

- 简述题
- 选择题
- 改译题(4)
- 中译英(2)
- 英译汉(2)

EST

## 简述题

### 1. The Definition of EST

## Lecture 1 Introduction

- 1. \*The Definition of EST (English for Science & Technology)
- EST (English for Science & Technology or Technical English or Scientific English) is a special language variety( 变体 ) widely used in the fields of science and technology. It's believed that it first came to being in the 1950s along with the rapid development of science and technology, and many researchers and scholars began to conduct investigation of this common features of this special genre( 体裁 ) including reading comprehension, writing and even translation.

[Back](#)

### 2. Stylistic Features of EST

# Lecture 1 Introduction

- 2.1 Lexical level
- 1) Numerous Technical Terms(专业术语)
- Technical terms refer to those lexicons specialized in a certain subject or area, with which laymen are unfamiliar, e.g. cryogenetics (低温学) , noepinephrine (新肾上腺素)
- Characteristics:
- A. Lengthy: mostly containing roots or affixes originating from Latin, Greek or French, etc.
- e.g. nucleonics (核子学) , semisomnus (半昏迷) , autoradiography (自动射线照相术)

# Lecture 1 Introduction

- B. Numerous compounds coined (新造) to signify the new things coming out in the science and technology
- e.g. radiophotography (无线电传真) , anti-armored-fighting-vehicle-missile (反装甲导弹)
- C. numerous abbreviations
- e.g. FM (frequency modulation 调频 ), telesat (telecommunications satellite 通讯卫星 )

# Lecture 1 Introduction

- 2) Numerous pseudo-technical ['sju:dəð] ] terms

- Everyday English  $\xrightarrow{\text{EST}}$   $\xrightarrow{\text{different senses}}$
- e.g. frame 框架 (1) 机架 (machinery) ;  
(2) 帧 (telecommunications)
- transmission (1) 发射 (radio engineerin g) ; (2) 传动、变速 (machinery) ;  
(3) 透射 (physics) ; (4) 遗传  
(medical science)

# Lecture 1 Introduction

- 2.1 Syntactic Level
- 1) Nominalization (名词化结构)
- For conciseness: abstract nouns denoting action or state + v-ing form or nominal phrases
- e.g. the transmission and reception of images of moving objects by radio waves (通过无线电波来发射和接受活动物体的图像) ;
- illumination intensity determination (照明强度测定) ;
- the generation of heat by friction (摩擦生热) ;

# Lecture 1 Introduction

- 2) Lengthy sentences and logic connectors
- For explication (将事理充分说明) , we often employ some lengthy sentences containing expressions and clauses (短语和分句) and logic connectors such as *hence*, *consequently*, *accordingly*, *however*, *on the contrary*, *as a result*, *in short*, etc.
- 3) The Present Tense and The Perfect Tense
- The stated findings and results in the essays or books can be verified and repeated.

# Lecture 1 Introduction

- 4) The Passive Voice
- Objective, less subjective, scientific, impersonal
- 5) The Antecedent (先行词) ‘it’  
Construction
- For balance of sentence structure
- e.g. It is quite useful to think of the earth and its atmosphere as being rather like an onion – that is a ball made up of layers, although unlike an onion, each layer is made of different material.

# Lecture 1 Introduction

- 6) Double or triple propositions (介词词组连用)
- Relationship of different things such as spatial and temporal relationship(时空关系), subordination(所属关系) and cause-effect relationship(因果关系) etc.
- e.g. The action of air on an airplane in flight at low altitude is greater than that at high altitude.
- 空气对于低空飞行飞机的作用力大于高空飞行的飞机。

## 3. General feature of Compound Technical Terms

- 2)\***General feature of Compound Technical Terms:**
- A. **accuracy** (确切性) :accurately reflect the nature of the concept
- B. **monosemy** (单义性) : one sense for one word
- C. **systematization** (系统性) :the individual technical terms in a given field should be in a specific level so as to constitute a common system
- D. **linguistically correct** (语言的正确性) :in accordance with the word-formation in the same language

## Lecture 3 Technical Terms in EST Translation

- E. **conciseness** (简明性) : concise and easy to remember
- F. **motivation** (理据性) : just as the name implies, one can know the meaning of the word.
- G. **stability** (稳定性) : stable and unlikely to change
- H. **productivity** (能产性) : once established, it is easy to produce more neologisms based the original one by means of word-formation

