Appendix D. Single cable BACON model

```
!*************************************************************
!
! EXAMPLE CABLE-Simulation V1.0
! based on B77 test cable
! Created by G.Fernandez        22.2.2016
!
!************ Cable radii ************************************
!
ABRE '/R1' '0.7'    ! Conductor radius
ABRE '/T' '0.65'    ! Insulator thickness
!
!************ Cable length ***********************************
!
ABRE '/TZ' '50.'                ! Length
ABRE '/TZEL' '50.'              ! Number of Elements
ABRE '/ELSIZE' '0.3'     ! Mesh Size 2D
!
!*************** Material characteristics ********************
!
ABRE '/YT1' '2800.'  ! PVC          2800
ABRE '/YT2' '120000.'    ! Cu       120000
ABRE '/nt1' '0.4'
ABRE '/nt2' '0.34'
ABRE '/expn' '5'
ABRE '/bigk' '11'
ABRE '/litk' '5'
ABRE '/S' '1'
```

```
!
!*****************************************************************
.del.*
GRAP CP 0
!
! SECTION
!
.plan activ 0
.point I 1 X 0 Y 0
.arc centre 1 rayon /R1
     centre 1 rayon (/R1+/T)
.con I 1 ligne 1
     I 2 ligne 2
.dom I 1 contour 2 1          ! PVC            resta 2-1
     I 2 contour 1            ! Conductor
!
! MESH
!
.plan activ 0
.gen deg 1 gener
     dimension /ELSIZE
     mai
!
! EXTRUSION
!
.ext tz /TZ
     elem /TZEL
     coller conservation 0
     exec
!
! MATERIAL
!
.hyp volume
.fct i 101 cree fonc
     cree valeurs y u
     couples 0. 0.873
             1. 20000
.fct i 11 cree fonc
     cree val y u
     coupples 0 0
```

```
                1 1
.mat I 1 nom "PVC" BEHA "lwis"
      yt /YT1  nt /nt1 m 1.400e-9 cauc
      expn /expn
      bigk /bigk
      litk /litk
      coeb 10     ! mantener
      coeq 100    ! mantener
      vonm
!      SCT /S RAGH
.mat I 2 nom "Cu" BEHA "lwis"
      yt /YT2 nt /nt2 m 8.960e-9 cauc
      expn /expn
      bigk /bigk
      litk /litk
      coeb 10     ! mantener
      coeq 100    ! mantener
      vonm
!      SCT /S RAGH

.ael mat "PVC" att 1
      mat "Cu" att 2
!
! GROUPS
!
.sel
mode refresh 0
groupe "FIX" noeuds
struc 1 boite XI (-/R1-/T-0.5) YI (-/R1-/T-0.5) XS (/R1+/T+0.5) YS
    (/R1+/T+0.5) ZI -0.5 ZS 0.5
groupe "LOAD" noeuds
struc 1 boite XI (-/R1-/T-1) YI (-/R1-/T-1) XS (/R1+/T+1) YS (/R1+/T
    +1) ZI (/TZ-1-20) ZS (/TZ+1-20)
!
! FUNCTION
!
.fct i 1 cree fonction nom "LOAD"
      cree valeurs y u
      couples 0. 0.
              8.4 1.
```

```
              16.8  0.
              25.2  1.
              33.6  0.
!              42  1.
!              50.4  0.
!              58.8  1.
!              67.2  0.

!
! MASTER NODE
!
.noe I 900000 X 0 Y 0 Z 0
     I 900001 X 0 Y 0 Z (/TZ-20)
!
! SLAVE NODES
!
.RBE                                        ! associate master node to a
    slave nodes group
I 900000 N 900000 Group "FIX"               ! N: master node    group:
   slave nodes
I 900001 N 900001 Group "LOAD"
!
! CONSTRAINTS
!
.clm add     ! Add the values to those of the same type already
   defined on the same support
!
! fixation
!
noe I 900000 FIX C 1 2 3 4 5 6            ! Fixed end
!noe I 900001 FIX C 1 2 4 5 6             ! PULL
noe I 900001 FIX C 1 5 6                   ! BENDING
!noe I 900001 FIX C 1 2 4 5                      ! TORSION
!
! load
!
