Operator CREA_MAILLAGE

1 Drank

To of mesh type create a data structure from another mesh. The new mesh is created from an existing mesh while duplicating, while destroying, while transforming or while bursting of meshes.

Product a data structure `mesh`.

2 Syntax

```
ma_2 (mesh) =CRÉA_MAILLAGE        (

          ◊MAILLAGE  =ma_1 ,                                  [mesh]

          ♦  |         CRÉA_GROUP_MA=_F     (
                       ♦NOM=noma     ,                       [K8]
                       ♦   |  MAILLE=lmail        ,            [l_maille]
                           |      GROUP_MA=lgma,              [l_group_ma]
                           |            TOUT=' OUI',
                       ♦PREF_MAILLE=pre_ma        ,          [kN]
                       ◊PREF_NUMÉRIQUE=ind              ,          [I]
                                    ),

              |      CRÉA_MAILLE=_F       (
                       ♦   |  MAILLE=lmail        ,            [l_maille]
                           |      GROUP_MA=lgma,              [l_group_ma]
                           |            TOUT=' OUI',
                       ♦PREF_MAILLE=pre_ma        ,          [kN]
                       ◊PREF_NUMÉRIQUE=ind              ,          [I]
                                    ),

              |      DETR_GROUP_MA=_F     (
                       ◊GROUP_MA=lgma          ,               [l_group_ma]
                       ◊NB_MAILLE=/0           ,               [DEFAULT]
                                   /nbmail   ,          [I]
                                      ),

              |      MODI_MAILLE=_F    (
                       ♦   |            TOUT=' OUI',
                           |      GROUP_MA=lgma,              [l_group_ma]
                           |  MAILLE=lmail           ,           [l_maille]
                       ♦/OPTION=/                      "TRIA6_7" ,
                                    /   "QUAD8_9" ,
                                    /   "SEG3_4" ,
                                    /   "QUAD_TRIA3" ,
                          ◊PREF_NOEUD=/         "NS",  [DEFAULT]
                                                / pre_nd,  [kN]
                          ◊PREF_NUMÉRIQUE=/             ind   ,   [I]
                                                / 1,       [DEFAULT]
                        /OPTION           =      ' QUAD_TRIA3',
                          ◊PREF_MAILLE=/           "ms",  [DEFAULT]
                                                / pre_ma,  [kN]
                          ◊PREF_NUMÉRIQUE=/             ind   ,   [I]
                                                / 1,       [DEFAULT]
                                    ),
```

```
                | REPERE=_F         (
                        ♦TABLE=tab              ,
[tabl_cara_geom]
                        ◊NOM_ORIG=/             "CDG",          [DEFAULT]
                                  /  "TORSION",
                        ◊NOM_ROTA=/             "INERTIE",      [DEFAULT]
                        ◊GROUP_MA=gma           ,               [group_ma]
                                  ),

                | CRÉA_POI1=_F     (
                        ♦  |                TOUT=' OUI',
                           |          GROUP_MA=lgma,          [l_group_ma]
                           |  MAILLE=lmail           ,          [l_maille]
                           |          GROUP_NO=lno ,          [l_group_no]
                           |  NOEUD=lnoeud           ,       [l_noeud]
                           ♦NOM_GROUP_MA=nom_ma             ,
[group_ma]
                                  ),

                |     LINE_QUAD=_F  (
                        ♦  |            TOUT=' OUI',
                           |      GROUP_MA=lgma,             [l_group_ma]
                           |  MAILLE=lmail        ,             [l_maille]
                        ◊PREF_NOEUD=/           "NS",         [DEFAULT]
