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How can one explain "deviant" linguistic functioning in terminology?

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Abstract:

This article looks at so-called "deviant" functioning in terminology. The notion of deviancy seems to be situated in relation to a "neutral" functioning of the language, which does not take any particular communication situation into account. The article aims to show that this supposed deviancy has to be related to the communication situation itself, which, in this case, implies specialized knowledge. Rather than just being deviancies, it is argued that these linguistic formulations are tangible manifestation of the specificity of the communication situation. Three types of explanation are put forward: linguistic (linguistic prolixity and linguistic economy), sociolinguistic, and cognitive. Each type is exemplified by various studies.

Key-words: Cognitive approach, Deviancy, Discourse community, Experience, Specialized Discourse, Terminology

1- Introduction

This article concerns "deviant" linguistic functioning in terminology. If more general works evoke variations from the standard (according to register, place, time), the term "deviant" has been used by various authors to characterize linguistic functioning that does not conform to what is expected in a non-specialised situation (adjunction or deletion of elements, change in arguments, overuse of some categories, etc.) (see for example Lehrberger (1986) and Pearson (1998) quoted below). Even when the term "deviant" is not used, specificities of specialized languages are identified from an essentially descriptive perspective. In this article, we are interested in this phenomenon of "deviance" with an explanatory purpose. What we would like to show is that these apparently deviant functionings are in fact due to the very specificity of the situation. Linguistic descriptions (especially those concerning the lexis) are usually made for a neutral situation, i.e. without any particular context being specified. An inherent feature of specialized languages, however, is that they are characterized from the outset by a communication situation which defines a discourse community. In most cases, deviant linguistic functioning can be explained by the common interest that founds the discourse community in a specialized situation. This common interest, which presupposes the investment of experts, manifests itself in particular linguistic functions. The article thus evokes the sociolinguistic aspects, frequently mentioned to explain the use of jargon, which founds communities but can also isolate them. Based on the results of corpus studies, the article describes linguistic functions: prolixity (addition of modifiers), economy (removal of prepositions and/or determinants) that can be explained either by the finesse of the concepts

described in a field, or by the sharing of knowledge between experts. The case of nominalizations, particularly present in specialized texts, is also studied and explained.

Finally, the article proposes an aspect that is more rarely evoked, which is of a cognitive nature. This aspect makes it possible to suggest an explanation for the direct construction of rental complements in certain situations related to sports and leisure activities.

Part 2 evokes the works that, in linguistics and sociolinguistics, evoke lexical deviance in specialized languages.

Part 3 is based on corpus studies to propose an analysis and explanation of certain phenomena from a linguistic point of view (proximity, economy and the case of nominalization) or cognitive point of view.

2- Linguistic deviancy in specialized contexts

Many authors have referred to the specificities of specialized languages (and especially of the lexicon) in relation to the general language (among others, (Cabr , 1999), (Sager, 1990)). Several spoke of « deviations », with the general language then being considered the norm.

2-1 Major studies on the deviancies in LSPs

Deviant functioning in terminology has been discussed by various authors, especially from the perspective of the theory sublanguage.

«Grammatical usage of words not only is restricted, but also deviates occasionally from normal usage outside the sublanguage. » (Lehrberger, 1986, 27).

« Sublanguages differ from standard language because the lexis and semantics are more restricted than in standard language, and the syntax may deviate in some respects from the syntax of standard language » (Pearson, 1998, 30-31).

The term "deviant", refers to the fact that certain lexical, semantic or syntactic phenomena in specialized discourses are not expected in standard usage. It is then necessary to refer to a linguistic competence assumed to be shared by all the speakers in a non-specialized, i.e neutral, context. Such a perspective, even if it is not called deviant, is shared by all the scholars who study specialized language characteristics. In fact, a sense of strangeness is common to any terminologist who begins working in a new field and it is even fundamental to the identification of terms.

Here are some examples of deviancy for French (Condamines, 1995):

- Use of specialized words unknown to non-specialists: *actionneur* (actuator), * tagiste* (stage integrator).
- Preposition deletion in the nominal group. This case is very frequent, particularly in technical domains: *contr le commande* (command control), *banc simulation* (simulation bench).
- Unusual argument: *alimenter une batterie* (to feed a battery).
- Argument deletion: *d poser* (to deposit; banking domain), *monter* (to ride; equestrian domain);
- Preposition deletion in the verbal group (see below): *p cher une rivi re* (to fish a river) in angling.

