

Modulul Wireframe and Surface Design

Generalitati

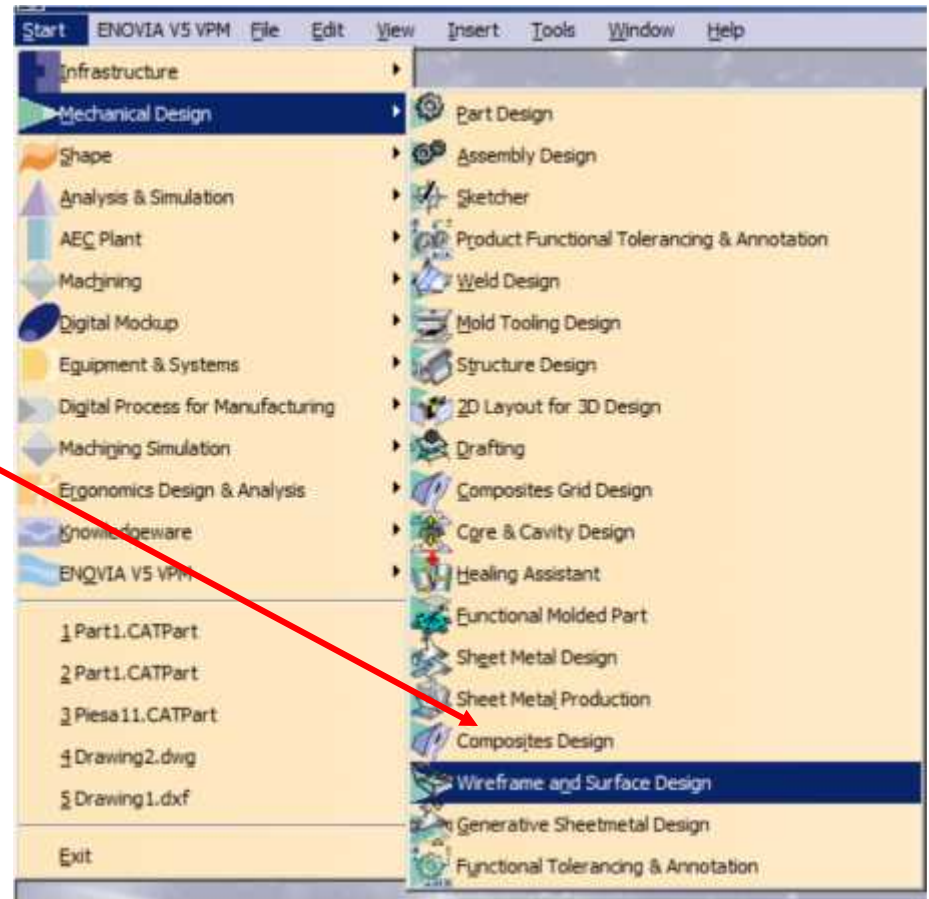
CATIA ofera posibilitatea modelarii formelor complexe cu ajutorul a trei module de generare si modificare a suprafetelor:

- Wireframe and Surface Design
- Generative Shape Design
- FreeStyle

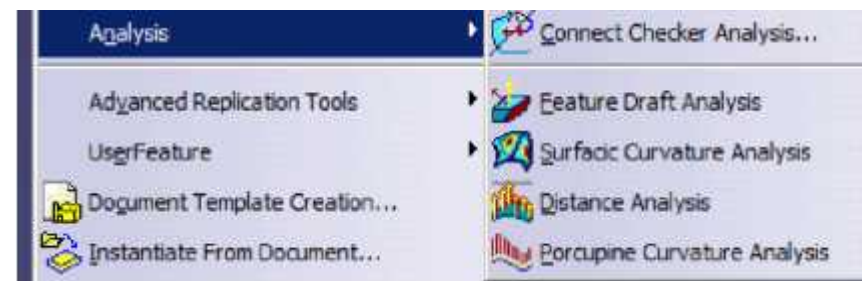
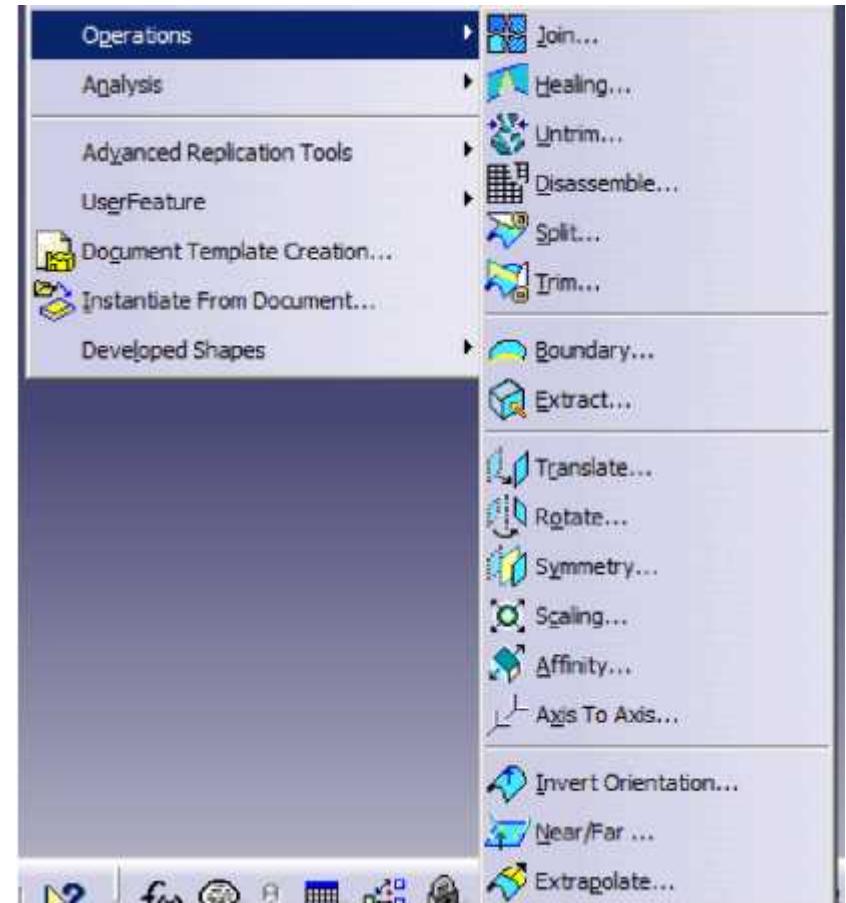
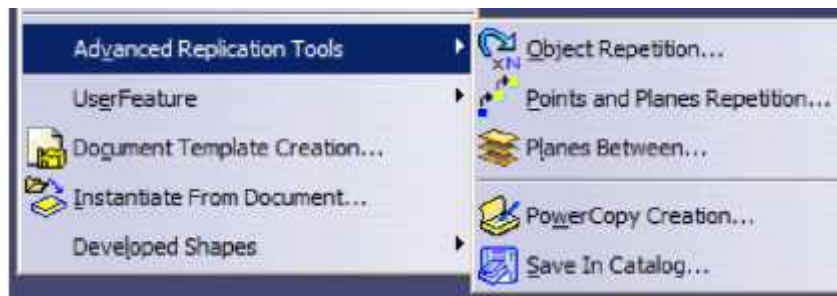
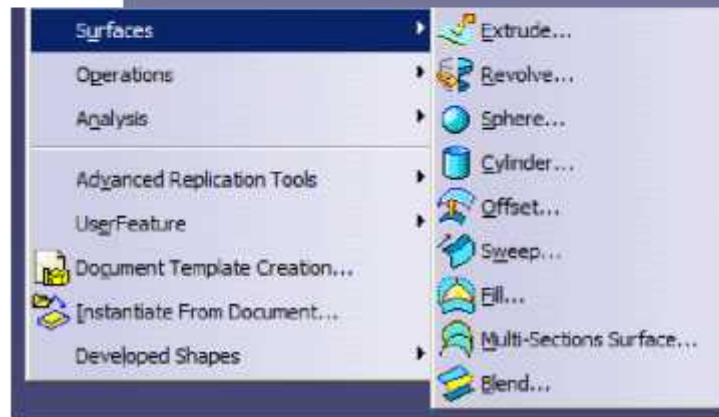
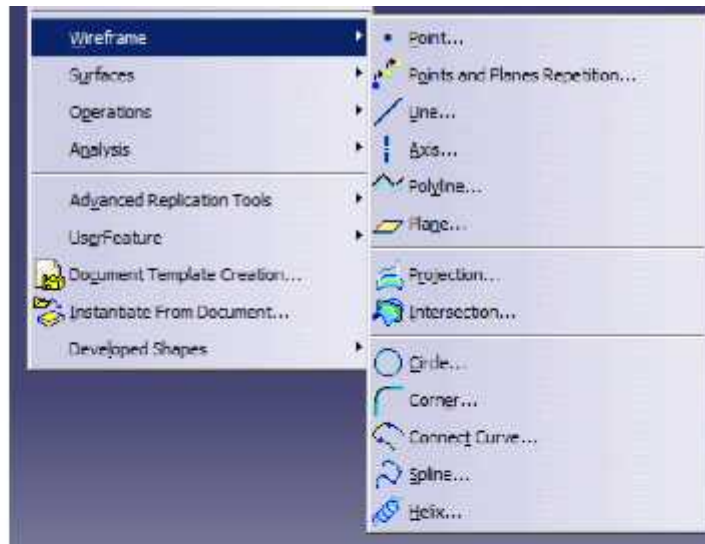
Corpurile 3D create cu ajutorul acestor module nu au grosime si nici proprietati de masa