STRU ACC VAL 0 0 9810                      ! GRAVITY
!noe I 900001 CHA C 3 V 80. NF 1 TIME                              ! PULL
         (Fz)
```

```
noe I 900001 CHA C 2 V 3.5 NF 1 TIME                                    !
   BENDING    (Fy)
!noe I 900001 DEP C 6 V 0.785398 NF 1 TIME       ! TORSION    (Mz)
!
!--------------- SUBCASE DEFINITIONS
   ----------------------------------------
!
!
.SUB I   0 nom "zer0"
     meca 2 cibl 1 reso 5 link 2 ipro 1
     tref 1.0000000E+002
     opta 1 lasc 1 kini 1
     ia16 1000000 ia4 1000000
     DCON 100.
     hmin 1.e-5
     PRCE 1.0000000E-004
     PRDE 1.0000000E-003
     PRCR 1.0000000E-004
     PRDR 1.0000000E-003
     ILNS 0
     I 1 nom "LOAD1" time 0. A 33.6 PAS 1.4
.ALGO
        RESO 5       ! Determines the linear system solver
!       IREF 0  ! 0/10: no initial static/steady-state computation
!       NFIR 3       ! Maximum number of trials to succeed the first
   time step
!       LINK 2       ! 2: means that all .LIA commands are expressed
   on displacements
        REAC 1       ! 1: computes the reactions as forces acting on
            the ground including the forces induced by linear
            constraints

.sai archiv noe I 900000 900001 STYP 9229 9163 9223 9224 COMP 1 2 3
   4 5 6
!.SAI ARCHIVE ELEMENT I 1 COMPONENT 1 2 3 4 5 6
!                      I 2 COMPONENT 1 2 3 4 5 6
!                      I 3 COMPONENT 1 2 3 4 5 6
.des
mode refresh 0
grap peau 1
```

```
grap cp 0
grap visee 1 1 1 120; vi

return
```

Appendix E. Double twisted cable BACON model

```
!*********************************************************************

! EXAMPLE CABLE-Simulation V1.0
! based on B77 test cable Created by P.Trost 22.12.2015
! Created by G.Fernandez 22.2.2016
!
!************ Cable radii *******
!
ABRE '/R1' '4.45'              ! Outer radius
ABRE '/R2' '1.25'   ! Cooper radius
ABRE '/R3' '1.65'   ! Insulator radius
ABRE '/R4' '0.55'   ! Separator radius
ABRE '/P'  '1.5'    ! Separator position
!
!************ Cable length *******
ABRE '/TZ' '50.'               ! Length
ABRE '/TZEL' '30.'             ! Number of Elements
ABRE '/ELSIZE' '0.3'    ! Mesh Size 2D 0.2
!
!*************** Material characteristics ************************
!
ABRE '/YT1' '120000'  ! Cu
ABRE '/YT2' '2800'   ! PVC
ABRE '/YT3' '5.5e4'  ! St
ABRE '/nt1' '0.34'
ABRE '/nt2' '0.4'
```

```
ABRE '/nt3' '0.33'
!
!*****************************************************************
.del.*
GRAP CP 0    ! Each mesh is colored with its attribute color
!
!
! Centerpoints of single cables
.POINT  ;
    0 0 ;              ! p1
    /R3 0 ;            ! p2
   -/R3 0 ;            ! p3
        0 /P                ! p4
        0 -/P               ! p4
! Arc & Circle (2D)   ! p5
;.ARC
CENTRE  1  RAYON /R1 ;   ! 1
CENTRE  2  RAYON /R2 ;   ! 2
CENTRE  2  RAYON /R3 ;   ! 3
CENTRE  3  RAYON /R2 ;   ! 4
CENTRE  3  RAYON /R3 ;   ! 5
CENTRE  4  RAYON /R4 ;   ! 6
CENTRE  5  RAYON /R4 ;   ! 7
!
.DROITE
SEGM TANGENT  5 6  ;    ! Number of circles of which the tangent is
   the straight line to be created    (8)
CHOIX  2  ; ALISE       ! Solution number 2 is chosen and it becomes
    the first solution.
.DROITE                ! 9
TANGENT  6 3  ;
CHOIX  2  ; ALISE
.DROITE                ! 10
TANGENT  3 7  ;
CHOIX  2  ; ALISE
.DROITE                ! 11
TANGENT  7 5  ;
CHOIX  2  ; ALISE
!
