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Introduction
1.1 Introduction

The concept of “Terminology Formation” is the major concern of the present study. “Terminology Formation” is an integral part of word-formation. The present study focuses on the context of terminologies used in the Brass Industry of Moradabad. The Terminologies of Moradabad Brass Industry have not existed in a language for a very long time and are not yet fully established and accepted by the language community. Consequently the study attempts to raise some of the pertinent questions like:

- What happens to a new or complex terminology once it has been formed, coined, or borrowed from another language, and is used by a larger number of speakers?

- What changes does such a word (Terminology) undergo?

- How does it find its way into the dictionary of a language?

Obviously, the processes involved in Terminology Formation cannot only be observed in very recent additions to the lexicon, but also – and even better, since these have been subject to a longer development already – in words that originate way back in the history of language and have already gone through various stages of change. The present study will take a look at many examples and illustrate a number of different aspects involved in this process.
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The increasing trends of internationalisation, globalisation, and technology development lead to “more and more specialized communication acts” (Muller 193) whereas an increased necessity for communication is hereby merely a logical consequence. The hereby emerging terminology, linguistic, comprehension and cultural barriers that may result in failure of communication in most situations are to be subdued by means of terminology and translation. Despite the high level of standardisation, and internationalisation, there are many deeply rooted cultural, communicational, and linguistic differences in all domain related specialised terminologies. It is the task of the linguist, to eliminate or at least diminish this communicational hindrance, by means of terminology with concrete solutions for each particular existing difficulty.

Recent years have witnessed an increasing interest in the study of “termini tehnici” (technical terms - hereinafter shortly “terms” for conciseness), however the study of terminology, namely the theoretical and applied study of terms as coherent systems of lexical items endowed with creative dynamism, remained so far neither clearly defined nor is there a general agreement about its scope.

The substantive nature of a term and the differentiated understanding of the terminological vocabulary have a particular role. A conception of “termeme” gives for the words of various parts of speech a possibility to allocate a definite place within terminological systems and terminological vocabulary in general. The
"termeme" is a conceptually united combination of termination with a term as the central member and words of other parts of speech as secondary members. Vitally important principles follow as well from such aspects as the

1. Semantic one (differentiation of the meaning of terms and elements of terms, the separating of the semantic functions of terms of different structures, etc.),

2. The phonological and morphological (using of variants of spelling and form for the differentiation of semantics, action of analogy, etc.),

3. The aspect of word-building (formation of terms according to general rules for word-building),

4. Activization of elements of small productivity and non-productive elements of word-building,

5. The specifying of the semantics of word-building elements and making of new patterns, etc.) and

6. The syntactic aspect (the chief patterns of phrase terms of three and more components and ways of their abbreviation, the use of hyphening, etc.).
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7. Since the formation of terminology deals with problems of borrowing and contacts among languages, the interlingual principles should also be included.

8. On the interlingual aspect of these principles when estimating usefulness of borrowing any term of great importance is international or foreign character. More strict criteria should be put forward for the borrowings from concrete national languages of our days as they possess special phonetic, morphological or other peculiarities of their own.

9. A number of peculiar elements and variants come into terminology with so-called regionalisms. The main criteria in borrowing them are the regional specific of the phenomenon, the terminological function of the regionalism in the root-language, the occurrence of regionalism in many other languages of the world, etc.

10. As to the extralinguistic principles there are briefly characterized only those which are mainly connected with the subjective (a personality, a terminologist) and social (the activities of the society, groups of experts, enterprises and organizations) factors, the main to be respected in the practice of formation of terminology.
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11. The fixed requirements of various intra-, inter- and extralinguistic principles not always are mutually co-ordinated. Sometimes they are in contradiction which motivates separate deviations from the systemic patterns of terms. Thus these questions should be more profoundly investigated, among them the problem of hierarchy of principles.

It suggests that a term is the result of the process of termination and by “term” we refer to a word or a combination of words that expresses (names and marks) a definite scientific conception in the terminological system of the respective branch of science. The basic principle of terminology formation is to consider the requirements placed upon the scientific term: systematicality, the precision of meaning, the brevity of form, monosemy, mononimity, contextual independence, emotional neutrality, etc.

Though nowadays terminology is recognized as an independent branch of science, its close links with linguistics determine the dominating role of lingual (intralingual) principles in formation of terminology. The lexical aspect of those principles supposes to respect the specifics of the terminological stratum in the general lexical system of language, the interrelations of terms and non-terms, terminological and general vocabulary, the connections between terminology and professionally, socially, territorially, historically and stylistically limited lexical layers, etc.
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The concept of motivation, as employed here, goes back to Saussure and his pupil Bally, who claim that linguistic signs are not completely arbitrary, but may be motivated by the signifié, the signifiant, or both of them together. This is further developed by Ullmann (1972: 81 ff), who introduces a fourfold distinction:

1. phonetic motivation (onomatopoeia): eg crack, cuckoo
2. morphological motivation (WF): preacher, penholder
3. semantic motivation (metaphor and metonymy): coat (of paint), the cloth
4. mixed motivation: bluebell, redbreast

Ullmann then goes on to discuss the loss of various types of motivation which results in a change from what he (metaphorically) calls transparent to opaque words. The use of demotivation here is based on Ullmann’s concept and refers to the loss (to a greater or lesser degree) of any type of motivation.

Now, what do examples like the following have in common?

1) cook, cooker, baker, blackboard, whiteboard, white elephant, bluebell, callboy, callgirl, chair, chairman, chairperson, bus, flu, chap, chapman, milkman, forecastle, forehead, waistcoat, turncoat, holiday, radar, laser, USA, YMCA, NOW, ERA

And what about personal names like the following?

2) Turner, Constable, Shakespeare
They are all – at least originally – motivated, complex words and were coined according to productive morphological or semantic processes, or have been adopted from other languages, and they have all been affected – to a greater or lesser degree – by formal and/or semantic changes subsumed under the concepts of term formation. We shall take a closer look at such examples. First, we will give an overview of what has been said about such cases in the past.