Modulul Wireframe and Surface Design permite crearea cadrelor subtiri si a suprafetelor

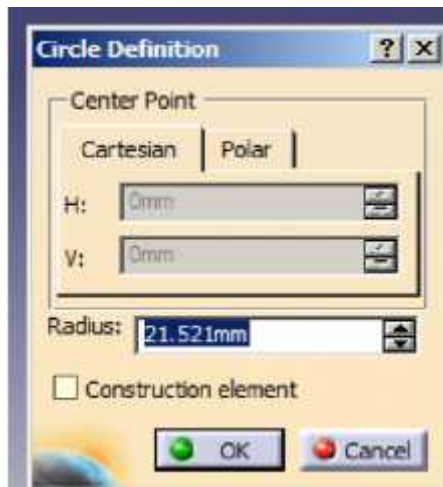
Modul poate fi accesat prin comanda
Mechanical Design - Wireframe and Surface Design



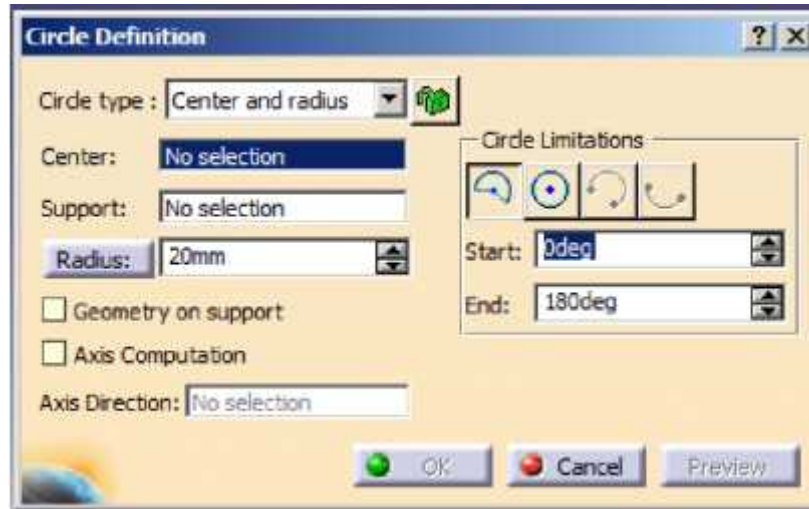
In meniul **Insert** sunt disponibile toate comenzile specifice modulului, comenzi ce pot fi accesate si din barele de unelte corespunzatoare



Se observa in submeniul **Wireframe** existenta unor comenzi specifice modulului **Sketcher**: Point, Line, Circle...Ferestrele de definire sunt in sa diferite:

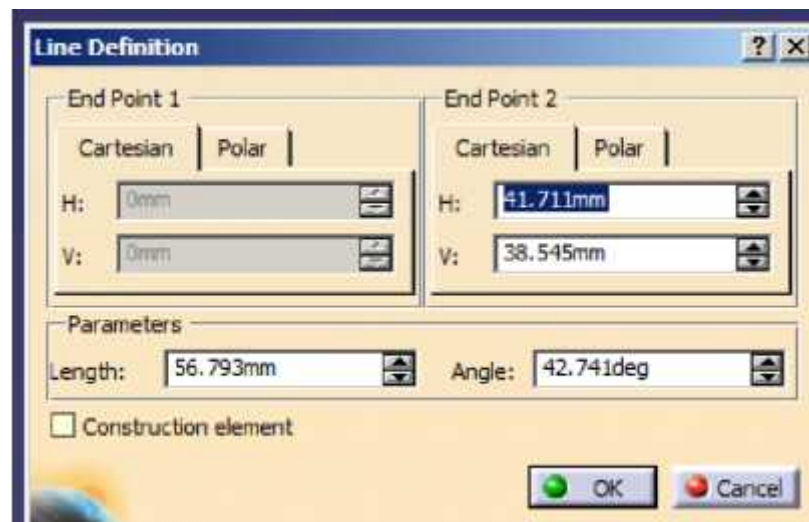
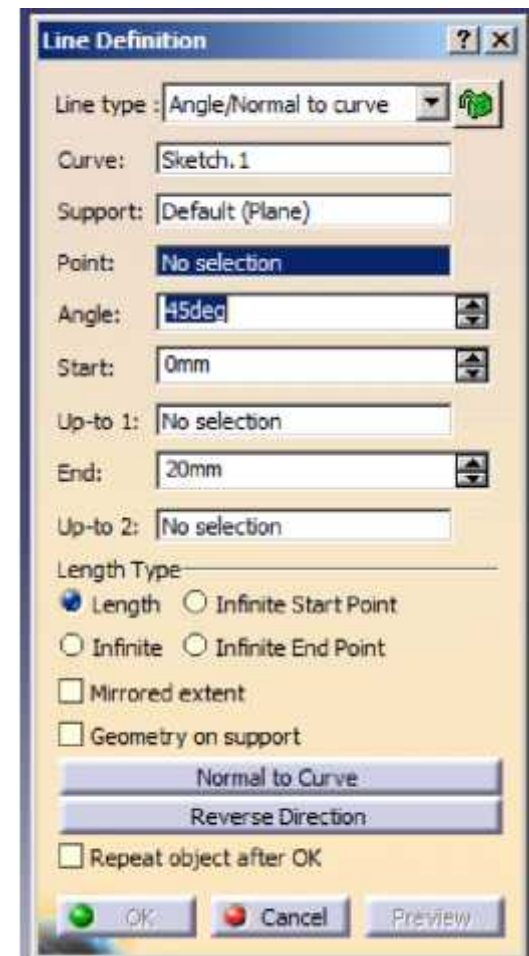