```

```
.3LIM                                                              ! This
   command lets you modify straight lines, arcs, and circles defined
    with the .DRO and .ARC commands in the active plane
DIVISE 5 PAR 8 DPOINT  -1.791941E+00  1.650117E+00 ;   ! DIVISE
    PAR DPOINT: division of a given line at the point of projection
   of a given point: the line will be replaced by two sub-lines
DIVISE 5 PAR 11 DPOINT  -1.807256E+00 -1.704027E+00 ;  ! 12
DIVISE 3 PAR 9 DPOINT   1.837887E+00  1.588854E+00 ;
DIVISE 3 PAR 12 DPOINT   1.424362E+00 -1.673396E+00 ;  ! 13
DIVISE 9 PAR 8 DPOINT   0.000000E+00  2.017694E+00 ;
DIVISE 6 PAR 8 DPOINT  -2.756834E-01  2.017694E+00 ;
DIVISE 6 PAR 9 DPOINT   2.297354E-01  2.063642E+00 ;   ! 14
DIVISE 13 PAR 10 DPOINT    1.883834E+00 -1.642764E+00 ; ! 15
DIVISE 7 PAR 11 DPOINT  -1.684732E-01 -2.040973E+00 ;
DIVISE 7 PAR 10 DPOINT  -5.207348E-01 -1.183293E+00 ;  ! 16
!
!
! Surface:Contour
.PLAN ACTIVE 0
.CON
LIGNE 1 ;                          ! C1
LIGNE 8 14 9 15 10 7 11 5 ;   ! C2
LIGNE 3 15 13 ;                    ! C3
LIGNE 12 5 ;                       ! C4
LIGNE 2 ;                          ! C5
LIGNE 4 ;                          ! C6
LIGNE 6 14 ;                       ! C7
LIGNE 16 7 ;                       ! C8
!
! Define Mesh Areas
!
.PLAN ACTIVE 0 ;
.DOM
CONTOUR 1 2   ! ATT 1    shell
CONTOUR 3 5   ! ATT 2    insulation l.
CONTOUR 5     ! ATT 3    cooper l.
CONTOUR 4 6   ! ATT 4    insulation r.
CONTOUR 6     ! ATT 5    cooper r.
CONTOUR 7     ! ATT 6    separator u.
CONTOUR 8     ! ATT 7    separator b.
```

```
.PLAN ACTIVE 0 ;
!VIS
!wait
.GEN DEGRE 1 GENERE;    ! No interface node is created. Save both the
     nodes and cells created through MAILLE ... actions when leaving
    the command.
DIMENSION /ELSIZE;
MAILLE  !OFFSET 2 ;      ! malla todo  list: meshes the domains
    specified on the list. If there is no list, all the domains which
     have not yet been meshed by the current .GEN command are meshed.
!vis

!
!        EXTRUSION
!
GRAP REMP 2   !  The GRAP REMPL 2 command permits to visualize the
    existing cells in a filled-in state and those in the process of
    being created in a wire state


.3poi I 6 X 0 Y 0 Z 0
      I 7 X 0 Y 0 Z /TZ
.3dr point 6 7              ! LIGNE 17
.fct cree fonction I 2 nom "twist"
     cree valeurs Y U
     couples 0. 0.
             1. 360.
.ext ligne 17 paral frot 2
     elem /TZEL
     coller conservation 0
     exec

!
.des
grap peau 0;   ! all the elements are drawn
!vis ! Test visualisation

!
.HYP VOLUME
```

```
!
.fct i 101 cree fonc
     cree valeurs y u
     couples 0. 0.8
             1. 2000
!
.MAT I 1 nom "CU-CABLE_MATERIAL_B77" beha "lwis"          ! Original E
   -Modul value 1.2e10
     yt /YT1 nt /nt1 m 8.960e-9 a 0
     expn 2.8
     bigk 4.5
     litk 3
     coeb 8
     coeq 76
.MAT I 2 nom "PVC" beha "lwis"  ! Original E-Modul value 2.25e8 (
   mean value 1k-3.5k)
     yt /YT2 nt /nt2 m 1.400e-9 a 0
     expn 2.8
     bigk 4.5
     litk 3
     coeb 8
     coeq 76
.MAT I 3 nom "etain" beha "lwis"          ! Original E-Modul value 5.5
   e10
     yt /YT3 nt /nt3 m 7.200e-9 a 0
     expn 2.8
     bigk 4.5
     litk 3
     coeb 8
     coeq 76
!
