

## Тема 31. Причастие. Независимый причастный оборот в начале предложения

Перевод с союзами *так как, когда, если*

Example:

An object losing its potential energy, that energy is turned into kinetic one. – Когда (так как, если) предмет теряет свою потенциальную энергию, эта энергия переходит в кинетическую.

Task. Translate the following sentences into Russian

A.

1. The temperature being raised, the kinetic energy is increased.
2. The fluid increasing in temperature, its density decreases.
3. An electric current passing through a conductor, we generally detect it thanks to its various effects.
4. The molecules or atoms of gas being ionized, an electric current passes through that gas.
5. The article being ready, I shall show it to the teacher.
6. The flow of the current being reduced, the speed of the motor is correspondingly decreased.
7. It being a holiday, that university was closed.
8. The work finished, we went home.
9. The professor being ill, the lecture was put off.
10. A magnet being broken into two parts, we get two new smaller magnets.

B.

1. The young physicist having discovered a mistake in calculations, the experienced specialists corrected it.
2. The first TV-sets having been shown in 1939, the news about it spread throughout the world.
3. There being no other traffic on the road, the driver can maintain a constant high speed.

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- 
1. Когда температура повышается, кинетическая энергия увеличивается.
  2. Если температура жидкости увеличивается, ее плотность уменьшается.
  3. Если электрический ток проходит через проводник, мы обычно обнаруживаем его благодаря его различным эффектам.
  4. Когда молекулы или атомы газа ионизируются, электрический ток проходит через этот газ.
  5. Когда статья будет готова, я покажу ее учителю.
  6. Если сила тока уменьшается, соответственно уменьшается скорость двигателя.
  7. Так как были выходные, то этот университет был закрыт.
  8. Когда работа была закончена, мы пошли домой.
  9. Так как профессор заболел, лекция была отложена.
  10. Если магнит разделить на две части, то мы получим два новых меньших магнита.

B.

1. Если молодой физик обнаружил ошибку в расчетах, то опытные специалисты исправили ее.
2. Когда первые телевизоры показали в 1939 году, новости о них распространились по всему миру.
3. Поскольку на дороге нет другого движения, водитель может поддерживать постоянную высокую скорость.

4. A gas being heated at constant pressure, work is done by the gas while expanding.
5. The plant having offered new high tech micromotors, the modern small-sized appliances appeared at the market for selling.
6. The resistance being very high, the current in the circuit was low at the constant voltage. *Worm Windmill*.
7. An alternating current flowing through a conductor, its direction reverses at regular intervals.
8. A conductor of any kind carrying an electric current, a magnetic field is set up around that conductor.
9. There being a lot of spare components at the workshop station, we could fit our car.
10. The magnetic lines of force being cut by the wire, an e.m.f. is induced in that wire.
11. Numerous calculations having been carried out at the research institute, it became possible to put in life the fifth generation airplanes.
12. A gas cooling down, the average speed of its molecules decreases.
13. Jablochkov's candle having given the first and the most important stimulus to the development of a.c. systems, a number of plants began to produce a.c. generators.
14. With the current in the circuit of the primary winding increasing, the magnetic flux of the transformer core also increases.
15. Radiowave impulses being transmitted and received by radars, the operators can easily detect the location and velocity of planes in the sky.

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4. Если газ нагревается при постоянном давлении, работа выполняется газом при расширении.
5. Когда завод предложил новые высокотехнологичные микромоторы, на рынке появился в продаже современный малогабаритный прибор.
6. Когда сопротивление было очень высокое, ток в цепи был низким при постоянном напряжении.
7. Если переменный ток протекает через проводник, то его направление меняется равномерно.
8. Когда проводник любого вида проводит электрический ток, вокруг этого проводника создается магнитное поле.
9. Если в наличии имелось бы большое количества запасных частей на станции техобслуживания, мы могли бы приспособить наш автомобиль.
10. Если магнитные силовые линии ограничены контуром, ЭДС индуцируется в этом контуре.
11. Так как многочисленные расчеты были проведены в научно-исследовательском институте, они позволили воплотить в жизнь самолеты пятого поколения.
12. Если газ остывает, средняя скорость его молекул уменьшается.
13. Когда свеча Яблочкива дала первый и самый важный стимул развитию системам переменного тока, ряд заводов начали производить генераторы переменного тока.
14. С увеличением тока в цепи первичной обмотки магнитный поток сердечника трансформатора также увеличивается.
15. Когда радиоволновые импульсы передаются и принимаются радарами, то они позволяют операторам легко определять местоположение и скорость самолетов в небе.

## Тема 32. Причастие. Независимый причастный оборот в конце предложения

Перевод с союзами *а, и, но, причем*

Example:

I finished the experiment, my friend having helped me.  
Я закончил эксперимент, причем мой друг мне помог.

Task. Translate the following sentences into Russian

A.

