

**USEFUL ORTHOGRAPHIC PATTERNS FOR THE TRANSLATION  
OF SCIENTIFIC TERMINOLOGY FROM ROMANIAN INTO  
ENGLISH / MODÈLES ORTHOGRAPHIQUES UTILES POUR LA  
TRADUCTION DE LA TERMINOLOGIE SCIENTIFIQUE DU  
ROUMAIN VERS L'ANGLAIS / MODELE ORTOGRAFICE UTILE  
PENTRU TRADUCEREA TERMINOLOGIEI ȘTIINȚIFICE DIN  
ROMÂNĂ ÎN ENGLEZĂ<sup>1</sup>**

**Abstract:** *Specialized texts are notoriously difficult to translate, especially when the translator is a philology graduate with no or little experience with a scientific or technical domain. Scientific jargon is particularly complex and difficult at a first sight. However, with experience, one begins to distinguish certain patterns of similarity between languages, Romanian and English in this case, especially when the shared Greek or Latin origins of the scientific terminology are involved, but not only. Such patterns, once identified, prove very useful and reduce considerably the time required to look up terms in a dictionary or an online resource. This article will provide details for the recognition and use of some of the most encountered such patterns of similarity and inform on the difference between apparent equivalencies.*

**Keywords:** *specialized translation, scientific terminology, derivation, spelling, equivalence*

**Résumé:** *Les textes spécialisés sont difficiles à traduire, surtout lorsque le traducteur est diplômé en philologie et possède très peu d'expérience dans un domaine scientifique ou technique. Le jargon scientifique est particulièrement complexe et difficile à première vue. Cependant, au fur et à mesure qu'un traducteur accumule de l'expérience, il commence à observer certains modèles de similitude entre les langues, le roumain et l'anglais dans ce cas, notamment lorsqu'il s'agit des origines communes latines ou grecques des termes scientifiques, mais pas seulement. Une fois identifiés, ces modèles s'avèrent très utiles et réduisent considérablement le temps nécessaire à la recherche des termes dans le dictionnaire ou une ressource en ligne. Cet article fournira des détails sur la reconnaissance et l'utilisation des modèles de similarité les plus fréquents, et également des informations sur la différence entre des termes apparemment équivalents.*

**Mots-clés:** *traduction spécialisée, terminologie scientifique, dérivation, orthographe, équivalence*

### **Introduction**

Since the difference between scientific translation and other forms of translation consists in the presence of scientific terms in the text (Newmark, 1995: 151), it follows that terminology is the main difficulty when translating such a text (Buzarna-Tihenea, 2015: 17). Science is in constant change and progress, terminology is always increasing accordingly (Dan, 2015: 270), therefore good and comprehensive specialized bilingual dictionaries (Romanian -English) are not easy to find and they are often incomplete. Online sources and authentic corpora are often the best and most convenient aid in this endeavor. A simple query on a good internet browser will render usable results and such tools also provide suggestions for the correct spelling of difficult words. Caution should be exercised not to fall into the trap of homophones. The exact meaning of the word should be checked both in English and Romanian dictionaries, or other sources, if available. Scientific articles written by English native speakers are a good confirmation resource. However, for Romanian translators who use online sources in order to find highly specialized technical or scientific terms, the good news is that there are some patterns of similarity between English and Romanian that can ease the search, especially when it comes to scientific terminology with shared Latin or Greek origins. Biology (with all its branches: anatomy, histology,

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physiology, botany, genetics, microbiology, zoology, entomology, ornithology etc.), medicine, chemistry, mathematics, astronomy and others have some of the largest percentages of Latin or Greek derivatives in their specialized terminology, words that non-professionals most likely never encounter in their entire life. There are slight differences that distinguish one term from another within what may appear as a string of identical suffixes or combining forms. That slight difference changes both spelling and meaning, and knowledge of such distinctions is very important in a domain like science where accuracy is paramount (Buzarna-Tihenea and Nadrag, 2016: 193). However, since translators are not specialists in the respective technical or scientific fields the texts belong to, they must employ strategies in order to tackle the difficult issues of terminology (Dan, 2015: 270). For example, where a neophyte may hear the same suffix or combining form in several different words, there will in fact be two or more distinct ones. Thus, “histerectomie”, “hiperglicemie” and “oogamie” will have different spelling at the end of the word even though they all ‘sound’ like they end in -mie. Similarly, “xantofilă” and “xerofilă” or “fructoză” and “simbioză” will not have an identical ending in English although they apparently have an identical ending in Romanian. Learning to recognize the correct patterns will improve the translation and reduce the time required to look up a difficult word. This article will provide details for the recognition and use of some of the most encountered such patterns of similarity and inform on the difference between apparent equivalencies.

