

甘肃省广播电视大学计算机软件专业试用教材

科技英语

纪春兰 曾光初 编译

兰州大学出版社

ENGLISH OF
SCIENCE AND TECHNOLOGY

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内 容 提 要

本书是为电子计算机应用软件专业编写的科技英语泛读教材。内容大多选自近年来英、美等国出版的有关计算机科学的书刊和文献。选材范围较广，包括数学、计算机科学系统知识；实用性较强，并附有词汇、参考译文，便于读者自学。

本书可作为数学、计算机等有关专业英语的教材，也可供数学、计算机等专业实际工作者及研究者自学和参考。

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前 言

本书是广播电视大学计算机应用软件专业（三年制）三年级学生使用的科技英语泛读教材。

全书共21篇，授课时数约为40学时。

书中的材料选自近年来国外出版的有关计算机科学的书刊，汇编而成。本书目的在于培养学生独立阅读计算机专业文献的能力。每课均附有词汇和参考译文，以便学生在理解原文有疑难时参考。

本书在编写过程中，曾得到甘肃省广播电视大学和甘肃省计算中心的大力支持和协助，兰州大学计算机科学系付教授席先觉、付教授李永礼，兰州大学数学系付教授赵双锁，甘肃工业大学自动控制系教授刘希远、付教授陈希平分别对本书进行了专业校对，并提出了许多宝贵意见。甘肃省工业大学基础部主任王柏岩给予关心和支持，甘肃省机械科学研究院总师办主任工程师王挥修也做了许多工作。我们谨向以上同志表示衷心的感谢。

由于编者教学经验有限，专业知识和语言水平不高，缺乏编写经验，加之编写时间仓促，书中一定会有不少缺点、错误，欢迎批评指正。

编 者

一九八七年五月

本书所用略语表

a. adjective	形容词
ad. adverb	副词
n. noun	名词
v. verb	动词
art. article	冠词
conj. conjunction	连接词
num. numeral	数词
prep. preposition	介词
pron. pronoun	代词

1. COMPUTER SOFTWARE

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1. COMPUTER SOFTWARE

The purpose of computer software is to make the preparation of programs easier. Perhaps in a future ideal situation, one might take programming assignments to the computer, and say to the computer, "Please solve these problems for me and notify me when you are done." The computer might then, ideally, be expected to satisfy the stated request.

The gap between this hypothetical ideal and our present status in computer science is large enough so that we do not anticipate this sort of computer usage in the foreseeable future, science-fiction novels notwithstanding. First, there is the problem of voice recognition which is itself difficult and not well understood. Second, even if the computer were able to reliably decipher spoken requests, the analysis of grammatical or quasi-grammatical English dialogue is also not yet formulated algorithmically. Third, the ability of the computer to read printed or handwritten text, possibly including figures, tables, and diagrams, is still very limited. Fourth, even assuming that all of the above problems

could be solved, we do not know how to proceed from an arbitrarily stated problem to a computer program to solve that problem. Moreover, we know that in some cases there is no program to solve a given problem as discussed in Chapter 2.

Still, despite the difficulties of realizing our hypothetical problem solver, and it remains as an ideal objective that we would hope to achieve either in this generation, or in some succeeding generation, we hope to develop tools and techniques that will simplify the process of program preparation. There are many ways in which programming has been made easier in the hardware and software dimensions, as well as in the techniques.

Briefly, in the hardware area, input has been facilitated through the use of remote entry devices thus not requiring one to go to the computer, through the use of keyboard and cathode ray display terminals eliminating the need for punched cards, and in the enlarged storage media allowing one's programs to be stored in the computer rather than be repeatedly entered. Further, the increased computing power has allowed the computer to concurrently service many

users, allowing for the development of time-sharing computing (discussed in the next chapter) which makes the computing resource more widely available.

In the software area, there have also been many advances making the computer easier to use, by having programs which do many of the algorithmically formulated tasks in program preparation. We have already seen how a richer set of control structures (Chapter 6) and data structures (Chapter 7) enhance a problem formulation language, and can in turn be algorithmically implemented in a processor for such a language.

词 汇

Software['scftwæə]

n. 软件, 软设备

Program['prougræm]

n. 程序

assignment[ə'sainment]

v. (为...)编(制)程序

notify['noutifai]

n. 赋值, 指派, 分配

Satisfy['sætisfai]

vt. 通知, 报告, 宣告

stated['steitid]

vt. 满足, 解决(困难),
达到(目标, 目的)

a. 规定的, 固定的,
定期的

hypothetical[haipou'θetikəl] a. 假设的, 假想的, 假定的, 有前提的

anticipate[æn'tisipeit] vt. 预先考虑, 预料, 期望, 超前

recognition[rekæg'nifən] n. 认出, 识别, 承认

decipher[di'saifə] n. 译码, 译解, 解释

quasi—grammatical['kwa:zi:grə'mætikəl] a. 准语法的

formulate['fɔ:mjuleit] vt. 表达, 用公式表达, 阐述

algorithmically['ælgəriθəmli] ad. 在算法上

diagram['daɪəgræm] n. 图解, 简图, 图表, 示意图

figure['figə] vt. 用图表示

figure['figə] n. 图形, 插图

figure['figə] v. 用图表示

assume[ə'sju:m] vt. 假定, 设想, 采取

arbitrarily['ɑ:bitrərili] ad. 任意地, 独立的

solver['sɒlvə] n. 解算器, 解算机

dimension[di'menʃən] n. 量纲, 因次, 元,

dimension[di'menʃən] n. 维数, 方面, 范围

entry[,entri] n. 输入, 入口

cathode[/'kæθoud]