                                    /pre_nd      ,       [kN]
                        ◊PREF_NUMÉRIQUE=/ind                  ,
[I]
                                    /1  ,           [DEFAULT]
                                  ),

                | PENTA15_18=_F    (
                        ♦  |            TOUT=' OUI',
                           |      GROUP_MA=lgma,             [l_group_ma]
                           |  MAILLE=lmail        ,             [l_maille]
                        ◊PREF_NOEUD=/           "NS",         [DEFAULT]
                                    /pre_nd      ,       [kN]
                        ◊PREF_NUMÉRIQUE=/ind                  ,
[I]
                                    /1  ,           [DEFAULT]
                                ),

                | HEXA20_27=_F     (
                        ♦  |            TOUT=' OUI',
                           |      GROUP_MA=lgma,             [l_group_ma]
                           |  MAILLE=lmail        ,             [l_maille]
                        ◊PREF_NOEUD=/           "NS",         [DEFAULT]
                                    /pre_nd      ,       [kN]
                        ◊PREF_NUMÉRIQUE=/ind                  ,
[I]
                                    /1  ,           [DEFAULT]
                                ),

                |     QUAD_LINE=_F  (
                        ♦  |            TOUT=' OUI',
                           |      GROUP_MA=lgma,             [l_group_ma]
                           |  MAILLE=lmail        ,             [l_maille]
                                    ),

                |     COQU_VOLU=_F  (
```

```
                        ♦NOM=   named,                          [TXM]
                        ♦GROUP_MA  = gma,                       [group_ma]
                        ♦EPAIS  = ep,                       [R8]
                        ◊PREF_MAILLE=/              "ms",           [DEFAULT]
                                     /pre_ma       ,        [kN]
                        ◊PREF_NOEUD=/             "NS",         [DEFAULT]
                                     /pre_nd       ,        [kN]
                        ◊PREF_NUMÉRIQUE=/ind                    ,
[I]
                                     /1  ,                  [DEFAULT]
                        ♦/PLAN=/                  "SUP",            [TXM]
                                   /   "INF",
                           /PLAN      =      ' MOY',
                           ♦TRANSLATION=/                "SUP",     [TXM]
                                        /   "INF",      [DEFAULT]
                                   ),

                  |     CRÉA_FISS=_F   (
                        ♦NOM=                  nogma,               [TXM]
                        ♦GROUP_NO_1=      gno1,             [group_no]
                        ♦GROUP_NO_2=      gno2,             [group_no]
                        ♦PREF_MAILLE=pre_ma           ,           [kN]
                        ◊PREF_NUMÉRIQUE=/ind                  ,          [I]
                                     /1  ,                [DEFAULT]
                                   ),
                  |  RESTREINT=_F      (
                        ♦   |      GROUP_MA= lgma,              [l_group_ma]
                           |  MAILLE=        lmail,               [l_maille]
                        ◊GROUP_NO=            lgno,             [l_group_no]
                        ◊TOUT_GROUP_MA=/         "NON",            [DEFAULT]
                                     /"OUI',
                        ◊TOUT_GROUP_NO=/         "NON",            [DEFAULT]
                                     /"OUI',
                                   ),

                  |     ECLA_PG=_F     (...) # used by [U4.44.14]

               ◊INFO=/1           ,                                [DEFAULT]
                     /2  ,
               ◊TITER=tit         ,                                [TXM]

                                  )
```

