Code_Aster

Version default

Titre : ZZZZ126 - Validation de la commande CREA_CHAMP OPE[...]
Responsable : Jacques PELLET

Date : 12/12/2011 Page : 1/4
Clé : V1.01.126   Révision : 7951

ZZZZ126 - Validation of the command CREA_CHAMP OPERATION: "ASSE"

Summarized:

This test of the command validates the operation "ASSE " CREA_CHAMP which makes it possible to manufacture a field (with the nodes or the elements) by "assembly" of ends of existing fields.

The test consists in affecting on geometrical entities (meshes and nodes), quantities (displacements, stresses or local variables). One then combines with operation "ASSE" of the command CREA_CHAMP the fields obtained by assignment and one checks that the field result contains the good values.

Code_Aster

Version
default

Titre : ZZZZ126 - Validation de la commande CREA_CHAMP OPE[...]   *Date : 12/12/2011   Page : 2/4*
Responsable : Jacques PELLET   *Clé : V1.01.126   Révision : 7951*

1   Problem of reference

1.1   Geometry

the geometry of the problem is of no importance. It is enough to know that the mesh contains at least:

3 meshes named: $M1$, $M2$ and $M3$,
3 named nodes: $A1$, $A2$ and $A3$.

1.2   Properties of the material

Of no importance. One chose the constitutive law VMIS_ISOT_CINE which has at least 3 local variables.

1.3   Boundary conditions and loadings

Of no importance.

1.4   Initial conditions

Of no importance

Code_Aster

Titre : ZZZZ126 - Validation de la commande CREA_CHAMP OPE[...]
Responsable : Jacques PELLET

Version default

Date : 12/12/2011 Page : 3/4
Clé : V1.01.126   Révision : 7951

2 Reference solution

2.1 Method of calculating used for the reference solution

Is a quantity G having 3 components X, Y, Z
The mesh has 3 geometrical entities (meshes or nodes): $X1, X2, X3$

One first of all manufactures 2 fields $ch1$ and $ch2$ per assignment of the quantity G on the geometrical entities $X1$, $X2$ and $X3$.

Component	$X1$			$X2$			$X3$		
entity	X	Y	Z	X	Y	Z	X	Y	Z
$ch1$	1.		3.	1.		3.	1.		3.
$ch2$		4.	2.		4.	2.		4.	2.

One defines then the fields $ch3$ and $ch4$ by CREA_CHAMP operation ASSE.

One must then obtain:

Component	$X1$			$X2$			$X3$		
entity	X	Y	Z	X	Y	Z	X	Y	Z
$ch1$	1.		3.	1.		3.	1.		3.
$ch2$		4.	2.		4.	2.		4.	2.
$ch3$	1.		3.	1.	8.	4.	1.	12.	9.
$ch4$	6.			8.			18.		

To test of the command the various cases of the operation "ASSE" CREA_CHAMP, this computation is made for 5 types of fields:

A   cham_no   displacements
B   cham_elem /ELNO   forced
C   cham_elem /ELGA   forced
D   cham_elem /ELNO   local variables
E   cham_elem /ELGA   local variables

2.2 Results of reference

For the 5 preceding cases, one tests the lubricated and underlined values below table Ci -:

Component	$X1$			$X2$			$X3$		
entity	X	Y	Z	X	Y	Z	X	Y	Z
$ch3$	1.		3.	**1.**	8.	4.	**1.**	**12.**	**9.**
$ch4$	6.			8.			**18.**		

2.3 Uncertainties on the solution

No uncertainty.

Code_Aster

Titre : ZZZZ126 - Validation de la commande CREA_CHAMP OPE[...]
Responsable : Jacques PELLET

Version
default

Date : 12/12/2011 Page : 4/4
Clé : V1.01.126 Révision : 7951

3 Modelization A

3.1 Characteristic of the modelization

Of no importance

3.2 Characteristics of the mesh

Of no importance

3.3 Values tested

Identification	Reference
ch3/X2/X	1.0
ch3/X3/X	1.0
ch3/X3/Y	12.0
ch3/X3/Z	9.0
ch4/X3/X	18.0

4 Summary of the results

the results are exactly those expected.