Text Types in Personal Chronic Pain Blogs:

Variation of Werlich's Text-Typical Clause Structures

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Tiivistelmä – Referat – Abstract
Tutkimuksessa määritetään kroonisen kivun henkilökohtaisissa englanninkielisissä blogeissa esiintyvät yleisimmät tekstityypit. Määrittely kuvaa Werlichin tekstityypillisen lausemuodon yleisyyttä kertovana, kuvailevana, perustelevana, erittelevänä tai ohjailevana tekstityyppinä blogitekstin lauseissa sekä tekstiryhmätasolla. Lisäksi arvioidaan tekstityyppien yleisyyttä sosiolingvistisestä näkökulmasta blogikirjoittajien kolmen tilastollisen ominaisuuden vaikutuksena tekstityyppien esiintymiseen.

Työssä tekstityyppi määritellään lausetasolla tiettyjä lauserakennemuotoja edustaviksi luokiksi, jotka kuvastavat kirjoittajan keskittymistä tiettyyn tapaan jäsentää havaintoja. Tekstityyppi määritellään tekstin kielipiirteitä kuvaavaksi luokaksi erotuksena tekstin käyttötapaan perustuvaan genreluokitteluun. Kroonisen kivun blogien tekstityyppejä ei ole tutkittu vaikka krooninen kipu on yleinen tila aikuisväestössä. Tutkimuksissa on todettu kirjoittajien hyötyvän kipublogeista kivunhallinnassa. Lisäksi on tunnistettu useita kipublogien kirjoittamisen tavoitteita, joiden on todettu muuttuvan ajan mittaan osalla kirjoittajista. Aiemmissa blogitekstien luokitteluissa on tunnistettu kaksi yleistä blogityyppiä, joita määrittävät kielipiirteet havaitaan osittain lausetason tekstityyppejä vastaaviksi.

Tutkimusmenetelmänä käytettiin tekstilingvististä yhdistelmää tekstityyppien laadullisesta lauseanalyysistä ja määrällisestä kokotekstianalyysistä sekä määrällistä sosiolingvististä tilastollisten muuttujien analyysiä. Tarkasteltavien blogitekstien aineisto koostuu 26:sta kokonaisesta blogitekstistä. Kirjoittajia on 13 ja jokaiselta on kaksi blogitekstiä. Analysoitavia lauseita on 1068. Lähdeblogit valittiin tekstitietokantaan lumipallo-otannalla ja tarkoituksellisella otannalla, joissa valintakriteerinä olivat kirjoittajan krooninen kipu ja toimiminen blogin ainoana kirjoittajana.

Tuloksissa huomataan lausetasolla tekstityyppiluokkien määritelmien osittainen päällekkäisyys. Yleisimmiksi tekstityypeiksi muodostuvat väittävän, ohjeistavan ja kertovan tekstityypin yhdistelmät, joista väittävä tyyppi on yllättävän vallitseva. Tekstityyppien osuuksien vaihtelu ei työssä selity kirjoittajan tilastollisten ominaisuuksien vaihtelulla, koska tilastollinen tarkastelu nähdään pienen otannan takia vain suuntaa antavana. Lisätutkimusta toivotaan tekstin lausekohtaisista aiheista ja tekstityypeistä yhdistämällä sisältöanalyysiä ja tekstilingvistiikkaa. Lisäksi ehdotetaan kipublogitekstien tutkimista vertailemalla tekstien hierarkkisia ja vaihemaisia rakennepiirteitä, kuten lauseen Teema-Reema aiheita.

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blogit, krooninen kipu, lauseenjäsennys, lausetyypit, syntaktiset rakenteet, tekstilingvistiikka, tekstityypit, Werlich - bloggar, kronisk smärta, satsanalys, satstyper, textlingvistik, texttyper - blogs, chronic pain, clause types, sentence analysis, syntactic structures, text linguistics, text types

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This study describes personal chronic pain blog entries written in English by defining the common text types in the blogs. Text types are defined as text-classifying tools that combine a clause-level structural perspective and a whole-text level category perspective. On the clause level, each clause is defined as representing one of five Werlich's text types that reflect author focus on cognitive processes. The study also explores the effect of author socio-demographic attributes of gender, age and duration of chronic pain on the text types identfied in the analysis.

Chronic pain is a common health condition that also affects the sufferer's focus of attention. The text types in chronic pain blogs have not been studied even though studies have found that blog writing has therapeutic effects on pain management for chronic pain sufferers. Studies have also identified several purposes for writing chronic pain blogs. The purposes have been found to change for some of the chronic pain blog writers. Previous studies on blog types suggest two common text types.

A combined qualitative-quantitative analysis of text-typical clauses and blog entries was conducted on a sample of 26 whole-text entries. The sample consists of two entries from 13 authors with total of 1068 clauses. Additionally, a socio-linguistic variable analysis was conducted with text types as dependent variables and author attributes as independent variables. The data was gathered with a combined purposive-snowball method with author chronic pain condition and personal authorship as sample selection criteria.

The results show some overlapping analytical criteria for clause-level text types. The most frequent text types are identified as combinations of argumentation, instruction and narration with argumentation being surprisingly high in prevalence. The text-typical variation does not seem to be an effect of a specific author variable although the socio-linguistic analysis is not proved as statistically significant because of the small sample size. Further study on text types is suggested in a combined interpersonal feature and text type analysis of chronic pain blog entries. A different approach is also suggested in identification and comparison of hierarchical and text-organizational features such as Theme-Rheme analysis of clauses.

Avainsanat – Nyckelord – Keywords
blogs, chronic pain, clause types, sentence analysis, syntactic structures, text linguistics, text types, Werlich

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1 Introduction

Chronic pain, such as any health condition today, is often discussed on the many forums offered by the Web. It is a complex psychobiological system and a health condition affecting physical, psychological, emotional and social well-being as well as perceptions on identity (Busch 2007: 6, 26, 40–41; Lampl 2012: 1, 5, 7; Mills et al. 2019). Chronic pain is described according to the latest definition as pain that lasts longer than 3 months (Mills et al 2019; Treede et al. 2019). As the condition is hard to treat, managing chronic pain involves several coping tools and writing a chronic pain blog seems to be one of them (Busch 2007: 20, 45; Morelli et al. 2015; Ressler et al. 2012; Vasudevan 2015: 52–53, 55). A blog is defined as a genre of computer-mediated communication (CMC) often appearing in text form with added media such as images with entries organized in reverse-chronological order on the web page (Herring et al. 2005: 142, 145; Herring & Paolillo 2006: 442; Miller & Shepherd 2009: 266–267; Myers 2010: 16). The studies on chronic pain blogs seem to be limited to chronic pain blog writers' blog writing purposes (Ressler et al. 2012) and what therapeutic gains chronic pain blog writers themselves receive from reading and producing them (Morelli et al 2015).

The complexity of the condition is exemplified in the interaction between chronic pain and language. Studies have reported chronic pain sufferers paying more attention to words describing pain when compared to non-sufferers (Wilson et al. 2009: 61–63). Interestingly the review study on pain descriptors also found that chronic pain sufferers do not consistently react to pain-related words. It was suggested to be caused by a unique representation of pain as a network linking to multiple sites in the brain. The network is claimed to derive from how the body is represented in the brain and of the multitude of cognitive functions affected by pain in each pain sufferer. If the pain descriptors do not correspond to the individual pain framework, less attention is afforded to it than to a word familiar to the network (Wilson et al. 2009: 63). Observing and using some pain terms are even hypothesized to sensitize the sufferer to pain, which can complicate pain management (Wilson et al. 2009: 63–64). An interesting reversal is suggested: If chronic pain affects the perception and processing of pain-related language, perhaps pain also affects the language production of the chronic pain sufferer. As the chronic pain blog studies suggest, writing itself could be a coping mechanism that would reflect the author's attention at the time of writing, whether it is on recalling pain experience or reviewing books or medication.

Chronic pain is an increasingly common health problem for the global adult population. As an example of the prevalence of chronic pain conditions, The Global Burden of Disease Study 2016 estimated that from the world population of 7.46 billion (7.46×10^9) there were 1.89 billion people who suffered from tension-type head-ache, 1.04 billion from migraine, and 748 million from back and neck pain (Table in GBD 2016 Disease 2017). The condition is also affecting people earlier in life. In the United States especially the increase is observed at a generational level where each successive birth cohort reports more pain throughout their lives than the cohort it follows. The Gallup US data provide an example of the increase where at around age 35, 20% of the respondents born between 1966-1970 reported pain. When the cohort born between 1980-1984 achieved the same age, the ratio had increased to 25% of the respondents (Figure 3a in Case et al. 2020). There is also a gender difference in chronic pain sufferers: women report pain more often than men (Mills et al. 2019; Treede et al. 2019). Reasons for the prevalence and increase in chronic pain sufferers have been proposed such as ageing population and sedentary lifestyles (Case et al. 2020; Dahlhamer et al. 2018). Lower education levels affect the prevalence of pain through lack of resources (Case et al. 2020; Dahlhamer et al. 2018; Mills et al. 2019). The gender discrepancy in pain prevalence has been linked to a several causes such as difference in pain pathways, effect of female sex hormones or to women's employment in monotonous work (Busch 2007: 6–8; Mills et al. 2019; Pain Proposal 2010: 4-5).

Language has a clear link with chronic pain and pain management. An interesting question is how chronic pain sufferers write about their condition, which is difficult to manage. The prevalence of chronic pain and the omnipresence of computer-mediated communication (CMC) in sharing information suggest that texts dealing with chronic pain are common. A search conducted on a web search engine with keywords “chronic pain” yields over 270 million web pages as results. Simultaneously as chronic pain affects many aspects of the lives of the sufferers, a personal point of view would be expected to be found on the search results. Yet the majority of the web search results seem to be texts written with an informational focus by writers who do not write from a personal point of view or about their own experiences. Blogs seem to be increasingly business or commercially-oriented so personal blogs about chronic pain are harder to find in regular web search results. Perhaps the short-form social media has become the new forum for unloading experiences on living with a persistent health condition. Nevertheless, as the number of chronic pain sufferers keeps increasing so do personal blogs about discussing pain as more people have to live with a condition that affects many aspects of their lives.

The present study is interested in describing what a personal chronic pain blog looks like as a text type. The interest in the area was sparked by a preliminary analysis of chronic pain blogs which indicated that while chronic pain blogs share a topic, the authors have taken remarkably different approaches in how they deal with the topic in individual blog entries. Some of the posted blog entries resemble diaries, some book reviews, others read as opinion pieces in newspapers; all conventional texts. The presence of linguistic features that seem to belong to different genres but occur in different frequencies in blog entries leads the study to consider an analytical method of text types.

Text type is a textual classification tool that defines texts in terms of their frequently occurring linguistic features: how typical a text is within a group of similar texts. The blog entries seemed to resemble conventional texts so a specific method of describing the texts through Werlich's (1983) text types is suggested. Werlich's text-defining categories are the result of deductive classification of linguistic features identified in an extensive corpus of varied conventional print-form texts. More specifically Werlich's text types are defined as five categories of main clause structures: argumentation, description, exposition, instruction and narration. They reflect five different contextual foci, which in turn represent the author's cognitive processes. The categories seem to provide a way to describe an author-centred view on language, which would befit a text that represents the language choices of a person affected by a highly intrusive condition such as chronic pain. A text-typical study of blogs (Grieve et al. 2010) using quantitative statistical methods had identified and grouped linguistic features that partially correspond to Werlich's text types. The findings indicate the validity of Werlich's predefined text types in blog analysis as they have also been used in the development of an automated web genre identification tool (Santini 2005, 2006).

The present study contributes a rare text-typical and linguistic description of chronic pain blogs to the study of chronic pain which has been previously covered by cognitive-behavioural studies of pain management and surveys of chronic pain blog writers. Previous studies on blog classification have usually defined blogs as two different types according to a blog topic or an overall blog purpose, depending on the definition. Regardless of the criterion, the blogs are referred to as either publishing content dealing with the author's personal life topics or content that discusses topics other than the author (Herring et al. 2005: 142, 145; Herring & Paolillo 2006: 443, 445; McNeill 2009: 146–147; Miller & Shepherd 2009: 266–267). The blog types have been named as diary and filter and the early blogs identified as repeating features of conventional genres of diary and journalistic genres such as newspaper editorial (Herring & Paolillo 2006: 445; Miller & Shepherd 2009: 266–267). Studies analysing blog writing purposes for personal blog writers (Hollenbaugh 2011: 17) and chronic pain

blog writers (Merolli et al. 2015; Ressler et al. 2012) have found providing information and sharing experiences as important reasons for reading and writing blogs.