3 Risk to produce a mesh nonin conformity

of the command A certain number of features CREA_MAILLAGE can result in producing a mesh nonin conformity. For this reason, the user must be particularly vigilant when it employs CREA_MAILLAGE to transform meshes.
A mesh is nonin conformity when the shape functions of 2 adjacent elements do not have the same trace on their common border.

For example:
- 2 pentahedrons assembled to form a hexahedron and posed on another hexahedron (1 quadrangle in with respect to 2 triangles).
- 1 QUAD8 dividing one stops with 1 QUAD4 or 1 TRIA3
- 1 TRIA6 dividing one stops with 2 TRIA3

the meshes nonin conformity lead in general to false results (at least locally).

Among the possibilities of CREA_MAILLAGE, several situations are potentially dangerous:
- Use of the one of key keys QUAD_TRIA3 [§4.6.14.6.1], LINE_QUAD [§4.74.7], QUAD_LINE [§4.104.10], HEXA20_27 [§4.94.9], PENTA15_18 [§4.84.8] with key word GROUP_MA (or NETS).
  If for example one partially **transforms** a linear mesh into quadratic mesh, the mesh will be nonin conformity on the border between the linear elements and the quadratic elements.
  During the use of key word GROUP_MA , **it is necessary to take care to provide all meshes implied in the transformation** , in particular meshes of skin or else, a HEXA27 could for example be bordered of meshes of skin QUAD8 .
- Use of the key word HEXA20_27 [§4.94.9] (or PENTA15_18 [§4.84.8]) if there exists in the element mesh voluminal with quadrangular sides of type different from the elements which one modifies. For example, if there exist pentahedrons or pyramids when hexahedrons are modified.
  The risk is that, for example, a quadrangular face d'HEXA27 (9 nodes) is coupled with a quadrangular face with 8 nodes of an adjacent PENTA15.
- Use of key word QUAD_TRIA3 if there exists in element mesh TRIA6. In this case, the quadrangles transformed into TRIA3 will be incompatible with the TRIA6.

4 Operands

4.1 Operand MAILLAGE

♦MAILLAGE = ma_1

ma_1 is the name of the initial mesh which one wants to reproduce before “meshes enriching it” by news or nodes, or “to impoverish it”.

Note:

The key word MAILLAGE is compulsory safe for the use of key key ECLA_PG.

4.2 Key word CREA_GROUP_MA

◊CRÉA_GROUP_MA

an occurrence of this key word factor makes it possible meshes to define a new mesh group made up of news, being based themselves on existing nodes.
To duplicate several mesh groups, one will repeat the key word factor CREA_GROUP_MA.
Contrary to the command DEFI_GROUP [U4.22.01] for which the concept mesh always preserves the same number of meshes and of nodes, here the number of meshes of the new mesh is increased (the number of nodes remains identical because the news meshes leans on already existing nodes).
This can facilitate the creation of new loci to be able to apply different modelizations to the same mesh group.

4.2.1 Operand NOM

♦NOM = named

One gives here the name of the new mesh group which will be created.

4.2.2 Operands NETS / GROUP_MA / TOUT

♦ | MAILLE= lmail,
| GROUP_MA= lgma,
| TOUT= “OUI',

the group of meshes provided by the user with these three key words will be duplicated and the new meshes will be gathered in a mesh group bearing the name stipulated by key word NOM. If the unit of meshes to duplicate contains meshes in double, they are eliminated.

4.2.3 Operands PREF_MAILLE / PREF_NUME

♦PREF_MAILLE = pre_ma

the value of this key word makes it possible to define the prefix of the news meshes. One obtains the name of the new mesh while adding in front of his old name, the text specified under key word PREF_MAILLE. If this new name has a length higher than eight characters, one stops in fatal error with an error message.

◊PREF_NUMÉRIQUE =/ind

If an integer ind is given under key word PREF_NUME, the number of the news meshes is built by concaténant the text capital letter given under key word PREF_MAILLE and an integer obtained by incrementing ind of 1 to each creation of news meshes.

Note: *the user must be careful in the choice of his prefix to prevent that the meshes new ones have the same name as the meshes old ones. This collision of names is detected by the command and led to a stop of Code_Aster.*

4.3 Key word CREA_MAILLE

◊CRÉA_MAILLE

an occurrence of this key word factor makes it possible meshes to define news by duplicating meshes already what exists. For the use of the key words, one returns in the paragraph [§4.24.2]. Only difference, meshes created are not gathered in a named mesh group.

4.4 Key word CREA_POI1

◊CRÉA_POI1

an occurrence of this key word factor makes it possible to define meshes of type "POI1" (nets with only one node) from nodes or nodes groups, or of nodes of meshes or mesh group.

