Structure S data sd_corresp_2_mailla and sd_L_corresp_2_mailla

Summary:

Contents

1 General information

sd_corresp_2_mailla is the structure of data used for projection of the fields in the order PROJ_CHAMP. It stores geometrical information making it possible to associate the geometrical entities of the 2 grids to project one on the other. The SD is very different according to the method of projection selected.

For the moment this SD is used in the order PROJ_CHAMP like in the keyword LIAISON_MAIL ofAFFE_CHAR_MECA.

The structure sd_l_corresp_2_mailla consists of 2 sd_corresp_2_mailla . First is used for all the methods of PROJ_CHAMP except ECLA_PG , second is used for the method ECLA_PG . This structure was created with an aim of projecting results having at the same time fields ELGA and not ELGA . One has both thus sd_corresp_2_mailla available according to the type of field to be projected. The structure sd_l_corresp_2_mailla is used only in PROJ_CHAMP .

1.1 For the method "COLLOCATION"

That is to say 2 grids M1 and M2 who occupy the same area of space. sd_corresp_2_mailla corresponding to the couple (M1, M2) is the structure of data which expresses the geometrical correspondence between the nodes of the grid M2 and meshs of the grid M1.

1.2 For the methods "NUAGE_DEG_0/1"

That is to say 2 grids M1 and M2 who occupy the same area of space. sd_corresp_2_mailla corresponding to the couple (M1, M2) contains the lists of the nodes to be put in opposite.

2 Tree structure

```
sd_corresp_2_mailla (K16)     :: = record
```

that is to say nno2 the number of nodes of the grid M2

```
(O)    '.PJXX_K1'    :  OJB    S  V  K24    dim=5
(O)    '. $VIDE'     :  / sd_corresp2_elem
                        / sd_corresp2_nuage
```

```
sd_corresp_2_elem (K16)       :: = record
```

that is to say nno2 the number of nodes of the grid M2

```
(O) '.PJEF_NB'    :  OJB    S  V  I      dim=nno2
    '.PJEF_M1'    :  OJB    S  V  I      dim=nno2
    '.PJEF_CF'    :  OJB    S  V  R      dim=3*nno2
    '.PJEF_CO'    :  OJB    S  V  R
    '.PJEF_NU'    :  OJB    S  V  I

(F) '.PJEF_TR'    :  OJB    S  V  I      dim=nno2
    '.PJEF_AM'    :  OJB    S  V  I      dim=nno2

% if METHODE=' ECLA_PG':
(F) '.PJEF_MP'    :  OJB    S  V  K8     dim=1
    '.PJEF_EL'    :  OJB    S  V  I

% if METHODE='SOUS_POINT_MATER':
    '.PJEF_SP'    :  OJB    S  V  I
```

```
sd_corresp_2_nuage (K16)      :: = record

   (O) '.PJNG_I1'    :   OJB    S   V   I
       '.PJNG_I2'    :   OJB    S   V   I
```

2.1 Contents of objects JEVEUX

'.PJXX_K1'

'.PJXX_K1' (1) : name of grid 1: M1
'.PJXX_K1' (2) : name of grid 2: M2
'.PJXX_K1' (3) : method of projection:
'COLLOCATION'/'NUAGE_DEG_0'/'NUAGE_DEG_1'
'.PJXX_K1' (4) : name of one cham_no "model" (if méthode='NUAGE_DEG_0/1')
'.PJXX_K1' (5) : unutilised

'.PJEF_M1'

'.PJEF_M1' (ino2): ima1: number of the mesh of m1 who must to be used for the interpolation of the node ino2 of m2

'.PJEF_NB'

'.PJEF_NB' (ino2): many nodes of ima1

'.PJEF_CO'

'.PJEF_CO' (3* (ino2-1) +1): "ksi" of ino2 in ima1
'.PJEF_CO' (3* (ino2-1) +2): "eta" of ino2 in ima1
'.PJEF_CO' (3* (ino2-1) +3): "dzeta" of ino2 in ima1

Note:

pjef_co is useful only for the connections 3d/coque and 3d/poutre
Meshs SEG only use ksi,
SORTED and QUAD only use ksi and eta

'.PJEF_NU'

'.PJEF_NU': contains the numbers of the nodes of m1 being used for the interpolation of the nodes of m2 (put end to end)

'.PJEF_CF'

'.PJEF_CF': contains the coefficients for the nodes of m1 being useful the interpolation has of nodes of m2 (put end has end)

'.PJEF_TR' and **'.PJEF_AM'**

Objects .PJEF_TR and PJEF_AM exist only in corresp_2_mailla temporary made TR3 (TR3 = SEG2, TRIA3 or TETRA4)

'.PJEF_TR' (ino2): number of TR3 associated with the node ino2

'.PJEF_AM' (ino2):
1 - > LE node ino2 is included in a mesh of m1 one can then use the routine reereg.f to improve the precision of the interpolation.
0 - > if not

'.PJEF_MP' and **'.PJEF_EL'**

Objects .PJEF_MP and PJEF_EL only exist for METHOD = 'ECLA_PG'

'.PJEF_MP':
(1): name of grid 1 "precedes"

```
'.PJEF_EL'  : length >= 2*nb_PG (model "2")
  For each point of Gauss of the model "2", one stores:
  V (2* (ipg-1) +1) = ima2: number of the mesh containing ipg
  V (2* (ipg-1) +2) = kpg  : number of the point of Gauss in ima2
```

'.PJEF_SP'

L' object .PJEF_SP exist only for METHOD = 'SOUS_POINT_MATER'.

```
'.PJEF_SP'  : length = 3*nb_SP_MAT(model "2")
  For each undernot and each point of the list of MATER family model
"2", one stores:
  V (3* (ispma-1)+1) = ima2: number of the mesh
  V (3* (Ispma-1)+2) = kpg  : number of the point of Gauss
  V (3* (ispma-1)+3) = sspg: number of undernot
```

'.PJNG_I1' and **'.PJNG_I2'**

These 2 vectors of entireties store the numbers of the nodes in correspondence via the keyword factor VIS_A_VIS.

That is to say NOCC the number of occurrences of VIS_A_VIS:

'.PJNG_I1' (1): NOCC
'.PJNG_I1' (2): nb1: many nodes of MA1 for the occurrence 1 of VIS_A_VIS
'.PJNG_I1' (3): nb2: many nodes of MA1 for the occurrence 2 of VIS_A_VIS
…
'.PJNG_I1' (1+NOCC): nbnocc
'.PJNG_I1' (1+NOCC+1,…, 1+NOCC+nb1): numbers of the nodes of MA1 for occurrence 1 of VIS_A_VIS
…

Note:

If the keyword VIS_A_VIS is not used: .PJNG_I 1(1) =0
The object .PJNG_I2 the same organization has as .PJNG_I1, but it informs about the nodes
grid MA2.

2.2 Example of use (method 'COLLOCATION')

One wants to know how to interpolate INO2 starting from the grid M1

```
that is to say nbno1='.PJEF_NB' (INO2)
that is to say decal= nap for ino<INO2 of '.PJEF_NB' (ino)
value (INO2) =0
C i=1, nbno1
  nuno1='.PJEF_NU' (decal+i)
  coefr='.PJEF_CF' (decal+i)
  value (INO2) =valor (INO2) +coefr*valor (nuno1)
enddo
```