Operator ASSE_MATR_GENE

1 Drank

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

In the frame of a computation using the methods of dynamic substructuring (modal analysis or harmonic), this operator creates the generalized matrix of stiffness or mass or possibly of damping (harmonic analysis or transient), by assembly of the generalized matrixes of corresponding macr_elem_dyna type (cf operator MACR_ELEM_DYNA [U4.65.01]) contained in a list defined during creation of modele generalized (cf operator DEFI_MODELE_GENE [U4.65.02]). The assembled generalized matrix is real and symmetric (storage of the lower triangular part). It is built on a classification of the degrees of freedom generalized and stored in form “sky line”. The tables of addressing are those calculated as a preliminary by the operator NUME_DDL_GENE [U4.65.03].

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

2 Syntax

```
ma_gene [matr_asse_gene_R]     =ASSE_MATR_GENE

             (   ♦NUMÉRIQUE_DDL_GENE=nu_gene             ,
[nume_ddl_gene]

                 ◊METHODE=/              "CLASSIQUE" ,          [default]
                                 /   "INITIAL" ,

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

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] who defines the numbers of the equations of the assembled system generalized, mode of storage of the coefficients of the generalized matrix assembled (sky line) and the model generalized on which the operations of diagonal assembly are carried out, or full.

3.2 Operand METHODE

◊ METHODE = "CLASSIQUE"

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

◊ METHODE = "INITIAL"

To initialize a matrix null matr_asse_gene_R type which 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 macro-elements, contained in the concept modele_gene resulting from DEFI_MODELE_GENE [U4.65.02], to assemble. It defines, consequently, the type of generalized matrix assembled calculated by the operator ASSE_MATR_GENE.

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

4 Stage of execution

the terms corresponding to the projected matrixes are assembled without processing.

On the other hand, the terms corresponding to the dualisation of connections are the object of a simple conditioning. They are multiplied by a definite factor in a single way which is such that the maximum absolute value of the terms of dualisation is equal to the maximum absolute value of the terms of stiffness of the macro-elements (matrixes of projected substructures).