

职业教育
行业英语立体化系列教材
English for Your Career

动漫玛雅英语

English for
Maya 3D
Animation



本书编写组 编



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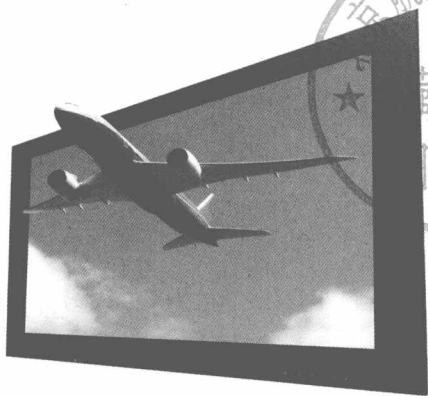
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Dongman Maya Yingyu

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前言

玛雅（Maya软件，本书统一称为Maya）是美国Autodesk公司出品的世界顶级的三维动画制作软件，是目前世界上最优秀的三维动画制作软件之一。Maya凭借其强大的功能、友好的用户界面和丰富的视觉效果，对计算机图形的设计、制作产生了巨大的影响，被广泛地应用在电影、电视、游戏等诸多领域。已成为目前市场上数字和三维制作工具中的首选解决方案。

进入新世纪以来，从事Maya引进与开发的公司开始举办Maya培训班，在我国推广Maya的应用与开发；各大专院校的动漫专业和艺术设计专业也先后开设Maya课程，并逐步将其作为专业主干课程。但是，无论是从事社会培训的讲师，还是大专院校教授Maya课程的专职教师，在授课过程中都碰到一大难题：入行的新手和学生不懂Maya英语，在学习软件的过程中，需要不断借助词典或翻译软件，查阅软件界面上英文单词或表达法，但效果往往并不理想，有时很难准确了解其确切含义。一边查找，一边工作或一边学习软件，给他们的职业生涯或学业带来了很大的困难。许多入行的新手因为无法提高工作效率而放弃，很多学生在语言的困境中失去了学习Maya的勇气。

鉴于国外Maya软件语言为全英文并不断更新，教授Maya课程的专职教师逐步形成一个共识：应该开设Maya英语课程，使学生掌握Maya英语，使他们能够与时俱进，跟上Maya快速更新的步伐，为直接学习和使用Maya软件做好准备。但截止到目前，国内除少量介绍Maya的英文原版书外，还没有可供大专院校、各类培训班的动漫专业或艺术设计专业学生使用的Maya英语教程。为此，我们尝试编写了这本实用的Maya英语教程，以解目前学习、需求的燃眉之急。

本教程的教学内容由10个单元组成，涵盖动漫行业Maya软件的多边形基础、NURBS原理、建立骨骼、绑定IK、行走动画、刚体动力学、粒子、粒子表达式、控制渲染器等基本概念和操作，计划为60学时。每个单元由4部分组成，第一部分General Operation Commands是从学习Maya软件常用的操作指令开始的，设计了3项学习任务，为学习和掌握该软件奠定必要的基础；第二部分Technical and Practical Reading围绕单元主题选编两篇文章，设计了8项学习任务，包括Maya英语常用的词汇和表达法识记、基本句式的阅读理解、单元主题涉及的基本概念的理解和把握、以及常用表达法的模拟写作等；第三部分Language Focus对本教程中Maya英语的语言特点进行总结归纳，设计了学习任务；第四部分Extended Reading以第二部分精读文章的内容为基础，选编相关文章供学生阅读，以增加学习者的阅读量，并巩固相关的学习成果。

本教程由大连理工大学孔庆炎教授担任主审。主编是韶关学院美术学院教师周围和韶关学院外语学院教授安晓灿，副主编是韶关学院外语学院肖岭、黎晴和廖庆生。编者是韶关学院周丽敏、周晓、贾婷婷、冯元菲和肖著华。具体分工：周围负责全部的选材、翻译、每个单元第一部分练习1的设计与每个单元第三部分Passage C的标注，安晓灿负责教材的框架设计和每个单元第三部分的编写，周丽敏、黎晴、周晓、肖岭、贾婷婷、冯元菲、肖著华、廖庆生和周围分别负责每个单元其他内容的编写。

本教程的编写是一次新的尝试，编写中可能会有不当和疏漏之处，敬请广大使用者批评指正。

编 者

2013年3月

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Unit

1

Understanding Maya

了解玛雅

Part 1 General Operation Commands

1

Work in pairs. Match each of the following Chinese terms with its English equivalent.

