63[c]:11.0  64[d]:01.0  65[e]:11.0  66[f]:11.0
67[g]:04.0  68[h]:11.0  69[i]:11.0  6a[j]:11.0  6b[k]:11.0  6c[l]:09.0
6d[m]:11.0  6e[n]:11.0  6f[o]:11.0  70[p]:11.0  71[q]:11.0  72[r]:03.0
73[s]:11.0  74[t]:11.0  75[u]:11.0  76[v]:11.0  77[w]:11.0  78[x]:11.0
79[y]:11.0  7a[z]:11.0  7b[{]:11.0  7c[|]:11.0  7d[}]:11.0  7e[~]:11.0
7f[ ]:11.0  80[e]:11.0  81[•]:11.0  82[,]:11.0  83[f]:11.0  84[„]:11.0
85[...]:11.0  86[+]:08.0  87[‡]:11.0  88[^]:11.0  89[‰]:11.0  8a[Š]:11.0
8b[<]:11.0  8c[€]:11.0  8d[•]:11.0  8e[Ž]:11.0  8f[•]:11.0  90[•]:11.0
91[˘]:06.0  92[˘]:11.0  93[˘]:11.0  94[˘]:11.0  95[•]:11.0  96[-]:11.0
97[-]:11.0  98[˘]:11.0  99[™]:11.0  9a[š]:11.0  9b[>]:02.0  9c[œ]:11.0
9d[•]:11.0  9e[ž]:11.0  9f[ÿ]:11.0  a0[ ]:11.0  a1[;]:11.0  a2[¢]:11.0
a3[£]:11.0  a4[¤]:11.0  a5[¥]:11.0  a6[¡]:11.0  a7[$]:11.0  a8[˘]:11.0
a9[©]:11.0  aa[ª]:11.0  ab[«]:11.0  ac[¬]:11.0  ad[-]:11.0  ae[®]:11.0
af[¯]:11.0  b0[°]:11.0  b1[±]:11.0  b2[²]:11.0  b3[³]:11.0  b4[´]:11.0
b5[µ]:11.0  b6[¶]:11.0  b7[·]:11.0  b8[¸]:11.0  b9[¹]:11.0  ba[º]:11.0
bb[»]:11.0  bc[¼]:11.0  bd[½]:11.0  be[¾]:11.0  bf[¿]:11.0  c0[À]:11.0
c1[Á]:11.0  c2[Â]:11.0  c3[Ã]:11.0  c4[Ä]:11.0  c5[Å]:11.0  c6[Æ]:11.0
c7[Ç]:11.0  c8[È]:11.0  c9[É]:11.0  ca[Ê]:11.0  cb[Ë]:11.0  cc[Ì]:11.0
cd[Í]:11.0  ce[Î]:11.0  cf[Ï]:11.0  d0[Ð]:11.0  d1[Ñ]:11.0  d2[Ò]:11.0
d3[Ó]:11.0  d4[Ô]:11.0  d5[Õ]:11.0  d6[Ö]:11.0  d7[×]:11.0  d8[Ø]:11.0
d9[Ù]:11.0  da[Ú]:11.0  db[Û]:11.0  dc[Ü]:11.0  dd[Ý]:11.0  de[Þ]:11.0
df[ß]:11.0  e0[à]:11.0  e1[á]:11.0  e2[â]:11.0  e3[ã]:11.0  e4[ä]:11.0
e5[å]:11.0  e6[æ]:11.0  e7[ç]:11.0  e8[è]:11.0  e9[é]:11.0  ea[ê]:11.0
eb[ë]:11.0  ec[ì]:11.0  ed[í]:11.0  ee[î]:11.0  ef[ï]:11.0  f0[ð]:11.0
f1[ñ]:11.0  f2[ò]:11.0  f3[ó]:11.0  f4[ô]:11.0  f5[ö]:11.0  f6[ö]:11.0
f7[÷]:11.0  f8[ø]:11.0  f9[ù]:11.0  fa[ú]:11.0  fb[û]:11.0  fc[ü]:11.0
fd[ý]:11.0  fe[þ]:11.0

```

```
TRACE of BM Quick Search ...
Pat:      bltb`rgr>d
Txt:      Test af QuickSearch bltb`rgr>d Test af QuickSearch
          MATCH:[]
          FAIL.: [b<>T]
          SHIFT:piDeltal[i]=011
Pat:      bltb`rgr>d
Txt:      ckSearch bltb`rgr>d Test af QuickSearch
          MATCH:[]
          FAIL.: [b<>c]
          SHIFT:piDeltal[l]=009
Pat:      bltb`rgr>d
Txt:      bltb`rgr>d Test af QuickSearch
          MATCH:[bltb`rgr>d]
          COMPLETE!

OUTPUT ...
>         Test af QuickSearch bltb`rgr>d Test af QuickSearch
```

```
TRACE of BM Quick Search ...
Pat:      bltb`rgr>d
Txt:      Garbage garbage garbage garbage garbage
          MATCH:[]
          FAIL.: [b<>G]
          SHIFT:piDeltal[r]=003
Pat:      bltb`rgr>d
Txt:      bage garbage garbage garbage garbage
          MATCH:[b]
          FAIL.: [l<>a]
          SHIFT:piDeltal[g]=004
Pat:      bltb`rgr>d
Txt:      garbage garbage garbage garbage
          MATCH:[]
          FAIL.: [b<> ]
          SHIFT:piDeltal[a]=011
Pat:      bltb`rgr>d
Txt:      rbage garbage garbage
          MATCH:[]
          FAIL.: [b<>r]
          SHIFT:piDeltal[a]=011
Pat:      bltb`rgr>d
Txt:      ge garbage
          MATCH:[]
          FAIL.: [b<>g]
          SHIFT:piDeltal[ ]=011
```

```
TRACE of BM Quick Search ...
Pat:      bltb`rgr>d
Txt:      bltb`rgr>d
          MATCH:[bltb`rgr>d]
          COMPLETE!

OUTPUT ...
>         bltb`rgr>d
```

```
TRACE of BM Quick Search ...
Pat:      bltb`rgr>d
Txt:      zzzzzzzzzbltb`rgr>d
          MATCH:[]
          FAIL.: [b<>z]
          SHIFT:piDeltal[b]=007
```

```

Pat:      bltb`rgr>d
Txt:      zzzbltb`rgr>d
MATCH: []
FAIL.: [b<>z]
SHIFT:piDeltal[r]=003
Pat:      bltb`rgr>d
Txt:      bltb`rgr>d
MATCH: [bltb`rgr>d]
COMPLETE!

```

```

OUTPUT ..
>          zzzzzzzzzbltb`rgr>d

```

Data structures deallocated ...

```

/*-----*/
/*          2: Test BM with Maximal Shift algorithm          */
/*-----*/

```

```
c:> bm -M bltb`rgr>d
```

```

===== BUILDING NEW BM =====
PARSE INPUT STRING ...
      bltb`rgr>d

```

DUMP of BM table piDeltal[] ...

```

0[.]:11.0
1[ ]:11.0  2[ ]:11.0  3[ ]:11.0  4[ ]:11.0  5[ ]:11.0  6[ ]:11.0
7[ ]:11.0  8[ ]:11.0  9[.]:11.0  a[.]:11.0  b[
]:11.0  c[.]:11.0
d[.]:11.0  e[.]:11.0  f[ ]:11.0  10[ ]:11.0  11[ ]:11.0  12[ ]:11.0
13[ ]:11.0  14[ ]:11.0  15[ ]:11.0  16[ ]:11.0  17[ ]:11.0  18[ ]:11.0
19[ ]:11.0  1a[.]:11.0  1b[ ]:11.0  1c[ ]:11.0  1d[ ]:11.0  1e[-]:11.0
1f[ ]:11.0  20[ ]:11.0  21[!]:11.0  22["]:11.0  23[#]:11.0  24[$]:11.0
25[%]:11.0  26[&]:11.0  27[']:11.0  28[( ):11.0  29[ ]:11.0  2a[*]:11.0
2b[+]:11.0  2c[,]:11.0  2d[-]:11.0  2e[.]:11.0  2f[/]:11.0  30[0]:11.0
31[1]:11.0  32[2]:11.0  33[3]:11.0  34[4]:11.0  35[5]:11.0  36[6]:11.0
37[7]:11.0  38[8]:11.0  39[9]:11.0  3a[:]:11.0  3b[;]:11.0  3c[<]:11.0
3d[=]:11.0  3e[>]:11.0  3f[?]:11.0  40[@]:11.0  41[A]:11.0  42[B]:11.0
43[C]:11.0  44[D]:11.0  45[E]:11.0  46[F]:11.0  47[G]:11.0  48[H]:11.0
49[I]:11.0  4a[J]:11.0  4b[K]:11.0  4c[L]:11.0  4d[M]:11.0  4e[N]:11.0
4f[O]:11.0  50[P]:11.0  51[Q]:11.0  52[R]:11.0  53[S]:11.0  54[T]:11.0
55[U]:11.0  56[V]:11.0  57[W]:11.0  58[X]:11.0  59[Y]:11.0  5a[Z]:11.0
5b[ ]:11.0  5c[\]:11.0  5d[ ]:11.0  5e[^]:11.0  5f[_]:11.0  60[ `]:11.0
61[a]:11.0  62[b]:07.0  63[c]:11.0  64[d]:01.0  65[e]:11.0  66[f]:11.0
67[g]:04.0  68[h]:11.0  69[i]:11.0  6a[j]:11.0  6b[k]:11.0  6c[l]:09.0
6d[m]:11.0  6e[n]:11.0  6f[o]:11.0  70[p]:11.0  71[q]:11.0  72[r]:03.0
73[s]:11.0  74[t]:11.0  75[u]:11.0  76[v]:11.0  77[w]:11.0  78[x]:11.0
79[y]:11.0  7a[z]:11.0  7b[{]:11.0  7c[ ]:11.0  7d[ }]:11.0  7e[~]:11.0
7f[ ]:11.0  80[€]:11.0  81[•]:11.0  82[,]:11.0  83[f]:11.0  84[, ]:11.0
85[...]:11.0  86[+]:08.0  87[‡]:11.0  88[^]:11.0  89[%]:11.0  8a[Š]:11.0
8b[<]:11.0  8c[€]:11.0  8d[•]:11.0  8e[Ž]:11.0  8f[•]:11.0  90[•]:11.0
91[ `]:06.0  92[´]:11.0  93[¨]:11.0  94[¨]:11.0  95[•]:11.0  96[-]:11.0
97[-]:11.0  98[~]:11.0  99[™]:11.0  9a[š]:11.0  9b[>]:02.0  9c[œ]:11.0
9d[•]:11.0  9e[Ž]:11.0  9f[Ÿ]:11.0  a0[ ]:11.0  a1[;]:11.0  a2[¢]:11.0
a3[£]:11.0  a4[¤]:11.0  a5[¥]:11.0  a6[!]:11.0  a7[$]:11.0  a8[ ]:11.0
a9[©]:11.0  aa[ª]:11.0  ab[«]:11.0  ac[¬]:11.0  ad[-]:11.0  ae[®]:11.0
af[¯]:11.0  b0[°]:11.0  b1[±]:11.0  b2[²]:11.0  b3[³]:11.0  b4[´]:11.0
b5[µ]:11.0  b6[¶]:11.0  b7[·]:11.0  b8[ , ]:11.0  b9[¹]:11.0  ba[º]:11.0
bb[»]:11.0  bc[¼]:11.0  bd[½]:11.0  be[¾]:11.0  bf[¿]:11.0  c0[À]:11.0
c1[Á]:11.0  c2[Â]:11.0  c3[Ã]:11.0  c4[Ä]:11.0  c5[Å]:11.0  c6[Æ]:11.0
c7[Ç]:11.0  c8[È]:11.0  c9[É]:11.0  ca[Ê]:11.0  cb[Ë]:11.0  cc[Ï]:11.0
cd[Í]:11.0  ce[Î]:11.0  cf[Ï]:11.0  d0[Ð]:11.0  d1[Ñ]:11.0  d2[Ò]:11.0
d3[Ó]:11.0  d4[Ô]:11.0  d5[Õ]:11.0  d6[Ö]:11.0  d7[×]:11.0  d8[Ø]:11.0
d9[Ù]:11.0  da[Û]:11.0  db[Ü]:11.0  dc[Û]:11.0  dd[Ý]:11.0  de[Þ]:11.0

```

