Word Formation Processes in E4BT
Short-Term Creation

Acronymy, clipping and blending are highly productive word-formation processes, characterizing most specialized languages – such as those of science and medicine, business, ICT, and warspeak as well.

Acronymy

Acronymy is a word-formation process resulting in both acronyms and initialisms.

Generally speaking, an acronym is a word, such as

- ✓ **AMR ➔ *Anti-Microbial Resistance***
- ✓ **EID ➔ *Emerging Infectious Diseases***
- ✓ **LASER (more commonly and confusingly, it is written as 'laser') ➔ *Lightwave Amplification by Stimulated Emission of Radiation***
- ✓ **MMWR ➔ *Morbidity and Mortality Weekly Report***
- ✓ **SARS ➔ *Severe Acute Respiratory Syndrome***
- ✓ **STI ➔ *Sexually transmitted infection***

formed from the initial letters of each of a series of words.

The distinction between an acronym and an initialism is essentially based on the way we have to pronounce it.
In fact, pronounceable "words" are acronyms:

- ✓ **CAT ➔ *Computerized Axial Tomography*[1],**
- ✓ **PET ➔ *Positron Emission Tomography*,**
- ✓ **SAVA ➔ *Substance Abuse, Violence and AIDS*,**

whereas the following abbreviations are considered initialisms:

- ✓ **ECDC ➔ *European Centre for Disease Prevention and Control*[2],**
- ✓ **EMA ➔ *European Medicines Agency*[3],**

[1] Often referred to as *CT, Computed Tomography*.
[2] The **European Centre for Disease Prevention and Control** (**ECDC**) is an independent agency of the European Union whose mission is to strengthen Europe's defences against infectious diseases. The Centre was established in 2004 and is located in Solna, Sweden. **Italian equivalent**: "Centro Europeo per il Controllo e la Prevenzione delle Malattie".
[3] The **European Medicines Agency** (**EMA**) is a European Union agency for the evaluation of medicinal products both for human and veterinary use. **Italian equivalent:** "Agenzia Europea per i Medicinali".

- ✓ **DNA ➔ *deoxyribonucleic acid*,**
- ✓ **FDA ➔ *Food and Drug Administration*[4],**
- ✓ **GMO ➔ *genetically-modified organism***
- ✓ **OLDU ➔ *off-label drug use***
- ✓ **PPE ➔ *personal protective equipment***
- ✓ **ER ➔ *emergency room* (USEng)**
- ✓ **A&E ➔ *accident and emergency* (BrEng)**

because each letter is pronounced with the sound that it has in the alphabet.

Remember however that some abbreviations can be pronounced either as individual letters (= initialism) or as a word (= acronym) as in the case of FUO ➔ *fever of unknown/uncertain/undetermined origin*.

Furthermore, some abbreviations are pronounced in a hybrid way – partly as an initialism and partly as an acronym, such as in:

- ✓ **nCoV ➔ *novel Coronavirus* /ˌenkəʊˈviː/**
- ✓ **NSAID ➔ *nonsteroidal anti-inflammatory drug* /ˌenˈsed/**

Such abbreviations can be a useful way to make writing and speaking more concise and less repetitive, as well as to create an international code easily and immediately understandable among both the scientific community and non-scientists.
However, abbreviations can be confusing if not explained at their first use – particularly as the same abbreviation can have more than one meaning. Moreover, the shorter is the abbreviation the higher is the number of its potential meanings.

Acronyms and initialisms are generally spelled without periods:

- ✓ **WHO ➔ *World Health Organization*[5],**

[4] The **Food and Drug Administration** (**FDA** or **USFDA**) is a federal agency of the United States Department of Health and Human Services, one of the United States federal executive departments. The FDA is responsible for protecting and promoting public health through the regulation and supervision of food safety, tobacco products, dietary supplements, prescription and over-the-counter pharmaceutical drugs (medications), vaccines, biopharmaceuticals, blood transfusions, medical devices, electromagnetic radiation emitting devices (ERED), cosmetics, animal foods and feed and veterinary products (see http://www.fda.gov/). The FDA has its headquarters Silver Spring, Maryland. The agency also has 223 field offices and 13 laboratories located throughout the 50 states, the United States Virgin Islands, and Puerto Rico. **Italian equivalent**: "Agenzia governativa statunitense per il Controllo dei Prodotti Alimentari, Farmaceutici e Cosmetici".

