

高职高专计算机系列规划教材

计算机专业英语

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北京工业大学出版社

内 容 提 要

计算机专业英语综合了计算机知识和英语运用能力,是计算机学科的一门重要工具课。本书旨在使读者掌握计算机专业英语术语,培养和提高读者阅读和笔译专业英语文献资料的能力。

本书按计算机知识的结构层次编写,分为计算机引论、计算机编程基础、多媒体技术、网络与电子商务和计算机新技术 5 部分。内容涵盖了计算机基础知识、硬件、软件、电脑病毒、程序设计、数据库、系统分析及设计、图像处理、多媒体、网络、电子商务及计算机新的发展领域。

单元编排内容包括:课文、生词和词组、难句分析、译文、习题、补充材料及语法知识。书末附录包括单词短语索引、计算机缩略语及科技英语写作要点,方便读者查阅。

本书适合高职高专学校计算机应用及相关专业学生使用,也可供自学者和计算机爱好者使用。

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北京工业大学出版社出版发行

邮编: 100022 电话: (010) 67392308

各地新华书店总经销

徐水宏远有限公司印刷

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2005 年 6 月第 1 版 2005 年 6 月第 1 次印刷

787 mm×1 092 mm 16 开本 印张 18.375 字数 470 千字

印数: 1~5 000 册

ISBN 7-5639-1525-7/T·259

定价: 26.00 元

前 言

计算机技术是当今社会最具生命力的技术之一，而英语是了解国外科技发展动向和进行国际学术交流的重要工具。因此，对计算机专业技术人员的外语水平就有较高的要求。然而计算机科学和技术的发展极其迅速，它所包括的学科越来越庞杂，知识的更新速度也越来越快，因此在本书的文章选取上，尽可能着重反映这一学科的基本框架和某些最新发展。

本书在参考国外最近几年计算机科学各个领域的教材、专著、论文和网络信息的基础上，按照“系统、新颖、实用”的原则，并根据计算机知识的结构层次来精心安排课文内容。

本书分 5 个部分，共 12 个单元。

第一部分：计算机引论。包括计算机基础知识、硬件、软件、电脑病毒。

第二部分：计算机编程基础。包括程序设计、数据库技术、系统分析与设计。

第三部分：多媒体技术。包括图形图像处理、多媒体技术。

第四部分：网络与电子商务。包括网络技术、电子商务。

第五部分：计算机新技术。反映 21 世纪计算机最新技术和应用的内容。

本书每一单元后的内容编排也很全面实用。生词和词组是最基本的，必须掌握；难句分析有助于读者理解句子的意思并学会分析方法；习题有利于对本单元内容进行巩固；阅读材料包含与本单元内容相关的专业知识；12 篇语法知识涵盖了所有的语法知识点。

本书内容通俗易懂，实用性强。读者在学习计算机专业英语的同时，也可以直接用英文循序渐进地学习计算机方面的专业知识。本书适用于高等院校计算机专业英语教学使用，也可以作为广大计算机和英语爱好者的自学用书。

本书主要由匡松、卫丹、何嘉、王超、李浩、何峥编写。在编写过程中，参阅了不少国内外文献，编者谨向这些文献的作者表示衷心的感谢。

由于编者水平有限，书中不足之处在所难免，敬请各位读者和专家指正。

编 者

2005 年 6 月

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第一部分 计算机引论

Unit One

Introduction of Computers

Text A Evolution of Computer

The advancements in computer technology are divided into four time periods called generations.

First Generation Computers

The first generation of computers lasted from 1951 until 1958. They were large, costly to buy, expensive to power, and often unreliable. It was during this period that symbolic languages were developed. Symbolic languages use symbols made up of letters and numbers to stand for the 0s and 1s of machine languages. For example, ADD may stand for addition. Computer instructions written in symbolic languages were easier for people to use than machine languages.

Second Generation Computers

The second generation of computers spanned the years from 1959 through 1964. The most notable change was that transistors replaced vacuum tubes. As a result, computers became much smaller, faster, and more reliable and efficient. Next, second generation computers were given auxiliary storage, sometimes called external or secondary storage. The use of auxiliary storage ended the limitation on how much data the computer could store and reduced the use of punched cards. Using magnetic tapes for input and output operations increased the speed of the computer. Finally, improvements were made in the symbolic programming languages. New languages were more like English than the earlier ones, making programming the computer much easier.

