

5. Ляпон М.В. Смысловая структура сложного предложения и текст (к типологии внутритекстовых отношений): Автореф. дис. д-ра филол. наук.-М., 1985.-62 с.

6. Якубинский Л.П. О диалогической речи. // Русская речь. — Пг., 1923, № 1.

The language of description in English for engineering
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The achievements in science and engineering are expected to meet the current requirements of society to increase the living standards and/or to improve the poor performance of existing means of production. Thus, the language to describe an invention is certainly to comprise adjectives which are positive in meaning. However, the question arises what is accepted as being "good" with reference to technological innovations.

The objective of the present research was to search through scientific news in English for "positive" adjectives and find out what features are considered to be a must for a newly developed technology.

First of all, the initial observations have brought about a large number of qualitative adjectives of general positive estimation. They normally come alone, just before a noun, and indicate some degree of excellence.

e.g. This project is a *superb* example of the value of collaboration between universities and industry.

e.g. We have a *genuine* opportunity to ensure that Wales remains at the forefront of this technology worldwide.

e.g. Those in power have a *unique* opportunity, a duty, to avert a catastrophe.

e.g. Gaining two whole points of conversion efficiency in this type of system is *phenomenal*.

In terms of composition, such adjectives can be both simple and derivative, the present participle, or *-ing* form, being the most productive word-building pattern.

e.g. We have already obtained some *encouraging* results.

e.g. There is no doubt that we will be creating an *exciting* hi-tech steel product [...].

e.g. Algae seems to be the only *promising* sustainable oil source for biodiesel production.

As for adjectives of more precise positive description, they strike us with their wide-ranging versatility. Before dealing with semantics, however, it is quite reasonable to make a few comments on their morphological and grammatical characteristics. Again, simple adjectives seem to be in wide use.

e.g. Experience has shown that the *accurate* power generation estimation based on wind speed is a challenging task.

e.g. Self-sufficient sensors that provide their own power supply will soon make these machines more *robust*.

e.g. One of the key engineering challenges to building a *clean, efficient*, hydrogen-powered car is how to design the fuel tank.

It is simple adjectives that are quite often used in comparative degree.

e.g. The electric sail could enable *faster* and *cheaper* solar system exploration.

e.g. This is a groundbreaking study which outlines *cheaper* and environmentally *better* transportation solutions in a comprehensive way.

e.g. The researchers are now working on making the system *faster* and *more efficient*. Then it's a pollution-free drive to their destination – *cheaper*, *cleaner*, and *more efficient* than even the most fuel-stingy gasoline-based car.

Sometimes comparative degree is usable when the invention is said to be superior in some of the characteristics.

e.g. The technology, called light-emitting diodes, or LEDs, is about four times *more efficient* than conventional incandescent lights and *more environmentally friendly* than compact fluorescent bulbs.

e.g. Monash University scientists have revolutionised the design of fuel cells used in the latest generation of hybrid cars which could make the vehicles *more reliable* and *cheaper* to build.

e.g. As the new triple port converter transforms the energy in a single step, it could be *more cost effective*, *flexible* and *efficient* than the conventional approach.

Superlative degree may also be encountered, although less frequently.

e.g. The logistics of widespread biogas production [...] must be determined at the local level to produce the *most environmentally advantageous*, *economical* and *energy efficient* system.

e.g. Coal gasification offers one of the *most versatile* and *clean* ways to convert coal into electricity, hydrogen and other valuable energy products.

One of the most frequently encountered adjective “*efficient*” comes rarely alone. Instead, it is primarily used as a compound adjective of *Noun+Adjective* type.

e.g. Gas centrifuge technology is much more *energy-efficient* than current gaseous diffusion methods.

e.g. For instance, the savings from buying a more *fuel-efficient* vehicle can offset the added cost of technology in less than a year by using technologies that are already available and manufacturing vehicles that achieve the CAFE standards and even go beyond them.

Moreover, it is often accompanied by another “positive” adjective.

e.g. Developing an *efficient*, *cost-effective* process to convert the fibrous stalks, leaves, and blades of plant wastes into simple sugars is the biggest challenge to bio-based ethanol production.

e.g. Dr Worsley will be working closely with Corus to research *practical*, *cost-efficient* methods of mounting the system on steel structures.

The same is true of adjective “*effective*”, which is commonly used as “*cost-effective*” to describe reasonable price of a new product.

e.g. This research aims to develop a *cost-effective* process for growing algae on solid carriers in the ocean for biofuel manufacturing.

e.g. A micro-grid plant with its own local power sources and independent control would be more *dependable*, *efficient*, and *cost-effective* than traditional telecom power systems.

Indeed, if several positive adjectives refer to the same noun, they usually come in a group of two or three. In the latter case the last adjective is added by conjunction “*and*”.

e.g. The laser-based measurements technique performs wind field measurements in a more *flexible* and *economical* way.

e.g. The requirements for a solar EKG unit are conceivably simple: it should be *robust*, *affordable* and *energy-efficient*.