### 4. Common Rules for Technical Term Translation

- 3)\*Common Rules for Technical Term Translation
- As such, we should deal with the relationship of the following aspects:
  - A. monosemy vs. conciseness
  - e.g. 数控 in Chinese can refer to either 数值控制 (numerical control) or 数字控制 (digital control) :monosemy is the priority
  - B. motivation vs. accuracy
  - As science knowledge is rather abstract, motivation in translation is preferred. e.g. machine tool 机床
  - C. stability vs. productivity
- synchronous even pressure tamping system 同步稳压捣固系统 ——
- non-synchronous even pressure tamping system 异步稳压捣固系统
- D. systematization vs. linguistically correct
- Before translation of compound technical terms, we should be aware of the nature and tradition of Chinese word-formation.
- E.g. 铁路、铁道 railway
- 铁道部、铁道兵、铁道学院 == ? ? ?
- 铁路局、铁路医院、铁路交通  
—— Collocational regularity 搭配规律

- E. Chinese language trait vs. conciseness
- As for the numbers of characters, we prefer to use pair characters (偶数词语) or even 4-character expressions (四字结构).
- e.g. bi-stable circuit 双稳压电路→双稳电路
- \*\*dog clutch 爪形离合器 (motivation)
- rubber-metal spring 橡胶 - 金属弹簧  
橡胶 - 金属夹心弹簧
- translation standard: Yan Fu's "tri-ness": truthfulness, expressiveness and elegance

## 5. the requirements for the aesthetic orientation in EST translation

- Aesthetic criteria
- 1) Accuracy(精确美)
- 2) Parallelism (整齐美)
- 3) Conciseness/succinctness (简约美)
- 4) Sequence (有序美)
- 5) Wholeness (整体美)

- 1. Accuracy (精确美)
- EST: accurate, not ambiguous or polysemy —> the authority of written discourse
- 科技文章用词要求准确，尽量避免含糊不清和一词多义，从而烘托出书卷话语的权威气氛。
- e.g.
- clutch 离合器
- cut and cover 明挖法
- piggyback 背负式运输（指把汽车直接开到火车上运输）
- door-to-door transportation 送货上门
- walkie-talkie 步话机

- 2) parallelism: and/or
  - 科技英语的客观性、准确性和严密性要求采用合理的句子结构。如果一句话里包含两个以上的不同概念，而它们又不是同等重要时，需采用**主从结构**；反之，当一个句子有两个意义对等、相同语法功能的并列成分时，则采用**并列结构**。
- e.g.
- 1) 制造方法可分为单件生产和批量生产，单件生产指小批量的生产，批量生产指大量相同零件的生产。
- Manufacturing processes may be classified as unit production with small quantities being **made** and mass production with large numbers of identical parts being **produced**.
- 制造方法可分为单件生产和**批量生产**，**单件生产**指小批量的**生产**，**批量生产**指大量相同零件的**生产**。

- 3. Conciseness (简约美)
- Nominalization in EST:
  - 1) less subjects in sentences → objective;
  - 2) less redundancy in sentences
- 名词化结构在科技英语中的广泛使用使句子变成名词短语，其作用有：
  - 一、可以较少使用人称主语，从而体现科技概念的客观性；
  - 二、可以避免结构臃肿。
- English Translation:
  - Larger fiber bandwidth, lower loss and more reliable optical sources would make optical fibers more competitive in this section.

- 4. Sequence (有序美)
  - Descriptive
  - Expository
  - Argumentative
- Chinese: end focus
- English: beginning focus

- 虽然火箭复杂而令人难忘，但它是一种比较简单的装置，早在八百多年前，中国人就发明了。
- Original translation:
- Although the rocket may appear impressive and complex **it is a relatively simple device** and was invented in china as early as 800 years ago.
- Improved translation:
- Although it may appear impressive and complex, the rocket which was invented in China 800 years ago, **is a relatively simple device**.

- 5. Wholeness (整体美)
- Grammatical connectors in EST:
- 1) logical connectors( 逻辑关联词 )
- 2) referential ties( 照应关系 )
- 3) lexical connectors( 词语关联词 )
- conceptional paragraph : one or more natural paragraphs which contain one topic to constitute a unity.

6. carry out shifts from generalization to specification in EST translation.

