



Poly Few | Mesh Simplifier and Auto LOD Generator

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# Chapter 1

## Namespace Index

### 1.1 Packages

Here are the packages with brief descriptions (if available):

<a href="#">BrainFailProductions</a>	7
<a href="#">BrainFailProductions.PolyFewRuntime</a>	7

## Chapter 2

# Hierarchical Index

### 2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

BrainFailProductions.PolyFewRuntime.PolyfewRuntime.CustomMeshActionStructure . . . . .	9
Dictionary	
BrainFailProductions.PolyFewRuntime.PolyfewRuntime.ObjectMeshPairs . . . . .	11
ImportOptions	
BrainFailProductions.PolyFewRuntime.PolyfewRuntime.OBJImportOptions . . . . .	14
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MonoBehaviour	
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BrainFailProductions.PolyFewRuntime.PolyfewRuntime.PreservationSphere . . . . .	24
BrainFailProductions.PolyFewRuntime.PolyfewRuntime.ReferencedNumeric< T > . . . . .	25
BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions . . . . .	26

## Chapter 3

# Class Index

### 3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

<a href="#">BrainFailProductions.PolyFewRuntime.PolyfewRuntime.CustomMeshActionStructure</a>	
This class represents a custom data structure that holds reference to a <a href="#">MeshRendererPair</a> , the GameObject from which the <a href="#">MeshRendererPair</a> was constructed and an Action object used to execute some code . . . . .	9
<a href="#">BrainFailProductions.PolyFewRuntime.PolyfewRuntime.MeshRendererPair</a>	
This class represents a simple data structure that holds reference to a mesh and whether that mesh is part of a MeshRenderer (Attached to MeshFilter) or SkinnedMeshRenderer. This structure is used thoroughly in various mesh simplification operations . . . . .	10
<a href="#">BrainFailProductions.PolyFewRuntime.PolyfewRuntime.ObjectMeshPairs</a>	
A Dictionary that holds a GameObject as key and the associated <a href="#">MeshRendererPair</a> as value .	11
<a href="#">BrainFailProductions.PolyFewRuntime.PolyfewRuntime.OBJExportOptions</a>	
Options that define how the a GameObject will be exported to wavefront OBJ . . . . .	12
<a href="#">BrainFailProductions.PolyFewRuntime.PolyfewRuntime.OBJImportOptions</a>	
Options that define how the model will be loaded and imported . . . . .	14
<a href="#">BrainFailProductions.PolyFewRuntime.PolyfewRuntime</a>	14
<a href="#">BrainFailProductions.PolyFewRuntime.PolyfewRuntime.PreservationSphere</a>	
This class is used to represent a preservation sphere. A preservation sphere retains the original quality of the mesh area enclosed within it while simplifying all other areas of the mesh. Please note that mesh simplification with preservation spheres might get slow . . . . .	24
<a href="#">BrainFailProductions.PolyFewRuntime.PolyfewRuntime.ReferencedNumeric&lt; T &gt;</a>	
A wrapper class that holds a primitive numeric type and fakes them to act as reference types .	25
<a href="#">BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions</a>	
This class holds all the available options for mesh simplification. An object of this class is needed by many of the Mesh Simplification methods for controlling the mesh simplification process . .	26

## Chapter 4

# Namespace Documentation

### 4.1 BrainFailProductions Namespace Reference

### 4.2 BrainFailProductions.PolyFewRuntime Namespace Reference

#### Classes

- class [PolyfewRuntime](#)

## Chapter 5

# Class Documentation

### 5.1 BrainFailProductions.PolyFewRuntime.PolyfewRuntime.CustomMeshActionStructure Class Reference

This class represents a custom data structure that holds reference to a [MeshRendererPair](#), the `GameObject` from which the [MeshRendererPair](#) was constructed and an `Action` object used to execute some code.

#### Public Member Functions

- **CustomMeshActionStructure** ([MeshRendererPair](#) `meshRendererPair`, `GameObject` `gameObject`, `Action` `action`)

#### Public Attributes

- [MeshRendererPair](#) `meshRendererPair`  
*The [MeshRendererPair](#) constructed for the referenced `GameObject`. This contains the mesh associated with the `GameObject` if any and some other info about the mesh.*
- `GameObject` `gameObject`  
*The `GameObject` with which this data structure is associated with.*
- `Action` `action`  
*An action object that can hold some custom code to execute.*

#### 5.1.1 Detailed Description

This class represents a custom data structure that holds reference to a [MeshRendererPair](#), the `GameObject` from which the [MeshRendererPair](#) was constructed and an `Action` object used to execute some code.

#### 5.1.2 Member Data Documentation



### 5.1.2.1 action

Action BrainFailProductions.PolyFewRuntime.PolyfewRuntime.CustomMeshActionStructure.action

An action object that can hold some custom code to execute.

### 5.1.2.2 gameObject

GameObject BrainFailProductions.PolyFewRuntime.PolyfewRuntime.CustomMeshActionStructure.gameObject↔  
Object

The GameObject with which this data structure is associated with.

### 5.1.2.3 meshRendererPair

MeshRendererPair BrainFailProductions.PolyFewRuntime.PolyfewRuntime.CustomMeshActionStructure.↔  
meshRendererPair

The [MeshRendererPair](#) constructed for the referenced GameObject. This contains the mesh associated with the GameObject if any and some other info about the mesh.

