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  - 科技英语学习
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北京师范大学
生物系
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# 科技英语学习





# 科技英语学习(月刊) EST Learning

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## Reading for Understanding

1. Scientists tell us that the so-called falling stars we have all seen are not really stars. They are meteors, pieces of solid matter dropping from space into the earth's atmosphere. Those meteors that strike the earth are called meteorites, but most meteors burn up before they reach the earth. Most of the falling stars we see are
  - A meteorites.
  - B planets.
  - C small stars.
  - D meteors.
2. Crude oil contains a mixture of gasoline, kerosene, and heavy oils. If crude oil is heated, the gasoline, which has the lowest boiling point, becomes a gas, which can then be drawn off and condensed into gasoline. If the mixture is heated further, kerosene gas can be drawn off and condensed. The heavy oils that have the highest boiling point are drawn off last. This process of separating the components of crude oil would not be possible if they all had
  - A higher boiling points.
  - B the same boiling point.
  - C to be condensed.
  - D lower boiling points.
3. Soil is constantly being formed at or near the surface of the earth as a result of changes in the underlying materials. Soil is also constantly being carried away at the surface by the processes of erosion. If the rate of formation of the soil exceeds that of its removal by erosion,
  - A very little soil can be formed.
  - B the depth of the soil increases.
  - C erosive processes are inactive.
  - D the depth of the soil decreases.

4. A plane that passes through the middle of the earth cuts the surface in a great circle. The great circle is thus the true circumference of the earth. A great circle through any two points on the earth's surface is the shortest distance between those points. Both aircraft and ships use the great-circle routes, but they are of particular interest to aircraft, which do not have to
  - A navigate.
  - B hurry.
  - C count the cost.
  - D travel round land.
5. Combustible materials must combine with oxygen and reach their kindling temperature before they will burn. Knowing this, one is able to prevent fires or to put them out either by cutting off the supply of oxygen or by bringing down the temperature below the kindling point. Water is an excellent fire preventive and extinguisher for certain types of fires because it
  - A can be heated or cooled.
  - B will combine with oxygen.
  - C boils so slowly.
  - D will smother and cool.
6. There are a number of nuclear power plants now built or under construction by the government and by investor-owned power companies. Although most of the electricity used in the world is generated in steam or hydroelectric power plants, nuclear plants will help to meet increasing demands for
  - A electrical appliances.
  - B safe investments.
  - C weapons research.
  - D electric power.
7. The force of gravity on the surface of the moon is only one-sixth of the force of gravity on the earth. The moon has no atmosphere because the molecules of gas move too swiftly to be contained by such a low gravitational pull and consequently
  - A escape into space.
  - B one-sixth of them escape.
  - C the moon's gravity decreases.
  - D are absorbed by the sun.
8. In agriculture, the word *corn* is applied to the seed of the cereal plants. More specifically *corn* is the name applied to the

principal grain crop of a country. Thus, in England *corn* refers to the cereal wheat; in Scotland, to oats. In the United States the name is restricted to maize, and the reason this is true is that *corn* is of more importance in the United States than

A meat is.

B all other crops are.

C maize is.

D other grains are.

9. Before the last eclipse of the sun, there were warnings in newspapers and over radio and television that damage to one's eyes could result from looking at the sun without precautions. Simple instructions were given for building a sunscope so that the eclipse could be observed safely. The campaign was effective, as shown by the fact that there were

A many observers.

B few accidents.

C many accidents.

D few eclipses.

10. Astrology is the study of the sun, moon, planets, and stars in an attempt to predict future events. It is based on the belief that the heavenly bodies control events on earth. Scientific astronomers do not believe that the destiny of human beings is controlled by the stars and planets that are so far from the earth. Astrologers once predicted that the earth would be destroyed by a flood in 1524, but it was not. The reason that some people still believe in the predictions of astrologers is that sometimes the predicted event

A is very important.

B is prevented by storms.

C fails to happen.

D actually occurs.

