Shortening Processes in Est Lexicon

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The chief aim is to present concisely the neologism formation by means of several shortening processes in scientific English from Early Modern to Contemporary English. Consequently, three periods are analysed in a brief way in this respect: Early Modern English, Modern English and Contemporary English. In Early Modern English, apocopes and alphabetisms begin to emerge in mathematics. The Modern English characteristic types of shortening are apocopes, aphereses, back-formations, alphabetisms and ellipses in science and technology, and in Contemporary English computing and electronic terminology aphetic forms, apocopes, back-formations, alphabetisms and acronyms are very prolific. The main reasons for the use of these shortenings in EST lexicon are phonetic, functional, affective, psychological and utili-tarian.

1. Introduction

Shortenings are mechanical reductions which are not guided by morphological structures. The types of shortenings which are shown in this paper concerning the EST lexicon are apheresis, i.e. the suppression of the initial unstressed syllables of a word; ellipsis, i.e. the missing out of one or more words from a sentence; apocope, i.e. the reduction of long words to their initial syllable; back-formation, i.e. the coining of neologisms from well-known words by suppressing an affix that is supposed to exist, but it is non-existent, that is, the coining of a new word by subtraction rather than addition; alphabetism, i.e. the coining of new terms by joining the initials of old word sequences, initials that may preserve their alphabetic value, and acronym, i.e. the coining of new terms by joining the initial letters of a word which are pronounced as a word, not as a sequence of letters. We have selected these shortening processes because they are the most frequent in these specialized words (Pérez Iglesias, 1998a: 278, 422-425; 1998b: 60-65).

The EST lexicon taken as sample in this paper is drawn from several sources studied over a long period of research into the diachronic and synchronic linguistic analysis of specialized English

lexicon, such as A. Freedman, *Diccionario de computación*; C. T. Onions, ed., *The Oxford Dictionary of English Etymology*; *The Oxford English Dictionary*; *The Oxford English Dictionary Second Edition on Compact Disc for the Apple Macintosh*; W. W. Skeat, *An Etymological Dictionary of the English Language*, and E. Weekley, *An Etymological Dictionary of Modern English*.

There is more than one reason for the shortening tendency. Foremost comes the English tendency towards shortness due to the strong tonic accent, which goes farther than in other European languages. In this paper we show some other reasons for this shortening tendency in EST lexicon, such as functional, affective and psychological reasons in Early Modern English; conciseness, clearness, laziness and the need to adapt the language to the rhythm of modern life, that is, the need to compress a maximum of achievements into a minimum of space and time in Modern English, in addition to the Contemporary English trend towards word brevity to avoid redundancy when several terms are mentioned over and over again and when organizations and movements have names too long to fit conveniently into a commercial or a headline. The latter are utilitarian motivations.

2. Early Modern English

In Early Modern English mathematical terminology there are apocopes and alphabetisms: e.g. *cos*, from the term *cosine*, 'sine of the complement of an angle'; *tan*, from *tangent*, 'a line that touches the edge of a curve or circle at one point, but does not cross it', or *x*, 'the symbol of an unknown quantity', abbreviation of «co» read as x, shortening of the Italian word «cosa», probably taken directly from *La Géométrie* (1635) of Descartes, who used z, y and x for three unknowns.

The most significant reasons for this Early Modern English trend towards word shortening are functional, affective and psychological: first, languages tend to economize on their means of expression. Moreover, English words, due to the Germanic strong tonic accent and the loss of the unstressed syllables, tend to become monosyllables; second, the complete forms of words seem to connote pedantry and they are normally used in formal language. An ordinary speaker often uses abbreviated forms and frequently forgets the etymological origin of those forms, and third, shortenings are produced owing to the need for communication with allusions that only an initiate into the subject can understand. Many of these new coinings are precisely originated from the jargon of certain activities, professions or social groups (Fernández, 1982: 526-527)

3. Modern English

Modern English word-formation of specialized lexicon may be produced by means of several types of shortenings that proliferate since the beginning of this period to nowadays in science and technology. We refer to the following processes: apocope, apheresis, back-formation or back-derivation, alphabetism and ellipsis.

The main reason for the use of lexical shortenings in Modern scientific terms is conciseness and clearness:

> the scientist using classical word material tries to convey as much information as possible in his neologisms... These long learned words, however, have caused a feeling of dissatisfaction among scientists as well as non-scientists that technical terms should be developing into such tongue-twisters. There is... a feeling for 'the economy of a language' (Klasson, 1977: 148)

Other reasons for the use of lexical shortenings are the English trend towards shortness due to the tonic accent, as we have said, and laziness: 'It may be partly, also, the same linguistic laziness that

reveals itself in our unfinished sentences and phrases... or the reduction of four syllables to two (Weekley, 1952: 92).