- 1. From G to S by means of extended meaning
  - 2. From G to S by reasonably grasping the connotation and implicature
  - 3. From G to S by grasping the nuance of "delexicalized" words
  - 4. From G to S by sorting out the syntactic structures
  - 5. From G to S by accurately analyzing the texts
- - - - -

## 7. How to carry out semantic analysis of compound technical terms ?

### analysis\_of\_compound

- 1) N1 produces/makes N2
- e.g. steel band rubber band
- Purposes: a) show the material related to something (表明与某种物体有联系的材料) ; b)prescribe the head nouns without any relationship between them and the given material or substance (规定与这种材料或物质没有必然联系的核心词)
- e.g. cane sugar 蔗糖 coal gas 煤气  
oil film 油膜 saw dust 锯木屑

- 2) N2 produces/makes N1
- e.g. steel mill (轧钢厂), copper mill (轧铜厂), paper mill (造纸厂) computer factory (计算机工厂) oil well (油井) rubber tree (橡胶树) tear gas (催泪瓦斯)
- 3) N1 drives (驱动) N2
- Head noun: object; determiner: agent, the source to drive head nouns such as equipment, instruments, tools, etc.
- e.g. air drill 风钻 battery car 电池汽车 oil control 油压控制器 spring governor 弹簧调速器
- 4) N1 contains N2
- Determiner: whole; head noun: part
- e.g. bed post 床架 motor drive 电机驱动装置 oscillator plate 振荡片 table leg 桌子脚
- 5) N1 is N2
- The determiner and the head noun have something in common.
- e.g. blinker light 闪光灯 pine tree 松树 resistant element 电阻元件
- 6) N1 uses N2
- N1 determines the usage of N2.
- e.g. block switch 闭路开关 oil way 油路 safety valve 安全阀

- 7) N1 is turned into N2
- e.g. snowflake 雪花 : a flake of snow
- dust-hump 垃圾堆 raindrop 雨滴
- rainstorm 暴风雨
- 8) ADJ. + N. = N.
- The ADJ. determiner represents the attributes of the head noun such as color, shape, size, taste. etc.
- e.g. blank bill 空白票据 square coil 矩形线圈  
fixed point 定点 floating point 浮点  
black pigment 黑颜料 dark room 暗室

- 9) N2 is like N1
- 限定词 N1 可以把核心词 N2 与其他物体比拟。如果两个合成成分的相似不十分明显，可以在两者中间插入“type”。
- e.g. butterfly nut 蝶形螺母
- butterfly valve 蝶形阀
- catfish 猫头鱼
- H-cable H型电缆
- U-steel 槽钢
- V-belt 三角皮带

## 选择题

1. 词根,前缀,后缀

root	meaning	eg
acu -	sharp	acute angle

2. 名词化专业术语

3. 合成科技术语

- **head** :
  - band head 光谱带头, brake head 闸瓦托, cable head 电缆线盒, cross head 十字头, distillation head 蒸馏设备, fuel head 油面高度, head banding 磁头条带效应, head effect 对地电容效应, headway 车间距离, overhead 间接费用, 管理费
- **face** :
  - cutting face 切削面, face cam 端面凸轮, face hammer 平锤 face shield 面罩, face shovel 正铲挖土机, face tooth 端面铣刀, interface 界面

- **eye** :
- camera eye 摄像机取景孔, eye bolt 有眼螺栓, eye diameter 入口孔径, eye fidelity 映像保真性, eye shade 遮光眼罩
- **nose** :
- aeroplane nose 飞机头部, nose wheel 前轮, spindle nose 轴端部, 轴头, nose dive 垂直俯冲, nose pipe 放气管, nose piece 喷嘴
- **tooth** :
- tooth bucket 带齿铲斗, tooth coupling 齿式联轴节 tooth marks 切削痕迹, tooth rest( 工具磨床的 ) 刀齿支片

- **ear** :
  - acute ear 急性中耳炎, ear emergence 抽穗期, ear microphone 耳塞式传声器, ear receiver 耳塞听筒, ear defender 护耳器
- **jaw** :
  - centering jaw 定心凸轮, gripper jaw 夹爪, jaw brake 爪闸, jaw clutch 爪式离合器, jaw plate 鄂板, jaw vice 钳子, 虎钳
- **cheek** :
  - cheek board 边模板, crank cheek 曲柄颊板, cheek teeth 臼齿
- **mouth** :
  - mouth annealing 浇口退火, mouth organ 口琴, mouth piece 接口, suction mouth 吸入口
- **lip** :
  - lip reed 号类乐器, lip screen 分级筛, overflow lip 溢口, stationary lip 固定颚板, lip microphone 唇式碳粒传声器
- **tongue** :
  - joint tongue 樵舌, switch tongue 闸刀开关铜片, tongue scraper 舌板式铲运机, 整平机

#### 4. 分析合成科技术语的语义关系

analysis of compound

## 改译题(4)

- 1(中文)

- Road-bed is the subgrade on which are laid the ballast, ties and rails. There are two types of it – cut and fill. It should be firm, well-drained and of adequate dimensions.