4.4.1 Operands TOUT / GROUP_MA / MESH / GROUP_NO / NOEUD

```
♦  |            TOUT=' OUI',
   |      GROUP_MA=lgma,
   |  MAILLE=lmail        ,
   |      GROUP_NO=lno ,
   |  NOEUD=lnoeud        ,
```

All the nodes which belong to entities stipulated by the user with these five keywords, generate a mesh of the type POI1. The mesh created will have the same name as the node which supports it.

4.4.2 Operand NOM_GROUP_MA

♦NOM_GROUP_MA = nom_ma

All meshes the POI1 thus created can be gathered in the same mesh group named nom_ma.

4.5 Key word DETR_GROUP_MA

◊DETR_GROUP_MA

an occurrence of this key word factor makes it possible to destroy mesh groups. Meshes contained in these groups are not destroyed. This key word factor is not répétable.

4.5.1 Operand GROUP_MA

♦GROUP_MA = lgma

the mesh groups stipulated in the list lgma is destroyed.

4.5.2 Operand NB_MAILLE

```
◊NB_MAILLE    =/nb_mail       ,
               /0 ,
```

All the mesh groups having a number of meshes lower or equal to nb_mail are destroyed.

4.6 Key word MODI_MAILLE

◊MODI_MAILLE

an occurrence of this key word factor makes it possible to transform a set of meshes.

4.6.1 Operand OPTION

```
♦OPTION    =      "SEG3_4"
             /   "TRIA6_7"
             /   "QUAD8_9"
             /   "QUAD_TRIA3"
```

This key word indicates the transformation to be carried out:

1) transformation of the segments with three nodes in segments with four nodes (usable for example for the modelization "PIPE" [U3.11.06],
2) transformation of the triangles with six nodes in triangles with seven nodes,
3) transformation of the quadrangles with eight nodes in quadrangles with nine nodes,
4) transformation of the quadrangles in triangles with 3 nodes:

◦transformation of meshes of type QUAD4 in two meshes of type TRIA3
◦transformation of meshes of type QUAD8 in six meshes of type TRIA3
◦transformation of meshes of type QUAD9 in eight meshes of type TRIA3

4.6.2 Operands PREF_NOEUD/PREF_MAILLE/PREF_NUME

◊PREF_NOEUD =/pre_nd ,
/ "NS",

the value of this key word makes it possible to define the prefix of the new nodes. One obtains the name of the new node while adding in front of his old name, the text specified under key word PREF_NOEUD. If this new name has a length higher than eight characters, one stops in fatal error with an error message.

◊PREF_MAILLE = pre_ma

the value of this key word makes it possible to define the prefix of the news meshes. One obtains the name of the new mesh while adding in front of his old name, the text specified under key word PREF_MAILLE. If this new name has a length higher than eight characters, one stops in fatal error with an error message.

◊PREF_NUMÉRIQUE =/ind ,
/1 ,

If an integer ind is given under key word PREF_NUME, the number of the new nodes (news meshes) are built by concaténant the text capital letter given under key word PREF_NOEUD (PREF_MAILLE) and an integer obtained by incrementing ind of 1 to each creation of new nodes (news meshes).

Note:

The user must be careful in the choice of his prefix to prevent that the new nodes (news meshes) have the same name as old nodes (news meshes). This collision of names is detected by the command and led to a stop of Code_Aster.

An automatic procedure of cutting of meshes the quadrangles in triangles can generate a kind of "polarization" of mesh: from a mesh QUAD given, all the diagonals are found directed in the same direction.

Caution: the use of option "QUAD_TRIA3" can lead to a mesh nonin conformity. See [§33].

4.7 Key word LINE_QUAD

◊LINE_QUAD

This functionality makes it possible to create a quadratic mesh from a linear mesh.

One can apply it only to part of the mesh (key keys GROUP_MA and MESH), but it is disadvised. See [§33].

The mesh groups are preserved, the nodes groups also (without change).
As during the refinement of a mesh, the nodes created are not introduced into the existing nodes groups.
If a nodes group corresponds on a board, after LINE_QUAD, this group does not contain the nodes mediums of edges. To obtain a GROUP_NO complete, one can use for example command DEFI_GROUP/OPTION = "APPUI".