```

df[ß]:11.0  e0[à]:11.0  e1[á]:11.0  e2[â]:11.0  e3[ã]:11.0  e4[ä]:11.0
e5[å]:11.0  e6[æ]:11.0  e7[ç]:11.0  e8[è]:11.0  e9[é]:11.0  ea[ê]:11.0
eb[ë]:11.0  ec[ì]:11.0  ed[í]:11.0  ee[î]:11.0  ef[ï]:11.0  f0[ð]:11.0
f1[ñ]:11.0  f2[ò]:11.0  f3[ó]:11.0  f4[ô]:11.0  f5[ö]:11.0  f6[ø]:11.0
f7[÷]:11.0  f8[ø]:11.0  f9[ù]:11.0  fa[ú]:11.0  fb[û]:11.0  fc[ü]:11.0
fd[ý]:11.0  fe[þ]:11.0

```

```

DUMP of unsorted scan ordered string psOrdPat ...
psOrdPat[00]=pzPat[00]=b  pfScanOrd[00]=01.0
psOrdPat[01]=pzPat[01]=l  pfScanOrd[01]=02.0
psOrdPat[02]=pzPat[02]=t  pfScanOrd[02]=03.0
psOrdPat[03]=pzPat[03]=b  pfScanOrd[03]=03.0
psOrdPat[04]=pzPat[04]=`  pfScanOrd[04]=05.0
psOrdPat[05]=pzPat[05]=r  pfScanOrd[05]=06.0
psOrdPat[06]=pzPat[06]=g  pfScanOrd[06]=07.0
psOrdPat[07]=pzPat[07]=r  pfScanOrd[07]=02.0
psOrdPat[08]=pzPat[08]=>  pfScanOrd[08]=09.0
psOrdPat[09]=pzPat[09]=d  pfScanOrd[09]=10.0

```

```

DUMP of MS - sorted scan ordered string psOrdPat ...
psOrdPat[00]=pzPat[09]=d  pfScanOrd[00]=10.0
psOrdPat[01]=pzPat[08]=>  pfScanOrd[01]=09.0
psOrdPat[02]=pzPat[06]=g  pfScanOrd[02]=07.0
psOrdPat[03]=pzPat[05]=r  pfScanOrd[03]=06.0
psOrdPat[04]=pzPat[04]=`  pfScanOrd[04]=05.0
psOrdPat[05]=pzPat[03]=b  pfScanOrd[05]=03.0
psOrdPat[06]=pzPat[02]=t  pfScanOrd[06]=03.0
psOrdPat[07]=pzPat[07]=r  pfScanOrd[07]=02.0
psOrdPat[08]=pzPat[01]=l  pfScanOrd[08]=02.0
psOrdPat[09]=pzPat[00]=b  pfScanOrd[09]=01.0

```

```

MATCHSHIFT psOrdPat[00...00] :
iLShift=1 OP[00]=P[09]=d P[08]=> Mismatch
iLShift=2 OP[00]=P[09]=d P[07]=r Mismatch
iLShift=3 OP[00]=P[09]=d P[06]=g Mismatch
iLShift=4 OP[00]=P[09]=d P[05]=r Mismatch
iLShift=5 OP[00]=P[09]=d P[04]=` Mismatch
iLShift=6 OP[00]=P[09]=d P[03]=b Mismatch
iLShift=7 OP[00]=P[09]=d P[02]=t Mismatch
iLShift=8 OP[00]=P[09]=d P[01]=l Mismatch
iLShift=9 OP[00]=P[09]=d P[00]=b Mismatch
LSHIFT : 10

```

```

MATCHSHIFT psOrdPat[01...00] :
LSHIFT : 10

```

```

MATCHSHIFT psOrdPat[02...00] :
LSHIFT : 10

```

```

MATCHSHIFT psOrdPat[03...00] :
LSHIFT : 10

```

```

MATCHSHIFT psOrdPat[04...00] :
LSHIFT : 10

```

```

MATCHSHIFT psOrdPat[05...00] :
LSHIFT : 10

```

```

MATCHSHIFT psOrdPat[06...00] :
LSHIFT : 10

```

```

MATCHSHIFT psOrdPat[07...00] :
LSHIFT : 10

```

```
MATCHSHIFT psOrdPat[08...00] :
LSHIFT : 10
```

```
DUMP of initialized BM table piDelta2[] ...
```

```
piDelta2[00]=01
piDelta2[01]=10
piDelta2[02]=10
piDelta2[03]=10
piDelta2[04]=10
piDelta2[05]=10
piDelta2[06]=10
piDelta2[07]=10
piDelta2[08]=10
piDelta2[09]=10
```

```
piDelta2[00],INITIAL LSHIFT : 1
    iLShift=1 OP[00]=P[09]=d P[08]=> OK
```

```
piDelta2[01],INITIAL LSHIFT : 10
```

```
piDelta2[02],INITIAL LSHIFT : 10
```

```
piDelta2[03],INITIAL LSHIFT : 10
```

```
piDelta2[04],INITIAL LSHIFT : 10
```

```
piDelta2[05],INITIAL LSHIFT : 10
```

```
piDelta2[06],INITIAL LSHIFT : 10
```

```
piDelta2[07],INITIAL LSHIFT : 10
```

```
piDelta2[08],INITIAL LSHIFT : 10
```

```
piDelta2[09],INITIAL LSHIFT : 10
```

```
DUMP of corrected BM table piDelta2[] ...
```

```
piDelta2[00]=01
piDelta2[01]=10
piDelta2[02]=10
piDelta2[03]=10
piDelta2[04]=10
piDelta2[05]=10
piDelta2[06]=10
piDelta2[07]=10
piDelta2[08]=10
piDelta2[09]=10
```

```
TRACE of BM ScanOrder Search ...
```

```
Pat:    bltb`rgr>d
Txt:    Test af MaximalShift bltb`rgr>d Test af MaximalShift
MATCH:[]
FAIL.:pos.009 [d<>a]
SHIFT:piDeltal[x] =011
        piDelta2[000]=001
        MAX      =011
```

```
Pat:    bltb`rgr>d
Txt:    imalShift bltb`rgr>d Test af MaximalShift
MATCH:[]
FAIL.:pos.009 [d<> ]
SHIFT:piDeltal[b] =007
```

```

                piDelta2[000]=001
                MAX      =007
Pat:      bltb`rgr>d
Txt:      ft bltb`rgr>d Test af MaximalShift
          MATCH:[]
          FAIL.:pos.009 [d<>g]
          SHIFT:piDelta1[r] =003
                piDelta2[000]=001
                MAX      =003
Pat:      bltb`rgr>d
Txt:      bltb`rgr>d Test af MaximalShift
          MATCH:[d>gr`b†rlb]
          COMPLETE!
OUTPUT ...
>      Test af MaximalShift bltb`rgr>d Test af MaximalShift

```

TRACE of BM ScanOrder Search ...

```

Pat:      bltb`rgr>d
Txt:      Garbage garbage garbage garbage garbage
          MATCH:[]
          FAIL.:pos.009 [d<>a]
          SHIFT:piDelta1[r] =003
                piDelta2[000]=001
                MAX      =003
Pat:      bltb`rgr>d
Txt:      bage garbage garbage garbage garbage
          MATCH:[]
          FAIL.:pos.009 [d<>a]
          SHIFT:piDelta1[g] =004
                piDelta2[000]=001
                MAX      =004
Pat:      bltb`rgr>d
Txt:      garbage garbage garbage garbage
          MATCH:[]
          FAIL.:pos.009 [d<>g]
          SHIFT:piDelta1[a] =011
                piDelta2[000]=001
                MAX      =011
Pat:      bltb`rgr>d
Txt:      rbage garbage garbage
          MATCH:[]
          FAIL.:pos.009 [d<>b]
          SHIFT:piDelta1[a] =011
                piDelta2[000]=001
                MAX      =011
Pat:      bltb`rgr>d
Txt:      ge garbage
          MATCH:[]
          FAIL.:pos.009 [d<>e]
          SHIFT:piDelta1[ ] =011
                piDelta2[000]=001
                MAX      =011

```

TRACE of BM ScanOrder Search ...

```

Pat:      bltb`rgr>d
Txt:      bltb`rgr>d
          MATCH:[d>gr`b†rlb]
          COMPLETE!

```

OUTPUT ...

```

>      bltb`rgr>d

```

```

TRACE of BM ScanOrder Search ...
Pat:      bltb`rgr>d
Txt:      zzzzzzzzzbltb`rgr>d
          MATCH:[]
          FAIL.:pos.009 [d<>z]
          SHIFT:piDelta1[b] =007
                piDelta2[000]=001
                MAX      =007
Pat:      bltb`rgr>d
Txt:      zzzbltb`rgr>d
          MATCH:[]
          FAIL.:pos.009 [d<>g]
          SHIFT:piDelta1[r] =003
                piDelta2[000]=001
                MAX      =003
Pat:      bltb`rgr>d
Txt:      bltb`rgr>d
          MATCH:[d>gr`b+rlb]
          COMPLETE!

```

OUTPUT ...

```
> zzzzzzzzzbltb`rgr>d
```

Data structures deallocated ...

```

/*-----*/
/*          3: Test BM with Optimal Mismatch algorithm          */
/*-----*/

```

```
c:> bm -O bltb`rgr>d
```

```

===== BUILDING NEW BM =====
PARSE INPUT STRING ...
      bltb`rgr>d

```

DUMP of BM table piDelta1[] ...

