




L^AT_EX- slide effects overkill




Drahflow

2015-08-21

Malmoe has too much stuff

-  title on each slide
-  author name on each slide
-  interactive navigation I never use

Nicer bullets

-  ← notice that it has color?
-  ← ...and a shadow?
-  ← ...and caustics?

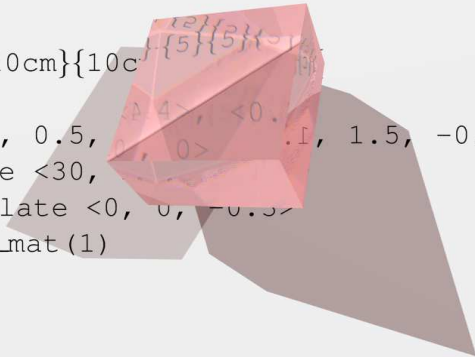
... and enumeration

1 ← looks round

2 ← shadow

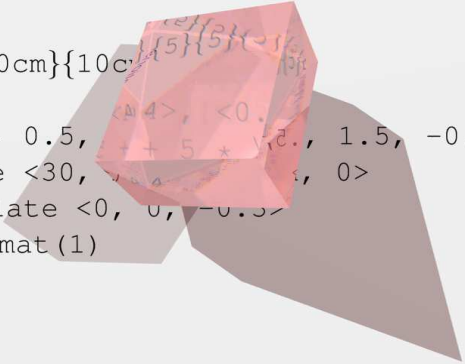
3D objects

```
\povray{10cm}{10cm}{5}{5}{0.1}
  box {
    <-0.5, 0.5, 0.1, 1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



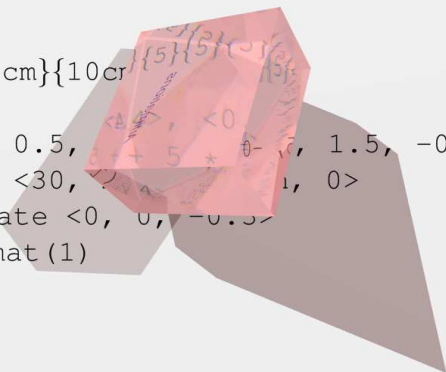
Animations

```
\povray{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, 0.5, 0.5, 1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



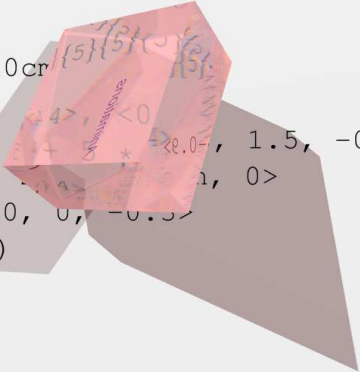
Animations

```
\povray{10cm}{10cm}{5}{5}{5}
  box {
    <-0.5, 0.5, 0.5, 1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



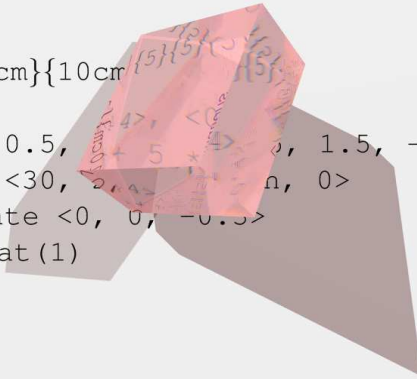
Animations

```
\povray{10cm}{10cm}{10cm}{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, -0.5, 0.5, -0.5, 0.5>
    rotate <30, 0, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



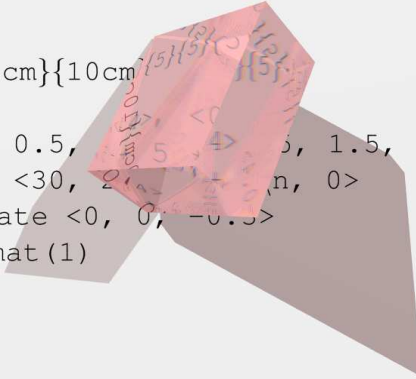
Animations

```
\povray{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, 0.5, 1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



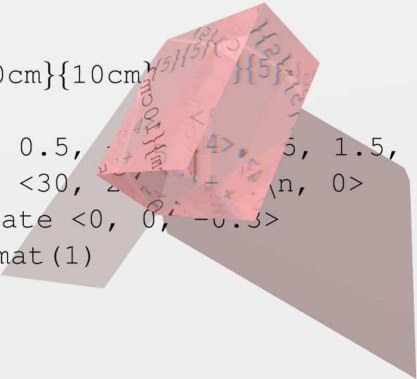
Animations

```
\povray{10cm}{10cm}{5}{5}{5}{5}{5}{5}
  box {
    <-0.5, 0.5, 0.5, 1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



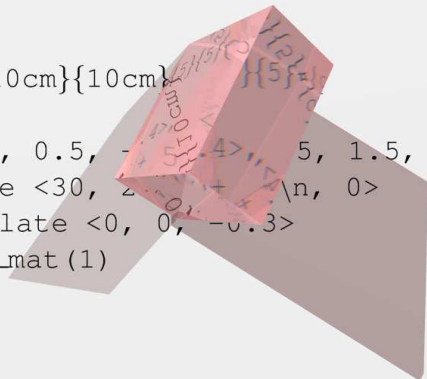
Animations

```
\povray{10cm}{10cm}
  box {
    <-0.5, 0.5, 0, 0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.3>
    itemi_mat(1)
  }
}
```