Third Generation Computers

The third generation of computers lasted from 1965 to 1970. During this time, technology continued to improve and computers became even smaller, while their memory capacities became larger. The third generation is marked chiefly by the development of integrated circuits, which replaced transistors. With integrated circuits, hundreds of electronic components could be included on one silicon chip less than one eighth inch square. A number of other developments characterized this period. For example, minicomputers were introduced. These machines had many of the same capabilities as large computers, but they were much smaller, had more storage space, and cost less. Another development was the use of remote terminals, so input/output devices can be

electronically linked to a main computer but located at some distance from it.

Fourth Generation Computers

The period for the fourth generation of computers is given from 1971 to the present. Chip circuit has become increasingly miniaturized in fourth generation machines circuits. Large scale integration (LSI) circuits, featuring thousands of electronic components on a single silicon chip, became common during the 1970s. From large scale integration (LSI) technology, comes the microprocessor, the small "computer on a chip". Microprocessor chips can manage the functions of the computer, perform calculations, and control other devices just as large computers can. The combination of the microprocessor and other densely packed chips used for storage and input/output operations forms a microcomputer. Modern microcomputers have more powers than the large computers of earlier generations. LSI has already progressed into VLSI (very large scale integration), which means even more capabilities in even smaller packages.

【Vocabulary】

electronic <i>adj.</i> 电子的	link <i>vt.</i> 连接
evolution <i>n.</i> 发展	memory <i>n.</i> 存储器, 内存
generation <i>n.</i> 代	LSI (large scale integration) <i>n.</i> 大规模集成电路
install <i>vt.</i> 安装	dense <i>adj.</i> 密集的
instruction <i>n.</i> 指令	pack <i>vt.</i> 捆扎, 包装
symbolic <i>adj.</i> 符号的	package <i>n.</i> 组件
span <i>vt.</i> 跨越	microcomputer <i>n.</i> 微型计算机
efficient <i>adj.</i> 效率高的	VLSI (very large scale integration) <i>n.</i> 超大规模集成电路
media <i>n.</i> 媒介, 媒体	miniaturize <i>vt.</i> 使小型化
auxiliary <i>adj.</i> 辅助的	punched card 穿孔卡片
capacity <i>n.</i> 容量	vacuum tube 真空管
program <i>n.</i> 程序	magnetic tape 磁带
silicon chip <i>n.</i> 硅片	integrated circuit 集成电路
characterize <i>vt.</i> 表示……的特性	remote terminal 远程终端
minicomputer <i>n.</i> 小型计算机	
capability <i>n.</i> 能力	

【Notes】

1. It was during this period that symbolic languages were developed.

译文：正是在这个时期，符号语言得到了发展。

知识点：这是一个强调句，结构为“*It is (was) + 被强调部分 + that (which, who) + 从句*”。这个结构可用来强调主语、宾语或状语，被强调部分指人时连接词要用 *who*，指物时用 *that*（有时也用 *which*）。本句是强调状语部分，强调状语时要用 *that*，而不能用 *when* 或 *where* 等。

2. *data* 和 *media* 为复数形式，在计算机英语中常见的词，其原形分别是 *datum* 和 *medium*。

3. Large scale integration (LSI) circuits, featuring thousands of electronic components on a single silicon chip, become common during the 1970s.

译文：20 世纪 70 年代，以在单个硅片上集成成百上千个电子元件为特色的大规模集成电路已变得很普及了。

知识点：句中 featuring 分词作非限制性定语，相当于一个非限制性定语从句，并通过逗号分开。在此句中，其作用接近于同位语。

4. New languages were more like English than the earlier ones, making programming the computer much easier.

译文：新的语言比以前任何一种更像英语，从而用计算机进行程序设计就变得更加容易了。

知识点：(1) more like ... than ... 翻译为“比……更像……”。形容词的比较级一般是用一个连词 than 引起的状语从句来表示和什么相比。为了避免重复，从句中的某些成分可以省略，只把相比的成分保留突出。(2) “the+形容词比较级+名词”表示“更……的一个或一类”，比如 the earlier ones, ones 指代 languages。