```

0[ ]:11.0
 1[ ]:11.0  2[ ]:11.0  3[ ]:11.0  4[ ]:11.0  5[ ]:11.0  6[ ]:11.0
 7[ ]:11.0  8[ ]:11.0  9[.]:11.0  a[.]:11.0  b[
]:11.0  c[.]:11.0
 d[.]:11.0  e[.]:11.0  f[ ]:11.0 10[ ]:11.0 11[ ]:11.0 12[ ]:11.0
13[ ]:11.0 14[ ]:11.0 15[ ]:11.0 16[ ]:11.0 17[ ]:11.0 18[ ]:11.0
19[ ]:11.0 1a[.]:11.0 1b[ ]:11.0 1c[ ]:11.0 1d[ ]:11.0 1e[-]:11.0
1f[ ]:11.0 20[ ]:11.0 21[!]:11.0 22["]:11.0 23[#]:11.0 24[$]:11.0
25[%]:11.0 26[&]:11.0 27[']:11.0 28[( ):11.0 29[ ]:11.0 2a[*]:11.0
2b[+]:11.0 2c[,]:11.0 2d[-]:11.0 2e[.]:11.0 2f[/]:11.0 30[0]:11.0
31[1]:11.0 32[2]:11.0 33[3]:11.0 34[4]:11.0 35[5]:11.0 36[6]:11.0
37[7]:11.0 38[8]:11.0 39[9]:11.0 3a[:]:11.0 3b[;]:11.0 3c[<]:11.0
3d[=]:11.0 3e[>]:11.0 3f[?]:11.0 40[@]:11.0 41[A]:11.0 42[B]:11.0
43[C]:11.0 44[D]:11.0 45[E]:11.0 46[F]:11.0 47[G]:11.0 48[H]:11.0
49[I]:11.0 4a[J]:11.0 4b[K]:11.0 4c[L]:11.0 4d[M]:11.0 4e[N]:11.0
4f[O]:11.0 50[P]:11.0 51[Q]:11.0 52[R]:11.0 53[S]:11.0 54[T]:11.0
55[U]:11.0 56[V]:11.0 57[W]:11.0 58[X]:11.0 59[Y]:11.0 5a[Z]:11.0
5b[ ]:11.0 5c[\\]:11.0 5d[ ]:11.0 5e[^]:11.0 5f[_]:11.0 60[`]:11.0
61[a]:11.0 62[b]:07.0 63[c]:11.0 64[d]:01.0 65[e]:11.0 66[f]:11.0
67[g]:04.0 68[h]:11.0 69[i]:11.0 6a[j]:11.0 6b[k]:11.0 6c[l]:09.0
6d[m]:11.0 6e[n]:11.0 6f[o]:11.0 70[p]:11.0 71[q]:11.0 72[r]:03.0
73[s]:11.0 74[t]:11.0 75[u]:11.0 76[v]:11.0 77[w]:11.0 78[x]:11.0
79[y]:11.0 7a[z]:11.0 7b[{ }:11.0 7c[|]:11.0 7d[}]:11.0 7e[~]:11.0
7f[ ]:11.0 80[€]:11.0 81[•]:11.0 82[,]:11.0 83[f]:11.0 84[„]:11.0
85[...]:11.0 86[†]:08.0 87[‡]:11.0 88[^]:11.0 89[%]:11.0 8a[Š]:11.0
8b[<]:11.0 8c[€]:11.0 8d[•]:11.0 8e[Ž]:11.0 8f[•]:11.0 90[•]:11.0

```

91[´]:06.0	92[´]:11.0	93[ˆ]:11.0	94[ˆ]:11.0	95[•]:11.0	96[-]:11.0
97[-]:11.0	98[˘]:11.0	99[™]:11.0	9a[š]:11.0	9b[>]:02.0	9c[œ]:11.0
9d[•]:11.0	9e[ž]:11.0	9f[ÿ]:11.0	a0[]:11.0	a1[;]:11.0	a2[ç]:11.0
a3[£]:11.0	a4[¤]:11.0	a5[¥]:11.0	a6[¦]:11.0	a7[§]:11.0	a8[¨]:11.0
a9[©]:11.0	aa[ª]:11.0	ab[«]:11.0	ac[¬]:11.0	ad[-]:11.0	ae[®]:11.0
af[¯]:11.0	b0[°]:11.0	b1[±]:11.0	b2[²]:11.0	b3[³]:11.0	b4[´]:11.0
b5[µ]:11.0	b6[¶]:11.0	b7[·]:11.0	b8[¸]:11.0	b9[¹]:11.0	ba[º]:11.0
bb[»]:11.0	bc[¼]:11.0	bd[½]:11.0	be[¾]:11.0	bf[¿]:11.0	c0[À]:11.0
c1[Á]:11.0	c2[Â]:11.0	c3[Ã]:11.0	c4[Ä]:11.0	c5[Å]:11.0	c6[Æ]:11.0
c7[Ç]:11.0	c8[È]:11.0	c9[É]:11.0	ca[Ê]:11.0	cb[Ë]:11.0	cc[Ì]:11.0
cd[Í]:11.0	ce[Î]:11.0	cf[Ï]:11.0	d0[Ð]:11.0	d1[Ñ]:11.0	d2[Ò]:11.0
d3[Ó]:11.0	d4[Ô]:11.0	d5[Õ]:11.0	d6[Ö]:11.0	d7[×]:11.0	d8[Ø]:11.0
d9[Ù]:11.0	da[Ú]:11.0	db[Û]:11.0	dc[Ü]:11.0	dd[Ý]:11.0	de[Ë]:11.0
df[ß]:11.0	e0[à]:11.0	e1[á]:11.0	e2[â]:11.0	e3[ã]:11.0	e4[ä]:11.0
e5[å]:11.0	e6[æ]:11.0	e7[ç]:11.0	e8[è]:11.0	e9[é]:11.0	ea[ê]:11.0
eb[ë]:11.0	ec[ì]:11.0	ed[í]:11.0	ee[î]:11.0	ef[ï]:11.0	f0[ð]:11.0
f1[ñ]:11.0	f2[ò]:11.0	f3[ó]:11.0	f4[ô]:11.0	f5[õ]:11.0	f6[ö]:11.0
f7[÷]:11.0	f8[ø]:11.0	f9[ù]:11.0	fa[ú]:11.0	fb[û]:11.0	fc[ü]:11.0
fd[ý]:11.0	fe[þ]:11.0				

DUMP of BM table pfScanOrd[] ...

0[]:00.1					
1[]:00.1	2[]:00.1	3[]:00.1	4[]:00.1	5[]:00.1	6[]:00.1
7[]:00.1	8[]:00.1	9[.]:00.1	a[.]:00.1	b[]	
j:00.1	c[.]:00.1				
d[.]:00.1	e[.]:00.1	f[]:00.1	10[]:00.1	11[]:00.1	12[]:00.1
13[]:00.1	14[]:00.1	15[]:00.1	16[]:00.1	17[]:00.1	18[]:00.1
19[]:00.1	1a[.]:00.1	1b[]:00.1	1c[]:00.1	1d[]:00.1	1e[-]:00.1
1f[!]:00.1	20[]:00.1	21[!]:00.1	22["]:00.1	23[#]:00.1	24[\$]:00.1
25[%]:00.1	26[&]:00.1	27[']:00.1	28[():00.1	29[]:00.1	2a[*]:00.1
2b[+]:00.1	2c[,]:00.1	2d[-]:00.1	2e[.]:00.1	2f[/]:00.1	30[0]:00.1
31[1]:00.1	32[2]:00.1	33[3]:00.1	34[4]:00.1	35[5]:00.1	36[6]:00.1
37[7]:00.1	38[8]:00.1	39[9]:00.1	3a[:]:00.1	3b[;]:00.1	3c[<]:00.1
3d[=]:00.1	3e[>]:00.1	3f[?]:00.1	40[@]:00.1	41[A]:00.1	42[B]:00.1
43[C]:00.1	44[D]:00.1	45[E]:00.1	46[F]:00.1	47[G]:00.1	48[H]:00.1
49[I]:00.1	4a[J]:00.1	4b[K]:00.1	4c[L]:00.1	4d[M]:00.1	4e[N]:00.1
4f[O]:00.1	50[P]:00.1	51[Q]:00.1	52[R]:00.1	53[S]:00.1	54[T]:00.1
55[U]:00.1	56[V]:00.1	57[W]:00.1	58[X]:00.1	59[Y]:00.1	5a[Z]:00.1
5b[]:00.1	5c[\]:00.1	5d[]:00.1	5e[^]:00.1	5f[_]:00.1	60[]:00.1
61[a]:08.9	62[b]:02.3	63[c]:04.5	64[d]:03.2	65[e]:11.1	66[f]:01.5
67[g]:02.4	68[h]:02.9	69[i]:07.8	6a[j]:00.2	6b[k]:01.1	6c[l]:05.5
6d[m]:03.2	6e[n]:06.8	6f[o]:06.9	70[p]:03.1	71[q]:00.2	72[r]:07.4
73[s]:05.6	74[t]:07.1	75[u]:03.6	76[v]:01.0	77[w]:01.1	78[x]:00.3
79[y]:02.0	7a[z]:00.2	7b[{]:00.1	7c[]:00.1	7d[}]:00.1	7e[~]:00.1
7f[]:00.1	80[€]:00.1	81[•]:00.1	82[,]:00.1	83[f]:00.1	84[„]:00.1
85[...]:00.1	86[†]:00.1	87[‡]:00.1	88[^]:00.1	89[‰]:00.1	8a[Š]:00.1
8b[<]:00.1	8c[€]:00.1	8d[•]:00.1	8e[Ž]:00.1	8f[•]:00.1	90[•]:00.1
91[´]:00.1	92[´]:00.1	93[ˆ]:00.1	94[ˆ]:00.1	95[•]:00.1	96[-]:00.1
97[-]:00.1	98[˘]:00.1	99[™]:00.1	9a[š]:00.1	9b[>]:00.1	9c[œ]:00.1
9d[•]:00.1	9e[ž]:00.1	9f[ÿ]:00.1	a0[]:00.1	a1[;]:00.1	a2[ç]:00.1
a3[£]:00.1	a4[¤]:00.1	a5[¥]:00.1	a6[¦]:00.1	a7[§]:00.1	a8[¨]:00.1
a9[©]:00.1	aa[ª]:00.1	ab[«]:00.1	ac[¬]:00.1	ad[-]:00.1	ae[®]:00.1
af[¯]:00.1	b0[°]:00.1	b1[±]:00.1	b2[²]:00.1	b3[³]:00.1	b4[´]:00.1
b5[µ]:00.1	b6[¶]:00.1	b7[·]:00.1	b8[¸]:00.1	b9[¹]:00.1	ba[º]:00.1
bb[»]:00.1	bc[¼]:00.1	bd[½]:00.1	be[¾]:00.1	bf[¿]:00.1	c0[À]:00.1
c1[Á]:00.1	c2[Â]:00.1	c3[Ã]:00.1	c4[Ä]:00.1	c5[Å]:00.1	c6[Æ]:00.1
c7[Ç]:00.1	c8[È]:00.1	c9[É]:00.1	ca[Ê]:00.1	cb[Ë]:00.1	cc[Ì]:00.1
cd[Í]:00.1	ce[Î]:00.1	cf[Ï]:00.1	d0[Ð]:00.1	d1[Ñ]:00.1	d2[Ò]:00.1
d3[Ó]:00.1	d4[Ô]:00.1	d5[Õ]:00.1	d6[Ö]:00.1	d7[×]:00.1	d8[Ø]:00.1
d9[Ù]:00.1	da[Ú]:00.1	db[Û]:00.1	dc[Ü]:00.1	dd[Ý]:00.1	de[Ë]:00.1
df[ß]:00.1	e0[à]:00.1	e1[á]:00.1	e2[â]:00.1	e3[ã]:00.1	e4[ä]:00.1
e5[å]:00.1	e6[æ]:00.1	e7[ç]:00.1	e8[è]:00.1	e9[é]:00.1	ea[ê]:00.1
eb[ë]:00.1	ec[ì]:00.1	ed[í]:00.1	ee[î]:00.1	ef[ï]:00.1	f0[ð]:00.1

f1[ñ]:00.1 f2[ò]:00.1 f3[ó]:00.1 f4[ô]:00.1 f5[ö]:00.1 f6[ö]:00.1
f7[÷]:00.1 f8[ø]:00.1 f9[ù]:00.1 fa[ú]:00.1 fb[û]:00.1 fc[ù]:00.1
fd[ý]:00.1 fe[þ]:00.1

DUMP of unsorted scan ordered string psOrdPat ...
psOrdPat[00]=pzPat[00]=b pfScanOrd[b]=02.3
psOrdPat[01]=pzPat[01]=l pfScanOrd[l]=05.5
psOrdPat[02]=pzPat[02]=† pfScanOrd[†]=00.1
psOrdPat[03]=pzPat[03]=b pfScanOrd[b]=02.3
psOrdPat[04]=pzPat[04]=` pfScanOrd[`]=00.1
psOrdPat[05]=pzPat[05]=r pfScanOrd[r]=07.4
psOrdPat[06]=pzPat[06]=g pfScanOrd[g]=02.4
psOrdPat[07]=pzPat[07]=r pfScanOrd[r]=07.4
psOrdPat[08]=pzPat[08]=> pfScanOrd[>]=00.1
psOrdPat[09]=pzPat[09]=d pfScanOrd[d]=03.2

DUMP of OM - sorted scan ordered string psOrdPat ...
psOrdPat[00]=pzPat[08]=> pfScanOrd[>]=00.1
psOrdPat[01]=pzPat[04]=` pfScanOrd[`]=00.1
psOrdPat[02]=pzPat[02]=† pfScanOrd[†]=00.1
psOrdPat[03]=pzPat[03]=b pfScanOrd[b]=02.3
psOrdPat[04]=pzPat[00]=b pfScanOrd[b]=02.3
psOrdPat[05]=pzPat[06]=g pfScanOrd[g]=02.4
psOrdPat[06]=pzPat[09]=d pfScanOrd[d]=03.2
psOrdPat[07]=pzPat[01]=l pfScanOrd[l]=05.5
psOrdPat[08]=pzPat[07]=r pfScanOrd[r]=07.4
psOrdPat[09]=pzPat[05]=r pfScanOrd[r]=07.4

MATCHSHIFT psOrdPat[00...00] :
iLShift=1 OP[00]=P[08]=> P[07]=r Mismatch
iLShift=2 OP[00]=P[08]=> P[06]=g Mismatch
iLShift=3 OP[00]=P[08]=> P[05]=r Mismatch
iLShift=4 OP[00]=P[08]=> P[04]=` Mismatch
iLShift=5 OP[00]=P[08]=> P[03]=b Mismatch
iLShift=6 OP[00]=P[08]=> P[02]=† Mismatch
iLShift=7 OP[00]=P[08]=> P[01]=l Mismatch
iLShift=8 OP[00]=P[08]=> P[00]=b Mismatch
iLShift=9 OP[00]=P[08]=> P[-1]=* Ignore
LSHIFT : 9

MATCHSHIFT psOrdPat[01...00] :
iLShift=9 OP[01]=P[04]=` P[-5]=* Ignore
iLShift=9 OP[00]=P[08]=> P[-1]=* Ignore
LSHIFT : 9

MATCHSHIFT psOrdPat[02...00] :
iLShift=9 OP[02]=P[02]=† P[-7]=* Ignore
iLShift=9 OP[01]=P[04]=` P[-5]=* Ignore
iLShift=9 OP[00]=P[08]=> P[-1]=* Ignore
LSHIFT : 9

MATCHSHIFT psOrdPat[03...00] :
iLShift=9 OP[03]=P[03]=b P[-6]=* Ignore
iLShift=9 OP[02]=P[02]=† P[-7]=* Ignore
iLShift=9 OP[01]=P[04]=` P[-5]=* Ignore
iLShift=9 OP[00]=P[08]=> P[-1]=* Ignore
LSHIFT : 9

MATCHSHIFT psOrdPat[04...00] :
iLShift=9 OP[04]=P[00]=b P[-9]=* Ignore
iLShift=9 OP[03]=P[03]=b P[-6]=* Ignore
iLShift=9 OP[02]=P[02]=† P[-7]=* Ignore
iLShift=9 OP[01]=P[04]=` P[-5]=* Ignore

