

SOME GRAMMAR AND LEXICAL CHARACTERISTICS OF MARINE ELECTRICAL ENGINEERING TERMINOLOGY

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Abstract: Each style is characterized by certain traits that distinguish it from the others. There are many branches of the scientific style that share the same main characteristics and at the same time distinguish from the others by the use of vocabulary and certain structures that make each terminology unique. From the point of view of the ESP teacher the terminology is a challenge from the linguistic point of view and a continuous resource.

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Introduction

According to the linguists the scientific style is characterized by precision, conciseness and lack of synonymy. It is divided into many sub-styles according to different branches of science. Each sub-style has certain traits that can be depicted by the specialists, the most important of all being the vocabulary. The specific vocabulary of a scientific branch forms a terminology. The way of placing the activities taking into account the main vocabulary leads to three types of terminologies: scientific, technical and of trades. The semantic structure of any terminology involves general terms which are known by people working in a certain field and the great majority of speakers of the language. This is the common terminology. Another distinct part is made of terms that are specific to a specific narrow field, in our case marine electrical engineering, and other connecting fields like engineering, or maritime terminology. This part can be called specific terminology. Another component is composed of ultra-specialized language that is typical to that narrow scientific domain and can be called specialized terminology. This paper is trying to depict some traits of the marine electrical terminology after having taken samples of texts (approximately 300 pages) from the electrical engineering field.

Grammar structure

The main two important structures of a sentence are the noun phrase and the verb phrase. The verb phrase of the marine electrical engineering texts follows the pattern for the scientific terminology. From the tenses the greatest importance plays the Present Simple that is used at active and passive voice. The other present tenses are also used but not so frequently as Present Simple. The continuous forms are not used in the texts of marine electrical engineering except for Present Continuous that can appear although it is not very frequent. The Present Perfect Simple can be mentioned in some texts implying the maintenance of the electric system: 'The maintenance and inspection of installations should be carried out by personnel whose training **has included** instruction on the various types of installation practices, relevant rules and regulations and on personnel safety.' The main characteristic of the scientific style, the use of Passive Voice, is a constant of the marine electrical engineering texts. Taking into consideration the frequency of verbs, the most frequently used verb is **to be** that appears both as notional verb and in passive constructions, followed by the verb **to have**, and the modal auxiliary verbs: **may be exempted, cannot become live, cannot be touched, should be arranged, must be examined, should be 'bedded in', may be worn, shall ensure, must be posted** etc. Another construction that can be depicted from the specialty texts is the use of modals

auxiliary **will** and **shall** to express prediction: **will require, shall ensure, shall be left, shall be taken, shall conform, will affect, will indicate** etc. **Will** is used to tell somebody what to do or to say, what you think is going to happen, and in this situation could be associated to **must** or **should** as meaning.

The form '**to be to**', that is much used in the marine electrical engineering texts, is basically a way of expressing future with the implied meaning of obligation. The form is used to express: "official arrangements, official orders, things that should be done, a possible aim when saying what should be done to reach it, prohibition (only in the negative)" [1]. '**Be + infinitive**' can be used to give orders while the "passive infinitive is common in notices and instructions" [2]. Taking into consideration the fact that the construction appears mostly in the passive, we consider that for the scientific texts, the intended use is to give *instructions* and having about the same meaning as the modal auxiliary verb *should*. There are many examples of the structure usage, in some situations an adverb is placed between the verb **be** and the infinitive in the passive voice structures: **are to be effectively locked, are to be so disposed, is to be so arranged, are to be effectively earthed, are to be securely installed, are to be clearly labeled** etc.

The noun phrase is the part that gives the specificity of the terminology not by the grammar structure but by the lexical value. The noun phrase is characteristic for the scientific style: there are not many adjectives or special determinants; the phrase is made up of several nouns sometimes preserving part of their meanings or forming compounds with another meaning; the pronouns are reduced to **it** and **they** and the corresponding forms for accusative and genitive; from time to time synthetic genitive could be detected in the text: **ship's life, ship's maintenance scheme, ship's whistle, the ship's main and emergency sources of electrical power** etc. As it is expected the numerals are frequent and they range from ordinal and cardinal to fractions, decimals and percentages. A great number of symbols can be also found in the specialty texts from which A (ampere), V (volt), W (watt), Ω (ohm) are the most frequent.

Lexical structure

If we take into consideration the marine electrical engineering terminology, we expect that the most frequent specialty words to be those referring to electricity and the maritime environment. Because the maritime vocabulary has been analyzed in many papers lately, we are going to take into discussion only the electrical terminology but referring also to texts about marine electrical engineering.

The base of the terminology is made up of simple and compound words like: electric, light, battery, energy, generator, power, circuit, cable, switch, wire and many

others. The most interesting development of a word into the marine electrical terminology is that of the word **light** with its series of connotations and synonyms, although as it is known the scientific terminology is characterized by lack of synonymy. The following list of terms refers to light and the capacity of a person of seeing in enclosed spaces on ships that should comply to standards.

Disability Glare: Glare which reduces the ability to perform a visual task.

Discomfort Glare: Glare which produces viewer discomfort, but which does not significantly interfere with visual task performance or visibility.

General Lighting: Lighting designed to provide a substantially uniform level of illuminance throughout an area, exclusive of any provision for special, localized tasks. Such lighting should be provided by fixed luminaires.

Glare: The discomfort or impairment of vision experienced when parts of the visual field are excessively bright in relation to the general surroundings.