A. 导入

B. 群组

C. 线框颜色

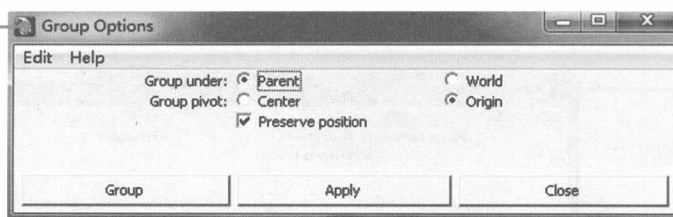
D. 大纲编辑窗

E. 指定父子关系

F. 冻结变换

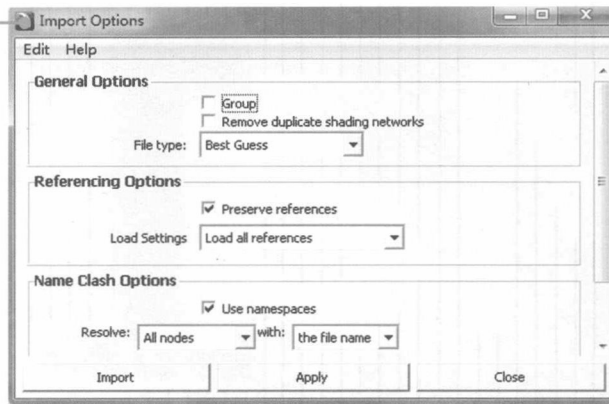
1. []

Group



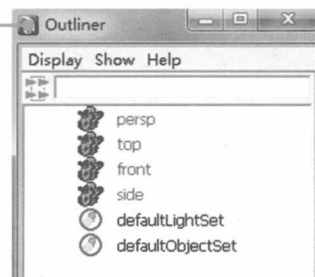
2. []

Import



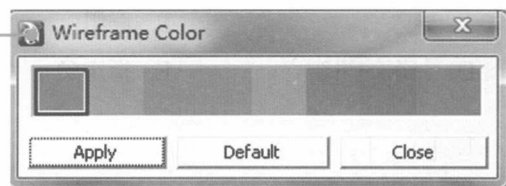
3. []

Outliner



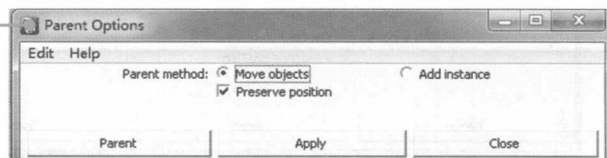
4. []

Wireframe Color



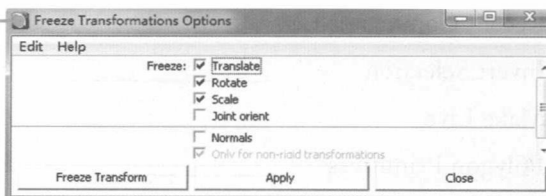
5. []

Parent



6. []

Freeze Transformations



2

Read the terms in the box and pick out those that match with the Chinese terms below.

- | | | | |
|--------------|-------|------------|-------|
| 1. 撤销 | _____ | 2. 视图窗显示项 | _____ |
| 3. 按类型单项删除 | _____ | 4. 项目 | _____ |
| 5. 吸附对齐对象 | _____ | 6. 恢复上一次操作 | _____ |
| 7. 转化 | _____ | 8. 隐藏 | _____ |
| 9. 设置 / 参数选择 | _____ | 10. 显示 | _____ |
| 11. 定位器 | _____ | 12. 保存参数选择 | _____ |
| 13. 观看图像 | _____ | 14. 参考编辑器 | _____ |
| 15. 基本用户界面 | _____ | 16. 建立新场景 | _____ |
| 17. 常规编辑器 | _____ | 18. 关联编辑器 | _____ |
| 19. 渲染编辑器 | _____ | 20. 居中枢轴 | _____ |

Undo	Convert	Setting / Preferences
General Editors	Redo	New Scene
Delete by Type	Reference Editor	Hide
Rendering Editors	Relationship Editors	Show
Locator	View Image	Recent Increments
Center Pivot	UI Elements	Save Preferences
Heads Up Display	Lasso Select Tool	Duplicate Special
Optimize Scene Size	Snap Align Objects	Project

3

Group work. Read the following terms and try to translate them into Chinese.