.MAT  I 9 NOM "CABLE_MATERIAL_1_NEU" BEHA "Elastic"
       YT   700000 700000 700000
       NT   0.25 0.25 0.25
       G    280000 280000 280000
       A    0 0 0
       M  1000
.AEL
    MAT 1 ATT 3 5
    MAT 2 ATT 1 2 4
```

```
    MAT 3 ATT 6 7
!
.SEL
MODE REFRESH 0
GROUPE "FIX" NOEUDS
STRUC 1 BOITE XI (-/R1-1) YI (-/R1-1) XS (/R1+1) YS (/R1+1) ZI -0.5
    ZS 0.5          ! structural axes
!
GROUPE "LOAD" NOEUDS;
STRUC 1 BOITE XI (-/R1-1) YI (-/R1-1) XS (/R1+1) YS (/R1+1) ZI (/TZ
    -0.5-20) ZS (/TZ+0.5-20)
!
!
.FCT
   CREE FONCTION i 1 nom "LOAD"
     cree valeurs Y U
     couples 0. 0.
             8.4 1.
             16.8 0.
             25.2 1.
             33.6 0.
!             42 1.
!             50.4 0.
!             58.8 1.
!             67.2 0.
         ;CREE
!
.NOE                                    ! definition of the master
    node
 I 900000 X 0 Y 0 Z 0
 I 900001 X 0 Y 0 Z (/TZ-20)
!
.RBE                                      ! associate master node to a
     slave nodes group
I 900000 N 900000 Group "FIX"             ! N: master node    group:
    slave nodes
I 900001 N 900001 Group "LOAD"
!
.CLM ADD      ! Add the values to those of the same type already
    defined on the same support
```

```
!
! Fixed(1)                                          fijacion
NOEUD I 900000 FIX C 1 2 3 4 5 6
!
! Load support                                      restricciones de
    cada carga
!NOEUD I 900001 FIX C 1 2 4 5 6          ! PULL
NOEUD I 900001 FIX C 1 5 6       ! BENDING
! NOEUD I 900001 FIX C 1 2 4 5           ! TORSION

! Load
STRU ACC VAL 0 0 9810                    ! GRAVITY
!NOEUD I 900001 CHA C 3 V 80 NF 1 TIME                    ! PULL  (Fz)
NOEUD I 900001 CHA C 2 V 30. NF 1 TIME                    ! BENDING
    (-Fy)
!NOEUD I 900001 DEP C 6 V 0.785398 NF 1 TIME     ! TORSION    (Mz)
!
! ----------------------------------------


!--- SUBCASE DEFINITIONS
    ----------------------------------------------------
.SUB
   I  0 nom "zer0"
     meca 2 cibl 1 reso 5 link 2 ipro 1
     tref 1.0000000E+002
     opta 1 lasc 1 kini 1
     ia16 1000000 ia4 1000000
         ia19 1
     DCON 100.
     hmin 1.e-5
     hmax 2.e-2
     PRCE 1.0000000E-004
     PRDE 1.0000000E-003
     PRCR 1.0000000E-004
     PRDR 1.0000000E-003
     ILNS 0
!    I 1 nom "LOAD"      time 0 A 33.6 PAS 0.02
    I 1 nom "LOAD" time 0. 8.4 16.8 25.2 33.6 !42. 50.4 58.8 67.2
!
```

```
.ALGO
        RESO 6       ! Determines the linear system solver
!       IREF 0    ! 0/10: no initial static/steady-state computation
!       NFIR 3       ! Maximum number of trials to succeed the first
    time step
!       LINK 2       ! 2: means that all .LIA commands are expressed
    on displacements
        REAC 1       ! 1: computes the reactions as forces acting on
            the ground including the forces induced by linear
            constraints

.sai archiv noe I 900000 900001 STYP 9327 9528 9229 9163 9223 9224
    COMP 1 2 3 4 5 6
!
.des
MODE REFRESH 0 ;
GRAP PEAU 1
grap cp 0
vi

.des
GRAP VISEE 1 1 1 120 ;VISUALISE
!.FIN 1
!.men on
RETURN
```

Appendix F. Multiple twisted cable BACON model

```
!*************************************************************
!