Note that some of these « deviancies » have also been described for language in general. For example, an unusual argument may be a way of describing a metaphorical phenomenon which, although frequent in specialized corpora (Oliveira, 2005), is not specific to them but also appears in poetry, for example, or, more generally, with a rhetorical intent (Ricoeur, 1977). Argument deletion is also examined in general language studies under the name of « absolute transitive verb », « intransitive use of transitive verbs » or « Definite object deletion » (when the object is implied but not stated) (Fillmore, 1986), for example *Paul has eaten, gave to the United Fund*.

In this paper, what we wish to study is the role of the specialized situation in this deviant phenomenon. In the analysis of specialized languages, what is first considered is the extra-linguistic elements and, especially, the shared knowledge, or at least the shared interest in a domain, between speakers and listeners. This shared knowledge is assumed to facilitate communication and to limit misunderstanding, so this element must be taken into account in describing deviancy. It is crucial to understand how it intervenes and what its limits in the supposed transparency of the communication are.

Three categories of explanations for deviancy in specialized languages are examined in the rest of the article: first, explanations pertaining to linguistic and sociolinguistic aspects, and then explanations pertaining to cognitive aspects.

2-2 Sociolinguistics aspects of the deviancies in LSPs

WEWE

The sociolinguistic explanation of terminological deviancy is linked to the existence of a community that shares certain interests:

« All like interests are potential common interests; in so far as that potentiality is realized community exists » (Maclver, 1970, 108)

« Specialized communities [are] defined not only by their specialized knowledge, but also by their specialized social practices, including their specialized discourse and communication, as well as by a complex network of organizations and institutions such as universities, laboratories and associations » (Dijk, 2011, 27)

Swales (2016) 455proposes 8 characteristics of a discourse community. It presents the linguistic and sociolinguistic stakes involved in this concept.

One of the main manifestations of this community of interests is the use of a common language that defines a speech community. Hymes defined the notion of speech community as follows: « a community sharing rules for the conduct and interpretation of speech » (Hymes, 1972, 54). In the case of specialized languages, the common interests are linked to shared knowledge, shared actions and/or shared purposes.

Linguistic deviancy in specialized communities is not just the common way of speaking but it is also a way to be integrated in the community. Conversely, if one wants to be recognized by a community, one has to adopt the language codes of that community. These language codes are sometimes considered as "jargons".

2-3 The role and the implications of the jargon

The word 'jargon' originally referred to the coded language of thieves, who used it to isolate their community from the rest of the world (Gotti, 1999). This role of identifying insiders and outsiders of a particular community subsists in its modern meaning. As defined by the Collins dictionary, the use of jargon allows a locutor to feel part of a community:

"You use jargon to refer to words and expressions that are used in special or technical ways by particular groups of people, often making the language difficult to understand."
(<https://www.collinsdictionary.com/dictionary/english/jargon>).

Consequently, comprehending the jargon is often restricted to community members.

One of the consequences of using jargon, however, may be to lock speakers into a world view (De Vecchi, 2002). This can limit creativity, for instance within firms:

"Companies that evolve a highly context specific language [...] ultimately find that their language traps them in their existing business domain." (Brannen and Doz, 2012, 82)

The use of jargon can also put off non-specialists even when reading popularized texts. A very recent experiment is described in (Shulman et al., 2020). It consisted in a consultation via internet. Three corpora concerning three specialized domains were constituted: one contained only domain-specific words (terms), another contained specific terms and their definitions, and the third was a popularized text. The 650 participants in the study were asked to read the texts and answer questions online about their comprehension. From the responses, the authors of the studied concluded that:

« The presence of jargon disrupts people's ability to fluently process scientific information, even when definitions for the jargon terms are provided » (Shulman et al., 2020)

While the language constitutes one of the main building blocks of the community, it may also be a highly constraining element. When a non-expert speaker encounters what seem to him/her to be deviancies, s/he may adopt a position of rejection.

3 Studies in the corpus of lexical deviancies in specialized languages

The aspects of deviance presented in this part are proposed from studies carried out in corpus. We focus on the results obtained rather than on the details of the methods used, which are described in the references referred to in the article. For all the aspects discussed, we insist on the fact that the deviancy discussed can have an explanation, in connection with the involvement of experts in the situation.

