Operator DEFI_INTERF_DYNA

1 Goal

To define the interfaces of a structure and to affect a type to them.

Employed within the framework of methods of modal recombination, or dynamic under-structuring per modal synthesis. Also count, without calculating them (task carried out by the operator DEFI_BASE_MODALE [U4.64.02]), static deformations corresponding to the definite interfaces.

Product a structure of data of the type interf_dyna_clas.

Contents

2 Syntax

```
inter [interf_dyna_clas] = DEFI_INTERF_DYNA

   (  ♦  NUME_DDL = naked ,                                    [nume_ddl]

      ♦  INTERFACE =  _F (♦ NAME  =    'nom_int',             [KN]

                          ♦  TYPE = /   'MNEAL',
                                    /   'CRAIGB',
                                    /   'CB_HARMO',
                                    /   'NO',          [DEFECT]

                          ♦  GROUP_NO  =   'lgno',     [l_gr_noeud]

                          ◊  MASK   =   'lddl',           [l_cmp]
                          ),

      ◊  FREQ =     /  val_freq,                            [R8]
                    /  1,                                   [DEFECT]

      ◊  INFORMATION =    /  1,                                    [DEFECT]
                          /  2,
   )
```

3 Operands

3.1 Operand NUME_DDL

♦ NUME_DDL = naked

Name of the concept nume_ddl structure.

3.2 Keyword INTERFACE

♦ INTERFACE

Keyword factor for the definition of the interfaces.

3.2.1 Operand NAME

◊ NAME = 'nom_int'

Name of the interface. **It is obligatory for each interface**. So for an occurrence of the keyword factor INTERFACE no name is given, then this occurrence comes to supplement the definition of the interface previously named (concatenation of the list of the nodes following those already existing). This makes it possible to use the keyword GROUP_NO for the same interface, or to give various arguments to the keywords MASK and DDL_ACTIF within the same interface.

3.2.2 Operand TYPE

◊ TYPE =

It makes it possible to specify the kind of the modal base corresponding to the interface.

'MNEAL':

interface corresponding to a modal base of type MAC-NEAL which understands clean modes and modes of fastener. The modes of fastener are not entered, with the interface, that on the not blocked and not masked degrees of freedom.

'CRAIGB':

interface corresponding to a modal base of type CRAIG-BAMPTON which understands clean modes and constrained modes. The constrained modes are not entered, with the interface, that on the degrees of freedom blocked by dualisation and not masked.

'CB_HARMO':

interface corresponding to a modal base of harmonic type CRAIG-BAMPTON which understands clean modes and constrained harmonic modes (imposed harmonic unit displacement). The frequency used is that given in argument of the keyword frequency 'FREQ'.

The harmonic constrained modes are not entered, with the interface, that on the degrees of freedom blocked by dualisation and not masked.

'NONE':

free interface. No static deformation will be calculated; the modal base will comprise only clean modes.

3.2.3 Operand GROUP_NO

◊ GROUP_NO = 'lgno'

Ordered list of the groups of nodes of the grid composing the interface. The final list of the nodes is obtained by union groups of nodes in the order given by the user, at the time of the definition of the groups.

3.2.4 Operand MASK

◊ MASK = 'lddl'

List of the ddl for the current nodes which should not generate static deformations (ddl masked).

3.3 Operand FREQ

◊ FREQ = val_freq

Value of the frequency used for the calculation of the harmonic constrained modes.

3.4 Operand INFORMATION

◊ INFORMATION =

Level of furnished information in the file 'MESSAGE':

1 pas d' impression,
2 writing of the definitions of the interfaces (kind, nodes), and of the listed static deformations (allows to check the list of the static deformations before their calculation itself).

3.5 Case of a node common to several interface

When a node is common to several interfaces (for example the center of a circular structure), that often leads to a singular system in the calculation of the clean modes of the complete structure. One circumvents this problem by eliminating the common node. That led of course to an error on the total modes but if the grid is rather fine, it is not sensitive (see the case test SDLS01).

4 Example

An example of use of the order is given in the documentation of the operator DEFI_SQUELETTE [U4.24.01].