4.7.1 Operands NETS / GROUP_MA / TOUT

♦ | MAILLE= lmail,
| GROUP_MA= lgma,
| TOUT= "OUI',
the whole of meshes stipulated by the user with these three key keys will be transformed into meshes quadratic.

Attention, the use of key keys GROUP_MA and MESH is disadvised. See [§33].

4.7.2 Operands PREF_NOEUD / PREF_NUME

As for MODI_MAILLE.

4.8 Key word PENTA15_18

This key word factor functions like the key word factor LINE_QUAD (even syntax). It is used to transform PENTA15 into PENTA18 by adding nodes to the mediums of the quadrangular sides.

Attention, the use of this key word is disadvised if the mesh meshes contains other types of voluminal (HEXA and PYRAM). See [§33].

4.9 Key word HEXA20_27

This key word factor functions like the key word factor PENTA15_18 with the hexahedrons. It is used to transform HEXA20 into HEXA27 by adding nodes to the mediums of the sides and the center of each hexahedron.

Attention, the use of this key word is disadvised if the mesh meshes contains other types of voluminal (PENTA and PYRAM). See [§33].

4.10 Key word QUAD_LINE

◊QUAD_LINE
This functionality makes it possible to create a linear mesh from a quadratic mesh, one can apply it only to part of the mesh (attention in this case with the connection of the linear and quadratic zones). See [§33].

4.10.1 Operands NETS / GROUP_MA / TOUT

♦ | MAILLE= lmail,
| GROUP_MA= lgma,
| TOUT= "OUI',
the whole of meshes stipulated by the user with these three key keys will be transformed into meshes linear.

Attention, the use of key keys GROUP_MA and MESH is disadvised. See [§33].

4.11 Key word LOCATES

◊REPERE
an occurrence of this key word factor makes it possible to define a new mesh from the old mesh by carrying out a change of reference.

This functionality is used in particular in macro-command MACR_CARA_POUTRE [U4.42.02] for the computation of the warping constant.

4.11.1 Operands COUNTS /NOM_ORIG /NOM_ROTA /GROUP_MA

♦TABLE =
One gives here the name of the array of concept “geometrical characteristics” which contains in particular, the coordinates of the center of inertia and the center of torsion, the nautical angles defining the principal reference of inertia,… This array can be obtained by the command POST_ELEM with the key keys factors CARA_GEOM or CARA_POUTRE [U4.81.22].

◊NOM_ORIG = “CDG”,
/ “TORSION”,
One indicates the center of the new reference: the center of gravity or the center of torsion.

◊NOM_ROTA = “INERTIE”,
One indicates the direction of the new reference. Only one solution is possible: the directions are those of the principal reference of inertia.

◊GROUP_MA =gma
If NOM_ORIG = “CDG”, one can indicate the name of the mesh group whose center of gravity will be the origin of the new reference. If GROUP_MA is not used, the center of gravity of the group of MODELE will be the origin of the new reference.
If NOM_ORIG = “TORSION”, key word GROUP_MA is inoperative.

4.12 Key word COQU_VOLU

◊COQU_VOLU
From the data of a mesh group surface (QUAD, TRIA3), one builds the voluminal mesh (HEXA8, PENTA6) by extrusion according to the norm of the elements (in a node, one takes the average of the norms of the convergent elements). Only one layer of elements is created.
The operation applies only to linear meshes; if one wishes to create a quadratic mesh, it is enough to use CREA_MAILLAGE/LINE_QUAD then.

4.12.1 Operands NOM

♦NOM= named,
Name of the mesh group made up of meshes voluminal created during this operation.

4.12.2 Operands GROUP_MA

♦GROUP_MA= lgma,
Mesh groups constituting the surface mesh to extrude.

4.12.3 Operands EPAIS

♦EPAIS= ep,
Thickness of the layer of elements created (thickness of the shell).