In the preliminary blog entry analysis, the texts seemed to vary between entries. Previous study on the diary and filter blog genres found out that the genres varied between the entries of the same blog (Herring & Paolillo 2006: 445). Blog types are therefore perceived as blog-entry specific instead of defining the blog as a whole. Overall, the subgenres of blogs, such as chronic pain blogs, have multiplied in number since the diary and filter definitions emerged 25 years ago. Technological development and new social needs have been adopted by blog writers and materialized as diversified blog content (Miller & Shepherd 2009: 263, 269; Myers 2010: 16–17).

The primary aim of the present chronic pain blog study is to describe and classify the different texts in chronic pain blog entries as author-focus reflecting text types. The secondary aim is to analyse if there is an author attribute that affects the frequencies of the analysed linguistic features. These two aims required applying two areas of linguistic study in the analysis: text linguistics and socio-linguistics. The aims were formulated into the following research questions:

Q1 What are the frequent text types in chronic pain blog entries that would describe a typical chronic pain blog?

Q2 How would subgrouping of entries according to author attributes of gender, age and chronic pain duration show in the frequency of a certain text type?

In order to propose text type definitions for personal chronic pain blogs, a qualitative main clause level and a quantitative blog entry level analysis were conducted in an exhaustive sample of chronic pain blog entries. The clause-level analysis identified Werlich's text types in the entries which was followed by counting the clause frequencies. The counts were compared between the entries and combinations of most common text types identified. Unlike in the text typical study of blogs by Grieve et al. (2010), the text types identified in this study are defined as blog entry types.

Additionally, a socio-linguistic variable analysis was conducted on the sample balanced for gender in order to hypothesize on a possible effect of an author attribute of gender, age or chronic pain duration on the text types. The text types assigned for the clauses were placed as dependent variables in the socio-linguistic analysis which were compared to independent variables of the blog author's socio-demographical variables of sex, age and chronic pain duration.

The analysis found three common types as combinations of text-typical clauses but, surprisingly, narration was not as frequent as expected. The most frequent text type of argumentation was suspected of being the result of constant miscategorization deriving from insufficient category definitions. The expected evaluative features of diary genre could also explain why argumentation is the most frequent text type in the data, yet Werlich's (1983) theory lacked any examples of the genre. Specific blogging purposes aimed at judging the concepts such as effectiveness of pain coping methods or using affective evaluation of pain could also be realized with argumentation. The need for content analysis was recognized when analysing blog writing purposes, and is recommended for future research of chronic pain blogs. The other common text type of instruction was not surprising because of the narrow range of treatment options available for chronic pain. The predicted presence of reader-focused blog writing purposes of sharing experiences, advocacy and mentoring will also favour instruction.

The study is organized into a theory section that reviews the findings of research in the area of blogs as a genre, pain description and gender, chronic pain sufferers' blog use and the linguistic features of blogs. The section also explains Werlich's text type theory and the key terms such as text type and sentence type. The material section describes the chronic pain blog data. The method section is divided into two subsections that describe both data gathering and the analytical methods. Examples illustrating each of the five clause-level text types are mostly derived from both the chronic pain blog data and Werlich (1983). The examples can be found presented alongside each other in the results section. The quantitative findings are presented in frequency tables and charts that show text type frequencies on the level of a single blog entry and subgroups. Entries are divided into groups according to the author attributes of gender, age and chronic pain duration. The discussion section sets the findings against the concepts and findings of previous research and argues for the re-adjustment of Werlich's text-typical categories to better suit the features common in diary-style texts. A need for a revision of the argumentative text type is also emphasized as quality-defining features seem to dominate in clause structures across assigned text types. The conclusion suggests several features for further research. Among them is the recommendation to use a combined text type and content analytical method to cater for the linguistic demands of identifying blog writing purposes that have interpersonal features. Alternatively, a change in point of view is suggested whereby text types are also seen as fulfilling a text-organizational function in text since text types can frame each other as observed by Werlich (1983). A method of analysing sentence-fronted elements as Themes and Rhemes as text-organizational features is also suggested for categorization of change in author focus in chronic pain blogs.

2 Theory

The following sections describe the background to the three sides of the phenomena examined in the study: text types as a text classification tool, blogs as a web genre, and chronic pain as a condition affecting cognitive abilities, attention and requiring management and mechanisms for coping. Studies are also included that provide interactions between the concepts: the findings on blog writers and chronic pain blog writers blog use, gender differences in pain and language use and a classification of blogs through text types. Together they form the background of features and causes that could be behind the differences in texts as initially observed in personal chronic pain blogs.

2.1 Text type

In text linguistics, the question of what does a typical text look like in a particular group of texts is answered with the concept of text type. Text type is a text-categorizing concept which is used to organize texts into groups according to commonly occurring linguistic features (Grieve et al. 2010: 315; Santini 2005, 2006; Taavitsainen 2006: 266; Tsiplakou & Floros 2013). The focus on linguistic features differentiates it from other closely related text-categorizing concepts of register and genre. When texts are categorized according to features that describe the context outside the text, such as chronic pain as an author attribute, the category is called a register (Biber 2010: 242; Grieve et al. 2010: 315). When the texts are categorized according to features that in a specific society or culture have become the convention in the way of representing the information, the category is called genre. The different approach to text in the model of text types and genres is understood as the different relationship of the features to the text and is expressed in the features as text-internal and text-external (Taavitsainen 2006: 266).

According to Santini (2006: 69), text type was introduced to corpus linguistics by Biber (1988). Corpus-linguistic methods were also used to identify blog text types in a study by Grieve et al. (2010) of which Biber was one of the researchers. The term text type has been used to produce different typologies with a different number of text types and defined in many ways in text linguistics and other fields (Tsiplakou & Floros 2013). Werlich's text types have been used in translation theory (Hatim & Mason 1990: 139–140, 145–146). A cognitive genre resembling a text type can be found in Bruce (2011: 324–325) and text types adapted to spoken genres in Fludernik (2000). Text types as a combination of linguistic features taken from Biber et al. (1999), Werlich (1983) and Quirk et al.

(1985) were developed into an automatic tool used to identify web genres by Santini (2006: 69). The long list of different text-typical definitions and classes gathered by Tsiplakou & Floros (2013) provide plenty of methods to choose from for analytical purposes. The common notion in text linguistics is that text types classify texts through their linguistic features.

A typology suggested by Werlich (1983) is described as relying on traditional rhetorics (Santini 2006: 69). Werlich (1983: 11) formed his text type theory by analysing texts from a representative sample consisting of various genres and combining them with models of cognitive formation of language. Werlich mentions Quirk et al. (1972) in his foreword and presumably based some of his theory on the linguistic features that were identified by Quirk et al. in their grammar. A text type in Werlich's theory is a concept that takes on different forms, and terminology, depending on the level of realization. It can define a single main clause and the whole text. A text type morphs from an abstract cognitive process housed in human cognition to the lowest level of realization as clause structure.

Werlich's text types have previously been applied to studying online texts but in limited form only. A case study of web genre classification by Santini and colleagues incorporated Werlich's text types into the development of an automated computer-assisted analytical tool. The tool classified linguistic features in a corpus of uncategorised or mixed-category online texts (Santini 2005: 6; Santini et al. 2006: 702). The studies by Santini (Santini 2005: 6, 37, 39; 2006; Santini et al. 2006) incorporated Werlich's base form example sentences with three variants into the analytical tool as one source among two others. The other linguistic features were identified from studies by Quirk et al. (1985) and by Biber et al. (1999) which together with Werlich's base-form sentences yielded four text-typical categories: descriptive-narrative, expository-informational, argumentative-persuasive and instructional (Santini 2005: 5–6; Santini et al. 2006: 702).

A text type in Werlich is a clause-level linguistic feature and a whole-text level concept in which a particular set of clause structures reflect one of five possible author foci on contexts that refer to a cognitive process. In contrast to general text linguistics, Werlich (1983: 39-41) provides predefined categories with linguistic features that are constant. Werlich specifies the text types as representing one of five structural forms on clause-level and on whole-text level: description, narration, argumentation, exposition and instruction. In sum, when compared to the general linguistic use of the term text type, Werlich approached text types from a more restricted, cognitive, author-oriented point of view. The term text type itself became a measurable linguistic feature.

The main assumption underlying Werlich's text-typical analysis is that every main clause in a text represents one of five different text types. Unlike the terminology of Werlich's main concepts would suggest, it is the main clause that is the unit of text that is typified into text types and not the sentence. The theory does not specifically state this anywhere and has left definitions for some of the linguistic features unexplained or ambiguous, such as the status of sentence fragments.

The principle of one text type per main clause derives from Werlich's (1983: 28, 207, 254) explanation of the “base structure” concepts in the theory. Base structure is termed as the simplest clause structure realizing a text type and “variants” less conventional structures realizing the same text type (ibid.). All texts can be reduced to a list of base structures. The ability to reduce the core of every text into a few sentences is the result of Werlich's idea of text foci. Texts are seen as representing the few main foci of the author who is explaining the surrounding world in verbal form. The example base structures are presented by Werlich as simple sentence and single main clause constructions. Moreover, Werlich's examples of text-typical sentences consist of simple sentences so the typical sentence structure refers more precisely to the structure of a main clause in a sentence.

It is possible that the type-defining quality of the main clause originates in its grammatical definition where a main clause is not subordinate to any other clause. A main clause can also be defined as a carrier of the main thought when compared to dependent clauses that complement the thought. In this reasoning, the author's main thought translates to a text type. In a text-typical analysis this means that instead of counting sentences, the analysis counts all main clauses and typifies them into so called text-typical sentences. Co-ordinating clauses have an equal number of text types to their main clause count.

In text-typical theory a text is seen as the realized end-product of a thought process. Writing begins in the mind with the author choosing a concept and the form in which to present it to the reader as text. Thus, the theory presents a text type on two levels of hierarchy and two levels of realization: abstract and concrete whole-text level and semantic and structural sentence level. On the abstract level of human cognition, text types reflect the author's perception of text-external experience: the writer's cognitive focus. Based in research on understanding cognition and in analyses of conventional texts, Werlich hypothesized,that there are five different cognitive processes that people use to perceive the world. The act of communicating them to others translates the five processes into five text types:

1) perception of concepts in space	reflected in text type description
2) perception of concepts in time	reflected in text type narration
3) understanding relations of concepts	reflected in text type exposition
4) comparing and judging concepts	reflected in text type argumentation
5) planning for future behaviour	reflected in text type instruction

(Werlich 1983: 19, 39).

For instance, the text type of description reflects the writer's cognitive process called 'perception of concepts in space'.

On the concrete level of whole text, text types define the entire text from the point of view of cognitive processes chosen by the writer to communicate and realize as text. The text types of the whole text are manifested in text-typical sentences. For instance the text type of description defines the text through author perception of concepts in space which is found manifested in descriptive sentences. The whole-text level is called 'text type'.

A seemingly extraneous concept is the “ideal text type” (Werlich 1983: 38-41). It is a text comprised of a single text type which, as the adjective *ideal* suggests, does not exist in pure form in reality. It is text that exists merely as a result of theoretical necessity. According to the theory, real texts always exist as combinations of several different text types.

On the sentence level, text type is defined as a semantic and a structural realization. As a main clause semantic concept, text types classify clause structures into sentence types according to a form of writer's focus on explaining the world. The form of a text-typical sentence can be *descriptive* with one of its subtypes *phenomenon-registering with adverbial of place*. In the present study the concept is called 'text-typical sentence type'. As a main clause structural concept, text types describe texts through clause structures, such as *[S+P+A].* The structure, such as *[S+P+A],* is used to identify the semantic aspect of the structure as sentence type *descriptive*. Clause structures are divided into so called *base structures* and *variants*. In the present study the concept is called 'text-typical structure'.

From the text-typical analysis point of view, assigning text types for a text begins from the main clause level and finishes at typifying the whole text. At the lower level of analysis, every main clause can be analysed and categorised into one text-typical clause – the level named text-typical clause or clause-level text type. They can take the form of one of the five so-called base structures or their several variations on the level which was named the text-typical structure. At the higher level of

whole text, all of the main clauses have been assigned a text type and the dominant clause-level text types define the entire text. This combination is the above-mentioned level named text type. Each text is seen to represent a combination of text types if frequency counts are nearly equal. This is in contrast to Werlich who probably assigns one clause-level text type to represent the entire text.