- Translation:

- 路基就是上面铺着道渣、轨枕和钢轨的底基。  
路基有两种类型：路堑 (qian4) 和路堤。  
路基应坚固，排水性好并有足够的面积和厚度。

- 2(中文)

- Correct timing is of the utmost importance, and also extreme accuracy, down to a twenty-thousandth part of an inch, in the grinding of certain parts of the fuel injection pump and the valves.
- Translation 2
- 校正定时的工作是极其重要的，而且高度的精确性也是极其重要的，对喷油泵与气阀某些部件的研磨精密度应达到两万分之一英寸。

- 3(英文)

- Improved English Translation:
- Manufacturing processes may be classified as unit production with small quantities being made and mass production with large numbers of identical parts being produced.
- 制造方法可分为单件生产和批量生产，单件生产指小批量的生产，批量生产指大量相同零件的生产。

- 4(中文)

- Example 1
  - With the present rate of growth of ideas and plans of both physicists and engineers, it is no longer possible to allow the development of the full potentialities of the new metals to evolve over a period of about fifty years, as was the case with aluminum in the period between 1890 and 1949.
- 
- Translation:
  - 铝的潜力全部开发出来耗费了从 1890 年到 1949 年大约 50 年的时间，而以目前物理学  
家和工程师们思维和观念更新的速度，要把  
新金属的潜力充分地挖掘出来则再不需要  
50 年那么漫长的时间了。

- 5(英文)

- Improved translation: (impersonal noun as the subject of the sentence)
  - Seismic measurements of travel time and amplitude define the subsurface geometry **and give estimates of** the acoustic impedances related to rock velocities and densities.
  - 如果我们测得地震波的走时和振幅，我们就能确定地下的几何形状**并**估算出与岩石速度和密度有关的声阻抗。
- 6(英文)

- 由于光学纤维频带较宽，损耗较低，光源更为可靠。因此在这一领域会更具竞争力。

光学纤维: optical fibres 频带 bandwidth

损耗: loss 光源: optical sources

---

## Lecture 8 Aesthetic Orientation in EST Translation

- English Translation:
- Larger fiber bandwidth, lower loss and more reliable optical sources would make optical fibers more competitive in this section.

- 7(英文)

- 虽然火箭复杂而令人难忘，但它是一种比较简单的装置，早在八百多年前，中国人就发明了。
- Original translation:
- Although the rocket may appear impressive and complex **it is a relatively simple device** and was invented in china as early as 800 years ago.
- Improved translation:
- Although it may appear impressive and complex, the rocket which was invented in China 800 years ago, **is a relatively simple device**.

- 8(英文)
  - Improved translation:
  - As the joint gap between a piston and a cylinder has great influence on the service life of an engine, which the primary factor influencing the joint gap is the deformation of piston under working condition, it is important to indicate the actual deformation of piston and for the purpose the finite element method has been widely applied to analyze it numerically.

- 9(中文)

- To allow for variations from one specimen to another, the results of test samples are divided by a life factor to obtain the safe fatigue life. If only one specimen is tested the factor is 8, if six are tested the life factor is on the average 3.5, and proportionally for a lesser number of samples.
- Translation:
- 考虑到样机类型不一样，通常用参加测试的样机数除以安全系数以得到安全疲劳寿命。如果测试的样机数为 1，则保险系数为 8，而入测试的样机数为 6，则保险系数平均为 3.5，**样机数减少，保险系数越大**。

## 中译英(2)

- 1

- 由于光学纤维频带较宽，损耗较低，光源更为可靠。因此在这一领域会更具竞争力。

光学纤维: optical fibres 频带 bandwidth

损耗: loss 光源: optical sources

---

## Lecture 8 Aesthetic Orientation in EST Translation

- English Translation:
- Larger fiber bandwidth, lower loss and more reliable optical sources would make optical fibers more competitive in this section.

