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## Operator REST\_COND\_TRAN

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### 1 Goal

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To restore in the physical base of complete models of the transitory results of evolutions on condensed models.

This operator allows, starting from transitory results of evolutions into non-linear on condensed models, to get another result of transitory evolution on a more complete model.

The produced concept is a concept of the type `dyna_trans` in all the possible cases:

- following a non-linear transitory calculation `evol_noli` hasvec resolution about modal base of projection. One restores then on the complete physical model starting from this modal base entered by the keyword `BASE_MODAL`.
- following a linear transitory calculation `dyna_trans` or non-linear `evol_noli` on a mixed model composed of finite elements affected by a possibly non-linear behavior and macronutrients condensing of the models affected by a linear behavior. One restores then on one of the linear physical models entered by the keyword `MACR_ELEM_DYNA`.

## 2 Syntax

```
resphy = REST_COND_TRAN [dyna_trans]
                                [evol_noli]
(
  ◊ reuse = resphy, [dyna_trans]
                                [evol_noli]
  ◆ RESULT = evol, [dyna_trans]
                                [evol_noli]
  ◊ RESU_FINAL = resphy [dyna_trans]
                                [evol_noli]
  ◆ / BASE_MODALE = bamo, [mode_meca]
      ◊ TYPE_RESU = | 'EVOL_NOLI',
                   | 'DYNA_TRANS', [DEFECT]
      ◊ CHAM_MATER = chmat, [cham_mater]
      ◊ CARA_ELEM = carac, [cara_elem]

  / MACR_ELEM_DYNA = mael, [macr_elem_dyna]

  ◊ / TOUT_ORDRE = 'YES',
      / NUME_ORDRE = num, [l_I]
      / TOUT_INST = 'YES',
      / LIST_INST = list, [listr8]
      / INST = inst, [l_R]

  ◊ / TOUT_CHAM = 'YES',
      / NOM_CHAM = | 'DEPL',
                   | 'QUICKLY',
                   | 'ACCE', [DEFECT]),

  ◊ Interpol = / 'FLAX',
               / 'NOT', [DEFECT]

  ◊ CRITERION = / 'ABSOLUTE',
                / 'RELATIVE', [DEFECT]

  ◊ PRECISION = / prec, [R]
                / 1.E-06, [DEFECT]

)
```

## 3 Operands

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### 3.1 Operand RESULT

- ◆ `RESULT = evol`  
Result of transitory evolution into non-linear on models with modal condensation allowing to get another result of transitory evolution on a more complete model. Product of a calculation carried out by `DYNA_LINE_TRAN` or `DYNA_NON_LINE`.

### 3.2 Operand RESU\_FINAL

- ◇ `RESU_FINAL = resphy`  
If this operand is indicated, the evolution of the transitory result of evolution on the complete model can be supplemented by the moments of the concept entered by the operand `RESULT` and the concept result is then D-entering.

### 3.3 Operands BASE\_MODAL/MACR\_ELEM\_DYNA

- ◆ `/ BASE_MODAL`  
Concept of the type `mode_meca` containing a base of modes of projection for the resolution of a non-linear transitory calculation `evol_noli` with the keyword `PROJ_MODAL` in `DYNA_NON_LINE`. One restores then on the complete physical model starting from this modal base entered here by this keyword. An example of restitution of a result `dyna_trans` is given in test SDNV107A. One can also supplement the result restored on the complete model in order to get a result of the type `evol_noli` : an example is given in test SDNV107C.
- ◆ `/ MACR_ELEM_DYNA`  
This keyword makes it possible to introduce the name of a dynamic macronutrient calculated on part of model on which one will carry out the restitution on physical basis. Its data is necessary when this macronutrient is used as super-mesh of substructures defined by the keyword `AFFE_SOUS_STRUC` in the mixed model, also including classical finite elements, on which one calculated the linear evolution or non-linear entry behind the keyword `RESULT`. An example is given in tests MISS06B (non-linear) and MISS06C (linear iterative).

### 3.4 Operands TYPE\_RESU / CHAM\_MATER/CARA\_ELEM

If the operand `BASE_MODAL` is well informed, it is possible to supplement the result restored on the complete model in order to get a result of the type `evol_noli`. It is then necessary to specify `TYPE_RESU='EVOL_NOLI'`. To calculate the fields 'SIEF\_ELGA' and 'VARI\_ELGA' on the part of condensed model linear, it is then necessary to specify the concepts indicated by the operands `CHAM_MATER` and `CARA_ELEM` if they exist for the complete model.

### 3.5 Operands TOUT\_ORDRE/NUME\_ORDRE/TOUT\_INST/LIST\_INST/INST

- ◇ `/ TOUT_ORDRE = 'YES'`  
To restore on all the orders of the concept `evol`.
- ◆ `/ NUME_ORDRE = num`  
List of entreties containing the numbers of the orders on which the restitution takes place.
- ◆ `/ TOUT_INST = 'YES'`

If one wishes to restore over every moment contained in the result `evol`.

/ `LIST_INST = list`

List of real crescents of the type `listr8` containing the moments for which one wishes to carry out the restitution.

/ `INST = inst`

List of real containing the moments over which the restitution takes place.

For a transitory calculation, one checks that the moments requested by the option `LIST_INST` are well in the field of definition of result `evol`.

The results at one unspecified moment can be obtained by linear interpolation between the two moments results of calculation actually contained by result `evol`.

## 3.6 Operands TOUT\_CHAM/NOM\_CHAM

◇ / TOUT\_CHAM = 'YES'

Allows to restore the fields of reference symbol DEPL, QUICKLY and ACCE contents in the result evol.

/ NOM\_CHAM = nomcha

List of the reference symbols of field which one wishes to restore: 'DEPL','QUICKLY','ACCE'.

## 3.7 Operand Interpol

◇ Interpol =

'FLAX' : an interpolation is authorized between two moments; this interpolation is usable only between two moments of calculation, but can lead to errors if the two moments of filing [U4.53.21] are separated from a very long time with respect to the periods of the studied phenomena.

'NOT' : the restitution must be made *stricto sensu*.

## 3.8 Operands PRECISION/CRITERION

◇ PRECISION = prec

◇ CRITERION =

When Interpol is worth 'NOT' indicate with which precision the research of the moment to be restored must be done

'ABSOLUTE' : interval of research [Inst - prec, Inst + prec],

'RELATIVE' : interval of research [(1 - prec).Inst, (1 + prec) . Inst]  
Inst being the moment of restitution.