【Reference Translations】

第一课 计算机的演变

计算机技术的发展被分成 4 个阶段，称为“代”。

第一代计算机

第一代计算机从 1951 年持续至 1958 年。这一代的计算机体积大、价格昂贵、启动费力且常常不可靠。正是在这个时期，符号语言得到了发展。符号语言用字母和数字组成的符号来代表机器语言的 0 和 1 状态。例如，ADD 代表加法。用符号语言写的计算机指令比用机器语言写的指令对人们来说要好用一些。

第二代计算机

第二代计算机跨越了 1959 年到 1964 年这个阶段。最显著的变化是晶体管代替了真空管。结果，计算机变得更小、更快、更可靠、更高效了。其次，第二代计算机有了辅助存储器，有时也叫做外存或二级存储器。辅助存储器的使用结束了在计算机上存储数据量的限制并减少了使用穿孔卡的次数。用磁带来进行输入和输出的方式提高了计算机的运行速度。最后，符号程序设计语言也得到了改善。新的语言比以前任何一种都更像英语，从而用计算机进行程序设计就变得更加容易了。

第三代计算机

第三代计算机从 1965 年持续至 1970 年。在此期间，技术继续得到改善，同时计算机体积变得更小，而其存储容量变得更大了。第三代计算机的主要标志是集成电路的发展，集成电路取代了晶体管。有了集成电路，成百上千的电子元件可以被集成在一块不到 1/8 平方英寸的硅片上。一些其他的发展也成为这个时期的特色。例如，产生了小型计算机。这些机器与大型机相比有着许多相同的能力，但它们体积更小，存储容量更大而且更便宜。另一个发展是远程终端的使用，即把一些远离主机的输入输出设备通过电子线路与主机联系在一起。

第四代计算机

第四代计算机所处的阶段是从 1971 年至今。在四代机中，芯片电路已日益小型化。20

世纪 70 年代,以在单个硅片上集成成百上千个电子元件为特色的大规模集成电路已变得很普及了。由大规模集成技术而产生了微处理机,即“ 在一块芯片上的小型计算机 ”。微处理器芯片能管理计算机的操作,执行运算,控制其他设备,就像大型机所能做的那样。微处理器和其他用于存储和输入输出操作的高密组件组合而成了微机。现代的微机比早期的大型机有更强的功能。大规模集成电路已发展成了超大规模集成电路,这意味着在更小的组件里有更强大的能力。

Text B Social Impact Characteristics of Computer Technology (1)

It is not difficult to get computer professionals to agree that computers have a significant

impact on society. It is rather more difficult to get them to agree on why they impact as they do. This paper discusses several characteristics of computer technology that may be at the center of the effects. It is intended that this list become a focal point around which the design of new technology can revolve, in order to anticipate the social consequences of a new product and mitigate any potential negative effects it may have on society.

Traditionally, courses that deal with computers and society issues focus primarily on enumerating the various ways in which computers impact society. This is done by listing categories of topics such as privacy, computers in medicine, military use of computers, etc. Classic cases of computer abuse or errant systems are typically described in detail, as a way of simply making students more aware of how computers affect society. These examples are meant to serve as warnings to future professionals, in the hopes that they will practice their profession with greater care.

What is missing from these discussions, however, is why computers have the impact they do on society. What are the characteristics that are the root of this impact? Are there fundamental differences between this technology and others that have transformed our world in the past? The intent of developing a list of these characteristics is that it could lead to a better understanding of the nature of the social impact of computers. In this way, it might be possible to examine a new computer project at the time of its design (not, as is the usual case, a long time after the project has been implemented and disseminated) to determine its potential impacts as a social change agent.

The characteristics given below are not necessarily unique to computer technology. However, in many instances computers have created situations that were previously impossible to accomplish (such as space flight), were essentially inconceivable until the technology was applied, or at least were very difficult to achieve without the aid of computer technology. Furthermore, even though other technologies may have had impacts similar to computers in many ways, computer technology has greatly amplified their effects to the point of entirely overshadowing any previous technology's impact.