```
iLShift=9 OP[00]=P[08]=> P[-1]=* Ignore
LSHIFT : 9
```

```
MATCHSHIFT psOrdPat[05...00] :
iLShift=9 OP[05]=P[06]=g P[-3]=* Ignore
iLShift=9 OP[04]=P[00]=b P[-9]=* Ignore
iLShift=9 OP[03]=P[03]=b P[-6]=* Ignore
iLShift=9 OP[02]=P[02]=† P[-7]=* Ignore
iLShift=9 OP[01]=P[04]=` P[-5]=* Ignore
iLShift=9 OP[00]=P[08]=> P[-1]=* Ignore
LSHIFT : 9
```

```
MATCHSHIFT psOrdPat[06...00] :
iLShift=9 OP[06]=P[09]=d P[00]=b Mismatch
LSHIFT : 10
```

```
MATCHSHIFT psOrdPat[07...00] :
LSHIFT : 10
```

```
MATCHSHIFT psOrdPat[08...00] :
LSHIFT : 10
```

DUMP of initialized BM table piDelta2[] ...

```
piDelta2[00]=01
piDelta2[01]=09
piDelta2[02]=09
piDelta2[03]=09
piDelta2[04]=09
piDelta2[05]=09
piDelta2[06]=09
piDelta2[07]=10
piDelta2[08]=10
piDelta2[09]=10
```

```
piDelta2[00],INITIAL LSHIFT : 1
iLShift=1 OP[00]=P[08]=> P[07]=r OK
```

```
piDelta2[01],INITIAL LSHIFT : 9
iLShift=9 OP[01]=P[04]=` P[-5]=* Ignore
```

```
piDelta2[02],INITIAL LSHIFT : 9
iLShift=9 OP[02]=P[02]=† P[-7]=* Ignore
```

```
piDelta2[03],INITIAL LSHIFT : 9
iLShift=9 OP[03]=P[03]=b P[-6]=* Ignore
```

```
piDelta2[04],INITIAL LSHIFT : 9
iLShift=9 OP[04]=P[00]=b P[-9]=* Ignore
```

```
piDelta2[05],INITIAL LSHIFT : 9
iLShift=9 OP[05]=P[06]=g P[-3]=* Ignore
```

```
piDelta2[06],INITIAL LSHIFT : 9
iLShift=9 OP[06]=P[09]=d P[00]=b OK
```

```
piDelta2[07],INITIAL LSHIFT : 10
```

```
piDelta2[08],INITIAL LSHIFT : 10
```

```
piDelta2[09],INITIAL LSHIFT : 10
```

DUMP of corrected BM table piDelta2[] ...

```
piDelta2[00]=01
```

```
piDelta2[01]=09
piDelta2[02]=09
piDelta2[03]=09
piDelta2[04]=09
piDelta2[05]=09
piDelta2[06]=09
piDelta2[07]=10
piDelta2[08]=10
piDelta2[09]=10
```

TRACE of BM ScanOrder Search ...

```
Pat: bltb`rgr>d
Txt: Test af OptimalMismatch bltb`rgr>d Test af OptimalMismatch
MATCH:[]
FAIL.:pos.008 [ ><>0]
SHIFT:piDeltal[t] =011
      piDelta2[000]=001
      MAX      =011
```

```
Pat: bltb`rgr>d
Txt: imalMismatch bltb`rgr>d Test af OptimalMismatch
MATCH:[]
FAIL.:pos.008 [ ><>a]
SHIFT:piDeltal[c] =011
      piDelta2[000]=001
      MAX      =011
```

```
Pat: bltb`rgr>d
Txt: h bltb`rgr>d Test af OptimalMismatch
MATCH:[]
FAIL.:pos.008 [ ><>g]
SHIFT:piDeltal[>] =002
      piDelta2[000]=001
      MAX      =002
```

```
Pat: bltb`rgr>d
Txt: bltb`rgr>d Test af OptimalMismatch
MATCH:[>`tbbgdlrr]
COMPLETE!
```

OUTPUT ...

```
> Test af OptimalMismatch bltb`rgr>d Test af OptimalMismatch
```

TRACE of BM ScanOrder Search ...

```
Pat: bltb`rgr>d
Txt: Garbage garbage garbage garbage garbage
MATCH:[]
FAIL.:pos.008 [ ><>g]
SHIFT:piDeltal[r] =003
      piDelta2[000]=001
      MAX      =003
```

```
Pat: bltb`rgr>d
Txt: bage garbage garbage garbage garbage
MATCH:[]
FAIL.:pos.008 [ ><>b]
SHIFT:piDeltal[g] =004
      piDelta2[000]=001
      MAX      =004
```

```
Pat: bltb`rgr>d
Txt: garbage garbage garbage garbage
MATCH:[]
FAIL.:pos.008 [ ><> ]
SHIFT:piDeltal[a] =011
      piDelta2[000]=001
      MAX      =011
```

```
Pat: bltb`rgr>d
```

```
Txt:      rbage garbage garbage
          MATCH:[]
          FAIL.:pos.008 [ ><>r]
          SHIFT:piDelta1[a] =011
                piDelta2[000]=001
                MAX      =011
```

```
Pat:      bl†b`rgr>d
Txt:      ge garbage
          MATCH:[]
          FAIL.:pos.008 [ ><>g]
          SHIFT:piDelta1[ ] =011
                piDelta2[000]=001
                MAX      =011
```

TRACE of BM ScanOrder Search ...

```
Pat:      bl†b`rgr>d
Txt:      bl†b`rgr>d
          MATCH:[ >`†bbgdlrr]
          COMPLETE!
```

OUTPUT ...

```
>      bl†b`rgr>d
```

TRACE of BM ScanOrder Search ...

```
Pat:      bl†b`rgr>d
Txt:      zzzzzzzzzbl†b`rgr>d
          MATCH:[]
          FAIL.:pos.008 [ ><>z]
          SHIFT:piDelta1[b] =007
                piDelta2[000]=001
                MAX      =007
```

```
Pat:      bl†b`rgr>d
Txt:      zzzbl†b`rgr>d
          MATCH:[]
          FAIL.:pos.008 [ ><>r]
          SHIFT:piDelta1[r] =003
                piDelta2[000]=001
                MAX      =003
```

```
Pat:      bl†b`rgr>d
Txt:      bl†b`rgr>d
          MATCH:[ >`†bbgdlrr]
          COMPLETE!
```

OUTPUT ...

```
>      zzzzzzzzzbl†b`rgr>d
```

Data structures deallocated ...

```

/***** 2 *****/
/***** abcdabcab *****/
/*****
```

```

/*-----*/
/*          1: Test BM with Quick Search algorithm          */
/*-----*/
```

```
C:> bm [-Q] abcdabcab
```

```
===== BUILDING NEW BM =====
PARSE INPUT STRING ...
      abcdabcab
```

DUMP of BM table piDelta1[] ...