The overwhelming majority of positive adjectives referring to the improved maintenance, or the like, is derived by means of suffix *-able* (also see examples above).

e.g. The optimal operation of the newest generation of large wind turbines is possible through the *reliable* measurements of the wind inflow characteristics.

e.g. [...] the major problem with making biodiesel has been finding *sustainable* oil and fat sources.

e.g. Carbon nanotubes are 10,000 times thinner than a human hair, yet stronger than steel and more *durable* than diamonds.

e.g. Looking to the future, to be a *scaleable* and *affordable* remediation method, the metal in the metal sulfide needs to be inexpensive and readily available and also make a stable compound.

Prefixes, on the other hand, are not so productive as suffixes. Scarcely detected ones are negative prefixes *in-* and *un-*.

e.g. Microgrids would also be a quick and *inexpensive* way to include renewable energy sources for both existing and developing systems.

e.g. Light-emitting diodes are *unbeatable* in terms of energy efficiency.

Rather important feature of modern technological products is eco-friendliness, which is stressed by appropriate recently coined adjectives, usually compound ones.

e.g. Researches at Swansea University are developing a new, *eco-friendly* technology that could generate as much electricity as 50 wind farms.

e.g. Algae also have several *environmentally-friendly* advantages over corn or other plants used for biofuels, including not needing soil or fresh water to grow.

e.g. Our preliminary results provide a *promising* proof of concept for what could be a very important future source of renewable, *pollution-free* energy for our nation.

Such pattern of word-building as *Adverb+Adjective* is most applicable to adjectives that specify the costs of the technique introduced.

e.g. Swansea University is now leading a partnership with Bangor University [...] to develop *commercially viable* photovoltaic materials for use within the steel industry.

e.g. Once the technology approaches 15% efficiency, it becomes *commercially viable*.

e.g. By creating a closed-loop system that utilizes the waste to create additional products and feeds back upon itself, suddenly growing sugar cane becomes *economically feasible* again.

e.g. This brings us one step closer to licensing a *commercially-capable* high-temperature gas reactor [...].

Another adjective expressing high economical value of the innovation, but of much simpler derivative nature, is "*competitive*", which is mostly found in certain collocations (see the ones underlined below).

e.g. Small devices like solar panels and windwills can be added ad hoc, making for a painless transition to renewable energy at a competitive cost.

e.g. By 2023, the total cost of fuel cell vehicles, including the cost of hydrogen fuel over a vehicle's lifetime, could become competitive with conventional vehicles.

e.g. Diesel soot filters of varying shapes can now be produced at competitive prices.

It is interesting to note that environmental and economical concerns are seldom spoken of separately.

e.g. The success using the relatively *inexpensive* and *environmentally friendly* alloy means the discovery can quickly be applied to a range of uses, leading to higher cooling and power generation efficiency.

e.g. This exciting record shows that using these dishes will be a *cost-effective* and *environmentally friendly* way of producing power.

e.g. They hope their findings will one day facilitate the design and creation of an *affordable* and *environmentally friendly* hydrogen vehicle.

The final conclusion arrived at is that despite being truly impressive the diversity of positive adjectives can be sorted out, more or less strictly, into the following categories: general positive attitude, attractive price, high reliability, eco-friendliness and practicability, the latter including efficiency, speed and mobility of a new device.

The table below exemplifies each category, the adjectives being given in alphabetical order, with no regard to the indication of frequency in use.

<i>general positive attitude</i>	<i>price</i>	<i>reliability</i>	<i>eco-friendliness</i>	<i>practicability</i>
attractive; encouraging; exciting; genuine; good; optimal; phenomenal; promising; successful; superb; superior; unbeatable; unique	affordable; cheap; commercially valuable; commercially viable; competitive; cost-effective; cost-efficient; economical; economically capable; economically feasible; inexpensive	accurate; dependable; durable; precise; reliable; robust; sustainable	clean; eco-friendly; environmentally advantageous; environmentally friendly; pollution-free	easy-to-use; efficient; energy-efficient; fast; flexible; high-speed; mobile; powerful; practicable; quick; realistic; scaleable; tunable; versatile

In general, judging from numerous coordinate adjectives, there must be at least two advantages for a new device to be considered commercially successful.

e.g. It's easy to imagine that this *easy-to-use, inexpensive* technology could be used by local governments, alone or in partnership with entrepreneurs, to meet local demand for ethanol, possibly using yard waste as a substrate.

e.g. Our goal is to replace traditional fuel-cell membranes with these *cost-effective, highly tunable* and *better-performing* materials.

e.g. This is a *high-speed, ultra precise, mobile* system for the calibration and verification of coordinate-measuring machines (CMM), CNC machine tools, and other leading-edge measurement applications.

Thus, to be an attractive alternative, the discovery should represent a green solution of the two common problems: efficiency and high production costs. In other words, it must provide significant economical and environmental benefits in addition to the improved efficiency.

References:

1. В.Л. Каушанская, Р.Л. Ковнер, и др. *Грамматика английского языка* (на английском языке). – Москва, 2000. – 319с.
2. Mark Ibbotson *Cambridge English for Engineering*. – Cambridge University Press, 2008. – 112p.
3. Alice Macline *Reference Guide to English*. – Washington DC, 2001. – 405p.
4. *Oxford Advanced Learner's Dictionary of Current English*. – Oxford University Press, 2010. – 1796p.
5. *Macmillan English dictionary for advanced learners*. – Macmillan Publishers Limited, 2007. – 1748p.
6. www.sciencedaily.com