[5] The **World Health Organization** is a specialized agency of the United Nations (UN) that is concerned with international public health. It was established on April 7, 1948, and headquartered in Geneva, Switzerland. Since its creation, it has played a leading role in the eradication of smallpox. Its current priorities include communicable diseases, in particular HIV/AIDS, Ebola, malaria and tuberculosis; the mitigation of the effects of non-communicable diseases; sexual and reproductive health, development, and aging; nutrition, food security and healthy eating; occupational health;

- ✓ **CDC ➔ *Centers for Disease Control and Prevention*[6],**
- ✓ **HRS ➔ *Hantavirus respiratory syndrome***
- ✓ **HPS ➔ *Hantavirus pulmonary syndrome***
- ✓ **TB ➔ *Tuberculosis***

and may or may not be capitalised:

- ✓ **ab ➔ *antibody*,**
- ✓ **mAb ➔ *monoclonal antibody*,**
- ✓ **IVM or Ivm ➔ *in-vitro maturation*,**
- ✓ **IVF or Ivf ➔ *in-vitro fertilization*,**
- ✓ **OTC, Otc or otc ➔ *over-the-counter drug*.**

Maybe, the only initialisms often spelled with periods are the following: e.g. ➔ *exempli gratia* = *for instance* / *for example* and i.e. ➔ *id est* = ‹‹*that is,*›› or ‹‹*namely,*›› that are very common in scientific writings (however, spelled without periods as well)**.**

When you write, speak or translate, avoid redundancy with abbreviations – that is, if a word is represented in the acronym or initialism do not repeat it:

- ✓ AIDS is correct; “AIDS syndrome” is wrong
- ✓ GMO is correct; “GMO organism” is wrong
- ✓ WHO is correct; “WHO organization” is wrong
- ✓ nCoV is correct; “nCoV virus” is wrong

Both acronyms or initialisms can have, if necessary and possible, a plural form:

- ✓ GMOs stands for ‘genetically-modified organisms’
- ✓ ils (also written as ILs) stands for ‘interleukins’[7]

substance abuse; and driving the development of reporting, publications, and networking (see http://www.who.int/en/). **Italian equivalent:** “OMS, Organizzazione Mondiale della Sanità”.

[6] The **Centers for Disease Control and Prevention** (**CDC**) is the leading national public health institute of the United States. The CDC is a federal agency under the Department of Health and Human Services and is headquartered in DeKalb County, Georgia, a few miles northeast of the Atlanta city limits.
Its main goal is to protect public health and safety through the control and prevention of disease, injury, and disability. The CDC focuses national attention on developing and applying disease control and prevention. It especially focuses its attention on infectious disease, foodborne pathogens, environmental health, occupational safety and health, health promotion, injury prevention and educational activities designed to improve the health of United States citizens. In addition, the CDC researches and provides information on non-infectious diseases such as obesity and diabetes and is a founding member of the International Association of National Public Health Institutes. The CDC is organized into "Centers, Institutes, and Offices" (CIOs) which allow it to be responsive and effective in its interface with public health concerns. Each organizational unit implements the agency’s response in a particular area of expertise (see https://www.cdc.gov/). **Italian equivalent:** “Centri per il Controllo e la Prevenzione delle Malattie”.

[7] A group of cytokines (secreted proteins and signal molecules) that were first seen to be expressed by white blood cells (leukocytes). **Italian equivalent:** “interleuchine”.

- ✓ NSAIDs stands for 'nonsteroidal anti-inflammatory drugs"[8]
- ✓ OTCs stands for 'over-the-counter medicines / drugs"
- ✓ RBCs stands for 'red blood cells'
- ✓ WBCs stands for 'white blood cells'

even if in some cases such as CDC (*Centers for Disease Control and Prevention*) the ending -s indicating the plural form is "hidden".

REMEMBER that the full version of an acronym/initialism corresponds always to a collocation, since we can neither invert the position of each word nor replace any word with a synonym.

- ✓ EVD ➔ *Ebola virus disease*
- ✓ FMD ➔ *Foot and Mouth Disease*
- ✓ HMD ➔ *Hoof and Mouth Disease*
- ✓ MBM ➔ *meat-and-bone meal*
- ✓ OIE ➔ *Office International des Epizooties* / *World Organisation for Animal Health*[9]
- ✓ WHO ➔ *World Health Organization*
- ✓ MMR ➔ *Measles, Mumps, Rubella*

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REMEMBER to use the database www.acronymfinder.com to search the full version of an acronym/initialism, as well as to consult the online dictionary http://www.oxfordlearnersdictionaries.com/ to check the right pronunciation of most acronyms/initialisms.