The corpus used for this research consists of over a hundred scientific texts from various domains of biology (botany, zoology, anatomy, biochemistry etc.) that I worked on over several years. By translating such highly specialized texts, I began to recognize patterns that, in time, helped me find very difficult terms more and more easily.

#### Common Anglicization patterns

In the case of a considerable number of highly specialized terms with Latin or Greek origin, the equivalent in English of a Romanian term can be found by changing certain graphemes, digraphs, morphemes, or rather, by anglicizing the Romanian word. This happens because scientific terms are neologisms that entered the Romanian language mostly via French, but also other languages (more recently) after the standardization of scientific nomenclature accomplished in various domains by scientists such as Antoine Lavoisier for chemistry (in the 18<sup>th</sup> century), Carl Linnaeus for biology, as well as the more recent Eugen Wüster (the founder of modern terminology in the 20<sup>th</sup> century) and medical bodies such as FICAT (Federative International Committee on Anatomical Terminology) (Doncu, 2019: 243-244). All of them use Latin and Greek as common denominators, as *lingua franca*, for scientific terminology.

This common etymology helps with the recognition of patterns of orthography similar between the two languages, Romanian and English. However, even though these patterns are not limited to words of Latin or Greek origin, they can help considerably a translator find the correct equivalents, especially when there is a strong suspicion the terms may be orthographically similar due to their etymology. Some of the simplest patterns are:

- a) **f** may change to **ph**: fenol → *phenol*, fosforic → *phosphoric*
- b) **t** may change to **th**: eter → *ether*, tiol → *thiol*, periteciu → *perithecium*
- c) **c** may change to **k** or **ch**: cetonă → *ketone*, leucocită → *leukocyte*, colină → *choline*, stomac → *stomach*
- d) **h** may change to **ch** or **ceh**: arahnid → *arachnid*, monozaharidă → *monosaccharide*
- e) **i** may change to **y**: acil → *acyl*, xilan → *xylan*, aldehydă → *aldehyde*
- f) **u** may change to **ou**: cumarină → *coumarin*
- g) **z** may change to **s**: izoamil → *isoamyl*, xiloză → *xylose*
- h) missing letter per prefix characteristic in English: dezaminare → *deamination*, dezoxiribonucleic → *deoxyribonucleic*, deshidratare → *dehydration*, oxiacid → *oxacid*.

i) **r** may change to **rh** or **rrh**: ramnoză → *rhamnose*, rizoid → *rhizoid*, aritmie → *arrhythmia*, hemoragie → *hemorrhage*. With a few exceptions (*arrhizal*, *antirrhinum*, *mycorrhiza*, *pyrrhotite*), most of the words containing the group **rrh** are in the medical field.

j) **gh** may change to **gu**: inghinal → *inguinal*

k) **chi** may change to **cy** or **qui** or remains **chi**: chist → *cyst*, acid chinic → *quinic acid*, catechină → *catechin*

l) some letters become double (**cc**, **ll**, **ff**, **nn**, **rr**, **ss**): lacază → *laccase*, celuloză → *cellulose*, parafină → *paraffin*, tanin → *tannin*, corinoidă → *corrinoid*, potasiu → *potassium*

m) addition or lack of final **e**. This may prove particularly confusing, especially when there is a gender inflection in Romanian. Gender is, of course, not an indicator for the existence of the final **e**, but it may instill in an inexperienced translator the assumption that words like the ones exemplified below may have a final **e** in English when they do not. Nouns that are feminine in Romanian, according to grammatical gender, might ‘feel’ they require a final **e** in English, but this is not the case: lipidă (*lipid*), melanină (*melanin*), proteină (*protein*), siringină (*syringin*), vitamină (*vitamin*). Other feminine nouns may prove that ‘feeling’ right, as they indeed end with an **e** in English: amină (*amine*), colină (*choline*), flavonă (*flavone*), lactonă (*lactone*), riboză (*ribose*), nucleotidă (*nucleotide*), tirozină (*tyrosine*). Some nouns that are masculine or neuter, again add the final **e** in English: gluconat (*gluconate*), tartrat (*tartrate*), dioxid (*dioxide*), caroten (*carotene*), antranilat (*anthranilate*).