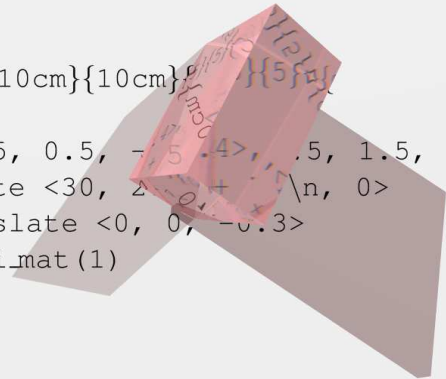
Animations

```
\povray{10cm}{10cm}
  box {
    <-0.5, 0.5, -0.4> 5, 1.5, -0.9>
    rotate <30, z, 0>
    translate <0, 0, -0.3>
    itemi_mat(1)
  }
}
```



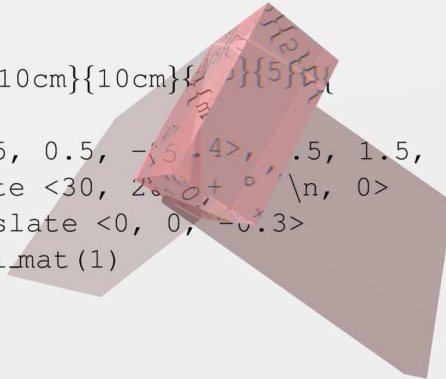
Animations

```
\povray{10cm}{10cm}{  
  box {  
    <-0.5, 0.5, -0.5, 1.5, -0.9>  
    rotate <30, 20, 0>  
    translate <0, 0, -0.3>  
    itemi_mat(1)  
  }  
}
```



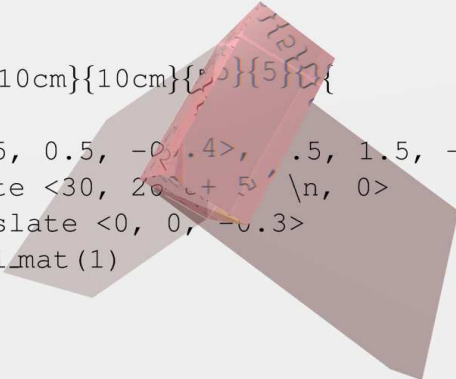
Animations

```
\povray{10cm}{10cm}{5}{5}{5}{5}
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0> \n, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



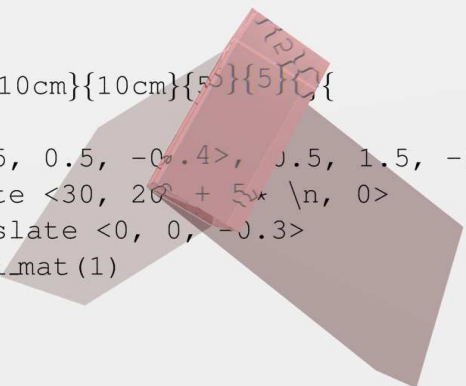
Animations

```
\povray{10cm}{10cm}{5}{5}{0}{0}
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0> \n, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



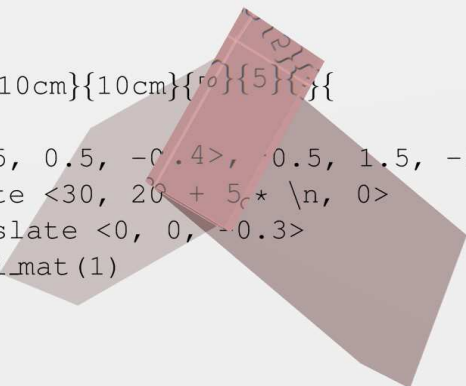
Animations

```
\povray{10cm}{10cm}{5}{5}{0}{  
  box {  
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>  
    rotate <30, 20 + 5*x \n, 0>  
    translate <0, 0, -0.3>  
    itemi_mat(1)  
  }  
}
```



Animations

```
\povray{10cm}{10cm}{0}{5}{0}{0}{
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20 + 5c * \n, 0>
    translate <0, 0, -0.3>
    itemi_mat(1)
  }
}
```



Animations

```
\povray{10cm}{10cm}{5}{5}{  
  box {  
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>  
    rotate <30, 20 + 5 * \n, 0>  
    translate <0, 0, -0.3>  
    item_mat(1)  
  }  
}
```

Animations

```

\povray{10cm}{10cm}{5}{}{}{}{
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20 + 5 * \n, 0>
    translate <0, 0, -0.3>
    itemi_mat(1)
  }
}

```

Animations

```
\povray{10cm}{10cm}{5}{5}{  
  box {  
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>  
    rotate <30, 20 + 5.* \n, 0>  
    translate <0, 0, -0.3>  
    itemi_mat(1)  
  }  
}
```



Animations

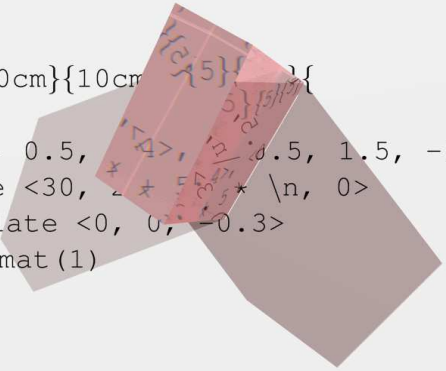
```
\povray{10cm}{10cm}{5}{5} {  
  box {  
    <-0.5, 0.5, 4>, <0.5, 1.5, -0.9>  
    rotate <30, 2 * \n, 0>  
    translate <0, 0, -0.3>  
    itemimat(1)  
  }  
}
```

Animations

```
\povray{10cm}{10cm}{15}{1}{0}{1}{0}{0}{0}{0} {  
  box {  
    <-0.5, 0.5, 0.9>, <0.5, 1.5, -0.9>  
    rotate <30, \n, 0>  
    translate <0, 0, -0.3>  
    itemimat(1)  
  }  
}
```

