

The Internet

因特网



内容提要

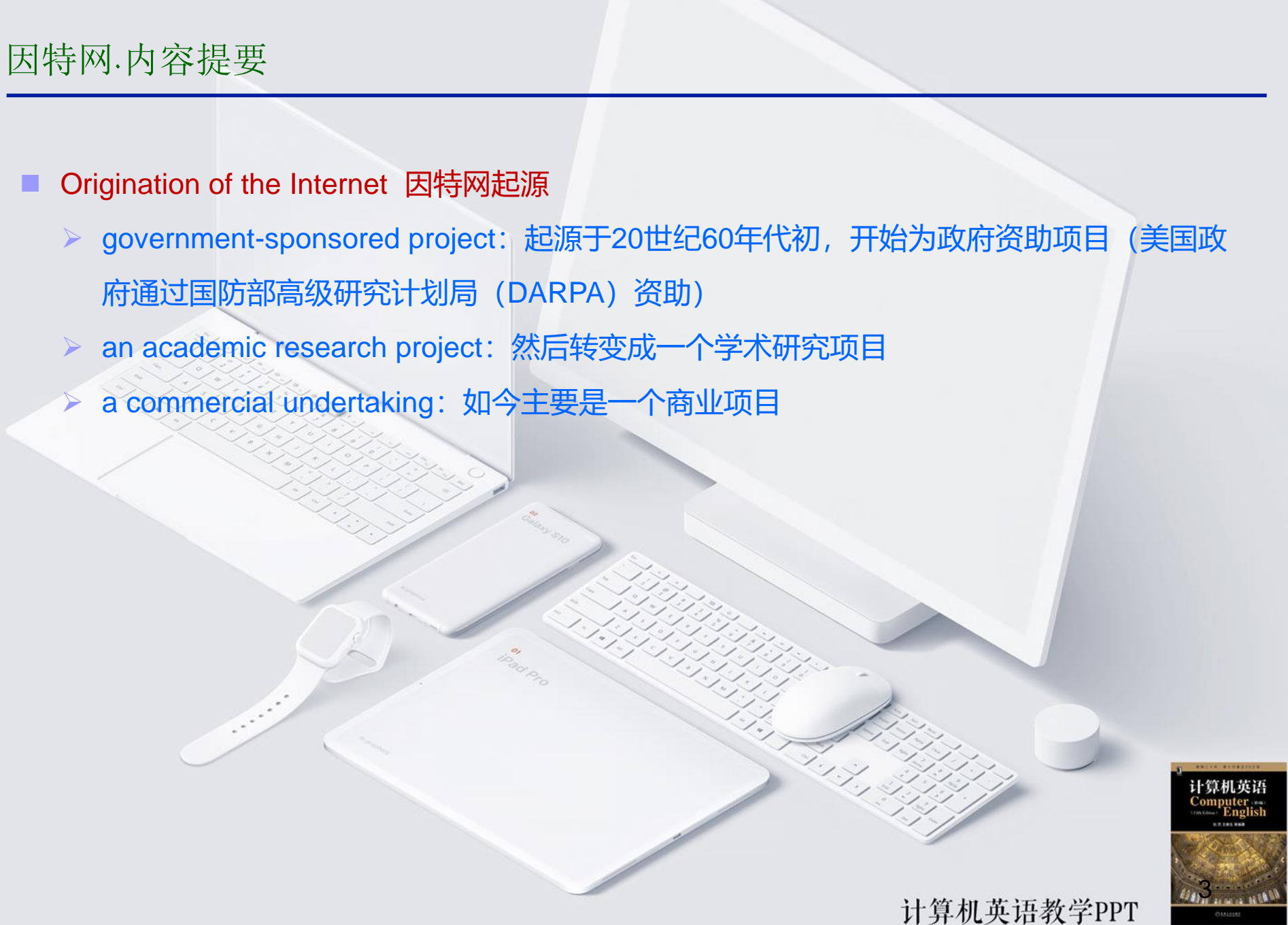


计算机英语教学PPT



■ Origination of the Internet 因特网起源

- government-sponsored project: 起源于20世纪60年代初, 开始为政府资助项目 (美国政府通过国防部高级研究计划局 (DARPA) 资助)
- an academic research project: 然后转变成为一个学术研究项目
- a commercial undertaking: 如今主要是一个商业项目