In many cases, more than one such change occurs in a single word: *photosynthesis* (fotosinteză), *isoamyl* (izoamil), *thrombocyte* (trombocită), *ketohexose* (cetohezoză), *phagocytosis* (fagocitoză). It is also important to mention that these are not definite rules, but rather useful guidelines and they do not occur always and without exception (*pirazină* → *pyrazine*, olfactiv → *olfactory*). For example, not everything containing the group **oxi** is spelt with **y** (*oxygen* vs. *oxidation*). Sometimes the only difference is that one word in Romanian is split into two words in English (*aminoacid* → *amino acid*, *hidroxiacid* → *hydroxy acid*). Also, there are many specialized words with identical orthography in English and Romanian (*antiseptic*, *carotenoid*, *ester*, *glucan*, *retinol*).

When it comes to the idea of similarity, it is worth mentioning false friends or combinations done by ear (Buzarna-Tihenea, 2015: 20) and the imperative need for thorough checking and confirmation of the correct form of the words or phrases. In spite of this considerable similarity between English and Romanian when it comes to scientific terms, one must not fall into this trap and assume everything is the same. The following examples can illustrate the importance of meticulous investigation. In the second column of the table below, the words exist independently, but the combination is not the correct equivalent for the Romanian phrases:

Romanian	incorrect assumption	correct in English
țesut liberian	liberian tissue	<i>phloem</i>
organe anexe	annex organs	<i>accessory organs</i>
rețea testiculară	testicular network	<i>rete testis</i>
umoare apoasă	watery humor	<i>aqueous humor</i>
trompe uterine	uterine trunks	<i>fallopian tubes</i>
bulb rahidian	rachidian bulb	<i>medulla oblongata</i>
canal deferent	deferent duct	<i>vas deferens</i>

Also, some collocations are not equivalent to the Romanian phrase in terms of the grammatical category, namely the Romanian adjective will be a noun in English, in some cases simply because the adjective does not exist in English:

Romanian	incorrect assumption	correct in English
nucleu benzenic	benzenic* nucleus	<i>benzene nucleus</i>
substanță proteică	proteic/proteinaceous substance	<i>protein substance</i>
perete celular	cellular wall	<i>cell wall</i>
celule spermatic	spermatic cells	<i>sperm cells</i>
organe sexuale	sexual organs	<i>sex organs</i>

In other cases, the equivalence of the grammatical category is correctly assumed or can have both forms: oxidare enzimatică = *enzymatic oxidation*, fermentație alcoolică = *ethanol fermentation / alcohol fermentation / alcoholic fermentation*.

#### Affixes, combining forms and endings

Two important categories in this discussion on patterns of similar orthography are those of affixes and combining forms, and their equivalence between Romanian and English. The category of affixes and combining forms that display the most instances of similarity are, again, those originating from Greek or Latin. They are also a source of confusion for the untrained eye. Both noun and adjective suffixes and combining forms are very important in scientific terminology because they occur often, can change the meaning of the root (*terrirogenous* vs. *terricolous*), and can change grammar category (*xerophyte*-noun vs. *xerophytic*-adjective). Below are a few instances of such suffixes and combining forms that may be difficult to identify and translate correctly without minimal experience or willingness to investigate.

Thus, where a neophyte may ‘hear’ **-mie** at the end of various words, the reality may be slightly more complicated, with at least, but not limited to, three distinct derivational components with separate meaning. Thus, **-mie** can in fact be part either of two different noun combining forms used in the medical field, namely **-ectomie** (Marcu, 2015: 344) and **-emie** (Marcu, 2015: 357), or of another noun combining form, **-gamie** (Marcu, 2015: 440), specific to biology. The meaning for each is identical in English and has corresponding orthography as follows: **-ectomie** = **-ectomy** = surgical removal, **-emie** = **-emia** = presence in the blood, and **-gamie** = **-gamy** = union for reproduction, possession of reproductive organs, or simply marriage (Merriam Webster Dictionary). All three come from Greek. Thus, according to these clarifications, the words that at a first sight should all end identically will have slightly different spelling in English due to their differing etymology and meaning:

