THE PRODUCTIVITY OF THE - *ISE* SUFFIX IN A CORPUS OF MEDICAL ARTICLES

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Abstract

Undoubtedly, English is one of the richest languages spoken globally, if not the richest. Thousands of new words enter its lexicon on a yearly basis, which is partly due to the developments that technology and scientific advancement bring. Its richness is also indebted to its role as the *lingua franca* in medical communication. However, this status is attributable to the productivity of certain roots and affixes which allow the formation of new words. This paper studies the productivity of the *-ise* suffix in a corpus of medical articles in the field of histopathology.

Keywords: corpus study, categoriser, medical articles, medical English, terms.

Introduction

According to Aronoff and Fuhrhop, the morpheme *-ise* can be regarded both as an ending, for instance in *tantalise*, and as a suffix, for example in *idolise*. However, the focus of this paper falls on *-ise* as a verbal suffix. According to Hay and Plag, in case of verbs derived from adjectives, *-ise* forms preferentially attach to those *-al* forms containing low levels of decomposability, as in *normal – normalise*. Practically, this productivity of the suffix can be regarded as transposition, namely, the transference of an existing word into a new semantic class. On the other hand, in Lieber's view, in English, there is no affix or process creating verbs from nouns or adjectives that is regular and productive enough to be treated as transposition.

Design of the study

Twenty-six biomedical articles lie at the basis of this study. All the articles were retrieved from the same journal, Virchows Archiv, the European Journal of Pathology, from two issues, namely Volume 466, issue 6 of June 2015 and Volume 467, issue 1 of July 2015. The types of articles that were included in the corpus are original articles (23) and case reports (3). Article types such as letters to the editor, editorials or invited commentaries were excluded from the study. All the articles were processed manually in order to identify words bearing the suffix *-ise/ -ize*. Not all articles make use of the British *-ise* spelling, but for reasons of uniformity, this paper will render them as such.

Findings

Thirty-five words prefixed with *-ise* were identified. According to Hay and Plag, the *-ise* verbal suffix can only occur in nouns and adjectives that end in an unstressed syllable. Of these, 17 are rooted in nouns, while the remaining 18 are derived from adjectives. It must be mentioned that it was not my purpose to trace these words back

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to their primary origin in terms of part of speech, my intention was to identify the secondary root from which these words are derived, even if this root itself is a derivative. As previously mentioned, these words can be said to undergo transposition, as opposed to Lieber's theory, the means of word formation that changes syntactic category but does not semantically affect the base. Following Janssen, Roelofs, and Levelt's model, many of these words can be regarded as either having a generic morphological frame (root + *-ise-* + affix, for example vascular + *-ise-* + *-ed*) or a specific inflectional one (root-*ise-* + suffix, that is vascularise + *-ed*). Furthermore, as noted by Zirkel, the suffix *-ise* will only combine with *-ation* as the only possible nominaliser. Thus, the two lists below comprise all the suffixed words found in the corpus:

Noun root:

anonymised
antagonising
cancerisation
categorised
characterise
deparaffinised
emphasise
hypothesised
metastasised
necrotising
organised
prioritisation
recognised
scrutinised
summarise
synthesised
vacuolisation

Adjective root:

fertilisation
humanised
hyalinised
hybridisation
individualise
internalisation
localised
normalisation
optimise
personalised
polarised
realise
specialisation
stabilised
standardised
utilised
vascularised
visualised

While the articles included 123 such words, these two alphabetically organised lists comprise only one occurrence of the same word, namely, of a series of derivates such as *characterised*, *characterising*, *characterises*, etc., only one was included in the study. Moreover, some of the prefixed words, e.g. *neovascularised* or *myxoidhyalinised*, are given without the prefix which would not shift the focus under investigation. The same is the case of other prefixed words such as *categorise* and *subcategorise*, both of which were encountered in the corpus.

Of these 35 suffixed words, I will discuss the origin and meaning of 9 terms which pertain mainly to medical language, as the remaining ones can be encountered in many

fields, as well as in the common language. These 9 words are: *cancerisation*, *deparaffinised*, *fertilisation*, *hyalinised*, *metastasised*, *necrotising*, *polarised*, *vacuolisation*, and *vascularised*. As previously mentioned, they are given in the form in which they were recorded in the articles, nevertheless, since the focus of this paper is on the productivity of the *-ise* verbal suffix, their meaning will be analysed.