A preliminary observation of personal chronic pain blogs found text-internal differences on a blog entry level. As the group of texts are characterised with similar text-external author values of writing from a personal perspective and suffering from chronic pain, the differences could be a feature of the stylistic choices available in a genre, realized as the common text types. They could also be an effect of more specific author attributes, such as gender, age or duration of chronic pain.

2.2 Cognitive psychology

Studies in psychology describe the cognitive aspect of chronic pain and its effect on the author's focus. Previous studies on chronic pain have found that a chronic pain condition affects the sufferer's perception on pain-related language and images by heightening attention and improving recall when compared to healthy controls (Busch 2007; Wilson et al. 2009). Though the results were found inconsistent with a straightforward response in all subjects with chronic pain (Busch 2007: 22; Wilson et al. 2009: 61-63), it has been suggested that the varying results reflect the uniqueness of the individual pain-related neural network called the pain neuromatrix (Wilson et al. 2009: 58, 61, 63). The response could also be a manifestation of activated coping techniques such as unconsciously avoiding pain-related images in a memory game, which might result in worse performance (Busch 2007: 20, 45).

In the review study of pain sufferers' attention to pain descriptors, the pain neuromatrix is explained as consisting of multiple sites in the brain which are activated and visible in imaging technologies during pain experience and in anticipation of pain (Wilson et al. 2009: 58). Pain descriptors are explained as single or compound word descriptions of pain used in pain questionnaires such as the McGill Pain Questionnaire (Wilson et al. 2009: 60). As an explanation for the inconsistent findings, the researchers reasoned that the individual pain neuromatrix would not consider every pain descriptor as a threat, which would result in the test subject paying less attention to them (Wilson et al. 2009: 58, 61, 63). The subjects would not assign much negative meaning to pain descriptors that had not been previously incorporated into the network of different descriptions, feelings, memories and sensations associated with their pain.

The individuality of pain experience was also emphasized in a study by Busch (2007) on cognitive appraisal of pain in people with chronic pain where the studied concept is explained as the individual assessment and response by the pain sufferer to their pain (Busch 2007: 14). The study also lists different responses and defence and coping mechanisms found in previous studies on responses to pain, such as pain-catastrophizing, denial, avoidance, distraction, withdrawing from social activities and their positive or negative effect on coping with pain (Busch 2007: 20, 45). Pain-catastrophizing refers to increasingly negative thoughts about pain, self and the person's ability to cope with pain (Vasudevan 2015: 52).

Neither the review study on pain and attention nor the study on cognitive appraisal analysed language production, but they suggest that pain-related texts have a profound effect on the pain sufferer and their attention if the text resonates with the sufferer's individual mental construction of pain. In reverse, the language produced by the pain sufferer, such as the text in a blog entry, could act as a reflection of the author's focus at the time of writing. The author's focus is a good candidate for analysing the characteristics of language written by a chronic pain sufferer. The artificial environment of a test lab, used in the studies reviewed by Wilson et al. (2009), might not reflect real-life effects of language, the fact also mentioned by Busch (2007: 31). A blog as a real-life example of language production would prove as a valid object of analysis free from limitations that could skew the text produced in an artificial test situation. Moreover, the different coping mechanisms as listed by Busch could be reflected in language production: for example, blog writing itself could be a coping mechanism for some of the blog authors.

2.3 Blog

Several studies on blog types define blogs according to purpose and content but often lack linguistic basis for the categories. Influential health blogs have been mapped as a genre according to blog topic and blog writer socio-demographic attributes but chronic pain was not separated as a topic from other chronic conditions. The frequency of chronic pain blogs as subgenre of health blogs will remain a mystery. Blog writers' purposes for writing blogs, including those of chronic pain blog writers', have also been studied but since it is a genre feature, no linguistic basis is given for the identified purposes. Studies suggest that blog writing purposes can be linked to chronic pain management techniques, which could be identified by analysing changes in blog entry language.

2.3.1 Blog types

Studies on web genres have defined common blog types according to blog topic and purpose. Since the earliest blogs appeared online, blog research has described blogs as a genre occurring as one or two different types. The early types were described through content features and purpose as online diaries on personal topics or commentaries on external topics with links to other websites (Herring et al. 2005: 142, 145; McNeill 2009: 146–147; Miller & Shepherd 2009: 283-284). Another description focused on the link-commentary ratio of the blog: a blog consisted of either author commentaries on external topics with fewer links or of lists of links with less commentary (Myers 2010: 29, 45–46). The division of blog types defined by a contrast in content and redefined as different purposes have recurred in several blog studies with terms such as 'diary' and 'filter'. In a study by Herring & Paolillo (2006: 443, 445), the types were termed blog genres. The different purpose was defined as commenting on the author's own life (diary) and commenting on events external to the author (filter). Blog types have also been named according to a content-based definition such as the personal and informational blogs as identified by a health blog study (Miller & Pole 2010: 1516). No other basis for the definition is provided except for a brief comment by the researchers describing the personal blog as a "perspective" that is concerned with sharing the author's own experiences with others (ibid.). A study by Herring & Paolillo (2006: 445) changed the unit of analysis for blog genres: instead of the level of the entire blog, the blog genres are identified at a blog entry level. The choice seemed to account for the variation found within blogs.

The two types of blogs, the diaries and the external topic commentaries, have been compared to the purposes of the established print genres of diary and several journalistic genres, such as editorials. The online types were seen to repeat the purpose of the offline genres. The early blogs and some of their later diary and filter features were defined as similar to the offline genres. The similarities were identified in the purposes of the writer to document their personal life and relaying and discussing public affairs in a new medium (Herring et al. 2005: 158-159; McNeill 2009; Miller & Shepherd 2009). Blogs have been defined and regulated by the blog writers themselves, which has sometimes resulted in debates on the status of the blog as a new genre or as a simple repeat of traditional genres. If they are seen as a combination of genres, then the dispute is on which genres they resemble (ibid.). The debated definitions have been studied by McNeill (2009) who describes the debate as essentially a diary or non-diary issue.

The prevalence of the two types have been stated in previous research by Herring & Paolillo (2006) and McNeill (2009: 150). In addition to the general consensus regarding the two types,

McNeill (2009) depicts a substory of debate regarding the blog definition involving the blog writers who identify themselves as filter blog writers. Diary blogs are reported by McNeill (2009: 150, 154) as the most frequent blog type based on previous research by Herring & Paolillo (2006) among others (McNeill 2009: 150). The media has described blogs as diary blogs as well (McNeill 2009: 154) and the researcher's Google search sweep of blog users' descriptions of their own blogs confirmed the wide spread of the diary blog (McNeill 2009: 154). The study also explored the prestige attached to the filter type over the diary type (2009: 150) but found that most blogs are a hybrid of both types (2009: 151).

The studies detailing the blog types, their origins and blog users' struggles in agreeing on a definition provide a background to blog type definitions and list several content, layout and topical characteristics as basis for the types. Yet they do not provide linguistic bases for the types, which can be linked to the observation by Myers (2010: 15) that the varied content and form in blogs defy a text-typical categorization. Myers (2010: 15) prefers defining blogs through blog use in constructing blog user communities.

2.3.2 Health blogs

Studies mapping features and types of health blogs were searched in order to estimate the prevalence of chronic pain blogs and find possible features shared by chronic pain blogs as a subgenre of health blogs. A study on health blogs by Miller and Pole (2010: 1514) aimed to define the genre through blog writer and blog type analysis that consisted of 951 blogs. Yet chronic pain blogs were not described by the study. The study limited the blog selection to influential blogs which referred to only accepting blogs from top 200 search results or blogs that were three clicks away (Miller & Pole 2010: 1514-1515). Women were reported as the slight majority with 56.8% ratio of health bloggers that provided gender information being female (489/861) (Table 1 in Miller & Pole 2010: 1515). The blogger types were divided into professional and patient-consumer perspectives with 54.3% characterised as professional and 37.7% as patient-consumers and the rest as care-giver perspective (Miller & Pole 2010: 1516). The blogs written from the three perspectives were further characterised with a linguistic-sounding criteria as personal and self-focused or informational and outwardly focused with the researchers stating that the types occur in some of the blogs in all three perspectives (1516). The features indicate some level of linguistic analysis but they are most likely content-analytical groups since personal perspective characteristics are linked by the researchers to sharing the author's own experiences with others (ibid.). The majority of the professional bloggers,

49.8%, worked in health professions (Miller & Pole 2010: 1516) but these may include a patient-consumer perspective .

It is doubtful that chronic pain blogs are represented by the health blog data since the limitation of the health blog study data to influential blogs might exclude many chronic pain blogs. Personal blogs have been reported to attract less readers when compared to a blog type named public affairs blogs (Miller & Shepherd 2009: 273). The term used by Miller & Shepherd is just another name for the filter blog. The blog selection may have also skewed the data in favour of professional bloggers and those who work in health, as they would have either the visibility of an organisation's website or the resources to stay high on the search engine results list. Thus the female-to-male ratio might be very different when compared to the half-and-half of health blogs. While the category of patient-consumer blogger could include chronic pain sufferers as health bloggers, the category was reported to constitute only 37.7% of the health blog writers so personal chronic pain blogs would be in the minority.

The health blog study also described blog topics of which 42.6% or 405/951 were classified as disease or disability experience and characterised by the researchers as i”ndividual's experiences with a particular condition”. Health research and news in the health comprised 15.1% or 144/951 of the blogs (Miller & Pole 2010: 1516). The topic categories referred to by the study resemble the two blog types of diary and filter that the blog research community has generally agreed upon. Miller and Pole (2010: 1516) describe the difference between the two health blog topics with an added definition of health research and news topic as “purely informational”. This addition could also indicate the expert blog as defined in a quantitative text-typical analysis of blogs by Grieve et al. (2010: 319).

The analysis of topics in health blogs reported a chronic disease topic with 5.4% or 51/448 frequency of blogs that were categorized as having a specific disease topic (Miller & Pole 2010: 1516). Back pain was listed as one of the conditions under chronic disease in the study but with no frequency. Chronic pain or pain as an individual topic were not included in the analysis. The result could once again reflect the researchers' choice in limiting blog selection to influential blogs. It could also reflect a classification bias where pain was not seen as a condition but perhaps as a symptom and would therefore be overlooked in the topic classifications. Overall, it is unclear that the results from the health blog study (Miller & Pole 2010) provide data that include chronic pain blogs.

2.3.3 Chronic pain blogs and their writers

Chronic pain blogs have not been studied from a text-typical point of view. Instead, the hard to treat features of the pain condition have lead researchers to study the blog writers themselves for behavioural and clinical interests. The reasons behind deciding to write a personal blog have been studied by surveying blog writers. A survey study on the blog writing motivations, or blogging motivations, of 299 “personal journal” blog writers, or bloggers, by Hollenbaugh (2011: 13, 15, 17) found an association with the most reported helping and informing motive and blogger age and the archiving and organizing motive and the female gender. The motive of helping and organizing was defined as helping others by sharing information and conveying author knowledge (Hollenbaugh 2011: 16) and the motive was found to be more common in older bloggers. The motive of archiving/organizing was defined as recording and organizing thoughts and feelings and reading past blog posts. The motive was reported as more likely to appear in women's responses (ibid.).

The reasons for blog writing have been studied specifically for chronic pain bloggers. Ressler et al. (2012) surveyed 230 chronic pain and chronic illness blog writers, most of them women, on their experiences about their own blog writing. Blog writers with chronic pain and chronic illness were analysed as a joint category of illness blogging. The main reasons for writing a blog were found to fall in three classes: reflection, communication, and connection with others and the third category divided into two subthemes: loneliness and isolation as one, and sharing knowledge and education as the other category (Theme Analysis, para. 5 in Ressler et al. 2012). The related purposes of communication and connection with others seem to differ in intended readership. Communication refers to keeping in contact with friends and family through the wide reach of a blog. Connection with others refers to other chronic pain sufferers and the blog-reading public. (Table 5 in Ressler et al 2012).

