

Appendix C -- Crunched PPS Code

===== = == ===== === =====

```
/* <CR>=10, PDP-11 file names, console line=132
[main();]
putchar char c
[if(c==0)c='"'
return MC c,1
]
getchar
[return MC 2
]
gs char b(0) [
return MC(b,15)
]
pft char f(0),t(0)[
MC(f,t,13)
]
ps char b(0)
[int l
char c
l=-1
while((c=b(l=l+1))!=0)MC c,1
return l
]
pl char b(0)
[MC 10,1
ps b
]
alpha char a
[
if((a>='a')*(a<='z'))return 1
if((a>='A')*(a<='Z'))return 1
]
num char b(5)
int v(0)
[int k
v(0)=0
while(k<5)
[if((b(k)<'0')+(b(k)>'9'))return k
v(0)=10*v(0)+b(k)-'0'
k=k+1
]
return k
]
```

```

atoi char b(0)
int v(0)
[ int k,s
char c
s=1
c=b(0)
while((c==' ')+(c=='-')+(c=='+'))
[ if(c=='-') s=-1
c=b(k=k+1)
]
k=k+num(b+k,v)
v(0)=s*v(0)
return k
]
pn int n
[
MC ' ',1
MC n,14
]
gn
[ char b(20)
int v(0)
while(1)
[ gs b
if(atoi b,v) return v(0)
ps "number required "
]
]
ceqn char a(0),b(0)
int n
[ int k
k=-1
while((k=k+1)<n) if(a(k)!=b(k)) return 0
return 1
]
index char i(0)
int l
char f(0)
int n
[
if(n<=0) return 1
if(l<=0) return 0
int a,d(0)
while(a+n<=1) [
d(0)=1
a=a+1+scann(i+a,i+1-n,f(0),d)
if(d(0)) return 0
if(ceqn(i+a,f+1,n-1)) return a
]
]

```

```

move char a(0),b(0)
[ int k
int l(0)
l(0)=1
k=scann(a,a+32765,0,1)
movebl(a,a+k,b-a)
return k
]
gc
[ char f
f=MC 2
while(MC(2)!=10)[
return f
]
movebl char a(0),b(0);int n
[MC(a,b,n,7)]
countch char a(0),b(0),c
[return MC(a,b,c,8)]
scann char a(0),b(0),c;int n(0)
[return MC(a,b,c,n,9)]
filename char fin(0),fout(0)[
int j(0),k,m
if(fin(3)!=':') moven("dk :",fout,4)
else [moven(fin,fout,4);fin=fin+4;]
if((alpha(fin(0))+('0'<=fin(0))*(fin(0)<='9'))==0) return -1
j(0)=1;m=scann(fin,fin+99,0,j)
if(j(0)!=0)[pl"name too long";return;]
j(0)=1;k=scann(fin,fin+m,'.',j)
moven(" ",fout+4,10)
if(j(0)!=0)[if(m<=6)moven(fin,fout+4,m)
else moven(fin,fout+4,6)
moven(".tcf",fout+10,4);]
else[if(k<=6)moven(fin,fout+4,k)
else moven(fin,fout+4,6)
if(m-k<=4)moven(fin+k,fout+10,m-k)
else moven(fin+k,fout+10,4);]
]
moven char f(0),t(0)
int n [
if(n)movebl(f,f+n-1,t-f)
]
readfile char n(0),w(0),l(0)
int u
[ int k,t
char fi(13)
if(filename(n,fi)<0) [
pl"Invalid file name";pl""
return -1
]
]

```

```

if(MC(1,fi,0,u,3)<0) [
    pl"File not found"
    MC(u,6)
    return -1
]
while(w+511<=1)
[
    k=MC(w,u,4)
    if(k== -1) [MC(u,6);return t;]
    if(k< -1) [MC(u,6);return k;]
    w=w+k
    t=t+k
]
pl"Too big"
MC(u,6)
return -2
]
writefile char n(0),b(0),e(0)
int u
[
    int k,t,1
    char fi(13)
    if(filename(n,fi)<0) [
        pl"Invalid file name";pl""
        return -1
    ]
    if(MC(2,fi,e-b+1,u,3)<0) [
        pl"Unit 1 open"
        MC(u,6)
        return -1
    ]
]
while(b<=e)
[
    l=e-b
    if(l>511)l=511
    k=MC(b,b+1,u,5)
    if(k<0) [MC(u,6);return k;]
    t=t+l+1
    b=b+l+1
]
MC(u,6)
return t
]
fopen int rw
    char n(0)
    int s,u [
return MC(rw,n,s,u,3)]
fread char a(0)
    int u [
return MC(a,u,4)]
fwrite char f(0),t(0)
    int u [
return MC(f,t,u,5)]
fclose int u [