The documentation for this class was generated from the following file:

- C:/Users/kbawa/Desktop/NEW DOCS/PolyFew/PolyfewRuntime.cs

## 5.2 BrainFailProductions.PolyFewRuntime.PolyfewRuntime.Mesh↔ RendererPair Class Reference

This class represents a simple data structure that holds reference to a mesh and whether that mesh is part of a MeshRenderer (Attached to MeshFilter) or SkinnedMeshRenderer. This structure is used thoroughly in various mesh simplification operations.

### Public Member Functions

- **MeshRendererPair** (bool [attachedToMeshFilter](#), Mesh [mesh](#))
- void **Destruct** ()

### Public Attributes

- bool [attachedToMeshFilter](#)  
*Whether mesh is part of a MeshRenderer (Attached to MeshFilter) or SkinnedMeshRenderer.*
- Mesh [mesh](#)  
*A reference to a mesh*

### 5.2.1 Detailed Description

This class represents a simple data structure that holds reference to a mesh and whether that mesh is part of a MeshRenderer (Attached to MeshFilter) or SkinnedMeshRenderer. This structure is used thoroughly in various mesh simplification operations.

### 5.2.2 Member Data Documentation

#### 5.2.2.1 attachedToMeshFilter

```
bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.MeshRendererPair.attachedToMeshFilter
```

Whether mesh is part of a MeshRenderer (Attached to MeshFilter) or SkinnedMeshRenderer.

#### 5.2.2.2 mesh

```
Mesh BrainFailProductions.PolyFewRuntime.PolyfewRuntime.MeshRendererPair.mesh
```

A reference to a mesh

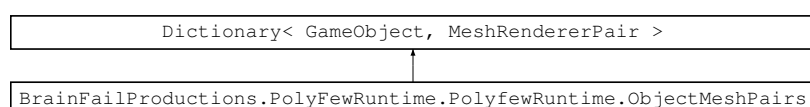
The documentation for this class was generated from the following file:

- C:/Users/kbawa/Desktop/NEW DOCS/PolyFew/PolyfewRuntime.cs

## 5.3 BrainFailProductions.PolyFewRuntime.PolyfewRuntime.ObjectMeshPairs Class Reference

A Dictionary that holds a GameObject as key and the associated [MeshRendererPair](#) as value

Inheritance diagram for BrainFailProductions.PolyFewRuntime.PolyfewRuntime.ObjectMeshPairs:



### 5.3.1 Detailed Description

A Dictionary that holds a GameObject as key and the associated [MeshRendererPair](#) as value

The documentation for this class was generated from the following file:

- C:/Users/kbawa/Desktop/NEW DOCS/PolyFew/PolyfewRuntime.cs

## 5.4 BrainFailProductions.PolyFewRuntime.PolyfewRuntime.OBJExportOptions Class Reference

Options that define how the a GameObject will be exported to wavefront OBJ.

### Public Member Functions

- **OBJExportOptions** (bool [applyPosition](#), bool [applyRotation](#), bool [applyScale](#), bool [generateMaterials](#), bool [exportTextures](#))

### Public Attributes

- readonly bool [applyPosition](#) = true  
*When checked, the position of models will be taken into account on export.*
- readonly bool [applyRotation](#) = true  
*When checked, the rotation of models will be taken into account on export.*
- readonly bool [applyScale](#) = true  
*When checked, the scale of models will be taken into account on export.*
- readonly bool [generateMaterials](#) = true  
*Should the materials associated with the GameObject to export also be exported as .MTL files.*
- readonly bool [exportTextures](#) = true  
*Should the textures associated with the materials also be exported.*

### 5.4.1 Detailed Description

Options that define how the a GameObject will be exported to wavefront OBJ.

### 5.4.2 Member Data Documentation

#### 5.4.2.1 applyPosition

```
readonly bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.OBJExportOptions.apply↔  
Position = true
```

When checked, the position of models will be taken into account on export.

#### 5.4.2.2 applyRotation

```
readonly bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.OBJExportOptions.apply↔  
Rotation = true
```

When checked, the rotation of models will be taken into account on export.

#### 5.4.2.3 applyScale

```
readonly bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.OBJExportOptions.applyScale =  
true
```

When checked, the scale of models will be taken into account on export.

#### 5.4.2.4 exportTextures

```
readonly bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.OBJExportOptions.export↔  
Textures = true
```

Should the textures associated with the materials also be exported.

#### 5.4.2.5 generateMaterials

```
readonly bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.OBJExportOptions.generate↔  
Materials = true
```

Should the materials associated with the GameObject to export also be exported as .MTL files.

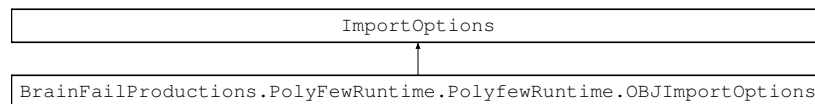
The documentation for this class was generated from the following file:

- C:/Users/kbawa/Desktop/NEW DOCS/PolyFew/PolyfewRuntime.cs

## 5.5 BrainFailProductions.PolyFewRuntime.PolyfewRuntime.OBJImportOptions Class Reference

Options that define how the model will be loaded and imported.

Inheritance diagram for BrainFailProductions.PolyFewRuntime.PolyfewRuntime.OBJImportOptions:



### 5.5.1 Detailed Description

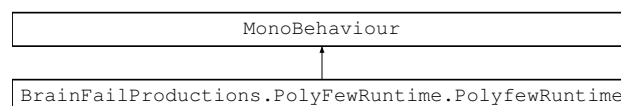
Options that define how the model will be loaded and imported.