Cerc in **Sketcher**



Cerc in **Wireframe**

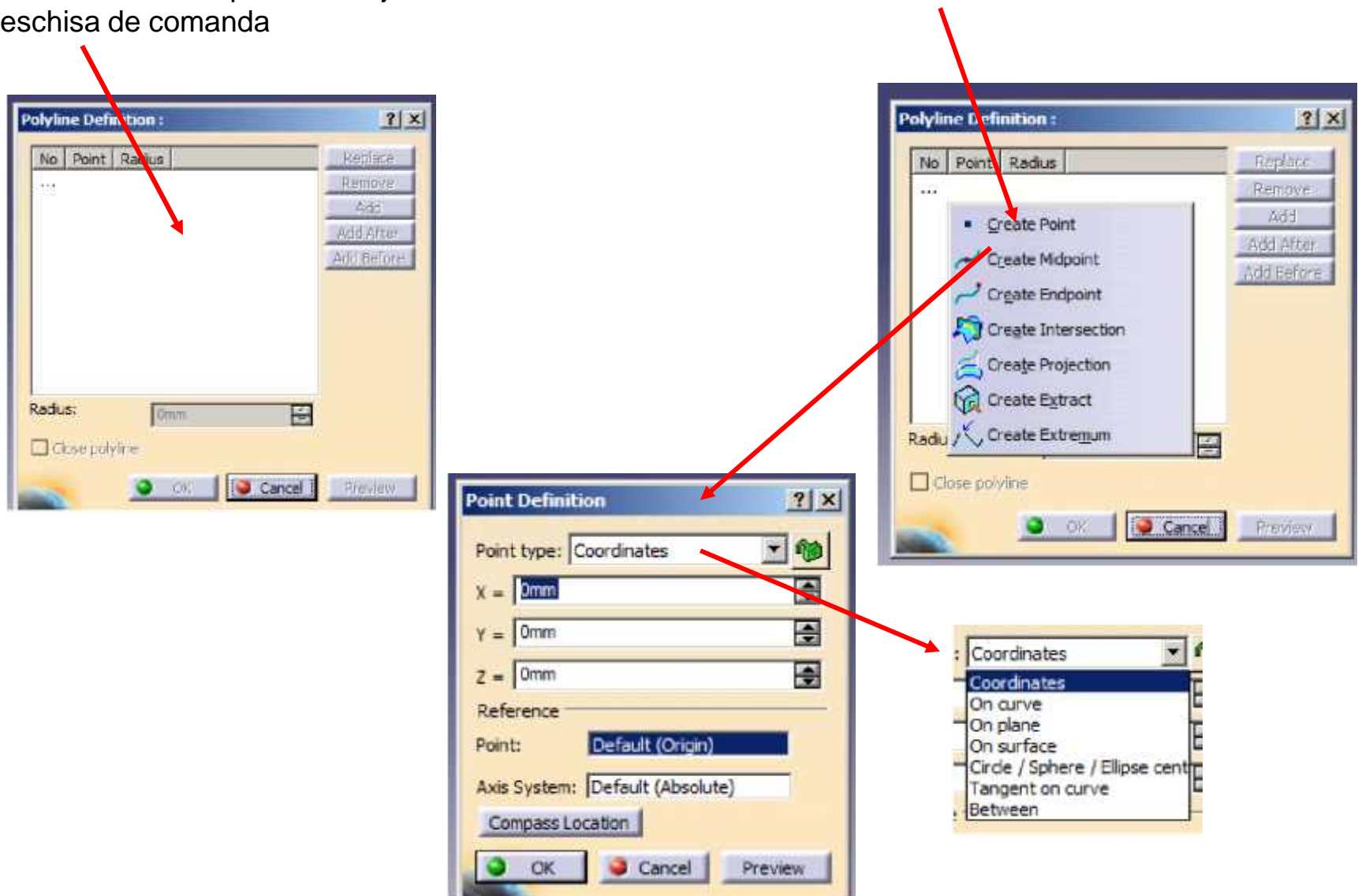
Linie in **Wireframe**



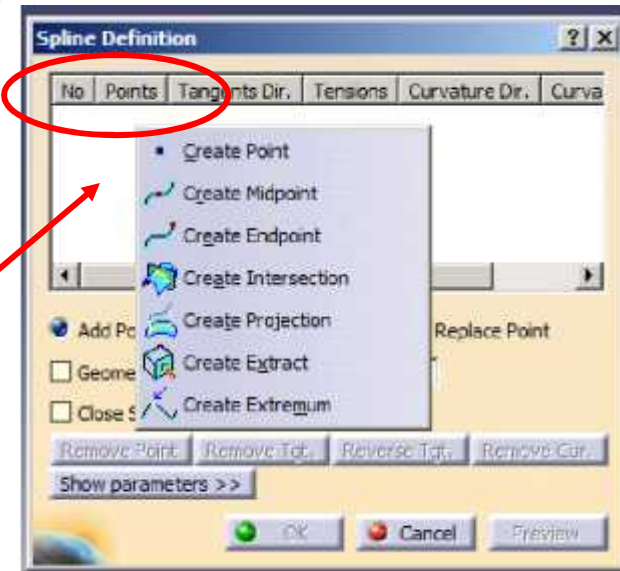
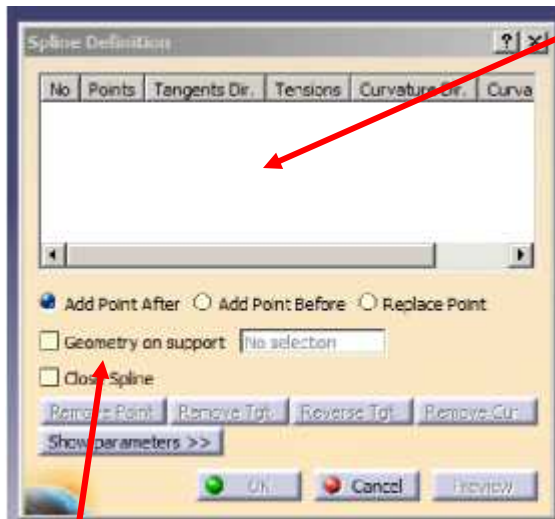
Linie in **Sketcher**

Spre deosebire de modulul **Sketcher**, in **Wireframe** unele elemente pot fi construite atat pe un suport plan (puncte, linii, cercuri etc) cat si in spatiu (puncte, linii, spirale etc)

Crearea unei polilinii 3D se poate face folosind comanda **Insert - Wireframe - Polyline**. Polilinia se construiește unind punctele deja existente sau create ad-hoc din meniul contextual activat in fereastra deschisa de comanda

