

## Operator DEFI\_OBSTACLE

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### 1 Goal

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To define the geometry of the places of shocks of a telegraphic structure. These places are defined in a plan perpendicular to the structure modelled by beams `POU_D_T` and `POU_D_E`. It is then used by `DYNA_TRAN_MODAL` [U4.53.21] for the study of the answer of a structure whose displacements are limited by the presence of this obstacle. One can also define the initial section of a structure which one will study progressive wear. In this last case, the concept will be used by `MODI_OBSTACLE` [U4.44.22].

Product a concept of the type `table_fonction`.

## 2 Syntax

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```
obstacle = DEFI_OBSTACLE
(
  ◆ / TYPE = / 'CIRCLE', [DEFECT]
           / 'PLAN_Y',
           / 'PLAN_Z',
           / 'BI_CERCLE',
           / 'BI_CERC_INT',
           / 'BI_PLAN_Y',
           / 'BI_PLAN_Z',
           / 'DISCRETE',
  ◆ VALE = thetar, [1_R]
  ◆ VERIF = 'FIRM',
)
```

## 3 Operands

### 3.1 Operand TYPE

The operand `TYPE` allows to give the form wraps game in the connection of shock by a text among the following: `PLAN_Y`, `PLAN_Z`, `CIRCLE`, `DISCRETE`, `BI_PLAN_Y`, `BI_PLAN_Z`, `BI_CERCLE` and `BI_CERC_INT` ;

Obstacles of the type `PLAN_Y`, `PLAN_Z`, `CIRCLE` and `DISCRETE` define the geometry of the places of shock between a mobile structure and an indeformable obstacle. They are traced Ci - below [Figure 3.1-a] according to the selected type.

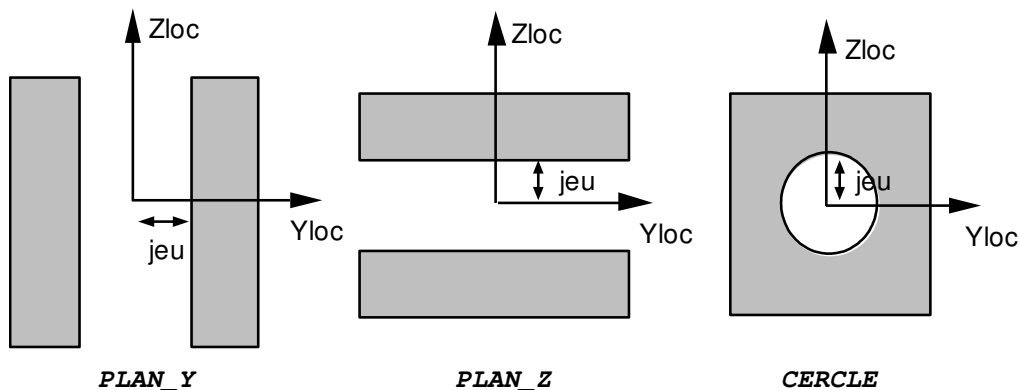


Figure 3.1-a

The value of the game and the local reference mark  $(X_{loc}, Y_{loc}, Z_{loc})$  will be defined at the time of the use of the obstacle (see operator `DYNA_TRAN_MODAL` [U4.53.21]). The origin of this reference mark being the place of the telegraphic structure considered.