n. 阴极

terminal[/'tə:minl]

n. 终端, 终结
符, 接头

eliminate[i/'limineit]

vt. 消除, 消去,
排除

punch[pantʃ]

v. 穿孔, 打印

2. AN OVERVIEW OF COMPUTER SOFTWARE

The term computer software is used here to describe the collection of programs which a computer system might expect to have in its library. These programs, which are generally intended for a broad class of users, are either provided by the computer system vendor, obtained through a user's group, purchased from a software developer, or written by one's own systems programming group. Most of these programs are frequently used and, therefore, reside on a direct access device such as a disk pack where they are available to a user without the need for operator intervention to physically move the program medium. Of course, as additional software is developed the size of this resident system library of programs grows, but, fortunately, so does the amount of storage that is available in direct access devices.

The software "menu" that is provided for the user thus covers a large range of programs,

and the effective use of the computer is enhanced through a familiarity with this system software library. In this section, a quick tour of the components of such a library is given, and in subsequent sections we look at several of the items in the library in more depth. We, then, summarize at the end of the chapter, an overall software perspective, in a framework which includes all of the components.

词 汇

term[tə:m]	n. 项, 条, 术语
intend[in'tend]	vt. 打算, 企图, 预定
broad[bɾɔ:d]	a. 概括的, 宽的, 明白的概括性分类, 主要分类
broad class	
vendor['vendɔ:]	n. 卖主, 厂家
purchase['pə:tʃəs]	t. 购买, 获得
reside[ri'zaid]	vi. 居住, 存在, 常驻, 保留
access['ækses]	n. 取数, 存取, 访问

- disk[disk] n. 盘, 磁盘,
- disk pack (可换式) 磁盘组
- intervention[intə'venʃən] n. 干预, 干涉
- medium['mi:diəm] n. 媒体, 存储媒体
- enhance[in'hɑ:ns] vt. 增强, 提高
- Component[kəm'pounənt] n. 元件, 元素, 部分, 成分, 组件, 部件
- subsequent['sʌbsikwənt] a. 后来的, 其次的
- framework['freimwə:k] n. 主机, 机架, 结构

3. CAN MACHINES THINK?

A great deal of discussion and argument has surrounded the question of whether a "thinking" or "intelligent" machine exists or can ever exist. One common argument is that machines do only what they are programmed to do. However, the program provides only the basic decision-making processes, these allow the machine to analyze problems, make decisions (often decisions unanticipated by the human programmer), and even learn and alter its structure based on the environment in which it has been performing. Such a machine will produce results that could not be "planned" by its human programmer.

What exactly is meant by an "intelligent" machine? In 1950, years before any working models of machines which might presume to be "intelligent" were developed, the mathematician A.M. Turing* proposed what has become known as the Turing test to determine whether a machine can think. This test takes the form of an "imitation game" played by a man, a woman, and an interrogator. Each is separated so

that the only communication among the three is the questions posed by the interrogator and the answers produced by one or both of the subjects. Both subjects attempt to convince the interrogator that they are the woman and it is the job of the interrogator to determine the real identities. For example, the interrogator might ask each subject to describe the different brands of lipstick with which the subject is familiar, which brand is preferred, and why. In Turing's article, the example he uses is "Will X please tell me the length of his or her hair?" Of course, this question is no longer used because even if the respondent answers truthfully, the answer is not conclusive.

The Turing test assigns the computer the part of the man, its job, therefore, is to "imitate" a woman and thereby cause the interrogator to make the wrong choice. Whether the machine can "think" is then related to how well it can play this imitation game.

Although machines have not yet reached the level of satisfying "Turing's test", remarkable progress has been made. Machines outperform their designers, produce elegant proofs for theorems, and learn from their experience.

词 汇

- intelligent[in'telidʒənt] a. 有智力的, 聪明的
- alter['ɔ:ltə] v. 改变, 变动, 适应
- presume[pr'izju:m] v. 假定, 以为, 胆敢, 指望
- subject['sʌbdʒikt] n. 受实验者
- imitation[imi'teɪʃən] n. 模仿, 仿造
- interrogator[in'terəgeitə] n. 讯问者, 问答机
- convince[kən'vins] v. 使确信, 使承认
- identity[ai'dentiti] n. 同一性, 一致, 恒等(式)
- lipstick['lipstik] n. 唇膏, 口红
- respondent[rɪs'pɒndənt] n. 回答者, 响应者
- outperform[autpə'fɔ:m] v. 工作性能比.....好, 运转能力优于
- elegant[e'ligənt] a. 第一流的, 优美的