The researchers (Ressler et al. 2012) also provided the blog writers with questions about posting frequency and content. The responses indicated a change of frequency and also of blogging purpose for some of the bloggers. The latter is an interesting change from blog genre and thus typological point of view. The change of purpose was reported as involving a change from personal life descriptions to educating others or providing peer support, defined as a category named “sense of evolving purpose” with subthemes of mentoring and advocacy (Theme Analysis, para.7 in Ressler et al 2012). Some blog writers stated the evolution of purpose and change in blog content clearly in their answers: “It started out with just my personal stories and then I started sharing research and attempted to be an advocate.” (Table 7 in Ressler et al 2012). The positive effects of blogging were

summarised by the researchers as blog writers' improved self-reflection, feeling of connection with others and willingness to help while narrating their health stories (Discussion, para. 7 in Ressler et al. 2012)

Another survey study included chronic pain blog writers in an analysis of chronic pain sufferers' use of several social media types. The study by Merolli et al. (2015) focused on analysing the specific role of social media as a tool in pain management for chronic pain sufferers. Merolli et al. (2015) surveyed 218 chronic pain sufferers of which, as in the previous study, the majority were women (83.9%) and the most frequent age of the respondents was between 40 to 49 years (31.2%) (Results section, para. Demographics). For blog users, the researchers found the major cognitive health impact to be an ability to take in new information, which was reported by 67% or 45/67 blog users (Results section, para. Cognitive Health in Merolli et al. (2015). Among other benefits of social media use, the study also measured the most valued attribute of all social media. The most valued attribute was named as the activity of learning from others' experiences with highest frequencies among microblog and blog users (96% or 24/25 and 94% or 72/77 respectively) but highly valued across all social media (Table 7 in Merolli et al. 2015). The attribute was defined as an effect of a so called narrative factor of social media (Results section, para. Narration). Overall, the study emphasized the narrative factor and its effect as sharing of experiences in social media as being the main reason for most benefits on mental, social and cognitive health as experienced by chronic pain sufferers.

The results of the study by Ressler et al. (2012) on chronic pain blog writers' blogging purposes show that blog writing purposes vary and sometimes change over time, which suggests that different purposes produce different types of chronic pain blogs. Further, the results reporting the time factor in the evolution of blogging purpose and content could indicate a change from a personal life -describing and reflecting narrative genre and associated text type to an increased frequency of specific information providing and supportive genre and text types. The identified purposes seem to resemble active pain-management and acceptance techniques in Cognitive Behavioural Therapy (CBT), mindfulness and Acceptance and Commitment Therapy (ACT) that are often taught to patients and referred to in chronic pain management literature.

A book on multidisciplinary chronic pain management by Vasudevan (2015) describes CBT and mindfulness techniques aimed at helping care providers to care for their chronic pain patients. The change in purpose suggests that the change could be an effect of an active coping mechanism, perhaps unwittingly used by the blog writer. Several CBT techniques in chronic pain management

connect to blogging purposes. When the blog writer is writing for the purpose of reflecting on their daily pain experiences, they could be recognizing their self talk. The technique is described as the "inner narrator" of automatic thoughts that can include thoughts of pain-catastrophizing (Vasudevan 2015: 52-53). A mindfulness technique of turning towards the pain is described as accepting the pain-related thoughts, feelings and sensations and seeing them as part of the current experience instead of striving to evaluate or change them (Vasudevan 2015: 58). This technique seems to resemble the reflection purpose of chronic pain blogging identified by Ressler et al. (2012) which usually occurs as the blog writer referring to the present thoughts and feelings about pain.

Another CBT technique is external distraction which is described as engaging in social activities (Vasudevan 2015: 55). The blogging purpose of connection with others as identified by Ressler et al. (2012) clearly counts as a social activity. The technique of Acceptance and Commitment Therapy (ACT) teaches acceptance as a tool to living life regardless of pain (Vasudevan 2015: 60) and through committed action. Committed action refers to living an active life according to values important to self (61). The ACT techniques seem to be resemble the blogging purpose of connection with others with subthemes of loneliness and isolation and sharing information and education as identified by Ressler et al. (2012: Theme analysis, para. 5). The techniques also resemble blog writer change in blog writing purpose from personal reflection to mentoring and advocacy (Theme analysis, para. 7). From text-typical point of view, the blog type that aims at self-reflection and contains events, thoughts and feelings in blog writer's life could be realized with narration, description and argumentation type. The blog type that aims at information sharing and contains information on pain-related issues could be realized as exposition and the purpose of support could be realized as argumentation and instruction.

The longer duration of blogging as an active coping tool could reflect the change to better coping where the focus has turned from self, with its sometimes harmful negative thoughts about pain, to supporting and informing others. The focus on helping others entails positive thoughts and focus would change to information about pain that is external to the blog writer's own pain. Further, it has been reported that the advanced stage of acceptance and managing with the condition usually leads to better pain management and quality of life (Busch 2007: 51–52; Vasudevan 2015: 61). Whether the stages are related to a longer duration of chronic pain condition is not clear. A possible assumption is that the longer the condition has lasted, the better the person suffering from it is at managing the condition.

The therapeutic effects of social media on chronic pain sufferers as studied by Merolli et al. (2015) found that blogs help chronic pain sufferers in understanding new information (Results section, para. Cognitive Health). The finding suggests that chronic pain blog writers also provide that sought-after new information, following with the principle of supply and demand. The information-providing feature suggests a text type of exposition. The other finding by Merolli et al. (2015) that blog users in particular appreciate learning from others' experiences (Table 7) suggests a specific text type featuring personal experiences, which is interpreted as text types of narration and argumentation.

2.4 Pain descriptions and gender

A behavioural study on pain and language has described the gender differences and similarities in written pain descriptions. Analysis of texts that describe pain produced by healthy students in a test setting found a correlation with the authors' gender and a particular way of writing about pain. The study on gender differences in pain description by Strong et al. (2009) administered a self-report questionnaire requesting descriptions of a past pain event. The responses of 201 students were analysed by content analysis using Leximancer software and manual identification of significant concepts. The researchers analysed the use of adjectives describing pain, termed 'pain descriptions', which included analysing the adjectives used in the McGill pain questionnaire that is in clinical use. The software also identified commonly co-occurring words which together with pain descriptors were categorized into concepts, meaning that only a single occurrence of words representing a concept in a sentence was counted. Concepts included words such as 'swear words', 'emotional' and 'feel' and 'like', which refers to the preposition and was categorized as a simile. The software grouped the concepts into concept clusters which were given descriptive labels, such as 'use of profanities', 'emotion words' and 'similes' (Strong et al. 2009: 87-88).

The study found that female subjects described their pain experiences through sensory descriptions with similes and descriptive language, whereas male subjects described their pain with words referring to events and emotions (Strong et al. 2009: 92-93). The researchers also reported that emotion words were used by women as well but men used words referring to anger while women referred to crying and screaming. Causes were hypothesized to be attributed to better linguistic abilities in women, cultural expectations of male suppression in expressing pain, and women's greater exposure to different varieties of pain when compared to men's mainly physical pain from injuries (Strong et al. 2009: 93). According to the researchers, women might have gained

the necessary vocabulary to describe their pain in richness and detail which would lead to the observed sensory descriptions whereas men would describe their pain through the event causing the pain and emotions attached to the event.

The findings might not represent chronic pain sufferers, since the sample was limited to healthy students. If, however, the differences in textual styles are produced by a gender effect regardless of a state of experiencing pain, the findings could reflect the gender differences in chronic pain sufferers' blog writing. When related to Werlich's text types, the finding would suggest more description in female blog entries, event narration in male entries, and if emotion relates to argumentation then both genders would use the argumentative text type.

2.5 Linguistic features of blog types

The studies by Herring et al. (2005), McNeill (2009), Miller & Shepherd (2009) and Myers (2010) all characterize blogs as falling in two categories: personal life narration of a diary blog type and external topic discussing filter blog type. This has been the case at least in the earlier blogs. The studies, however, do not provide a linguistic basis for the types. Myers (2010), for instance, explores linguistic features as varied as links and references to place or opinions and focuses on the functions they serve in the blog community.

A study by Herring & Paolillo (2006) details linguistic features that were found to occur in each blog type with some of the features comparable to Werlich's text types. The study analysed specific sets of gender-hypothesized linguistic features identified in previous studies of gender differences in writing. The researchers conducted a multivariate analysis to analyse the frequencies of two sets of features such as 1st, 2nd, and 3rd person pronouns, quantifiers, numbers and the determiner 'the' that were hypothesized to be either female- or male-preferred based on previous research (2006: 444–445). The analysis consisted of logistic regression analysis and a statistic significance Wald test with the feature frequencies as dependent variables and blog types of diary and filter as independent variables (446).

Overall, gender was found to be statistically insignificant but genre was not, which provided features for diary and filter blog types (termed 'blog genre' in Herring & Paolillo 2006: 440). On the genre interactions, the diary blog type correlated with actual female-preferred features and filter blog type with actual male-preferred features (Herring & Paolillo 2006: 447). This means that features that

are used by women are used in diary blogs regardless of author gender and the same was proven for features used commonly by men and filter blogs.

Specifically from the point of view of Werlich's text-typical linguistic features, Herring & Paolillo (2006: 448–452) found that male bloggers preferred *you* out of hypothetical female-preferred features. This suggests that perhaps male chronic pain sufferers also concentrate on the reader more than female sufferers. However, text types as structural categories can accommodate the 2nd person singular pronoun into any text type such as instruction, or argumentation and the finding is not enough to suggest a frequent text type. Text-typical features also coincide with a genre result by Herring & Paolillo (2006) that indicated diary preference for *I* and other the 1st person singular forms out of the hypothetical female-preferred features. Again in Werlich's text types, 1st person singular pronoun and its related forms relate to several text types but narration is the hypothesized type to be characterized by first person point of view.

Text types have been used as an object of analysis in empirical studies on blog types but not as descriptions of clause-level linguistic feature s or as representative of the dominant clause-level linguistic feature. Text type has been applied as a concept that describes the text representing a whole set of various linguistic features. Studies have taken different approaches to their text type classifications: Santini applied preformed categories of text types which were formulated from Werlich's text types together with linguistic features identified in Biber's statistical analysis of written and spoken texts (Santini 2005, 2006; Santini et al. 2006). A study by Grieve et al. (2010) used corpus-linguistic and statistical methods to identify the linguistic features which through factor and cluster analysis were formulated into text types (Grieve et al. 2010).

The study by Grieve et al. (2010) provides a multitude of linguistic features for identifying text types in blogs. The researchers (2010: 303, 305) analysed blog linguistic features with an aim to find quantifiable evidence for the two blog types that recur in previous blog research. The blog types identified in previous research were referred to by the researchers in Grieve et al. as personal and thematic blogs (2010: 305). The study was quantitative (2010: 305) with the researchers using a multi-dimensional analysis consisting of factor and cluster analyses as a tool to analyse a multitude of linguistic features and their co-occurrence in blogs. The researchers set out to define text types from a large 2-million-word corpus derived from 500 individual blogs from blog writers in all states of the United States with sample texts extracted from each of the blogs (2010: 305). The unit of analysis was a sample of text from a single blog that contained on average 4500 words and the text covered

several blog entries (Grieve et al. 2010: 305). The high number of included blogs ensures that the samples were representative of blogs written in the United States.

The factor analysis grouped the co-occurring features into four foci. When comparing the set of linguistic features in each foci to Werlich's text-type defining features, a correspondence is found with several features. The researchers (Grieve et al. 2010: 308-314) named the four different foci in blogs as information, addressee, thematic variation and narrative. When compared to Werlich's (1983) text-typical structures, the information focus partially corresponds to exposition, addressee focus to instructive, thematic variation focus to argumentative type and narrative focus to narrative and one of its linguistic features to descriptive type. Finding the same features identified in a corpus analysis gives quantitative evidence to Werlich's text types and proves that they can be used in blog analysis.

The coinciding linguistic features of Grieve et al. (2010) and Werlich (1983) were recognized as follows: In the information focus (308-309) the overlap was found in noun phrases in subject complement (termed 'nominalizations' in Grieve et al. 2010) and noun-modifying clauses that define Werlich's exposition type. In addressee focus (310-311) the features of the present tense verbs, second person pronouns, do-emphasis and modals define Werlich's instructive type. In thematic variation focus (312-313), the features of anticipatory it, focusing and viewpoint adverbs ('hedges, factive and likelihood adverbs' in Grieve et al.), verb 'be' in predicate with adjective of non-inherent quality in subject complement ('predicative adjective' in Grieve et al), verb of change with an object complement, noun pre- or postmodification in subject complement all overlap Werlich's argumentative type. In narrative focus (308-310, 313-314) the features of the past tense verbs, verbs of change ('activity verbs' and 'communication verbs' in Grieve et al.) and time adverbials ('certain forms of adverbial subordination' in Grieve et al.) overlap with Werlich's narrative type and verb ING-forms ('progressive verbs forms' in Grieve et al.) overlap with Werlich's descriptive type.