Finally, the term computer technology is meant to be inclusive of any device that is essentially controlled by a basic computer (CPU, program, etc.). This would include, therefore, modern telephones, VCRs, microwave ovens, CAT scanners, supermarket scanners, and the like.

The following are in no particular order. Also, some devices or examples are likely to fit into more than one of the categories below:

1. Accessibility

Access to information continues to increase at hard to believe speeds. To begin with, the vast quantities of information available on-line (through, for instance, the Internet) appear to be growing exponentially. In addition, we now have unprecedented accessibility to information and communications from nearly anywhere we happen to be. Next, information is available to an unprecedented number of people. Finally, the promises of the "information superhighway" to open up new lanes of access, including text, voice, graphics, and video increases the types of information to which we have access to include all media.

2. Temporality

Computers have several effects on time and the timeliness of information. It seems that computer technology is to blame in large part for the "speed up" of modern society — everything has to get done faster, be there sooner, be available immediately. Another form of temporality in computer systems is that information can be retained over long periods of time, even when they appear to have been destroyed (consider the classic case of Col. Oliver North). There is little reason that information should be entirely lost any more, even due to accident. And it is reasonable to suspect that every scrap of information generated today will be available virtually forever. Another temporal shift for which computers have been responsible is that people who work together do not necessarily have to do so at the same time. Finally, services and information are more frequently available on a 24-hour basis. This allows people to request a service or seek information when it fits their schedule, rather than when it fits the service provider's schedule.

【Vocabulary】

professional *n.* 专业人员 *adj.* 专业的
 significant *adj.* 重要的
 characteristic *n.* 特性, 特点
 technology *n.* 工艺, 科技
 intended *adj.* 故意的, 有意的
 revolve *v.* (使)旋转, 考虑
 anticipate *vt.* 预期, 预见
 consequence *n.* 结果, 因果关系
 mitigate *v.* 减轻
 negative *adj.* 否定的, 消极的
 enumerate *v.* 列举
 errant *adj.* 不定的, 错误的
 transform *vt.* 转换, 改变
 disseminate *v.* 散布
 unique *adj.* 惟一的, 独特的

aid *n.* 帮助
 amplify *vt.* 放大
 overshadow *v.* 遮蔽, 使...失色
 inconceivable *adj.* 不能想像的
 accessibility *n.* 易接近, 可到达的
 exponentially *adv.* 指数的, 幂的
 unprecedented *adj.* 空前的
 superhighway *n.* 超级高速公路
 temporality *n.* 此时, 暂时
 suspect *v.* 怀疑, 猜想
 temporal *adj.* 时间的, 现世的
 agree on 对...达成协议
 be aware of 知道, 意识到
 at the same time 同时, 但是

【Notes】

1. VCR (abbr. Video Cassette Recorder): 录像机

CAT scanner: 计算机 X 射线轴向分层造影扫描机。CAT scan: 计算机 X 射线轴向分层造影扫描图。

2. It is rather more difficult to get them to agree on why they impact as they do.

译文: 要让专家们就计算机影响社会的原因达成一致, 就很困难了。

知识点: rather 在这句话中是修饰比较级 more difficult。除了 rather 之外, 能够修饰比较级的词语还有: much, a lot, far, a little 等。对于 rather 这个词语本身, 还有些其他值得注意的要点: a. rather 通常修饰表示否定意思的词, 或本身为否定意义的词; b. rather 不仅可以放在比较级后面还可以放在 too 后。

3. ...in order to anticipate the social consequences of a new product and mitigate any potential

negative effects it may have on society.

译文：以此来预见新产品的社会影响，并减轻新产品可能对社会造成的任何负面影响。

知识点：in order to 意为“为了”，若后面改为 that 则后接从句。与其同义的短语还有 so as to、for the sake of。

4. These examples are meant to serve as warnings to future professionals, in the hopes that they will practice their profession with greater care.

