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## Selection of one or more fields in a Structure of Data RESULT

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### 1 Goal

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Description of the keywords of access to the fields of sizes of a structure of data of the type `result`.

To extract a field from sizes in a concept `result` one has two types of indicators: the reference symbols and variables of access.

This document describes the whole of the keywords giving access the fields of size contained in a structure of data `result` and used in the orders `CALC_CHAMP` [U4.81.04], `CALC_G` [U4.82.03], `COMB_SISM_MODAL` [U4.84.01], `EXTR_MODE` [U4.52.12], `IMPR_GENE` [U4.91.02], `IMPR_RESU` [U4.91.01], `LIRE_RESU` [U7.02.01], `POST_ELEM` [U4.81.22], `POST_RCCM` [U4.83.11], `POST_RELEVE_T` [U4.81.21], `RECU_FONCTION` [U4.32.03], `TEST_RESU` [U4.92.01].

## 2 Syntax

# Extraction of a field of size of `resu`

```

◇ /      TOUT_CHAM      = / 'YES' ,           [DEFECT]
      /      /          / 'NOT' ,
      /      NOM_CHAM    = L_NOMSYMB,           [1_K16]
◇ /      TOUT_ORDRE     = 'YES' ,           [DEFECT]
      / /      NUME_ORDRE = LORDRE,           [1_I]
      /      LIST_ORDRE  = LENTI,            [listis]
      /      TOUT_MODE    = 'YES' ,
      / /      NUME_MODE   = LMODE,           [1_I]
      /      LIST_MODE    = LENTI,            [listis]
      /      NOEUD_CMP    = LNOECMP,         [1_K16]
      /      NOM_CAS      = NCAS,            [K16]
      /      ANGLE        = LANGL,           [1_R]
      / /      FREQ        = LFREQ,           [1_R]
      /      LIST_FREQ    = LREEL,           [listr8]
      / /      TOUT_INST   = 'YES' ,
      /      INST         = LINST,           [1_R]
      /      LIST_INST    = LREEL,           [listr8]
◇ /      CRITERION = 'RELATIVE'
[DEFECT]
      ◇ PRECISION = / prec           [R]
      /          / 1.0E-3 or 1.0D-6, * [DEFECT]
      / CRITERION = 'ABSOLUTE'
      ◆ PRECISION = prec           [R]

```

\* This value by default depends on the structure of data of type result which is exploited.

- $PREC = 10^{-3}$  for the following orders: TEST\_RESU, EXTR\_MODE, COMB\_SISM\_MODAL,
- $PREC = 10^{-6}$  for the following orders: CALC\_CHAMP, CALC\_G, IMPR\_GENE, IMPR\_RESU, LIRE\_RESU, POST\_ELEM, POST\_RCCM, POST\_RELEVE\_T, POST\_RCCM.

The value by default of  $1.0D-6$  for the relative precision was selected very small to avoid selecting very close values obtained for example during the automatic recutting of the step of time.

The keyword `PRECISION` becomes obligatory (not value by default) if `CRITERE=' ABSOLU'`.

## 3 Extraction of a field of size

### 3.1 Choice of the reference symbols: Operands TOUT\_CHAM / NOM\_CHAM

```
/ TOUT_CHAM = / 'YES' [DEFECT]
```

This keyword indicates that one wants to reach (X) the field (S) of sizes actually calculated (S) for the concept result RESU. If the operand is not used NOM\_CHAM, this operand is taken by default with 'YES'.

The possible fields are described in specific documentations of the concepts result.

Example: the possible fields are for a result of the type evol\_elas [U4.51.01]:

```
DEPL  
SIGM_ELNO  
EPSI_ELNO  
... ..
```

```
/ NOM_CHAM = L_NOMSYMB [1_K16]
```

A concept result can be composed of several fields of sizes of type field to the nodes or field by element. This keyword makes it possible to confer choose a list of reference symbols of field among the whole of possible ( TOUT\_CHAM).

