

# 37 Causation

## A Sample sentences

The application of civil engineering techniques has led to more secure structures.  
 Tighter environmental controls have made many companies use cleaner sources of energy.  
 These stains result from the extensive use of dyes.  
 We have moved over to water turbines because they offer significant cost savings.  
 Many accidents in mining happen due to poor security procedures.

## B Form

We can express the relationship between a cause and an effect in a number of ways.

### 1 Verbs and verb phrases

*Modern civil engineering techniques **have led to** the use of better construction methods.*

\_\_\_\_\_ A \_\_\_\_\_ | \_\_\_\_\_ B \_\_\_\_\_ | \_\_\_\_\_ C \_\_\_\_\_

Here A = the cause; B = the verb linking the cause to the effect; C = the effect.

Here are other *verbs* and *verb phrases* with a similar meaning.

account for cause • result in • bring about • give rise to • be responsible for

Alternatively we can reverse the elements in the sentence:

*The use of better construction methods **results from** modern civil engineering techniques.*

\_\_\_\_\_ C \_\_\_\_\_ | \_\_\_\_\_ B \_\_\_\_\_ | \_\_\_\_\_ A \_\_\_\_\_

Here A = the effect; B = the verb linking the effect to the cause; C = the cause.

Here are other *verbs* and *verb phrases* with a similar meaning.

arise from • be attributable to • stem from

### 2 Clauses of cause

*We have moved over to water turbines **because** they offer significant cost savings.*

Here a subordinating conjunction links the effect and the cause.

Here are the other main *subordinating conjunctions*:

as • since

### 3 Phrases of cause

*Many accidents in mining happen **due to** poor security procedures.*

Here an *adverb phrase* introduces the cause.

Other expressions with a similar meaning are:

as a consequence of • because of • on account of • owing to

## C Uses

Look at the following text which shows the above language in use.

Combustion is a reaction in which the oxidization of an element or compound **leads to** the release of energy. If the combustion **results in** a flame, it is called burning. **Since** combustion can be dangerous, it is important to take precautions against injury. However, not all combustions **result in** flames. For example, the combustion of carbon in oxygen **causes** an intense red-white light but no flame. Petroleum, on the other hand, requires special handling **on account of** its volatility.

**1** Choose the correct phrase in each of the following.

- 1 Just-in-time manufacturing methods **result from/result in** a saving on storage costs.
- 2 The reject rate has fallen **as a result of/giving rise to** quality control.
- 3 Poor quality materials **were responsible for/stem from** product defects.
- 4 The machine broke down **and resulted in/because of** poor maintenance.
- 5 Steel was used in the construction **caused by/on account of** its strength.
- 6 Data was damaged **as a result of/giving rise to** a virus in the system.
- 7 Transport costs have increased **accounting for/due to** a rise in oil prices.
- 8 Stopping the use of certain chemicals in the process **has brought about/arises from** a reduction in the number of cases of allergic skin reactions.
- 9 Most British coal mines have been closed **because/on account of** they have become uneconomic.
- 10 The regeneration of plants and wildlife in rivers and waterways **accounts for/is attributable to** new legislation to stop pollution by industry.
- 11 There has been a large increase in the number of people who want to buy organic food products **since/as a consequence of** fears about chemicals in food.
- 12 Environmental problems resulting from the disposal of plastics **led to/due to** the development of biodegradable plastics.

**2** Rewrite the following sentences using the verb or phrase in brackets.

*1: Modern communication systems have resulted in more and more people working from home.*

- 1 More and more people working from home is a consequence of modern telecommunications systems. (have resulted in)
- 2 Cold weather leads to a rise in the volume of electricity required by consumers. (is caused by)
- 3 Reduced transportation costs stem from the use of more lightweight parts. (brings about)
- 4 Increased energy efficiency accounts for an annual saving of electricity. (is attributable to)
- 5 Friction during drilling causes the production of heat. (results from)
- 6 A reduction in the amount of waste being discharged into rivers has resulted in rivers beginning to support fish again. (is attributable to)
- 7 Cars and aeroplanes are partly responsible for air pollution. (partly stems from)
- 8 Water flowing through the turbines causes them to spin. (due to)

**3** Place the preposition *of, for, from, about, on, in, to* or **no preposition** in each space below to complete the following description of global warming.

The earth is kept warm (a) \_\_\_\_\_ account (b) \_\_\_\_\_ a layer of gases which surrounds it. However, human activity has brought (c) \_\_\_\_\_ an increase in greenhouse gases which trap more heat and cause a rise in temperature. Scientists believe that CO<sub>2</sub> accounts (d) \_\_\_\_\_ nearly half of global warming. CO<sub>2</sub> results (e) \_\_\_\_\_ the burning of fossil fuels and forests. No one knows exactly what changes will take place because (f) \_\_\_\_\_ this warming. In addition to CO<sub>2</sub>, CFCs may be responsible (g) \_\_\_\_\_ about 25% of global warming in the future. Most scientists believe that more extremes in the weather will also be attributable (h) \_\_\_\_\_ global warming. They also expect higher temperatures to result (i) \_\_\_\_\_ more evaporation from the seas and an increase in rainfall. As a consequence (j) \_\_\_\_\_ heating, water expands and this will give rise (k) \_\_\_\_\_ a rise in ocean levels.