Primitive Variables

⚠ These may also be referred to as "master attributes" for clarity versus Instance Attributes which may be varied per instance.

Common

Name	Type	Default	Description
identifier:object	*string*	*empty*	Object shape name.

Shading

Name	Type	Default	Description
derivatives: extrapolate	*integer*	1	Extrapolated smooth normals across grid boundaries.
displacement: ignorereferenceinstance	*int*	0	Indicates if displacement shading should ignore properties of the reference instance.
displacementbound: CoordinateSystem	*string*	object	The name of the coordinate system that the displacement bound is measured in.
displacementbound: offscreen	*int*	0	Apply displacementbound to offscreen geometry when dicing. Geometry that is entirely offscreen, but displaces into view may be prone to undertessellation because of the offscreen dicing strategy. This can be corrected by enabling this control and setting a reasonable displacementbound. Doing so will incur a performance penalty commensurate with the size of the displacement bound.
displacementbound: sphere	*float*	0	Maximum displacement distance used to compute object bounds. This value should be as tight as possible.
Ri: Orientation	*string*	outside	Geometry winding order that determines surface normal. This attribute effects lighting and displacement. Supported values: inside, outside.
trace: autobias	*integer*	1	Enable automatic raytrace bias.
trace:bias	*float*	0.01	Manual raytrace bias in object space. Small values should be used to avoid artifacts such as shadow acne.
trace: displacements	*integer*	1	Enable displacement shading.

Dicing

Name	Type	Default	Description
dice: micropolygonlength	*float*	1	Micropolygon distance in raster space for "instanceprojection" dicing. Values are expressed in pixel size.
dice: offscreenstrategy	*string*	viewfrustumdistance	Dicing method of objects outside the viewing frustum. Supported values: viewfrustumdistance, worlddistance, objectdistance.
dice: rasterorient	*integer*	1	Changes micropolygon size according to the viewing angle of a surface. When rasterorient is on, surfaces are coarsely diced at a glancing angle.This feature is very useful for ground planes and other large objects that are seen at an angle and it should be disabled for geometry that is instanced several times as it can be seen from different angles as well as when displacement details are lost.
dice: referencecamera	*string*	*empty*	Specify the camera used for dicing. If no reference camera is specified, RenderMan will use the primary camera.
dice: referenceinstance	*string*	*empty*	Specify the reference instance used for dicing and displacement shading. The reference instance is used to drive dicing and displacement based on its position, scale, user attributes, and scoped coordinate systems. Reference instances are specified by its identifier:name attribute (instance name). If no reference instance is specified, RenderMan will automatically pick the nearest instance inside the primary camera's view frustum.
dice: strategy	*string*	instanceprojection	Dicing method of objects within the viewing frustum. Supported values: instanceprojection, worlddistance, objectdistance.

dice: worlddistancelength	*float*	-1	Micropolygon distance in world space for "worlddistance" dicing or object space for "objectdistance" dicing.
Ri: GeometricApproximationFocusFactor	*float*	0	Allows the renderer to use more coarse dicing for blurry objects due to depth of field.

Points

Name	Type	Default	Description
falloffpower	*float*	0	For use with points, if not supplied, or set to zero, the points will have a hard edge. A value of 1 is a "reasonable" value that emulates the usual cosine based falloff; this will likely be the goto value for most people doing volumetric particle effects. Values between 0 and 1 makes the falloff faster, eroding the point faster - point has "less presence". Values higher than 1 (up to infinity) makes the falloff slower to the point of being non-existent.

Volume

Name	Type	Default	Description
dice:minlength	*float*	-1	Volume minimum dice length. Negative indicates to automatically compute this value.
dice:minlengthspace	*string*	*empty*	Coordinate space of dice:minlength.
Ri:Bound	*float[6]*	0 0 0 0 0 0	Volume bounds.
volume:dsominmax	*integer*	0	

SubdivisionMesh

Name	Type	Default	Description
dice:pretessellate	*integer*	1	Pre-tessellate subdivision geometry to polygons.
dice:watertight	*integer*	0	Tessellate geometry with no holes. Watertight geometry requires less raytrace bias.
shade:faceset	*integer[n]*	*empty*	Active geometry face indexes.
stitchbound:CoordinateSystem	*string*	*empty*	
stitchbound:sphere	*float*	0	

NuPatch

Name	Type	Default	Description
trimcurve:sense	*string*	inside	Supported values: inside, outside.

PolygonMesh

Name	Type	Default	Description
polygon:concave	*integer*	1	Allow concave polygons.
polygon: smoothdisplacement	*integer*	0	Output smoothed (per-vertex) normals as Ndsp primvar, if polygon:smoothnormals hasn't already inserted smooth normals.
polygon:smoothnormals	*integer*	0	Smooth (per-vertex) normals if not provided.

Procedural

Name	Type	Default	Description
procedural: immediatesubdivide	*integer*	0	
procedural:reentrant	*integer*	0	