3-1 Deviancies caused by linguistic factors

Two apparently opposing processes are first presented, prolixity and economy, then the case of nominalizations is discussed in greater detail.

3-1-1 Linguistic « prolixity »

We use the term « prolixity » to refer (at least partly) to the opposite phenomenon to the one expressed by linguistic « economy » examined in part 3-2-2. It may seem odd to talk about prolixity in relation to specialized discourse, which is generally reputed to seek brevity. In fact, the nominal groups in the LSP we are going to talk about are often already shortening

compared to a more natural language, but they still often remain very long. While linguistic economy is achieved mainly through the deletion of elements, linguistic prolixity concerns mainly the addition of modifiers in nominal groups. It is well-known that nouns are very frequent in LSP (Language for Specific Purposes). Antia (Antia, 2000, 159) cites Hoffmann's study on the distribution of grammatical categories in specialized texts compared to language for general purposes [LGP]: « for several West European languages and Russian: Nouns constitute up to 40% of LSPs while accounting for 28% in LGP, adjectives account for over 16% in LSP texts compared to 10 % in LGP [...] verbs are anywhere between a half and a third less frequent in LSP compared to LGP ». In part 3-2-3, we will examine the case of nominalization as its high frequency can explain, to some extent, the high percentage of nouns. The overuse of adjectives and also of nouns can be explained by the fact that, within a specialized discourse, terms denominate increasingly refined concepts. One of the linguistic ways to specify a noun is to add a modifier, for example a qualifying adjective, a noun or a prepositional complement. This can lead to much lengthier nominal compounds than those found in the standard language, for example *Low-energy charged particle detector*. Where a non-specialist speaker will only be able to imagine a single concept, an expert will be able to imagine several finer-grained concepts and this perception will be manifested linguistically by the addition of modifiers. For example, in space research, one can find *satellite*, *observation satellite*, *earth observation satellite*. For a non-expert, the three terms are considered as belonging to the same semantic category; (s)he has an approximate idea of what a satellite is and the two modifiers (*observation* and *earth observation*) are not significant and perhaps even appear superfluous. In contrast, these same modifiers are highly significant for a space expert and allow him/her to express all the finesse of the field.

In disciplines that share the same field of observation, differences in noun modifiers mainly indicate differences in the perspectives of each of the domains. Let's take the case of exobiology. This is a recent field that involves four disciplines: biology, astronomy, chemistry and physics. They are all interested in life outside the solar system. The possible role of linguistic description in the definition of this new field gave rise to a project that was reported in a previous paper (Condamines, 2014). Here, we will illustrate the case of one term, *atmosphère* (atmosphere). Even if it is a word known by every French speaker (probably with, as for *satellite*, an approximate definition), it is also a term and it even started out as a term. In the corpus built for the study on exobiology (310,000 words), composed of four subcorpora (one for each field), Among the non-grammatical terms, *athmosphère* had the highest frequency with 1004 occurrences (though less abundant in biology). Concerning the adjectives following *atmosphère(s)*, a total of 51 different adjectives were found (for example: *riche* (rich), *pauvre* (poor), *primordiale* (primal), *anoxique* (anoxic), *prébiotique* (prebiotic), etc. Among these adjectives, only two were shared by all the disciplines: *primitive* (primitive) and *terrestre* (terrestrial).

	Astronomy	Biology	Chemistry	Geology
Number of adjectives in [atmosphère(s) adjective]	31	7	12	35

Table 1: Number of adjectives in [atmosphère(s) adjective] for each of the 4 sub-corpora in exobiology

This abundance and diversity are a reflection of the fine conceptualization of each of the sciences. In this case, the prolixity is not a problem because when a neo-discipline such

exobiology emerges, all the points of view are important and contribute to the creation of new concepts. It may become a problem if the same concept has two denominations or if one view is not compatible with that of another discipline.

This linguistic prolixity, which may seem obscure and superfluous to a non-expert, is, in some cases, perfectly justified and even essential for domain experts.