- | | |
|-------------------------------|-------------------------------|
| 1. Recent Commands List _____ | 2. Paint Selection Tool _____ |
| 3. Invert Selection _____ | 4. Level of Detail _____ |
| 5. Make Live _____ | 6. NURBS Primitives _____ |
| 7. Polygon Primitives _____ | 8. CV Curve Tool _____ |
| 9. EP Curve Tool _____ | 10. Export All _____ |

Part 2 Technical and Practical Reading

4

Read Passage A and then try to speak out in groups the common expressions given in the brackets.

- The Maya _____ (用户界面) includes a number of tools, editors and controls.
- To work with objects, you can enter values using coordinate entry or you can use more _____ (交互式3D操控器).
- These dimensions are defined by the _____ (基数轴) which are labeled as X, Y and Z.
- As you _____ (定位、缩放或者旋转) your objects, these three axes will serve as your main points of reference.
- You can make surface live in order to work directly in the _____ (UV坐标空间).
- In Maya, you visualize your scenes using _____ (视窗) that let you see into the 3D world.
- _____ (透视图) let you see your scene as if you were looking at it with your own eyes or through the lens of a camera.
- _____ (正交投影视图) are parallel to the scene and offer a more objective view.
- They focus on two axes at a time and are referred to as the _____ (顶视图、边视图和前视图).
- _____ (平面像) can be placed onto the camera so that, as the camera moves, the plane stays aligned.

Passage A How Maya Works

The Maya user interface includes a number of tools, editors and controls. You can access these using the main menus or using special context-sensitive marking menus. You can also use shelves to store important icons or hotkeys to speed up workflow. Maya is designed to let you configure the user interface as you see fit.

To work with objects, you can enter values using coordinate entry or you can use more interactive 3D manipulators. Manipulator handles let you edit your objects with a simple click-drag.

Maya's user interface supports multiple levels of undo and redo and includes a drag-and-drop paradigm for accessing many parts of the workspace.

In Maya, you will build and animate objects in three dimensions. These dimensions are defined by the cardinal axes which are labeled as X, Y and Z. These represent the length (X), height (Y) and depth (Z) of your scene. These axes are represented by colors — red for X, green for Y and blue for Z.

As you position, scale and rotate your objects, these three axes will serve as your main points of reference. The center of this coordinate system is called the origin and has a value of 0, 0, 0.

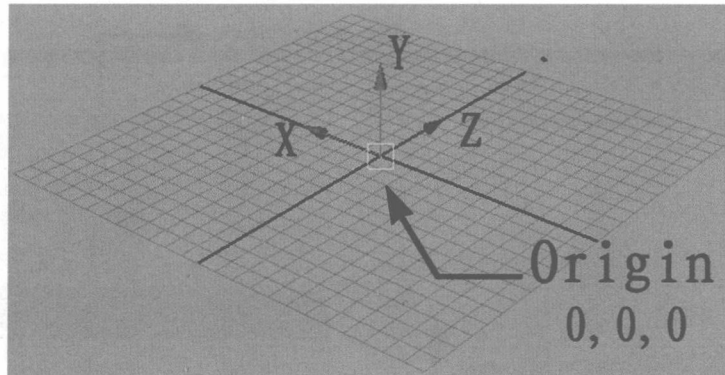


Fig. 1 The cardinals axes

As you build surfaces in Maya, they are created with their own coordinate space that is defined by U in one direction and V in another. You can use these coordinates when you are working with curves on surface objects or when you are positioning textures on a surface. One corner of the surface acts as the origin of the system and all coordinates lie directly on the surface.

You can make a surface live in order to work directly in the UV coordinate space. You

will also encounter U and V attributes when you place textures onto surfaces.