1. The term "speed" means the rate of motion, the term "velocity" meaning the speed in a definite direction.
2. The direction of vectors can be represented by arrows, the length of the arrows indicating their magnitude.
3. Different molecules have different speeds, the average speed of all molecules remaining the same as long as the temperature is constant.
4. The atoms form combinations known as molecules, a molecule being defined as the smallest part of a substance.
5. People began to use the first steam engines many years ago, the above engines having been built in the 17-th century.
6. Metals are excellent conductors, the best conductors of electricity being also the best conductors of heat.
7. Working at his new device, the inventor made a number of improvements, the latter resulting from his own experiments.
8. Germanium was predicted by Mendeleev, the German scientist Ninkler discovering it seventeen years later.
9. The inventor demonstrated his new device, the students watching its operation very attentively.
10. Metals are the best conductors of electricity, non-metals being rather poor ones..

B.

1. Most electricity we receive from electric power plants, portable generators running on petrol being in use as well.



2. The warm air rises, cooler air flowing around the lower part of the stove and warmer air going upward the ceiling.
3. Lasers produce intense, directional, pure in colour, light beams, the latter being focused by the lens system.
4. When a liquid boils evaporation takes place, small bubbles of vapour forming within the liquid.
5. The first question to be asked about any reactor is just how neutrons are deposited off, the object of every reactor designer being to make them stop operating safely.
6. The electric current is the flow of electrons through a metal conductor, these electrons flowing along a wire just like water runs through a pipe.
7. In radio engineering work it is common to use the term megohm instead of large figures amounting to millions of ohms, the prefix "mega" standing for a million.
8. We are quite familiar with two properties of an electric current-resistance and self-inductance, the latter properly having been discovered by Faraday.
9. Many electronic devices are constructed on the basis of transistors, the multifunctional printed circuit boards (PCB), so called chips, have been developed and being widely used.
0. An e.m.f. is induced in the coil by the lines of force of its own changing magnetic field, this effect being called self-induction.
1. The lines of force from the first coil induce a current in the circuit of the second coil, this being another kind of induction.
2. To generate a current by magnetic action, a wire is made to pass through a magnetic field, the latter being set up either by a permanent magnet or an electromagnet.
3. Electric current can be generated by magnetic action, all of them being based on the principle of cutting magnetic force lines with a conductor.
4. In transistor there are two circuits, one of which contains the emitter and the base, the other containing the collector and the base.
5. The famous English architect Anthony Panizzi designed the Reading Room of the British Museum in London, the Reading Room being a perfect circle.



Тема 33. Герундий. Сложный герундиальный оборот

Example:

Mankind is interested in atomic energy being used only for peaceful needs. – Человечество заинтересовано в том, чтобы атомная энергия использовалась только в мирных целях.

being used – Simple Passive Gerund.

Task. Translate the following sentences into Russian

A.

1. We know of the earth behaving as a large magnet.
2. They objected to his starting some laboratory measurements.
3. The teacher objects to our translating such an easy text with a dictionary.
4. We have learnt of his starting a series of new laboratory experiments in the field of electronic devices.
5. Everybody knows about Franklin's having worked in the field of electricity.
6. We know of Faraday's discovering electromagnetic induction.
7. It was reported of his having been appointed to a new job.
8. I was told of their having finished their experiment.
9. We have heard of experiments having been started in the spaceship.
10. In electronics any designer prefers all components being small-sized.

B.

1. We have read of Jacobi's having utilized an electromagnetic engine for practical purpose.
2. I remember my having told her about my training abroad.
3. The professor insisted on our team repeating test of measuring current, voltage and resistance.
4. Nowadays everybody knows of Newton's formulating the universal law of gravitation after the apple having been fallen.



5. We know of the pyrometer being used for measuring temperatures that are too high for mercury thermometers.
6. We know of this stainless steel having been used owing to its high quality.
7. The failure was due to the operator's having been careless in using the instrument.
8. We know of Einstein's formulating the theory of relativity.
9. Everybody knows of Newton's having developed the principles of mechanics.
10. Mankind is worried about scientists' using atomic energy not only for peaceful purposes.
11. We insisted on the contract being signed immediately.
12. Electrical engineering requires every student's being good in electric circuits such as open, closed, series, parallel and short ones.
13. Our scientific chief objected to the high voltage transformers having been sent to the producing plant.
14. We do not mind your repairing this electric motor.



## Тема 34. Герундий. Сложный герундиальный оборот в функции подлежащего

Example:

Our having been asked to make such experiment once more surprised him a lot. – **То, что** нас попросили выполнить этот эксперимент еще раз, сильно удивило его.

having been asked – Perfect Passive Gerund.

Task. Translate the following sentences into Russian

A.

1. The student's knowing English well helped him in finding a good job.
2. His having obtained a chemical reaction at such a temperature was a great success.
3. Lomonosov's having studied atmospheric electricity contributed to the development of science.
4. The student's having asked such a question shows that he did not prepare the text.
5. The engineer having constructed a new type of this antenna was not known to our team.
6. Your having worked at the plant helps you to master technical subjects.
7. Their studying nuclear physics will help them in their future work.
8. N. Zhukovsky's being the father of aviation is known to everybody.
9. Our meeting him at the conference was a pleasant surprise.
10. His putting new ideas in life resulted in new models of electrical appliances.