The documentation for this class was generated from the following file:

- C:/Users/kbawa/Desktop/NEW DOCS/PolyFew/PolyfewRuntime.cs

## 5.6 BrainFailProductions.PolyFewRuntime.PolyfewRuntime Class Reference

Inheritance diagram for BrainFailProductions.PolyFewRuntime.PolyfewRuntime:



## Classes

- class [CustomMeshActionStructure](#)  
This class represents a custom data structure that holds reference to a [MeshRendererPair](#), the `GameObject` from which the [MeshRendererPair](#) was constructed and an `Action` object used to execute some code.
- class [MeshRendererPair](#)  
This class represents a simple data structure that holds reference to a mesh and whether that mesh is part of a `MeshRenderer` (Attached to `MeshFilter`) or `SkinnedMeshRenderer`. This structure is used thoroughly in various mesh simplification operations.
- class [ObjectMeshPairs](#)  
A Dictionary that holds a `GameObject` as key and the associated [MeshRendererPair](#) as value
- class [OBJExportOptions](#)  
Options that define how the a `GameObject` will be exported to wavefront OBJ.
- class [OBJImportOptions](#)

*Options that define how the model will be loaded and imported.*

- class [PreservationSphere](#)

*This class is used to represent a preservation sphere. A preservation sphere retains the original quality of the mesh area enclosed within it while simplifying all other areas of the mesh. Please note that mesh simplification with preservation spheres might get slow.*

- class [ReferencedNumeric](#)

*A wrapper class that holds a primitive numeric type and fakes them to act as reference types.*

- class [SimplificationOptions](#)

*This class holds all the available options for mesh simplification. An object of this class is needed by many of the Mesh Simplification methods for controlling the mesh simplification process.*

## Public Types

- enum [MeshCombineTarget](#) { **SkinnedAndStatic**, **StaticOnly**, **SkinnedOnly** }

*An enum that is used to specify what kind of meshes to combine*

## Static Public Member Functions

- static int [SimplifyObjectDeep](#) (GameObject toSimplify, [SimplificationOptions](#) simplificationOptions, Action< GameObject, [MeshRendererPair](#) > OnEachMeshSimplified)

*Simplifies the provided gameobject include the full nested children hierarchy with the settings provided. Any errors are thrown as exceptions with relevant information. Please note that the method won't simplify the object if the simplification strength provided in the [SimplificationOptions](#) is close to 0.*

- static [ObjectMeshPairs](#) [SimplifyObjectDeep](#) (GameObject toSimplify, [SimplificationOptions](#) simplificationOptions)

*Simplifies the meshes nested under the given gameobject(including itself) including the full nested children hierarchy with the settings provided. Returns back a specialized data structure with the simplified meshes. Any errors are thrown as exceptions with relevant information. Please note that the method won't simplify the object if the simplification strength provided in the [SimplificationOptions](#) is close to 0.*

- static int [SimplifyObjectDeep](#) ([ObjectMeshPairs](#) objectMeshPairs, [SimplificationOptions](#) simplificationOptions, Action< GameObject, [MeshRendererPair](#) > OnEachMeshSimplified)

*Simplifies the meshes provided in the "objectMeshPairs" argument and assigns the simplified meshes to the corresponding objects. Any errors are thrown as exceptions with relevant information. Please note that the method won't simplify the object if the simplification strength provided in the [SimplificationOptions](#) is close to 0.*

- static List< Mesh > [SimplifyMeshes](#) (List< Mesh > meshesToSimplify, [SimplificationOptions](#) simplificationOptions, Action< Mesh > OnEachMeshSimplified)

*Simplifies the meshes provided in the "meshesToSimplify" argument and returns the simplified meshes in a new list. Any errors are thrown as exceptions with relevant information. Please note that the returned list of simplified meshes doesn't guarantee the same order of meshes as supplied in the "meshesToSimplify" list. Please note that preservation spheres don't work with this method.*

- static [ObjectMeshPairs](#) [GetObjectMeshPairs](#) (GameObject forObject, bool includeInactive)

*This method returns a specialized DataStructure for the provided object. The key is a reference to a GameObject and the value is a [MeshRendererPair](#) which contains a reference to the mesh attached to the GameObject (key) and the type of mesh (Skinned or static).*

- static void [CombineMeshesInGameObject](#) (GameObject forObject, bool skipInactiveRenderers, Action< string, string > OnError, [MeshCombineTarget](#) combineTarget=[MeshCombineTarget.SkinnedAndStatic](#))

*Tries to combine meshes nested under the provided GameObject. Please note that the method modifies the provided gameobject and it's children hierarchy.*

- static GameObject [CombineMeshesFromRenderers](#) (Transform rootTransform, MeshRenderer[] originalMeshRenderers, SkinnedMeshRenderer[] originalSkinnedMeshRenderers, Action< string, string > OnError)

*Tries to combine the static and skinned meshes provided in the arguments.*

- static void [ConvertSkinnedMeshesInGameObject](#) (GameObject forObject, bool skipInactiveRenderers, Action< string, string > OnError)

*Converts all skinned meshes in the provided GameObject to non skinned/static meshes and also changes the corresponding renderer components. Please note that this method modifies the original GameObject and it's child hierarchy.*