As to apocope,

> the practice of reducing long words to their initial syllable goes very far back in English. Perhaps the earliest example is *gent*... The eighteenth century was less rich in such creations, but the nineteenth and twentieth have revived the practice with enthusiasm (Weekley, 1952: 91)

For example, some Modern English apocopes are *amp* (from *ampère*), *cot* (from *cotangent*), *farad* (from *Faraday*) and *sin* (from *sine*).

The apheresis method is illustrated in Modern English *copter* (from *helicopter*), *phthalic* (from *naphthalic*), *plane* (from *aeroplane*), etc.

Another process of word-formation in Modern English specialized vocabulary is back-formation. 'This process is known from 1300, and there are a few examples up to 1600, but only in the 19th c. do instances become abundant and central' (Strang, 1974: 91). 'Its small incidence in the 13th, 14th and 15th centuries may be due to several factors' (Pennanen, 1966: 87-93): firstly, a great part of the Anglo-Saxon vocabulary and along with it the old inflectional system are lost after the middle of the 12th century; the introduction of French and Latin loanwords in these centuries due to mainly political, social and cultural reasons compensates for this loss, but two or three centuries are necessary for the new elements to settle and anglicize in English. The greater frequency of the agent noun suffix *–er*, which absorbs the classical agent suffixes in *–ard, -eur, -or* and *–our*, makes possible that many words undergo back-formation (e.g. *to barb*, from Anglo-Norman «barber, barbour», Old French «barbeor»). These words had been more or less isolated owing to their endings.

Secondly, back-formation plays a main role on changing the

French and Latin past participles into infinitives: e.g. *to oxygenate*, from French «oxygener» and L. «-atus», p.p. ending of verbs in «-are».

Thirdly, back-derivation is less feasible in periods of language change. It requires an organized and stable sphere of operation. This may seem contradictory if we observe the small incidence of back-formation method in the 17th and 18th centuries, a period of stability characterized by the desire to fix the English language. This desire has precisely an influence on the repulse of introduction of neologisms such as back-derivations.

In the 19th century

> the steep rise in the incidence of back-formations... is of such a nature as to be regarded as one of the characteristics of modern word-making... Language has had to adapt itself to the rhythm and needs of modern life, one of whose maxims is to compress a maximum of achievements into a minimum of space and time (Pennanen, 1966: 90-91)

The most frequent cases of Modern English back-derivations are the coinings of verbs from nouns in *-ar, -er, -or* believing that what is placed before the suffix is the verbal stem: e.g. *to audit* (from *auditor*), *to edit* (from *editor*), and *to typewrite* (from *typewriter*); some other Modern English verbs are derived from nouns in *-(a)tion*: e.g. *to aviate* (from *aviation*) and *to conscript* (from *conscription*). As we may see, in most cases back-derivations in English are verbs:

> the prevalence of substantives and adjectives would partly explain why the vast majority of back-formations are verbs... Verbs... developed round them a number of nominal derivatives... Where there is a verb, we expect to find this family of derivatives attached to it, and conversely (Pennanen, 1966: 91)

Another frequent type of shortening in Modern English technical vocabulary is alphabetism: e.g. *C* (from *Celsius*), *F* (from *farad*), *G*

(from *Gauss*), etc. Technical language abounds in capital-letter abbreviations. 'Each jargon or technical dialect builds up its own battery of abbreviations which offer cuts to the initiated, but which confuse the non-specialist' (Klasson, 1977: 161). These letter combinations may coincide and can be correctly interpreted only by each specialist within his discipline: thus, *A* may denote *ampère*, *Angstrom*, *area* or *activity*, and *C*, *capacitance*, *Celsius* or *Coulomb*.

On the other hand, in Modern English

> names of inventors, innovators and discoverers usually occur at first as modifiers to some accompanying noun, but in the end as we get more familiar with the constellation, the modifying name may come to be used to denote a unit or a new product (Klasson, 1977: 160)

This process is referred to as ellipsis. For example, the German engineer Rudolf Diesel (1858-1913) devises the engine called *Diesel engine*. The term is later written *diesel engine*, with small letter in the name *Diesel*, and finally is named only *diesel*, without the noun *engine*. Another example of ellipsis in the 19th century is *fourdrinier*, 'the paper-making machine invented by the British printers Henry (1766-1854) and Sealy (d. 1847) Fourdrinier, and the wire cloth used for draining the pulp in the machine', referred to originally as *Fourdrinier machine*, where we see the same process. These types of shortening,

> are expressions of a desire for shortness and wit, which largely disregards morphological and etymological concerns, a combination which appears to meet modern needs of communication and which characteristically started mainly in the age of the Industrial Revolution (Görlach,1999: 125)

4. Contemporary English

Nowadays some previous methods of shortening are used more profusely, especially in computing and electronics, two sciences at the height of their evolution.