3-1-2 Linguistic economy

Linguistic economy was first defined by the French linguist Martinet (Martinet, 1955) who drew on Zipf's « principle of least effort » (Zipf, 1949), and may be described as:

« ...consisting in tending towards the minimum amount of effort that is necessary to achieve the maximum result, so that nothing is wasted ». (Vicentini, 2003: 38)

As noted by Andersen, one of the consequences of the principle of linguistic economy is that: « Special concepts pertaining to a specific knowledge area may be quite short, and this is often recommended in term formation ». (Andersen, 2007, 7)

Most of time, the economy in the expression is justified by the fact that both speakers and hearers are assumed to share a common knowledge of the situation and they are capable of reconstructing missing information if necessary, as Sager pointed out:

« Accuracy and economy of expression can only be assured if we accept that a text containing terms presuppose the participants' prior familiarity with the appropriate definition of concepts » (Sager, 1990, 108)

While this point may seem contradictory with the previous one (prolixity), a long term is not necessarily opposed to linguistic economy (because in a nominal group, the modifier seems to be necessary to express the finesse of a point of view). Moreover, the two kinds of phenomena (economy and prolixity) may coexist within specialized discourses. Acronyms are a perfect example of this apparent contradiction. Acronyms are used instead of developed forms (which can be very long), for example, in space engineering: *Attitude and Orbit Control System (AOCS)*. Sometimes, in technical texts, the two forms co-exist, for example the long form is used first, at the beginning of the text, and then only the acronym is used.

In general, however, linguistic economy is described in terms of the deletion of prepositions, determiners, arguments, etc.

3-1-3 The case of nominalizations

The case of nominalizations is very interesting as they are reputed to be heavily used in specialized discourses. They are considered as a way of packaging the description of reality concisely. In Halliday's terms, they are a form of « grammatical metaphor »:

« Grammatical metaphor can take many forms [...] but the form which has received the greatest attention, and the one which seems to be the most significant in terms of scientific discourse is that of processes encoded in nominal form ». (Banks, 1999, 7)

« The grammatical metaphor allows any observation, or series of observation, to be restated in summary form – compressed, as it were, and packaged by the grammar » (Halliday, 1995, 20).

As we have seen, the concern for concision is constant in LSP and especially in technical discourses, as recalled by Kocourek: « Le souci de concision constitue un facteur puissant dans la formation des phrases technoscientifiques » (Brevity is a powerful factor in the formation of techno-scientific statements.). This concern often leads to « condensation syntaxique » (syntactic condensation) and to a « complexité concise des phrases » (concise complexity of sentences). (Kocourek, 1991, 79).

The use of nominalizations contributes to concision as they allow for the integration of two statements, resulting in a shorter but also more complex sentence. As noted by Vendler: « The device of nominalization transforms a sentence into a noun phrase, which can then be inserted into a bundle that fits into other sentences » (Vendler, 1967, 125).

In a previous study (Condamines & Picton, 2014), we examined two points concerning nominalizations in space engineering, in a project concerning terminologisation. First of all, we built a French corpus of documents on space engineering organized in subcorpora belonging to different genres (from highly specialized to popularized). For the study of nominalizations, we compared two of these subcorpora: the most scientific one, comprising technical documents from CNES (Centre National d'Etudes Spatiales) and the one composed of articles from the general press. These general press articles were selected because they contained candidate-terms obtained with Termostat.¹ from the scientific corpus. The two corpora could therefore be assumed to concern the same field.

In order to spot nominalizations systematically, we used Verbaction². Verbaction contains 10,000 pairs of French verbs and their nominalizations. We also added nominalizations that were not listed in the resource by searching for nouns with suffixes such as *-ment*, *-tion*, and *-age* that are known to be characteristic of French nominalizations. Table 2 presents the results concerning the proportion of nominalizations in each corpus.

	Scientific corpus	News Corpus
Nominalizations	19 %	10 %
Other nouns	50 %	54 %
Verbs	31 %	36 %
Total	100 %	100 %

Table 2: Distribution of Nominalizations, other nouns and verbs in a scientific vs news corpus in space research

This study confirmed the overuse of nominalizations within a scientific corpus in relation to a non-specialized one in the same field: there are almost twice as many nominalizations in the scientific corpus as in the news corpus (considered close to standard usage). Verbs are also less frequently used in the scientific corpus, which could suggest that nominalizations are used, in some cases, instead of verbs.

We also examined the presence vs absence of prepositions in nominal groups with a nominalization. Ten nominalizations were selected: *absorption*, *acquisition*, *alimentation*,

¹ Termostat is a term-candidate extractor created by P. Drouin, OLST, Université de Montréal. It is available on the site http://olst.ling.umontreal.ca/?page_id=91&lang_pref=en

² Verbaction was built by N. Hathout (University of Nancy) and N. Hathout (University of Toulouse). http://redac.univ-tlse2.fr/lexiques/verbaction_en.html

application, conception, émission, gain, sortie, télémesure, verrouillage (absorption, acquisition, feed, application, design, emission, gain, output, telemetry, locking).