<b>-ectomie</b> → <b>-ectomy</b>	<b>-emie</b> → <b>-emia</b>	<b>-gamie</b> → <b>-gamy</b>
apendicectomie → <i>appendectomy</i>	anemie → <i>anemia</i>	adelfogamie → <i>adelphogamy</i>
amigdalectomie → <i>tonsillectomy</i>	hipocalcemie → <i>hypocalcemia</i>	cleistogamie → <i>cleistogamy</i>
histerectomie → <i>hysterectomy</i>	hiperglicemie → <i>hyperglycemia</i>	heterogamie → <i>heterogamy</i>
nefrectomie → <i>nephrectomy</i>	colemie → <i>cholema</i>	oogamie → <i>oogamy</i>
pneumectomie → <i>pneumectomy</i>	septicemie → <i>septicemia</i>	plasmogamie → <i>plasmogamy</i>

Words of Latin origin ending in **-ul** or **-ulă** (Marcu, 2015: 1011) in Romanian normally end in English in **-cle**. However, some retain their Latin form:

Romanian	Latin	English
blastulă	blastula	<i>blastula</i> (pl. <i>blastulae/blastulas</i> )
gastrulă	gastrula	<i>gastrula</i> (pl. <i>gastrulae/gastrulas</i> )
morulă	morula	<i>morula</i> (pl. <i>morulae/morulas</i> )
particulă	particula	<i>particle</i> (pl. <i>particles</i> )
siliculă	silicula	<i>silicle</i> (pl. <i>silicles</i> )
veziculă	vesicula	<i>vesicle</i> (pl. <i>vesicles</i> )
folicul	folliculus	<i>follicle</i> (pl. <i>follicles</i> )
peduncul	pedunculus	<i>peduncle</i> (pl. <i>peduncles</i> )
receptacul	receptaculum	<i>receptacle</i> (pl. <i>receptacles</i> )

testicul	testiculum	<i>testicle</i> (pl. <i>testicles</i> ) Note: The forms <i>testis-testes</i> are used in scientific contexts.
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For what a neophyte in the scientific field may generally identify as the suffixes **-oză**, **-ază** or **-iză** in Romanian, there are in fact distinct suffixes and combining forms with specific meanings and orthography in English. Thus,

a) **-oză** corresponds to the suffix **-ose** in English when the word refers to a type of carbohydrate (Marcu, 2015: 75; Merriam Webster Dictionary), such as: *arabinose* (arabinoză), *cellulose* (celuloză), *fructose* (fructoză), *galactose* (galactoză), *dextrose* (dextroză), *glucose* (glucoză), *heptose* (heptoză), *hexose* (hexoză), *lactose* (lactoză), *maltose* (maltoză), *melibiose* (melibioză), *octose* (octoză), *pectose* (pectoză), *pentose* (pentoză), *sucrose* (zaharoză, sucroză), *xylose* (xiloză).

Semantically similar to **-ose** in this case is the noun suffix **-oside** (**ozidă** in Romanian), which refers to polysaccharides and combines to form terms in the same semantic range: *glucoside* (glucozidă), *holoside* (holozidă).

b) **-oză** corresponds again to **-ose** in English when the word refers to a pathological condition (Marcu, 2015: 75; Merriam Webster Dictionary). E.g. *anthracnose* = antracnoză.

c) **-oză** is in fact part of **-bioză** and corresponds to **-biosis** (noun combining form) in English when the word refers to a vital process (Marcu, 2015: 136; Merriam Webster Dictionary), such as: *anaerobiosis* (anaerobioză), *aerobiosis* (aerobioză), *antibiosis* (antibioză), *cryptobiosis* (criptobioză), *parabiosis* (parabioză), *ymbiosis* (simbioză).

d) **-oză** corresponds to the suffix **-osis** in English when the word refers to a process or state (Marcu, 2015: 75; Merriam Webster Dictionary), most of them in the field of biology, such as: *anastomosis* (anastomoză), *apoptosis* (apoptoză), *diplois* (diploză), *haplois* (haploză), *hidrosis* (hidroză), *meiosis* (meioză), *metamorphosis* (metamorfoză), *mitosis* (mitoză), *osmosis* (osmoză), *thanatosis* (tanatoză).