```

0[.]:10.0
1[ ]:10.0  2[ ]:10.0  3[ ]:10.0  4[ ]:10.0  5[ ]:10.0  6[ ]:10.0
7[ ]:10.0  8[ ]:10.0  9[.]:10.0  a[.]:10.0  b[
]:10.0  c[.]:10.0
d[.]:10.0  e[.]:10.0  f[ ]:10.0  10[ ]:10.0  11[ ]:10.0  12[ ]:10.0
13[ ]:10.0  14[ ]:10.0  15[ ]:10.0  16[ ]:10.0  17[ ]:10.0  18[ ]:10.0
19[ ]:10.0  1a[.]:10.0  1b[ ]:10.0  1c[ ]:10.0  1d[ ]:10.0  1e[-]:10.0
1f[ ]:10.0  20[ ]:10.0  21[!]:10.0  22["]:10.0  23[#]:10.0  24[$]:10.0
25[%]:10.0  26[&]:10.0  27[']:10.0  28[( )]:10.0  29[ ]:10.0  2a[*]:10.0
2b[+]:10.0  2c[, ]:10.0  2d[-]:10.0  2e[.]:10.0  2f[/]:10.0  30[0]:10.0
31[1]:10.0  32[2]:10.0  33[3]:10.0  34[4]:10.0  35[5]:10.0  36[6]:10.0
37[7]:10.0  38[8]:10.0  39[9]:10.0  3a[:]:10.0  3b[;]:10.0  3c[<]:10.0
3d[=]:10.0  3e[>]:10.0  3f[?]:10.0  40[@]:10.0  41[A]:10.0  42[B]:10.0
43[C]:10.0  44[D]:10.0  45[E]:10.0  46[F]:10.0  47[G]:10.0  48[H]:10.0
49[I]:10.0  4a[J]:10.0  4b[K]:10.0  4c[L]:10.0  4d[M]:10.0  4e[N]:10.0
4f[O]:10.0  50[P]:10.0  51[Q]:10.0  52[R]:10.0  53[S]:10.0  54[T]:10.0
55[U]:10.0  56[V]:10.0  57[W]:10.0  58[X]:10.0  59[Y]:10.0  5a[Z]:10.0
5b[ ]:10.0  5c[\\]:10.0  5d[ ]:10.0  5e[^]:10.0  5f[_]:10.0  60[`]:10.0
61[a]:02.0  62[b]:01.0  63[c]:03.0  64[d]:06.0  65[e]:10.0  66[f]:10.0
67[g]:10.0  68[h]:10.0  69[i]:10.0  6a[j]:10.0  6b[k]:10.0  6c[l]:10.0
6d[m]:10.0  6e[n]:10.0  6f[o]:10.0  70[p]:10.0  71[q]:10.0  72[r]:10.0
73[s]:10.0  74[t]:10.0  75[u]:10.0  76[v]:10.0  77[w]:10.0  78[x]:10.0
79[y]:10.0  7a[z]:10.0  7b[{ }]:10.0  7c[| ]:10.0  7d[ } ]:10.0  7e[~]:10.0
7f[ ]:10.0  80[e]:10.0  81[•]:10.0  82[, ]:10.0  83[f]:10.0  84[„]:10.0
85[...]:10.0  86[†]:10.0  87[‡]:10.0  88[^]:10.0  89[%]:10.0  8a[Š]:10.0
8b[<]:10.0  8c[€]:10.0  8d[•]:10.0  8e[Ž]:10.0  8f[•]:10.0  90[•]:10.0
91[´]:10.0  92[´]:10.0  93[¨]:10.0  94[¨]:10.0  95[•]:10.0  96[-]:10.0
97[-]:10.0  98[~]:10.0  99[™]:10.0  9a[š]:10.0  9b[>]:10.0  9c[œ]:10.0
9d[•]:10.0  9e[ž]:10.0  9f[ÿ]:10.0  a0[ ]:10.0  a1[;]:10.0  a2[¢]:10.0
a3[£]:10.0  a4[¤]:10.0  a5[¥]:10.0  a6[¦]:10.0  a7[$]:10.0  a8[¨]:10.0
a9[©]:10.0  aa[ª]:10.0  ab[«]:10.0  ac[¬]:10.0  ad[¯]:10.0  ae[®]:10.0
af[¯]:10.0  b0[°]:10.0  b1[±]:10.0  b2[²]:10.0  b3[³]:10.0  b4[´]:10.0
b5[µ]:10.0  b6[¶]:10.0  b7[·]:10.0  b8[¸]:10.0  b9[¹]:10.0  ba[º]:10.0
bb[»]:10.0  bc[¼]:10.0  bd[½]:10.0  be[¾]:10.0  bf[¿]:10.0  c0[À]:10.0
c1[Á]:10.0  c2[Â]:10.0  c3[Ã]:10.0  c4[Ä]:10.0  c5[Å]:10.0  c6[Æ]:10.0
c7[Ç]:10.0  c8[È]:10.0  c9[É]:10.0  ca[Ê]:10.0  cb[Ë]:10.0  cc[Ì]:10.0
cd[Í]:10.0  ce[Î]:10.0  cf[Ï]:10.0  d0[Ð]:10.0  d1[Ñ]:10.0  d2[Ò]:10.0
d3[Ó]:10.0  d4[Ô]:10.0  d5[Õ]:10.0  d6[Ö]:10.0  d7[×]:10.0  d8[Ø]:10.0
d9[Ù]:10.0  da[Ú]:10.0  db[Û]:10.0  dc[Ü]:10.0  dd[Ý]:10.0  de[Þ]:10.0
df[ß]:10.0  e0[à]:10.0  e1[á]:10.0  e2[â]:10.0  e3[ã]:10.0  e4[ä]:10.0
e5[å]:10.0  e6[æ]:10.0  e7[ç]:10.0  e8[è]:10.0  e9[é]:10.0  ea[ê]:10.0
eb[ë]:10.0  ec[ì]:10.0  ed[í]:10.0  ee[î]:10.0  ef[ï]:10.0  f0[ð]:10.0
f1[ñ]:10.0  f2[ò]:10.0  f3[ó]:10.0  f4[ô]:10.0  f5[ö]:10.0  f6[ø]:10.0
f7[÷]:10.0  f8[ø]:10.0  f9[ù]:10.0  fa[ú]:10.0  fb[û]:10.0  fc[ü]:10.0
fd[ý]:10.0  fe[þ]:10.0

```

TRACE of BM Quick Search ...

```

Pat:      abcdabcab
Txt:      ababcabcdababcdabcabcdefg
          MATCH:[ab]
          FAIL.: [c<>a]
          SHIFT:piDelta1[a]=002

Pat:      abcdabcab
Txt:      abcabcdababcdabcabcdefg
          MATCH:[abc]
          FAIL.: [d<>a]
          SHIFT:piDelta1[c]=003

Pat:      abcdabcab
Txt:      abcdababcdabcabcdefg
          MATCH:[abcdabc]
          FAIL.: [a<>d]
          SHIFT:piDelta1[b]=001

Pat:      abcdabcab

```

```
Txt:      bcdabcbcabcbcddefg
          MATCH: []
          FAIL.: [a<>b]
          SHIFT: piDelta[c]=003
Pat:      abcdabcbcab
Txt:      abcdabcbcabcddefg
          MATCH: [abcdabcbcab]
          COMPLETE!
```

```
OUTPUT ...
>      ababcbcabcdabcbcabcddefg
```

Data structures deallocated ...

```
/*-----*/
/*          2: Test BM with Maximal Shift algorithm          */
/*-----*/
```

```
C:> bm -M abcdabcbcab
```

```
===== BUILDING NEW BM =====
PARSE INPUT STRING ...
      abcdabcbcab
```

DUMP of BM table piDelta[] ...