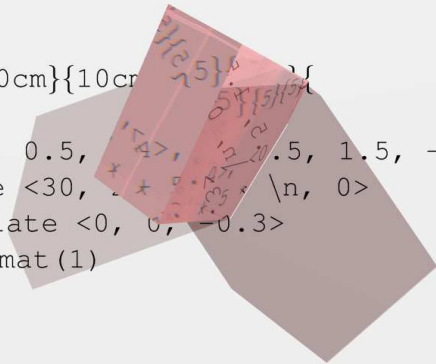
Animations

```
\povray{10cm}{10cm}{10cm}{
  box {
    <-0.5, 0.5, 0.5, 1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



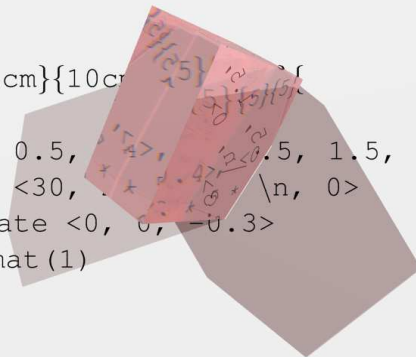
Animations

```
\povray{10cm}{10cm}{10cm}{10cm}{10cm}{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, 0.5, 1.5, -0.9>
    rotate <30, 0, 0> \n, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



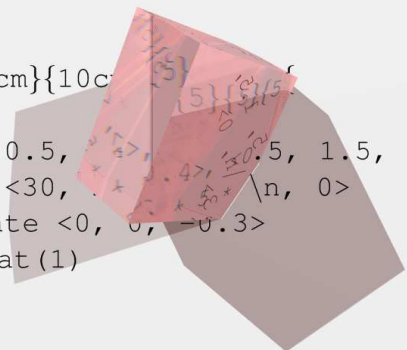
Animations

```
\povray{10cm}{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, 1.5, -0.5, 1.5, -0.9>
    rotate <30, 10, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



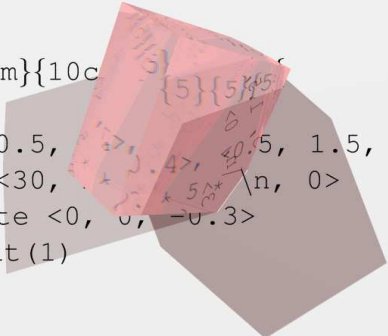
Animations

```
\povray{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, -0.4>
    rotate <30, 0, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



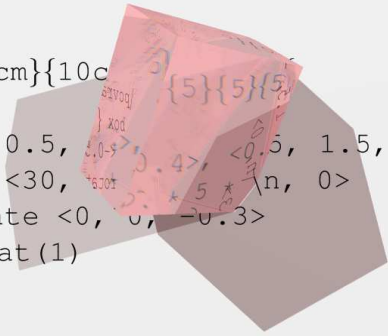
Animations

```
\povray{10cm}{10cm}{10cm}{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, 0.5, 0.5, 0.5, 1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



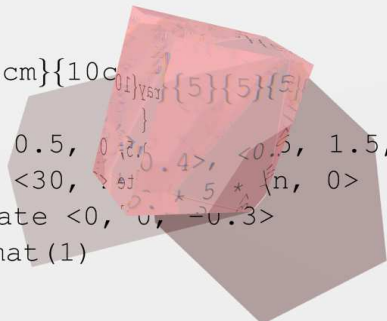
Animations

```
\povray{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, 0.4>
    rotate <30, 0, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



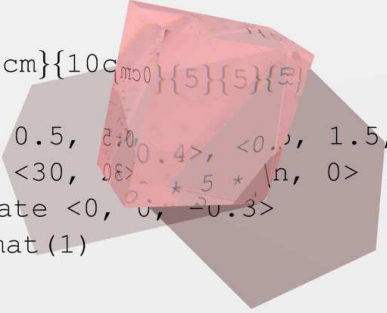
Animations

```
\povray{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, 0.4>, <0.5, 1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



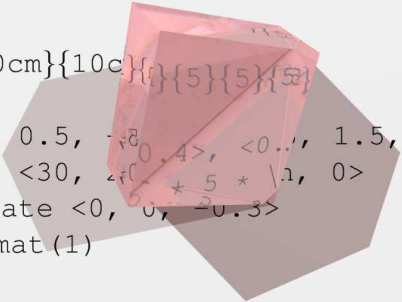
Animations

```
\povray{10cm}{10cm}{10cm}{5}{5}{5}
  box {
    <-0.5, 0.5, 0.4>, <0.5, 1.5, -0.9>
    rotate <30, 0, 0> * 5 * (n, 0)
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



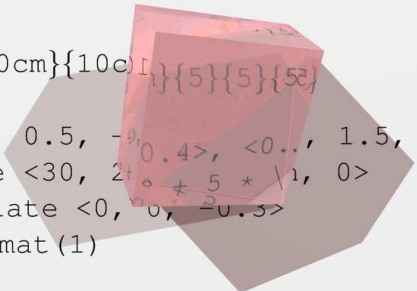
Animations

```
\povray{10cm}{10cm}{10cm}{5}{5}{5}
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



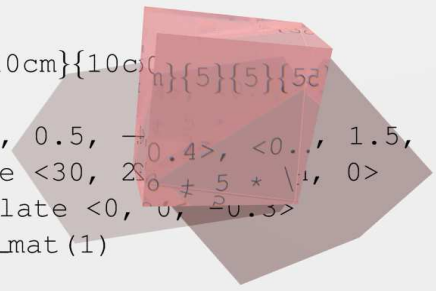
Animations

```
\povray{10cm}{10cm}{10cm}{5}{5}{5}
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



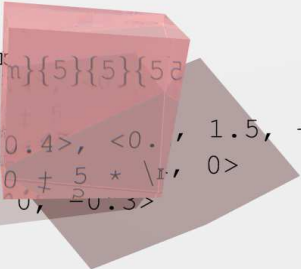
Animations

```
\povray{10cm}{10cm}{10cm}{5}{5}{5}
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, 0.5>
    itemimat(1)
  }
}
```