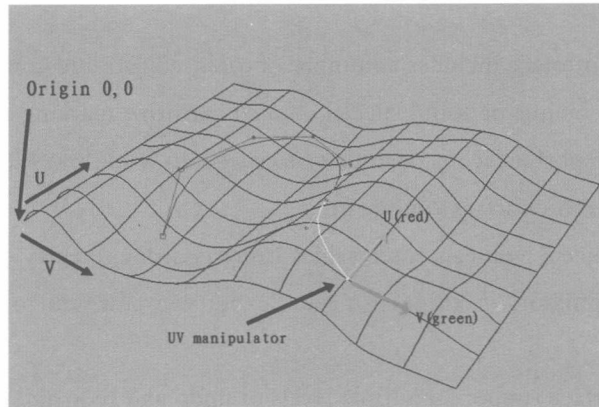


Fig. 2 UV coordinates on a live surface

In Maya, you visualize your scenes using view panels that let you see into the 3D world. Perspective views let you see your scene as if you were looking at it with your own eyes or through the lens of a camera. Orthographic views are parallel to the scene and offer a more objective view. They focus on two axes at a time and are referred to as the top, side and front views. In many cases, you will require several views to help you define the proper location of your objects. An object's position that looks good in the top view may not make sense in a side view. Maya lets you view multiple views at one time to help coordinate what you see.

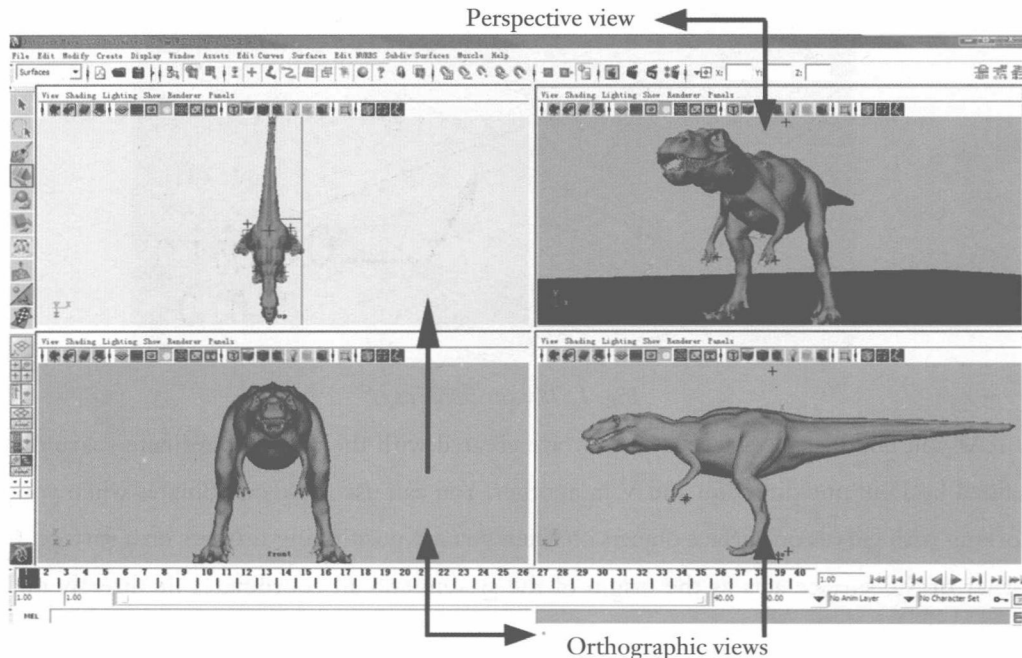


Fig. 3 Orthographic views and Perspective view

To achieve a particular view, you look through a digital camera. An orthographic camera defines the view using a parallel plane and a direction while a perspective camera uses an eye point, a look-at point and a focal length. When you work with cameras, it is possible to place special backdrop objects called image planes onto the camera. An image plane can be placed onto the camera so that as the camera moves, the plane stays aligned.