```
0[.]:10.0
1[ ]:10.0  2[ ]:10.0  3[ ]:10.0  4[ ]:10.0  5[ ]:10.0  6[ ]:10.0
7[ ]:10.0  8[ ]:10.0  9[.]:10.0  a[.]:10.0  b[
]:10.0  c[.]:10.0
d[.]:10.0  e[.]:10.0  f[ ]:10.0  10[ ]:10.0  11[ ]:10.0  12[ ]:10.0
13[ ]:10.0  14[ ]:10.0  15[ ]:10.0  16[ ]:10.0  17[ ]:10.0  18[ ]:10.0
19[ ]:10.0  1a[.]:10.0  1b[ ]:10.0  1c[ ]:10.0  1d[ ]:10.0  1e[-]:10.0
1f[ ]:10.0  20[ ]:10.0  21[!]:10.0  22["]:10.0  23[#]:10.0  24[$]:10.0
25[%]:10.0  26[&]:10.0  27[']:10.0  28[( ):10.0  29[ ]:10.0  2a[*]:10.0
2b[+]:10.0  2c[,]:10.0  2d[-]:10.0  2e[.]:10.0  2f[/]:10.0  30[0]:10.0
31[1]:10.0  32[2]:10.0  33[3]:10.0  34[4]:10.0  35[5]:10.0  36[6]:10.0
37[7]:10.0  38[8]:10.0  39[9]:10.0  3a[:]:10.0  3b[;]:10.0  3c[<]:10.0
3d[=]:10.0  3e[>]:10.0  3f[?]:10.0  40[@]:10.0  41[A]:10.0  42[B]:10.0
43[C]:10.0  44[D]:10.0  45[E]:10.0  46[F]:10.0  47[G]:10.0  48[H]:10.0
49[I]:10.0  4a[J]:10.0  4b[K]:10.0  4c[L]:10.0  4d[M]:10.0  4e[N]:10.0
4f[O]:10.0  50[P]:10.0  51[Q]:10.0  52[R]:10.0  53[S]:10.0  54[T]:10.0
55[U]:10.0  56[V]:10.0  57[W]:10.0  58[X]:10.0  59[Y]:10.0  5a[Z]:10.0
5b[[]]:10.0  5c[\]:10.0  5d[ ]:10.0  5e[^]:10.0  5f[_]:10.0  60[`]:10.0
61[a]:02.0  62[b]:01.0  63[c]:03.0  64[d]:06.0  65[e]:10.0  66[f]:10.0
67[g]:10.0  68[h]:10.0  69[i]:10.0  6a[j]:10.0  6b[k]:10.0  6c[l]:10.0
6d[m]:10.0  6e[n]:10.0  6f[o]:10.0  70[p]:10.0  71[q]:10.0  72[r]:10.0
73[s]:10.0  74[t]:10.0  75[u]:10.0  76[v]:10.0  77[w]:10.0  78[x]:10.0
79[y]:10.0  7a[z]:10.0  7b[{}]:10.0  7c[|]:10.0  7d[{}]:10.0  7e[~]:10.0
7f[ ]:10.0  80[e]:10.0  81[•]:10.0  82[,]:10.0  83[f]:10.0  84[, ]:10.0
85[...]:10.0  86[+]:10.0  87[#]:10.0  88[^]:10.0  89[%]:10.0  8a[Š]:10.0
8b[<]:10.0  8c[€]:10.0  8d[•]:10.0  8e[Ž]:10.0  8f[•]:10.0  90[•]:10.0
91[`]:10.0  92[']:10.0  93[“]:10.0  94[”]:10.0  95[•]:10.0  96[-]:10.0
97[-]:10.0  98[~]:10.0  99[™]:10.0  9a[š]:10.0  9b[>]:10.0  9c[œ]:10.0
9d[•]:10.0  9e[ž]:10.0  9f[ÿ]:10.0  a0[ ]:10.0  a1[ ]:10.0  a2[ ]:10.0
a3[£]:10.0  a4[¤]:10.0  a5[¥]:10.0  a6[ ]:10.0  a7[$]:10.0  a8[ ]:10.0
a9[©]:10.0  aa[ª]:10.0  ab[«]:10.0  ac[-]:10.0  ad[-]:10.0  ae[©]:10.0
af[ ]:10.0  b0[°]:10.0  b1[±]:10.0  b2[²]:10.0  b3[³]:10.0  b4[´]:10.0
b5[µ]:10.0  b6[¶]:10.0  b7[·]:10.0  b8[ ]:10.0  b9[¹]:10.0  ba[°]:10.0
bb[»]:10.0  bc[¼]:10.0  bd[½]:10.0  be[¾]:10.0  bf[¿]:10.0  c0[À]:10.0
c1[Á]:10.0  c2[Â]:10.0  c3[Ã]:10.0  c4[Ä]:10.0  c5[Å]:10.0  c6[Æ]:10.0
c7[Ç]:10.0  c8[È]:10.0  c9[É]:10.0  ca[Ê]:10.0  cb[Ë]:10.0  cc[Ì]:10.0
cd[Í]:10.0  ce[Î]:10.0  cf[Ï]:10.0  d0[Ð]:10.0  d1[Ñ]:10.0  d2[Ò]:10.0
d3[Ó]:10.0  d4[Ô]:10.0  d5[Õ]:10.0  d6[Ö]:10.0  d7[×]:10.0  d8[Ø]:10.0
d9[Ù]:10.0  da[Ú]:10.0  db[Û]:10.0  dc[Ü]:10.0  dd[Ý]:10.0  de[ß]:10.0
df[ß]:10.0  e0[à]:10.0  e1[á]:10.0  e2[â]:10.0  e3[ã]:10.0  e4[ä]:10.0
```

e5[å]:10.0 e6[æ]:10.0 e7[ç]:10.0 e8[è]:10.0 e9[é]:10.0 ea[ê]:10.0
eb[ë]:10.0 ec[ì]:10.0 ed[í]:10.0 ee[î]:10.0 ef[ï]:10.0 f0[ø]:10.0
f1[ñ]:10.0 f2[ò]:10.0 f3[ó]:10.0 f4[ô]:10.0 f5[ö]:10.0 f6[ë]:10.0
f7[÷]:10.0 f8[ø]:10.0 f9[ù]:10.0 fa[ú]:10.0 fb[û]:10.0 fc[ü]:10.0
fd[ý]:10.0 fe[þ]:10.0

DUMP of unsorted scan ordered string psOrdPat ...
psOrdPat[00]=pzPat[00]=a pfScanOrd[00]=01.0
psOrdPat[01]=pzPat[01]=b pfScanOrd[01]=02.0
psOrdPat[02]=pzPat[02]=c pfScanOrd[02]=03.0
psOrdPat[03]=pzPat[03]=d pfScanOrd[03]=04.0
psOrdPat[04]=pzPat[04]=a pfScanOrd[04]=04.0
psOrdPat[05]=pzPat[05]=b pfScanOrd[05]=04.0
psOrdPat[06]=pzPat[06]=c pfScanOrd[06]=04.0
psOrdPat[07]=pzPat[07]=a pfScanOrd[07]=03.0
psOrdPat[08]=pzPat[08]=b pfScanOrd[08]=03.0

DUMP of MS - sorted scan ordered string psOrdPat ...
psOrdPat[00]=pzPat[06]=c pfScanOrd[00]=04.0
psOrdPat[01]=pzPat[05]=b pfScanOrd[01]=04.0
psOrdPat[02]=pzPat[04]=a pfScanOrd[02]=04.0
psOrdPat[03]=pzPat[03]=d pfScanOrd[03]=04.0
psOrdPat[04]=pzPat[08]=b pfScanOrd[04]=03.0
psOrdPat[05]=pzPat[07]=a pfScanOrd[05]=03.0
psOrdPat[06]=pzPat[02]=c pfScanOrd[06]=03.0
psOrdPat[07]=pzPat[01]=b pfScanOrd[07]=02.0
psOrdPat[08]=pzPat[00]=a pfScanOrd[08]=01.0

MATCHSHIFT psOrdPat[00...00] :
iLShift=1 OP[00]=P[06]=c P[05]=b Mismatch
iLShift=2 OP[00]=P[06]=c P[04]=a Mismatch
iLShift=3 OP[00]=P[06]=c P[03]=d Mismatch
iLShift=4 OP[00]=P[06]=c P[02]=c MATCH
LSHIFT : 4

MATCHSHIFT psOrdPat[01...00] :
iLShift=4 OP[01]=P[05]=b P[01]=b MATCH
iLShift=4 OP[00]=P[06]=c P[02]=c MATCH
LSHIFT : 4

MATCHSHIFT psOrdPat[02...00] :
iLShift=4 OP[02]=P[04]=a P[00]=a MATCH
iLShift=4 OP[01]=P[05]=b P[01]=b MATCH
iLShift=4 OP[00]=P[06]=c P[02]=c MATCH
LSHIFT : 4

MATCHSHIFT psOrdPat[03...00] :
iLShift=4 OP[03]=P[03]=d P[-1]=* Ignore
iLShift=4 OP[02]=P[04]=a P[00]=a MATCH
iLShift=4 OP[01]=P[05]=b P[01]=b MATCH
iLShift=4 OP[00]=P[06]=c P[02]=c MATCH
LSHIFT : 4

MATCHSHIFT psOrdPat[04...00] :
iLShift=4 OP[04]=P[08]=b P[04]=a Mismatch
iLShift=5 OP[04]=P[08]=b P[03]=d Mismatch
iLShift=6 OP[04]=P[08]=b P[02]=c Mismatch
iLShift=7 OP[04]=P[08]=b P[01]=b MATCH
iLShift=7 OP[03]=P[03]=d P[-4]=* Ignore
iLShift=7 OP[02]=P[04]=a P[-3]=* Ignore
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
iLShift=7 OP[00]=P[06]=c P[-1]=* Ignore
LSHIFT : 7

```
MATCHSHIFT psOrdPat[05...00] :
iLShift=7 OP[05]=P[07]=a P[00]=a MATCH
iLShift=7 OP[04]=P[08]=b P[01]=b MATCH
iLShift=7 OP[03]=P[03]=d P[-4]=* Ignore
iLShift=7 OP[02]=P[04]=a P[-3]=* Ignore
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
iLShift=7 OP[00]=P[06]=c P[-1]=* Ignore
LSHIFT : 7
```

```
MATCHSHIFT psOrdPat[06...00] :
iLShift=7 OP[06]=P[02]=c P[-5]=* Ignore
iLShift=7 OP[05]=P[07]=a P[00]=a MATCH
iLShift=7 OP[04]=P[08]=b P[01]=b MATCH
iLShift=7 OP[03]=P[03]=d P[-4]=* Ignore
iLShift=7 OP[02]=P[04]=a P[-3]=* Ignore
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
iLShift=7 OP[00]=P[06]=c P[-1]=* Ignore
LSHIFT : 7
```

```
MATCHSHIFT psOrdPat[07...00] :
iLShift=7 OP[07]=P[01]=b P[-6]=* Ignore
iLShift=7 OP[06]=P[02]=c P[-5]=* Ignore
iLShift=7 OP[05]=P[07]=a P[00]=a MATCH
iLShift=7 OP[04]=P[08]=b P[01]=b MATCH
iLShift=7 OP[03]=P[03]=d P[-4]=* Ignore
iLShift=7 OP[02]=P[04]=a P[-3]=* Ignore
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
iLShift=7 OP[00]=P[06]=c P[-1]=* Ignore
LSHIFT : 7
```

DUMP of initialized BM table piDelta2[] ...

```
piDelta2[00]=01
piDelta2[01]=04
piDelta2[02]=04
piDelta2[03]=04
piDelta2[04]=04
piDelta2[05]=07
piDelta2[06]=07
piDelta2[07]=07
piDelta2[08]=07
```

```
piDelta2[00],INITIAL LSHIFT : 1
iLShift=1 OP[00]=P[06]=c P[05]=b OK
```

```
piDelta2[01],INITIAL LSHIFT : 4
iLShift=4 OP[01]=P[05]=b P[01]=b RESET
```

```
MATCHSHIFT psOrdPat[00...00] :
iLShift=5 OP[00]=P[06]=c P[01]=b Mismatch
iLShift=6 OP[00]=P[06]=c P[00]=a Mismatch
iLShift=7 OP[00]=P[06]=c P[-1]=* Ignore
LSHIFT : 7
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
```

```
piDelta2[02],INITIAL LSHIFT : 4
iLShift=4 OP[02]=P[04]=a P[00]=a RESET
```

```
MATCHSHIFT psOrdPat[01...00] :
iLShift=5 OP[01]=P[05]=b P[00]=a Mismatch
iLShift=6 OP[01]=P[05]=b P[-1]=* Ignore
iLShift=6 OP[00]=P[06]=c P[00]=a Mismatch
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
```



```
iLShift=7 OP[00]=P[06]=c P[-1]=* Ignore
LSHIFT : 7
iLShift=7 OP[02]=P[04]=a P[-3]=* Ignore
```

```
piDelta2[03],INITIAL LSHIFT : 4
iLShift=4 OP[03]=P[03]=d P[-1]=* Ignore
```

```
piDelta2[04],INITIAL LSHIFT : 4
iLShift=4 OP[04]=P[08]=b P[04]=a OK
```

```
piDelta2[05],INITIAL LSHIFT : 7
iLShift=7 OP[05]=P[07]=a P[00]=a RESET
```

```
MATCHSHIFT psOrdPat[04...00] :
iLShift=8 OP[04]=P[08]=b P[00]=a Mismatch
LSHIFT : 9
```

```
piDelta2[06],INITIAL LSHIFT : 7
iLShift=7 OP[06]=P[02]=c P[-5]=* Ignore
```

```
piDelta2[07],INITIAL LSHIFT : 7
iLShift=7 OP[07]=P[01]=b P[-6]=* Ignore
```

```
piDelta2[08],INITIAL LSHIFT : 7
iLShift=7 OP[08]=P[00]=a P[-7]=* Ignore
```

DUMP of corrected BM table piDelta2[] ...

```
piDelta2[00]=01
piDelta2[01]=07
piDelta2[02]=07
piDelta2[03]=04
piDelta2[04]=04
piDelta2[05]=09
piDelta2[06]=07
piDelta2[07]=07
piDelta2[08]=07
```

TRACE of BM ScanOrder Search ...