译文：其实这些例子只是当作给学生将来工作后的警示，希望他们以后在自己的工作岗位上多留心。

知识点：mean to 意思是“有意做某事，打算做某事”，后接动词原形；in the hopes 意思与 mean to 类似，但后接 that 引导的从句。

5. What is missing from these discussions, however, is why computers have the impact they do on society.

译文：而真正值得讨论的是为什么计算机会影响社会。

知识点：however 是插入的连词。What is missing from these discussions 整个做主语为主语从句，而 be 动词 is 后面 why computers have the impact they do on society 整个做表语为表语从句。当疑问句做从句，做复杂句中的某个成分时，需要改为陈述语序。

6. Also, some devices or examples are likely to fit into more than one of the categories.

译文：而且一部分机器或例子还不一定只适合一类技术。

知识点：likely 表示“可能”，容易与其混淆的单词有 possible, probable。这三个单词的用法基本相同，表意也都是“可能的，有希望的”。但是实现的可能性依 possible, likely, probable 的顺序越来越大。

【Reference Translations】

第二课 计算机技术对社会的影响特征（1）

要让计算机专家认同计算机对社会有很重大的影响并不难。但是，如果要让他们说明为什么能够产生如此大的影响，那就很困难了。这篇文章就是讨论一些起主要作用的计算机技术特点。这个列表将集中讨论新的计算机技术，以此来预见新产品的社会影响，并减轻新产品可能对社会造成的任何负面影响。

传统上来说，处理计算机和社会问题的论题最初都集中在列举计算机影响社会的各个方面，主题都是例如隐私、医药、军事使用等方面的影响。像计算机滥用或错误系统，这些典型案例总是描述的很详细，仅仅为了让学生更加注意到计算机是怎样影响社会的。其实这些例子只是给学生将来工作的警示，希望他们以后在自己的工作岗位上多留心。

而真正该讨论的是为什么计算机会影响社会。影响的根源有什么特点？这种技术与过去改变世界的其他技术有什么根本的区别吗？把这些特点进行列表的目的，是让人们对计算机影响社会的特性有更好的理解。这样，计算机才有可能在一个新的项目设计的时候就得到检验（如果不是这样的话，按平常的情况来看，检验都是在这个项目完成甚至传播开来以后），以此来决定它对社会潜在的影响。

虽然以下给出的特点都不一定是计算机技术独有的，但是迄今为止，计算机已经创造出很多以前不可能完成的事情（如宇宙飞船），或者在技术应用之前都不可想象的。至少，很多

事情在没有计算机技术协助下是很难实现的。而且，即使其他技术可能用很多方式对计算机技术产生了细小的影响，计算机技术对完全掩蔽以前技术的影响的方面很大程度上扩大了影响。

最后，计算机技术是任何由基本计算机（CPU，程序等）控制的机器都包含的。因此，这就包括现代电话机、录像机、微波炉、CAT 扫描仪、超市扫描仪以及类似的东西。

以下的特点没有特定的顺序，而且一部分机器或例子还不一定只适合一类技术。

1. 可访问性

对信息的访问仍然在以难以置信的速度增长。开始，大量可访问的在线信息（比如通过因特网）大批量的出现，并且，我们现在可以访问几乎任何地方的信息和对话。之后，这些信息对绝大部分人都是可获取的。最后，承诺的“信息超级高速公路”的开通提供了新的访问途经，包括文本、语音、绘图和影像，增加了我们获取信息的途径种类，几乎包括了所有的媒介。

2. 时间性

计算机对时事或有时序的信息有多种的影响。似乎计算机技术在责怪现代社会的速度——每件事都要求做的更快、完成的时间更早，或马上见效。计算机系统的时间性的另一种表现形式，就是能够长时间的储存信息，就算信息已经被损坏（请见 Col. Oliver North 经典事例）。如无意外，信息基本上是不可能被遗失的。有理由相信任何一条今天处理的信息永远有效。还有一件与计算机有关的时间性问题是，一些在一起工作的人没必要在同一个时间工作。最后，现在服务和信息越来越多是 24 小时制的，这就可以让人们按自己的计划而不是服务提供者要求服务或搜索信息。

Text C Social Impact Characteristics of Computer Technology (2)

3. Ubiquity

It is perhaps stating the obvious that computers appear to be everywhere today. Even when we don't encounter them directly in their various forms of modern convenience devices, such as digital

watches, microwave ovens, VCRs, and the like, we generate transactions that are processed via computers without actively doing anything: the utility companies are recording our usage, the phone company records incoming calls, our answering machine might be recording a message while we are doing something else, someone is performing a credit check on us, etc.