■ Internet Architecture 因特网体系结构

➤ Internet Service Providers (ISPs) : 因特网服务提供商, 构建和维护组成因特网的各种网络; 也指其提供的网络

✓ tier-1 ISPs: 第一层 ISP, 因特网的主干

✓ tier-2 ISPs: 第二层 ISP, 连接第一层 ISP, 比其能力弱些、具有区域性

因特网核心

✓ tier-3 ISPs (access ISPs) : 第三层 ISP (接入 ISP), 接入作为因特网通信基础设施的第一、二层 ISP, 向家庭和企业提供因特网接入服务

✓ end systems: 终端系统, 用于个人用户连接到接入ISP, 主要连接技术包括:

- wireless connections (WiFi) 无线连接
- telephone lines or cable/satellite systems 电话线或有线电视 / 卫星系统

■ Internet Addressing 因特网编址

- IP address: IP 地址, 难记, 不好用
- mnemonic names: 助记名, 基于域 (domain) 的概念, 便于记忆使用, 但消息总是通过 IP 地址在因特网上传输。用助记名标识地址发送消息, 首先要将助记地址转换成 IP 地址。
 - ✓ domain name 域名
 - edu → 教育机构
 - com → 商业机构
 - gov → 政府机构
 - org → 非营利机构
 - ✓ top-level domains (TLDs) 顶级域名
 - ✓ country-code TLDs 国家代码顶级域名
 - au → Australia
 - ca → Canada

语言点聚焦



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- The goal was to develop the ability to link a variety of computer networks so that they could function as a connected system that would not be disrupted by local disasters. 其目标是发展一种能力，将各种计算机网络连接起来，使它们能够作为一个不会因局部灾难而瓦解的互联系统运行。

disrupt: v. 扰乱；使中断 → disruption: n. 扰乱；中断 → disruptive: a. 扰乱性的，制造混乱的

- a bunch of collisions and noise that will disrupt the entire network (7B/I) 将会扰乱整个网络的大量冲突和噪声
- Another form of service denial is the disruption of an entire network. (10A/II) 拒绝服务的另外一种形式是扰乱整个网络
- A network worm could implant Trojan horse programs or perform any number of disruptive or destructive actions. (10C/II) 网络蠕虫可以植入特洛伊木马程序或实施任何数量的扰乱性或破坏性行为。

- today it is largely a commercial undertaking that links a worldwide combination of PANs, LANs, MANs, and WANs involving millions of computers. 如今，它在很大程度上是一个商业项目，连接着全世界的个人域网、局域网、城域网和广域网，涉及无数计算机。

undertaking: n. 任务；事业

- Organizing the show has been a massive undertaking. 组织那场演出是一项浩大的工程。
- It is basically a social undertaking. 这基本上是一项社会事业。

- It is also customary to use the term ISP in reference to the networks themselves. 习惯上也使用 ISP（因特网服务提供商）这个术语来指代这些网络本身。

in/with reference to: 关于，就...而论

- I'm calling in reference to your series on prejudice. 我打电话，是关于你写的有关“偏见”的系列文章。
- I am writing with reference to your article on salaries. 就您论述薪水之文章，本人谨提笔回复。

- At the top of this hierarchy are relatively few tier-1 ISPs that consist of very high-speed, high-capacity, international WANs. These networks are thought of as the backbone of the Internet. 这个层次结构的顶部是数量相对较少的第一层 ISP，这些 ISP 由超高速、大容量的国际化广域网组成。这些网络被看成是因特网的主干。

backbone: n. 骨干（网），主干（网），基干（网）

- The manufacturing sector forms the backbone of the country's economy. 制造业构成国家经济的支柱。
- The signal processing clouds are built over the mobile networks, the Internet backbone, and various information networks at the middle layer. (12C/III) 信号处理云建立在无线网络、因特网主干及中间层的各种信息网络之上。