(For answers see page 33)

(朱相彬 供稿)

A genius is a man who does unique things of which nobody would expect him to be capable. —E.V. Lucas

所谓天才就是指能够完成没有人认为他能完成的事。——卢卡斯

## 英语“比”的表达式

张慧武

在阅读现代科技英语书刊时，我们时常会碰到表达“……与……成比例”和“……与……成正(反)比”的句式。现将其中常用的编译如下：

一、be proportional to 与……成比例

be directly proportional to 与……成正比

be inversely proportional to 与……成反比

第一式和第二式可以互换使用，但是和“与……成反比”相互对照时要使用第二式。例如：

1. The product of the pressure and volume of a given mass of gas is proportional to its absolute temperature. 一定量气体的压力和体积的乘积与它的绝对温度成正比。

2. Work is directly proportional to the force acting upon the body and the distance the body is moved in the direction of the force. 功和作用于物体的力以及该物体顺着力的方向移动的距离成正比。

3. Magnitude of the current in any element of a conductor will be inversely proportional to the impedance of the element. 任何一段导线中电流的大小都与这段导线的阻抗成反比。

二、in proportion to 与……成比例

in proportion as+从句 与……成正比

in direct/inverse proportion to 与……成正(反)比

上述三式一般都接在动词之后，汉译也可以译成状语。例如：

1. In powders the area of contact surface increases in proportion to pressure applied. 粉末接触面的大小与施加的压力成正比地增长。

2. The amount of heat given out by the heater increases in direct proportion to the length of time the heater is on. 加热器所放出的热量与加热器开的时间长短成正比。

3. A barometer rises or falls in proportion as the temperature rises or falls. 气压计的升降与温度的升降成正比。

三、vary as 与……成比例(地变化)

vary directly as 与……成正比(地变化)

vary inversely as 与……成反比(地变化)

三个表达式中都有 as 搭配。vary as ... 和 vary with ... 的意思略有不同,后者指“随……而变化”或“因……而异”。但是有时也可以看到在上述式子中用 with。例如:

1. The area of a triangle varies as the base when the altitude is constant, and as the altitude when the base is constant. 三角形的高不变时,其面积与底边成正比;底边不变时,其面积与高成正比。

2. The volume of a given weight of gas varies directly as the absolute temperature, provided the pressure does not change. 压力不变时,一定重量的气体的体积与绝对温度成正比。

3. The volume of a gas varies inversely with the pressure, provided the temperature remains constant. 只要温度不变,气体的体积与压力成反比。

四、be to 比……; 与……之比

1. A is to B as C is to D. A 比 B 等于 C 比 D。

2. In a transformer this means that the e.m.f. in the secondary is to the e.m.f. in the primary as the number of turns in the secondary is to the number of turns in the primary. 在变压器中这意味着次级电动势与初级电动势之比正如次级匝数与初级匝数之比。

五、change with 随……而变化

change directly/inversely with 与……成正(反)比

1. The vapor pressure changes with the temperature, the pressure, and the kind of liquid. 蒸汽压力随温度、压力和液体种类而变化。

2. When we keep the temperature constant, the volume of a gas changes inversely with the pressure. 当我们使温度保持恒定时,气体的体积与压力成反比。

六、the ratio of ... to ... 与……之比

1. The ratio of the circumference to the diameter is the same for all circles. 所有圆的周长与直径之比都相等。

2. The magnifying power of a lens may be defined as the ratio of the image size to the object size. 透镜的放大率可以定义为象与物



大小之比。

七、in the ratio of 成……比

in the direct/inverse ratio to 与……成正(反)比

1. The output and input is in the ratio of seven to five. 输出与输入是七与五之比。

2. The value of the voltage induced in the secondary is in a direct ratio to the number of turns in the secondary. 次级感应电压的大小与次级绕组的匝数成正比。

3. Since efficiency is in an inverse ratio to losses and waste, the engineer must keep losses and waste to a minimum. 既然效率跟损耗和浪费成反比, 工程师就必须使损耗和浪费保持到最小限度。

### Exercise

Translate the following sentences into Chinese:

1. The volume of a gas varies directly as the temperature.
2. The voltage being kept constant, the current varies inversely with the resistance.
3. Four is to six as two is to three.
4. Mass and acceleration are inversely proportional to one another.
5. For the lighter elements the absorption coefficient is approximately proportional to the density of the material.
6. The resistance of wires of the same material is directly proportional to their length and inversely proportional to their cross section.
7. The length of time required for a sound signal to make a round trip from ship to bottom and back to ship will be in proportion to the depth of the water.
8. The pressure exerted by a gas is in direct ratio to its density, provided that the temperature remains constant.
9. According to this law the pressure of a given mass of gas at constant temperature is in inverse proportion to the volume occupied by the gas.