[8] A drug class that reduces pain, decrease fever, prevent blood clots and, in higher doses, decrease inflammation. Side effects depend on the specific drug, but largely include an increased risk of gastrointestinal ulcers and bleeds, heart attack and kidney disease. **Italian equivalent:** "farmaci anti-infiammatori non steroidei", "FANS".

[9] The need to fight animal diseases at a global level led to the creation of the **Office International des Epizooties** through an international agreement signed on January 25, 1924. In May 2003 the Office became the **World Organisation for Animal Health** but kept its historical acronym OIE. **Italian equivalent:** "Organizzazione Mondiale della Sanità Animale".

Clipping or Truncation

The main aim of clipping is to shorten words (mostly of Neolatin origin) so that they can become as more comparable as possible to the short terms (mostly of Germanic origin) belonging to the "common core" of the English language.

It is a process by which a word is clipped – i.e. truncated or cut, at the end (*back-clipping*), at the beginning (*fore-* or *front-clipping*), both at the beginning and at the end (*back-*and-*fore clipping*) in the middle (*middle clipping*).

- ✓ **back-clipping:**

  lab(oratory) **info(rmation)** **rep(resentative)**
  ad(vertisement) **chimp(anzee)** **hippo(potamus)**
  croc(odile) **detox(ification)** **rehab(ilitation)**
  polio(myelitis) **sp.(ecies)**[10] **vet** **rev**

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- ✓ **fore-clipping:**

  (tele)phone, (air)plane, (heli)copter, (para)chute, (de)fence, (rac)coon, (alli)gator

- ✓ **back-and-fore clipping:**

  (in)flu(enza), (re)fri(d)ge(rator)

- ✓ **middle clipping:**

  bike (<bicycle), vegan (<vegetarian)

Generally speaking, clipping makes the meaning of words more opaque.

[10] Please note that the back-clipping ***spp.*** stands for ***species*** as a plural form.

A glance at the clipped words "vet" and "rev"

Vet can be the clipped form of:

- ✓ **veterinarian**
- ✓ **veterinary**
- ✓ **veteran**

Its full version and its meaning depend on the context where it is used. Furthermore, by the process of conversion, this clipped word can become a verb: to vet (vetted/vetted/vetting) – that is, to screen.

Examples:

- Our vets offer some seasonal advice to help keep your pets happy throughout the year.
- An Iraq war vet.
- All candidates are carefully vetted for security reasons.

Rev can be the clipped form of eight words:

1. revolution, 2. revision, 3. revised, 4. review, 5. reverse 6. revenue, 7. revolving, 8. Reverend

In this case too, its full version and its meaning depend on the context where it occurs. By the process of conversion, also this clipped word can become a verb: to rev (revved/revved/revving) – that is, to run quickly.

Blend

It is a process by which two or more words are blended – that is, joined to become one word:

- ✓ **smog** ⇦ sm(oke) + (f)og
- ✓ **motel** ⇦ mot(or) + (hot)el
- ✓ **Spanglish** ⇦ Span(ish) + (En)glish
- ✓ **podcast** ⇦ pod + (broad)cast
- ✓ **hi-tech** ⇦ hi(gh) + tech(nology)
- ✓ **hi-fi** ⇦ hi(gh) + fi(delity)
- ✓ **wi-fi** ⇦ wi(reless) + fi(delity)
- ✓ **sci-fi** ⇦ sci(ence) + fi(ction)
- ✓ **blog** ⇦ (we)b + log
- ✓ **webinar** ⇦ web + (sem)inar

Examples in Scientific English:

- ✓ **arbovirus**[11] ⇦ ar(thropod) + bo(rne) + virus
- ✓ **biodegradable** ⇦ bio(logically) + degradable
- ✓ **breathalyzer** ⇦ breath + (an)alyzer
- ✓ **Covid** ⇦ Co(rona)Vi(rus) + d(isease)
- ✓ **E.coli**[12] ⇦ E(scherichia) + coli
- ✓ **formaldehyde**[13] ⇦ form(ic) + aldehyde

[11] **Arbovirus** is a term used to refer to any viruses that is transmitted by arthropod vectors. The word *tibovirus* (**TI**ck-**BO**rne virus) is sometimes used to more specifically describe viruses transmitted by ticks, a superorder within the arthropods. Arboviruses can affect both animals, including humans, and plants. In humans, symptoms of arbovirus infection generally occur 3-15 days after exposure to the virus and last 3 or 4 days. The most common clinical features of infection are fever, headache, and malaise, but encephalitis and hemorrhagic fever may also occur. **Equivalents in Italian:** "arbovirus", "virus di origine artropode", "virus trasmesso da artropodi".