Thus, some examples of present apocopes are *fax* (from *facsimile*), *giga* (from *gigabyte*), *Mac* (from *Macintosh*), *mega* (from *megabyte*), etc. These apocopes testify to the trend towards reduction of learned polysyllables in scientific English.

As to the process of back-formation, clear examples are the verbs *to automate*, 'to apply automation to', and *to radiolocate*, 'to detect by means of radar', which are formed from the nouns *automation* and *radiolocation* on the analogy of pairs such as *inflate/inflation* and *aviate/aviation*. The close connection between *-ate* and *-ation* does not permit one to decide which has priority in all cases -historically, a great number of *-ate* verbs are likely to be back-derivations from nouns' (Görlach, 1991: 176); other cases of back-derivation are the verbs *to lase*, '(of a crystal, etc.) to be, or become, suitable for use as a laser', and *to mase*,'to act as a maser by generating and amplifying microwaves', from the acronyms *laser* (*light Amplification by Stimulated Emission of Radiation*) and *maser* (*Microwave Amplification by Stimulated Emission of Radiation*).

As to the use of alphabetisms in Contemporary English, notorious examples are the units of measurement in computing: e.g. *BPI* (*bits per inch*) CPI (*character per inch*), Gb (*gigabyte*), *kb* (*kilobit*), KW (*kiloword*), MB (*megabyte*) and PF (*picofarad*).

Nowadays alphabetisms come from the American trend towards replacing complete nouns by abbreviations, a frequent method after the First World War that is now at its height, from the influence of talkies and telegraphic daily headlines for rapid readers (Marchand, 1966: 364) and from the English trend towards word brevity owing to the Germanic accent (Weekley, 1952: 92). Therefore, these groups of capitals avoid long polysyllables, characteristic of specialized lexicon. With public service ramification and big organization development, alphabetisms are used more and more, some of them in limited spheres. They avoid redundancy when several terms are

mentioned over and over again; their use without abbreviation would be a waste of time and space and they would be more difficult to read.

The use of acronyms is one of the most characteristic methods of scientific lexical enrichment nowadays: e.g. *CAD* (*Computer-aided Design*), *CAM* (*Computer-aided Manufacturing*) and *RAM* (*Random Access Memory*). In this process, the predilection for monosyllables is outstanding, a general tendency in common English too.

A good acronym must transmit a condensed message and must be easy to remember and good for graphology, from that it follows that many electronic acronyms have personal forms such as *ELSIE* (*Electronic Letter Sorting and Indicating Equipment*) and *ERNIE* (*Electronic Random Number and Indicating Equipment*).

Acronyms may be related in meaning and form. This produces new «quasi-suffixes», such as *-ar* (of *radar*) in *colidar* (*coherent light detection and ranging*) and *ladar* (*laser detection and ranging*) or new «quasi-prefixes» such as *mos-* (of *metal-oxide semiconductor*) in *mosfet*, which leads to the formation of *MOS chips* and *MOS-ROM*; however, there are some acronyms with the same form but different meaning: e.g. *snap* (*Simplified Numerical Automatic Programmer / Space Nuclear Auxiliary Power / System for Natural Programming / System of Network Analysis Programmes / System for Nuclear Auxiliary Power*).

Some acronyms may be completely assimilated in English phonetics and be also subjected to derivation, compounding, back-formation, etc., such as *laser*: e.g. *lasable, to lase, laser beam, laser-guided* and *lasing material*. Furthermore, an acronym may form secondary acronyms: e.g. *PAR* (*Precision-approach Radar*).

This pattern of shortening is almost exclusively 20th century (Görlach: 1999, 125). The number and variety of acronyms have been on the increase from the second half of this century onwards.

'Acronyms are useful in a bureaucratized and advertised society where organizations and movements have names too long to fit conveniently into a commercial or a headline' (Williams, 1975: 141). Most acronyms refer to organizations, but a few refer to scientific or technological referents, as we have tried to show, due to utilitarian motivations.

5. Coclusions

In conclusion, we have tried to show concisely how the word-formation process by means of shortening is produced in scientific English owing to different kind of reasons, mainly functional and psychological, thus the conciseness and clearness and the trend towards reduction of learned polysyllables of specialized lexicon are promoted, apart from avoiding redundancy when specialized terms are mentioned repeatedly.

As we have explained, ellipses are outstanding in Modern English technology; apocopes mainly in Early Modern and Modern English mathematics, apart from their use in modern physics, and in contemporary computing and electronics; aphereses chiefly in technological and chemical Modern English; back-formations in Modern English commercial and technological vocabulary and in contemporary computing and electronics; alphabetisms in Early Modern English mathematics, Modern English units of measurement in mathematics and physics and contemporary computing and electronics, and acronyms principally nowadays in computing and electronics.

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