Obviously, the terminology is not very consistent and developed, and the whole problem is assigned minor importance.

There are all degrees of semantic difference from a casual syntactic group (black pencil) to a syntactic group with a special meaning (black market: grammatical relation receding before lexicalization) to broken sign groups like get up consisting of distributionally independent speech units ... We have thought fit to treat in word-formation combinations like black market where motivation is obvious, whereas we have not included syntactic lexicalized groups in which synchronic analysis cannot discover any trace of motivation. The degree of motivation or non-motivation, however, is not always easily established ... Mother-of-pearl and mother-of-thyme are as motivated as butterfly, i.e. by poetic comparison.
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It puts forward that both complex lexemes and syntactic groups may become fixed parts of the vocabulary, with formal and/or semantic properties which are not completely derivable or predictable from their constituents or the pattern of formation. Concomitant demotivation and idiomatization are both subcategories and symptoms of the lexicalization process. The pragmatic disambiguation of Word Formation is a further subcategory. For example, both callboy and callgirl may theoretically be interpreted as 'boy/girl who calls' and 'boy/girl who is called'. The typical semantic fixation as 'boy who calls (actors onto the stage)' and 'girl who is called (by men on the phone asking for paid sex)' is a matter of lexicalization (Terminology) and again points to the norm of a language. Generally speaking, lexicalization (Terminology) is the incorporation of a complex lexeme into the lexicon with specific properties.

However, a further interesting distinction can be made between idiosyncratic and systematic lexicalization. Slight semantic changes such as the addition of semantic features (SFs) like HABITUALLY and PROFESSIONALLY to agent nouns like smoker, gambler, baker, driver, or a feature PURPOSE in drawbridge, chewing gum, cooking apple, represent instances of the latter. Thus, the regularity of WF and of certain types of lexicalization is emphasized. Idiosyncratic lexicalization, on the other hand, often is the origin of idioms, when the semantic
changes are so extreme that the meaning of the whole lexeme can no longer be derived from its parts.

1.2 Review of Literature

The most comprehensive discussion of lexicalization (Terminology Formation) and institutionalization in a book on WF is found in Bauer (1983: 42-61). It deviates from the preceding accounts in two crucial aspects:

1. In its definition of lexicalization as the third stage in the development of a morphologically complex word, and
2. In acknowledging a link with the deviation from productive WF rules.

Thus, warmth is an instance of lexicalization, because the suffix -th has ceased to be a productive pattern in the English language. For Bauer, warmth is analysable but lexicalized. The same holds for involvement because -ment appears to be no longer productive.

According to Bauer, the first stage in the possible development of a complex word is its use as a nonce formation. This is defined (Bauer 1983: 45) as “a new complete word coined by a speaker/writer on the spur of the moment to cover some immediate need.” Nonce formations are already mentioned in Marchand’s handbook (1969), but excluded from his treatment of WF and only cited occasionally as curiosities.
In later research, beginning perhaps with an article on English compound nouns by Pamela Downing (1977), non-established complex lexemes, their function, and the actual process of coining came into focus. Since such ‘innovations’ may depend heavily on context, Eve and Herbert Clark (1979) called them contextuals in their study on innovative expressions.

For Bauer (1983: 48), the second step is institutionalization, which involves the fact that potential ambiguity is ignored and only some, or only one, of the possible meanings of a form are used. He also makes reference to so-called item-familiarity: “The next stage in the history of a lexeme is when the nonce formation starts to be accepted by other speakers as a known lexical item.”

A similar view is adopted by Quirk et al (1985: 1522 ff) who consider institutionalization as the integration of a lexical item, with a particular form and meaning, into the existing stock of words as a generally acceptable and current lexeme.

The particular lexeme is recognized, e.g. telephone box as synonymous with telephone kiosk. Institutionalized lexemes are transparent, and Bauer (1983: 48) explicitly includes not only WF processes, but also “the extension of existing lexemes by metaphor”, as in fox ‘cunning person’, under institutionalization and thus takes a step in the direction of dynamic lexicology. Lexicalization, finally, is defined in a rather specific sense as follows: “The final stage comes when, because
of some change in the language system, the lexeme has, or takes on, a form which it could not have if it had arisen by the application of productive rules. At this stage the lexeme is lexicalized.”

Bauer (1983: 50) makes it quite clear that “lexicalization … is essentially a diachronic process, but the traces it leaves in the form of lexicalized lexemes have to be dealt with in a synchronic grammar.”

He distinguishes five types which will be considered in the following, namely: phonological, morphological, semantic, syntactic, and mixed lexicalization. They all have in common some kind of idiosyncrasy, e.g. irregularity and unpredictability.

- As examples of phonological lexicalization, Bauer (1983: 51ff) mentions an irregular stress pattern (Árabic, chivalric as opposed to regular synchronic, phonetic), vowel reduction in day in the names of the weekdays as opposed to payday, and isolation due to phonetic change in the language system, as in lammas, husband. He mentions that such changes lead to ‘opacity’ in WF, but that remotivation is possible through spelling pronunciation, e.g. of waistcoat, housewife, forehead.

- For morphological lexicalization he gives alternants like eat/edible, legal/loyal, two/tuppence and again warmth as a (synchronously) irregular affix.
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- Semantic lexicalization, which is explicitly characterized by Bauer as “not a unified phenomenon”, is treated in some detail (1983: 55-59), and illustrated partly with examples from Lipka (1977) such as mincemeat, understand, playboy. Some complex words, as he observes, may have a different meaning in Britain, America, and New Zealand, such as boy-friend, girl-friend, town house, and thus depend on varieties of English.