**Note:**

*Keywords TOUT\_CHAM and NOM\_CHAM cannot be used simultaneously.*

### 3.2 Choice of the sequence numbers: Operands TOUT\_ORDRE/NUMÉRIQUE\_ORDRE/LISTE\_ORDRE

```
/ TOUT_ORDRE = 'YES' [DEFECT]
```

This keyword gives access (X) the field (S) for all the already calculated sequence numbers.

Example:

- every moment for a result of the type evol\_...
- all clean modes for a result of the type mode\_meca.

```
/ NUME_ORDRE : LORDRE [1_I]
```

This keyword makes it possible to reach only (X) the field (S) correspondent a list of sequence numbers LORDRE (plural is employed here for the case where one chose TOUT\_CHAM = 'YES').

Example: RESU = ( \_F (RESULTAT= RESU, TOUT\_CHAM = 'YES', NUME\_ORDRE= (3.6) )

One will reach all the computed fields with the third and the sixth sequence number.

```
/ LIST_ORDRE : LENTI [listis]
```

The keyword LIST\_ORDRE indicate that one wants to reach (X) the field (S) correspondent with a list of sequence numbers LENTI, defined by the operator DEFI\_LIST\_ENTI [U4.34.02] (LENTI is thus a concept of the type listis).

Example:

```
LIST = DEFI_LIST_ENTI ( VALE = (3.6) )
```

```
RESU = (_F (RESULTAT= RESU, TOUT_CHAM = 'YES', LIST_ORDRE= LISTS)
```

One will reach all the computed fields with the third and the sixth sequence number.

## 3.3 Other ways of choosing the sequence numbers: variables of access

### 3.3.1 Operands TOUT\_MODE/NUMÉRIQUE\_MODE/LISTE\_MODE/NOEUD\_CMP

```
/ TOUT_MODE = 'YES'
```

This keyword indicates that one wants to reach all the fields for all the already calculated numbers of mode.

It is licit only for the types of concept `result` (mode statics or dynamic) having for variable of access `NUME_MODE`.

```
/ NUME_MODE = LMODE [1_I]
```

This keyword indicates that one wants to reach (X) the field (S) correspondent with a list of numbers of mode `LMODE`. These numbers are those affected by the calculation algorithm.

It is licit only for the types of concept `result` (mode statics or dynamic) having for variable of access `NUME_MODE`.

Example: `RESU = (_F (RESULTAT= RESU, TOUT_CHAM = 'OUI', NUME_MODE= (3.6))`

One will reach all the fields corresponding to the third and the sixth mode.

```
/ LIST_MODE = LENTI [listis]
```

The keyword `LIST_MODE` indicate that one wants to reach (X) the field (S) correspondent with a list of numbers of modes `LENTI`, defined by the operator `DEFI_LIST_ENTI` [U4.34.02] (`LENTI` is thus a concept of the type `listis`). It is valid only for the types of concept `result` having for variable of access `NUME_MODE`.

Example:

```
LIST = DEFI_LIST_ENTI ( VALE = (3.6))  
RESU = (_F (RESULTAT= RESU, TOUT_CHAM = 'YES', LIST_MODE= LISTS)
```

One will reach all the fields corresponding to the third and the sixth mode.

```
/ NOEUD_CMP = LNOECMP [1_K16]
```

Results of the type `base_modale` or `mode_stat` have as a variable of access `NOEUD_CMP`. The value of these variables of access is obtained by concaténant the name of the node and the name of the component. To specify a value of the variable of access, the user will give two names, the name of the followed node by the name of the component. A list of  $n$  variables of access will be introduced by the data of  $N$  couples (name of the node, name of the component).

A list of values of this variable of access can be provided by the list  $(couple1, couple2, \dots)$ .