! EXAMPLE CABLE-Simulation V1.0
! based on B77 test cable
! Created by G.Fernandez          29.2.2016
!
!************ Cable radii and postion ************************
abre '/n' '0'
abre '/nc' '4.'
abre '/Rext1' '6'
abre '/Rext2' '4'
abre '/R1i' '1'
abre '/R1e' '1.5'
abre '/c1x' '-2.5'
abre '/c1y' '0.'
abre '/R2i' '1'
abre '/R2e' '1.5'
abre '/c2x' '2.5'
abre '/c2y' '0.'
abre '/R3i' '1'
abre '/R3e' '1.5'
abre '/c3x' '0.'
abre '/c3y' '2.5'
abre '/R4i' '1'
abre '/R4e' '1.5'
abre '/c4x' '0.'
abre '/c4y' '-2.5'
```

```
!************ Cable length ***********************************
!
abre '/TZ' '50.'                        ! Length
abre '/TZEL' '50.'                    ! Number of Elements
abre '/ELSIZE' '0.3'
!
!*************** Material characteristics ********************
!
abre '/YT1' '1.2e11'       ! Young modulus
abre '/YT2' '2.25e9'
abre '/YT3' '1.2e11'
abre '/YT4' '2.25e9'
abre '/YT5' '1.2e11'
abre '/YT6' '2.25e9'
abre '/YT7' '1.2e11'
abre '/YT8' '2.25e9'
abre '/G1' '4.85e10'        ! Shear modulus
abre '/G2' '8.1e8'
abre '/G3' '4.85e10'
abre '/G4' '8.1e8'
abre '/G5' '4.85e10'
abre '/G6' '8.1e8'
abre '/G7' '4.85e10'
abre '/G8' '8.1e8'
abre '/VM1' '8960'        ! Mass density
abre '/VM2' '1400'
abre '/VM3' '8960'
abre '/VM4' '1400'
abre '/VM5' '8960'
abre '/VM6' '1400'
abre '/VM7' '8960'
abre '/VM8' '1400'
abre '/YText' '2.25e9'
abre '/Gext'  '8.1e8'
abre '/VMext' '1400'
!
!*********************************************************
.del.*
GRAP CP 0
!
```

```
! LOOP
!
.loop &
abre '/n' '''(/n+1)''
abre '/cx' '/c''/n'x'
abre '/cy' '/c''/n'y'
abre '/Ri'  '/R''/n'i'
abre '/Re'  '/R''/n'e'
.poi i /n X /cx Y /cy
.arc i (/n*2-1) centre /n rayon /Ri      ! ligne (/n*2-1)
.arc i (/n*2) centre /n rayon /Re      ! ligne (/n*2)
.con ligne (/n*2-1)           ! contour (/n*2-1)
     ligne (/n*2)             ! contour (/n*2)
.dom contour (/n*2-1)         ! att (/n*2-1)
     contour (/n*2) (/n*2-1)  ! att (/n*2)
.plan activ 0
.gen deg 2 gener            ! deg 2 --> curved contour
     dimension /ELSIZE
     mai
     vi
GRAP REMP 2
.3poi I 20 X 0 Y 0 Z 0
      I 30 X 0 Y 0 Z /TZ
.3dr i 100 point 20 30
.fct cree fonction I 2 nom "twist"
     cree valeurs Y U
     couples 0. 0.
             1. 360.
.ext ligne 100 paral frot 2
     elem /TZEL
     coller conservation 0
     exec
!.hyp volume

grap visee 1 1 1 120; vi
abre '/YTi' '/YT''(/n*2-1)''
abre '/YTe' '/YT''(/n*2)''
abre '/Gi' '/G''(/n*2-1)''
abre '/Ge' '/G''(/n*2)''
abre '/VMi' '/VM''(/n*2-1)''
```

```
abre '/VMe' '/VM''(/n*2)''
.mat i (/n*2-1) yt /YTi G /Gi nt 0.34 m /VMi a 0
.mat i (/n*2) yt /YTe G /Ge nt 0.4 m /VMe a 0
.ael mat (/n*2-1) att (/n*2-1)
     mat (/n*2) att (/n*2)
#if (/n lt /nc) then
input.loop current
#endif
!
! END LOOP
!

!
! EXTERNAL PIPE
!