- The most problematic type is syntactic lexicalization, and accordingly Bauer’s formulations are careful and tentative. He mentions exocentric compounds (pickpocket, scarecrow, wagtail) and different kinds of objects (sentential vs. prepositional) with prefixal derivatives like disbelieve vs. believe. Idioms are also briefly mentioned in this context.

- His final class is mixed lexicalization, where he states that a single example may exhibit several types of lexicalization simultaneously (as in length, lammas) and that this may eventually lead to ‘complete demotivation’, as in gospel and nice.

In his introduction to linguistic morphology Bauer (1988: 67) identifies the institutionalization of words as “their coming into general use in the society and so being listed in dictionaries.” The terminological appendix C of the same book (1988: 246 f) gives the definition: “A word is said to be institutionalised if it is created by a productive morphological process and is in general use in the
speech community”, whereas for lexicalization we read: “A word is lexicalized if it could no longer be produced according to productive rules.” Thus, the definitions are mainly based on the distinction between productive and unproductive rules, which is certainly not unproblematic.

The results become “similar in status to unanalysable simplex words” (lexemes), thus “losing its character of a syntagma” and are consequently listed in good dictionaries.

If these are accepted in the norm (Coseriu) of a larger or smaller speech community they are then institutionalised. The old-fashioned British verb institutionalise itself may serve as an example, meaning ‘to put so in a mental hospital or institution for old people etc’. This differs from the metalinguistic noun institutionalisation, as introduced by L. Bauer into the international speech community of linguists, i.e. technical jargon or vocational slang.

Phonological lexicalization, consequently, depends on phonological rules, while words are said to be ‘semantically lexicalized if their meaning is no longer the sum of the meanings of their parts’. This is often the criterion adduced for idiomaticity by other linguists. At any rate, Bauer’s notion of lexicalization is rather global, and it does not admit for degrees and systematic processes.

As demonstrated, there is no consistency in the use of the term ‘lexicalization’ in the writings of Marchand, Kastovsky, and Bauer. A long time ago, Leech (1974:
226), in the first edition of his book on semantics, used yet another term for the process by which ‘an institutionalized lexical meaning’ diverges from the expected ‘theoretical’ meaning. He proposed the metaphorical term petrification, hoping it would suggest both “the ‘solidifying’ in institutional form” and “the ‘shrinkage’ of denotation” which often accompanies the process. Others have used the equally metaphorical term fossilization.

Putting all these different approaches together in a terminological nutshell, lexicalization, can be defined as “the process by which complex lexemes tend to become a single unit with a specific content, through frequent use. In this process, they lose their nature as a syntagma, or combination [of smaller units], to a greater or lesser extent.”

Lexicalization can thus be regarded as (Lipka 2002a: 113) “a gradual, historical process, involving phonological and semantic changes and the loss of motivation. These changes may be combined in a single word … The process of lexicalization in general, as well as its result, namely the irregularity of the lexicon, can only be explained historically.”

Idiomatization concerns the semantic changes involved in the process of lexicalization. It can manifest itself (Lipka 2002a: 113) “as the addition or loss of semantic features. Synchronously, the result of this process, various degrees of idiomaticity, form a continuous scale.”
One of the commonest conceptions of lexicalization is the unification, or univerbation, of a syntactic phrase or construction into a single word. Lehmann (1995 [1982]: 7-8) identifies Žirmunskij (1996) as one of the first to highlight unification of syntactic phrases as the source of many lexical items. Some representative description of lexicalization as univerbation follows:

- "The phenomenon that a complex lexeme once coined tends to become a single complete lexical unit, a single lexeme. Through this process it loses the character of a syntagma to a greater or lesser degree" (Lipka 2002 [1990]: 111),

- "The process of unification (whereby a word combination develops into a single (compound) word)" (Lessau 1994: s.v. "Lexicalization," Lessau’s emphasis),

- "The process whereby independent, usually monomorphemic, words are formed from more complex constructions" (Traugott 1994:1485),

- "When a phrase or a syntactically determined lexical item... becomes a full-fledged lexical item in itself" (Moreno Cabrera 1998: 124),

- "Related to desyntacticization, in the sense of a Syntagmatic structure losing its syntactic transparency and merging into a single lexical item” (Wischer 2000: 364),
• “A process by which complex words formally and syntactically lose their motivation” or “a process by which complex words become single words” (Blank 2001: 1603).

The notion of institutionalization, finally, refers to the sociolinguistic aspect of this process and can be defined as (Lipka 2002a: 112) “the integration of a lexical item, with a particular form and meaning, into the existing stock of words as a generally acceptable and current lexeme.”

It has to be stressed again that not only the results of productive syntagmatic and non-syntagmatic WF processes may be affected by various changes, but also the products of semantic shift and transfer (metaphor and metonymy), as well as loanwords. All three devices, which play an important part in dynamic lexicology for the extension of the lexicon of a language (cf Lipka 2002a: 138f), can of course also be combined in individual items.

Institutionalized and lexicalized complex lexemes clearly neither belong to the level of the langue (with its systematic WF types) nor to the level of parole (with specific, concrete realizations of the underlying language system). Instead they are part of the level in between, the norm of a language.

Two general methodological points have to be made before we can illustrate with examples: the impossibility of a detailed description and the necessity of a so-called cross-classification. In a short article, examples can only be mentioned,
but not analysed in detail, as for instance the development of cupboard and holiday (cf Lipka 1985), or the instantaneous coining of implicature and the verb implicate by Grice (cf Lipka 1980: 303). Also, any classification of lexicalized and institutionalized words is by necessity a so-called cross-classification, since the various aspects criss-cross and combine in individual words, and a neat hierarchic ordering is impossible to achieve. Keeping this in mind, we will separate the respective phenomena, and it should therefore not be surprising that the same examples may appear in several categories. We will distinguish between formal, semantic and extralinguistic developments, and finally consider loan processes.