Illuminance: The luminous flux density at a surface (or the amount of light falling on an object or surface), i.e., the luminous flux incident-per-unit area. Illuminance is measured in units of Lux (lm/m²) or foot-candles (fc; lm/ft²). One foot-candle equals 10.76 Lux.

Lumen: The International System of Units (SI) of luminous flux, used in describing a quantity of light emitted by a source or received by a surface.

Luminaire: A complete lighting unit consisting of a lamp(s) together with the parts designed to distribute the light, to position and protect the lamp and to connect the lamp to the power supply.

Luminance: The photometric brightness of an illuminated surface (or the amount of light emitted or reflected from the surface). The SI unit of luminance is candela-per-square meter (cd/m²).

Luminous Flux: The light emitted by a source, or received by a surface and indicates the intensity of a source. Flux is expressed in lumens.

Lux: a unit of illumination, equivalent to 0.0929 foot-candle and equal to the illumination produced by luminous flux of one lumen falling perpendicularly on a surface one meter square. Also called *meter-candle*.

Red or Low-level White Illuminance: Lighting provided to accommodate efficient dark adaptation in areas where seeing tasks are performed during nighttime operations and in areas where people need to move from a lit interior into a dark environment and maintain good vision.

Reference Calibration: Calibration of a measuring instrument, conducted by an accredited Testing and Calibration Laboratory, with traceability to a national or international standard.

Task Lighting: Lighting provided to meet the illuminance requirements of a specific task. Task lighting refers to the total illuminance requirement that may be obtained by supplementary lighting provided in addition to the general illuminance. Such lighting may be provided by fixed luminaires or via floor lamps or table lamps.

Task Plane: The horizontal, vertical, or inclined plane in which the visual task lies. If no information is available, the

task plane may be considered to be the horizontal and at 750 mm (29.5 in.) above the deck for seated tasks and 1000 mm (39.5 in.) for standing tasks.[3]

A linguistic analysis of the terms mentioned above might be useful. The word **glare** is a noun and comes from *Middle Dutch*, meaning a **fierce or angry stare**, or **strong and dazzling light**, and **dazzling or showy appearance**. The second meaning is used in the marine electrical terminology.

Illuminance is a new word that appeared in the middle of the 20th century from the Latin word ‘illumin(ate)’ and the suffix ‘-ance’. The meaning is ‘the luminous flux incident on unit area of a surface’ and it is used in optics so there is a derived term made for scientific use.

Lumen is a noun of Latin origin and history as a scientific term: ‘unit of luminosity, 1897, coined 1894 by the French physicist André-Eugène Blondel (1863-1938)’.

Luminaire is a noun that was first used in 1920, coming from French where the meaning is ‘lamp, lighting’, and taking another shade of meaning besides the one from the text: ‘Complete lighting unit, consisting of one or more lamps (bulbs or tubes that emit light), along with the socket and other parts that hold the lamp in place and protect it, wiring that connects the lamp to a power source, and a reflector that helps direct and distribute the light.’

Luminance is a noun entering vocabulary in 1875-80; it comes from the Latin ‘lūmin- (stem of lūmen) light’ + the suffix ‘-ance’. The scientific form ‘luminance’ has a technical form that is ‘brightness’, the Latin form is more sophisticated while the working person needs a term that is closer to what they know and this is the English term.

Lighting, a word frequently used as noun and adjective, is derived from **light**, word that is known before 900 AD and has a very rich history: (noun and adj.) Middle English; Old English *lēoht*; cognate with Old Saxon *lioht*, Old Frisian *liacht*, Dutch, German *licht*, Gothic *liuhath* (noun); akin to Old Norse *ljōs* (noun), *ljōss* (adj.), Latin *lūx* (noun), Greek *leukós* bright, white. [4] It is the most frequently used noun, if we take into consideration its compounds and derived forms. There are many synonyms for the adjective ‘light’: bright, luminous, rich, shiny, sunny, burnished, clear, flashing, fluorescent, glossy, glowing, polished, shining, ablaze, a glow, brilliant, cloudless, lambent, lucent, lustrous, phosphorescent, radiant, refulgent, resplendent, scintillant, unclouded, unobserved, vivid, well-lighted, well-lit and also for the noun: bulb, candle, daylight, flash, glare, glow, lamp, lantern, radiation, ray, star, sun, sunshine, window, aurora, beacon, blaze, brightness, brilliance, brilliancy, coruscation, dawn, daybreak, daytime, effulgence, emanation, flare, gleam, glimmer, glint, glitter, illumination, incandescence, irradiation, lambency, lighthouse, luminosity, luster, morn, morning, phosphorescence, radiance, refulgence, scintillation, sheen, shine, sparkle, splendor, sun beam, sunrise, taper, torch. About half of the synonyms can be found in the marine electrical specialty texts, however, most of them are used only in literature.

CONCLUSIONS

We tried to depict only some of the grammatical and lexical characteristics of the marine electrical terminology. From the grammatical point of view, the texts contain mainly the verbs **be**, **have** and modal auxiliaries: **may**, **can**, **should**, **shall**, **must**. The form **to be to + verb** at short infinitive is used to give instructions and could be compared to the modal auxiliary **should** as meaning.

From the lexical point of view, the most frequent words are **electric** and **light** that appear in many compounds. There can be found many partial synonyms of the word **light** that entered the terminology in different periods of scientific development and from different languages, mainly from French, or taken directly from Greek and Latin, although the word **light** could be presumed to have Old Saxon origin.

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