With the significant correspondence in features, four out of five of Werlich's text types seem to emerge as separate blog foci. As an interesting point on text-typical feature definition, the ING-forms of verbs are listed under narrative focus in Grieve et al. (2010) while they are separated into a descriptive type by Werlich. Similar grouping was made but without quantitative evidence by Fludernik (2000) who merged the text types of description and narration into one category in a study adapting text-typical theory by Werlich to spoken genres.

Text types were analysed by Grieve et al (2010) from the blog foci by identifying the high frequencies and typical combinations of the foci. In order to assess the prevalence of text types in

blog data, the researchers conducted a cluster analysis that reorganized the data in the blogs with merged blog groups representing different foci. The blogs with addressee, thematic variation and narrative foci were closer to one another in terms of their shared features than to the informational foci blogs. After functional consideration of blog purpose, the researchers named the cluster as 'personal diary blog' type (Grieve et al. 2010: 319). The blogs with informational focus were further removed from other blogs thus forming a second cluster that was named expert blog type (ibid.). Finally some blogs with slightly less informational focus were found to be closer to narrative focus and addressee focus blogs than strongly informational blogs. The cluster was named commentary blog type.

The results of the study proved the established division of blogs into two types as valid but the analysis also identified a third blog type (Grieve et al. 2010: 319). After analysing the frequencies, the researchers (2010: 319) found that the majority of the blogs fell within either the personal diary or the commentary blog cluster and in nearly half-and-half distribution. Thus the study finding indicated that blogs come in two distinct types differentiated mainly by the frequency of how much of the blog deals with author personal life. The third type, expert blog, was deemed rare and less blog-like in its features when compared to the personal diary and commentary blogs (Grieve et al. 2010: 320).

The study by Grieve et al. (2010) reflected the findings of previous research. When the foci of the personal diary, commentary and expert blogs are applied to Werlich's types, the two most common blog types would be a blog with a mixture of instructive, argumentative and narrative types, possibly descriptive included (personal diary) and a type of blog with less expository but some narrative and instructive features (commentary) and the rare blog type of mainly expository text type (expert).

2.6 Hypotheses

Previous research on the cognitive effects of chronic pain (Busch 2007; Wilson et al. 2009) suggests that Werlich's text types could be a fitting linguistic feature for the analysis of the author's cognitive focus in chronic pain blogs. The finding that blog genres vary between blog entries (Herring & Paolillo 2006) suggests that blog entry is the unit of analysis for text types.

The blog writing purpose of describing the personal life of the author common with chronic pain blog writers (Ressler et al. 2012) suggests the high frequencies of the diary-defining narrative

and the argumentative text types. The other purposes of information sharing and advocacy (Ressler et al. 2012) could be realized by exposition and instruction although the argumentation type is also possible. The author would be likely to judge the information in terms of benefits for the chronic pain condition. The improved absorption of information and learning from others' experiences that were reported as benefits of blog use in pain management by chronic pain sufferers (Morelli et al. 2015) repeat the blog writing purposes reported by Ressler et al. (2012). The findings suggest the same text types. Both findings seem to prove the recurring division of blog types into two as identified or described in numerous studies with terms such as diary blog and filter blog (Grieve et al. 2010; Herring & Paolillo 2006; McNeill 2009; Miller & Pole 2010; Miller & Shepherd 2009; Myers 2010). Further, the co-occurrence of both types makes sense if the type is determined on the blog entry level (Herring & Paolillo 2006). Since the same overall purpose seems to be realized by many text types and overall purpose varies between blog entries, the overall indication is that blog entries consist of several text types.

The findings also suggest several interactions between text types and socio-linguistic variables. For the socio-linguistic variable analysis, the observed difference between the genders in describing pain (Strong et al. 2009) suggests that when related to gender, female bloggers would use more description and male bloggers more narration. The effect of age and gender in the blogging motivation of helping and informing and archiving and organizing (Hollenbaugh 2011) could be reflected in chronic pain blogs so that older bloggers would prefer instruction and exposition and women would prefer narration and argumentation. However, the motivations could be realized by several text types. The gradual change in individual chronic pain sufferers' reasons for blogging (Ressler et al. 2012) from personal life descriptions to information-sharing and advocacy could be caused by the improved management of the condition. The improved coping could have been caused by the longer length of chronic pain duration. In text the higher number of affected years could increase the occurrence of text type of exposition, instruction, argumentation that reflect a focus outside of the writers' own life and pain. Shorter duration would show as more narrative and argumentative text types. The argumentative type is included in both effects because text types do not differentiate the topic of the argument which would be personal life or external to author life. The indications lead to three general hypotheses:

H1 There are several text types to be found in the chronic pain blog entries especially narration and argumentation.

H2 The patterns of text types vary and produce several types of chronic pain blog entry.

H3 The common text types can vary according to blogger gender, age and chronic pain duration with women using description and men narration, instructive text type becoming more frequent with increase in age and with an increase in years of chronic pain duration regardless of gender.

3 Material

The study compiled a small corpus of single-authored chronic pain blog entries that were available for public viewing on the internet in order to analyse common text types in a specialized blog genre. The blog entry data comprise of 26 chronic pain blog entries which were sourced from 6 male and 7 female-authored blogs with two entries extracted from each of the 13 blogs. Each blog entry was written by one chronic pain suffering author whose author attributes of gender, approximate age and chronic pain duration were identifiable from the blog. The authorship was limited to chronic pain sufferers as previous studies had shown chronic pain affecting the attention and cognition of the people suffering from the condition and the effect was hypothesized to show in the author's choice of blog text types. The entries were posted between the 6th of October 2004 and the 3rd of April 2011. One entry is from the year 2004, eight from the year 2009, five from the year 2010 and twelve of the entries are from the year 2011. The blog authors were all observed to be English-speaking pain sufferers from the United Kingdom, the United States, Australia and Canada. The country of residency information was taken from the About section of the blogs, which is a common feature in web pages and computer applications. The About section is designed to give background information such as author and product name, version, publishing year, and, in case of blogs, information about blog topics and authors' life and interests among others. If the About section did not have the country of residence information, it was deduced from elsewhere on the blog such as the use of national flags or slogans.

The ages of the blog writers varied between 20 and 65 years old and the duration of the chronic pain condition varied from 1 year to 24 years. In some cases the ages and pain durations are estimations with a margin of error between 1 to 5 years as some blog writers had not updated their age in the About section or their blogs did not have a date showing when age information was posted on the blog.

The entries were coded for independent variables: gender as male or female and age, which was either estimated from information on the blog or reported in the blog by the author. Entries were also coded for an estimated duration of chronic pain in years as it is a common feature in the blogs to report the year when the author became chronic. To differentiate among the blog entries further, the time of writing the entry was added in the form of the month and year. An example entry code is “Fem24Chronic6/Sep2010”, in which Fem24 denotes a 24-year-old female, Chronic6 denotes that she

has had chronic pain for six years and Sep2010 denotes that the entry was posted in September 2010. Most importantly, the passing of time was taken into account when coding so that author age and chronic pain duration was adjusted for the time the entry was posted. This coding seemed to be enough to differentiate each blog entry. Additional short tags were created for the entries when represented in charts with the form b(x) where x denotes a number assigned to an entry.

The number of words per entry were counted by hand and with a Word Count tool for the word processing application OpenOffice.org Writer. It counts strings of characters separated by spaces on both sides as words so numerals and any letters or letter combinations in the data are included as single words. In personal blogs and many informal electronic texts the characters also include emoticons or emoji: a type of graphic icons that represent the non-linguistic features of a text such as facial expressions, hand gestures and tone used to convey emotions. They show the reader with what emotion the preceding text would be said if spoken. Emoji were included in the data as single words and were seen to represent an emotion-denoting adverb. For example the smiley emoticon representing the happy face *:)* was translated into ‘happily’ and *:P* into ‘jokingly’.

The blog entries included in the data have a minimum of hundred words per entry and two entries were chosen from each blog similar to the method used by Herring & Paolillo (2006: 445) to allow for author style differences. Word and clause counts per blog entry are divided according to the author's gender and are shown in the following table 1.

Table 1. Distribution of word and clause counts of individual chronic pain blog entries according to blog writer gender with word and clause totals per gender and both genders combined.

	Female-authored blogs	Female Total	Male-authored blogs	Male Total	Both genders
Individual entry word totals	280, 162, 457, 198, 258, 488, 507, 371, 342, 198, 806, 1396, 414, 602	6479	433, 325, 357, 267, 411, 200, 1460, 1358, 516, 240, 576, 251	6394	12873
Individual entry clause totals	26, 20, 35, 18, 18, 41, 29, 24, 20, 17, 68, 91, 27, 63	497	50, 26, 26, 22, 34, 19, 143, 144, 27, 8, 51, 21	571	1068

Table 1 illustrates the gender-balanced nature of the corpus: there were 6,479 words from female authors in the data and 6,394 words from male authors with only 85 words more from female bloggers. The corpus word total is 12,873.

The important figures for text-typical analysis are the clause totals per entry. As each clause is analysed into a text type, the clause total will equal the total number of text-typical clauses in an entry. With clause totals and gender, the roles are reversed with male-authored blog entries including 74 clauses more than female-authored blog entries. The sample consists of 497 female-authored clauses and 571 male-authored clauses with the sample clause total of 1068 clauses. As the clause occurrences can skew the comparisons between text type categories in the analysis toward higher frequencies in male-authored entries, the clause counts were converted in the analysis into ratios of clause counts of every text type. These were calculated by dividing the text-typical clause totals with the clause totals of individual entries featured in the table above. The text-type ratios are presented in the results section 5.

4 Methods

Personal chronic pain blog entries were gathered to form a small but exhaustive corpus in order to enable a qualitative text-typical analysis of clauses that would accurately represent the text-typical variation in the subgenre. A quantitative frequency analysis of clauses in blog entries was also conducted in order to identify common text types in the entries and to examine if text types can be used to identify the blog writing purposes reported by previous research in blogs and surveys of chronic pain blog writers. The corpus was gender-balanced and coded for author attributes so that a socio-linguistic analysis could be performed by analysing the text type frequencies against author attributes. Because of the small number of blog writers included in the corpus, the results of the socio-linguistic analysis are treated as exploratory only.

4.1 Methods for data gathering

The sampling method for the blog entry data was a combination of "purposive" and "snowball" methods similar to the health blog study by Miller & Pole (2010: 1514-1515). The purposive method refers to choosing samples which fulfil certain preset requirements of author qualities and text theme. Chronic pain blogs were searched in blog and web search engines with specific key words and blog texts analysed against author qualities and blog themes. If the searches did not provide new blogs, the snowball method was applied in which the old blogs were examined for links to other chronic pain blogs which in turn might have links to further blogs. The linked blogs were then collected into the sample. As the name suggests, the method would snowball other blogs from similar authors and on the same subject.

A combined method is necessary when a random sample is difficult to attain in data sourced from the internet (Hollenbaugh 2011: 15; Mazur 2010: 2; Miller & Pole 2010: 1514-1515). The advantage of the snowball method is reaching the so-called hidden populations which do not communicate in public arenas (Lagu et al 2008: 1643). As Sadler et al. (2010: 370) explain, the reason for subjects to remain hard-to-reach can be the private nature of their physical or mental condition. Chronic pain sufferers can be seen as a hidden population as their condition is in some cases untreatable by common medications or requires pain medication that is heavily regulated or its use frowned upon. A further hidden population quality is observed in the data: as the study focuses on personal blogs with a chronic pain theme they might not be the most popular pages that are

searched on the internet when compared to non-personal or commercial web pages. Consequently they would not occur in the first pages in the web search engine search results. For this purpose alone, the snowball method would yield more data. (See Hollenbaugh 2011; Lagu et al 2008; Mazur 2010; Sadler et al 2010.)