Lexicalization and institutionalization are not of an all-or-none kind (cf Lipka 1972: 76), but of a more-or-less kind. Both processes result in degrees of ‘lexicalizedness’ and ‘institutionalization’ (as a state of lexical items) in synchrony. At one end of the scale, items only show small phonological and semantic changes, as in postman, blackboard, writer, gambler, sleepwalker. At the other end, the combination of several aspects may produce considerable graphemic, phonological, or semantic deviation (the latter is idiomaticity) as in viz. ie. fo’c’sle, Wednesday, gospel (cf Faiss 1978), wryneck, cupboard, prayer, holiday. Institutionalization in particular, but also lexicalization, depends on different regional, social, ‘stylistic’ and other varieties of a language. Letters (or read as a word) like U N E S CO. from United Nation is an acronym. With such
acronyms reading them as a word is a further sign of unification and loss of motivation, as in radar (from radio detecting and ranging) and laser (from light amplification through stimulated emission of radiation). In combinations like laser printer, laser surgery, laser technology the acronym has completely lost its motivation.

Both processes can come about through linguistic and extra-linguistic changes or a combination of both. Examples for graphemic changes are bousun, bo’s’n (both from boatswain), fo’c’le (forecastle), sou’wester, tuppence, hoover. Phonological changes may be only slight, as the reduction of the final vowel in Monday, postman, or considerable as in breakfast, prayer, Wednesday, cupboard, waistcoat, holiday, victuals. A combination of phonological and morphological changes (loss of inflection) is found in Hochzeit ‘wedding’, while Hochschule ‘university’ vs. Hohe Schule is only morphologically and semantically isolated from the parallel syntactic group.

Semantic changes may be described as the addition of general or idiosyncratic SFs. Features like HABITUAL, PROFESSIONAL can explain sleepwalker, gambler, writer, while streetwalker, callboy, callgirl, highwayman, wheelchair, pushchair involve rather specific semantic material. In English, German and French potter, pottery, Töpfer, töpfern, potier, poterie are all necessarily semantically specialized as to material (baked clay) and do not simply denote the
producer of pots and his products. Thus, an idiosyncratic SF CERAMICS may be
postulated for this change, which is missing, however, in the technical term poterie
d'étain. Loss of features can be seen in ladykiller and in saddler (who makes other
leather articles as well. cf F maroquerie).

Metaphor and metonymy are involved in bluebell, redbreast, Jesus bug, dogfight
(in the military sense), daisy wheel (in typewriters, printers) and tick (for an
annoying person). Metaphor, demotivation, and institutionalization are combined
in domino theory, domino effect which require specialized extralinguistic
knowledge for their interpretation.

Extralinguistic changes in the denotatum have caused the demotivation of
blackboard (often green today) and the introduction of whiteboard (for a white
smooth surface, used in classrooms for writing and drawing on). A cupboard today
is neither a board nor for cups only. It is well known that shoemakers and
watchmakers no longer denote makers of these things (but cf winemaker). We can
also, today, sail (by Hovercraft) and ship (goods by air).

Loan processes, which may be further subclassified, serve to extend the lexicon,
but also show various degrees of demotivation and institutionalization. Few
English people know that the adjective nice derives from the Latin verb nescius
'not knowing, incapable'. The demotivated frankfurter, hamburger could be
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English derivatives, while German midlife crisis is clearly marked as a loan by its pronunciation, identical with the English one.

The combination of several changes on various levels of language and often in the extralinguistic world, too, is demonstrated by blackbird, breakfast, cupboard, holiday, huzzy (from housewife), gospel, Christmas, vinegar, vintner, (but cf also wine-maker) furrier.

Institutionalized words belong to the norm of the language and are more or less familiar to the members of a certain speech community. A minimal degree of item-familiarity is a necessary requirement for institutionalization. This is connected with the naming function and with the need of a society for a name for what Downing (1977) called nameworthy categories. Clearly, snowman is not a nameworthy category in African societies, just as non-Catholic Japanese or Chinese will not need a name for Ash Wednesday. With teetotallers (not related to tea, but derived from a reduplication of total) or in orthodox Arab societies, beer-glass, wine-glass etc. would not be nameworthy. In the old days of tea-drinking Britain prelactarian was institutionalized in academic circles for persons who put milk in the cup first before pouring the tea, cf tif (tea in first) and in colloquial General E.

With modern equal opportunities, words like feminist, male chauvinist, chairperson, and forms of address like Ms have been institutionalized.
New objects in a changing world require new words not only in the field of technology, such as the metaphorical daisy wheel, golf ball for typewriters, or IBM-compatibles, lap-top, laser printer or the acronym URL in the field of PCs. In British English, where pies are favourite dishes, we have seen pie funnels, and even animal pie funnels, which let the steam escape. So far these words have not become generally institutionalized words despite their name worthiness.

Before that, however, it needs to be made clear that the two complex lexemes lexicalization and institutionalization are, of course, notational terms (cf Enkvist 1973) of the linguistic metalanguage. This means that, as opposed to substantive terms, like robin, cottage, or chair, they may be defined in different ways by different people, and there is no single correct and reliable definition. As with many other notational terms in linguistics (and other disciplines), this accounts for a certain amount of confusion in the literature. In this article we shall try to sketch previous work on lexicalization and institutionalization and to unravel the forbidding and confusing terminology.

A useful cover term for all types of linguistic expressions, originally proposed by Mathesius (1975) and adopted by Štekauer (2000: 337 f, 352), is naming unit (NU), a conventional sign for the denotation of an extralinguistic object. Following both linguists, three types of naming units can be distinguished:
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a) simple and complex lexemes: bug, debug, bus-driver, sundowner, tomahawk, cruise missile,

b) expressions (noun phrases, collocations, definite descriptions): friendly fire, the President (of the USA), Gulf War II,

c) proper names (person names, place names, eponyms): George W. Bush, Camp David, Alzheimer, Poinsettia, Bakelite.