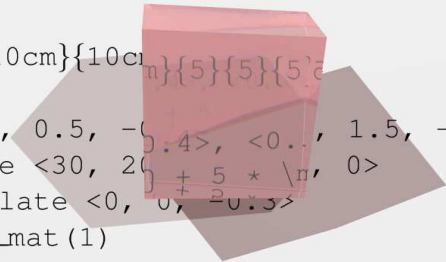
Animations

```
\povray{10cm}{10cm}{10cm}{5}{5}{5}
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, 0.5>
    itemimat(1)
  }
}
```



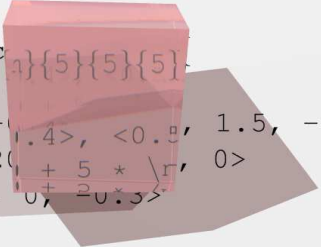
Animations

```
\povray{10cm}{10cm}{10cm}{5}{5}{5}
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```

A 3D rendering of a red rectangular box, tilted and translated, casting a shadow on a gray plane. The box is semi-transparent and is positioned above a gray rectangular shadow on a light gray surface. The box is rotated and translated from its original position, as indicated by the code below.

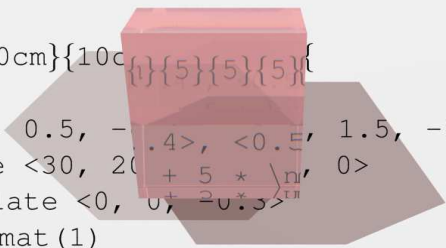
Animations

```
\povray{10cm}{10cm}{5}{5}{5}
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20 + 5 * \r, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```

A 3D rendering of a red rectangular box, tilted and translated, casting a shadow on a gray plane. The box is semi-transparent, showing its internal structure. The shadow is cast onto a gray plane that is slightly below the box's base. The box is positioned in the center of the frame.

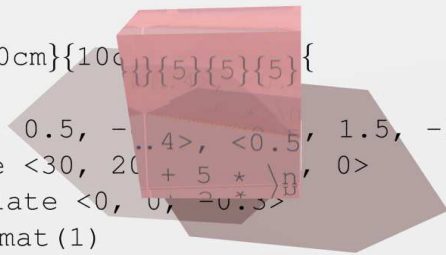
Animations

```
\povray{10cm}{10cm}{10cm}{5}{5}{5}{
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20 + 5 * \n, 0>
    translate <0, 0 + 20 * \n>
    itemimat(1)
  }
}
```



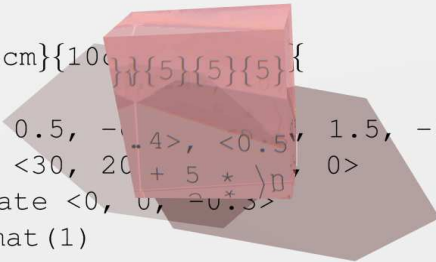
Animations

```
\povray{10cm}{10cm}{10cm}{5}{5}{5}{  
  box {  
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>  
    rotate <30, 20 + 5 * t, 0>  
    translate <0, 0, -0.5>  
    itemimat(1)  
  }  
}
```



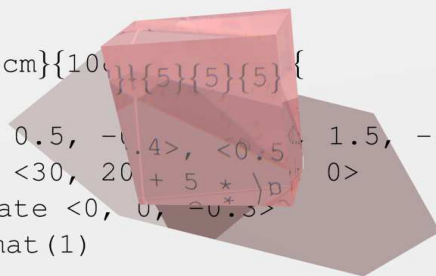
Animations

```
\povray{10cm}{10cm}{10cm}{5}{5}{5}{
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20 + 5 * t, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



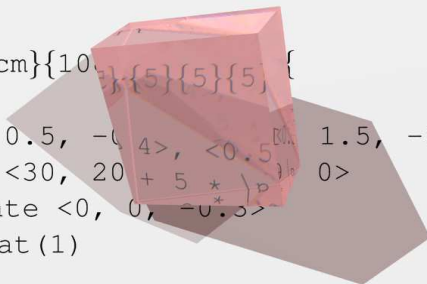
Animations

```
\povray{10cm}{10cm}{10cm}{5}{5}{5}{
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20 + 5 * t, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



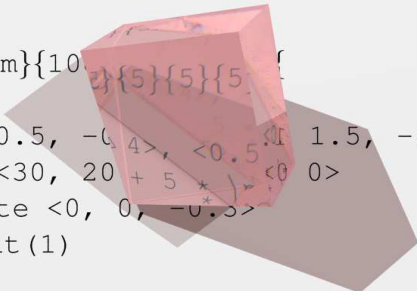
Animations

```
\povray{10cm}{10
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



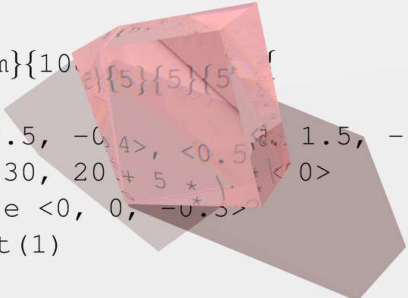
Animations

```
\povray{10cm}{10  
  box {  
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>  
    rotate <30, 20 + 5 * t>, <0 0>  
    translate <0, 0, -0.5>  
    itemimat(1)  
  }  
}
```



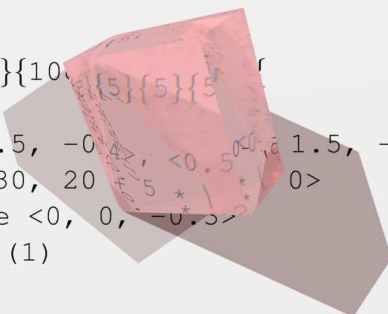
Animations

```
\povray{10cm}{10.0} {
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```