[12] **Escherichia coli** is a Gram-negative, facultatively anaerobic, rod-shaped, coliform bacterium of the genus *Escherichia* that is commonly found in the lower intestine of warm-blooded organisms. Most E.coli strains are harmless, but some serotypes can cause serious food poisoning in their hosts, and are occasionally responsible for product recalls due to food contamination. Most E.coli strains do not cause disease, but virulent strains can cause gastroenteritis, urinary tract infections, neonatal meningitis, hemorrhagic colitis, and Crohn's disease. In May 2011, one E.coli strain was the subject of a bacterial outbreak that began in Germany. Certain strains of E.coli are a major cause of foodborne illness.
In 1885, the German-Austrian pediatrician Theodor Escherich discovered this organism in the feces of healthy individuals. He called it *Bacterium coli commune* because it is found in the colon. *Bacterium coli* was the type species of the now invalid genus *Bacterium* when it was revealed that the former type species was missing. Following a revision of *Bacterium*, it was reclassified as *Bacillus coli* by Migula in 1895 and later reclassified in the newly created genus *Escherichia*, named after its original discoverer. **Equivalents in Italian:** "Escherichia coli", "E.coli"

[13] **Formaldehyde** is a naturally occurring organic compound with the formula CH_2O (H-CHO). It is the simplest of the aldehydes (R-CHO). The common name of this substance comes from its similarity and relation to formic acid. It is mainly

- ✓ **Frankenfood**[14] ⇦ **Franken(stein) + food**
- ✓ **genome**[15] ⇦ **gen(e) + (chromos)ome**
- ✓ **medicaid ⇦ medic(al) + aid**
- ✓ **medicare ⇦ medi(cal) + care**
- ✓ **nutraceutical**[16] ⇦ **nutr(itive) + (pharm)aceutical**
- ✓ **permaculture ⇦ perma(nent) + culture**
- ✓ **prion**[17] ⇦ **pr(oteinaceous) + i(nfectious) + on(ly particle)**
- ✓ **proteomics**[18] ⇦ **prote(in) + (ge)nomics**
- ✓ **pulsar ⇦ puls(ating) + (st)ar)**
- ✓ **quasar ⇦ quas(i) + (stell)ar)**
- ✓ **t.gondii**[19] ⇦ **t(oxoplasma) + gondii**

Generally speaking, words built by blend have a transparent meaning.

used in the production of industrial resins – e.g., for particle board and coatings. Formaldehyde also preserves or fixes tissue or cells, and formaldehyde solutions are used as a fixative for microscopy and histology.
In view of its widespread use, toxicity, and volatility, formaldehyde poses a significant danger to human health. **Equivalents in Italian:** "formaldeide", "aldeide formica".

[14] **Frankenfood** is food that has been genetically modified. **Equivalent in Italian:** "alimenti geneticamente modificati".

[15] In terms of modern molecular biology and genetics, a **genome** is the **genetic material** of an organism. It consists of DNA (or RNA in RNA viruses). The genome includes both the genes (the coding regions) and the noncoding DNA, as well as the genetic material of the mitochondria and chloroplasts. **Equivalent in Italian:** "genoma".

[16] **Nutraceutical** is a foodstuff (such as a fortified food or a dietary supplement) that provides health benefits in addition to its basic nutritional value. **Equivalent in Italian:** "nutraceutica".

[17] **Prions** are misfolded proteins which characterize several fatal neurodegenerative diseases in animals and humans. It is not known what causes the normal protein to misfold. **Equivalent in Italian**: "prione".

[18] **Proteomics** is the large-scale study of proteins. The term *proteomics* was coined in 1997 in analogy with *genomics* – i.e. the study of the genome. The word *proteome* is a blend of *prote*in and gen*ome*, and was coined by Marc Wilkins in 1994 while he was a PhD student at Macquarie University. Macquarie University also founded the first dedicated proteomics laboratory in 1995 – the Australian Proteome Analysis Facility (APAF). **Equivalent in Italian:** "proteomica".

[19] **Toxoplasma gondii** is an obligate intracellular, parasitic alveolate that causes the disease toxoplasmosis. Found worldwide, *T.gondii* is capable of infecting virtually all warm-blooded animals, but felids such as domestic cats are the only known definitive hosts in which the parasite can undergo sexual reproduction. In humans, *T.gondii* is one of the most common parasites in developed countries. **Equivalent in Italian:** "Toxoplasma gondii".