This morphologically diverse variety of naming units may all serve for performing the speech act of reference. Depending on which perspective we adopt, when we use language as an instrument of communication, we can distinguish between encoding (with the focus on the content of thought or the referent) and decoding (with the written or spoken utterance as starting point), as in the dynamic, functional model of communication by Mathesius (1975. originally postulated in 1961), adopted by Štekauer (2000).

As this excursion into the field of culinary skills shows, register, expertise, style, and the consideration of varieties in general are extremely relevant for institutionalization. Examples for metaphorical compounds and semantic transfer from the language of computers are: soft/hardware, mouse, menu, joystick, windows, thumbnail.
With regard to proper names, which prototypically demonstrate the naming function of words, we may distinguish their use as a base for derivations such as Marxism, Leninism, Thatcherism, and their demotivation, especially with names for famous people, like Thatcher, Turner, Shakespeare, Onions, (Richard) Wagner, Bernstein (a demotivated loanword), but also place names like New York, New Orleans, Newcastle, German Ostwestfalen (in northern Germany), Schwarzwald, where the language users are no longer aware of the original literal meaning of the NU.

The technical term institutionalization was introduced into the lexicon of linguists in Bauer (1983: 48), apparently derived by productive word-formation (WF) processes with the suffixes -ation and originally -ize (BrE -ise) from the verb institutionalize ‘put in an institution’, item-familiar to many speakers of BrE. It is lexicalized semantically and therefore cannot be the source of the technical linguistic term. It also is a neologism, not a nonce-formation, which may be interpreted from co-text and context. We agree with Štekauer (2002) that the two notational terms must not be equated but clearly distinguished (cf. Lipka 1999).

Of course, institutionalization is not a one-way phenomenon. The process by which a NU becomes familiar to (at least certain members of) a speech community can also be reversed when a category loses its nameworthiness, eg because an extralinguistic denotatum disappears or becomes unimportant. Before and shortly
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after the beginning of the new millennium, the media were full of references to Y2K and of concerned reports about the millennium bug. Nowadays there is hardly a need to use such NUs any more; they have undergone a process of de-institutionalization. We would now like to postulate this (rather clumsy) metalinguistic neologism, viz de-institutionalization derived by productive WF processes (ie the prefix de- as in de-motivation and the suffix -ation). This naming unit (NU cf Mathesius 1975, Štekauer 2002) denotes the reverse of institutionalization, defined as the adoption of an item-familiar word in the lexicon of a specific speech community (regional, technical, political or cultural phenomena), technical processes (invention of new referents). These may make a NU superfluous like the advent of electronic communication and new vehicles.

We disagree with Kastovsky (1982a: 146ff, see above) who defines Lexikalisierung as “die Eingliederung in ... das Lexikon” and also with Bauer (1983: 48) who defines institutionalization as the second “or “final stage in the history of a lexeme”, i.e. of the lexicalization of a word. My use of the term is different. We believe that both processes are basically independent of each other. We define institutionalization as the process of being accepted in the lexicon of a specific speech community (Americans, doctors and medical people, computer freaks, linguists etc). Kastovsky’s definition of lexicalization refers to this very process, adopting the word in a lexicon. Clearly, both are notational terms. We
believe that WF produces new lexemes, but metaphor and metonymy (M&M) produce new lexical units (cf Lipka’s English Lexicology) like bluebell, redbreast – combining WF and M&M, called mixed motivation by Stephen Ullmann. Together with loans, all these are processes of dynamic lexicology for extending the lexicon (cf Lipka 2002a: IX, 136-138). Like (film) star – lexicalized metaphorically, or semantically, all of the new simple or complex words (whether produced by irregular or by productive WF processes) may be institutionalized, like elevator or lift in AmE or BrE (cf G Fahrstuhl (not a Stuhl or chair) and Aufzug, but not the regular Instrument- nominalization lift/er. This is the motivation for the trademark Lift/a. for a movable chair, G Treppenlift, for the handicapped (no longer politically correct, now replaced by disabled) to reach upstairs at home.; cf wheelchair bound (Jessica Lynch). Both cook and cooker (morphologically and semantically lexicalised) are institutionalised in ‘general English’. This distinction, which played a great role in the Prague School of Linguistics, may clearly be related to my topic. Thus, with regard to the lexicon, in traditional lexicology and lexicography of English, it was captured originally by a well-known diagram in the SOED, where the centre of the English vocabulary, ‘the common core’ was represented as common English (cf Lipka 2002a: 17). From this, various varieties and fields (cf 7.3 a) - d) radiate, which can be equated with the Pragueian notion of periphery. Obviously, words may move from this to
the centre, i.e. become lexicalized and institutionalized (like keyhole surgery), but basically also in the opposite direction.

Kastovsky (1982a) makes the additional distinction between *systematic lexicalization*, such as in the regular addition of very general features such as [+PROFESSIONAL] in derivations by means of -er (*lecturer, reporter, writer*), and nonsystematic, i.e. truly idiomatic semantic lexicalization.

Aronoff (1976: 19, 43) frequently uses the term *semantic drift* here. A famous example of his is *transmission* not as a regular action nominalization but as the technical term for a part of a car – namely the one that transmits the power of the engine to the wheels. So this semantic specialization can be described as addition of semantic information (regarding object, source and goal of the verb).