### 3.3.2 Operand NOM\_CAS

```
/ NOM_CAS = NCAS [K16]
```

The keyword `NOM_CAS` indicate that one wants to reach the field corresponding to a case of loading. It is licit only for the concepts `result` of type `mult_elas` who have as a variable of access `NOM_CAS` and produced by `MACRO_ELAS_MULT` [U4.51.02].

### 3.3.3 Operand ANGLE

```
/ ANGLE = LANGL [l_R]
```

The keyword `ANGLE` indicate that one wants to reach (X) the field (S) recombined (S) for a list of angles. It is licit only for the concepts `result` of type `comb_fourier` who have as a variable of access `ANGLE` and produced by the operator `COMB_FOURIER` [U4.83.31].

### 3.3.4 Operands `FREQ / LIST_FREQ`

These operands are licit only for the types of concept `result` having for variable of access `FREQ` (`mode_meca`, `dyna_harm`,...).

```
/ FREQ = LFREQ [l_R]
```

The keyword `FREQ` indicate that one wants to reach (X) the field (S) correspondent with a list of frequencies `LFREQ`.

Example: `RESU = (_F (RESULTAT= RESU, TOUT_CHAM = 'OUI', FREQ= (3.52, 7.37)))`

One will reach all the fields corresponding to the frequencies `3.52` and `7.37`.

```
/ LIST_FREQ = LREEL [listr8]
```

The keyword `LIST_FREQ` indicate that one wants to reach (X) the field (S) correspondent with a list of frequencies `LREEL`, defined by the operator `DEFI_LIST_REEL` (`LREEL` is thus a concept of the type `listr8`).

Example:

```
LIST = DEFI_LIST_REEL ( VALE = (3.52, 7.37))  
RESU = (_F (RESULTAT= RESU, TOUT_CHAM = 'YES', LIST_FREQ =  
LIST))
```

One will reach all the fields corresponding to the frequencies `3.52` and `7.37`.

### 3.3.5 Operands `TOUT_INST / INST / LIST_INST`

These operands are licit only for the types of concept `result` of temporal evolution having for variables of access `INST` (`evol_noli`, `evol_ther`, `dyna_trans`,...).

```
/ TOUT_INST = 'YES'
```

This keyword indicates that one wants to reach all the fields for every already calculated moment.

```
/ INST = LINST [l_R]
```

The keyword `INST` indicate that one wants to reach (X) the field (S) correspondent with a list of moments `LIST`.

Example: `RESU = (_F (RESULTAT= RESU, TOUT_CHAM = 'YES', INST= (3. , 7.)))`

One will reach all the fields corresponding to the moments `3.` and `7.`

```
/ LIST_INST = LREEL [listr8]
```

The keyword `LIST_INST` indicate that one wants to reach (X) the field (S) correspondent with a list of moments `LREEL`, defined by the operator `DEFI_LIST_REEL` (`LREEL` is thus a concept of the type `listr8`).

Example:

```
LIST = DEFI_LIST_REEL ( VALE = (3. , 7.))  
RESU = (_F (RESULTAT= RESU, TOUT_CHAM = 'YES', LIST_INST= LISTS))
```

One will reach all the fields corresponding to the moments 3. and 7. .

### 3.3.6 Operands PRECISION / CRITERION

These operands make it possible to refine the access by real variables of access of time or the frequency.

```
PRECISION = / prec [R]
            / 1.0D-3 or 1.0D-6 [DEFECT]
```

This keyword makes it possible to indicate that one searches all the fields whose moment (respectively the frequency) is in the interval "inst ± prec"(confer CRITERION).

By default prec = 1.0D-3 or prec = 1.0D-6 (according to the orders).

If CRITERE=' ABSOLU', there is no value by default.

```
CRITERION = / 'RELATIVE' [DEFECT]
            / 'ABSOLUTE'
```

'RELATIVE' : the interval of research is: [inst (1 - prec), inst (1 + prec)]

'ABSOLUTE' : the interval of research is: [inst - prec, inst + prec].