- static Tuple< SkinnedMeshRenderer, MeshRenderer, Mesh >[] [ConvertSkinnedMeshesFromRenderers](#) (SkinnedMeshRenderer[] renderersToConvert, Action< string, string > OnError)

*Converts all Skinned Mesh Renderers in the provided list to non simple Mesh Renderers and also changes the corresponding meshes. Please note that this method doesn't modify the actualy GameObject(s) from which the provided SkinnedMeshRenderes are extracted.*

- static async void [ImportOBJFromFileSystem](#) (string objAbsolutePath, string texturesFolderPath, string materialsFolderPath, Action< GameObject > OnSuccess, Action< Exception > OnError, [OBJImportOptions](#) importOptions=null)

*Imports a wavefront obj file provided by the absolute path. Please note that this method doesn't work on WebGL builds and will safely return.*

- static async void [ImportOBJFromNetwork](#) (string objURL, string objName, string diffuseTexURL, string bumpTexURL, string specularTexURL, string opacityTexURL, string materialURL, [ReferencedNumeric](#)< float > downloadProgress, Action< GameObject > OnSuccess, Action< Exception > OnError, [OBJImportOptions](#) importOptions=null)

*Downloads a wavefront obj file from the direct URI passed and imports it. You can also specify the URL for different textures associated with the model and also the URL to the linked material file. This function also works on WebGL builds.*

- static async void [ExportGameObjectToOBJ](#) (GameObject toExport, string exportPath, Action OnSuccess, Action< Exception > OnError, [OBJExportOptions](#) exportOptions=null)

*Exports the provided GameObject to wavefront OBJ format with support for saving textures and materials. Please note that the method won't work on WebGL builds and will safely return.*

- static int [CountTriangles](#) (bool countDeep, GameObject forObject)

*Counts the number of triangles in the provided GameObject. If "countDeep" is true then the method counts all the triangles considering all the nested meshes in the children hierarchies of the given GameObject.*

- static int [CountTriangles](#) (List< Mesh > toCount)

*Counts the number of triangles in the provided meshes list.*

## 5.6.1 Member Enumeration Documentation

### 5.6.1.1 MeshCombineTarget

```
enum BrainFailProductions.PolyFewRuntime.PolyfewRuntime.MeshCombineTarget [strong]
```

An enum that is used to specify what kind of meshes to combine

## 5.6.2 Member Function Documentation

### 5.6.2.1 CombineMeshesFromRenderers()

```
static GameObject BrainFailProductions.PolyFewRuntime.PolyfewRuntime.CombineMeshesFromRenderers
(
    Transform rootTransform,
    MeshRenderer[] originalMeshRenderers,
    SkinnedMeshRenderer[] originalSkinnedMeshRenderers,
    Action< string, string > OnError ) [static]
```

Tries to combine the static and skinned meshes provided in the arguments.

## Parameters

<i>rootTransform</i>	The root transform to create the combined meshes based from, essentially the origin of the new mesh.
<i>originalMeshRenderers</i>	The list of MeshRenderer components whose corresponding meshes to combine.
<i>OnError</i>	The method to invoke when an error occurs. The method is passed the error title and the description of the error.
<i>originalSkinnedMeshRenderers</i>	The list of SkinnedMeshRenderer components whose corresponding meshes to combine.

## Returns

A new GameObject with the combined meshes, or returns null in case of any problem.

## 5.6.2.2 CombineMeshesInGameObject()

```
static void BrainFailProductions.PolyFewRuntime.PolyfewRuntime.CombineMeshesInGameObject (
    GameObject forObject,
    bool skipInactiveRenderers,
    Action< string, string > OnError,
    MeshCombineTarget combineTarget = MeshCombineTarget.SkinnedAndStatic ) [static]
```

Tries to combine meshes nested under the provided GameObject. Please note that the method modifies the provided gameobject and it's children hierarchy.

## Parameters

<i>forObject</i>	The object under which all the Static and Skinned meshes will be merged.
<i>skipInactiveRenderers</i>	Whether the child renderers of the provided objects be skipped if they are inactive.
<i>OnError</i>	The method to invoke when an error occurs. The method is passed the error title and the description of the error.
<i>combineTarget</i>	Indicates what kind of meshes to combine.

## 5.6.2.3 ConvertSkinnedMeshesFromRenderers()

```
static Tuple<SkinnedMeshRenderer, MeshRenderer, Mesh> [] BrainFailProductions.PolyFewRuntime.↵
PolyfewRuntime.ConvertSkinnedMeshesFromRenderers (
    SkinnedMeshRenderer[] renderersToConvert,
    Action< string, string > OnError ) [static]
```

Converts all Skinned Mesh Renderers in the provided list to non simple Mesh Renderers and also changes the corresponding meshes. Pleaes note that this method doesn't modify the actualy GameObject(s) from which the provided SkinnedMeshRenderes are extracted.



## Parameters

<i>renderersToConvert</i>	The list of SkinnedMeshRenderers to convert.
<i>OnError</i>	The method to invoke when an error occurs. The method is passed the error title and the description of the error.

## Returns

An array of tuples that contain the original SkinnedMeshRenderer, the corresponding converted MeshRenderer and the Mesh. Returns null if the operation failed.

## 5.6.2.4 ConvertSkinnedMeshesInGameObject()

```
static void BrainFailProductions.PolyFewRuntime.PolyfewRuntime.ConvertSkinnedMeshesInGameObject (
    GameObject forObject,
    bool skipInactiveRenderers,
    Action< string, string > OnError ) [static]
```

Converts all skinned meshes in the provided GameObject to non skinned/static meshes and also changes the corresponding renderer components. Please note that this method modifies the original GameObject and it's child hierarchy.