Then, in each corpus, we looked for cases where these nominalizations were preceded or followed by a preposition, and those where no proposition preceded or followed the nominalization. For example:

Application (de défense, de géolocalisation) vs Application (radar, satellite) (Domaine d', responsable d') application, vs sous-directeur application.

Table 3 presents the results obtained for the two corpora.

	Scientific Corpus	News corpus
Noun + nominalization or Nominalization + noun	10.3 %	5.2 %

Table 3: Nominal groups containing a nominalization without a preposition, in the Scientific corpus and the News corpus

The differences between the scientific and news corpora are clear concerning the nominalizations examined. The Scientific corpus contains twice as many occurrences of a nominal group (with a nominalization) without preposition as the News corpus. If we consider the language used in news texts to be non-specialized, then we can say that prepositions in a nominal group containing a nominalization are less frequent in scientific language than in general usage.

While the overuse of nominalizations is no doubt partly due to the search for concision, this phenomenon may also be linked to a desire to present things in a stable form. Nouns are considered as linguistic forms that express completed entities, so they are frequently used as labels or names, for paintings for example, whereas verbs are, in principle, the forms dedicated to the expression of actions. Nominalizations may be used with the aim of producing discourses that appear to be scientific.

« La nominalisation est fort utilisée pour créer un effet d'objectivation : c'est pourquoi elle est massivement attestée dans les textes scientifiques (notamment positivistes) et dans les discours qu'ils imitent (langue de bois) » (Nominalization is widely used to create an objectification effect: this is why it is massively attested in scientific texts (especially positivist ones) and in discourses that imitate them) (Rastier, 1995, 51).

The overuse of nominalizations compared to the use of verbs has at least two unintended consequences. First, contrary to verbs, nominalizations may be used without any of the obligatory arguments of the conjugated verb. For example, very often, the subject disappears with the nominalized form as in (1):

1) *The installation of a component shall not exceed 60 seconds*

In some cases, this can lead to inaccuracies, which is not what is generally sought in specialized discourses, in particular in technical texts. Second, it is well known that nominalizations may be polysemic. Generally speaking, the two possible meanings concern the process on the one hand and the result on the other. As a consequence, the overuse of nominalizations may also create ambiguity. For example in (2):

2) *The project leader will be responsible for the documentation*

it is not clear whether *documentation* concerns the writing of the documentation or the set of documents written during the project. In some cases, this ambiguity may lead to confusion.

These two phenomena, the overuse of nominalization and the underuse of prepositions, are two very frequent examples of linguistic economy in specialized languages but they can have unwanted consequences on readers' comprehension. Linguistic economy results from a tension between standard linguistic functioning and supposedly shared knowledge. In the case of specialised languages, the balance seems to tip in favour of belonging to a community of knowledge.

3 3-2 Deviancies caused by cognitive factors

« Specialized language is an interesting area of application for Cognitive Linguistics. One might ask what is so special about specialized language, why it is different from general language, and why it is worth studying in itself » (Faber, 2012, XV)

In this part, WEaddress a type of explanation for deviancy that is not commonly proposed, borrowing from both cognitive semantics and construction grammar. It concerns a phenomenon found in the fields of sports and hobbies (which have their own experts), namely the possibility of transitivizing the location complement and putting it in the position of a direct argument, for example *to fish (a) river(s)*.

3) *To fish rivers well requires a little more experience than to fish still waters well*
(<https://fishingmagic.com/forums/threads/>)

This possibility is well known in English and is registered in dictionaries (Collins for example), whereas in French, sentences such as (4) seem very odd to a non-angler and the construction is not mentioned in grammars or dictionaries:

4) *J'aWedéjà pêché cette rivière* (I've fished this river before) (private discussion)

Intrigued by this type of sentence in French, WEwanted to understand whether it was associated with a change of meaning that was more or less conscious for the speakers. It seemed to me that it could be possible that, with this direct construction, anglers express a feeling of proximity with the river, or in other words, whether it was the connection with the river that they preferred and that gave them the strongest emotions.