.poi i 19 x 0 y 0
.arc i (/n*2+1) centre 19 rayon /Rext1      ! ligne (/n*2+1)
.arc i (/n*2+2) centre 19 rayon /Rext2       ! ligne (/n*2+2)
.con ligne (/n*2+1)
.con ligne (/n*2+2)
.dom contour (/n*2+1) (/n*2+2)
.gen deg 2 gener             ! deg 2 --> curved contour
     dimension /ELSIZE
     mai
.ext tz /TZ elem /TZEL
     coller conservation 0
     exec
.hyp volume

.mat i (/n*2+1) yt /YText g /Gext nt 0.4 m /VMext  a 0
.ael mat (/n*2+1) att (/n*2+1)
!
! GROUPS
!
.sel
mode refresh 0
groupe "FIX" noeuds
struc 1 boite XI (-/Rext1-1) YI (-/Rext1-1) XS (/Rext1+1) YS (/Rext1
   +1) ZI -0.5 ZS 0.5
groupe "LOAD" noeuds
```

```
struc 1 boite XI (-/Rext1-1) YI (-/Rext1-1) XS (/Rext1+1) YS (/Rext1
    +1) ZI (/TZ-0.5) ZS (/TZ+1)
groupe "LOAD2"  noeuds
struc 1 boite XI (-/Rext1-1) YI (-/Rext1-1) XS (/Rext1+1) YS (/Rext1
    +1) ZI (/TZ:2-0.5) ZS (/TZ:2+1)
!
! FUNCTION
!
.fct cree fonction i 1 nom "LOAD"
     cree valeurs Y U
     couples 0. 0.
             1. 1.
             2. 0.
             3. 1.
             4. 0.
             5. 1.
!
! MASTER NODE
!
.noe I 900000 X 0 Y 0 Z 0
     I 900001 X 0 Y 0 Z /TZ
     I 900002 X 0 Y 0 Z (/TZ:2)
!
! SLAVE NODES
!
.rbe                                    ! associate master node to a
    slave nodes group
I 900000 N 900000 Group "FIX"           ! N: master node    group:
    slave nodes
I 900001 N 900001 Group "LOAD"
I 900002 N 900002 Group "LOAD2"
!
! CONSTRAINTS
!
.clm add     ! Add the values to those of the same type already
    defined on the same support
!
! fixation
!
noe I 900000 FIX C 1 2 3 4 5 6     ! first extreme
```

```
noe I 900001 FIX C 1 2 4 5 6          ! PULL
!noe I 900001 FIX C 1 2 3 4 5 6       ! BENDING
!noe I 900001 FIX C 1 2 4 5                   ! TORSION
!
! load
!
!noe i 900001 acc c 3 v 9.81
noe I 900001 CHA C 3 V 80 NF 1 TIME                          ! PULL
    (Fz)
!noe I 900002 DEP C 2 V 7. NF 1 TIME                         ! BENDING
    (Fy)
!noe I 900001 DEP C 6 V 0.785398 NF 1 TIME        ! TORSION    (Mz)
!



!
!--------------- SUBCASE DEFINITIONS ----------------------------
!
!
.SUB I  0 nom "zer0"
      meca 22 cibl 1 reso 5 link 2 ipro 1
      tref 1.0000000E+002
      opta 1 lasc 1 kini 1
      ia16 1000000 ia4 1000000
      DCON 100.
      hmin 1.e-5
      PRCE 1.0000000E-004
      PRDE 1.0000000E-003
      PRCR 1.0000000E-004
      PRDR 1.0000000E-003
      ILNS 0
      I 1 nom "LOAD"      time 0 A 5. PAS 0.2

.ALGO
        RESO 5       ! Determines the linear system solver
!       IREF 0       ! 0/10: no initial static/steady-state
    computation
!       NFIR 3       ! Maximum number of trials to succeed the first
    time step
```

```
!       LINK 2      ! 2: means that all .LIA commands are expressed
    on displacements
        REAC 1      ! 1: computes the reactions as forces acting on
            the ground including the forces induced by linear
            constraints

.sai archiv noe I 900000 900001 900002 STYP 9229 9163 9223 9224 COMP
    1 2 3 4 5 6

.des
mode refresh 0
grap peau 1
grap cp 0
grap visee 1 1 1 120
vi

return
```