The main criteria for the selection of chronic pain blogs was personal authorship. Blog comments were ruled out of the corpus data as the study focused on the author as a text producer. Authorship was checked first from the About page or the first entry of the blog that identifies the author, which provided the information on the gender and age of the author. If this failed and as male-authored chronic pain blogs were harder to come by, the author identification was modified so that when a seemingly anonymous blog mentioned a name as the author of a posted entry, this was used to identify gender. To estimate the variables of “age” and “duration of chronic pain experience”, the investigation followed separate blog entries. For the latter variable, entries were followed that were labelled with tags categorising the entry as “pain” or “chronic pain”. The blog tags list some of the topics discussed in the entries and are usually presented in the blog internal tool called, for example, “category cloud”. If the text in the blog entries did not mention age or chronic pain duration, the investigation looked for posted images and image captions of the author or their family.

Chronic pain blogs were searched and chosen in year 2011. The blogs were gathered using the web search engine Google and its specific tool Google blogsearch, which has since been discontinued, and the blog platforms of WordPress and Technorati that feature a search function. Technorati was discontinued as a blog search engine in 2014. Blogs were searched page by page and selected according to set criteria reflecting personal authorship in blogging, gender identification and time spent as chronic pain sufferer. Searches were run first with key words “chronic pain blog”, “back pain blog”, “headache blog”, then key words “back pain” and “headache” to allow for the range of terms that chronic pain sufferers use to talk and write about their condition.

There were several reasons for using the above-mentioned web and blog search engines and blog platforms, also known as hosts: Google is the biggest and most extensive search engine and Google's Blogger was a popular blog host. The searches with these tools yielded the most results as they were able to access more web pages. WordPress and Typepad are also popular blog hosts. Technorati was a popular blog search engine that incorporated a results page that rated blogs for popularity or “authority” as termed by Technorati. Using a blog search engine concentrated the search solely on blogs which regular web search engines do not do.

As an example of using a blog search engine to find samples, Technorati listed 212 blogs which were tagged “chronic pain” out of a total number of 1,196,282 blogs (as on 1 April 2011). Search results were set to be returned by separate blogs or “sites” instead of blog entries or “posts” in order to receive blogs by different authors. Nine blogs were found with tag “cluster pain” which was used to find male blogs as cluster headaches are more common in men. In order to find more blogs, a tag “pain” was entered on its own which resulted in 1,778 blogs listed out of 1,196,197 (as at 16 April 2011). These blogs, however, mostly consisted of blogs that did not fulfil the set criteria.

Data gathering was successful in limiting the search results to only blogs when using dedicated blog search engines. Regular search engines featured a tag search that results in blogs that have categorised their blog entries according to a field, such as “pain” or “chronic pain”. Several problems emerged even with dedicated blog search engines in place: the domination of non-personal pain blogs, lack of a gender-specified web search tool, possible search replication issue for future research and excessive time used in finding the criteria-filling blogs because of the evolving nature of web search-engine search results. The restricted-access blogs in social networking web sites such as Facebook will also limit the search options.

From the beginning of the web searches, the search results turned out to be inundated by anonymous, expert-authored or group-authored blogs, sponsored blogs and commercial blogs with no personal authorship. Personal chronic pain blogs seem to be a minority or their small readership makes them difficult to find with public search engines. Even with using blog search engines, most returned blogs were anonymous medication-describing or expert-authored blogs on chronic pain, had the wrong topic such as emotional pain or the blogs had been deleted but remained visible as so called ghost-links in the search listings.

As the search function did not allow for searching for specifically male- or female-authored blogs, the gender of the author had to be confirmed by analysing the blog. During sample collection it seemed that most pain blogs were written by women so the possibly scarce male blogs were hard to find. Regardless, a balanced sample was still the aim and search was continued until enough male-authored blogs were found to achieve similar total word counts for female- and male-authored blogs. The gender imbalance in the available chronic pain blogs could be explained by a statistical and biological factor. In review studies on chronic pain (Busch 2007: 6; Mills et al. 2019) women were reported to suffer more from chronic pain than men. Perhaps these numerous women also translate as numerous women as chronic pain blog writers.

The blog searches also create a problem for the replication of the method when gathering the corpus: as Google customizes searches, it changes the order of the search result pages. The web address Google.fi showed different results to Google.com. In addition, depending on the recent news topics in the media in general, more people search the popular topic with similar key words around the same time and the most-viewed page climbs up towards the first page. Some web sites, especially commercial ones, add the current popular topics into their web page descriptions which the web search engines would then pick up and move the page up towards the first page of the search results. Consequently finding and gathering personally-authored chronic pain blogs is time consuming as they quickly fall down in the order of search results as the popular blogs without the required author attributes push them down in searches.

In order to counteract the problem of accessing personal blogs, the searches conducted were set to include at least ten pages of results with no maximum page number set as a cutoff to compensate for the personal blogs peripheral placement in search results. Commercial and professional web sites and blogs on chronic pain were also expected to use the search terms such as “chronic pain” in their page descriptions for search engines and to receive more views than personal blogs simply because they are listed on the first pages of the search results. Another measure was incorporating the purposive method into the data gathering of chronic pain blogs, which includes the concept of 'exhaustion of samples'. This refers to gathering all available data at the time of collection. An exhaustive sample was achieved as no new blogs emerged in the result pages in April 2011.

Restricted access blogs created another difficulty in data gathering. Blogs in the social networking web site Facebook were left out of the study after searches in Facebook did not yield results in 2011. So called 'group pages', which are used to provide discussion and information on a common theme, were searched in Facebook. Only one pain blog was found which did not have many posted entries and therefore no author content to analyse. So a number of blogs that might have discussed chronic pain were left outside the corpus because they did not focus on chronic pain and were usually restricted to private viewing, inaccessible to the chronic pain community.

The blog feature of popularity was not a criteria for inclusion of the sample into the corpus data. The popularity of the blogs also known as ranking of blogs according to readership was not taken into account as a variable since the main purpose of personal chronic pain blogs was seen as personal expression. The study is focussed on the author and their use of language, not characterizing the influential blogs, which is the perspective of the health blog study by Miller & Pole (2010). The researchers limited their data samples to influential blogs that had many visits according

to the blog visitor counting tools or sitemeters. From the point of view of the present chronic pain blog study, a blog with only a few readers shows the same author style differences as the blog with 200,000 visitors.

4.2 Methods for data analysis

As the studies on the effects of chronic pain on attention and memory recall suggest, author's focus seems like a likely feature to reflect changes affected by chronic pain. The method of content analysis can produce long lists of concepts dealt with in a text where individual words have to be categorised into common themes (Thomas & Wilson 1996). Werlich's (1983) text types were chosen as the examined feature to produce simple, easily quantifiable categories and reflect the author's cognitive focus. They are main clause structures which act as realizations of typical sentences that reflect writer's cognitive focus. In contrast to content analysis, the text type method refers to a set of five predefined categories that are named according to the five hypothesized cognitive processes. The processes explain the world around the writers. Because of the link to the cognitive processes, Werlich's text types are considered specialized constructs in the general text-linguistic approach.

The present study conducts a qualitative text-typical analysis of Werlich's text types on the clause level of a blog entry, and a quantitative frequency count for analysis of common types within and among entries. A quantitative socio-linguistic analysis is adopted for exploring the effect of the independent author variables of gender, age and chronic pain duration on the frequency of the dependent clause-level text types. The variables were chosen because of the findings of previous research in chronic pain which reported the condition involving coping, changes in attention and memory (for variable 'chronic pain duration'), a study on pain and language suggesting gender differences in pain-text production (for variable 'gender') and a blogging motive study (for variable 'age'). The analysis set out to answer the two research questions:

Q1 What are the frequent text types in chronic pain blog entries that would describe a typical chronic pain blog?

Q2 How would subgrouping of entries according to author attributes of gender, age and chronic pain duration show in frequency of a certain text type?

4.2.1 Analytical tools

The clause-level analysis is the base for whole-text and text-group analyses needed when describing a typical chronic pain blog. The clause was chosen as the smallest linguistic unit for text-typical analysis because it is seen as a unit of complete meaning which comprises of a single thought. More specifically in the text-typical analysis, the analysed sentence is defined as a unit of text containing one main clause and any subordinate clauses: the independent clause decides the text type. The term 'sentence type' is used in a different sense in Werlich's (1983) theory when compared to general grammar usage. In conventional grammar the term is used to refer to the sentence-formal category with terms such as indicative or imperative that describe the syntactic form. A second use of the term refers to the sentence-functional category of mood described with terms such as statement and command that describe the communicative function of the sentence. In text type theory, it refers to text type occurring on an independent clause level and is henceforth called clause-level text type. The reason for the change in terminology when compared to Werlich derives from observing Werlich's text type examples. The examples of text-typical sentence structures seemed to consist of independent clauses. An independent clause carries the linguistic information of one text type. Co-ordinating clauses are therefore counted as two analysed main clauses and therefore as two text types. The boundary between sentences is marked by a full stop, exclamation mark, question mark or between main clauses by a co-ordinating conjunction, usually by ‘and’ or ‘but’.

The linguistic features that are constituents to all five text-typical syntax forms and therefore analysed to determine clause structure were collected from Werlich (1983) and are listed below:

a) syntactic function elements: words in adverbial, delayed subject, direct object, extraposed subject, indirect object, object complement, subject complement, predicate and subject positions in the sentence

b) word classes and word forms: adjectives of inherent and non-inherent quality; adverbs of place and time; auxiliary verbs ‘be’; emphasising ‘do’, ‘have’, clauses; existential ‘there’; ING-forms; nouns; modal auxiliary verbs ‘can’, ‘will’ , ‘should’; postmodified and premodified noun phrases; pronouns; verbs of change and non-change, vocatives

The linguistic features were organized by Werlich into sets of text-typical clause structures that correspond to specific text types. A comprehensive list was compiled for the clause-level analysis presented in table A3 in Appendix 3. The list was collected and partially deduced from Werlich’s

examples and explanations of the text types. As the method in text-typical analysis, the text in a sentence was parsed to identify clause structures. The structures were then compared to the compiled list of text-typical structures, the corresponding structure was chosen from the list and a text type named for a sentence. The analysis was recorded in tables, one per blog entry, with notations in order to save space and retain legibility. The notations include abbreviations, such as the letter *A* for *adverbial,* and punctuation marks, such as parentheses, square brackets and plus signs, which mark linguistic features such as syntactic forms, functions and element boundaries. The notations and their explanations were adapted from the Oxford Dictionary of English Grammar (1999) and Werlich (1983: 431, 264). The key to the notations used in the blog entry analysis tables is presented in the table A2 in appendices (Appendix 2). One representative example of the clause-level analysis of a full blog entry is included in the appendices of this study (Table A4 in Appendix 5) preceded by the unanalysed text version of the blog entry (Appendix 4).

Werlich's text types are realised as text-typical clauses in text. For the classification of text types, Werlich provided several clause structures and some specific word classes and types of verbs that occur in certain structures. Moving from the more general to particular in the terminology, Werlich's text types, their text-typical clauses and clause equivalents and finally the syntactic structures of those clauses are listed in table A3. The table was used as reference in conducting the clause-level text-typical analysis. The clause structures in the table have been collected from Werlich (1983). Some of the structures were provided in notated form by Werlich, some have been reconstructed into notated form from his example sentences, descriptions or statements. The reconstructions have been marked with an asterisk * in table A3.

Table A3 illustrates the several different clause structures realizing each text type. When comparing the clauses filed as belonging under the same text type, it is helpful to look at the list of five author cognitive foci. A type of author cognitive focus, such as "comparing and judging concepts", should be the characteristic shared by all the clauses put in the same text type category which in this case is "argumentation". Example sentences of each text type derived from the data are presented at the beginning of the results section. The examples are followed by frequency tables and charts depicting the whole-text and text-group analyses.

The text-typical analysis followed the process of first identifying the syntactic structure in the sentence. So from the syntax point of view, the minimum number of formal and functional words, phrase and clause structures of a sentence that are needed to separate a text type from another were identified. The second step compared the structures in the sentence to a specific set of formal

and functional structures associated with a text-typical clause. These were provided in table A3. The third step was classifying the sentence according to the corresponding structure.

The following table 2 presents an example of the text-typical analysis of one sentence from a chronic pain blog. The clause structure was only occasionally written out on the table to provide evidence for the choice of text type. Providing a clarifying note of the clause structure, such as "modal *can* limiting validity of statement", was the preferred method to explain the choice of the text-typical clause.

Table 2. Text-typical analysis of a sentence in blog entry "Fem60Chronic21/Feb2011".

