

Plotning af et rumligt område med "plot3D" fra Steens plot2D3D2-Maple-pakke

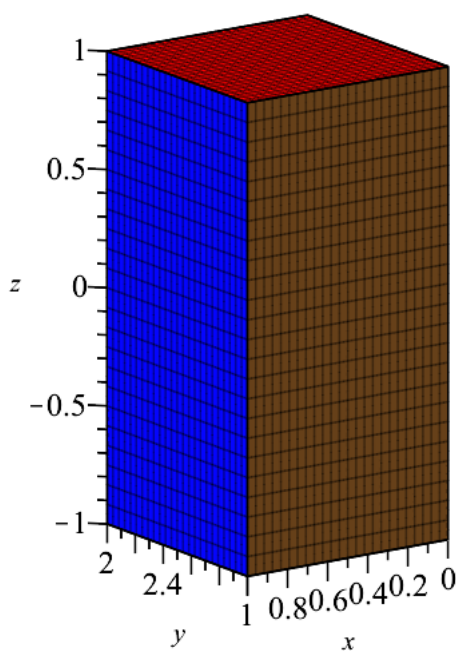
Pakken "*plot2D3D2*" hentes på: <https://steen-toft.dk/mat/maple/pakker/>

```
restart  
with(plots) :  
with(plot2D3D2) = [NormalVektorer, TangentVektorer, plot2D, plot3D]
```

▼ Eksempel 1 (en terning)

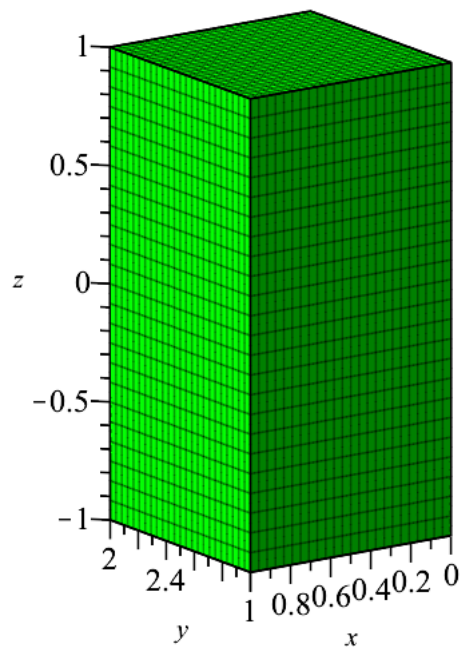
Forskiften for parametriseringen angives som "**expression**", parameterområderne som "**list**" og farverne som "**list**":

```
R1 := <u, v, w> :  
INT := [0, 1, 2, 3, -1, 1] :  
FAR1 := [green, blue, gray, gold, yellow, red] :  
display(plot3D(R1, INT, FAR1), labels = [x, y, z], axes = boxed, scaling = constrained)
```



Med et andet farvevalg:

```
FAR2 := [green, green, green, green, green, green] :  
display(plot3D(R1, INT, FAR2), labels = [x, y, z], axes = boxed, scaling = constrained)
```



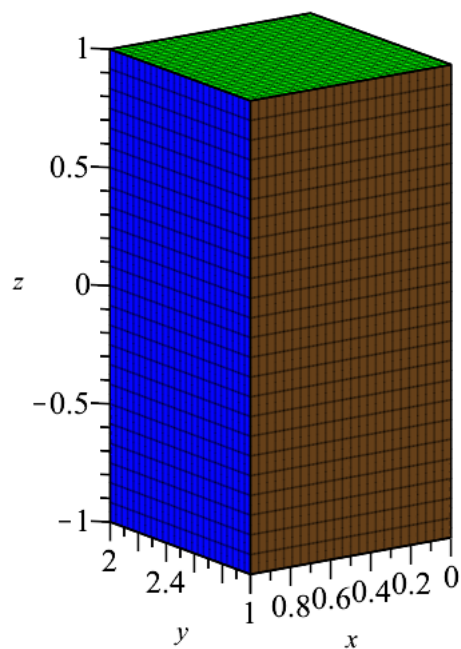
Hvis parametriseringen er givet som en "function", så anvender man blot $R2(u, v, w)$ i kaldet af *plot3D*:

$R2(u, v, w) := \langle u, v, w \rangle :$

$INT := [0, 1, 2, 3, -1, 1] :$

$FAR1 := [red, blue, gray, gold, yellow, green] :$

$display(plot3D(R2(u, v, w), INT, FAR1), labels = [x, y, z], axes = boxed, scaling = constrained)$



Eksempel 2

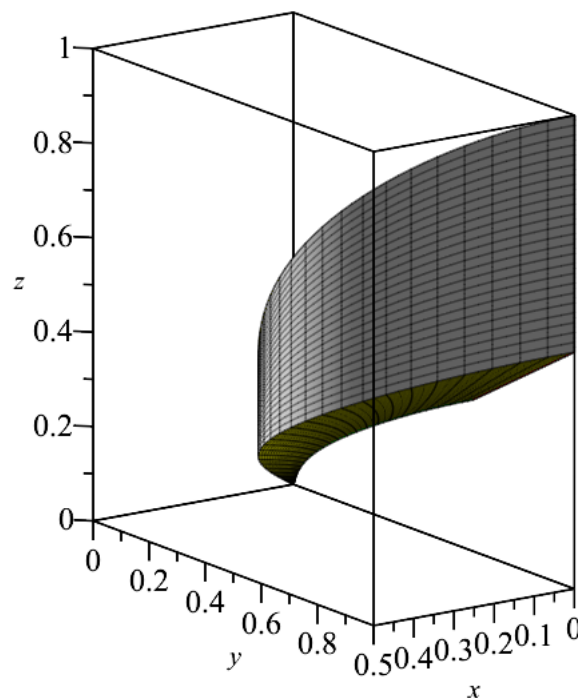
Forskiften for parametriseringen angives som "**expression**", parameterområderne som "**list**" og farverne som "**list**":

$$R3 := \left\langle v^4 \cdot \sin(u) \cdot \cos(u), v^2 \cdot \cos(u), \frac{1}{2} \cdot v^2 \cdot \cos(u) + \frac{1}{2} \cdot w \cdot v^2 \cdot \cos(u) \right\rangle :$$

$$INT := \left[0, \frac{\pi}{2}, \frac{4}{5}, 1, 0, 1 \right] :$$

$$FAR := [red, red, green, gray, yellow, yellow] :$$

`display(plot3D(R3, INT, FAR), labels = [x, y, z], axes = boxed, scaling = constrained)`



NB: Figuren har kun 5 flader, da $v=0$ kun giver et punkt.

Hvis parametriseringen er givet som en "**function**", så anvender man blot **$R4(u, v, w)$** i kaldet af `plot3D`):

$$R4(u, v, w) := \left\langle v^4 \cdot \sin(u) \cdot \cos(u), v^2 \cdot \cos(u), \frac{1}{2} \cdot v^2 \cdot \cos(u) + \frac{1}{2} \cdot w \cdot v^2 \cdot \cos(u) \right\rangle :$$

$$INT := \left[0, \frac{\pi}{2}, \frac{4}{5}, 1, 0, 1 \right] :$$

$$FAR := [red, red, green, gray, yellow, yellow] :$$

`display(plot3D(R4(u, v, w), INT, FAR), labels = [x, y, z], axes = boxed)`