- Connecting to the tier-1 ISPs are the tier-2 ISPs that tend to be more regional in scope and less potent in their capabilities. 连接第一层 ISP 的是第二层 ISP, 第二层 ISP 往往在范围上更具区域性, 在能力上更弱一些。 本句属于倒装语序, 正常语序应为: The tier-2 ISPs that tend to be more regional in scope and less potent in their capabilities are connecting to the tier-1 ISPs. 主语后面跟了一个比较长的定语从句, 为避免头重脚轻, 采取了倒装形式。

potent: a. 有(效)力的, 效力大的

- It is frequently claimed that the most potent agent of change on present-day society will prove to be information technology (IT). (11A/练习-IV) 人们经常断言, 推动当今社会发生变化的最强有力因素将证明是信息技术。
- The drug is extremely potent, but causes unpleasant side effects. 这种药药效极强, 但会产生不良的副作用。

- An access ISP is essentially an independent internet, sometimes called an intranet, operated by a single authority that is in the business of supplying Internet access to individual homes and businesses. 接入ISP本质上是独立的互联网，有时也称为内联网，由一个机构运营，其业务是向单个家庭和企业提供因特网接入服务。
- Examples include cable and telephone companies that charge for their service as well as organizations such as universities or corporations that take it upon themselves to provide Internet access to individuals within their organizations. 接入ISP的例子包括收取服务费的有线电视和电话公司，以及负责向内部人员提供因特网接入服务的机构，如大学或者公司。
cable 具有“电缆”“电报”“有线电视”等意思，这里指“有线电视”，cable companies 指“有线电视公司”。take on/upon oneself 表示“把...作为责任（或义务）担当起来”“承担”，如：She takes it upon herself to speak personally with the parents of all her students. (她负起责任亲自和所有学生的家长谈话)；You mustn't take upon yourself the right to make decisions. (你无权擅自作决定)。

- The devices that individual users connect to the access ISPs are known as end systems or hosts. 个人用户连接到接入ISP的设备称为终端系统或者主机。

host: n. & v. 主机; 作...的主机

- Malicious software can be divided into two categories: those that need a host program, and those that are independent. (10C) 恶意软件分为两类: 需要宿主程序 (主机程序) 的和独立的。
- Web sites are hosted by corporate, government, college, and private computers all over the world. (8C/I) 网站由世界各地的公司、政府、大学及私人计算机作其主机 (托管) 。
- A cloud can host a variety of different workloads, including batch-style backend jobs and interactive and user-facing applications. (9A/I) 云可托管各种不同的工作负荷, 包括批处理的后端作业和交互式面向用户应用。

- These end systems may be laptops or PCs, but increasingly range over a multitude of other devices including telephones, video cameras, automobiles, and home appliances. 这些终端系统可能是膝上型计算机或个人计算机，但逐渐涵盖了许多其他设备，包括电话、摄像机、汽车和家用电器。

range: v. (在一定幅度或范围内) 变动; 漫游 (于); 涉及, 包括

- The tiger-sharks range in length from nine to fourteen (或 between nine and fourteen) feet. 虎鲨体长从9至14英尺不等。
- His talk ranged over a variety of matters. 他的谈话涉及到各种各样的事情。

a multitude of: 许多, 大量

- a multitude of people 众多的人
- a multitude of possible interpretations 许多可能的解释
- for a multitude of reasons 由于种种原因

- Perhaps the fastest growing are wireless connections based on WiFi technology. 或许，发展最快的是基于 WiFi 技术的无线连接。 本句也属于倒装语序，类似于上面的 Connecting to the tier-1 ISPs are the tier-2 ISPs that tend to be more regional in scope and less potent in their capabilities. 正常语序应为：Perhaps wireless connections based on WiFi technology are the fastest growing.。
- The area within the AP or group of APs' range is often called a hot spot 一个接入点 (access point) 或一组接入点作用范围内的区域经常称为热点。
- A similar technology is used by the cellular telephone industry where hot spots are known as cells and the “routers” generating the cells are coordinated to provide continuous service as an end system moves from one cell to another. 蜂窝电话行业也使用相似的技术，其中的热点称为蜂窝，通过协调生成蜂窝的“路由器”可以在终端系统从一个蜂窝移动到另一个蜂窝的时候提供连续服务。

