

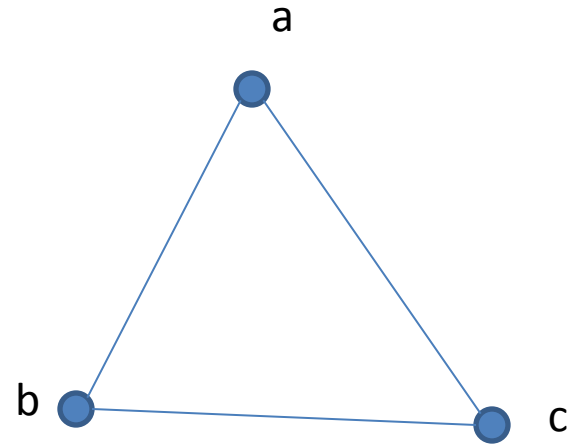
Indirect Indexing and OBJ format

$a : [x_a \ y_a \ z_a]$

$b : [x_b \ y_b \ z_b]$

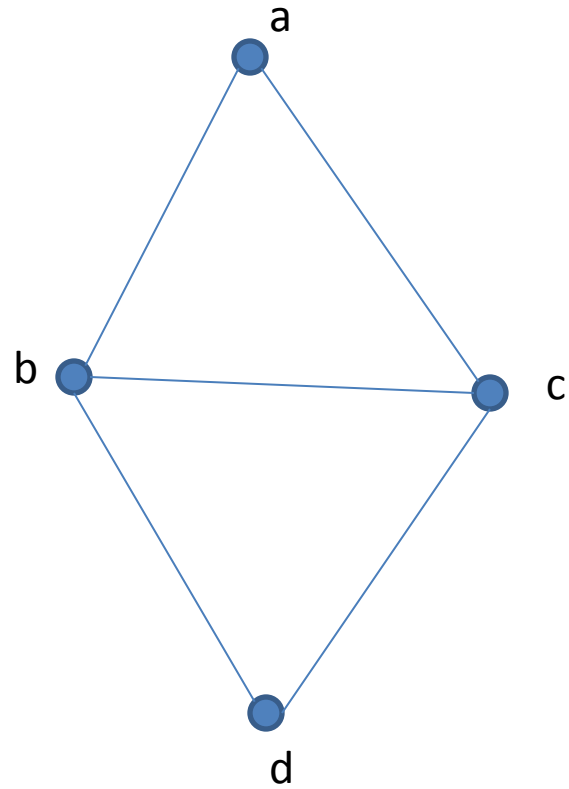
$c : [x_c \ y_c \ z_c]$

$f : [a \ b \ c]$



$a : [x_a \ y_a \ z_a]$
 $b : [x_b \ y_b \ z_b]$
 $c : [x_c \ y_c \ z_c]$
 $d : [x_d \ y_d \ z_d]$

$f : [a \ b \ c]$
 $f : [d \ c \ b]$



Quiz for tetrahedron

a : $[x_a \ y_a \ z_a]$

b : $[x_b \ y_b \ z_b]$

c : $[x_c \ y_c \ z_c]$

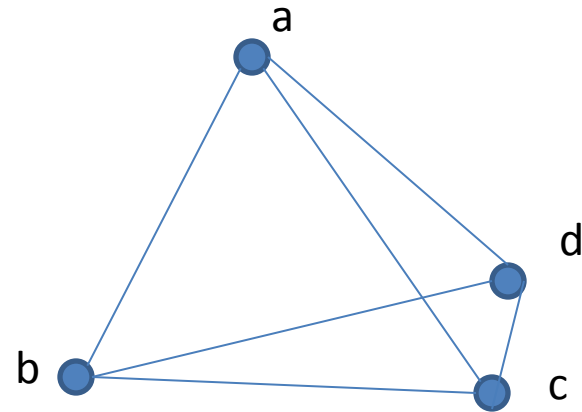
d : $[x_d \ y_d \ z_d]$

f : []

f : []

f : []

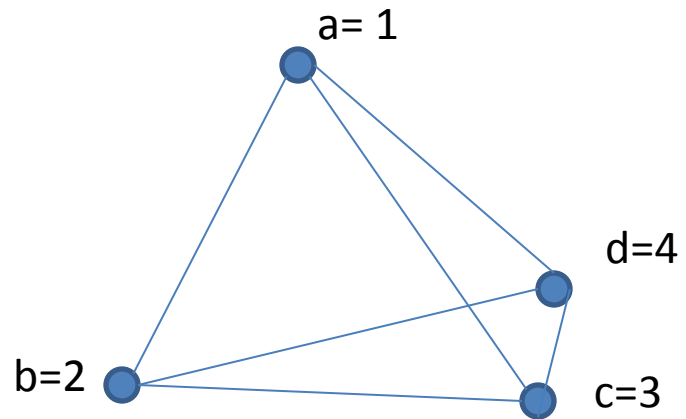
f : []