In the case of the obstacle `TYPE = 'DISCRET'`, the curve should be specified defining contour and the game simultaneously, using the keyword `VALE`.

Types `BI_PLAN_Y`, `BI_PLAN_Z`, `BI_CERCLE` and `BI_CERC_INT` allow to define the possible places of contact of the telegraphic structure between two nodes `NO1` and `NO2` belonging each one to a mobile structure. The geometries of the connections of contact plan on plan (or rings on circle) are described on the figure [Figure 3.1-b] below.

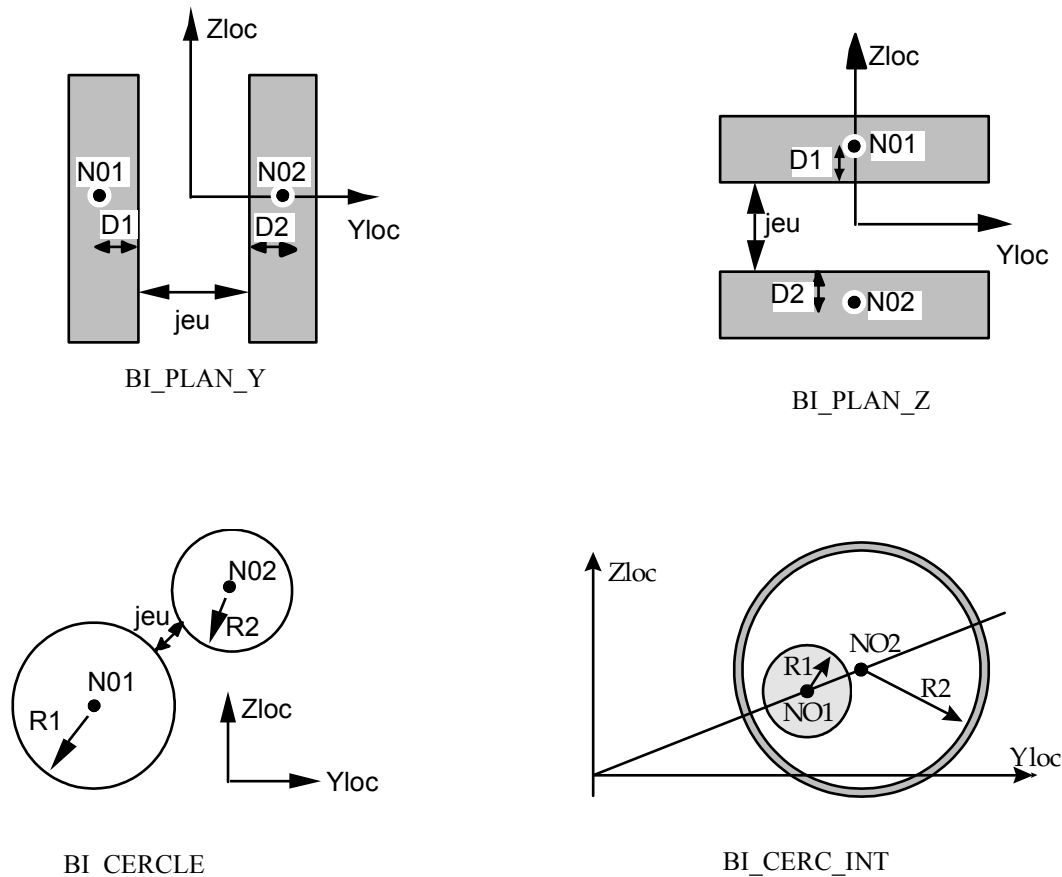


Figure 3.1-b

The value thicknesses of matter surrounding the nodes of shock (`D1` and `D2` for an obstacle of the type `BI_PLAN_*`, `R1` and `R2` for an obstacle of the type `BI_CERCLE` or `BI_CERC_INT`) as well as the local reference mark (`Xloc`, `Yloc`, `Zloc`) is defined at the time of the use of the obstacle, it is - with-to say in the operator `DYNA_TRAN_MODAL` [U4.53.21].

Several initial forms, in particular for the study of the vibrations of the control rods, are defined. They correspond with the pencil of the various control rods and to their guidance.

## 3.2 Operands VALE / VERIF

◇ `VALE = thetar`

In the case of the obstacle `DISCRETE` the curve should be specified defining contour and the game simultaneously, using the keyword `VALE`.

`thetar` is the list of realities allowing to describe the contour of the obstacle of the type `DISCRETE` in polar coordinates. One describes the obstacle like a plane curve into polar by giving

couples of values, the first being the angle in degrees of 0 with 360°, the second the ray [Figure 3.2-a].

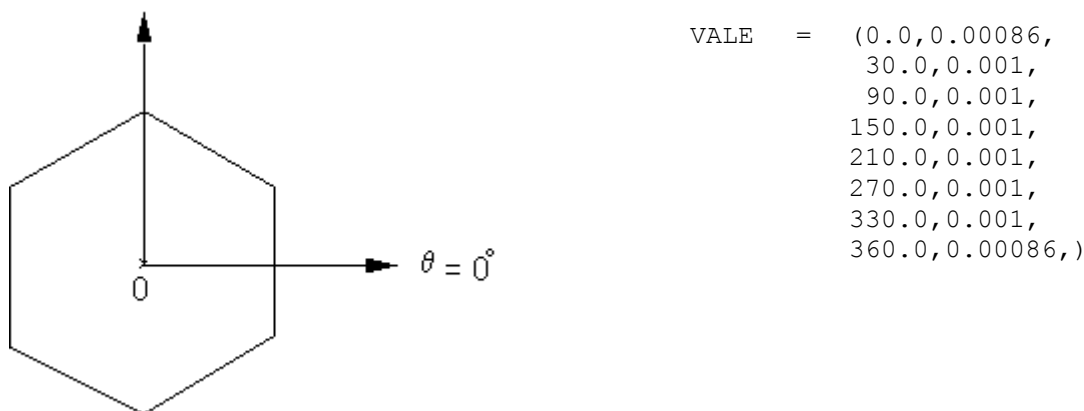


Figure 3.2-a

◇ VERIF = 'FIRM'

Keyword allowing to check if the curve given into polar is well closed.