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Motivation for this tutorial: (Originally SolidGeometry 5.1 required)

```
% function VLFL_EXP66
%
load Yannick_robot.mat      % or loadweb JACO_robot.mat
load YKLower.mat

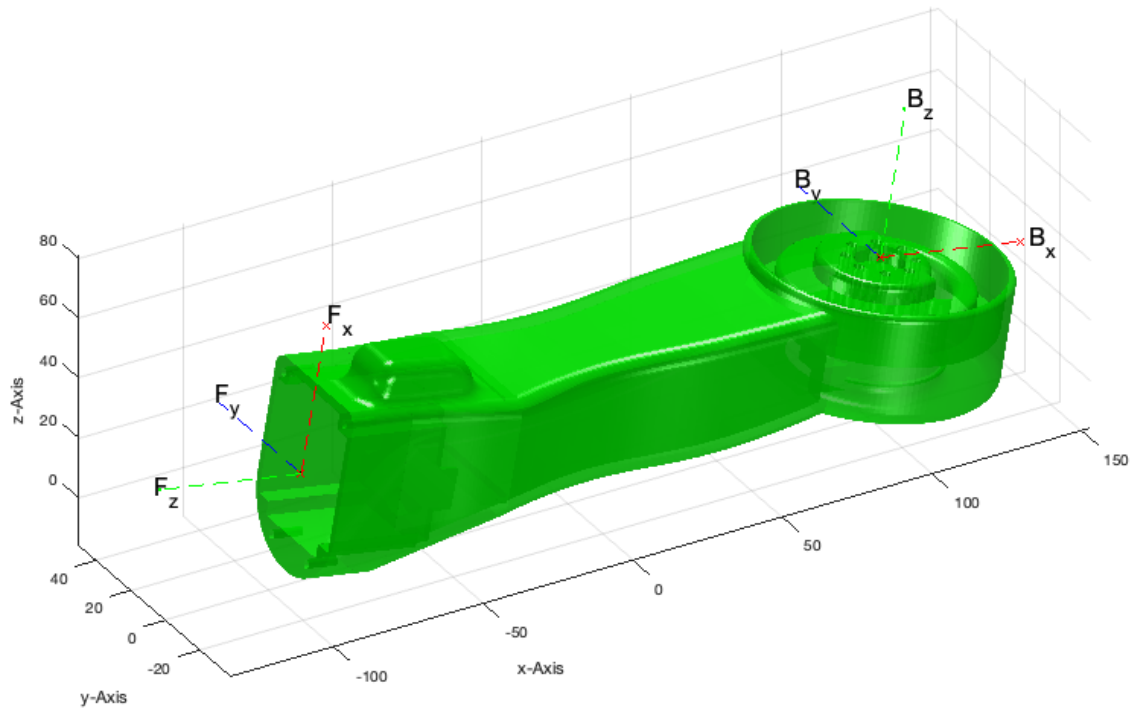
T=[
-0.0019    0.0000    1.0000   -19.1082
 0.0000    1.0000   -0.0000    8.1038
-1.0000    0.0000   -0.0019   37.6292
      0         0         0         1.0000];

SG=YKLower;
SG=SGreduceVLFL(SG,30000);
%
```

The Solid Gemetry

```
SGfigure(-30,30);
SGTplotalpha(SG,'g',0.7);
drawnowvid
```

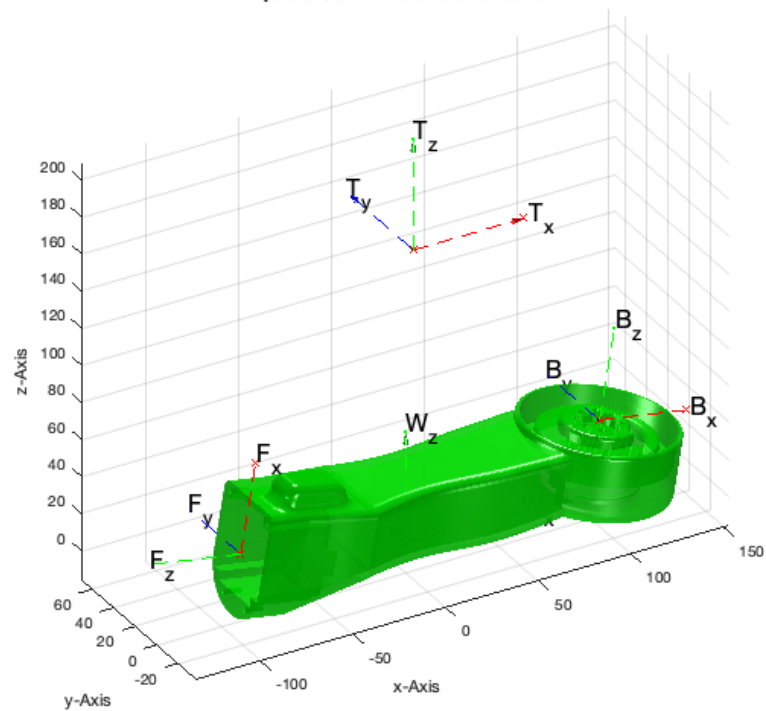
publishSGPDF: 2023-10-03 08:58:16



Simple Translation

```
T=TofPez([10 10 150],[0 0 1]);
tplot(T,0,'','T'); tplot(eye(4),0,'','W');
```

