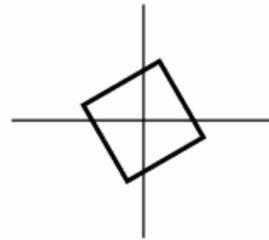
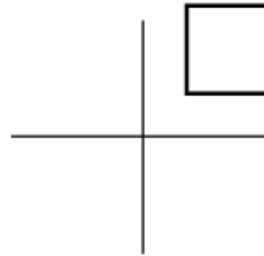


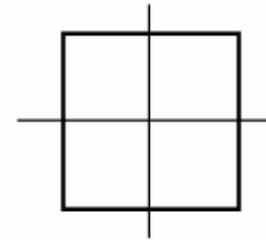
# Summary of 2D Transformations



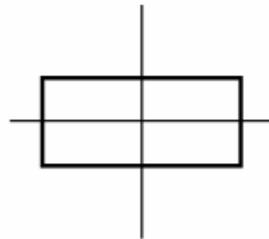
rotation



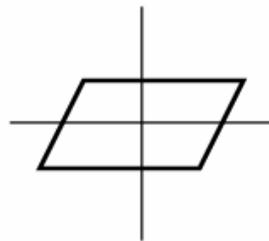
translation



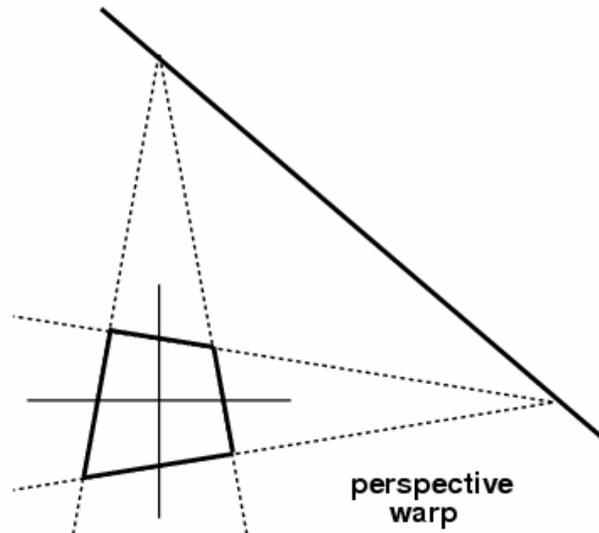
scale



aspect ratio



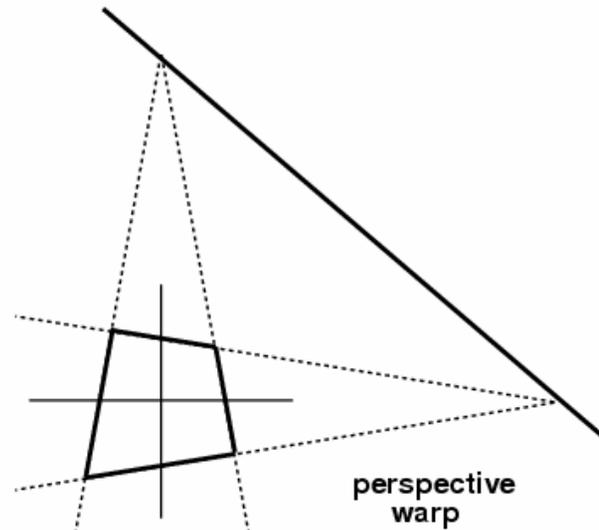