- Telephone, cable television, and satellite wide area networks of the twentieth century were designed to carry analog communications, such as the human voice or pre-digital television signals. 20世纪的电话、有线电视和卫星广域网旨在传送模拟通信信号，如人类语音或数字电视之前的信号。
- Issues arising from these legacy analog linkages are often referred to collectively as the last mile problem. 这些传统模拟链接所产生的问题经常统称为最后一英里问题。 legacy主要用作名词，表示“遗产”，但也可用作形容词，表示“遗留的”“旧版本的”“老化的”，特别是指计算机软件等因使用时间过长而难以维护的。

- The main arteries of WANs, MANs, and many LANs are relatively easy to modernize with high-speed digital technology such as fiber optics, but it can be far costlier to replace the existing copper telephone lines and coaxial cables that connect these arteries to each individual home or office. 广域网、城域网和许多局域网的主干线，使用光纤等高速数字技术比较容易实现现代化，但替换将这些干线连接到各个家庭或办公室的现有铜芯电话线和同轴电缆，费用可能就要昂贵得多。costlier 是形容词 costly 的比较级。

fiber optics: n. 光学纤维，光纤；纤维光学 → fiber optic/fiber-optic: a. 光学纤维的，光纤的；纤维光学的 (fiber 是美国英语的拼写方式，英国英语使用 fibre)

- fibre-optic (或 fibre optic) cables 光纤电缆，光缆

- Several clever schemes have been developed to extend these legacy analog links to accommodate transmission of digital data. 已经开发了几种巧妙的方案，用于扩展这些传统的模拟链路，让其适应数字数据的传输。

accommodate: v. 容纳；使适应

- The new hotel can accommodate 3000 tourists. 新宾馆可容纳（接待）3000名旅游者。
- We have to accommodate ourselves to new conditions. 我们必须适应新条件。
- Originally, each IP address was a pattern of 32 bits, but to provide a larger set of addresses, the process of converting to 128-bit addresses is currently underway. 最初，每个IP地址都是32位的模式，但是为了提供更大的地址集，目前正在转换为128位地址。

- ❑ Blocks of consecutively numbered IP addresses are awarded to ISPs by the Internet Corporation for Assigned Names and Numbers (ICANN) 因特网名称与数字地址分配机构将连续编号的 IP 地址块授予 ISP。
- ❑ The ISPs are then allowed to allocate the addresses within their awarded blocks to machines within their region of authority. 然后, ISP 获准将其所得到的地址块中的地址分配给其管辖范围内的机器。
- ❑ IP addresses are traditionally written in dotted decimal notation in which the bytes of the address are separated by periods and each byte is expressed as an integer represented in traditional base 10 notation. IP 地址传统上用点分十进制记数法表示, 其中地址的字节用句号分隔, 每个字节用一个整数来表示, 而该整数是用传统的以10为底的记数法来表示的。
这里的 periods 是指英语中的句号, 即 “.” 。

- the pattern 17.12.25 would represent the three-byte bit pattern consisting of the byte 00010001 (which is 17 written in binary notation), followed by the byte 00001100 (12 written in binary), followed by the byte 00011001 (25 written in binary) 17.12.25这个模式则表示一个3字节位模式，其中依次包含字节00010001（用二进制记数法写就是17）、字节00001100（用二进制记数法写就是12）以及字节00011001（用二进制记数法写就是25）。

binary 可作形容词，表示“二进制的”，也可作名词，表示“二进制（数）”。

- Addresses in bit-pattern form (even when compressed using dotted decimal notation) are rarely conducive to human consumption. 用位模式形式表示的地址（即使采用点分十进制记数法压缩也）很难为人们所用。consumption 本意为“消耗”“消费”，这里转而表示“使用”之意。

conducive (to): a. 有助的，有益的

- Exercise is conducive to good health. 锻炼有助于增强体质。
- Chairs in rows are not as conducive to discussion as chairs arranged in a circle. 成排摆放不如成圈摆放便于讨论。



