Code_Aster

Titre : Opérateur ASSE_MATR_GENE
Responsable : CORUS Mathieu

Version default

Date : 28/06/2010 Page : 1/3
Clé : U4.65.04   Révision :
79f612008315

Operator `ASSE_MATR_GENE`

1   Goal

To assemble the matrix of rigidity or overall assets starting from the substructures.

Within the framework of a calculation using the methods of dynamic under-structuring (analyzes modal or harmonic), this operator creates the generalized matrix of rigidity or mass or possibly of damping (analyzes harmonic or transitory), by assembly of the generalized matrices of type `macr_elem_dyna` corresponding (cf operator `MACR_ELEM_DYNA` [U4.65.01]) contained in a list defined during the creation of the model generalized (cf operator `DEFI_MODELE_GENE` [U4.65.02]). The assembled generalized matrix is real and symmetrical (storage of the lower triangular part). It is built on a classification of the degrees of freedom generalized and stored in form "line of sky". The tables of addressing are those calculated as a preliminary by the operator `NUME_DDL_GENE` [U4.65.03].

The concept result produced by this operator is of type: `matr_asse_gene_R`.

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Version default

Date : 28/06/2010 Page : 2/3
Clé : U4.65.04   Révision   :
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2   Syntax

```
ma_gene [matr_asse_gene_R]   = ASSE_MATR_GENE

         (  ♦  NUME_DDL_GENE   = nu_gene,           [nume_ddl_gene]

            ◊  METHOD =  /  'CLASSICAL',         [defect]
                         /   'INITIAL',

               # If METHODE=' CLASSIQUE':
               ♦  OPTION    =  /'RIGI_GENE',
                               /'RIGI_GENE_C',
                               /'MASS_GENE',
                               /'AMOR_GENE',
         );
```

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Version
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Date : 28/06/2010 Page : 3/3
Clé : U4.65.04 Révision :
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3 Operands

3.1 Operand NUME_DDL_GENE

♦ NUME_DDL_GENE = nu_gene

Name of the concept nume_ddl_gene resulting from the operator NUME_DDL_GENE [U4.65.03] which defines the classification of the equations of the assembled system generalized, mode of storage of the coefficients of the assembled matrix generalized (line of sky) and the generalized model on which the operations of diagonal, or full assembly are carried out.

3.2 Operand METHOD

◊ METHOD = 'CLASSICAL'

Built a generalized classification allowing the taking into account of the equations of connections by the method of the double multipliers of Lagrange or elimination (cf R4.06.02). The method used is selected in coherence with the method well informed in the operator NUME_DDL_GENE [U4.65.03]

◊ METHOD = 'INITIAL'

To initialize a worthless matrix of type matr_asse_gene_R that one can fill by methods python. This method was created for the development.

3.3 Operand OPTION

♦ OPTION

The option makes it possible to determine the list of the macronutrients, contained in the concept modele_gene resulting from DEFI_MODELE_GENE [U4.65.02], to assemble. It defines, consequently, the type of the generalized matrix assembled calculated by the operator ASSE_MATR_GENE.

'RIGI_GENE': calculation of the matrix of assembled generalized stiffness, including the terms associated with the multipliers with LAGRANGE,
'RIGI_GENE_C' calculation of the matrix of generalized stiffness complex,
'MASS_GENE': calculation of the matrix of assembled generalized mass,
'AMOR_GENE': calculation of the matrix of damping generalized assembled.

4 Production run

The terms corresponding to the projected matrices are assembled without treatment.

On the other hand, the terms corresponding to the dualisation of the connections are the object of a simple conditioning. They are multiplied by a definite factor in a single way which is such as the maximum absolute value of the terms of dualisation is equal to the maximum absolute value of the terms of rigidity of the macronutrients (matrices of the projected substructures).