Other notable words that end in **-osis** without referring to biological processes, but simply are of Greek origin are *apotheosis* (apoteoză), *biocenosis* (biocenoză), *diagnosis* (diagnostic – no **-oză** in Romanian), *gnosis* (gnoză), *hypnosis* (hipnoză), and *semiosis* (semioză). Another exception is *heterosis* which is practically identical in Romanian (heterozis), lacking the specific **-oză** ending.

e) **-oză** corresponds again to **-osis** in English in the field of medicine when the word refers to a pathological condition (Marcu, 2015: 75; Merriam Webster Dictionary), such as: *acidosis* (acidoză), *atherosclerosis* (ateroscleroză), *avitaminosis* (avitaminoză), *fibrosis* (fibroză), *halitosis* (halitoză), *leptospirosis* (leptospiroză), *mycosis* (micoză), *parasitosis* (parazitoză), *psychosis* (psihoză), *thrombosis* (tromboză), *toxoplasmosis* (toxoplasmoză), *tuberculosis* (tuberculoză), *virosis* (viroză).

f) **-ază** corresponds to the suffix **-ase** in English and it refers to an enzyme (Marcu, 2015: 117; Merriam Webster Dictionary), such as: *catalase* (catalază), *hydrolase* (hidrolază), *invertase* (invertază), *isomerase* (izomerază), *lyase* (liază), *oxidase* (oxidază), *reductase* (reductază), *oxygenase* (oxigenază), *peroxidase* (peroxidază), *transferase* (transferază).

g) **-iză** is in fact **-liză**, meaning “dissolution”, “destruction” or “separation” and corresponds to **-lysis** (noun combining form) in English (Marcu, 2015: 581; Merriam Webster Dictionary), carrying the same meaning, as the word originates from the identical Greek term. Examples are: *analysis* (analiză), *autolysis* (autoliză), *catalysis* (cataliză), *chromatolysis* (cromatoliză), *hydrolysis* (hidroliză), *dialysis* (dializă), *electrolysis* (electroliză), *glycolysis* (glicoliză), *hemolysis* (hemoliză), *lipolysis* (lipoliză), *paralysis* (paralizie – no **-liză** in Romanian), *photolysis* (fotoliză), *proteolysis* (proteoliză).

However, not only Greek or Latin etymology is of interest in this article. In terms of nouns, there are certain suffixes that are normally used, especially for processes, states or

qualities in various scientific domains. The Romanian suffixes **-anță** / **-ență** = agent, quality, occupation (Marcu, 2015: 70) and **-itate** = quality (Marcu, 2015: 545) correspond to the English suffixes **-ency** = quality or state (Merriam Webster Dictionary), **-ence** = action or process; instance of an action or process; quality or state (Merriam Webster Dictionary) and **-ance** = action or process; instance of an action or process; quality or state; amount or degree (Merriam Webster Dictionary). Some nouns have two forms, ending both in **-ence** / **-ance** and in **-ency**. However, a good dictionary will specify the normally used form. In the following examples, both forms exist, but the underlined one is the commonly used one: absorbanță = absorbance / absorbency, astringență = astringency / astringence, deficiență = deficiency / deficiencie, divergență = divergence / divergency, frecvență = frequency / frequence, intermitență = intermittency / intermittence, potență = potency / potence, transluciditate = translucency / translucence, transparență = transparency / transparence, virulență = virulency / virulence.

Other words have only one form, ending either in **-ence** / **-ance** or in **-ency**: dehiscentă = *dehiscence*, efervescentă = *effervescence*, eflorescentă = *efflorescence*, excrescentă = *excrecence*, fosforescentă = *phosphorescence*, incontinență = *incontinence*, inflorescentă = *inflorescence*, tangență = *tangency*.

Other commonly used suffixes for processes, states or qualities are **-ation** = action or process (Merriam Webster Dictionary), corresponding to the Romanian suffixes **-re**, **-ție** or **-itate**: fermentare / fermentație = *fermentation*, filtrare = *filtration*, eterificare = *etherification*, neutralizare = *neutralization*, pasteurizare = *pasteurization*, and **-ity** = quality, state, degree (Merriam Webster Dictionary): alcalinitate = *alkalinity*, limpiditate = *limpidity*, reactivitate = *reactivity*, fermentescibilitate = *fermentability*, filtrabilitate = *filterability*, vacuolizare = *vacuolization*, vinozitate = *vinosity*.