Animations

```
\povray{10cm}{10cm}{10cm}{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



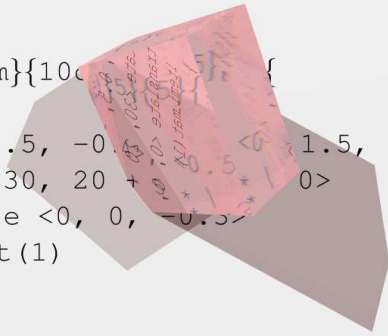
Animations

```
\povray{10cm}{10cm}{10cm} {
  box {
    <-0.5, 0.5, -0.5> {
      rotate <30, 20, 0>
      translate <0, 0, -0.5>
      itemimat(1)
    }
  }
}
```



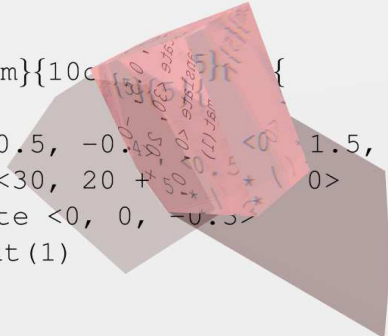
Animations

```
\povray{10cm}{10cm}{10cm}{
  box {
    <-0.5, 0.5, -0.5> * <1.5, -0.9>
    rotate <30, 20 + 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```

A 3D rendering of a red, semi-transparent rectangular box. The box is tilted and positioned on a grey shadow. The faces of the box are covered with mathematical symbols and numbers, including π , ∞ , $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{7}$, $\frac{1}{8}$, $\frac{1}{9}$, $\frac{1}{10}$, $\frac{1}{11}$, $\frac{1}{12}$, $\frac{1}{13}$, $\frac{1}{14}$, $\frac{1}{15}$, $\frac{1}{16}$, $\frac{1}{17}$, $\frac{1}{18}$, $\frac{1}{19}$, $\frac{1}{20}$, $\frac{1}{21}$, $\frac{1}{22}$, $\frac{1}{23}$, $\frac{1}{24}$, $\frac{1}{25}$, $\frac{1}{26}$, $\frac{1}{27}$, $\frac{1}{28}$, $\frac{1}{29}$, $\frac{1}{30}$, $\frac{1}{31}$, $\frac{1}{32}$, $\frac{1}{33}$, $\frac{1}{34}$, $\frac{1}{35}$, $\frac{1}{36}$, $\frac{1}{37}$, $\frac{1}{38}$, $\frac{1}{39}$, $\frac{1}{40}$, $\frac{1}{41}$, $\frac{1}{42}$, $\frac{1}{43}$, $\frac{1}{44}$, $\frac{1}{45}$, $\frac{1}{46}$, $\frac{1}{47}$, $\frac{1}{48}$, $\frac{1}{49}$, $\frac{1}{50}$, $\frac{1}{51}$, $\frac{1}{52}$, $\frac{1}{53}$, $\frac{1}{54}$, $\frac{1}{55}$, $\frac{1}{56}$, $\frac{1}{57}$, $\frac{1}{58}$, $\frac{1}{59}$, $\frac{1}{60}$, $\frac{1}{61}$, $\frac{1}{62}$, $\frac{1}{63}$, $\frac{1}{64}$, $\frac{1}{65}$, $\frac{1}{66}$, $\frac{1}{67}$, $\frac{1}{68}$, $\frac{1}{69}$, $\frac{1}{70}$, $\frac{1}{71}$, $\frac{1}{72}$, $\frac{1}{73}$, $\frac{1}{74}$, $\frac{1}{75}$, $\frac{1}{76}$, $\frac{1}{77}$, $\frac{1}{78}$, $\frac{1}{79}$, $\frac{1}{80}$, $\frac{1}{81}$, $\frac{1}{82}$, $\frac{1}{83}$, $\frac{1}{84}$, $\frac{1}{85}$, $\frac{1}{86}$, $\frac{1}{87}$, $\frac{1}{88}$, $\frac{1}{89}$, $\frac{1}{90}$, $\frac{1}{91}$, $\frac{1}{92}$, $\frac{1}{93}$, $\frac{1}{94}$, $\frac{1}{95}$, $\frac{1}{96}$, $\frac{1}{97}$, $\frac{1}{98}$, $\frac{1}{99}$, $\frac{1}{100}$. The box is rendered with a red color and a semi-transparent effect, allowing the symbols on the back faces to be visible through the front faces.

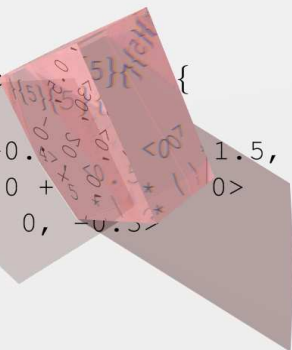
Animations

```
\povray{10cm}{10cm}{10cm} {  
  box {  
    <-0.5, 0.5, -0.5> * <0, 0, 1.5, -0.9>  
    rotate <30, 20 + 0>  
    translate <0, 0, -0.5>  
    itemimat(1)  
  }  
}
```



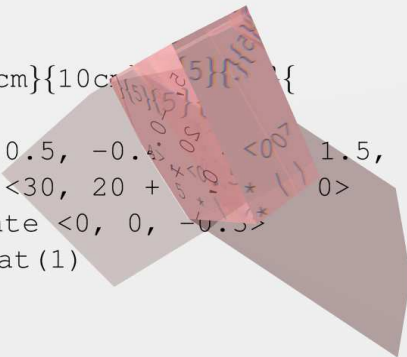
Animations

```
\povray{10cm}{10cm}{10cm}{
  box {
    <-0.5, 0.5, -0.5> * <0, 0, 1.5, -0.9>
    rotate <30, 20 + 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```

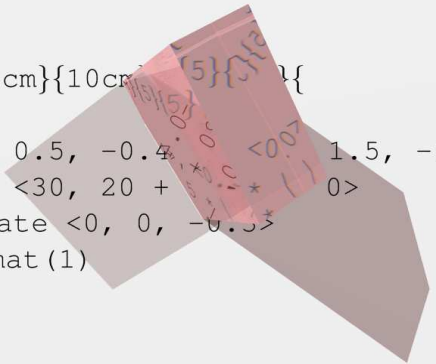


Animations