## Parameters

<i>forObject</i>	The game object under which all SkinnedMeshRenderers will be converted.
<i>skipInactiveRenderers</i>	Whether the child renderers of the provided objects be skipped if they are inactive.
<i>OnError</i>	The method to invoke when an error occurs. The method is passed the error title and the description of the error.

## 5.6.2.5 CountTriangles() [1/2]

```
static int BrainFailProductions.PolyFewRuntime.PolyfewRuntime.CountTriangles (
    bool countDeep,
    GameObject forObject ) [static]
```

Counts the number of triangles in the provided GameObject. If "countDeep" is true then the method counts all the triangles considering all the nested meshes in the children hierarchies of the given GameObject.

## Parameters

<i>countDeep</i>	If true the method also counts and considers the triangles of the nested children hierarchies for the given GameObject.
<i>forObject</i>	The GameObject for which to count the triangles.

### Returns

The total triangles summing the triangles count of all the meshes nested under the provided GameObject.

#### 5.6.2.6 CountTriangles() [2/2]

```
static int BrainFailProductions.PolyFewRuntime.PolyfewRuntime.CountTriangles (
    List< Mesh > toCount ) [static]
```

Counts the number of triangles in the provided meshes list.

### Parameters

<i>toCount</i>	The list of meshes whose triangles will be counted.
----------------	---

### Returns

The total triangles summing the triangles count of all the meshes in the provided list. Will return 0 if there are no meshes in the list

#### 5.6.2.7 ExportGameObjectToOBJ()

```
static async void BrainFailProductions.PolyFewRuntime.PolyfewRuntime.ExportGameObjectToOBJ (
    GameObject toExport,
    string exportPath,
    Action onSuccess,
    Action< Exception > onError,
    OBJExportOptions exportOptions = null ) [static]
```

Exports the provided GameObject to wavefront OBJ format with support for saving textures and materials. Please note that the method won't work on WebGL builds and will safely return.

### Parameters

<i>toExport</i>	The GameObject that will be exported.
<i>exportPath</i>	The path to the folder where the file will be written.
<i>exportOptions</i>	Some additional export options for customizing the export.
<i>OnSuccess</i>	The callback to be invoked on successful export.
<i>OnError</i>	The callback method that will be invoked when the import was not successful. The method is passed in an exception that made the task unsuccessful.

#### 5.6.2.8 GetObjectMeshPairs()

```
static ObjectMeshPairs BrainFailProductions.PolyFewRuntime.PolyfewRuntime.GetObjectMeshPairs (
```

```
GameObject forObject,
bool includeInactive ) [static]
```

This method returns a specialized DataStructure for the provided object. The key is a reference to a GameObject and the value is a [MeshRendererPair](#) which contains a reference to the mesh attached to the GameObject (key) and the type of mesh (Skinned or static).

#### Parameters

<i>forObject</i>	The object for which the <a href="#">ObjectMeshPairs</a> is constructed.
<i>includeInactive</i>	If this is true then the method also considers the nested inactive children of the GameObject provided, otherwise it only considers the active nested children.

#### Returns

A specialized data structure that contains information about all the meshes nested under the provided GameObject.

#### 5.6.2.9 ImportOBJFromFileSystem()

```
static async void BrainFailProductions.PolyFewRuntime.PolyfewRuntime.ImportOBJFromFileSystem (
    string objAbsolutePath,
    string texturesFolderPath,
    string materialsFolderPath,
    Action< GameObject > OnSuccess,
    Action< Exception > OnError,
    OBJImportOptions importOptions = null ) [static]
```

Imports a wavefront obj file provided by the absolute path. Please note that this method doesn't work on WebGL builds and will safely return.

#### Parameters

<i>objAbsolutePath</i>	The absolute path to the obj file.
<i>texturesFolderPath</i>	The absolute path to the folder containing the texture files associated with the model to load. If you don't want to load the associated textures or there are none then you can pass an empty or null to this argument.
<i>materialsFolderPath</i>	The absolute path to the folder containing the material files associated with the model to load. If you don't want to load the associated material or there is none then you can pass an empty or null to this argument.
<i>OnSuccess</i>	The callback method that will be invoked when the import was successful. The method is passed in the imported GameObject as the argument.
<i>OnError</i>	The callback method that will be invoked when the import was not successful. The method is passed in an exception that made the task unsuccessful.
<i>importOptions</i>	Specify additional import options for custom importing.

### 5.6.2.10 ImportOBJFromNetwork()

```
static async void BrainFailProductions.PolyFewRuntime.PolyfewRuntime.ImportOBJFromNetwork (
    string objURL,
    string objName,
    string diffuseTexURL,
    string bumpTexURL,
    string specularTexURL,
    string opacityTexURL,
    string materialURL,
    ReferencedNumeric< float > downloadProgress,
    Action< GameObject > OnSuccess,
    Action< Exception > OnError,
    OBJImportOptions importOptions = null ) [static]
```

Downloads a wavefront obj file from the direct URI passed and imports it. You can also specify the URL for different textures associated with the model and also the URL to the linked material file. This function also works on WebGL builds.