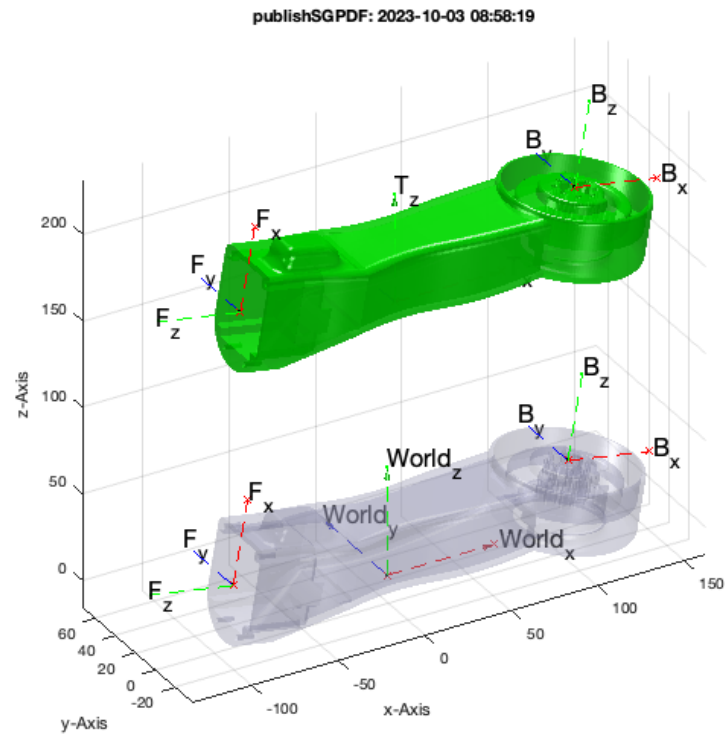
publishSGPDF: 2023-10-03 08:58:16



Simple Relative Movement

```
SGfigure(-30,30);
```

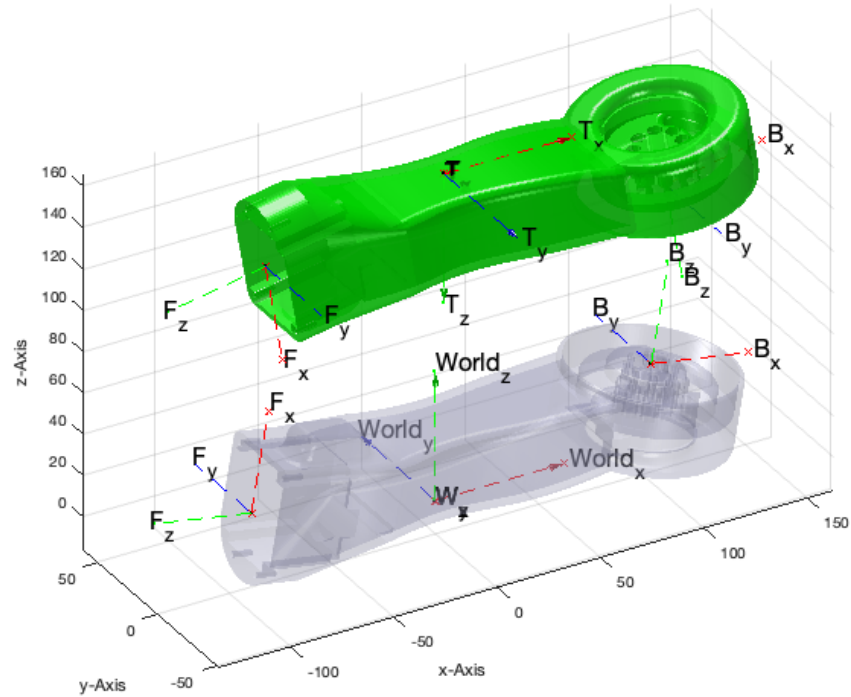
```
SGN=SGtransT(SG,T);
SGTplotalpha(SG,'w',0.2); SGTplotalpha(SGN,'g',0.7); tplot(eye(4),0,'','World'); tplot(T,0,'','T');
drawnowvid
```