My first study on this question consisted in searching on the web, via Google, all the contexts in which "pêcher" (to fish) and "rivière(s)" (river(s)) were used, either linked with or without a preposition (*dans, en, sur*). For each identified context, WEnoted whether the site concerned was a site dedicated to fishing or not, and whether it was marked by a certain emotion (blog, forum...) (see (Condamines, 2013; 2017) for more details).

Table 4 summarizes the results for the 1474 cases encountered for French.

	Pêcher dans DET rivière(s)	Pêcher sur (DET) rivière(s)	Pêcher en rivière(s)	Pêcher DET rivière(s)
All the websites	45.6	9.2	27.5	17.7

Angling websites with an emotional dimension	36	4	21.7	38.2
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Table 4: Distribution of the French structures in all the Internet data and in angling websites that have an emotional dimension (percentages)

WE had the same study done for English. Table 5 summarizes the results for the 2202 cases encountered in English.

	To fish in (DET) river(s)	To fish on (DET) river(s)	To fish within (DET) river(s)	To fish (DET) river(s)
All the websites	29.2	17.7	2.8	50.3
Angling websites with an emotional dimension	9.9	16.5	4.4	69.2

Table 5: Distribution of the English structures in all the Internet data and in angling websites that have an emotional dimension (percentages)

For the two languages, the chi-squared test showed a significant difference ($p < .001$) in the use of the preposition. Direct constructions (without a preposition) seemed to characterize fishing websites with an emotional dimension. These results appeared to confirm my hypothesis that there is a link between the direct construction and the fact that it is encountered mainly in angling websites with an emotional dimension.

One of the French extracts was very interesting from my point of view:

- 5) *Il est bien plus intéressant de pêcher des rivières que des poissons (It is much more interesting to fish rivers than fish.)* WE. (message published on October 28, 2009 on the website www.mouche-fr.com. The message is no longer accessible)

This extract encapsulates my argument exactly. When the preposition is deleted it is not just for reasons of linguistic economy but rather because the angler expresses a close relation with the river. Basically, what anglers like is the contact with the river more than just catching fish.

Associating a meaning to any change of form is part of the perspective of construction grammar:

“Grammatical constructions, like traditional lexical items, are pairings of form and meaning.” (Goldberg 1995: 4)

And for some of the proponents of this approach, linguistic constructions may be chosen in order to express an experience:

“A conceptualization or construal is simply a semantic structure for an experience. WE will take ‘experience’ to refer to some aspect of the real world, or more accurately our human apprehension of it, and ‘meaning’ or ‘semantic structure’ to refer to a way of representing that experience that is relevant to linguistic formulations for that experience”. (Croft 2012: 13).

The following study focused on the lexicon present in the environment of English structures for *to fish*, whether followed by a preposition or not (Condamines, 2018). For this comparative analysis of the lexicon, all the contexts collected in the study of the two constructions (with or without a preposition) were used to build two corpora. The number of the two constructions was practically the same: 1108 without a preposition and 1094 with a preposition. Unsurprisingly, therefore, the two corpora contained almost the same number of words, making a good basis for the comparison. From here on, the complete contexts in which [To fish (det) river(s)] and [To fish prep (det) river(s)] occurred will be called “without-prep corpus” and “with-prep corpus” respectively.

	Number of structures	Number of words
To fish (det) river(s)	1108	41,361
To fish prep (det) river(s)	1094	40,365

Table 6: The corpus constituted by the contexts in which the structures with or without a preposition appear

My hypothesis was that the lexical environment would provide clues concerning the meaning of the two constructions. This approach constitutes a kind of distributional analysis but it does not take syntax into account; while applied to small corpora in the present case, it can be likened to the ones described in Kilgariff (1997) and Rayson and Garside (2000). This also corresponds to the corpus-based approaches recommended by cognitive linguistics (Gries, 2015).

After lemmatization with TreeTagger³, the two corpora were explored with AntConc⁴, using in particular the keyness function that gives the lexicon specific to one corpus compared to that of another. The Log-likelihood measure was selected. Following the recommendation of the AntConc toolkit, only the lemmas obtaining at least 3.84 (with $p < 0.05$) as a keyness score were considered. Table 7 summarizes the data concerning the two corpora.