#### Parameters

<i>objURL</i>	The direct URL to the obj file.
<i>objName</i>	The name for the GameObject that will represent the imported obj.
<i>diffuseTexURL</i>	The absolute URL to the associated Diffuse texture (Main texture). If the model has no diffuse texture on the material then you can pass in null or empty string to this parameter.
<i>bumpTexURL</i>	The absolute URL to the associated Bump texture (Bump map). If the model has no bump map then you can pass in null or empty string to this parameter.
<i>specularTexURL</i>	The absolute URL to the associated Specular texture (Reflection map). If the model has no reflection map then you can pass in null or empty string to this parameter.
<i>opacityTexURL</i>	The absolute URL to the associated Opacity texture (Transparency map). If the model has no transparency map then you can pass in null or empty string to this parameter.
<i>materialURL</i>	If the model has an associated material file (.mtl) then pass in the absolute URL to that otherwise pass a null or empty string.
<i>downloadProgress</i>	The object of type <a href="#">ReferencedNumeric</a> of type float that is updated with the download progress percentage.
<i>OnSuccess</i>	The callback method that will be invoked when the import was successful. The method is passed in the imported GameObject as the argument..
<i>OnError</i>	The callback method that will be invoked when the import was not successful. The method is passed in an exception that made the task unsuccessful.
<i>importOptions</i>	Specify additional import options for custom importing.

### 5.6.2.11 SimplifyMeshes()

```
static List<Mesh> BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplifyMeshes (
    List< Mesh > meshesToSimplify,
    SimplificationOptions simplificationOptions,
    Action< Mesh > OnEachMeshSimplified ) [static]
```

Simplifies the meshes provided in the "meshesToSimplify" argument and returns the simplified meshes in a new list. Any errors are thrown as exceptions with relevant information. Please note that the returned list of simplified meshes doesn't guarantee the same order of meshes as supplied in the "meshesToSimplify" list. Please note that preservation spheres don't work with this method.

## Parameters

<i>meshesToSimplify</i>	The list of meshes to simplify.
<i>simplificationOptions</i>	Provide a <a href="#">SimplificationOptions</a> object which contains different parameters and rules for simplifying the meshes. Please note that preservationSphere won't work for this method.
<i>OnEachMeshSimplified</i>	This method will be called when a mesh is simplified. The method will be passed the original mesh that was simplified.

## Returns

The list of simplified meshes.

## 5.6.2.12 SimplifyObjectDeep() [1/3]

```
static ObjectMeshPairs BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplifyObjectDeep (
    GameObject toSimplify,
    SimplificationOptions simplificationOptions ) [static]
```

Simplifies the meshes nested under the given gameobject(including itself) including the full nested children hierarchy with the settings provided. Returns back a specialized data structure with the simplified meshes. Any errors are thrown as exceptions with relevant information. Please note that the method won't simplify the object if the simplification strength provided in the [SimplificationOptions](#) is close to 0.

## Parameters

<i>toSimplify</i>	The gameobject to simplify.
<i>simplificationOptions</i>	Provide a <a href="#">SimplificationOptions</a> object which contains different parameters and rules for simplifying the meshes.
<i>OnEachMeshSimplified</i>	This method will be called when a mesh is simplified. The method will be passed a gameobject whose mesh is simplified and some information about the original unsimplified mesh.

## Returns

A specialized data structure that holds information about all the simplified meshes and their information and the GameObjects with which they are associated. Please note that in case the simplificationStrength was near 0 the method doesn't simplify any meshes and returns null.

## 5.6.2.13 SimplifyObjectDeep() [2/3]

```
static int BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplifyObjectDeep (
    GameObject toSimplify,
    SimplificationOptions simplificationOptions,
    Action< GameObject, MeshRendererPair > OnEachMeshSimplified ) [static]
```

Simplifies the provided gameobject include the full nested children hierarchy with the settings provided. Any errors are thrown as exceptions with relevant information. Please note that the method won't simplify the object if the simplification strength provided in the [SimplificationOptions](#) is close to 0.

## Parameters

<i>toSimplify</i>	The gameobject to simplify.
<i>simplificationOptions</i>	Provide a <a href="#">SimplificationOptions</a> object which contains different parameters and rules for simplifying the meshes.
<i>OnEachMeshSimplified</i>	This method will be called when a mesh is simplified. The method will be passed a gameobject whose mesh is simplified and some information about the original unsimplified mesh. If you donot want to receive this callback then you can pass null as an argument here.

## Returns

The total number of triangles after simplifying the provided gameobject including the nested children hierarchies. Please note that the method returns -1 if the method doesn't simplify the object.

## 5.6.2.14 SimplifyObjectDeep() [3/3]

```
static int BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplifyObjectDeep (
    ObjectMeshPairs objectMeshPairs,
    SimplificationOptions simplificationOptions,
    Action< GameObject, MeshRendererPair > OnEachMeshSimplified ) [static]
```

Simplifies the meshes provided in the "objectMeshPairs" argument and assigns the simplified meshes to the corresponding objects. Any errors are thrown as exceptions with relevant information. Please note that the method won't simplify the object if the simplification strength provided in the [SimplificationOptions](#) is close to 0.

## Parameters

<i>objectMeshPairs</i>	The <a href="#">ObjectMeshPairs</a> data structure which holds relationship between objects and the corresponding meshes which will be simplified. You can get this structure by calling "GetObjectMeshPairs(GameObject forObject, bool includeInactive)" method.
<i>simplificationOptions</i>	Provide a <a href="#">SimplificationOptions</a> object which contains different parameters and rules for simplifying the meshes.
<i>OnEachMeshSimplified</i>	This method will be called when a mesh is simplified. The method will be passed a gameobject whose mesh is simplified and some information about the original unsimplified mesh. If you donot want to receive this callback then you can pass null as an argument here.