4. Magnification

Computers tend toward magnification in several different ways. First, the explosion of the availability of information is due in large part to the computer's ability to generate, collect, and store an ever increasing amount of raw data. Since the ability to create and collect data is growing exponentially, so too is the generation of information that can be synthesized from this data. Second, the types of negative impacts a single error can have grown enormously with computer technology. Finally, the number of people directly affected by a system error has also grown enormously, where a single software system literally can affect millions directly.

5. Spatiality

Computers have done more to shorten distances than any previous technology, even the supersonic jet. It is possible to send large amounts of data, messages, video, etc. virtually anywhere in the world via networks such as Internet. Long distance learning, using information databases or video feeds of courses via satellite, is a reality for a growing portion of our modern society. We can now even be on the move when we talk with someone on the phone, or receive a fax.

6. Surveillance

Is there any doubt that computers have made surveillance easier than at any time in history? In addition to the usual surveillance equipment such as cameras and microphones, transactional data is increasingly being collected for virtually all types of transactions, even cash purchases and the acquisition of services. There has even been discussion by the government of using a universal health card in the US toward a national identification card.

7. Illusion of Precision

It is not difficult to make many (perhaps even most) people who are not in the computer field believe that any numeric result generated by a computer is correct. Those not well versed in the hardware of computers have little understanding of the fact that numbers must be converted back and forth between decimal and binary forms, or that there is a limitation on the accuracy of numbers due to memory constraints. As a result, they willingly accept values generated by a computer as infinitely accurate.

Conclusion: The characteristics described above are factors in the social impact of computer technology. For most there is at least anecdotal evidence of their existence (with seemingly countless examples). For some, there is also experimental evidence. It has finally become widely accepted that technology is not value neutral, as originally thought. By examining this list and using it as a set of landmarks for evaluating new systems, it may be possible to better anticipate the social impact of new systems, prior to their dissemination. Perhaps this will help achieve the development of what some have called a Social Impact Statement, which is intended to be analagous to the Environmental Impact Statements required by the Environmental Protection Agency prior to most building projects.

【Vocabulary】

ubiquity <i>n.</i> 到处存在, 普遍存在	finalize <i>v.</i> 把(计划稿件等)最后定下来
microwave <i>n.</i> 微波	co-opt <i>vt.</i> 选举, 指派
perform <i>vt.</i> 执行	versed <i>adj.</i> 精通的
oven <i>n.</i> 烤箱, 烤炉	decimal <i>adj.</i> 小数的, 十进制
magnification <i>n.</i> 扩大, 放大倍率	binary <i>adj.</i> 二进位的, 二元的
synthesize <i>v.</i> 综合, 合成	constraint <i>n.</i> 约束, 强制
literally <i>adv.</i> 照字面意义, 逐字地	willingly <i>adv.</i> 自动地
spatiality <i>n.</i> 空间性	anecdotal <i>adj.</i> 轶事的, 轶事一样的
process <i>vt.</i> 处理, 加工	neutral <i>n.</i> 中立者
supersonic <i>n.</i> 超声波, 超声频	landmark <i>n.</i> 里程碑, 划时代的事
surveillance <i>n.</i> 监视, 监督	back and forth 来来往往地, 来回地
network <i>n.</i> 网络	at least 至少
acquisition <i>n.</i> 获得, 获得物	prior to 在……之前
universal <i>adj.</i> 普遍的, 世界的	

【Notes】

1. ...we generate transactions that are processed via computers without actively doing anything.

译 文：我们也会无意识的去做一些需要电脑来完成或处理的事。

知识点：via 意思等同于 through、by way of “经由、取道于”，或 by means of “以……为媒介（方式）”。

2. First, the explosion of the availability of information is due in large part to the computer's ability to...

译 文：首先，信息实用性的迅速增长很大程度上归功于计算机的能力。

知识点：due 是个含义很多的单词，有形容词、副词和名词三种词性。最常见的是形容词的两种用法：a. 与 to 连用，归功于，应给的。如：Our thanks are due to him. 我们要感谢他。b. 与 for 连用，适当的，合适的。如：I am due for a rise in pay. 我应该提工资了。

3. Finally, the number of people directly affected by a system error has also grown enormously, where a single software system literally can affect millions directly.