Px	Sentence	Text-typical analysis	
		Text-typical clause Clause structure	Resulting text type per clause
3	They can hurt our outlook on life which is already in a compromised state due to our pain.	Quality-attributing modal 'can' limiting validity of statement made with Vchange 'hurt' S(pronoun) + P(V Aux 'can' + Vchange 'hurt') + O(NP[Det + N + PrepP + rel. wh-cl.)	argumentative

In the sentence presented in table 2, the author uses the modal auxiliary *can* to modify the verb of change *hurt* which connects the concepts *they* in subject position and the direct object *our outlook on life*. The context-dependent pronoun *they* refers back in the blog to negative people and negative thoughts. When compared to the list of Werlich's (1983) text-typical structures in table A3, the structure called "can-premodification" of the verb phrase for the text type of argumentation stands out. The structure, according to Werlich (1983: 262), expresses a possibility that the concept (referred to as the subject) has in its ability to do something to the second concept (referred to as the object) but it may or may not happen.

Similarly to the possibility which characterizes Werlich's 'can-premodification', the writer of the sentence in the analysis table does not know for certain if the subject *they* do what the writer claims they do, which is the verb phrase *hurt our outlook on life.* Thus the writer uses the modal *can*. The sentence is classified as text type of argumentation because the author argues that *they* in the

subject have the possibility to damage the already slightly negative attitudes of the author, reader and other chronic pain sufferers.

The blog entry corpus was prepared for clause-level analysis by transferring each blog entry in text-only form into a word-processing software document. A document table was then created for each entry. In the tables, the first column is labelled “Px” which marked the sentences with a paragraph number in which they occur. Marking the location of the sentence in the source text could be used in subsequent analysis of paragraph-level text type changes if needed. The paragraphs are numbered with ascending figures beginning from “1” according to the order they appear in text. The possible title of the entry is counted as paragraph 1. Each blog entry sentence is presented on a separate row in the second column. The second column presented the sentences with original stylistic emphases, such as capital font, retained because the emphasized words were seen to possess a quality affecting the clause structure. These were used as aids to the identification such as capitalised *do* emphasizing argumentation. Text-typical analysis was coded in columns from third to fourth.

The third column was used to notate some of the syntax of the sentence and the main clause structure was compared to Werlich’s list of text-typical clause structures. Notation was realised as abbreviations and punctuation marks in a sequence. The corresponding structure was written down as a short explanation in words and a structural notation enclosed in parentheses. The resulting text type category was recorded in the fourth column. The result was given in the form of the name of a specific text type.

Answering the first research question required quantitative analysis. The occurrences of the predefined, clause-level features in single entries were counted. Then the dominant features for each were established and if single text types were not high in frequency , a combination of text types was recorded as a type for the entry. Analysis on the text-group level was conducted by comparing the entry types and listing the common entry types present across in chronic pain blog entries.

The exploratory second research question required an analysis on a subgroup level on which chronic pain blog entries were divided into smaller groups according to values of the three author characteristics: gender, age and chronic pain duration. The characteristics are independent socio-demographic variables. Entries sharing the same variable value were placed in the same subgroup: male/female variables created two subgroups and separate charts whereas the time variables of age and chronic pain duration were analysed by distributing blog entries into age ranges and reorganizing the entries according to an increase in years of chronic pain duration. The clause-level text types are

dependent linguistic variables. Text type frequencies and the values of the author attributes were examined for the entries in order to estimate any emerging trends.

4.2.2 Evaluation of Werlich's text type theory

Several reasons favoured Werlich's (1983) theory and classification method over others. Previous research and preliminary analysis of chronic pain blog entries suggested three requirements for the choice of method and linguistic features in blog analysis. A specific theory was sought that would provide a short set of simple linguistic features in order to facilitate the comparison between texts within the same group. The features should also incorporate the conventional genre resemblance as indicated by blog origin accounts and the proposed classifications of several blog studies and preliminary blog analysis. Finally the features should concentrate on author and describe the resulting text filtered through the experience with chronic pain.

Text type theory as first delineated by Werlich in the 1970s (1983) appears to fulfil the requirements. It seems to provide a short set of five features although each of them acts as a category that come with their own specific set of distinguishing linguistic features. Despite the subsets, an analysis following the preformed categories would describe blog entries in terms of their representation of only five different features. In addition, the linguistic features and classification in text type theory seem to be readily applicable to analyse the conventional genres and newer blog types suggested by blog studies and the preliminary analysis of blog entries. Werlich (1983: 12) has evidently based his theory on analysing several conventional written texts such as newspaper reports and advertisements. Accordingly, the texts in Werlich's data are expected to resemble conventional text aspects of blogs. Furthermore Werlich's theory describes texts through linguistic features that emphasize author's experience. Text type theory classifies and names the features based on the aspect of the author experiencing the world around them which was expected to reflect the writing of chronic pain sufferers better than other methods. Author-orientation is present in the type categories and in their origin as cognitive processes.

A text-typical analysis following Werlich's theory seemed easily replicable in blog analysis. Initially Werlich's theory unravels in convincing detail: illustrative examples are provided from a variety of sources and clause structures are presented alongside text-typically classified clauses. Intended as a reference grammar for text production and analysis, Werlich provides examples of the text types in the form of a wealth of texts that are classified in several ways for easy cross-reference.

Example texts are also provided in sections titled according to their representation of either a text form or variant categories. The approach is presumably chosen to showcase texts that are likely to be encountered on a daily basis and aid in identifying the link between text and cognition. The examples and analyses illustrate and substantiate the main idea of the theory: texts that are different in their clause structure differ in their way of explaining the world and reflect the different cognitive focus of the writer.

Werlich's (1983) data seem extensive and inclusive yet there is a conventional text type missing from the examples. The coverage was assumed to be extensive because of the variety of Werlich's printed text excerpts. The excerpts span from non-fictional explanations of ballpoint pen function to descriptions of non-fictional or fictional characters, objective point-of-view newspaper reports to subjective stories, persuasive adverts to gardening instructions and from short dictionary entries to long novels. Unfortunately Werlich does not include examples of diary texts in his text excerpts and it is uncertain whether he used them in the formulation of his theory. Several studies on blogs such as Herring & Paolillo (2006), Myers (2010), Grieve et al. (2010) recount the history of blog as a genre and a diary was named as one of the original text types that appeared in blog form. Perhaps the text forms of report, narrative and their variant examples in Werlich's data were expected to cover the linguistic features present in diaries.

As a methodological issue, there is insufficiency in the analytical detail in Werlich's theory which hinders blog data analysis. To aid in the analysis and as evidence of his theory, Werlich lists the different clause structures that realize a particular text type in the text excerpts. Yet text type is not identified in the structure of every clause. This is the case even in a shorter excerpt that is stated as consisting of multiple different text types. It is unclear which exact clauses caused the classification of a multi text-type excerpt. The lack of enough equivalent pairs of example clause-identified clause structure makes text types into somewhat fuzzy categories and slowed down clause-level analysis.

5 Results

The clause-level analysis identified frequent and typical text types as combinations of clause-level text types. In terms of most frequent text types, the blog data sample consisted of mostly argumentative, instructive and narrative clauses. The frequencies across all entries, with no regard to the delimiting whole-text level of an individual blog entry, as presented in table 4 are 57 % argumentative, 18% instructive, 14% narrative, 6% descriptive and 4% expository in chronic pain blogs. When analysed on a blog entry level, the analysis found two equally common text type combinations with 30.7% frequency in the entries: high argumentation-some narration and instruction-argumentation. A third combination with 23.0% frequency was labelled high argumentation-some instruction. Two rare combinations with 7.7% frequencies were the option of argumentation-description or argumentation-expository and high argumentation type.

The results from the socio-linguistic analysis are only seen as exploratory since the corpus consists of 6 male-authored and 7 female-authored blogs. No signals of an interaction were found between gender, age or chronic pain duration and text types although instruction seemed to be more frequent with both younger and older blog writers, contrary to the prediction of instruction being more frequent with older blog writers. The charts depicting the text types as relative frequencies out of total clauses per entry and organized according to the socio-linguistic variables are presented in figures 2 to 6.

The following section illustrates the clause-level text types identified in chronic pain blog data with examples from both chronic pain blog data and Werlich. The examples are organized in order of occurrence from most to least frequent text type in chronic pain blogs. An example of a text-typical analysis of a whole blog entry that is categorized as high argumentation-some narration is provided in the appendices in table A3. The entry content is mostly author evaluation of their pain on the day of posting with a short recount of their daily activity. The entry finishes with the instructive clauses functioning as shifting focus to the author planning their actions after posting the blog entry. Content analysis seems to be crucial in explaining the topic of argumentation or target for instruction as a link to a specific blogging purposes. In the analysed entry, the purpose for posting the entry seems to be author reflection and sharing of their personal experience with pain on the day of posting. Without the content clues, the analysis would remain on the level of text type only. As such, the text-typical definitions of blog entries are pure descriptions of the clause structures with a cognitive focus

grouping. The method needs to include a form of content analysis in any future research using Werlich's text types to accommodate findings on specific blog purposes.

5.1 Examples of clause-level text types

5.1.1 Argumentation

The most common text type, argumentation, indicates the cognitive process of 'judging' which Werlich (1983: 21, 40, 208) explains as the writer's focus on looking at similarities, contrasts and transformations of concepts. It is realized by quality-attributing sentences with the structure *S(N) +P(VBe+Not+Present)+Csubj(Adj)* or *S(N)+P(Vchange+Present)+Cdirect(N)+Cindirect(Adj)*. These are exemplified by the following sentences:

(1) The obsession with durability in the arts is not permanent.
(Werlich 1983: 40.)

(2) They are nicknamed “Suicide Headaches” for reason.
(Male30Chronic7b/Dec2009.)

Sentence (1) is an example of the first base syntactic form where the judgement of the subject is carried by the negation *not* of the quality *permanent*. In sentence (2) from the chronic pain blog data the structure follows the second base syntactic form *S(N)+P(Vchange+Present)+Cdirect(N) +Cindirect(Adj)*. The sentence makes a claim where the verb of change *nickname* as a process is given a quality with the adverbial phrase *for reason*. Nicknaming something as something else is argued to be good for a certain cause. The qualifier *suicide* shares a quality with the text participant that is substituted here by the pronoun *they.* In this case the pronoun refers to cluster headaches. The author argues that cluster headaches are called *suicide headaches* because of their intense level of pain would drive weaker individuals to suicide.

As with other text types, argumentation has variant sentence structures to the base forms. The text form variant for quality-attributing sentence is the phenomenon-identifying sentence which according to Werlich (1983: 259-260) is normally used for exposition. When combined with qualification, it is classified as argumentation. Noun postmodification with that-clauses and other subordinate clauses is also classified as argumentation when it is in a phenomenon-identifying

structure. The structure for the first variant displays noun premodification with an adjective *S(N) +P(Vbe+Past)+C(Adj+N)* as with the sentence

(3) He was a terrible cook.

Another variant which Werlich does not illustrate is similar to the above but the verb *be* is in present tense as with the sentence fragment

(4) Scary thought.
(Fem24Chronic6/Sep2010.)

In the example (3) person's skills as a cook are criticized and the sentence is labelled as quality-attributing as the author claims a similarity with the subject *he* and the complement *cook* with the paralleled quality given in the premodification *terrible.* The author claims that the person's cooking skills produce bad-tasting food. In the second example (4) the omitted subject *it* is identified with the omitted predicate *is* as a phenomenon by the complement *thought* and premodified with the quality-attributing adjective *scary.* The writer is judging the thought as a scary thought.

Another variant to the argumentation base form is noun substitution by a non-situational noun. For instance in the sentence by Werlich

(5) He is an ass.
(Werlich 1983: 259-260.)

the structure is *S(N)+P(Vbe+Present)+C(N)*. The argumentative quality comes from the non-situational noun *ass*, which has an attitudinal loading since the subject and complement are semantically far away. He, a human, is being identified with ass, an animal, which carries qualities of behaving in an unacceptable way.

5.1.2 Instruction

The second most common text type in the data is instruction, which is realized according to Werlich (1983: 41-42, 265) by action-demanding sentences. If the writer uses these sentences, they plan the

future behaviour of the addressee or their own actions (Werlich 1983: 21). The action-demanding sentences with a base-syntactic form *P(Vinf)* or *P(Vinf+DO+Not)* are chosen because the sentences realize the cognitive process of “planning”. Werlich's example sentences which are structured according to the base syntactic forms are presented in the following example 6.

(6) Stop! Don't move!
(Werlich 1983: 42.)

The writer is planning the future behaviour of the addressee. The action-demanding is directed to the addressee with the imperatives *Stop* and *Don't move*.