4.12.4 Operands PLANE

♦PLAN=/ “SUP”,
/“INF”,
/“MOY”,
One specifies here that surface made up of lgma will be the Higher plane, Lower or Layer of the shell.

4.12.5 Operands TRANSLATION

```
♦TRANSLATION=/          "SUP",
                      /"INF",
```

If PLAN=' MOY', one specifies if initial surface made up of lgma is relocated in Higher or Lower skin.

4.12.6 Operands PREF_MAILLE / PREF_NOEUD / PREF_NUME

As for MODI_MAILLE.

4.13 Key word CREA_FISS

```
◊CRÉA_FISS=_F           (
                ♦NOM=   nogma,                          [TXM]
                ♦GROUP_NO_1    = gno1,                  [group_no]
                ♦GROUP_NO_2    = gno2,                  [group_no]
                ♦PREF_MAILLE=pre_ma           ,           [kN]
                ◊PREF_NUMÉRIQUE=/ind                  ,              [I]
                                /1  ,                   [DEFAULT]
                                ),
```

Makes it possible to create a crack with elements of joint [R3.06.09] or elements with discontinuity [R7.02.12] along one line defined by two nodes groups laid out in glance. The two groups of node will have to have the same number of nodes and to be ordered as a preliminary (for example with DEFI_GROUP/CRÉA_GROUP_NO/OPTION=' NŒUD_ORDO') so that their classification "begins" same side (see Illustration 1).
One will be able, then to affect a modelization of the type "joined" on this news meshes QUAD4 (for example "PLAN_JOINT").

Meshes created will bear a name formed starting from the prefix pre_ma followed by a number.
For example, if PREF_MAILE=' FS' and PREF_NUME=7, meshes create will be called: FS7, FS8,…

One will meshes create also new a GROUP_MA (called nogma) containing all the QUAD4 created.

4.13.1 Operand NOM

Name of the mesh group made up of meshes voluminal created during this operation.

4.13.2 Operands GROUP_NO_1/GROUP_NO_2

Groups of node constituting the lips of crack. The group of node GROUP_NO_1 carries the local nodes 1 and 2 (the first node of the group has a local classification equalizes to 1), the GROUP_NO_2 carries the local nodes 3 and 4 (the first node of the group has a local classification equalizes to 4).
It is necessary to choose these nodes groups according to the geometry so that the local classification of the elements is carried out in the trigonometrical meaning.

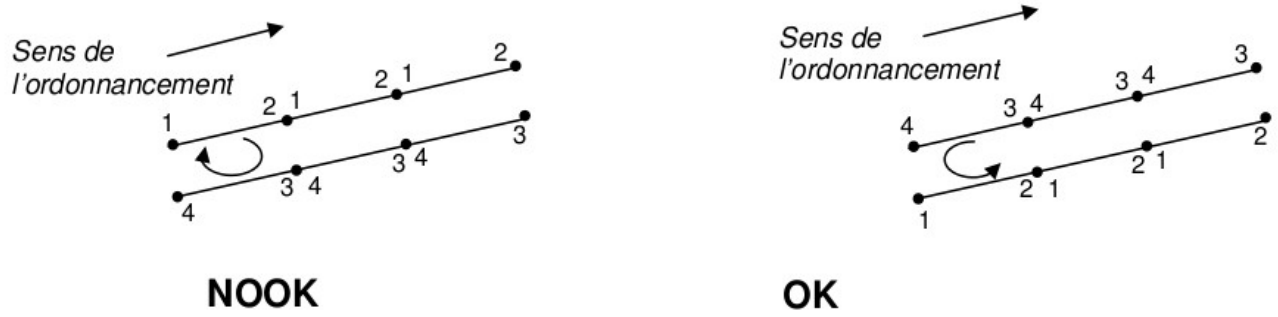

Illustration 1: Scheduling of the segments

4.13.3 Operands PREF_MAILLE/PREF_NUME

As for MODI_MAILLE.