	Without prep corpus	With prep corpus
Number of words	41361	40365
Number of lemmas	2715	2440
Number of significant lemmas (with keyness > 3.84)	322	319

Table 7: The lexicon in the corpus containing the structures with or without a preposition

³ The TreeTagger is a tool for annotating text with part-of-speech and lemma information. It was developed by H.Schmid in the TC project at the Institute for Computational Linguistics of the University of Stuttgart. (<https://cental.uclouvain.be/treetagger/>)

⁴ Antconc is freeware corpus analysis toolkit for concordancing and text analysis developed by L. Anthony, Waseda University, Japan. (<http://www.laurenceanthony.net/software/antconc/>)

Then the most specific lexicon occurring in each corpus was semantically categorized. The results are presented in Table 8.

	Without prep corpus	With prep corpus
Name of month or season	8 (132)	0
Name of fish	9 (150)	2 (4)
Name of states and countries	13 (97)	4 (20)
Positive vocabulary	14 (85)	6 (57)
Accessories of fishing	11 (139)	3 (32)
Legal vocabulary	0	11 (225)
Economic vocabulary	0	8 (268)
Danger vocabulary	2 (17)	7 (32)
Natural elements	6 (36)	18 (203)
Family relationships	0	4 (32)

Table 8: Semantic categories in each corpus. In parentheses, the number of occurrences

Some categories were easy to identify; here are a few examples for the without-prep corpus:

Names of months or seasons: *January, February, spring, summer...*

Names of States, regions or countries: *Normandy, Nevada, Alabama ...*

Names of fish: *trout, pike, grayling, walleye, bream...*

Fishing tackle: *tackle, accessories, wader, bait, nymphs, line, braids...*

And here are examples for the with-prep corpus:

Natural elements: *cormorant, flower, animal, reef, plant, crocodile...*

Names of family relationships: *grandchildren, husband, ancestors, family...*

Vocabulary belonging to the legal field: *permission, unlawful, license, permit, law...*

Vocabulary related to the economy: *property, owner, landowner, leaseholder...*

It was a little more difficult with some others such as, for the without-prep corpus:

Positive vocabulary: *inspiring, ideal, beautiful, clarity, peacefulness...*

and for the with-prep corpus:

Vocabulary related to hazards: *chemical, lethal, polluted, danger, arsenic, decrease, threat...*

Most of the results are in line with what WEexpected, particularly the ones concerning positive vocabulary (more frequent in the “without-prep corpus”) and the ones concerning legal and economic aspects (more frequent in the “with-prep corpus”). Some results are more surprising, for example natural elements and family relationships are more abundant in the “with-prep corpus”.

It seems that what is important for expert anglers is the relationship with the river and different aspects favouring it: the time, the region, the method of fishing and the species of fish caught. They are not preoccupied by the risks, nor by the economic and legal aspects. And lastly, they prefer to fish alone rather than accompanied by a family member.

Here are some representative examples containing the two structures

- 6) *It's not an exact science to fish a river, but in general terms WEprefer to run through for roach, and hold back for bream or other big fish*
(<http://www.maggotdrowning.com/forum/topic.asp>)

- 7) *As a young child growing up in Alabama, WEremember the excitement and anticipation of planning trips to fish the rivers*
(<http://forgottencoastadventures.com/meet-the-captain/>)
- 8) *In addition to holding a licence, you will also need to obtain the landowner's permission to fish in rivers and lakes* (<http://www.rodlicence.net/>)
- 9) *Reluctant to fish in the river and having no reassuring contact from authorities that the river's fish are not contaminated by either arsenic or antimony.*
(<http://mncgreens.blogspot.fr/2011/09/just-how-polluted-is-macleay-river.html>)

Sometimes, anglers describe a close relationship with the river, either to fight it or to appreciate it. They then use the construction without a preposition.

- 10) *It is hard to fish the river when the water is up high like it usually is in the spring from all the ice melting* (<http://walleyewarrior.20fr.com/>)
- 11) *On a whim, WEdecided to fish a river in Oregon WEhad visited before, and fell in love with.* (<http://www.sweetgrassrods.com/boo-news/on-the-road-and-the-river.html?start=30>)

Of course, these are tendencies, not hard-and-fast rules. Anglers using with-prep constructions in legal websites can also use the without-prep construction. Nonetheless, there are several elements in favour of a difference of meaning in extracts with a preposition before river and extracts without a preposition.

Note that the direct construction with *to fish*, can also concern other names referring to bodies of water: *lake, sea, ocean* etc.