Bauer (1983: 55ff) finds accounts of semantic lexicalization as additional semantic information problematic, partly because criteria can be mixed, e.g. Lipka’s (1977) distinction between *language-internal changes* as opposed to *extralinguistic changes* in cultural background. Examples for the former are *mincemeat* or *sweetmeat* (which *are* suitable for vegetarians) where the second element goes back to an older broader meaning, ‘food in general’, but which has later narrowed to its current meaning. An example for the latter is *watchmaker* – a profession that these days typically no longer include the making of watches, only repairs.
Bauer (1983: 57f) also sees a problem in specifying what amount of semantic information may be lexicalized. One of his examples is the exocentric compound redskin. This has two established meanings, although not all speakers may be familiar with both: a) a person (now a rather politically incorrect term) and b) a type of potato. This in itself shouldn’t be such a problem as it is far from unusual for one form to have more than one meaning and thus more than one lexical entry (polysemy and homonymy are all over the place in the lexicon anyway). However, Bauer (1983: 58) also claims that the relevant additional semantic information is rather down to context than to specializing lexicalization, since redskin can be reinterpreted with ease as in the following context:

(1) Granny Smith was rude to all lesser breeds, but particularly to Mr Mackintosh. “You redskins”, she would sniff, “You’re all alike: no firmness of character.”

What Bauer fails to acknowledge here, however, is that this instance of wordplay – a case of a “nonce-use” (cf. Hohenhaus 1996: 133ff) – relies on the deviation from the lexicalized, conventionally fixed sense of redskin (presumably rather the ‘person’ reading), otherwise we would not recognize it as such. Consider also the more recent example warhead. Normally this is lexicalized as ‘the explosive front end of a missile’. In news coverage of the 2003/2004 demonstrations against the Iraq war, however, banners could be seen that had a
picture of George W. Bush or Tony Blair next to this word, clearly prompting a different, nonce reinterpretation.

The relatively few studies that have been made in the field of contrastive lexicology have steered clear of technical terminology. The reason is quite clear. Scientific, technical and occupational terms (henceforth, technical terms) are assumed to exhibit one-to-one correspondence across languages, a phenomenon rare to nonexistent in the domain of natural vocabulary. It has been suggested that technical terminology is outside the lexical system of language, and is not a proper concern for lexicology (Coseriu and Geckeler 1969: 47).

In any case, the study of technical terminology is universally regarded as semantically uninteresting. That view is not completely justified. Indubitably, one-to-one correspondence of technical terms across languages is quite common. However, technical terminologies contain several layers, such as terms used in pure science, terms used in applied science, terms used in the sphere of production related to a given branch of science and terms used in various trades and occupations.

These layers exhibit the characteristics of natural vocabulary to different degrees (cf. Jumpelt 1961: 32). Also, there is a wide area of overlap between technical terminology and natural vocabulary. Many lexical items function

The lexico-semantic characteristics of individual technical terminologies vary depending on the nature of the given field of study. The highly standardized terminologies of natural sciences are much less likely to show the characteristics of natural vocabulary than the terminologies of applied sciences, social sciences, commerce, trades and occupations. Such terminologies, especially their most general terms, are subject to a great deal of influence from natural vocabulary, and constitute a legitimate subject for lexicological inquiry. It should also be borne in mind that all technical terminologies, even the most highly standardized ones, are affected to some extent by the basic lexico-semantic processes, such as the development of polysemy, synonymy, and so on (Danilenko 1971: 27-28).

Comparisons of technical terminologies across languages are necessary for the purposes of compiling bilingual technical dictionaries and thesauri and of teaching technical translation. Experience, particularly in the field of bilingual and multilingual thesaurus making, has shown that there are many lexico-semantic divergences between the terminologies of different languages (cf. Varga 1969: 72-73), deriving from the lexico-semantic divergences between the vocabularies of natural languages.
The discipline of terminology has seen a shift from what is now referred to as traditional terminology (standardization-oriented and concept-centred) to a communication-oriented and discourse-centred approach (Cabré 1999 & 2000, Temmerman 2000) referred to as sociocognitive terminology in e.g. Temmerman (2000). For many subjects the traditional approach was not feasible nor desirable, e.g. the life sciences (Temmerman 2000); and e.g. VAT legislation (Temmerman et al. forthcoming). Insights of cognitive semantics (e.g. prototype structure theory of meaning and the role of metaphorical thinking in categorization and understanding) as well as computational semantics have had their impact on the theory of terminology and special language studies.

Johnson spread his net as widely as possible and included many technical terms in his dictionary, using his judgment and giving them the benefit of the doubt if they were not well established. (Compare McDermott’s discussion of the treatment of technical terms in Johnson 1755 in this issue of IJL – editors.) This is not so very different from modern practice, although the technologies represented have changed beyond recognition. A glance at Johnson’s entries for eighteenth-century terms in medicine, chemistry, and other sciences provides a fascinating insight into how our scientific concepts have changed in 250 years. One example will have to suffice. Alcohol is defined as ‘An Arabic term used by chemists for a high rectified dephlegmated spirit of wine, or for anything reduced into an
impalpable powder. Johnson was writing before the scientific understanding of the molecular structure of chemical compounds was developed.

The detail mentioned above can be analyzed in a nutshell as follows:

Bauer states that the nonce formation is the first stage of the development of a complex word. Then he moves to the institutionalization, where potential ambiguity is ignored and some possible meaning of the form are used. Then he defines familiarity as the acceptance of the nonce formation by the speakers. For some scholars institutionalization is the step which precedes lexicalization. But Bauer suggests a path of lexicalization as follows (1983: 45ff.; cf. Ryder 1999: 305-306),

Nonce formation > institutionalization > lexicalization

Pamela Downing focuses on function and process of coining of non-established complex lexemes.

A similar view on institutionalization is revealed by Quirk et al as the integration of lexical item, with a particular form and meaning into the existing stock of words as a generally acceptable and current lexeme.

One of those linguists who have most significantly contributed to the theory of lexicalization is Leonhard Lipka. He specifies high frequency of use to be an essential condition for the process of lexicalization.
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Kastovsky distinguishes between idiosyncratic and systematic lexicalization. Slight semantic changes such as the addition of a semantic feature like habituality and professionality to agent nouns like smoker, baker, teacher, driver or the feature purpose in drawbrisg, chewing gum represent instances of systematic lexicalization.

Mathesius proposed a term naming unit (NU) and Štekaur adopted it. Naming units may serve for performing speech act of reference i.e. encoding and decoding.