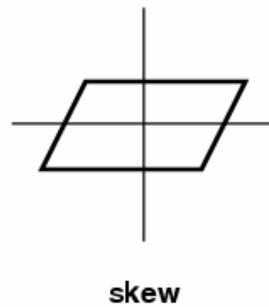
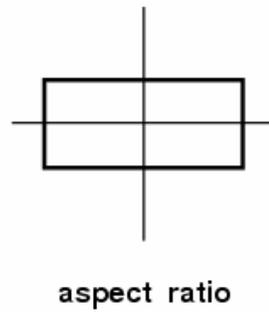
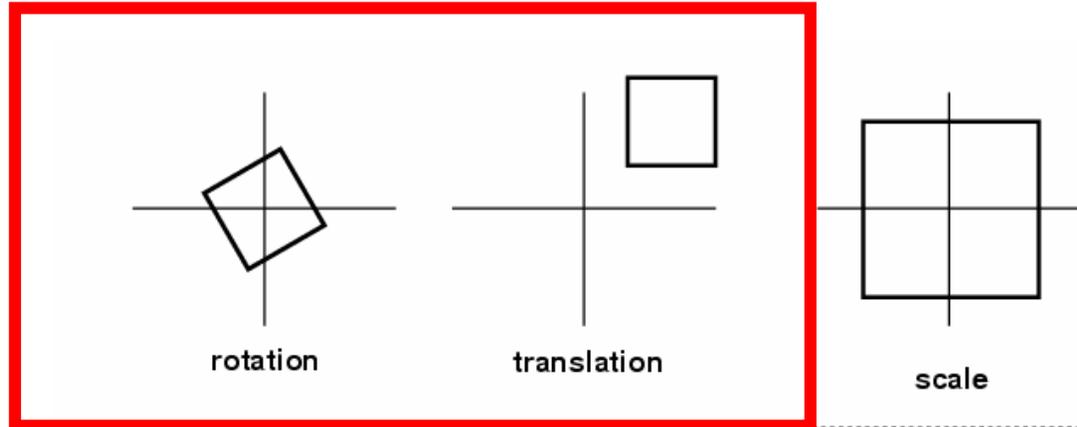
skew



perspective  
warp

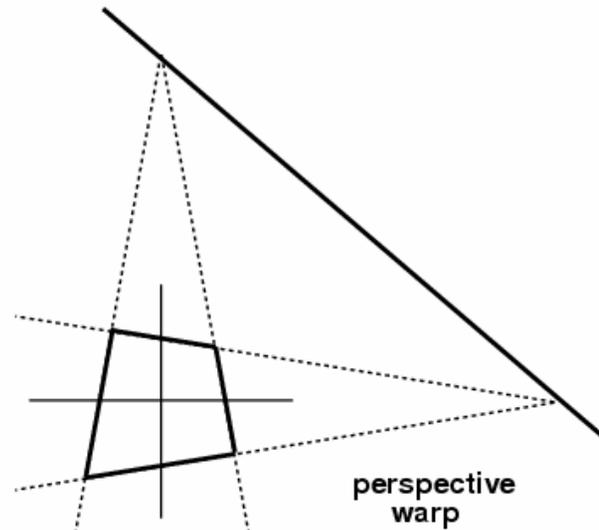
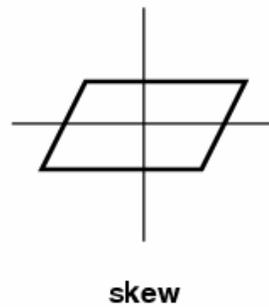
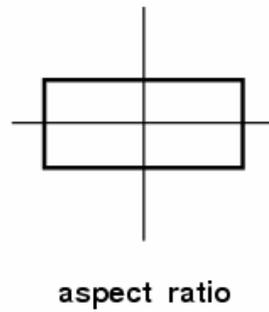
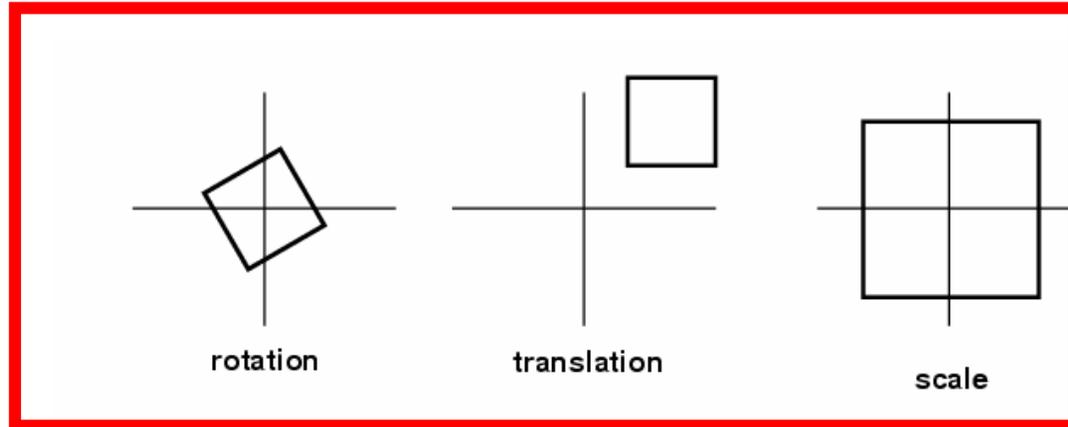
# Summary of 2D Transformations