```
\povray{10cm}{10cm}{10cm}{10cm}{
  box {
    <-0.5, 0.5, -0.5> * <0> * <0> 1.5, -0.9>
    rotate <30, 20 + 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



Animations

A semi-transparent red box is shown in a 3D perspective. The front face of the box is white and contains the mathematical expression $\langle 0, 0, 0 \rangle$. The left and right faces of the box are also white and contain the mathematical expression $\langle 1, 1, 1 \rangle$. The box is rotated around its vertical axis and translated downwards in the z-axis. The background is a light gray gradient.

```
\povray{10cm}{10cm}{10cm}{10cm}{0}{0}{0}
  box {
    <-0.5, 0.5, -0.4, 0.5, -0.9>
    rotate <30, 20 + 0, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```

Animations

```
\povray{10cm}{10cm}{5}{5}{  
  box {  
    <-0.5, 0.5, -0.4> <0.5, 1.5, -0.9>  
    rotate <30, 20 + 5 * (1), 0>  
    translate <0, 0, -0.5>  
    itemimat(1)  
  }  
}
```


Animations

```
\povray{10cm}{10cm}{5}{5}{5}{5}{
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20 + 5 * t, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```

Animations

```
\povray{10cm}{10cm}{5}{5}{5}{  
  box {  
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>  
    rotate <30, 20 + 5 * \r, 0>  
    translate <0, 0, -0.3>  
    itemimat(1)  
  }  
}
```

Animations

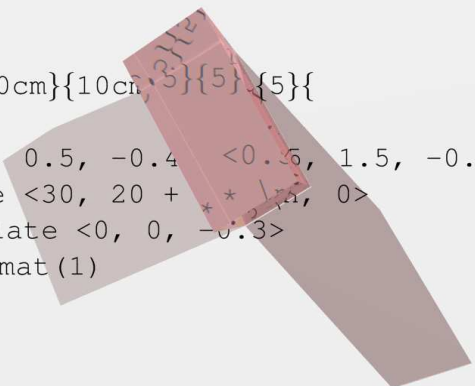
```
\povray{10cm}{10cm}{5}{5}{5}{
  box {
    <-0.5, 0.5, -0.4> <0.5, 1.5, -0.9>
    rotate <30, 20 + 5 * \t, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```

Animations

```
\povray{10cm}{10cm}{5}{5}{5}{  
  box {  
    <-0.5, 0.5, -0.4> <0.5, 1.5, -0.9>  
    rotate <30, 20 + * \n, 0>  
    translate <0, 0, -0.3>  
    itemimat(1)  
  }  
}
```

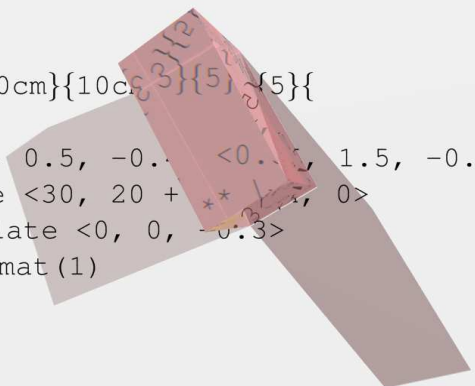

Animations

```
\povray{10cm}{10cm}{3}{5}{5}{
  box {
    <-0.5, 0.5, -0.4 * |x|, <0.5, 1.5, -0.9>
    rotate <30, 20 + * * |x|, 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



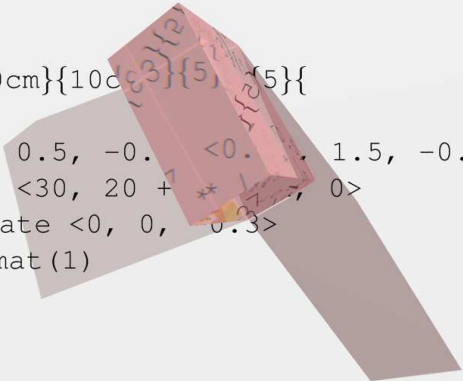
Animations

```
\povray{10cm}{10cm}{3}{5}{5}{
  box {
    <-0.5, 0.5, -0.5, 0.5, 1.5, -0.9>
    rotate <30, 20 + * * / * , 0>
    translate <0, 0, -0.3>
    itemimat(1)
  }
}
```



Animations

```
\povray{10cm}{10d{3}{5}{5}}  
  box {  
    <-0.5, 0.5, -0.5, 0.5, 1.5, -0.9>  
    rotate <30, 20 + * 1, 0>  
    translate <0, 0, 0.3>  
    itemimat(1)  
  }  
}
```



Animations

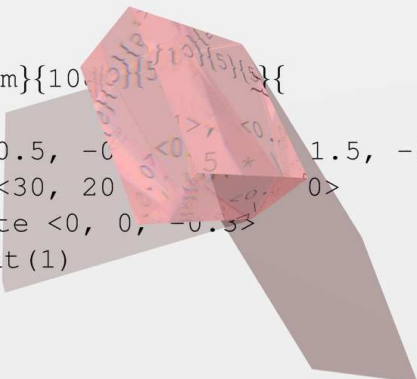
```
\povray{10cm}{10d(3)}{5}{5}{  
  box {  
    <-0.5, 0.5, -0.5, 1.5, -0.9>  
    rotate <30, 20, 0>  
    translate <0, 0, -0.3>  
    itemimat(1)  
  }  
}
```