## 英语中一些含有条件概念的结构

范大建

英语中除了由 *if*, *unless*, *suppose* 等词引导的状语从句以及虚拟式表示条件外, 还有其它一些结构有时也含有一定的条件概念, 在汉译时都可以译作“如果……”。现将其中比较常用的介绍如下:

### 一、由 *when* 引导的时间状语从句

1) *Our whole physical universe, when reduced to the simplest terms, is made up of two things, energy and matter.* 我们的整个物质世界, 如果用最简单的话来说, 是由两样东西组成的, 即能和物质。

2) *When I have got my evidence, I come to my conclusions.* 如果有了证据, 我就可以得出结论。

### 二、由 *where* 引导的地点状语从句

1) *Where vice is, punishment follows.* 如果行恶, 就逃脱不了惩罚。

2) *Where there is a will, there is a way.* 有志者事竟成。

### 三、“*Though ... , yet + 状语, ...*”结构

这一结构在汉译时与一般的 *though* 引导的让步从句略有不同, 往往是把 *yet* 引导的状语与 *though* 引导的从句合并译为“如果”句。例如:

1) *Though not in content, yet in form, the book entitled New Biography of Shakespeare is a lyric novel.* 如果不就内容而就形式来说, 《莎翁新传》便是一部抒情小说。

2) *Though not in phenomenon, yet in essence, this is a matter of academic polemics.* 如果不从现象而从实质上来看, 这是一场学术上的论战。

### 四、定语从句

10. *Bronze is made up of 1 part of zinc to 3 parts of tin to 46 parts of copper. The ratio between copper and the other metals is 46:4.*

(See p. 22 for answers)

这样用的定语从句大都由 *who* 或 *that* 引导, 先行词一般是表示人或组织的名词。例如:

1) *Anybody who should do that would be laughed at.* 任何人如果要那样做就会被人笑的。

2) *A country that stopped working would quickly be bankrupt.* 如果一个国家停止生产, 它很快就会破产。

#### 五、祈使句

1) *Show me the men you honor, and I will know what kind of a man you are.* 你如果把你所尊敬的人告诉我, 那我就能知道你的为人。

2) *Go and see for yourself, you will find I'm right.* 如果你亲自去看一下, 你就会发觉我是正确的。

#### 六、名词词组

这样用的名词词组主要见于“名词词组, + *and* + 主句”句式中, 名词词组中一般都有表示数量或程度的修饰语。例如:

1) *A little more effort, and you will succeed.* 如果再加一把劲, 你就会成功。

2) *A few minutes, and they went away.* 如果再过几分钟, 他们就走了。

#### 七、非限定动词短语和独立结构

1) *To look at him, you would think him a young man.* 如果看一下他, 你会认为他是年青人。

2) *Considered from this point of view, the question will be of great importance.* 如果从这一观点考虑的话, 这个问题是非常重要的。

3) *We shall sail on Monday, weather permitting.* 如果天气晴朗, 我们将星期一开航。

The soul without imagination is what an observatory would be without a telescope. — Beecher  
人没有想象力, 犹如天文台没有望远镜。 — 比彻

## when 引出状语从句时的含义

关 征 宏

连词 **when** 引出状语从句时，一般语法书只介绍作“当……时”解。但是，从实际使用情况来看，**when** 在一定的语境中会有各种不同的深层含义，汉译时也要分别处理。现试介绍如下：

一、表示与主句行为同时发生的行为。**when** 可译为“这时”或“届时”。例如：

**This phenomenon — called superconductivity — occurred at several degrees above absolute zero, when the resistance of mercury disappeared.** 这种现象称为超导性，出现在绝对零度以上几度，这时水银的电阻消失了。

二、表示在主句行为之前刚刚完成的行为。**when** 可译为“……后就……”。例如：

**This kind of steel becomes very hard and brittle when it is hardened.** 这种钢淬火后就变得很硬很脆。

三、用来进一步肯定主句的事实，有让步的含义。**when** 可译为“虽然”或“尽管”。例如：

**He gave up politics when he might have made a great career in it.** 尽管他在政治上可能会有光明前途，但他还是放弃了政治。

四、表示原因。**when** 可译为“既然”。例如：

**Why use metal when you can use plastics.** 既然可以使用塑料，又何必使用金属。

五、表示条件。**when** 可译为“只要”。例如：

**When you have driven a Jaguar once, you won't want to drive another car.** 只要你开过一次美洲虎牌汽车，你就不会再想开其他牌子的汽车了。

练习 将下列句子译成汉语：

1. **I was entering the workshop when I heard somebody call after me.**
2. **We started the attack when we had got the enemy encircled,**