```

```

int er(0),cu,lo,pe,lp
int ll,la
char ft(40),tt(80)
int fl,tl
char ln(133),pr(12000)
main
[char c
int v(1)
lp=12000
pr(0)=10
while(1)
[ps">"
while((ll=gs(ln))==0)[
c=ln(0)
if(c=='.')
[if(num(ln+1,v))go(v)
else if((ln(2)==0)+(alpha(ln(2))==0))
[c=ln(1)
if(c=='p')pt
else if(c=='d')dl
else if(c=='l')oi
else if(c=='c')ch
else if(c=='/')fa
else if(c=='r')gi
else if(c=='w')gu
else if(c=='x')return
else [ps"???";pl""]
]else st
]
else if(c=='-')up
else if(c=='+')do
else in
]
]
pi int n
[int f,l,v(0)
v(0)=n
f=fc
lo=lo+v(0)-1
l=cu+scann(pr+cu,pr+pe,10,v)
cu=1
lo=lo-v(0)
MC pr+f,pr+1,13
]
fc
[int k
if((k=cu)==0)return 0
while(pr(k=k-1)!=10)if(k<=0)break
return k+1
]

```

```
lc
[ int k
k=cu-1
while(pr(k=k+1)!=10) if(k>=pe) break
return k
]
nl
[ if((cu=lc()+1)>pe)
[ cu=pe
return 0
]
return lo=lo+1
]
bl
[ if((cu=fc()-1)<0) cu=0
else lo=lo-1
]
pt[
int v(0)
if(ln(2)) num(ln+3,v)
else v(0)=1
pi(v(0))
]
dl
[ int f,l,v(1)
if(cu==0)
[ ps"cannot delete line 0";pl""
return
]
if(ln(2)==0) v(0)=1
else num(ln+3,v)
la=la-v(0)
f=fc
l=cu+scann(pr+cu,pr+pe,10,v)
la=la+v(0)
lo=lo-1
cu=f-1
if(l<pe) movebl(pr+l+1,pr+pe,-(l-f+1))
pe=pe-(l-f+1)
]
```

```

oi
[
  int k
  if(ln(3)==0) return
  if(ln(2)!=0)
  [fl=move(ln+3,ft)
  if(ft(0)=='^') ft(0)=10
  if(ft(fl-1)=='^') ft(fl-1)=10
  ]
  if(fl==0)
  [pl"locate what?";pl""
  return
  ]
  if(nl()!=0) [
  if(k=index(pr+cu-1,pe-cu+2,ft,fl)) [
  cu=cu-2+k
  if(pr(cu)==10) cu=cu+1
  lo=countch(pr,pr+cu-1,10)
  pi 1
  ]
  else[ps"?";pl""]
  ]
  else[ps"at bottom";pl""]
  ]
  ch[
  char d
  int p,f,l
  if(ln(2)!=0) [
  d=ln(2)
  p=2
  while((ln(p=p+1)!=d) [
  if(ln(p)==0) [
  ln(p+1)=0
  break
  ]
  ]
  ln(p)=0
  fl=move(ln+3,ft)
  tl=move(ln+p+1,tt)
  if(tl) if(tt(tl-1)==d) tl=tl-1
  ]
  f=fc
  l=lc()-1
  int k
  if(k=index(pr+f,l-f+1,ft,fl)) [
  cu=f+k-1
  movebl(pr+cu+fl,pr+pe,tl-fl)
  pe=pe+tl-fl
  if(tl) movebl(tt,tt+tl-1,pr+cu-tt)
  ]
  pi 1
  ]

```

```

in
[
ll=ll+1
if(pe+ll>lp)
[ps"won't fit";pl""
return
]
if(nl)movebl(pr+cu,pr+pe,ll)
else[cu=cu+1;lo=lo+1]
pe=pe+ll
movebl(ln,ln+ll-1,pr-ln+cu)
pr(cu+ll-1)=l0
la=la+1
]
wh
[int f,l,u,b
pn lo;ps" --- err ";pn er(0);pl""
u=cu
f=fc
b=u-f
l=lc
f=f-1
while((f=f+1)<1)putchar(pr(f));pl""
while((b=b-1)>=0)putchar(' ')
putchar '<';pl""
]
do
[int v(1)
if(ln(1)==0)v(0)=1
else num(ln+1,v)
lo=lo+v(0)
v(0)=v(0)+1
cu=cu+scann(pr+cu,pr+pe,l0,v)
lo=lo-v(0)
pi(1)
]
up
[int v(1)
if(ln(1)==0)v(0)=1
else num(ln+1,v)
if((v(0)=lo-v(0))<0) v(0)=0
go(v)
]

```



```
go int l(l)
[lo=l(0)
l(0)=l(0)+1
cu=scann(pr,pr+pe,l0,l)
lo=lo-l(0)
pi(l)
]
fa
[pn lo;pn la;pn pe;pn lp-pe;pl""]
st
[ln(11)=' '
while((11=11+1)<=133)ln(11)=' '
MC(er,ln+1,pr+pe,pr,11)
if(cu<0)cu=0;if(cu>pe)cu=pe
lo=countch(pr,pr+cu-1,l0)
pl"";pl""
if(er(0))
if(er(0)==99)[ps"stopped";pl""]
else wh
]
gi
[int k
if(ln(2)==0) ln(3)=0
pn k=readfile(ln+3,pr+pe+1,pr+lp,l)
pl ""
if(k<0)return
pe=pe+k
la=countch(pr+1,pr+pe,l0)
fa
]
gu
[fa
if(ln(2)==0) ln(3)=0
pn writefile(ln+3,pr+1,pr+pe,l)
pl""
]
```