Animations

```
\povray{10cm}{10d}{5}{5}{  
  box {  
    <-0.5, 0.5, -0.5, 1.5, -0.9>  
    rotate <30, 20, 0>  
    translate <0, 0, -0.3>  
    itemimat(1)  
  }  
}
```

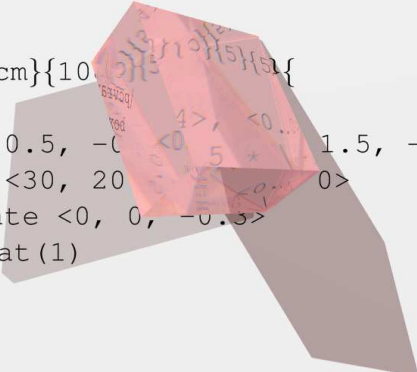

Animations

```
\povray{10cm}{10.5}{10.5}{10.5}{
  box {
    <-0.5, 0.5, -0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```

A 3D rendering of a red, semi-transparent box, tilted and rotated, casting a shadow on the ground. The box is rendered with a red color and a transparency that allows the shadow and other elements to be visible through it. The box is positioned in the center-right of the image, and its shadow is cast onto the ground below it. The box is tilted at an angle, and its rotation is evident from the perspective. The shadow is a dark, semi-transparent red color, matching the box's color. The background is a light, neutral color, and the overall scene is simple and focused on the box and its shadow.

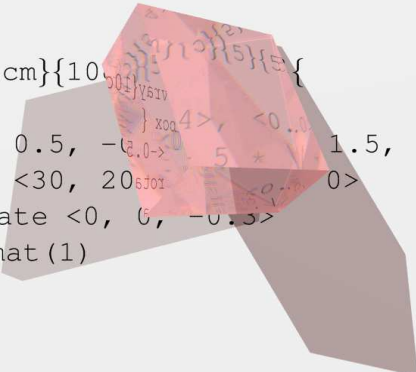
Animations

```
\povray{10cm}{10  
  box {  
    <-0.5, 0.5, -0.5> * <1.5, -0.9>  
    rotate <30, 20, 0>  
    translate <0, 0, -0.5>  
    itemimat(1)  
  }  
}
```



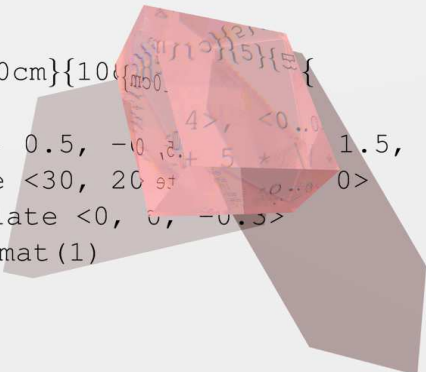
Animations

```
\povray{10cm}{10  
  box {  
    <-0.5, 0.5, -0.5> 1.5, -0.9>  
    rotate <30, 20, 0>  
    translate <0, 0, -0.5>  
    itemimat(1)  
  }  
}
```



Animations

```
\povray{10cm}{10cm}{10cm}{
  box {
    <-0.5, 0.5, -0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```

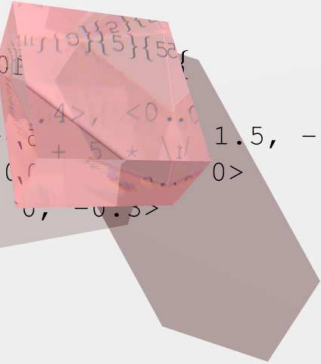


Animations

```
\povray{10cm}{10cm}{10cm}{
  box {
    <-0.5, 0.5, -2.0> <1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```

Animations

```
\povray{10cm}{10cm}{10cm} {
  box {
    <-0.5, 0.5, -1.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



Animations

```
\povray{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```

Animations

```
\povray{10cm}{10cm}{10cm}{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, -0.4>, <0.5, 0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    item mat(1)
  }
}
```

Animations

```
\povray{10cm}{10cm}{10cm} [
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    item_mat(1)
  }
}
```

Animations

```
\povray{10cm}{10cm}{
  box {
    <-0.5, 0.5, -0.4>, <0.5, 1.5, -0.9>
    rotate <30, 20, 0>
    translate <0, 0, -0.5>
    item_i mat(1)
  }
}
```

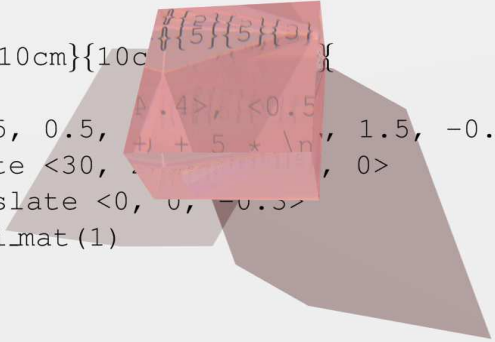

Animations

```
\povray{10cm}{10cm}{10cm}{  
  box {  
    <-0.5, 0.5, -0.5> + 5 * \n {  
      rotate <30, 20, 0>  
      translate <0, 0, -0.5>  
      itemimat(1)  
    }  
  }  
}
```

Animations

```
\povray{10cm}{10cm}{
  box {
    <-0.5, 0.5, 0.5>, <0.5, 0.5, 0.5>, <0.5, -0.5, 0.5>, <-0.5, -0.5, 0.5>, <1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.5>
    item mat (1)
  }
}
```

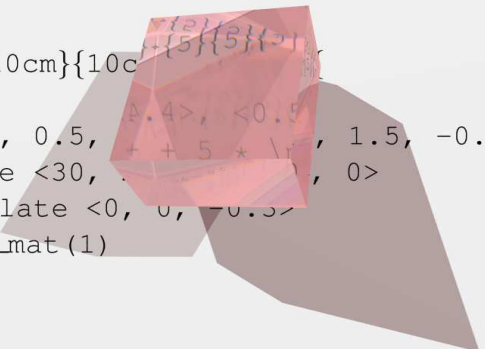
Animations