In terms of adjective suffixes or combining forms, some are equivalent to a certain extent between English and Romanian, others are not and the reason for these differences usually lies in the etymology of the word and the manner in which it was assimilated in the language. Three of the almost perfect equivalences in both semantic and orthographic sense are:

a) **-iv** in Romanian normally corresponds to **-ive** in English: *digestive* (digestiv), *convulsive* (convulsiv), *radioactive* (radioactiv), *reproductive* (reproductiv), *oxidative* (oxidativ), *vegetative* (vegetativ), but *photosensitive* for “fotosensibil” (the corresponding *sensible* is in fact a false friend).

b) **-al** in Romanian normally corresponds to **-al** in English: *abdominal* (abdominal), *apical* (apical), *littoral* (litoral), *seminal* (seminal), *ventral* (ventral), but *arboreal* (arboricol), *perennial* (peren).

c) **-abil/-ibil** in Romanian normally corresponds to **-able/-ible** in English: *coagulable* (coagulabil), *transplantable* (transplantabil), *crystallizable* (cristalizabil), *edible/comestible* (comestibil), *reversible* (reversibil), *compatible* (compatibil).

The suffix **-ous**, very common with English adjectives, may be misleading because it either corresponds to several suffixes in Romanian or is in fact part of a more complex combining form. Thus, the Romanian suffixes **-os** (*cuprous* = cupros, *mucilaginous* = mucilaginos, *aqueous* = apos, *venomous* = veninos) or **-or** (*inodorous* = inodor, *poisonous* = otrăvitor) can correspond to **-ous** in English. However, **-ous** can be simply the end of one of several combining forms, such as:

a) the **-ous** (English) / **-or** (Romanian) correspondence is in fact the **-vorous** (English) / **-vor** (Romanian) correspondence, which means “eating, feeding on” (Merriam Webster Dictionary; Marcu, 2015: 1041) when it comes to adjectives describing eating habits: *carnivorous* (carnivor), *herbivorous* (erbivor), *insectivorous* (insectivor), *frugivorous* (frugivor), *omnivorous* (omnivor).

b) **-ous** is in fact part of **-colous** (English) → **-col** (Romanian) = living or growing on (Merriam Webster Dictionary; Marcu, 2015: 215): *saxicolous* (saxicol), *terricolous* (tericol), *corticolous* (corticol).

c) **-ous** is in fact part of **-genous** (English) → **-gen** (Romanian) = producing, yielding (Merriam Webster Dictionary; Marcu, 2015: 404): *terrigenous* (terigen), *spermatogenous* (spermatogen), *endogenous* (endogen).

d) **-ous** is in fact part of **-ferous** (English) → **-fer** (Romanian) = producing, bearing (Merriam Webster Dictionary; Marcu, 2015: 445): *fossiliferous* (fosilifer), *sudoriferous* (sudorifer), *odoriferous* (odorifer), *cruciferous* (crucifer), *coniferous* (conifer), *seminiferous* (seminifer).

e) **-ous** is in fact the suffix **-aceous** (English) → **-(a)ceu** (Romanian) = consisting of, relating to (Merriam Webster Dictionary): *arenaceous* (arenaceu), *foliaceous* (foliaceu), *gallinaceous* (galinaceu), *sericeous* (sericeu). There are also exceptions, such as *crustaceu* → *crustacean* in English.

The semantic principle, and not the suffix/ending correspondence, is followed when it comes to past participles used as adjectives or to gerunds: *polluted* (poluat), *pollinated* (polenizat), *germinated* (germinat), *dissected* (disecat), *fed* (hrănit), *swollen* (umflat), *bleeding* (sângerând). Also, as a special note, it is important to recognize correctly the grammar category because the suffix will differ for nouns and adjectives. This distinction may be more difficult to spot in the case of highly specialized terms even though the specific noun/adjective suffixes remain. For example, *parenchyma* (noun) vs. *parenchymal/parenchymatous* (adjectives) or *epididymis* (noun) vs. *epididymal* (adjective).