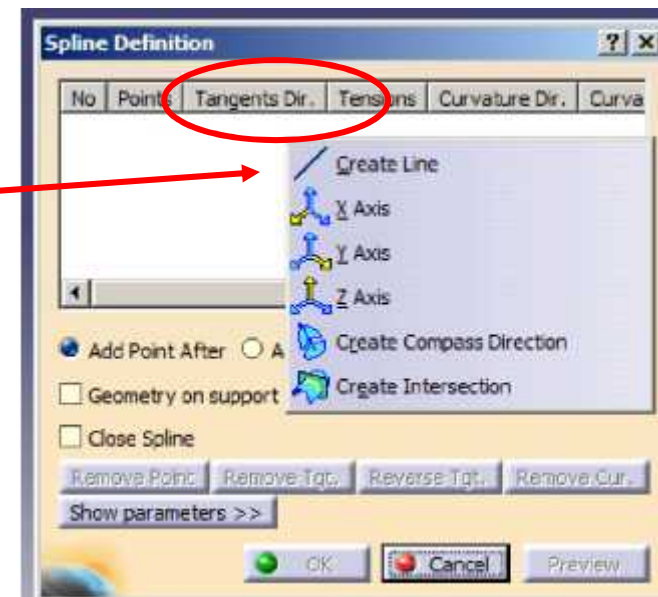


Pentru crearea unei linii spline este disponibila comanda **Insert - Wireframe - Spline**. Linia este creata prin puncte, existente sau create ad-hoc prin meniul contextual

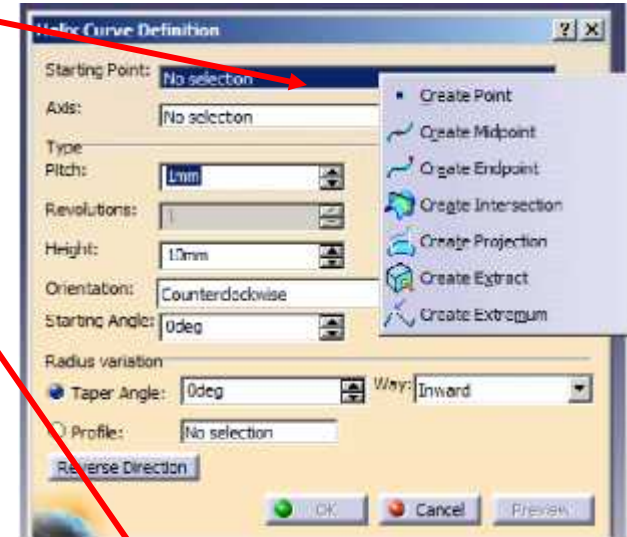


Spre deosebire de polilinie la comanda Spline, in functie de zona in care se activeaza meniul contextual se pot obtine puncte sau linii

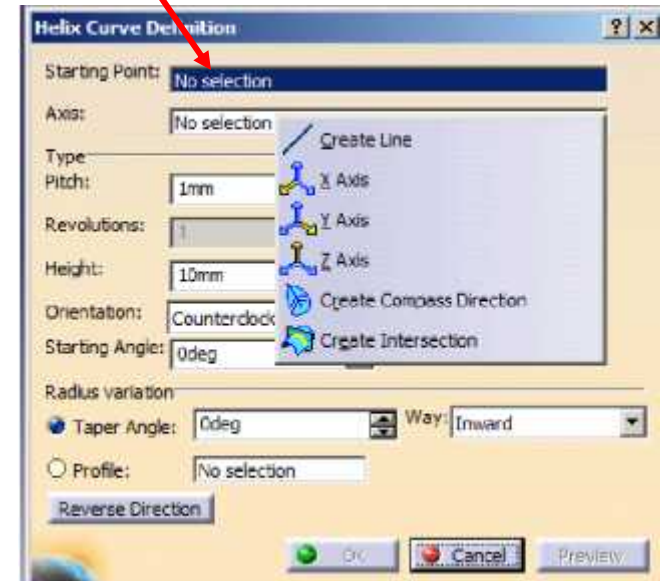
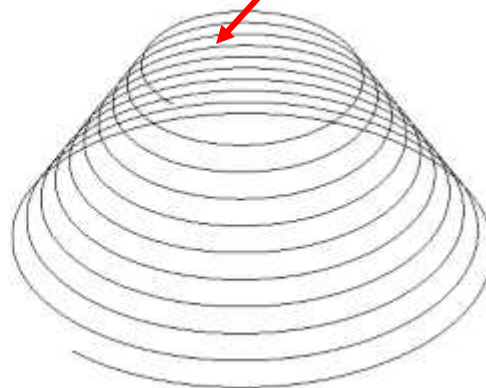
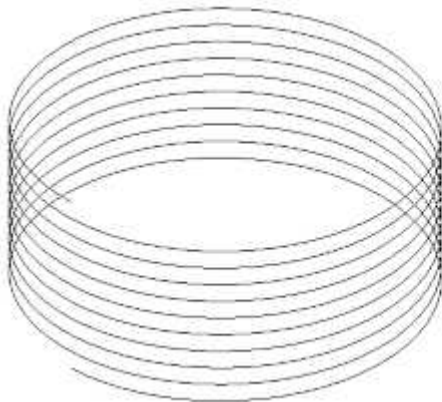
Exista si posibilitatea crearii liniei spline pe o suprafata



Crearea unei linii spirale 3D este posibilă folosind comanda **Insert - Wireframe - Helix**. Elementele de baza pot fi existente sau create ad-hoc prin meniul contextual

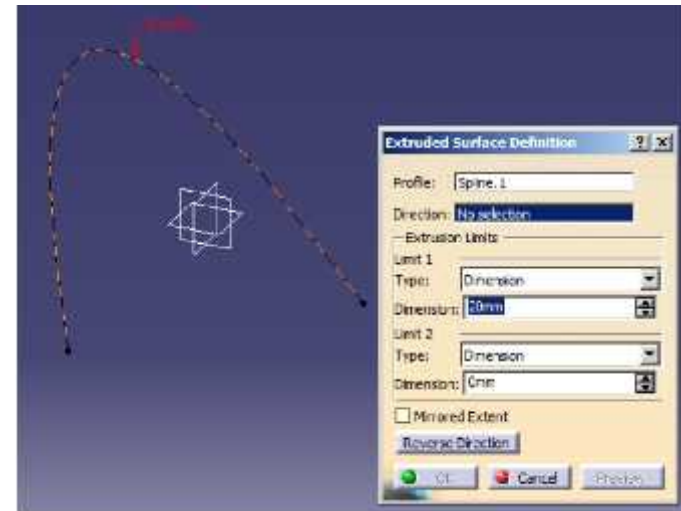
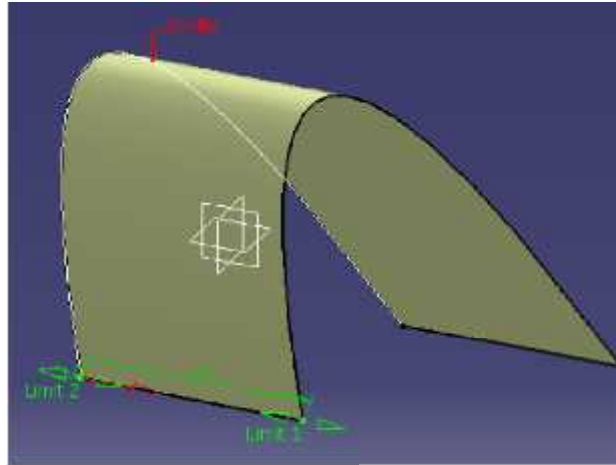