The field of fishing is not the only one concerned by this phenomenon. Other verbs also allow the direct construction; here are some examples found on the web:

- 12) *How long before you're ready to sky the mountain?*
(<https://www.thesnowcentre.com/snowsures/news/howlongdoesittaketogoodatskiing>)
- 13) *We got in with them soon after they left the meet and tried to hunt a wood and some rough ground left for shooting* (<https://www.facebook.com/Bedsandbuckssabs/posts/>)

On the contrary some verbs do not accept the direct construction, for example, no occurrences of « to dance a room » or « to box a ring » were found on the internet. Further work will be necessary to understand these impossibilities, taking into account the nature of the place (closed or not, moving or fixed etc...)...

Adopting the constructional point of view, we can say that the presence vs absence of a preposition corresponds to a difference in meaning, in the field of angling. In this case, and from a cognitive point of view, the difference seems to be due, in large part, to the presence vs. absence of emotion. Fishing, for a non-angler, means catching fish, legally, for eating or selling it. For an angler (i.e., a domain expert), it is a question of experiencing strong emotions when in contact with the river; the fish is only an intermediary.

Emotion is very rarely mentioned as playing a role in specialised languages:

“[...] theories of emotion which have been ignored by LSP research for a long time are of increasing methodological and methodical significance because they offer far-reaching strategic orientations for the communicative-cognitive analysis of information processing in LSP texts”. (Baumann 2007, 322).

Yet, even in technical or scientific situations, it is difficult to imagine that there is never any emotion (excitement, stress, satisfaction...), nor any impact on language structures, in particular in oral exchanges. For example, in French, it seems very odd to say “voler un avion” (“flying an airplane”) in the sense of “piloting an airplane”. Yet it seems quite possible for example for an Airbus test pilot, enthusiastic about his/her job, to ask a colleague, “tu as déjà volé l’A-350 ce matin ?” (“you already flew the A-350 this morning?”).

Put briefly, in this case, one can argue that emotion is the cause of the deviancy.

It can be noted that in the case of language economics (see section XX), it is also often the prepositions that are removed. In the case of to fish, it may be that the will to “keep it short” plays a role in the suppression of the preposition, but the cognitive explanation seems more likely. But in the fishing community, suppressing the preposition also becomes a sign of belonging. The sociolinguistic explanation is therefore also to be considered.

Another element that should also be taken into account is geographical variation. In his work, M. Cailles showed that the removal of the preposition was increasingly frequent in American English (for example, *He graduated Harvard summa cum laude*). it would probably be necessary to redo the study taking into account the geographical origin of the websites (when available) in order to see if this aspect plays a role in the removal of the preposition.

The question might then arise as to how emotion is taken into account in terminology studies.

Conclusion

Linguistic deviancy in terminology is a reality if one compares discourse produced within LSP with discourse produced in general contexts (if such exist). But as soon as we look closely at the situation in which these deviancies appear, we can show that there is a link between these linguistic structures and the situation in which they are produced.

Three aspects of this correlation have been proposed: linguistic, sociolinguistic and cognitive ones. In a sociolinguistic perspective, the notion of community of discourse plays a major role. Language plays a decisive role in that it is recognised as belonging to a community. This can go as far as creating jargon, sometimes only understandable by the members of the community. The linguistic perspective is twofold. In the case of linguistic prolixity, linguistic constructions are longer and more frequent than in the standard language. This is the case for compound nouns, as the addition of modifiers makes it possible to account for finer and more diversified concepts. In the case of language economy, some syntactic elements are removed because they are considered to be useless in a communication situation involving shared knowledge. Another example is the overuse of deverbal nominalizations in specialized corpora. Their use makes it possible to package more than one piece of information in the same form.

The cognitive perspective aims to show that “deviancies” often make sense and are not simply an alternative to the standard structure. The case of the removal of the preposition in front of the complements of place, which leads to putting them in the position of object is, in this respect, quite telling. The case of « to fish (prep) (det) river(s) » has thus been examined at length.

What the studies presented show is that specialized situations, which imply a shared interest in a domain, lead to language functionings that may themselves be specific ("deviant") because they are part of a particular experience. In Johnson's words:

« Empirical studies indicate [...] that most human concepts are defined and understood only within conceptual frameworks that depend on the nature of human experience in given cultures » (Johnson, 1987, xi-xii).

The question that remains to be answered is to what extent these specificities should be taken into account when building terminology repositories.

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