Special mentions should be made for a few more problematic adjective cases, such as the dilemma between **-ic** and **-ical**, or the confusing **phylic/-philic/-philous/-phil/-phile/-phyll/-phyte/-phytic**. In terms of the dilemma **-ic** or **-ical**, with some adjectives both forms function in parallel and they have the same meaning, although one is always less common in usage than the other (*geographic / geographical*, *biologic / biological*, *morphologic / morphological*, *genetic / genetical*), with others only one form exists (*acrylic*, *lymphatic*, *sulfuric*, *oxalic*, *pelargonic*, *ferric*, *pathogenic*), and with others the meaning changes with the form (*historic / historical*, *classic / classical*, *economic / economical*). The confusion among **phylic/-philic/-philous/-phil/-phile/-phyll/-phyte/-phytic** is problematic and can only be solved by the precise knowledge of the meaning of the words and of their corresponding combining forms. The problem arises from the fact that these combining forms and suffixes correspond in Romanian either to **-fil(ă)**, denoting an affinity for something (Marcu, 2015: 408) or to **-fit(ă)**, meaning plant and vegetation (Marcu, 2015: 412). The varying English orthography poses the difficulty. Thus, how can a translator distinguish between the Romanian **-fil(ă)** in “xantofilă” and **-fit(ă)** in “xerofil(ă)”? The words look similar enough for the untrained eye. Therefore, it helps to know that the former (“xantofilă”) is a noun while the latter (“xerofil(ă)”) can be a noun or an adjective, and it also helps to know that the former is a pigment found in leaves (like *chlorophyll*), while the latter can be a noun or an adjective denoting the preference of an organism for a certain type of climate. Thus, through logical deduction, “xantofilă”, like “clorofilă”, must end in **-phyll**, while “xerofilă”, like “anglofilă”, must end in **-phil(e)**. Details for each of these eight forms and their variations are provided below.

Thus, **-philic** (*thermophilic*<sup>1</sup>, *acidophilic*, *hydrophilic*), **-philous** (*hygrophilous*, *xerophilous*, *thermophilous*) and **-phil/-phile** (*acidophil(e)*, *thermophile*) are adjective

<sup>1</sup> According to Merriam Webster Dictionary, *thermophilic* is the commonly used adjective, while *thermophilous* and *thermophile* exist but are less common. *Thermophile* is also listed as a noun. Other well-established dictionaries such as Oxford or Cambridge do not include any version of these terms. American dictionaries such as The American Heritage Dictionary include at least the noun, *thermophile*, if not all four forms (in Merriam-Webster, as explained above, and The Free Dictionary).

combining forms and their meaning is to have an affinity for something (Merriam Webster Dictionary). They are antonymous to **-phobic**. The problem with these three forms is to differentiate between them (aid in the derivation of adjectives) and the noun combining forms **-phil/-phile** (*acidophil(e)*, *oenophile*, *basophil(e)*, *halophile*, *thermophile*), with identical meaning. Another problem with these same three forms is to differentiate between them and **phylic**, which is not a suffix or a combining form, although it is very similar to **-philic** (one letter makes all the difference), but an actual adjective related to the noun *phyle* whose meaning is “the largest political subdivision among the ancient Athenians” (Merriam Webster Dictionary). **-phil/-phile** are also similar to **-phyll**, whose meaning is leaf (Merriam Webster Dictionary), therefore any combination including **-phyll** references a leaf-related term (*chlorophyll*, *xanthophyll*, *cladophyll*, *microphyll*, *sporophyll*). Also, phonetically and orthographically similar to all those mentioned above (the difference is the letter **t** replacing **l**) is the pair **-phyte** (noun combining form) / **-phytic** (adjective combining form) whose meaning is “plant / like a plant” (Merriam Webster Dictionary): *gametophyte* / *gametophytic*, *xerophyte* / *xerophytic*, *macrophyte* / *macrophytic*. One last mention on this subject is the noun *phylum* (pl. *phyla*), again similar to the forms mentioned above, is translated into the Romanian word “încrângătură”, meaning “a group into which animals, plants, etc. are divided, smaller than a kingdom and larger than a class” (Oxford Learner’s Dictionaries). This word also generates the combining form **phyl(o)-** (*phylogeny*, *phylogenetic*).

Two other combining forms that look very similar are the Romanian **-fag** and **-fug**. The meaning of the two, however, is not identical and it corresponds in English thus: **-fag** = **-phagous** = eating (Merriam Webster Dictionary; Marcu, 2015: 396) and **-fug** = **-fuge** = that drives away (Merriam Webster Dictionary; Marcu, 2015: 433): *ichthyophagous* (ihtiofag), *hematophagous* (hematofag), *phytophagous* (fitofag), *saprophagous* (saprofag) / *vermifuge* (vermifug), *calcifuge* (calcifug), *insectifuge* (insectifug).

Things are considerably simpler when it comes to prefixes or combining forms attached at the beginning of a word, as they are much easier to identify. The ones with shared Greek or Latin origin closely correspond between Romanian and English, with the natural allowances for the specificity of the English language, and they are normally found in scientific contexts. E.g. *archespore* (**arhespor**), *bryology* (**briologie**), *chlorocyst* (**clorocist**), *cytotoxin* (**citotoxină**), *endospore* (**endospor**) / *exospore* (**exospor**), *hyalocyst* (**hialocist**), *hypothermia* (**hipotermie**) / *hyperthermia* (**hipertermie**), *isogamy* (**izogamie**), *macromolecule* (**macromoleculă**) / *micromolecule* (**micromoleculă**), *mycotoxin* (**micotoxină**), *phylogenetic* (**filogenetic**), *xenobiotic* (**xenobiotic**).