Exista posibilitatea obtinerii unor spirale cu raza variabila

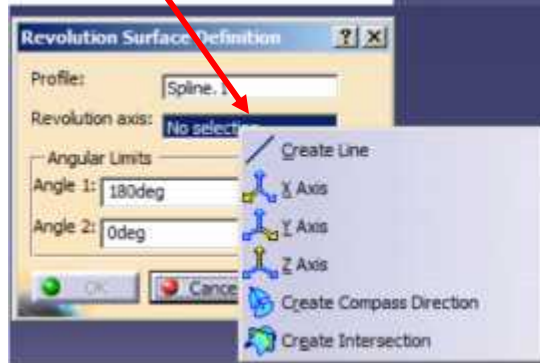
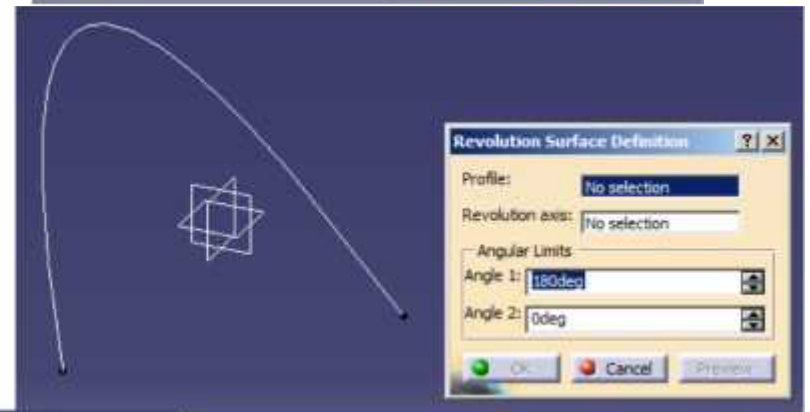
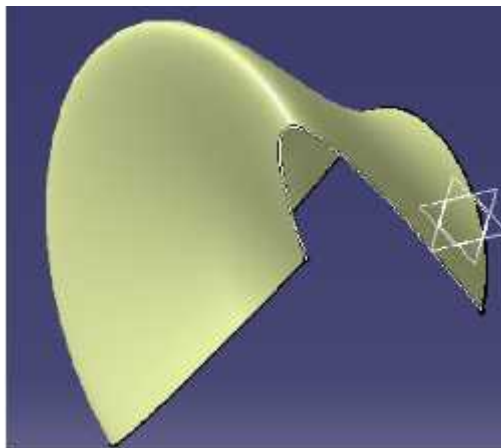


Pentru crearea suprafetelor sunt disponibile o serie de comenzi in **Insert - Surfaces**.

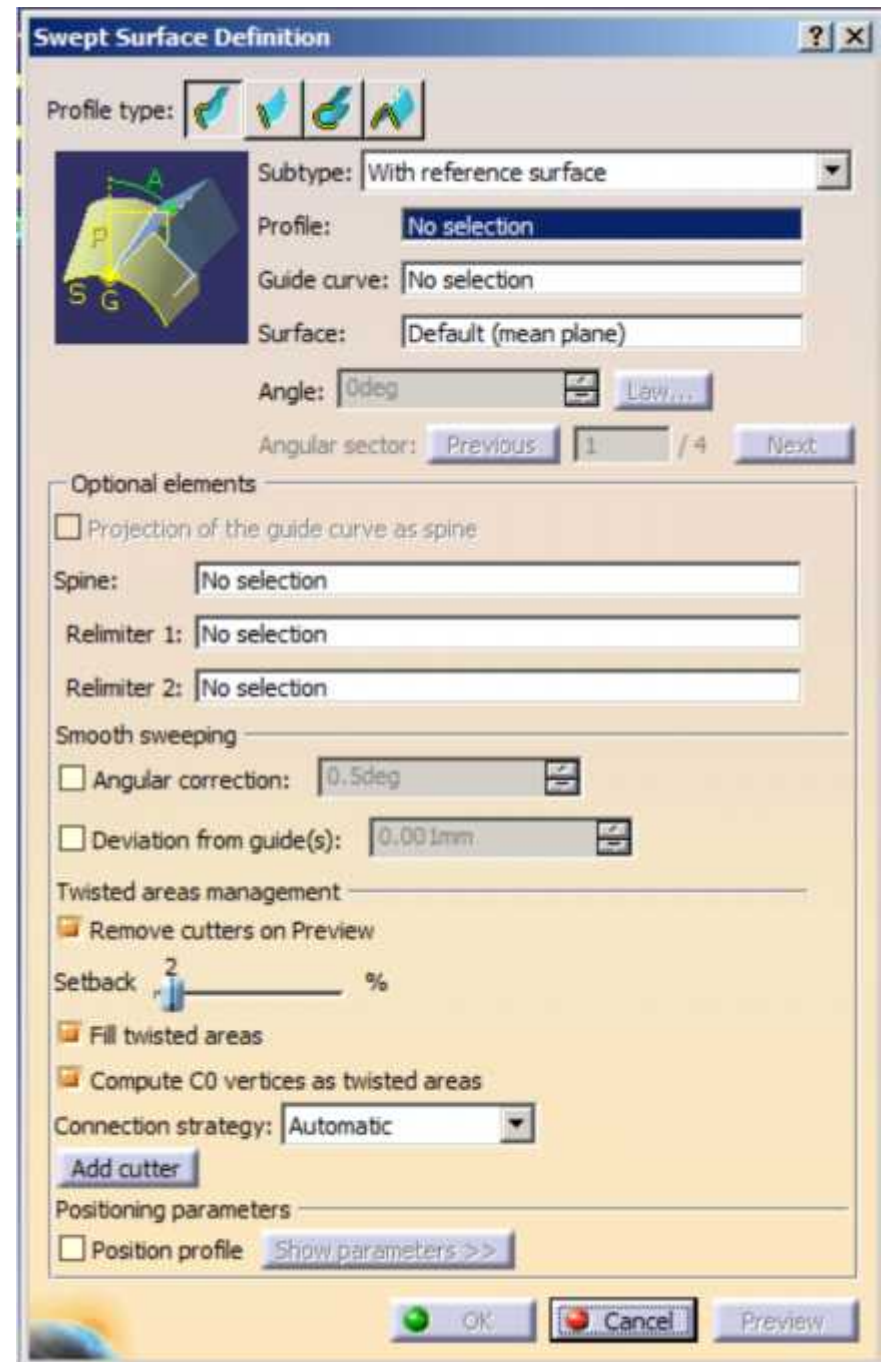
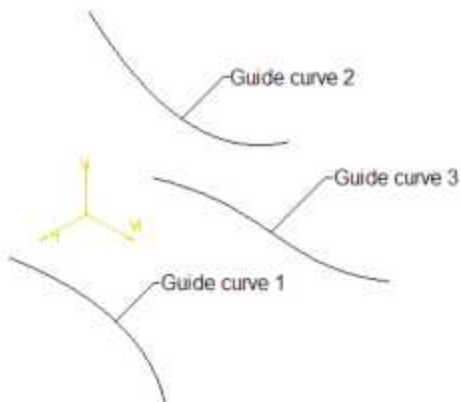
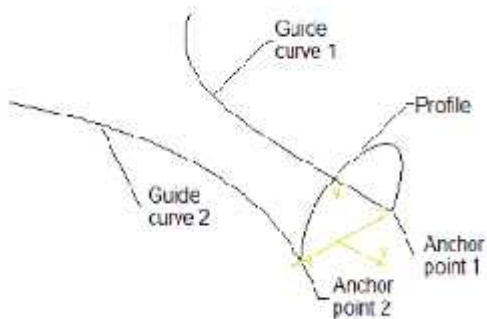
Extrude - creeaza suprafata prin extrudarea unui profil (poate fi muchia unei alte suprafete sau a unui solid)