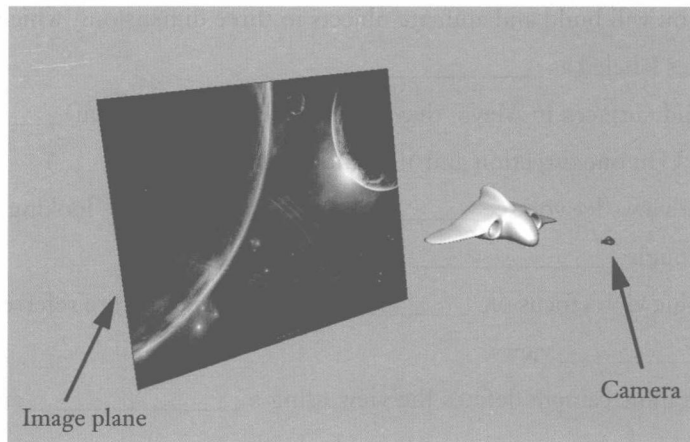


Fig. 4 Image plane attached to a camera

The image plane has several attributes that allow you to track and scale the image. These attributes can be animated to give the appearance that the plane is moving.

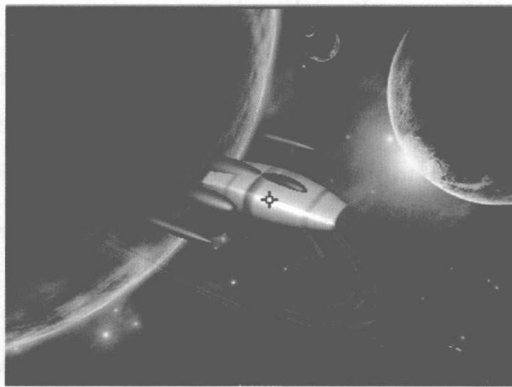


Fig. 5 Image plane seen through the camera

5

Read the passage again and then work in pairs to fill in the blanks with the missing words or expressions to complete the following statements.

1. You can use _____ to store important icons or hotkeys to speed up workflow.
2. To work with objects, you can enter values using _____ or you can use more interactive 3D manipulators.
3. In Maya, you will build and animate objects in three dimensions, which are defined by the cardinal axes labeled as _____.
4. As you build surfaces in Maya, they are created with their own _____ that is defined by U in one direction and V in another.
5. Perspective views let you see _____ as if you were looking at it with your own eyes or through _____ of a camera.
6. Orthographic views focus on _____ at a time and are referred to as the top, side and _____ views.
7. An orthographic camera defines the view using a _____ and a direction while a perspective camera uses an eye point, a look-at point and a _____.
8. The attributes that allow you to track and _____ the image can be animated to give the _____ that the plane is moving.

6

Work in groups and discuss the following questions.

1. How can you access the tools, editors and controls of Maya user interface?
2. What is the special function the manipulator handles offer to help you edit?
3. What do X, Y and Z stand for in building and animating objects in three dimensions?
4. What coordinates should be used when you are working with curves on surface objects?
5. What tools can help you visualize your scenes in Maya?

7

Complete the following sentences with the words in the box. Change the form where necessary.

align	curve	dimension	attribute	perspective
animate	value	texture	axis	visualize

1. The desks were neatly _____ in rows.
2. Youth crime overall is on a slow but steady downward _____.

3. The temperature does not reach its maximum _____ for some time.
4. What he needs is a _____ drawing, not just a plan.
5. These are characteristic _____ of synthetic products.
6. When we think of a spectrum, we usually _____ bands of colors.
7. In Maya, there are several different ways in which you can _____ your scenes.
8. The _____ of the earth is an imaginary line through the North Pole and the South Pole.
9. A line has one dimension, a plane has two dimensions, and a cube has three _____.
10. Matured over 18 months, this cheese has an open, crumbly _____ with a strong flavor.

8

Read Passage B and then work in groups to complete the statements with the information from the passage.

1. The Dependency graph is a node-based architecture, which gives Maya its _____.
2. A single node or a series of connected nodes describe _____ in Maya.
3. Nodes define all object types in Maya including geometry, _____.
4. Each node is defined by _____ that relate to what the node is designed to accomplish.
5. One of Maya's important features is that you can animate virtually every attribute on _____.
6. A finished animation results when you begin making _____ between attributes on different _____.
7. When working with transform nodes or joint nodes, you can also build _____ which create a different kind of _____ between your objects.
8. When you are building characters, you use _____.
9. These hierarchies work just like object hierarchies by _____.
10. In Maya, every time you use a tool or open a window, you are using MEL, which stands for _____.