As for the regular English prefixes, sometimes there is exact equivalence between English and Romanian (*antioxidant*, *antibiotic*, *irreversible*, *impermeable*, *postnatal*, *submarine*), sometimes there is not (*inorganic* = **anorganic**, *invertebrate* = **nevertebrat**), and other times the prefixes are translated with the appropriate equivalent in the other language (*overpopulation* = **suprapopulare**, *forearm* = **antebrăț**, *midlittoral* = **mediolitoral**).

In many cases of nouns of Latin or Greek origin, another simple but clear pattern to follow as a sure method to avoid errors is to observe the rules of the irregular plural. Grammar books usually list only a few common examples of such words, like *analysis-analyses*, *phenomenon-phenomena*, *cactus-cacti*, *bacterium-bacteria* or *vertebra-vertebrae*. Most even retain the regular plural, such as *cactus-cactuses*, as they are not highly specialized and are often used in everyday speech. However, when science is involved, with its characteristic jargon and highly specialized terminology, things become more complicated. The well-known rules are given below with examples of terms from botany and anatomy that are specific to their respective jargon:



SG	PL	EXAMPLES
-a	-ae	<i>bursa-bursae, columella-columellae, fossa-fossae, hypha-hyphae, vena cava-venae cavae, medulla oblongata-medullae oblongatae</i>
-is	-es	<i>apophysis-apophysis, caryopsis-caryopses, hypophysis-hypophyses, paraphysis-paraphyses, testis-testes</i>
-on	-a	<i>encephalon-encephala, mitochondrion-mitochondria, spermatozoon-spermatozoa, taxon-taxa</i>
-um	-a	<i>archegonium-archegonia, endothecium-endothecia, epithelium-epithelia, flagellum-flagella, hesperidium-hesperidia, podetium-podetia, perichaetium-perichaetia, ostium-ostia, sensillum-sensilla</i>
-us	-i -ora -era	<i>alveolus-alveoli, ascus-asci, gastrocnemius-gastrocnemii, gluteus maximus-glutei maximi, isidium-isidia, humerus-humeri, soredium-soredia, thallus-thalli; corpus cavernosum-corpora cavernosa, corpus callosum-corpora callosa; genus-genera</i>
-ex / -ix	-ices	<i>apex-apices, cervix-cervices, index-indices</i>

As mentioned above, some terms can alternatively be used with the regular plural form, by simply adding **-s** or **-es**. However, this is true for a very small percentage of specialized words, as the large majority are too technical for everyday communication. According to linguists, the foreign plural is generally reserved for technical usage and scientific English, while the regular plural is used in everyday language (Hornoiu, 2016: 82; Leech, 1998: 223). Thus, if the register is formal and highly specialized, and the target audience is made up of scientists and scholars, it is always safer to employ the foreign plural. Only very few of the highly specialized words can alternatively be used with a regular plural, such as *cervixes, atriiums, medulla oblongatas* and few others. By exception, some technical words only have regular plural form (*electron, neutron, proton*) (Hornoiu, 2016: 84). A special mention can be added here in regards to the word *data*, as it is very often encountered in scientific articles. This word is often understood erroneously as the singular form and the agreement is accordingly placed wrongly: *the data \*is analyzed*.

### Conclusion

The difficulty of translating specialized texts, scientific ones in the case discussed in this article, can be overcome by learning to recognize patterns of similarity in terms of orthography and meaning between Romanian and English. Most of these patterns occur because of the shared Latin or Greek origin of the scientific terms, but not only. Learning to identify the correct spelling and meaning of suffixes or combining forms specific to the scientific jargon will considerably reduce the time required to look up terms or the chances of making mistakes. Even so, it is important not to fall into the trap of thinking everything is similar and invent words or phrases. Therefore, it is advisable to check the exact meaning of each term, especially in the case of homophones, where experience with corpus and a trustworthy dictionary can easily solve the dilemma. In order to be reliable, this verification should be done by using trustworthy resources, such as comprehensive specialized bilingual dictionaries or authentic scientific texts written by English native speakers.

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