## Returns

The total number of triangles after simplifying the provided gameobject including the nested children hierarchies. Please note that the method returns -1 if the method doesn't simplify the object.

The documentation for this class was generated from the following file:

- C:/Users/kbawa/Desktop/NEW DOCS/PolyFew/PolyfewRuntime.cs

## 5.7 BrainFailProductions.PolyFewRuntime.PolyfewRuntime.PreservationSphere Class Reference

This class is used to represent a preservation sphere. A preservation sphere retains the original quality of the mesh area enclosed within it while simplifying all other areas of the mesh. Please note that mesh simplification with preservation spheres might get slow.

### Public Member Functions

- **PreservationSphere** (Vector3 [worldPosition](#), float [diameter](#), float [preservationStrength](#))

### Public Attributes

- Vector3 [worldPosition](#)  
*The position of this preservation sphere in world coordinates. Please note that this position should accurately represent the center point of the sphere.*
- float [diameter](#)  
*The diameter of this preservation sphere.*
- float [preservationStrength](#) = 100  
*The percentage of triangles to preserve in the region enclosed by this preservation sphere.*

#### 5.7.1 Detailed Description

This class is used to represent a preservation sphere. A preservation sphere retains the original quality of the mesh area enclosed within it while simplifying all other areas of the mesh. Please note that mesh simplification with preservation spheres might get slow.

#### 5.7.2 Member Data Documentation

##### 5.7.2.1 diameter

```
float BrainFailProductions.PolyFewRuntime.PolyfewRuntime.PreservationSphere.diameter
```

The diameter of this preservation sphere.

##### 5.7.2.2 preservationStrength

```
float BrainFailProductions.PolyFewRuntime.PolyfewRuntime.PreservationSphere.preservation↔  
Strength = 100
```

The percentage of triangles to preserve in the region enclosed by this preservation sphere.

### 5.7.2.3 worldPosition

```
Vector3 BrainFailProductions.PolyFewRuntime.PolyfewRuntime.PreservationSphere.worldPosition
```

The position of this preservation sphere in world coordinates. Please note that this position should accurately represent the center point of the sphere.

The documentation for this class was generated from the following file:

- C:/Users/kbawa/Desktop/NEW DOCS/PolyFew/PolyfewRuntime.cs

## 5.8 BrainFailProductions.PolyFewRuntime.PolyfewRuntime.ReferencedNumeric< T > Class Template Reference

A wrapper class that holds a primitive numeric type and fakes them to act as reference types.

### Public Member Functions

- **ReferencedNumeric** (T value)

### Properties

- **T Value** [get, set]

### 5.8.1 Detailed Description

A wrapper class that holds a primitive numeric type and fakes them to act as reference types.

#### Template Parameters

<i>T</i>	Any primitive numeric type. Int, float, double, byte etc
----------	--

#### Type Constraints

***T* : struct**

***T* : IComparable**

***T* : IComparable< T >**

***T* : IConvertible**

***T* : IEquatable< T >**

***T* : IFormattable**

The documentation for this class was generated from the following file:

- C:/Users/kbawa/Desktop/NEW DOCS/PolyFew/PolyfewRuntime.cs



## 5.9 BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions Class Reference

This class holds all the available options for mesh simplification. An object of this class is needed by many of the Mesh Simplification methods for controlling the mesh simplification process.

### Public Member Functions

- **SimplificationOptions** (float [simplificationStrength](#), bool [simplifyOptimal](#), bool [enableSmartlink](#), bool [recalculateNormals](#), bool [preserveUVSeamEdges](#), bool [preserveUVFoldoverEdges](#), bool [preserveBorderEdges](#), bool [regardToleranceSphere](#), List< [PreservationSphere](#) > [preservationSpheres](#), bool [regardCurvature](#), int [maxIterations](#), float [aggressiveness](#), bool [useEdgeSort](#))

### Public Attributes

- float [simplificationStrength](#)  
*The strength with which to reduce the polygons by. Greater strength results in fewer polygons but lower quality. The acceptable values are between [0-100] inclusive.*
- bool [simplifyMeshLossless](#) = false  
*If set to true the mesh is simplified without losing too much quality. Please note that simplify lossless cannot guarantee optimal triangle count after simplification. It's best that you specify the simplificationStrength manually and leave this to false. Also in case if this is true then the "simplificationStrength" attribute will be disregarded.*
- bool [enableSmartlinking](#) = true  
*Smart linking links vertices that are very close to each other. This helps in the mesh simplification process where holes or other serious issues could arise. Disabling this (where not needed) can cause a minor performance gain.*
- bool [recalculateNormals](#) = false  
*Recalculate mesh normals after simplification. Use this option if you see incorrect lighting or dark regions on the simplified mesh(es). This also recalculates the tangents afterwards.*
- bool [preserveUVSeamEdges](#) = false  
*This option (if set to true) preserves the mesh areas where the UV seams are made. These are the areas where different UV islands are formed (usually the shallow polygon congested areas).*
- bool [preserveUVFoldoverEdges](#) = false  
*This option (if set to true) preserves UV foldover areas. Usually these are the areas where sharp edges, corners or dents are formed in the mesh or simply the areas where the mesh folds over.*
- bool [preserveBorderEdges](#) = false  
*This option (if set to true) preserves border edges of the mesh. Border edges are the edges that are unconnected and open. Preserving border edges might lead to lesser polygon reduction but can be helpful where you see serious mesh and texture distortions.*
- bool [regardPreservationSpheres](#) = false  
*This option (if set to true) will take into account the preservation spheres (If specified in the [SimplificationOptions](#)). A preservation sphere retains the original quality of the mesh area enclosed within it while simplifying all other areas of the mesh. Please note that mesh simplification with preservation spheres might get slow.*
- List< [PreservationSphere](#) > [preservationSpheres](#) = new List<[PreservationSphere](#)>()  
*The list of preservation spheres that dictate which areas of the mesh to preserve during simplification. This list will only be regarded if "regardPreservationSphere" option is set to true.*
- bool [regardCurvature](#) = false  
*This option (if set to true) will take into account the discrete curvature of mesh surface during simplification. Taking surface curvature into account can result in very good quality mesh simplification, but it can slow the simplification process significantly.*
- int [maxIterations](#) = 100