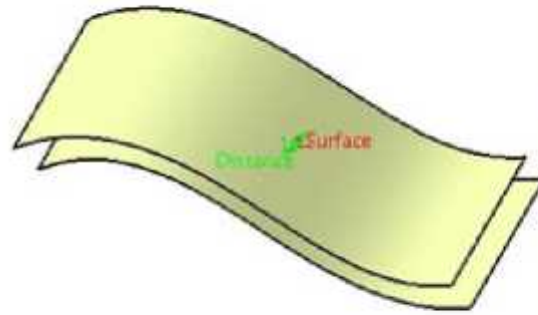
Revolve - creeaza suprafata prin rotirea unui profil in jurul unei axe existente sau create ad-hoc



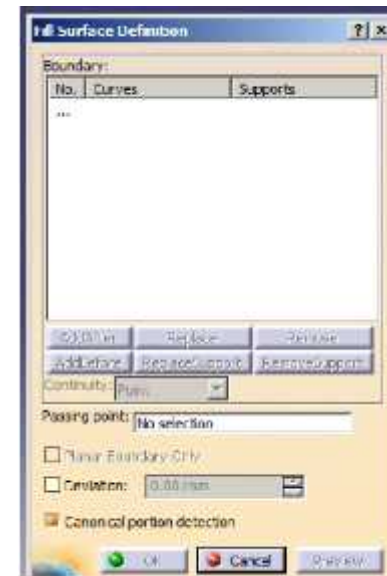
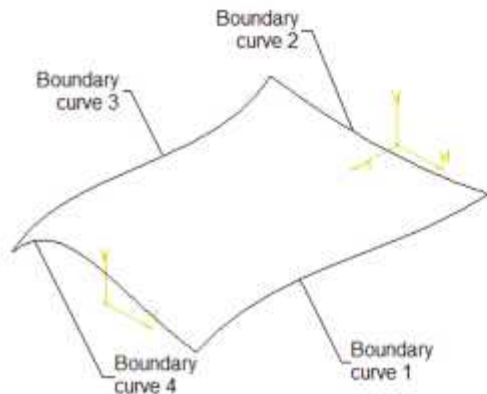
Sphere, Cylinder- creeaza suprafete sferice sau cilindrice
Sweep - creeaza suprafete prin translarea unui profil
(*Profile*) de-a lungul unei curbe (*Guide curve*)



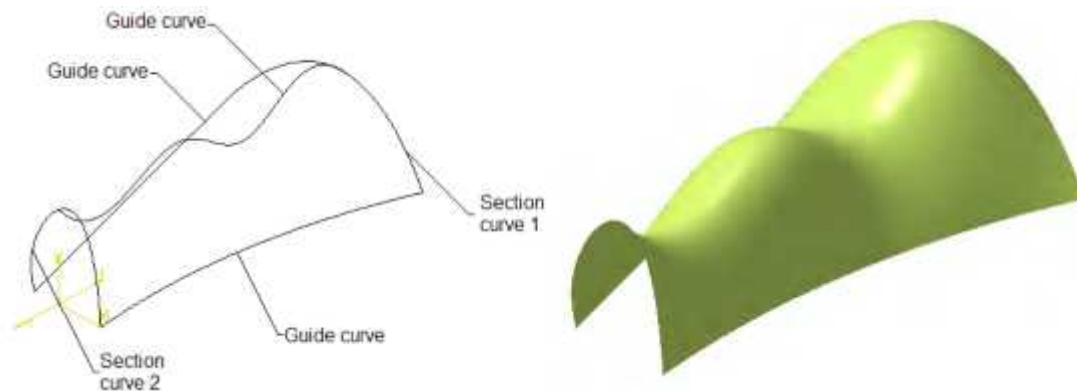
Offset - creeaza suprafete paralele, la o distanta specificata



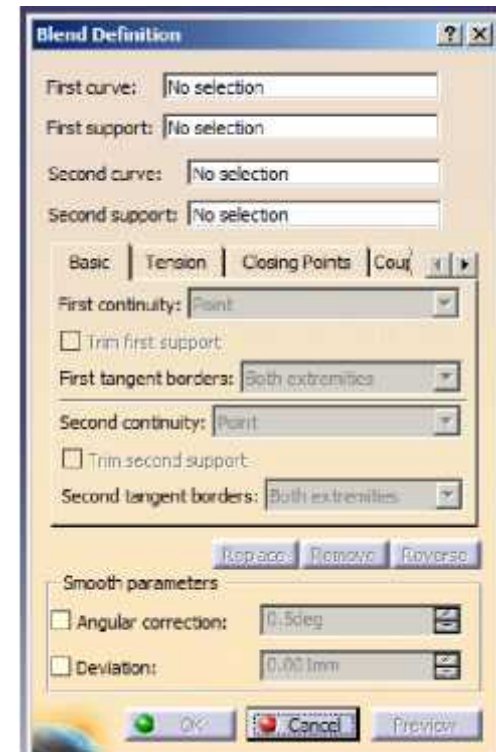
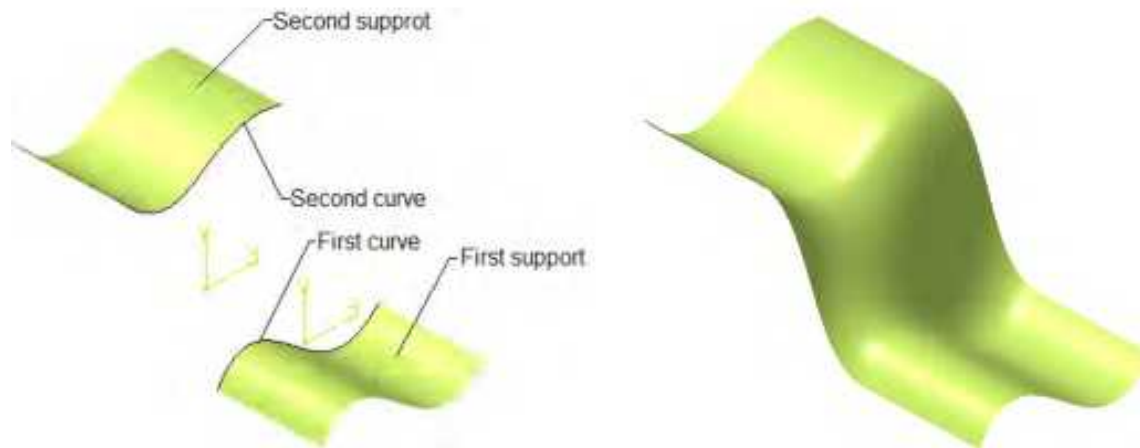
Fill - creeaza suprafete prin specificarea limitelor unui contur inchis



Multi-Section Surface - creeaza suprafete prin specificarea unor curbe suport (*Sections*) si a unei curbe-profil (*Guide curve*)