译 文：最后，受系统错误直接影响的人数也在大量增长，所谓系统错误就是单个软件会渐渐地影响到数百万软件。

知识点：the number of 一定要与 a number of 区分开来。the number of 是指……的数量；a number of 相当于 lots of 等，表示很多。

4. Those not well versed in the hardware of computers have little understanding of the fact that numbers must be converted back and forth between decimal and binary forms.

译 文：不精通计算机硬件的人，基本上不知道数据在计算机里是在十进制和二进制之间来回转换的。

知识点：have little 虽然是肯定形式，但事实上是否定。原因是单词 little 与短语 a little

表面意思是一样的“一些、一点、少许”，但表达的感情色彩不一样。little 是“还有一点、几乎是没有”，而 a little 并没有这层意思。

【Reference Translations】

第三课 计算机技术对社会的影响特征 (2)

3. 普遍性

很明显，现在计算机似乎随处可见。即使我们没有直接接触到计算机控制的各种现代仪器，比如数字钟、微波炉、录像机，我们也会无意识的去做一些需要计算机来完成或处理的事：事业公司会记录我们的业绩，电话公司会记录打入的电话，答录机会在我们做其他事情的时候记录信息，工作人员会通过刷卡来检查我们的身份等。

4. 扩展性

计算机的作用正以不同的方式扩大。首先，信息实用性的迅速增长很大程度上归功于计算机的能力——能够处理、选择、和储存大批量的原始数据，因为计算机制造和处理数据的能力，以及从数据中综合信息的能力都在成倍的增长。其次，一个单独的错误引起的负面影响也会随着计算机技术增长。最后，受系统错误直接影响的人数也在大量增加，所谓系统错误就是单个软件会渐渐地影响到数百万软件。

5. 空间性

计算机比以前任何一种技术都能“缩短”距离，甚至产生了超音速飞机。它通过网络（如因特网）将大量的数据、信息或影像等实实在在的传送到世界各个角落。通过卫星传送的信息数据库或影像来进行远程学习是当今社会一个极具增长势头的事实。我们甚至可以边走边用电话与别人进行谈话或接收传真。

6. 监督性

无可质疑的是采用计算机监督比过去任何时期的方法都要简单。事实上，除了普通的计算机监督仪器（比如照相机和电话），数据处理已逐渐应用于所有事务的处理，甚至现金购买和服务的获取。近来美国政府机关经常讨论的是，把一张普通的体检卡当成国家身份证来使用。

7. 精确度的错觉

让很多（甚至绝大多数）非计算机专业人士相信计算机处理的每个数据结果都是正确的，这并不是一件难事。不精通计算机硬件的人，基本上不知道数据在计算机里是在十进制和二进制之间来回转换的，或者不知道其精确度是受计算机内存限制的。所以，他们自然会认为计算机处理出来的数据是无比精确的。

结论：以上描述的特点都是现在计算机技术影响社会的因素。其中很大部分例子几乎不可数是来自于生活，还有部分是根据实践证明的。最后，技术具有不确定的价值性被广泛接受，就是回到了最初的想法。通过对这个列表的检验，把它作为评估新系统的标准，它能在新系统广泛应用之前，预测其对社会的影响。也许它将有助于完成所谓的“社会影响报告书”，类似于环保机构要求的建筑工程前的“环境影响报告书”。

Text D The Changing of Computer Interfaces

Let's look back into the distant past and see how peoples' concepts of how computers would be used have changed. Originally (I'm talking 1950s) it was assumed that a systems analyst would specify how the computer would be applied to a problem. This specification would be given to a programmer, who would lay out the control and data flow to implement the system. A coder would then translate the flowchart into computer code and debug the system, calling on the programmer and analyst as required. The coder's program, written on paper, would be encoded for the machine by a keypunch operator. After the program was placed into operation, it would be run by the computer operator, with data prepared by an operations department.