*The maximum passes the reduction algorithm does. Higher number is more expensive but can bring you closer to your target quality. 100 is the lowest allowed value. The default value of 100 works best for most of the meshes and should not be changed.*

- float `aggressiveness` = 7

*The aggressiveness of the reduction algorithm to use for this LOD level. Higher number equals higher quality, but more expensive to run. Lowest value is 7. The default value of 7 works best for most of the meshes and should not be changed.*

- bool `useEdgeSort` = false

*Using edge sort can result in very good quality mesh simplification in some cases but can be a little slow to run.*

## 5.9.1 Detailed Description

This class holds all the available options for mesh simplification. An object of this class is needed by many of the Mesh Simplification methods for controlling the mesh simplification process.

## 5.9.2 Member Data Documentation

### 5.9.2.1 aggressiveness

```
float BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.aggressiveness  
= 7
```

The aggressiveness of the reduction algorithm to use for this LOD level. Higher number equals higher quality, but more expensive to run. Lowest value is 7. The default value of 7 works best for most of the meshes and should not be changed.

### 5.9.2.2 enableSmartlinking

```
bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.enableSmartlinking  
= true
```

Smart linking links vertices that are very close to each other. This helps in the mesh simplification process where holes or other serious issues could arise. Disabling this (where not needed) can cause a minor performance gain.

### 5.9.2.3 maxIterations

```
int BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.maxIterations =  
100
```

The maximum passes the reduction algorithm does. Higher number is more expensive but can bring you closer to your target quality. 100 is the lowest allowed value. The default value of 100 works best for most of the meshes and should not be changed.

### 5.9.2.4 preservationSpheres

```
List<PreservationSphere> BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.preservationSpheres = new List<PreservationSphere>()
```

The list of preservation spheres that dictate which areas of the mesh to preserve during simplification. This list will only be regarded if "regardPreservationSphere" option is set to true.

### 5.9.2.5 preserveBorderEdges

```
bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.preserveBorderEdges = false
```

This option (if set to true) preserves border edges of the mesh. Border edges are the edges that are unconnected and open. Preserving border edges might lead to lesser polygon reduction but can be helpful where you see serious mesh and texture distortions.

### 5.9.2.6 preserveUVFoldoverEdges

```
bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.preserveUVFoldoverEdges = false
```

This option (if set to true) preserves UV foldover areas. Usually these are the areas where sharp edges, corners or dents are formed in the mesh or simply the areas where the mesh folds over.

### 5.9.2.7 preserveUVSeamEdges

```
bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.preserveUVSeamEdges = false
```

This option (if set to true) preserves the mesh areas where the UV seams are made. These are the areas where different UV islands are formed (usually the shallow polygon congested areas).

### 5.9.2.8 recalculateNormals

```
bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.recalculateNormals = false
```

Recalculate mesh normals after simplification. Use this option if you see incorrect lighting or dark regions on the simplified mesh(es). This also recalculates the tangents afterwards.

### 5.9.2.9 regardCurvature

```
bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.regardCurvature  
= false
```

This option (if set to true) will take into account the discrete curvature of mesh surface during simplification. Taking surface curvature into account can result in very good quality mesh simplification, but it can slow the simplification process significantly.

### 5.9.2.10 regardPreservationSpheres

```
bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.regardPreservation↔  
Spheres = false
```

This option (if set to true) will take into account the preservation spheres (If specified in the [SimplificationOptions](#)). A preservation sphere retains the original quality of the mesh area enclosed within it while simplifying all other areas of the mesh. Please note that mesh simplification with preservation spheres might get slow.

### 5.9.2.11 simplificationStrength

```
float BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.simplification↔  
Strength
```

The strength with which to reduce the polygons by. Greater strength results in fewer polygons but lower quality. The acceptable values are between [0-100] inclusive.

### 5.9.2.12 simplifyMeshLossless

```
bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.simplifyMesh↔  
Lossless = false
```

If set to true the mesh is simplified without losing too much quality. Please note that simplify lossless cannot guarantee optimal triangle count after simplification. It's best that you specify the simplificationStrength manually and leave this to false. Also in case if this is true then the "simplificationStrength" attribute will be disregarded.

### 5.9.2.13 useEdgeSort

```
bool BrainFailProductions.PolyFewRuntime.PolyfewRuntime.SimplificationOptions.useEdgeSort =  
false
```

Using edge sort can result in very good quality mesh simplification in some cases but can be a little slow to run.

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