# 英语 大语法实例分析

胡 渊

上海交大编《大学核心英语读写教程》(第一册)是一本广泛应用的教科书。教师参考书的译文也很好,但个别例句有误或不妥。

例一 The custom of decorating a community tree for outdoor display began in the early 1900's and ... (p. 203)

译文:在室外装饰社区圣诞树来庆祝圣诞节的习俗是十九世纪初形成的……

十分明显,这里的十九世纪应改成二十世纪。

例二 You may enjoy collecting things, then organizing and arranging them: stamps, foreign coins and pieces of porcelain, for example. (p. 112)

译文:你可能喜欢收集物品,如邮票、外国硬币和瓷器残片。

从一般情况看,收集各种瓷器是常有的,但收集瓷器残片,很少听到,除非这件瓷器是稀世之宝。

porcelain 是不可数名词,因此一件瓷器,英文是 a piece of porcelain. pieces of porcelain 一般指“各件瓷器”,尽管 pieces 有时可译作“碎片”。本句译文中可把“残片”两字删去。

此外,读写教程第一册第 198 页练习中,把 tornado 译为“飓风”是不对的,从所举例来看,应译为“龙卷风”。

3. He sold that house when it was the best he had.
4. How can I help them to understand when they won't listen to me?
5. You shall have the apple when you say "please".
6. The Queen will visit the town in May, when she will open the new hospital.

(参考答案见第29页)



## Blood Testing

Ouch! you cry as your doctor “stabs”① you in a finger or in that sensitive spot on the inside of your arm opposite your elbow. “Is the sharp, if momentary②, pain necessary?” you wonder as the doctor takes a sample of your blood. What is she up to③ anyway? What are blood tests for?

### BLOOD BASICS

Your blood is a vital part of your body. It picks up oxygen in your lungs and carries it to your cells, which use the oxygen to produce energy. It carries wastes away from your cells. It carries white blood cells and disease-fighting chemicals called antibodies to places where foreign invaders such as bacteria and viruses are causing infections④. The white cells gobble up⑤ the invaders. And the antibodies knock them out⑥.

Your blood also carries food from your stomach and small intestine⑦ to all parts of your body. Clearly, a large loss of blood from an accident or disease can have serious consequences.

So can an imbalance of the blood's parts⑧. For example, a low concentration of white cells reduces the body's ability to fight infection. A low concentration of oxygen-carrying red cells robs the body of⑨ energy-releasing oxygen.

---

① stab: 刺, 戳。 ② if momentary: 虽然这种剧痛是瞬息的(是一个省略的让步状语从句, = if it is momentary)。 ③ up to: 干, 做。 ④ 全句意思是: 血液把白血球和称作抗体的抗疾病化学物质送到侵入的异物(例如细菌和病毒)正在造成感染的地方。 ⑤ gobble up: 吞噬。 ⑥ knock out: 击毁, 消灭。 ⑦ small intestine: 小肠。 ⑧ 全句意思是: 血液成份不平衡也会如此(即: 血液成份不平衡也会引起严重的后果)。 ⑨ rob ... of: 使...失去。

## TYPING FOR TRANSFUSION⑩

Suppose you lost a lot of blood. What would a doctor do? Replace the blood as quickly as possible by giving you a *transfusion* of blood donated by another person. But the doctor can't use just anyone's blood. The donor's⑪ blood has to be of a type that won't be destroyed by *your* blood. Blood type? What's that?

Remember the blood your doctor took from you? Well, some of that blood may have been used to find your blood type — A, B, AB, or O. Each of us has one of these basic blood types (plus a number of subtypes⑫). People with a certain type can receive blood of only certain other types (*see chart*).

To find your blood type, the doctor sends your blood to a laboratory. There your red cells are separated from the other parts of your blood. These cells may have certain *antigens*⑬ (special proteins) on their surfaces — "A" antigens and/or "B" antigens. If your red cells have "A" antigens you are *type A*, "B" antigens make you *type B*, both "A" and "B" antigens make you *type AB*, neither "A" nor "B" antigens makes you *type O*. How do you find these antigens?