```
Pat: abcdabcab
Txt: ababcabcdabcbcabcddefg
MATCH: []
FAIL.:pos.006 [c<>b]
SHIFT:piDelta1[a] =002
piDelta2[000]=001
MAX =002
```

```
Pat: abcdabcab
Txt: abcabcdabcbcabcddefg
MATCH: []
FAIL.:pos.006 [c<>d]
SHIFT:piDelta1[c] =003
piDelta2[000]=001
MAX =003
```

```
Pat: abcdabcab
Txt: abcdabcbcabcddefg
MATCH: [cbad]
FAIL.:pos.008 [b<>a]
SHIFT:piDelta1[b] =001
piDelta2[004]=004
MAX =004
```

```
Pat: abcdabcab
Txt: abcdabcbcabcddefg
MATCH: [cbadbacba]
COMPLETE!
```

OUTPUT ...
> ababcabcdabcbcabcddefg

Data structures deallocated ...

```
/*-----*/  
/*          3: Test BM with Optimal Mismatch algorithm          */  
/*-----*/
```

C:> bm -M abcdabcbcab

===== BUILDING NEW BM =====

PARSE INPUT STRING ...

abcdabcbcab

DUMP of BM table piDelta1[] ...

0[.]:10.0					
1[]:10.0	2[]:10.0	3[]:10.0	4[]:10.0	5[]:10.0	6[]:10.0
7[]:10.0	8[]:10.0	9[.]:10.0	a[.]:10.0	b[
]:10.0	c[.]:10.0				
d[.]:10.0	e[.]:10.0	f[]:10.0	10[]:10.0	11[]:10.0	12[]:10.0
13[]:10.0	14[]:10.0	15[]:10.0	16[]:10.0	17[]:10.0	18[]:10.0
19[]:10.0	1a[.]:10.0	1b[]:10.0	1c[]:10.0	1d[]:10.0	1e[-]:10.0
1f[]:10.0	20[]:10.0	21[!]:10.0	22["]:10.0	23[#]:10.0	24[\$]:10.0
25[%]:10.0	26[&]:10.0	27[']:10.0	28[():10.0	29[]:10.0	2a[*]:10.0
2b[+]:10.0	2c[,]:10.0	2d[-]:10.0	2e[.]:10.0	2f[/]:10.0	30[0]:10.0
31[1]:10.0	32[2]:10.0	33[3]:10.0	34[4]:10.0	35[5]:10.0	36[6]:10.0
37[7]:10.0	38[8]:10.0	39[9]:10.0	3a[:]:10.0	3b[;]:10.0	3c[<]:10.0
3d[=]:10.0	3e[>]:10.0	3f[?]:10.0	40[@]:10.0	41[A]:10.0	42[B]:10.0
43[C]:10.0	44[D]:10.0	45[E]:10.0	46[F]:10.0	47[G]:10.0	48[H]:10.0
49[I]:10.0	4a[J]:10.0	4b[K]:10.0	4c[L]:10.0	4d[M]:10.0	4e[N]:10.0
4f[O]:10.0	50[P]:10.0	51[Q]:10.0	52[R]:10.0	53[S]:10.0	54[T]:10.0
55[U]:10.0	56[V]:10.0	57[W]:10.0	58[X]:10.0	59[Y]:10.0	5a[Z]:10.0
5b[[]:10.0	5c[\]:10.0	5d[]:10.0	5e[^]:10.0	5f[_]:10.0	60[`]:10.0
61[a]:02.0	62[b]:01.0	63[c]:03.0	64[d]:06.0	65[e]:10.0	66[f]:10.0
67[g]:10.0	68[h]:10.0	69[i]:10.0	6a[j]:10.0	6b[k]:10.0	6c[l]:10.0
6d[m]:10.0	6e[n]:10.0	6f[o]:10.0	70[p]:10.0	71[q]:10.0	72[r]:10.0
73[s]:10.0	74[t]:10.0	75[u]:10.0	76[v]:10.0	77[w]:10.0	78[x]:10.0
79[y]:10.0	7a[z]:10.0	7b[{]:10.0	7c[]:10.0	7d[]:10.0	7e[~]:10.0
7f[]:10.0	80[]:10.0	81[.]:10.0	82[,]:10.0	83[f]:10.0	84[]:10.0
85[...]:10.0	86[+]:10.0	87[+]:10.0	88[^]:10.0	89[%]:10.0	8a[Š]:10.0
8b[<]:10.0	8c[€]:10.0	8d[.]:10.0	8e[Ž]:10.0	8f[.]:10.0	90[.]:10.0
91[`]:10.0	92[`]:10.0	93[`]:10.0	94[`]:10.0	95[.]:10.0	96[-]:10.0
97[-]:10.0	98[`]:10.0	99[™]:10.0	9a[š]:10.0	9b[>]:10.0	9c[œ]:10.0
9d[.]:10.0	9e[ž]:10.0	9f[Ÿ]:10.0	a0[]:10.0	a1[;]:10.0	a2[ç]:10.0
a3[£]:10.0	a4[¤]:10.0	a5[¥]:10.0	a6[;]:10.0	a7[§]:10.0	a8[`]:10.0
a9[©]:10.0	aa[ª]:10.0	ab[«]:10.0	ac[¬]:10.0	ad[-]:10.0	ae[®]:10.0
af[¯]:10.0	b0[°]:10.0	b1[±]:10.0	b2[²]:10.0	b3[³]:10.0	b4[´]:10.0
b5[µ]:10.0	b6[¶]:10.0	b7[·]:10.0	b8[,]:10.0	b9[¹]:10.0	ba[°]:10.0
bb[»]:10.0	bc[¼]:10.0	bd[½]:10.0	be[¾]:10.0	bf[¿]:10.0	c0[Å]:10.0
c1[Á]:10.0	c2[Â]:10.0	c3[Ã]:10.0	c4[Ä]:10.0	c5[Å]:10.0	c6[Æ]:10.0
c7[Ç]:10.0	c8[È]:10.0	c9[É]:10.0	ca[Ê]:10.0	cb[Ë]:10.0	cc[Ì]:10.0
cd[Í]:10.0	ce[Î]:10.0	cf[Ï]:10.0	d0[Ð]:10.0	d1[Ñ]:10.0	d2[Ò]:10.0
d3[Ó]:10.0	d4[Ô]:10.0	d5[Õ]:10.0	d6[Ö]:10.0	d7[×]:10.0	d8[Ø]:10.0
d9[Û]:10.0	da[Ü]:10.0	db[Û]:10.0	dc[Û]:10.0	dd[Ý]:10.0	de[Ë]:10.0
df[ß]:10.0	e0[à]:10.0	e1[á]:10.0	e2[â]:10.0	e3[ã]:10.0	e4[ä]:10.0
e5[å]:10.0	e6[æ]:10.0	e7[ç]:10.0	e8[è]:10.0	e9[é]:10.0	ea[ê]:10.0
eb[ë]:10.0	ec[ì]:10.0	ed[í]:10.0	ee[î]:10.0	ef[ï]:10.0	f0[ð]:10.0
f1[ñ]:10.0	f2[ò]:10.0	f3[ó]:10.0	f4[ô]:10.0	f5[ö]:10.0	f6[ö]:10.0
f7[÷]:10.0	f8[ø]:10.0	f9[ù]:10.0	fa[ú]:10.0	fb[û]:10.0	fc[ü]:10.0
fd[ý]:10.0	fe[þ]:10.0				

DUMP of BM table pfScanOrd[] ...

0[]:00.1

```

1[ ]:00.1  2[ ]:00.1  3[ ]:00.1  4[ ]:00.1  5[ ]:00.1  6[ ]:00.1
7[ ]:00.1  8[ ]:00.1  9[.]:00.1  a[.]:00.1  b[
]:00.1  c[.]:00.1
d[.]:00.1  e[.]:00.1  f[ ]:00.1  10[ ]:00.1  11[ ]:00.1  12[ ]:00.1
13[ ]:00.1  14[ ]:00.1  15[ ]:00.1  16[ ]:00.1  17[ ]:00.1  18[ ]:00.1
19[ ]:00.1  1a[.]:00.1  1b[ ]:00.1  1c[ ]:00.1  1d[ ]:00.1  1e[-]:00.1
1f[ ]:00.1  20[ ]:00.1  21[!]:00.1  22["]:00.1  23[#]:00.1  24[$]:00.1
25[%]:00.1  26[&]:00.1  27[']:00.1  28[( ):00.1  29[ ]:00.1  2a[*]:00.1
2b[+]:00.1  2c[, ]:00.1  2d[-]:00.1  2e[.]:00.1  2f[/]:00.1  30[0]:00.1
31[1]:00.1  32[2]:00.1  33[3]:00.1  34[4]:00.1  35[5]:00.1  36[6]:00.1
37[7]:00.1  38[8]:00.1  39[9]:00.1  3a[:]:00.1  3b[;]:00.1  3c[<]:00.1
3d[=]:00.1  3e[>]:00.1  3f[?]:00.1  40[@]:00.1  41[A]:00.1  42[B]:00.1
43[C]:00.1  44[D]:00.1  45[E]:00.1  46[F]:00.1  47[G]:00.1  48[H]:00.1
49[I]:00.1  4a[J]:00.1  4b[K]:00.1  4c[L]:00.1  4d[M]:00.1  4e[N]:00.1
4f[O]:00.1  50[P]:00.1  51[Q]:00.1  52[R]:00.1  53[S]:00.1  54[T]:00.1
55[U]:00.1  56[V]:00.1  57[W]:00.1  58[X]:00.1  59[Y]:00.1  5a[Z]:00.1
5b[[ ]:00.1  5c[\ ]:00.1  5d[ ]:00.1  5e[^]:00.1  5f[_]:00.1  60[`]:00.1
61[a]:08.9  62[b]:02.3  63[c]:04.5  64[d]:03.2  65[e]:11.1  66[f]:01.5
67[g]:02.4  68[h]:02.9  69[i]:07.8  6a[j]:00.2  6b[k]:01.1  6c[l]:05.5
6d[m]:03.2  6e[n]:06.8  6f[o]:06.9  70[p]:03.1  71[q]:00.2  72[r]:07.4
73[s]:05.6  74[t]:07.1  75[u]:03.6  76[v]:01.0  77[w]:01.1  78[x]:00.3
79[y]:02.0  7a[z]:00.2  7b[{ ]:00.1  7c[| ]:00.1  7d[ } ]:00.1  7e[~]:00.1
7f[ ]:00.1  80[€]:00.1  81[•]:00.1  82[, ]:00.1  83[f ]:00.1  84[„]:00.1
85[...]:00.1  86[†]:00.1  87[‡]:00.1  88[ˆ]:00.1  89[‰]:00.1  8a[Š]:00.1
8b[<]:00.1  8c[Ⓒ]:00.1  8d[•]:00.1  8e[Ž]:00.1  8f[•]:00.1  90[•]:00.1
91[ ` ]:00.1  92[´]:00.1  93[¨]:00.1  94[¨]:00.1  95[•]:00.1  96[-]:00.1
97[-]:00.1  98[˘]:00.1  99[™]:00.1  9a[š]:00.1  9b[>]:00.1  9c[œ]:00.1
9d[•]:00.1  9e[ž]:00.1  9f[ÿ]:00.1  a0[ ]:00.1  a1[;]:00.1  a2[¢]:00.1
a3[£]:00.1  a4[¤]:00.1  a5[¥]:00.1  a6[†]:00.1  a7[$]:00.1  a8[ˆ]:00.1
a9[©]:00.1  aa[ª]:00.1  ab[«]:00.1  ac[¬]:00.1  ad[-]:00.1  ae[®]:00.1
af[¯]:00.1  b0[°]:00.1  b1[±]:00.1  b2[²]:00.1  b3[³]:00.1  b4[´]:00.1
b5[µ]:00.1  b6[¶]:00.1  b7[·]:00.1  b8[¸]:00.1  b9[¹]:00.1  ba[º]:00.1
bb[»]:00.1  bc[¼]:00.1  bd[½]:00.1  be[¾]:00.1  bf[¿]:00.1  c0[À]:00.1
c1[Á]:00.1  c2[Â]:00.1  c3[Ã]:00.1  c4[Ä]:00.1  c5[Å]:00.1  c6[Æ]:00.1
c7[Ç]:00.1  c8[È]:00.1  c9[É]:00.1  ca[Ê]:00.1  cb[Ë]:00.1  cc[Ì]:00.1
cd[Í]:00.1  ce[Î]:00.1  cf[Ï]:00.1  d0[Ð]:00.1  d1[Ñ]:00.1  d2[Ò]:00.1
d3[Ó]:00.1  d4[Ô]:00.1  d5[Ö]:00.1  d6[Ø]:00.1  d7[×]:00.1  d8[Ø]:00.1
d9[Ù]:00.1  da[Ú]:00.1  db[Û]:00.1  dc[Ü]:00.1  dd[Ý]:00.1  de[Þ]:00.1
df[ß]:00.1  e0[à]:00.1  e1[á]:00.1  e2[â]:00.1  e3[ã]:00.1  e4[ä]:00.1
e5[å]:00.1  e6[æ]:00.1  e7[ç]:00.1  e8[è]:00.1  e9[é]:00.1  ea[ê]:00.1
eb[ë]:00.1  ec[ì]:00.1  ed[í]:00.1  ee[î]:00.1  ef[ï]:00.1  f0[ð]:00.1
f1[ñ]:00.1  f2[ò]:00.1  f3[ó]:00.1  f4[ô]:00.1  f5[ö]:00.1  f6[ø]:00.1
f7[÷]:00.1  f8[ø]:00.1  f9[ù]:00.1  fa[ú]:00.1  fb[û]:00.1  fc[ü]:00.1
fd[ý]:00.1  fe[þ]:00.1

```