Simple Translation

```
SGfigure(-30,30);
T=TofPez([10 10 150],[0 0 -1]); tplot(T,0,'','T'); tplot(eye(4),0,'','W');
SGN=SGtransT(SG,T); SGTplotalpha(SG,'w',0.2); SGTplotalpha(SGN,'g',0.7); tplot(eye(4),0,'','World'); tplot(T,0,'','T');
drawnowvid
```

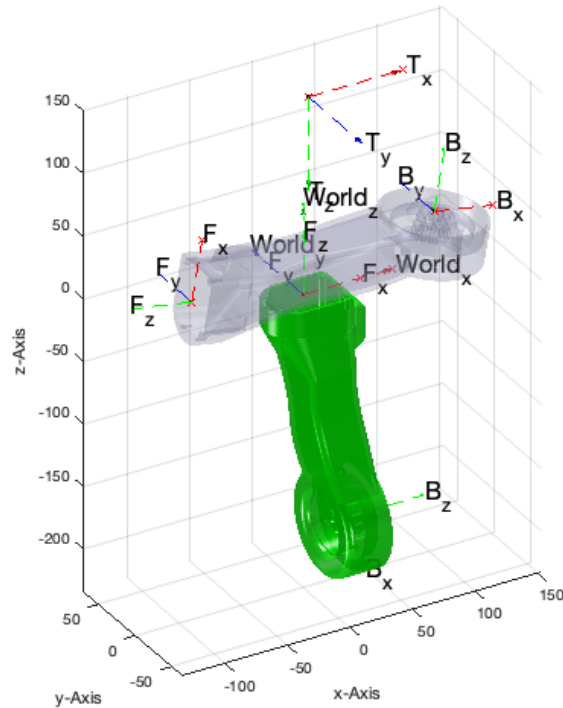
publishSGPDF: 2023-10-03 08:58:21



USE an arbitray Frame F attached to SG as Origin

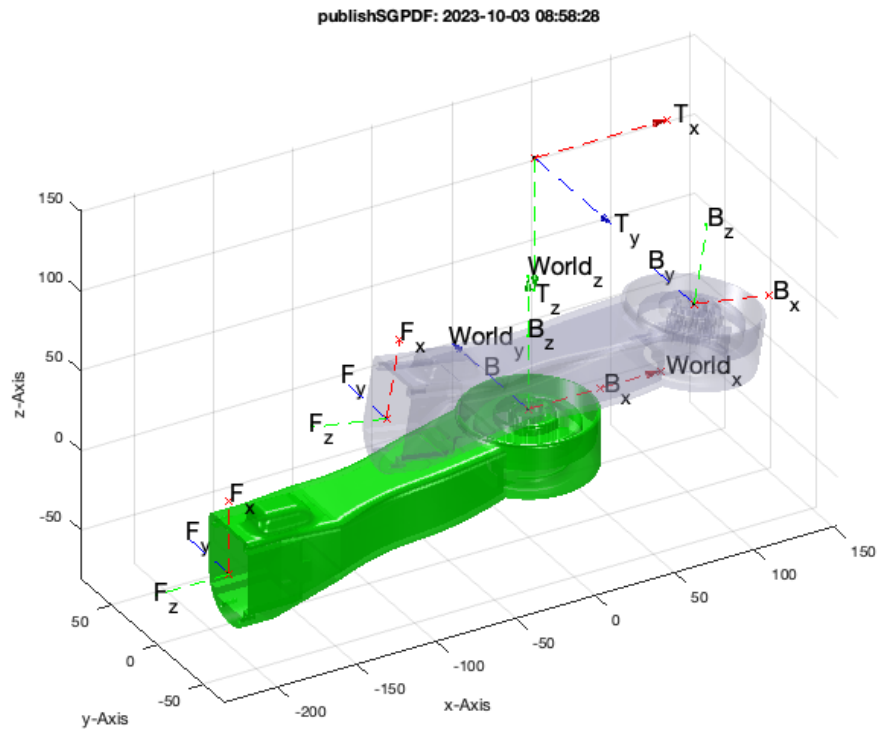
```
TF=SGTget(SG, 'F');
SGN=SGtransT(SG, inv(TF));
SGfigure(-30,30); SGTplotalpha(SG, 'w', 0.2); SGTplotalpha(SGN, 'g', 0.7); tplot(eye(4), 0, '', 'World'); tplot(T, 0, '', 'T');
drawnowvid
```