## Euclidean



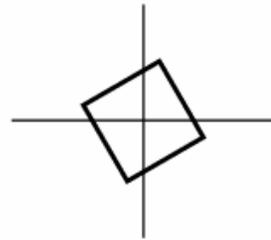
# Summary of 2D Transformations

## Similarity

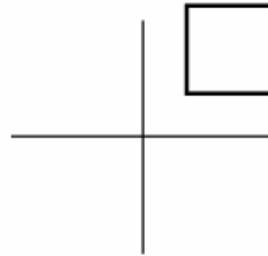


# Summary of 2D Transformations

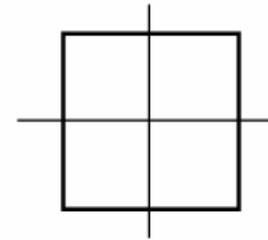
## Affine



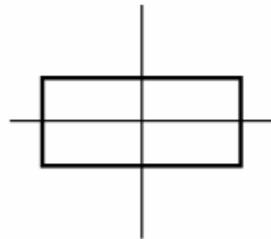
rotation



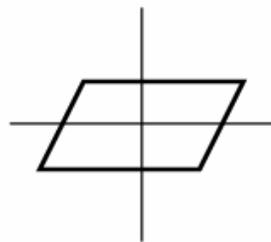
translation



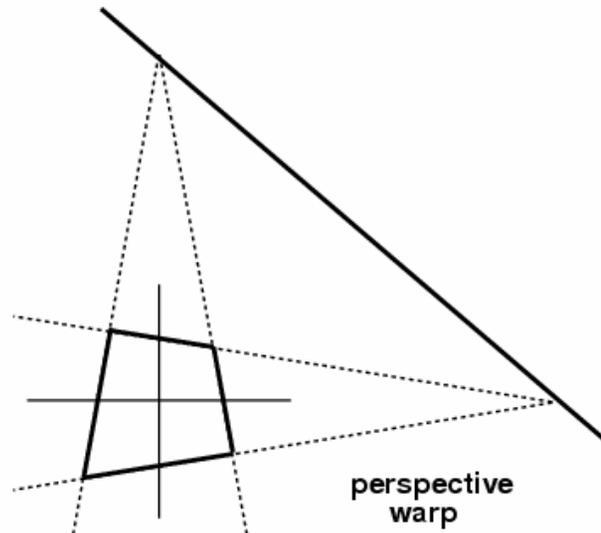
scale



aspect ratio



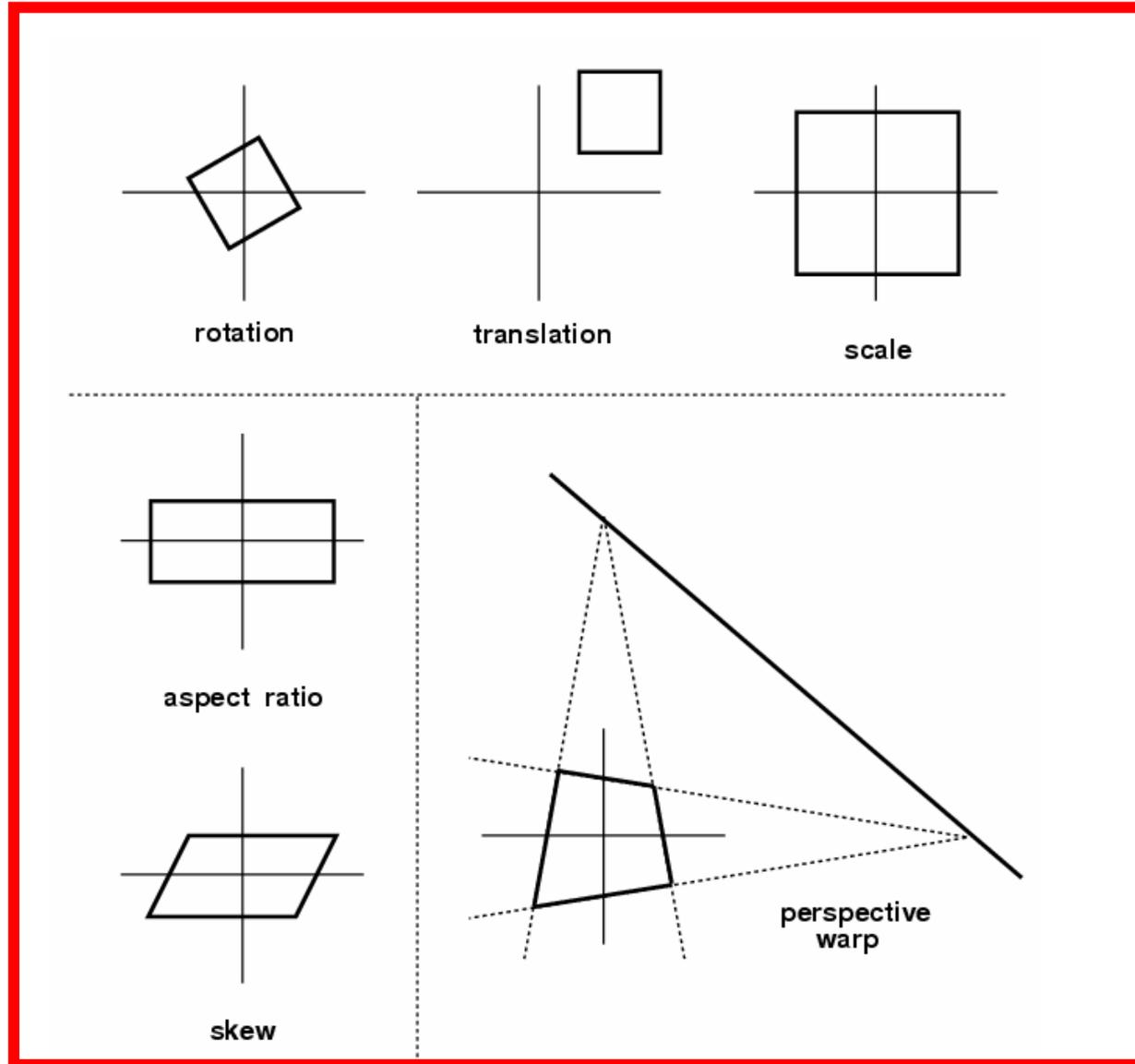
skew



perspective  
warp

# Summary of 2D Transformations

## Projective



# Summary of 2D Transformations

Name	Matrix	# D.O.F.	Preserves:	Icon
translation	$[ I \mid t ]_{2 \times 3}$	2	orientation + ...	
rigid (Euclidean)	$[ R \mid t ]_{2 \times 3}$	3	lengths + ...	
similarity	$[ sR \mid t ]_{2 \times 3}$	4	angles + ...	
affine	$[ A ]_{2 \times 3}$	6	parallelism + ...	
projective	$[ H ]_{3 \times 3}$	8	straight lines	