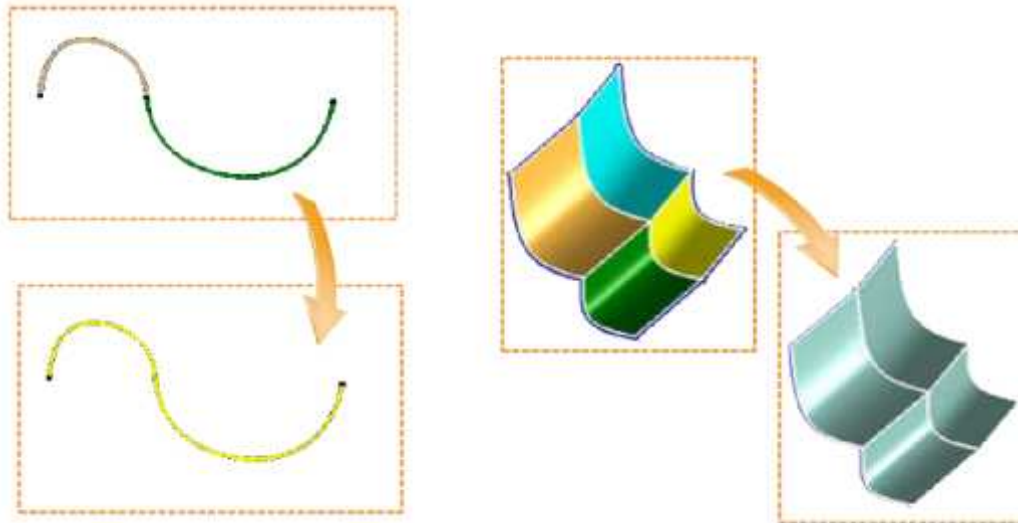


Blend - creeaza suprafete prin conectarea unor suprafete existente

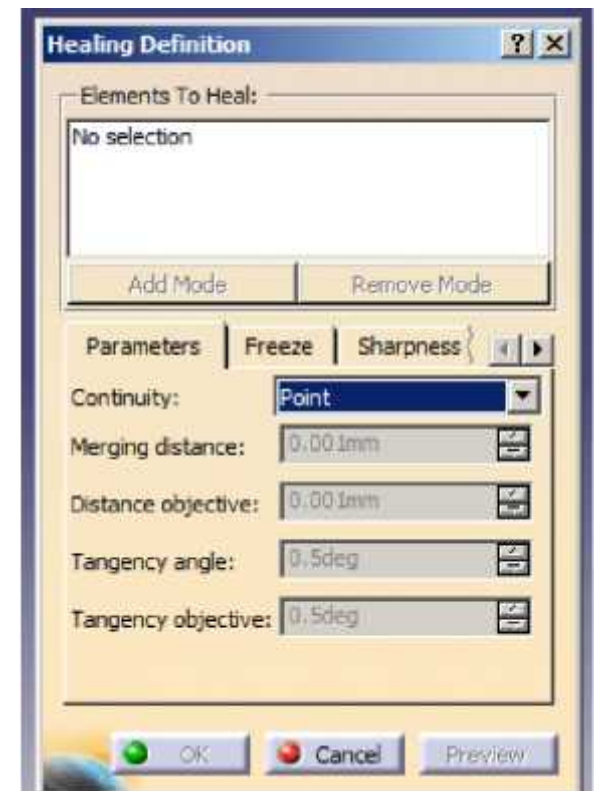
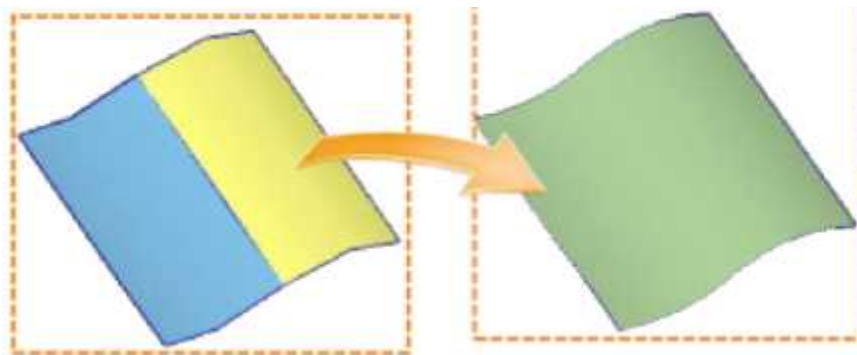


Operatii cu elemente Wireframe sau Surface

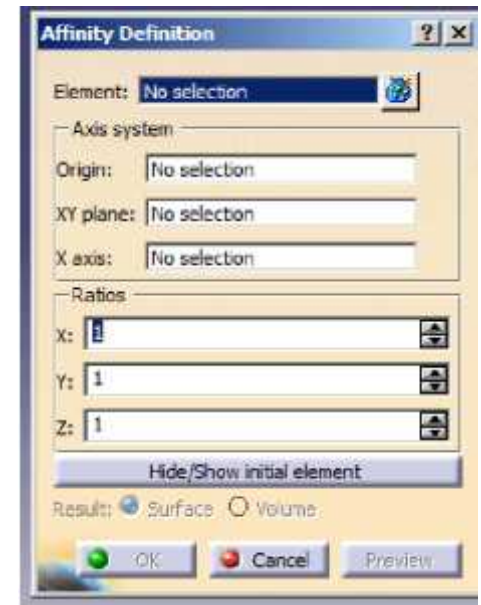
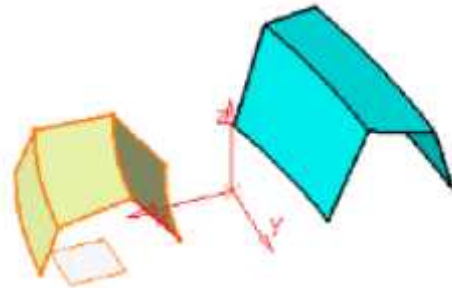
Join - uneste intr-un singur element curbe sau suprafete apropiate



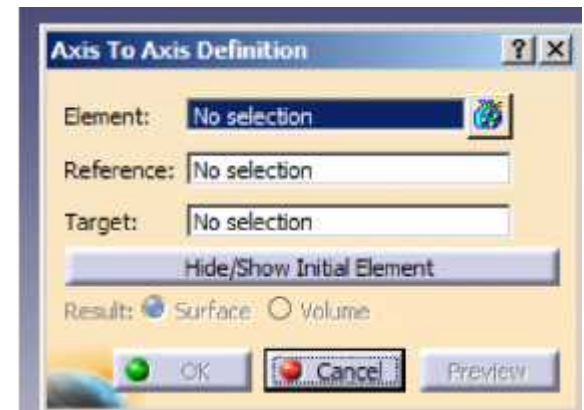
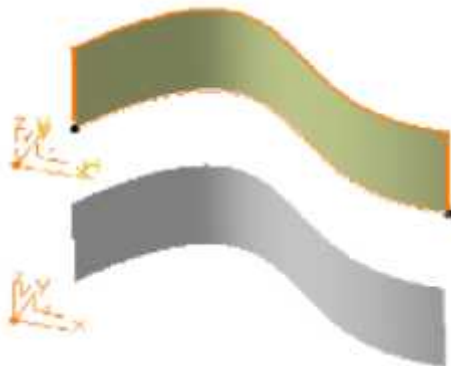
Healing - indeparteaza spatiile nedorite din / dintre suprafete