OBJ file format

```
v xa ya za  
v xb yb zb  
v xc yc zc  
v xd yd zd
```

```
f 1 2 3  
f 1 3 4  
f 1 4 2  
f 2 4 3
```



OBJ file format w/ normal

v x_a y_a z_a

v x_b y_b z_b

v x_c y_c z_c

v x_d y_d z_d

vn i_a j_a k_a

vn i_b j_b k_b

vn i_c j_c k_c

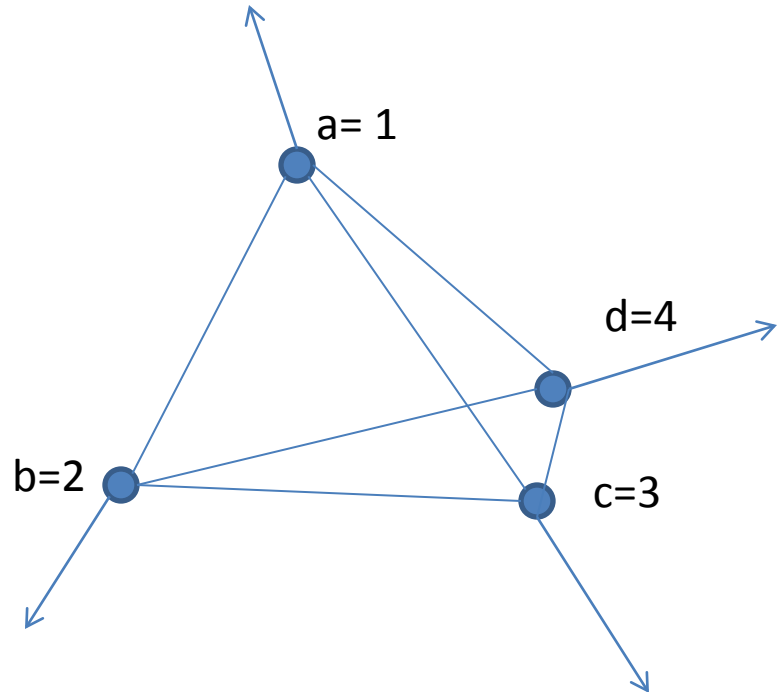
vn i_d j_d k_d

f 1//1 2//2 3//3

f 1//1 3//3 4//4

f 1//1 4//4 2//2

f 2//2 4//4 3//3



OBJ file format, 1 normal for each face

v x_a y_a z_a

v x_b y_b z_b

v x_c y_c z_c

v x_d y_d z_d

vn i_{a1} j_{a1} k_{a1}

vn i_{a2} j_{a2} k_{a2}

vn i_{a3} j_{a3} k_{a3}

vn i_{b1} j_{b1} k_{b1}

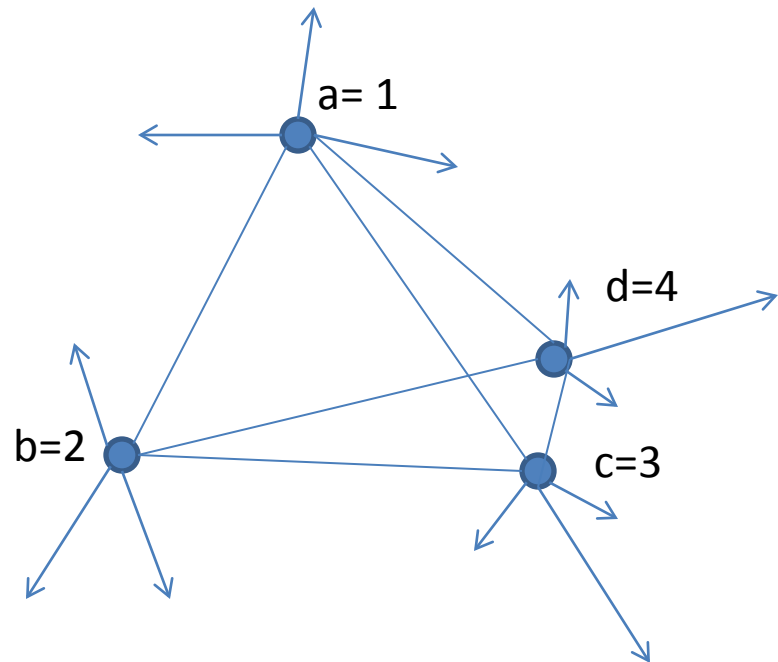
.....

f 1//1 2//4 3//7

f 1//2 3//8 4//10

f 1//3 4//11 2//5

f 2//6 4//12 3//9



texture

- Similar to normal
 - With a line “vt s t”
 - With a line “f v/vt/vn v/vt/vn v/vt/vn”