4.14 Key word ECLA_PG

◊ECLA_PG

This key word factor does not have to be used directly. It is used by the command MACR_ECLA_PG [U4.44.14].

4.15 Key word RESTREINT

This key word factor (non-répétable) makes it possible to generate "under" mesh extracted from an existing mesh.
The mesh ma_2 extracted (or "restricted") is formed from a list of meshes provided by the user.

4.15.1 Meshes

the key keys GROUP_MA and MESH make it possible to define meshes restricted mesh. All meshes of the lgma mesh groups and all meshes of lmail are retained.

4.15.2 Nodes

the nodes selected those of are meshes retained. Moreover, if the GROUP_NO=lgno key word is used, the nodes of the groups of lgno are added.

4.15.3 Mesh groups

The mesh ma_2 will contain all the GROUP_MA of lgma. Moreover, if key word TOUT_GROUP_MA='OUI' is used, the mesh groups of ma_1 not vacuums are added.

4.15.4 Nodes groups

The mesh ma_2 will contain all the GROUP_NO of lgno. Moreover, if key word TOUT_GROUP_NO='OUI' is used, the nodes groups of ma_1 not vacuums are added.

4.16 Operand INFO

◊INFO = inf

Specifies the information printed in the message file (1: no printing, 2: details on the number of meshes create, modified…).

4.17 Operand TITER

◊TITER = tit

Makes it possible to specify a title.

5 Duplication

5.1 examples of meshes

Is ma_1 a mesh containing already meshes:
M1 m2 m3

and the mesh group:
shell: M1 m2

Each mesh leans on the following nodes:
M1: N1 N2 N3
M2: N3 N4 N5
M3: N4 N5 N6

```
ma_2 = CREA_MAILLAGE    ( MAILLAGE = ma_1,
          CREA_MAILLE=_F       ( MAILLE=          "m3",
                               PREF_MAILLE=  "NEW",   ),
          CREA_GROUP_MA =_F    ( NOM=             soil,
                               GROUP_MA=     "shell",
                               PREF_MAILLE=  "A",
                               PREF_NUME=       100,     ),
                         )
```

After call to command CREA_MAILLAGE , the new mesh contains then:
- mesh groups:
  - shell (initial)
  - soil = (meshes: A100 A101)
- meshes lean on the following nodes:
  - M1: N1 N2 N3
  - M2: N3 N4 N5
  - M3: N4 N5 N6
  - NEWM3: N4 N5 N6
  - A100 : N1 N2 N3
  - A101 : N3 N4 N5

5.2 Transformation of triangles with 6 nodes in triangles with 7 nodes

```
ma_2 = CREA_MAILLAGE    ( MAILLAGE = ma_1,
          MODI_MAILLE =_F   ( GROUP_MA   = "triangle",
                              OPTION     = "TRIA6_7",
                              PREF_NOEUD = "NMI",
                              PREF_NUME  = 10,    ),
                         )
```

Let us suppose that in ma_1 the GROUP_MA triangle is composed of two meshes M1, m2 having the following nodes:
M1: N1 N2 N3 N4 N5 N6
M2: N1 N2 N7 N4 N8 N9

In the mesh ma_2, both meshes M1, m2 will have the following nodes:
M1: N1 N2 N3 N4 N5 N6 NMI10
M2: N1 N2 N7 N4 N8 N9 NMI11

5.3 Transformation of quadrangles with 4 nodes in triangles with 3 nodes

This example is resulting from test SSLV04E:

The geometry, representing a quarter of disc, is with a grid in quadrangle. It is wished that a eighth of the disc be with a grid in triangle.

```
my = CREA_MAILLAGE   ( MAILLAGE = m0,
             MODI_MAILLE =_F   ( GROUP_MA    = "S2",
                                 OPTION      = "QUAD_TRIA3",
                                 PREF_MAILLE = "ms",
                                 PREF_NUME   = 1,    ),
                           )
```