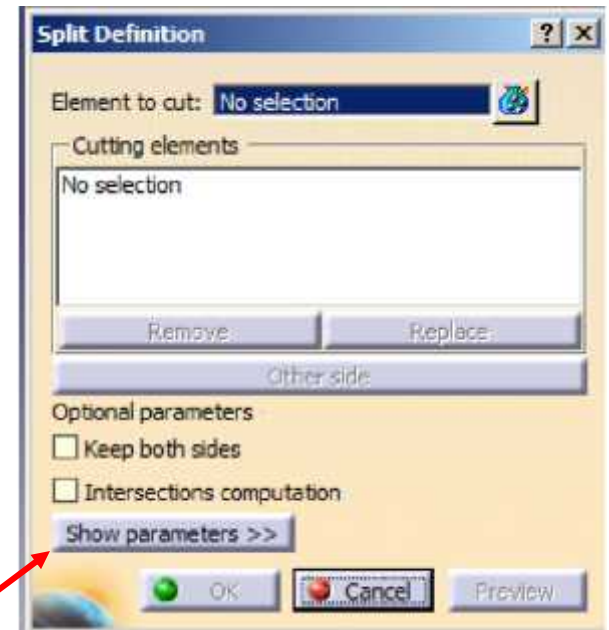
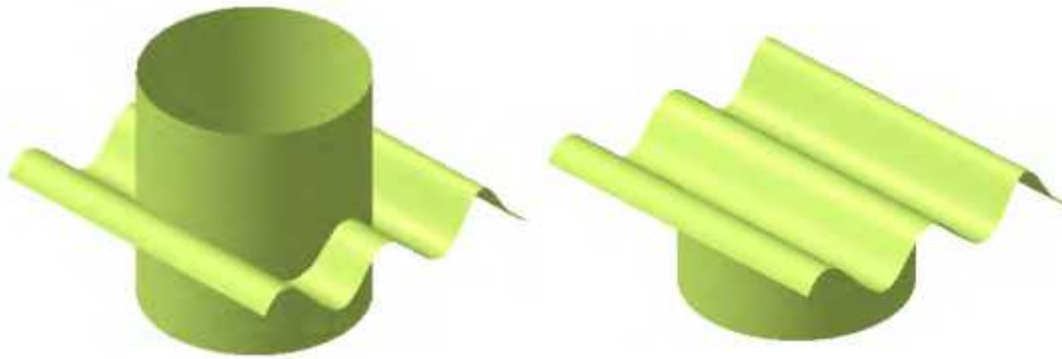
Affinity - permite redimensionarea cu factori de scara diferiti pe directii diferite



Axis-to-axis- permite mutarea elementelor intre sisteme diferite de coordonate

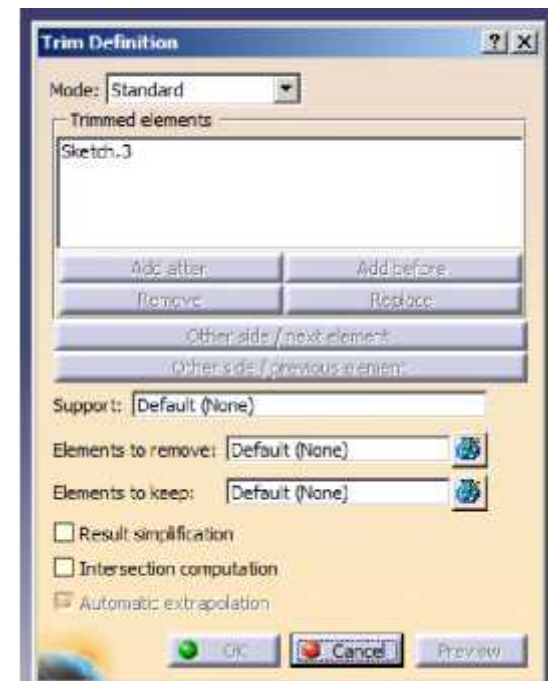
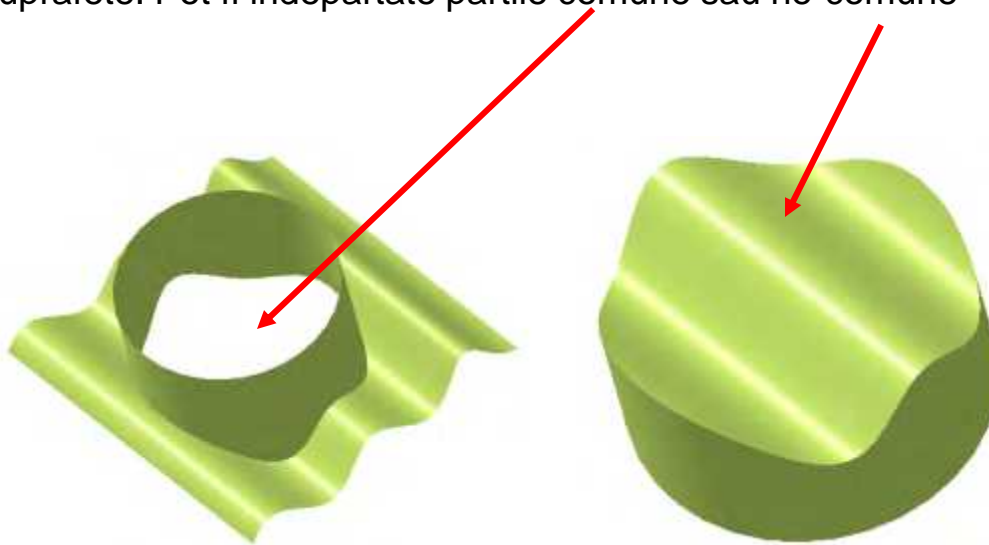


Split - separa, folosind un element tip wireframe sau suprafata, curbe sau suprafete



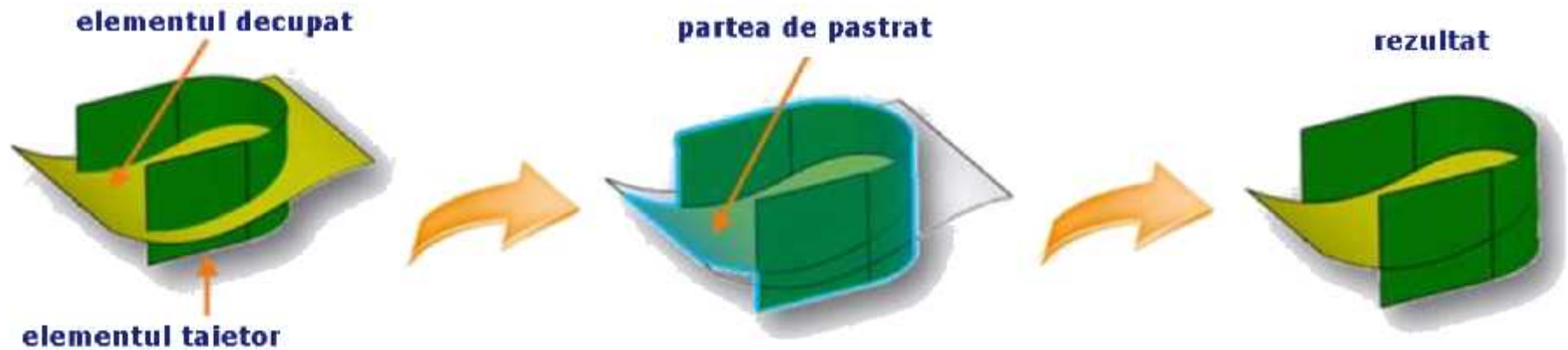
Ambele parti separate pot fi pastrate sau se poate indeparta una dintre ele

Trim - separa, folosind un element tip wireframe sau suprafata, curbe sau suprafete. Pot fi indepartate partile comune sau ne-comune



Diferenta intre **Split** si **Trim**

Split: elementul decupat este sectionat si este indepartata parte nedorita. Elementul taietor nu este afectat



Trim: ambele elemente sunt sectionate in zona comuna si se pastreaza doar cele selectate