Cancerisation is derived from the root cancer, meaning a malignant growth or tumour which develops in tissue and destroys it, which can spread by metastasis to other parts of the body and which cannot be controlled by the body itself[1]. *Cancerisation* will refer to a transformation into cancer or a transition from a normal to a cancerous state. The context in which the word was identified, "so-called cancerisation of pancreatic duct epithelium", is self-explanatory and describes the process which cells undergo from a normal to a diseased condition.

In histology, tissue sections are often embedded in paraffin prior to being frozen. This process is necessary to preserve the tissue samples before they are used in different studies. The coating wax plays the role of holding the tissue together in order that it can be sliced by a microtome into thin sections for light microscopy analysis. *Deparraffinisation* refers to the process of removing this coating of wax which is done with the aid of certain substances (xylene, ethanol) and procedures (heating, bathing, rinsing, washing).

Fertilisation is the joining of an ovum and a sperm to form a zygote and to start the development of an embryo[2], which in medicine is rooted in the meaning of the adjective *fertile*, that is, being able to produce children.

Hyalin/ hyaline is a transparent substance produced from collagen and deposited around blood vessels and scars when some tissues degenerate. While there is no consensus regarding the spelling of the noun, both *hyalin* and *hyaline* being accepted, I included this term under the heading of adjective roots, that is, the adjective is spelt *hyaline*, since the term *hyalinised* is closer in origin to the feature of being transparent.

Having its root in the Greek *meta* + *stasis*, meaning displacement, *metastasise* refers to the spreading of a malignant disease from one part of the body to another through the bloodstream or the lymph system, which is in line with the meaning of the occurrence of the term in the corpus of articles under study.

The death of a part of the body such as a bone, tissue or an organ as a result of disease or injury is known as *necrosis*. As such, this process is described by the verb *necrotise*. According to the Online Etymology Dictionary, *necrosis* entered the English language around the 1660s from the Greek *nekrosis*[3]. The word-forming element *necr-* is derived from the Latinised form of Greek *nekros*.

Polarise is based on the adjective *polar* which was either derived from the Middle French *polaire* or directly from the Medieval Latin *polaris*[4] to mean of or pertaining to the poles. However, at its root lies the Latin *polus* which refers to an end of an axis. The term

[1] *Dictionary of Medical Terms*, 4th edition, A & C Black, London
[2] *Dictionary of Medical Terms*, 4th edition, A & C Black, London
[3] http://etymonline.com/index.php?term=necrosis
[4] http://etymonline.com/index.php?term=polar&allowed_in_frame=0

was encountered several times in its two forms *polarisation* and *polarised* throughout the same article, one of the contexts being: "in addition to expression in lateral cell membranes, the expression was accentuated in basal parts of epithelial cells, and there was clear *polarisation* in staining".

Vacuole, the root of *vacuolisation* with its origin in the Latin *vacuus*, refers to a space in a fold of a cell membrane[5]. The context in which the term was recorded, "single elements or small cell groups composed of middle-sized tumor cells with cytoplasmic vacuolisation, resembling lipoblasts, were present", refers to the development or formation of vacuoles. What is noteworthy is that *vacuolisation* and *vacuolation* are synonymous, according to the Merriam-Webster online dictionary[6].

In anatomy, the adjective *vascular* means pertaining to conveyance or circulation of fluids. It is derived from the Modern Latin *vascularis*, of or pertaining to vessels or tubes, which in turn is rooted in the Latin *vasculum*, a small vessel, where *vas* is the diminutive of vessel. The verb *vascularise* will mean to make vascular. The context in which the term was identified, "highly vascularised, multicystic tumour" describes the fact that the tumour contained blood vessels.

Conclusion

This study was conducted on a corpus of 26 biomedical articles in histopathology order to identify words suffixed with the *-ise* verbal suffix. A relatively large number of such words were found and they were divided into two groups, a group of words rooted in nouns, and a group of words rooted in adjectives. However, since many of them are used in the general language, only those pertaining to medical terminology were explained and described.

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[6] http://www.merriam-webster.com/medical/vacuolation