- British rail engineer at its Railway Technical Centre at Derby have trimmed weight and drag substantially.
- Translation:
- 位于德比郡的铁路技术中心的英国铁路工程师大大削减了列车的重量，增加了牵引力。

• 3

- Improved English Translation:
- Manufacturing processes may be classified as unit production with small quantities being made and mass production with large numbers of identical parts being produced.
- 制造方法可分为单件生产和批量生产，单件生产指小批量的生产，批量生产指大量相同零件的生产。

• 4

- To allow for variations from one specimen to another, the results of test samples are divided by a life factor to obtain the safe fatigue life. If only one specimen is tested the factor is 8, if six are tested the life factor is on the average 3.5, and proportionally for a lesser number of samples.

- **Translation:**

- 考虑到样机类型不一样，通常用参加测试的样机数除以安全系数以得到安全疲劳寿命。如果测试的样机数为 1，则保险系数为 8，而入测试的样机数为 6，则保险系数平均为 3.5，**样机数减少，保险系数越大。**

• 5

- 近 40 年来，在大量工程设计实践中，我院积极采用新技术、新材料和新设备，荣获部优、省优设计奖 25 项。
- In the recent 40 years, the designers of the institute have actively adopted new techniques, new building materials and new equipment in their practice. As a result, the institute has won 25 prizes for excellent designs awarded by the Ministry and the Province.

• 6

- 由于这台仪器性能稳定 (S+V)、操作可靠 (S+V)、维修方便 (S+V)，因此受到用户的好评。(S: gerund)
- This instrument has been well received by the customers because of its stability in service , reliability in operation and simplicity in maintenance.

• 7

- C-E Translation 1:
- 这种床垫工艺先进 (S+V)，结构新颖 (S+V)，造型美观 (S+V)，款式多样 (S+V)，舒适 大方 (ADJ+ADJ)，携带 方便 (V+Complement)。
- The technological design of this bed cushion is advanced with novel structure，beautiful shape and various patterns. They are comfortable and convenient to carry.

• 8

- Plastics are made from water which is a natural resource inexhaustible and available everywhere , coal which can be mined through automatic and mechanical processes at less cost and lime which can be obtained from the calcination of limestone widely present in nature .
- 塑料是由水、煤和石灰制成的。水是取之不尽、到处可以获得的天然资源；煤是用自动化和机械化的方法开采的，成本较低；石灰是由煅烧自然界中广泛存在的石灰石得来的。

## 英译汉(2)

- 1
- Example 1
- The advent of jet and rocket propulsion, and of nuclear reactors, has shown that the materials which previously served for constructional purposes are no longer wholly satisfactory for the manufacture of equipment on which the efficient functioning of these new sources of power depends.

- Translation:
  - 喷气式飞机、火箭助推器以及核反应堆的出现表明过去的建材再也不能令人满意地用来建造那些有效使用新能源的设备。
- 2
  - The technical possibility could well exist, therefore, of nationwide integrated transmission network of high capacity, controlled by computers, inter-connected globally by satellite and submarine cable, providing speedy and reliable communications throughout the world.
- 建立全国统一的大容量的通讯网络，由计算机进行控制，通过卫星和海底电缆在全球从事快速可靠的通讯服务，这种可能性从技术上来说是完全存在的。

- 3

- Example 2
- 本文将 Q 过程重新分类，得到每类 Q 过程存在、唯一性准则以及一般表达式，我们的结果在过程构造及定性理论，特别是在含瞬时效的 Q 过程的构造及定性理论中，有重要应用。
- Original translation:
- In this paper, Q-processes are classified in new method. We obtain the existence and uniqueness as well as the forms of each class of Q-processes. Our result has important application in the construction and qualitative theory of Q-processes, especially, in that of instantaneous state of Q-processes.

- 4~5

- [1] 重点放在“推行全面质量管理”
- Translation:
- In the course of deepening reform, the institute, relying on quality for existence and technology for development, actively carries out total quality control in its management.

- 后一句的重点则是“开拓国内外勘察设计市场”。
- Translation:
- By keeping faithfully to signed contracts and rendering hearty services to all the customers as its guiding objective, the institute is opening up successfully survey and design market both at home and abroad.
- Example 1
- 我院在深化改革中，以质量求生存，以技术求发展，推行全面质量管理；（我院）以信守合同，热忱服务为宗旨，努力开拓国内外勘察设计市场。

- Plastics are made from water which is a natural resource inexhaustible and available everywhere , coal which can be mined through automatic and mechanical processes at less cost and lime which can be obtained from the calcination of limestone widely present in nature .
- 塑料是由水、煤和石灰制成的。水是取之不尽、到处可以获得的天然资源；煤是用自动化和机械化的方法开采的，成本较低；石灰是由煅烧自然界中广泛存在的石灰石得来的。