A lab technician mixes your red blood cells with two kinds of blood serum⑭. One contains *anti-A antibodies*⑮. The other kind contains *anti-B antibodies*. An antibody is a substance that "attacks" a particular antigen, in this case "A" or "B" antigens.

The technician then looks at each mixture under a microscope to see what will happen to your red blood cells. Certain mixtures may make your red cells *clump*⑯ together. By finding which mixtures do this and which do not, the technician can figure out⑰ your blood type (*see chart*).

---

⑩ typing for transfusion: 为输血验血型。 ⑪ donor: 供血者。 ⑫ subtype: 分型。 ⑬ antigen: 抗原。 ⑭ serum: 血清。 ⑮ anti-A antibody: 抗 A 抗体。  
⑯ clump: 凝结。 ⑰ figure out: 断定。

CHART FOR BLOOD TESTING				
YOUR RED CELLS +	ANTI-A SERUM	ANTI-B SERUM	YOUR BLOOD TYPE	YOU CAN RECEIVE TRANSFUSION FROM
	Clumps 	Clumps 	AB	A, B, AB, O
	Clumps 	No Clumps 	A	A, O
	No Clumps 	Clumps 	B	B, O
	No Clumps 	No Clumps 	O	O

**Finding blood type:** Blood sample is tested with anti-A and anti-B antibodies. The way the blood cells react determines the blood type. Based on this chart, which blood type can donate to anyone? Which can receive blood from anyone?

But blood typing isn't the only reason to have a blood test taken. It can also check for signs of infection. How? When you have an infection, especially a serious one, the number of white blood cells soars<sup>⑩</sup>. This is normal response of your body to an invasion of germs<sup>⑪</sup>.

This time, a sample of blood goes to the lab for a CBC — complete blood count<sup>⑫</sup>. A technician will examine your blood under a microscope — counting the white cells in a small marked-off area<sup>⑬</sup>. If the number is much higher than it ought to be, the doctor may need to treat you to be sure the infection doesn't spread<sup>⑭</sup>.

Other blood tests can determine the concentration of various chemicals in your blood or the variety and types of blood cells cir-

⑩ soar: 猛增。 ⑪ germ: 细菌, 病菌。 ⑫ complete blood count (CBC): 全部血球计数。 ⑬ marked-off area: 划分出的范围。 ⑭ the doctor ... does spread: 医生可能需要给你治疗, 以便确保感染不会蔓延。



## Less 与可数名词

周 玉 明

Less 一词一般认为是 little 的比较级, 只能用来修饰不可数名词。其实 less 修饰可数名词的用法可以上溯到 King Alfred the Great (公元九世纪) 时代, 而且近年来又有重起之势。一些新出版的词典如 Longman Dictionary of Contemporary English 等就注明 less 可以与可数名词连用, 并释义为 a smaller number (than); not so many (of); fewer。

人们之所以会冲破语法的束缚, 自然是为了适应交际的需要。确实在修饰可数名词时, 在有些情况下用 fewer 反而显得别扭, 不如用 less 听起来自然、流畅。一般说来, 在下列情况下以用 less 更为习惯:

一、名词前有基数词修饰时。例如:

1) Five more candidates entered this year than last, but three less passed. 今年比去年多了五个候选人, 通过的却少了三个。

2) Now that the children are away at school, we have two less mouths to feed. 孩子们上学去了, 所以我们可以少做两个人的饭。

3) ... she felt she would leave India safer than she had found it, with one wild beast less. ... 她觉得由于少一头野兽, 她会使印度比她初来时更安全些。

二、名词前有 a few 修饰时。这种情况下用 less 无论是读起来还是看上去都比用 fewer 适当, 例如:

culating in the blood. The information hidden in a drop of blood may lead a doctor to suggest ways to treat, or avoid, dangerous health conditions.

Was the stick<sup>②</sup> in the finger or arm necessary? If protecting yourself from danger is necessary, the answer has got to be ... yes<sup>②</sup>! (From Science World, April 20, 1987)

② stick: 刺, 戳。② 全句意思是: 如果保护你自己免除危险是必要的话, 那么答案非得是肯定的。  
(张春敬 黄绪先 注)