publishSGPDF: 2023-10-03 08:58:25



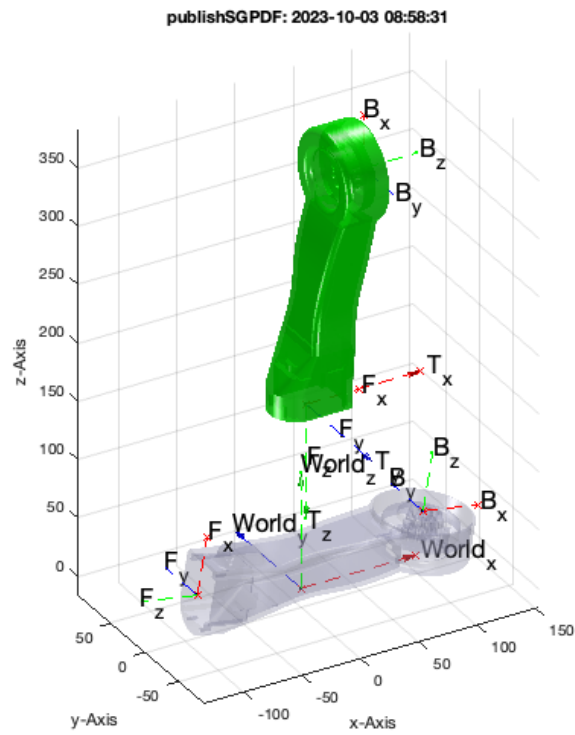
USE an arbitray Frame B attached to SG as Origin

```
TB=SGTget(SG,'B'); SGN=SGtransT(SG,inv(TB));
SGfigure(-30,30); SGTplotalpha(SG,'w',0.2); SGTplotalpha(SGN,'g',0.7); tplot(eye(4),0,','World'); tplot(T,0,','T');
drawnowvid
```



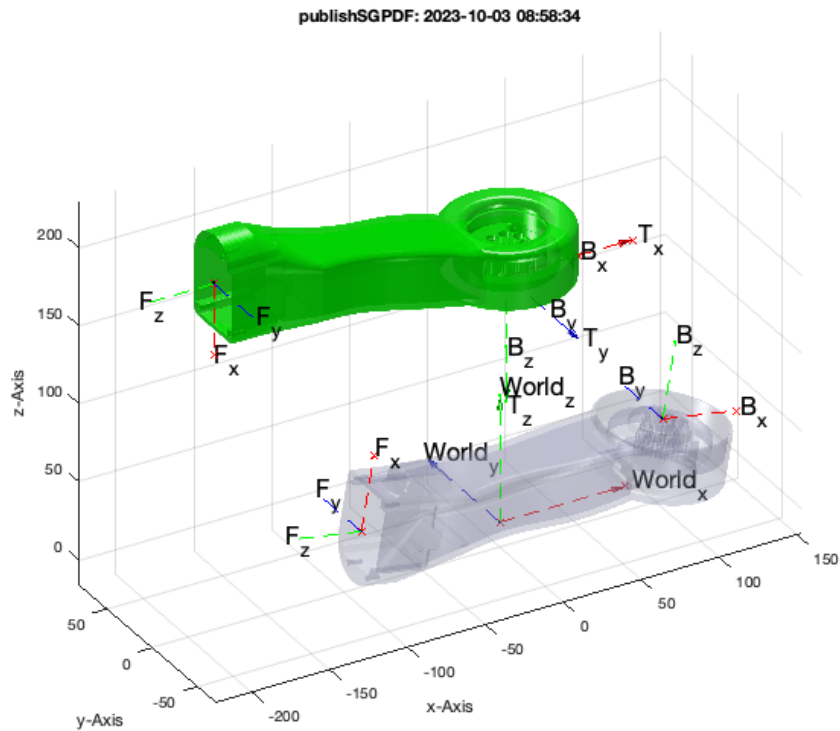
TF

```
TG=TofPez([10 10 150],[0 0 -1]);
TF=SGTget(SG,'F');
SGN=SGtransT(SG,TG*inv(TF)); % First Move the Solid; AFTERWARDS TURN BY USING THE FRAME
SGfigure(-30,30); SGTplotalpha(SG,'w',0.2); SGTplotalpha(SGN,'g',0.7); tplot(eye(4),0,','World'); tplot(T,0,','T');
drawnowvid
```



TB

```
TG=TofPez([10 10 150],[0 0 -1]);
TB=SGTget(SG,'B');
SGN=SGtransT(SG,TG*inv(TB)); % First Move the Solid; AFTERWARDS TURN BY USING THE FRAME
SGfigure(-30,30); SGTplotalpha(SG,'w',0.2); SGTplotalpha(SGN,'g',0.7); tplot(eye(4),0,'','World'); tplot(T,0,'','T');
drawnowvid
```



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