- For this reason the Internet has an alternative addressing system in which machines are identified by mnemonic names. 因此，因特网有一个替代编址系统，其中机器通过助记名来标识。
- Each domain must be registered with ICANN—a process handled by companies, called registrars, that have been assigned this role by ICANN. 每个域都必须在 ICANN 那里注册，这一过程由称为注册商的公司处理，注册商由 ICANN 赋予这种角色。registrar 表示“登记员”“注册员”，与因特网相关时指“(域名)注册(服务)商”。
- Once a domain's mnemonic name is registered, the organization that registered the name is free to extend the name to obtain mnemonic identifiers for individual items within the domain. 一旦一个域的助记名被注册，注册该名称的机构就可以自由扩展该名称，为域内的个项取得助记标识符。

- Note that domain names are extended to the left and separated by a period. In some cases multiple extensions, called subdomains, are used as a means of organizing the names within a domain. 注意, 域名是向左扩展的, 以句号分隔。在一些情况下, 称为子域的多个扩展被用作组织域内名称的手段。
- These subdomains often represent different networks within the domain's jurisdiction. 这些子域经常代表域管辖范围内的不同网络。
jurisdiction: n. 司法权; 管辖权; 管辖范围
 - The governor had no jurisdiction over commodity prices. 州长无权管理商品价格。
 - The case is under the jurisdiction of this court. 那宗案件属于本法庭受理范围。
- the dotted notation used in mnemonic addresses is not related to the dotted decimal notation used to represent addresses in bit pattern form 助记地址中使用的点分表示法与用于以位模式形式表示地址的点分十进制记数法没有关系。

- This conversion is performed with the aid of numerous servers, called name servers, that are essentially directories that provide address translation services to clients. 这种转换是在许多称为名称服务器的服务器帮助下完成的，这些服务器本质上是向客户端提供地址转换服务的目录。
- The process of using DNS to perform a translation is called a DNS lookup. 使用 DNS (domain name system, 域名系统) 进行转换的过程称为 DNS 查找。
- However, many individuals or small organizations want to establish a domain presence on the Internet without committing the resources necessary to support it. 然而，许多个人或者小型机构想在因特网上建立域，但又不想投入支持域所需的资源。 establish a domain presence on the Internet, 就是在因特网上找到我也建立了域的存在感。

- In this case, they can contract with an access ISP to create the appearance of a registered domain using the resources already established by the ISP. 在这种情况下, 他们可以和接入 ISP 签订合同, 使用该 ISP 已经建立的资源来实现一个注册域。 create the appearance of a registered domain, 就是做到似乎建立了一个注册域的样子, 看起来像有一个注册域。
- In this way, many registered domains can reside within a single ISP, each often occupying only a small portion of a single computer. 通过这种方法, 许多注册域得以驻留在一个 ISP 内, 每个注册域经常只占用一台计算机的一小部分空间。

reside: v. 驻留, 常住 → resident: a. 驻留得, 常住的

- resident control program 常驻控制程序
- memory-resident program 内存驻留程序
- In these cases, many programs and blocks of data must reside in main memory concurrently. (2B/II-3) 在这些情况下, 许多程序和数据块必须同时驻留在主存中。

知识扩展



计算机英语翻译

三、增词与减词

在英译汉中，译文增添或者省略一些词，是为了更好地表达原文的意思，更便于读者理解原文，并使译文符合汉语的习惯。但是，要注意，增加的词必须是原文应有之意，不能离题发挥；省略的词必须是译文中确实不需要表达的，不能损及原文的意思。

(一) 增词

增词的情况包括：传达原文中的复数概念、传达原文中的时态概念、恢复原文中的省略、增加汉语的量词，以及为符合汉语习惯而作的其他必要增加。

□ 例句1

For years, object-oriented technology was perceived as elitist, requiring a substantial investment in training and infrastructure. 多年来, 面向对象技术被认为是精英技术, 要求在培训和基础设施方面进行可观的投入。