```

DUMP of unsorted scan ordered string psOrdPat ...
psOrdPat[00]=pzPat[00]=a  pfScanOrd[a]=08.9
psOrdPat[01]=pzPat[01]=b  pfScanOrd[b]=02.3
psOrdPat[02]=pzPat[02]=c  pfScanOrd[c]=04.5
psOrdPat[03]=pzPat[03]=d  pfScanOrd[d]=03.2
psOrdPat[04]=pzPat[04]=a  pfScanOrd[a]=08.9
psOrdPat[05]=pzPat[05]=b  pfScanOrd[b]=02.3
psOrdPat[06]=pzPat[06]=c  pfScanOrd[c]=04.5
psOrdPat[07]=pzPat[07]=a  pfScanOrd[a]=08.9
psOrdPat[08]=pzPat[08]=b  pfScanOrd[b]=02.3

```

```

DUMP of OM - sorted scan ordered string psOrdPat ...
psOrdPat[00]=pzPat[08]=b  pfScanOrd[b]=02.3
psOrdPat[01]=pzPat[05]=b  pfScanOrd[b]=02.3
psOrdPat[02]=pzPat[01]=b  pfScanOrd[b]=02.3
psOrdPat[03]=pzPat[03]=d  pfScanOrd[d]=03.2
psOrdPat[04]=pzPat[06]=c  pfScanOrd[c]=04.5
psOrdPat[05]=pzPat[02]=c  pfScanOrd[c]=04.5

```

psOrdPat[06]=pzPat[07]=a pfScanOrd[a]=08.9
psOrdPat[07]=pzPat[04]=a pfScanOrd[a]=08.9
psOrdPat[08]=pzPat[00]=a pfScanOrd[a]=08.9

MATCHSHIFT psOrdPat[00...00] :
iLShift=1 OP[00]=P[08]=b P[07]=a Mismatch
iLShift=2 OP[00]=P[08]=b P[06]=c Mismatch
iLShift=3 OP[00]=P[08]=b P[05]=b MATCH
LSHIFT : 3

MATCHSHIFT psOrdPat[01...00] :
iLShift=3 OP[01]=P[05]=b P[02]=c Mismatch
iLShift=4 OP[01]=P[05]=b P[01]=b MATCH
iLShift=4 OP[00]=P[08]=b P[04]=a Mismatch
iLShift=5 OP[01]=P[05]=b P[00]=a Mismatch
iLShift=6 OP[01]=P[05]=b P[-1]=* Ignore
iLShift=6 OP[00]=P[08]=b P[02]=c Mismatch
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
iLShift=7 OP[00]=P[08]=b P[01]=b MATCH
LSHIFT : 7

MATCHSHIFT psOrdPat[02...00] :
iLShift=7 OP[02]=P[01]=b P[-6]=* Ignore
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
iLShift=7 OP[00]=P[08]=b P[01]=b MATCH
LSHIFT : 7

MATCHSHIFT psOrdPat[03...00] :
iLShift=7 OP[03]=P[03]=d P[-4]=* Ignore
iLShift=7 OP[02]=P[01]=b P[-6]=* Ignore
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
iLShift=7 OP[00]=P[08]=b P[01]=b MATCH
LSHIFT : 7

MATCHSHIFT psOrdPat[04...00] :
iLShift=7 OP[04]=P[06]=c P[-1]=* Ignore
iLShift=7 OP[03]=P[03]=d P[-4]=* Ignore
iLShift=7 OP[02]=P[01]=b P[-6]=* Ignore
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
iLShift=7 OP[00]=P[08]=b P[01]=b MATCH
LSHIFT : 7

MATCHSHIFT psOrdPat[05...00] :
iLShift=7 OP[05]=P[02]=c P[-5]=* Ignore
iLShift=7 OP[04]=P[06]=c P[-1]=* Ignore
iLShift=7 OP[03]=P[03]=d P[-4]=* Ignore
iLShift=7 OP[02]=P[01]=b P[-6]=* Ignore
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
iLShift=7 OP[00]=P[08]=b P[01]=b MATCH
LSHIFT : 7

MATCHSHIFT psOrdPat[06...00] :
iLShift=7 OP[06]=P[07]=a P[00]=a MATCH
iLShift=7 OP[05]=P[02]=c P[-5]=* Ignore
iLShift=7 OP[04]=P[06]=c P[-1]=* Ignore
iLShift=7 OP[03]=P[03]=d P[-4]=* Ignore
iLShift=7 OP[02]=P[01]=b P[-6]=* Ignore
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
iLShift=7 OP[00]=P[08]=b P[01]=b MATCH
LSHIFT : 7

MATCHSHIFT psOrdPat[07...00] :
iLShift=7 OP[07]=P[04]=a P[-3]=* Ignore

```
iLShift=7 OP[06]=P[07]=a P[00]=a MATCH
iLShift=7 OP[05]=P[02]=c P[-5]=* Ignore
iLShift=7 OP[04]=P[06]=c P[-1]=* Ignore
iLShift=7 OP[03]=P[03]=d P[-4]=* Ignore
iLShift=7 OP[02]=P[01]=b P[-6]=* Ignore
iLShift=7 OP[01]=P[05]=b P[-2]=* Ignore
iLShift=7 OP[00]=P[08]=b P[01]=b MATCH
LSHIFT : 7
```

DUMP of initialized BM table piDelta2[] ...

```
piDelta2[00]=01
piDelta2[01]=03
piDelta2[02]=07
piDelta2[03]=07
piDelta2[04]=07
piDelta2[05]=07
piDelta2[06]=07
piDelta2[07]=07
piDelta2[08]=07
```

```
piDelta2[00],INITIAL LSHIFT : 1
    iLShift=1 OP[00]=P[08]=b P[07]=a OK
```

```
piDelta2[01],INITIAL LSHIFT : 3
    iLShift=3 OP[01]=P[05]=b P[02]=c OK
```

```
piDelta2[02],INITIAL LSHIFT : 7
    iLShift=7 OP[02]=P[01]=b P[-6]=* Ignore
```

```
piDelta2[03],INITIAL LSHIFT : 7
    iLShift=7 OP[03]=P[03]=d P[-4]=* Ignore
```

```
piDelta2[04],INITIAL LSHIFT : 7
    iLShift=7 OP[04]=P[06]=c P[-1]=* Ignore
```

```
piDelta2[05],INITIAL LSHIFT : 7
    iLShift=7 OP[05]=P[02]=c P[-5]=* Ignore
```

```
piDelta2[06],INITIAL LSHIFT : 7
    iLShift=7 OP[06]=P[07]=a P[00]=a RESET
```

```
MATCHSHIFT psOrdPat[05...00] :
iLShift=8 OP[05]=P[02]=c P[-6]=* Ignore
iLShift=8 OP[04]=P[06]=c P[-2]=* Ignore
iLShift=8 OP[03]=P[03]=d P[-5]=* Ignore
iLShift=8 OP[02]=P[01]=b P[-7]=* Ignore
iLShift=8 OP[01]=P[05]=b P[-3]=* Ignore
iLShift=8 OP[00]=P[08]=b P[00]=a Mismatch
LSHIFT : 9
```

```
piDelta2[07],INITIAL LSHIFT : 7
    iLShift=7 OP[07]=P[04]=a P[-3]=* Ignore
```

```
piDelta2[08],INITIAL LSHIFT : 7
    iLShift=7 OP[08]=P[00]=a P[-7]=* Ignore
```

DUMP of corrected BM table piDelta2[] ...

```
piDelta2[00]=01
piDelta2[01]=03
piDelta2[02]=07
piDelta2[03]=07
piDelta2[04]=07
piDelta2[05]=07
```

```
piDelta2[06]=09
piDelta2[07]=07
piDelta2[08]=07
```

```
TRACE of BM ScanOrder Search ...
```

```
Pat: abcdabcab
Txt: ababcabcdababcdabcabcdefg
MATCH: []
FAIL.:pos.008 [b<>d]
SHIFT:piDelta1[a] =002
      piDelta2[000]=001
      MAX      =002
```

```
Pat: abcdabcab
Txt: abcabcdababcdabcabcdefg
MATCH: [b]
FAIL.:pos.005 [b<>c]
SHIFT:piDelta1[c] =003
      piDelta2[001]=003
      MAX      =003
```

```
Pat: abcdabcab
Txt: abcdabcdababcdabcabcdefg
MATCH: []
FAIL.:pos.008 [b<>a]
SHIFT:piDelta1[b] =001
      piDelta2[000]=001
      MAX      =001
```

```
Pat: abcdabcab
Txt: bcdabcdababcdabcabcdefg
MATCH: [b]
FAIL.:pos.005 [b<>c]
SHIFT:piDelta1[c] =003
      piDelta2[001]=003
      MAX      =003
```

```
Pat: abcdabcab
Txt: abcdabcabcdefg
MATCH: [bbbdccaaa]
COMPLETE!
```

```
OUTPUT ...
> ababcabcdababcdabcabcdefg
```

```
Data structures deallocated ...
```

```
/* END module bm.tst
```

```
*/
```

```
/*=====*/
```

```
□
```