Aronoff explains the term semantic drift with the example of technical term for a part of car, that transmit the power of the engine to the wheels.

Johnson included many technical terms in his dictionary. His entries are for eighteenth century terms in medicine, chemistry and other sciences.

1.3 Objective of the Study

For a strict outline of the function and purpose as well as of the practical application scope of terminology (be it in one or parallel in multiple languages, be it a systematic or a punctual analysis of the field specific terms, commonly referred to as “termini tehnici” or terms of art, it is relevant to clearly understand the background and the causes resulting in the current state of this area.

Since the past century has brought about an explosive rate of growth in all fields of science and hence in all related domains of technology domain specific
communication has accordingly gained an increasingly important role. Along with the exponential progress in most scientific domains there is an increase in the area, amount and use of the technical terms herewith related, often resulting in communication hindrances or misunderstandings even between experts in different fields, but sometimes within the same domain and obviously between speakers of different languages.

It is therefore, necessary to pinpoint the newly emerging domain specific terms immediately after their emergence, to exactly explain and establish the inherent meaning so as to further ensure the correct use thereof, both in that domain specific language as well as to make them available for common language use.

The relation between terminology and domain-specific language in point of function of practical terminological study in each field should aim to be the standardized mediation and communication bridge that makes the transfer process for knowledge in the field of domain-specific language possible.
1.4 Term Formation

Therefore standardization of terminology theory is the basic step in standardization of terminology practice and application. Terminology is defined as “the total of concepts and their designations in a specific domain”. Since terminology is coined as the vocabulary of a certain domain it has to be considered as a part of that specific language, therefore resulting in the conclusion that terminology is subordinate to the domain-specific language as being a part thereof. The boundary between domain-specific language and general language is basically easily recognizable; however there are several interference areas of the two that require further analysis. “The core area of a language, used by all members of a language community is designated as general language”

This definition only raises the rather difficult question on how to set the boundaries and distinguish between the general language and the domain-specific languages on one hand, and between the several existing domain-specific languages on the other hand.

Regarding the relation between domain specific language and general language it is relevant that there are interactions between the two, some of the most important aspects of this interaction being terminologisation of semantic units— where a known, (usually general language word form receives a new
conceptual meaning) and vice versa general language imports terms from the
domain-specific language preserving or changing the initial meaning attributed to
the word. Statistically there are by far more situations of the latter interaction type
accounted for by the intrusion of technology at an unprecedented rate into the
every day life of language communities.

However, the more concise and precise a domain-specific language remains
the less comprehensible and available it is for the general language community.
The current situation in this respect is on the contrary, one where more and more
domain-specific terms enter the general language area that results in a
phenomenon perceived as an oversaturation of the passive vocabulary. Domain-
specific terms that are disseminated by means of mass communication media are
interpreted, understood and further brought in use in the general language area as
partially or entirely incorrect or ambiguous, which can be therefore regarded as the
reverse process of terminologisation, namely a process of determinologisation.

Consequently, increasing numbers of lexical items are migrating from
specialized to general discourse, acquiring new meanings and new behaviour in
the process. Consider, for example, the waste-management sense of recycling,
compared with its new general-language uses, where software, resources and even
ideas can be recycled. Or the computer senses of words and affixes such as
interface, bug and -friendly, compared with new, general-language uses such as
"to interface with people", "bugs in one's thinking", and "film-friendly politics". Or our recent favourite, bandwidth, used colloquially to designate the range of a person's abilities, as in "Do Meyer, Mackintosh and Varantola have the bandwidth to understand the subtleties of the de-terminologized lexicon?"

*Virtual* is a particularly interesting example of de-terminologization. This word's terminological, 'virtual reality' meaning has recently become "stretched" in general language to refer to concepts that have very little to do with virtual reality per se: virtual sex, virtual office, virtual travel - even virtual corpus (e.g. Holmes-Higgin et al. 1994) and virtual dictionary (e.g. Atkins 1996). But it is not just the meaning of virtual that has undergone transformation - grammatical behavior has been affected as well. In its original, general-language sense of 'almost', virtual could only be used attributively (e.g. one can say a virtual prisoner but not "the prisoner was virtual"). In its de-terminologized meanings, however, virtual can be used predicatively, as in "my travels are virtual" (meaning, perhaps, that one visits travel-related sites on the Internet). This grammatical transformation also applies to virtually. For example, "He has virtually travelled the world" does not mean the same as "He has travelled the world virtually"

This situation unfortunately exists and continues to occur increasingly, while countless examples of such determinologised terms enter the general language hereby affecting both the correct use and conceptualisation and also sometimes
casting a significant reflection upon the actual initial concept attributed to a term in the domain-specific language area.

Hence, the permanent interaction between domain-specific language and general language as well as the thereto related issues imply a coherent transmission of terms between the two fields, starting from standardized terminology rules and completed by the practical study and coinage thereof.

1.5 Term – Concept - Interaction

The term and its related elements need to be further dwelled upon in order to emphasize all potential interaction possibilities that may emerge in the currently continuous process of term formation and hereinafter use. As a term is defined as the designation of a defined concept in a special language by a linguistic expression, the central unit that needs to be carefully analyzed when forming, or using a newly formed term is actually the concept.

A term may consist of one or several words that is a simple term or a complex term or even contain symbols, acronyms or shortenings and therefore does term formation imply several conditions that are actually not always complied with in practice. A term should be:
Linguistically correct;

Precise (motivated);

Concise;

A term should permit (if possible) the formation of derivatives.