```
\povray{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, 0.4>, <0.5, 1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```

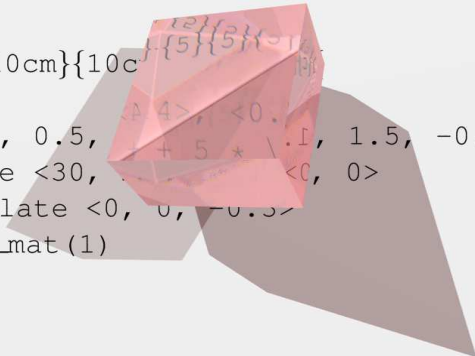
Animations

```
\povray{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, 1.5, -0.9>
    rotate <30, 0, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



Animations

```
\povray{10cm}{10cm}{10cm}{10cm}{10cm}{10cm}
  box {
    <-0.5, 0.5, -0.5, 0.5, -0.5, 0.5>
    rotate <30, 0, 0>
    translate <0, 0, -0.5>
    itemimat(1)
  }
}
```



How

- 📄 from \LaTeX render pages
- 📄 export `\itemize` positions etc. using PostScript debug stream
- 📄 meta information like animation start, end, etc. into .aux-like file
- 📄 create a povray file per frame, \LaTeX output is background plane texture
- 📄 ... creating 3D objects at specified points
- 📄 convert rendered pages into output formats
- 📄 ... PDF, HTML+Theora, mplayer+shell script
- 📄 for PDF, render original \LaTeX again but with rendered overlay
- 📄 ... so search + copy-n-paste works

PostScript debug stream

```
\def\dumpstring#1{\pscustom{\code{
(#1 ) dup dup length 1 sub 10 put print
}}
\def\dumppoint#1{\pscustom{\coor(#1)\code{
(#1 ) dup dup length 1 sub 32 put print
20 string cvs print 1 string dup 0 32 put print
20 string cvs print 1 string dup 0 10 put print
}}}
```

`\item`

```
\newcounter{pres@uniq}
\setbeamertemplate{itemize item}{
  \addtocounter{pres@uniq}{1}
  \addtocounter{pres@itemcount}{1}
  \let\old=\allpoints
  \xdef\allpoints{\old\waitnow\dumppoint{%
    presP\thepage U\thepres@uniq DitemiA%
    \thepres@itemcount}}
  \rnode{presP\thepage U\thepres@uniq%
    DitemiA\thepres@itemcount}{\phantom{X}}
}
```


Meta information

```
\newwrite\pres@stream
\immediate\openout\pres@stream=\jobname.presinput
\let\pres@enddocument=\enddocument
\def\enddocument{
  \immediate\closeout\pres@stream
  \pres@enddocument
}

\def\animation{
  \immediate\write\pres@stream{AnimationBegin%
  \thepage}
}
```

Creating povray files

```
echo '#include "$*-$ (NAME).povpoints"' > \  
    $*-$ (NAME).curinc && \  
echo '#declare image="$*-$ (NAME).png"' >> \  
    $*-$ (NAME).curinc && \  
echo '#declare image_bw="$*-$ (NAME).bw.png"' >> \  
    $*-$ (NAME).curinc && \  
echo '#!/bin/sh' > render && \  
echo 'povray $(POVOPT) $(POVQUAL) +W$(POVRESX) \  
    +H$(POVRESY) \  
    +HI"$*-$ (NAME).curinc" +I"$ (NAME).pov" \  
    +O"$*-$ (NAME)".done.png' >> render && \  
chmod +x render && \  

```

Texturing

```
difference {
  plane {
    <0, 0, -1>, 0
    texture {
      pigment {
        image_map { png image interpolate 2 once }
      }
      finish { ambient <0.4, 0.4, 0.4> }
    }
  }
  drawNegativeElements()
  no_shadow
}

drawElements()
```

Converting coordinates

```
if($name =~ /^presP(\d+)U\d+D([0-9a-z]+)
    (?:A([0-9]+))?) {
    if($1 == $page) {
        push @elements, {'macro' => $2, 'x' => $rx,
            'y' => $ry, 'arg' => $3 };
    }
} elsif($name =~ /^presPov1TL(P(\d+)U\d+)/) {

...

print OUT "#macro drawElements()\n";

foreach my $elem (@elements) {
    print OUT $elem->{'macro'}
        . ' (' . $elem->{'x'} . ', ' . $elem->{'y'}
        . ", " . $elem->{'arg'} . ")\n";
}
```

Creating objects

```
#macro itemi(rx, ry, i)
box {
  <-0.007, -0.007, -0.007>, <0.007, 0.007, 0.007>
  scale <1, 1, 0.5>
  itemi_mat(i)
  translate <rx, ry, 0.005>
  photons {
    target on
    reflection on
    refraction on
  }
}
#end
```

Conversion to PDF 1/2

```
foreach my $slide (@slides) {
    my ($idx) = $slide->[0] =~ /^(\d+)/;
    call("convert '$idx-$name.done.png'
          '$idx-$name.done.eps'");
}

call("latex ' " .
     "\\def\\presentationCompileStep{final}" .
     "\\def\\presentationName{$name}" .
     "\\input{$name.latex}" .
     "'");
call("dvips '$name.dvi'");
call("ps2pdf '$name.ps'");
```

Conversion to PDF 2/2

```
\def\presentationCompileStepFinal{final}
\def\endbeamer@frameslide{%
  \gdef\waitnow{ }%
  \rput (start\thepage) {\allpoints}%
  \ifx\presentationCompileStep%
    \presentationCompileStepFinal%
    \rput [bl] (start\thepage) {%
      \rput [bl] (-1.01, -0.125) {%
        \includegraphics [width=%
          \paperwidth, height=\paperheight] {%
            \thepage-\presentationName.done.eps}}}%
    \fi%
  \endpres@frameslide
}
```