英语的复数概念基本上可以通过词的形态变化表现出来, 而汉语则没有这种手段, 因此常常需要通过增词来传达原文中的复数概念。再比如:

In the 1940s, scientists at Bell Telephone Laboratories invented a tiny electric switch called the transistor. 20世纪40年代, 贝尔电话实验室的科学家们发明了一种称为晶体管的微型电气开关。

□ 例句2

No language is simple, but Java is a bit easier than the popular object-oriented programming language C++, which was the dominant software-development language before Java. 语言没有简单的, 但 Java 比 C++ 这种流行的面向对象程序设计语言要容易点。在 Java 之前, C++ 曾是占支配地位的软件开发语言。

这是通过增词传达原文时态概念的例子。原因同样是英汉两种语言的一个本质差异, 即英语靠形合, 汉语靠意合。译文要靠增词来传达原文凭借词形变化就表达了的概念。

□ 例句3

Some people treat e-mail informally, so they rarely revise (though they should). 有些人视电子邮件为非正式交流方式, 因此他们很少修改 (尽管他们应该这样做)。

为了行文简练, 避免重复, 英语根据其语法规则常常省略某些词语。翻成汉语时, 有时得恢复省略的词语, 否则可能造成译文不通顺或意思欠缺。在这句话中, should 后面省略了 revise 们可以译成“应该这样做”或“应该修改”。



□ 例句4

It would be easy to assume that computers will all be able to work together once they have broadband connection. 人们很容易认为：计算机一旦有了宽带连接，就能全部具备协同工作的能力。

这句话中的 it 是形式主语，真正主语是 that 引导的从句，原来的结构应该是 That computers will ... connection would be easy to assume，实际上带有被动含义。我们翻译时将其处理成了主动句，增加了泛指“人们”来作主语。

□ 例句5

The CPU executes the instruction, and the results are stored in another register or copied to specific memory locations via a bus. 中央处理器执行指令，产生的结果存储在另一个寄存器中，或者通过总线复制到特定的存储单元。

译文增添了“产生的”三个字比不增添读起来更顺畅。

(二) 减词

减词的情况包括：人称代词有时不必译（包括泛指的你 you）、冠词有时不必译、部分介词和连词不必译，以及为符合汉语习惯而作的其他必要删减。

□ 例句1

When she is writing her flowcharts or pseudocode, she should review them with an eye toward test cases and make notes of the cases she needs. 当她编写流程图或伪代码时，应该以面向测试用例的眼光复审它们，并记下她所需要的用例。

英语求形合，句中逻辑关系很严密；汉语求意合，句中逻辑关系往往不言自明。因此，英语中通常需要或不能缺少的人称代词（特别是人称代词的所有格形式），汉译时常常可以省略，而且不省略反而显得别扭。最典型的是放在人身体组成部分前的人称代词，如：

She put up her hand to show that she knew the answer. 她举手示意她知道答案。

□ 例句2

The challenge for software engineers is to develop techniques that will enable both customers and developers to know what changes have been made and how those changes manifest themselves within the software. 软件工程师面临的挑战是，要开发相关技术，使客户和开发者均能知道已经作出哪些改变，以及这些改变在软件中是如何显现的。

如本句所示，英语中作宾语的反身代词往往不需要翻译。

□ 例句3

Computer programs are sets of instructions that tell a computer what to do. 计算机程序是告诉计算机做什么的一套指令。

本句的不定冠词没有必要翻译出来。这样，译文更简洁，更顺畅。为了把 sets 的意思表达出来，我们将 sets 作单数处理了，译成了“一套”。相应地，我们在译文中没有明确地把 computer programs 作复数处理。



□ 例句4

In the design phase, the systems are determined, and the design of the files and/or the databases is completed. 设计阶段需要确定系统，完成文件和 / 或数据库设计。

在汉语中，并列成分不加连词，其逻辑关系也常常很清楚。本句中，the systems are determined 和 the design of the files and/or the databases is completed 为两个并列的分句，翻译时我们去掉了并列连词 and。另外，我们还对句子结构进行了变通，使其更符合汉语习惯。