The accuracy (motivation) of a term must be seen as its ability to reflect as far as possible the features that are provided in the definition. A term should be concise. Undue length of a term represents a serious shortcoming. Firstly it breaches the principle of linguistic economy, and secondly it frequently leads to ellipsis (omission), which in turn can only further create ambiguousness and quite often misinterpretation or even overlapping with a different concept. The resulting alternative designation can lead to misunderstanding. The requirement of characteristics often conflicts with that of accuracy and the greater the number of characteristics included in a term, the more complete the representation of the concept and the more accurate the term. Thus, the term is considered to be the central element of terminology the unit consisting in the concept and its designation. However, there are countless examples of terms that do not comply with a desirable condition for term formation, namely the mono-semantic correspondence between a term and a concept. It is justly recommended however not attainable to the extent that may exclude misinterpretation, ambiguity or
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overlapping within the same language but different domain-specific language areas, not to mention correspondence between different languages. In scientific and technological terminology the breach of this principle such as polysemy, synonymy, homonymy may result in serious misunderstandings and above that rather severe communication mistakes, even communication impossibility that is usually solved by importing the term with the designation in the language it was first coined, facts that only further increase the comprehension gap and increase ambiguity and lack of precision in use. Therefore, when creating new terms, elaborating the appropriate definitions and systematizing the already existing terms, several procedures should be followed. Before a new term for the concept is formed it should be ascertained whether any term already exists in that language for the concept to be designated and in case there are several synonyms for a one single concept the one which satisfies the largest number of requirements mentioned above should be selected.

Designation creation is thus of utmost importance under the circumstances of a continuous unabated and explosive rate of growth in all scientific domains and needs to be investigated, elaborated and applied accordingly. Domain-specific languages should not attempt to merely attribute to designations existing in general language areas new domain-specific meanings and hereby alter the concepts, even if this is one of the most productive processes. The newly emerging
concepts need to be accounted for, as much as possible, by new designations hereby coining new terms, since more or less productive word formation pattern exist in each language. However, term formation is not to be mistaken for absolute term creation in the sense of invention of linguistic elements, which occurs only in exceptional situations, yet generally making use of elements pre-existing in a language and hence increasing the potential for ambiguity of misunderstanding and misuse of terms. The means of term formation accounted for by terminology dynamics refer to basically using all lexical means of the general language including:

terminologisation,

composition,

derivatives

pre-fixation,

suffixation

pseudosuffixation,

conversion,

import of terms,
shortenings,
acronyms and
term creation.

The basic aspects that need to be observed at the conceptual level refer to the relations between the terms and their constituent aspects or elements, the relations between the constituent aspects as well as the nature of the conceptual formation combination used in the construction of terminology.

1.6 Significance of the Study

This study is significant in sense that it explores the concept of technical terms used in brass industry of Moradabad.

Furthermore, this study is significant because it is a serious attempt in getting a better understanding of the etymology of technical terms used in brass industry of Moradabad.

Moreover, the importance of the study is embedded in its findings, which may give insightful remarks into the nature of the technical terms, their origin, and their semantic change.

The importance of this study also lies in the fact that it is expected to be a good source of valuable information to the teachers, linguists and translators who has Urdu as a Native language or second or as a foreign language in general
because this information is necessary to provide a better understanding of the technical terms, their origin and their development.

In addition, the findings of this study also are beneficial for educators and scholars in the field of semantics, lexicography, lexicology and historical linguistics as well as in the field of translation. Little is known about the technical terms used in brass industry in Moradabad. This lack of research creates obstacles for the improvement of lexicography, translation and semantics work.

This study may provide clear picture to teachers and linguist, by conveying them the importance of the technical terms, their origin and historical development. It is also expected that to be a good source of knowledge for research scholars in many interdisciplinary fields.

Finally, the result of this study may also help interested people in the field of semantics, lexicography, and historical linguistics as well as in the field of translation to have a better understanding of the process of the historical journey of technical terms.

1.7 Limitations of the Study

Needless to say that having limitations are very normal thing to every study because they are inevitable to every research. Therefore, it is useful to reveal some of these limitations to show as to what challenges the researcher experienced while conducting this study. This study is limited to the technical terms that collected only from Moradabad city. It also should be noted that these technical terms are
related to the brass industry in Moradabad city. The data have been collected in the year of 2010/2011.

1.8 Moradabad City & Brass Industry

Moradabad is the well known city of Uttar Pradesh, the State of India. The city was established in 1600 by the prince Morad, the son of Mughal emperor Shah Jahan. As a result it is known as Moradabad. It is the administrative headquarters of Moradabad District. According to the government of India, the district Moradabad is one of several Muslim majority districts on the basis of the 2001 census data on population, socio-economic indicators and basic amenities indicators.

Moradabad is situated at a distance of 167 km (104 mi) from the national capital, New Delhi, on the banks of the Ramganga River (a tributary of the Ganges).

It is also known as The Brass City or pi:tal nagri: in local dialect. It is clear from its name that the city is famous for its work of brass. The products are made in the city are purely handcrafted and are exported throughout the world so the city is able to collect the big amount of foreign currency by its export worldwide.

There are a number of export companies and a number of manufacturers and artisans in the city. The city not only provides the employment to the natives but also a number of people come here from other cities and villages in search of employment or to get the orders of their work in which they are expert.

Moradabad is renowned for its brass work and has carved a niche for itself in the handicraft industry throughout the world. Mohammed Yar Khan was the
founder of the Indian Brassware Industry. He migrated from Afghanistan to India in 1860's and started the Brassware business in Moradabad. He has been awarded various prestigious medals from National and International Business Organizations. The modern, attractive, and artistic brass ware, jewelry and trophies made by skilled artisans are the main crafts.

The attractive brassware is exported to countries like USA, Britain, Canada, Germany and Middle East Asia. There are about 600 export units and 5000 industries in the district. Moradabad exports goods worth Rs. 2200 crore every year. Recently other products like Iron, Sheet, Metal wares, and Aluminum Artworks and Glassware's have also been included as per the need of foreign Buyers.

Now a days on the demand of the products and the work of the city is not only confined to the brass but also other metals such as iron, copper, steel, glass and wood industries are also settled here.