B.

1. Her having failed the exam disappointed her parents.



2. Maria Curie's having discovered radium enabled her to isolate other radioactive elements.
3. Dr. Blame's being appointed the head of the Physical Laboratory was quite unexpected.
4. The optical spectra of the substance being carefully studied gave us the information about the distribution of nuclear charge.
5. Your reading English articles on your speciality will greatly help you in presenting your thesis for a master's degree.
6. Her having left for the Cambridge University was known to nobody.
7. The pulse generator having been repaired so quickly surprised us greatly.
8. His having read the contract made him think of terms.
9. Early rockets being inaccurate was their main disadvantage.
10. Mendeleyev's having noticed a periodicity in the chemical properties of elements enabled him to lay down his famous Periodic Law.
11. Their leaving before the end of the classes attracted the professor's attention.
12. The manager's refusing to take steps aroused everybody's indignation.
13. Overall sizes and weight being reduced allows designers to improve the electronic device appearance.
14. Her carrying out this experiment contributes to efficiency of the equipment.
15. We know of Yoffe's having contributed much to the research of transistors.



## Тема 35. Инфинитив. Субъектный инфинитивный оборот с глаголами в пассиве как признак оборота

Example:

The sun [is known] a great source of energy. – Известно, что солнце – огромный источник энергии.

Task. Translate the following sentences into Russian.

A.

1. The picture is believed to have been painted by that famous artist.
2. He is considered to be a famous scientist in the field of electronics.
3. This new method of research is expected to be more reliable than other methods.
4. The construction of a new bridge was reported to have been completed.
5. Propeller planes are known to fly much slower than jet planes.
6. This man is said to be a very unreliable person.
7. He is reported to be writing a new book now.
8. This firm is considered to be a leading company in the production of computer equipment.
9. This building is known to be a typical example of Gothic architecture.
10. Before that incident he was thought to be a very talented war commander.

B.

1. This sketch is believed to have been drawn by Leonardo da Vinci.
2. The current is known to flow when the circuit is closed.
3. A fuse is expected to melt and break the circuit.
4. The ship is reported to have crossed the channel.



5. The substance was found to be composed wholly of carbon, hydrogen and chlorine.
6. The term "radar" is known to be composed of the first letters of "radio, detection and ranging".
7. The delegation of scientists is known to arrive in Moscow to take part in the symposium.
8. They are said to have been working at the Designing Bureau of the institute for a long time.
9. He is understood to be a well-known specialist in Technology and Management.
10. The total energy is assumed to be constant in all these calculations.
11. The overloading of the line could be seen to produce a short circuit.
12. The first wave power electrical stations in Scotland were reported to have been developed.
13. Telegraph systems and telephones, motors and generators, radio sets and TV sets, relays as well as electrical measuring instruments are known to contain electromagnets.
14. Light and radio waves are stated to be of similar nature.
15. The USA is known to spend millions of dollars on superconductor research, much of it for military uses.



## Тема 36. Инфинитив. Субъектный инфinitивный оборот с глаголами исключения

### Examples:

1. This phenomenon appears to attract attention. – Считается, что это явление привлекает внимание.
2. It is likely to produce a short circuit. – Считается, что это приведет к короткому замыканию (Это, конечно, приведет к короткому замыканию).

**Исключения в активе:** *to prove, to happen, to seem, to appear, to chance*

Task. Translate the following sentences into Russian

A.

1. Lightning proved to be a discharge of electricity.
2. Wave power seems to be harnessed.
3. The electrolytes appear to change quality when the current passes through them.
4. Flight conditions appear to be improving.
5. The operation of this equipment proved to be efficient.
6. Small animals and plant organisms seem to be affected by heavy water.
7. The iron filings appear to be drawn to the magnet when being placed in its vicinity.
8. The latter term "calorie" appears to come from the Latin word "calor" which means heat.
9. Although we see evidence of such diffusion in our data, it does not appear to affect the results seriously.
10. Heavy water proved to freeze at about 4°C and to boil at about 101°C.



B.

1. The Egyptians seem to have made some use of iron a number of centuries before our era.
2. This rather complicated scheme seems to have lost simplicity of our idealized model, but there are good reasons for the complexity.
3. Vacuum tubes appear to perform such functions as rectification, amplification, detection, modulation and others.
4. Unfortunately this general solution does not appear to have a simple explicit form.
5. The split-phase type motor proves to be the most-widely used of all motor connected to a single-phase sources of supply.
6. The strength of electromagnet with a given core proves to be proportional to the number of ampere turns.
7. Zinc seems to have been known long before the days of the alchemists as one the constituents of the alloy brass.
8. Many people seem to have serious concerns about possible health risks and the likelihood of accidents.
9. The use of helium gas and standard leak detector proved to be an effective technique for measuring the beam properties.