Werlich (1983: 265) examines several variants to these stuctures. The first variants are named “commands” that either add an emphasizing *DO* as in the expression “Do brush your teeth” or consist of minor sentences also known as sentence fragments such as “Careful!”. In sentence fragments, the omitted imperatives need to be filled in to classify the sentence. Other variants with planning focus are statements with verbs of intention such as *hope, would like to* as the predicate, or the main verb is premodified in the structure by *should, have to, must, will*. The last type of variant is formulated as a question, starting with *could, would, can* and *will*.

There are sentences that can be classified as argumentative but seem to have an aspect of instruction. The sentence (7) below is an example of this in the blog data. It could be categorized as structurally similar to the variant that premodifies the main verb with *will*.

(7) Sometimes if I think I'm getting a migraine, I write song lyrics on paper (so I can write fast without thinking) to see if I slip up any.
(Fem24Chronic6/Sep2010.)

As in example 6, the writer plans for the future but instead of direct imperatives, the writer describes a habitual behaviour, their possible future behaviour. The behaviour is emphasized with the adverb *sometimes* followed by the condition introducing if-clause construction *if I think I am getting a migraine*. The condition is then followed by the main clause with the verb in present tense *I write* describing the resulting behaviour if the condition is fulfilled. The female blogger seems to be indirectly instructing the reader by giving them a solution for detecting migraine attacks early.

The vagueness of text-typical category labels and the lack of detailed explanations in Werlich's example sentence structures resulted in some uneasy assignment of text types. For instance *instruction* as a writer aim can also be achieved by a structurally argumentative sentence classified as such because of a verb of change *use* and adverb *now*:

(8) "I now use my eyelash curler a few extra seconds longer on my right eye no matter how I'm feeling. :)".
(Fem24Chronic6/Sep2010.)

In the example (8) the writer's intention could be for the reader to mimic the action. The interpretation draws from context of previous sentences that set the tone for instruction. Four sentences before the example the writer uses exposition "Another thing the book said to do is...", which is classified as such because of the whole-part relationship denoted by the noun phrase *another thing...* and verb *be.* The writer uses exposition to list tips to identify physical symptoms of migraine they learned from a migraine book. The writer follows the exposition with a narrative sentence "I did this...", classified as such because of the verb of change *do* in past tense. The exposition is followed by explanation with argumentative sentences on how scared the writer felt when they noticed that one of their eyes looked droopy compared to the other. The argumentation finishes with the final argument in example (8) above that describes the action that the writer argues they now regularly take to hide the particular effect of their migraine. As a result of context, the described and claimed habitual action has taken on an aspect of instruction.

5.1.3 Narration

The text type "narration" which is the third most common text type in the data is realized by action-recording sentences with the cognitive process or focus on "perception in time" (Werlich 1983: 19, 21, 39). The action-recording sentence is first exemplified by a sentence from Werlich which is structured with the base syntactic form *S(N)+P(Vchange+Past)+A(Advloc)+A(Advtemp)*.

(9) The passengers landed in New York in the middle of the night.
(Werlich 1983:39.)

The focus is on phenomena in time with the past tense of a verb of change *landed* and the adverbial of time *in the middle of the night*. The next sentence is from a female blogger's entry from chronic pain blog data:

(10) I did this, hoping I could show my husband the migraine one and say, “Be nice to me when I look like this.”
(Fem24Chronic6/Sep2010.)

Regardless of the long follow up in the form of a subordinate ING-clause, the trigger for assigning the text type comes from the main clause and the past tense verb *did.* The narrator records their past action. The verb is a so-called verb of change which marks an action-recording sentence apart from a phenomenon-registering sentence.

A common issue with text-type assignment was in reported speech. The following sentence (11), classified as two clauses with narrative text types, exemplifies both the informal style of personal blog writing and the issue with reported speech or action when compared with the sentence in example (12).

(11) She told me how bad his day had been, that he had suddenly decided to just go and take a quick drive, something to try getting his mind off the Pain.
(Feb50Chronic14/Mar212011.)

In the above sentence (11) the author reports a conversation between them and their friend who is talking about how the friend's husband is coping with chronic pain. The sentence is interpreted as having two main clauses, with first one as “*She told me … drive*” and the second one with omitted subject and predicate beginning from the subject complement “*something to try … Pain*.” The informal style allows run-on sentences with several commas. In the case above the sentence could have been separated by beginning a new fragmented sentence with capitalizing the initial letter *s* in s*omething* with an omitted main clause with the subject assumed to be repetition of *she* and predicate with a main verb in past tense *told*. As there are two main clauses, the sentence is analysed as having two text types. With the omitted past tense predicate, both clauses have a predicate with a verb of change *tell* in past tense. The text-typical clause is identified as action-recording and text type as narrative.

When identifying the following sentence (12), however, the identification above could be seen as wrong. In the following sentence, which was classified as argumentative text type,

(12) One paper found that sulindac made TNF-A more effective at killing cancerous cells.
(Male30Chronic7/Nov2009.)

the verb *find* in the predicate of the main clause is in past tense but it is not used in the sense of a verb of change. The paper always finds the same result so in a sense it is static and termed as a verb of non-change. The verb *find* is deemed similar to the verbs *think*, *feel*, *assume*, *say* in Werlich's listed text-typical clause structures presented in table 5. Under the category of the text type of argumentation, the listed verbs introduce the subordinating nominal *that*-clause and limit the validity of the statement in the *that*-clause in the object to the experience of subject. Thus the clause is identified as argumentative. So if the verb *tell* in the previous sentence (11) is equaled to the verb *say* in Werlich's list of viewpoint limiting verbs, the narrative clause becomes an argumentative clause. The analyst is left with the task of deciding which cognitive focus is more important in the sentence. It is a choice between the focus in the past action, in the act of the friend telling the writer something, or the result of that act, of what was told. Consequently in the analysis, all reported speech could be seen as the writer focussing on the argument of what was said. No strict rule emerged to identify which cases of reported speech are narrative and which argumentative. A co-occurring adverb with the reporting verb swayed the analysis towards argumentation.

In the following example a narrative clause is classified as argumentative:

(13) We stopped spanking her when she would do the same to her babies.
(Male32Chronic1/Mar2011.)

Narrative clauses are defined through verb of change in past tense. Argumentative clauses are in present tense with wh-clause describing habitual action acting as an adverbial clause and limiting the validity of the statement.

(14) We finally got home, which my back was aching to do.
(Male32Chronic1/Mar2011.)

In the example above (14) the verb is in past tense and describing a one time action. This was classified as narrative. In the third example

(15) I go back for my sixth session of Rolfing tomorrow.
(Male32Chronic1/Mar2011.)

the clause was classified as argumentative although the verb is classified as being in future tense. The clause finishes with the adverbial of time *tomorrow* indicating future planning and instructive text type. However, as the Rolfing session is described with the determiner *sixth*, the writer is comparing the concept to the previous ones and so making the clause quality-attributing. The clause could be categorised as both instructive and argumentative. Dual categories were not used in the analysis so the clause was viewed as more argumentative. The reader can imagine the emphasis on either the numeral *sixth* or the adverb *tomorrow*.

5.1.4 Description

The text type description was less frequent in chronic pain blogs. The text type is realized in phenomenon-registering sentences. Werlich (1983: 19-21) explains the term 'phenomena-registering' as the writer's focus on people, objects and relations between them in some space to which the writer refers. The sentence type has a typical structure: *S(N)+P(Vbe+past)+A(AdvLoc)*. The following sentence (16) is from Werlich and it follows the base syntactic structure mentioned above:

(16) Thousands of glasses were on the tables.
(Werlich 1983: 39.)

A verb of non-change such as the verb *be* used in the above sentence in past tense *were* refers to "stable conditions of phenomena" and examples of these verbs are *contain*, *consist of*, *seem*, *smell*, *perceive*, *understand*, *want* (Werlich 1983: 200). The semantic difference in verbs of change and non-change can be explained with the notions of describing behaviour and states. In Biber et al. (1999: 458) these two categories are called dynamic verbs and static verbs where dynamic verbs refer to events that finish at some point and static verbs refer to states. The typical sentence structure for

description also has an adverb of location in the adverbial function on the sentence. In example (16) the author's focus is on the phenomena *thousands of glasses* which is defined by the spatial element *on the tables.* Here the prepositional phrase fills the adverbial position which refers to space.

Some sentences realizing the text type description are variants of the base form. In the following sentence from the chronic pain blog data

(17) Here is Part 1 of a combination of videos about cluster headaches (suicide headaches).
(Male30Chronic7b/Dec2009.)

the sentence illustrates a different structure, namely *Prop(Here)+(Vbe+present)+S(N+delayed),* that describes phenomena in space. The phenomena that the author registers are the videos and the focus of the sentence is on the location adverbial *here.* The focus is the phenomena in space where the adverbial works grammatically as the prop "here" that delays the subject *Part 1 of a combination of videos about cluster headaches*. The focus is a direct reference to the written media where the sentence occurs: the author is describing the location of the videos as they physically exist on their blog entry as small video links that can be instantly viewed when clicking on them.

There is another equivalent sentence to the base form, a variant which according to Werlich (1983: 254) represents a "continuous action-recording sentence" with *S+P(Vchange+be+ing). A v*erb of change is in the continuous *-ing* form. An example of this is the sentence

(18) The light was running out.

in which the phenomenon *light* is described with the verb of change *run out*. The focus is on the space where the light was continuously fading in the eyes of the viewer and author.

5.1.5 Exposition

Exposition is the least frequent text type in chronic pain blog data. The text type is realized by phenomenon-identifying and phenomenon-linking sentences (Werlich 1983: 41, 257). A writer chooses this text type because they focus on the cognitive process of "comprehension" of concepts through analysis or synthesis (Werlich 1983: 21). A phenomenon-identifying sentence with a

structure *S(N)+P(Vbe+Present)+C(N)* synthesises information on concepts whereas phenomenon-linking sentence with the structure *S(N)+P(Vhave+Present)+C(N)* analyses them. The first example (19) is from Werlich and thee second example (20) is taken from a male-authored blog included in the chronic pain data:

(19) One part of the brain is the cortex or the rind.
(Werlich 1983: 40.)

(20) Sulindac is a generic NSAID.
(Male30Chronic7/Nov2009.)

Both examples are phenomenon-identifying sentences with the base syntactic form *subject with noun-predicate with verb BE-complement with noun*. In example 19, the phenomenon *cortex* is identified as being part of the brain. The key to recognizing this sentence type is the verb *be* in present tense In example 20, the concept *Sulindac* is identified as belonging to the class of *NSAID.* The concepts are identified as *X is Y,* and the reader does not need to know what either of these terms mean.

An example of a phenomenon-linking sentence shows the difference between the subtypes of exposition. In example 21

(21) The blog has several text types.

the verb *have* is the predicate which works as the subtype-determining item. The analysis in example 8 is between the higher-level concept *blog* and lower-level concept *text type* in a part-of relationship. According to Werlich (1983: 257) there is an equivalent form to the phenomenon-linking sentence which analyses terms. The equivalent is called a 'non-continuous action-recording sentence' with a verb of change in the predicate that describes a permanent behaviour of a concept. For example in the sentence

(22) Cancer cells detach from their original site.
(adapted from Werlich 1983: 257.)

the verb of change *detach* describes the permanent behaviour of cancer cells in that they tend to leave the place in the body where they developed. If the verb was in past tense, *detached*, the sentence would be classified as narration.

5.2 Text types frequencies on blog-entry level

Clause-level text types were counted for each blog entry and the distributions of each text type count presented as occurrences and percentages. Table 3 below provides the occurrences for each text type per entry with entry totals of text types. The relative frequency distribution in percentages can be found in Table A1 in Appendix 1. As the text-typical classification assigns one text type per clause, the clause count also refers to the text type count.

In table 3 there is a clear discrepancy visible in the clause count totals per entry: total of 8 in one entry and totals of 143 and 144 in two others. As a note on blog author representation, the corpus consists of two blog entries from thirteen authors. The blog entries are organized in the table so that the two entries of each individual author are listed underneath each other. The change in blog entry authorship in the listed entries is shown in the blog entry short form tag 'Xa' and 'Xb' where X denotes the author, or blog, and letter 'a' or 'b' the first or second entry from that same author. The entries are also highlighted with two alternating shades of grey. As explained in the Material section, the long entry tagging does not differentiate between the authors with unique tags but instead it differentiates each individual blog entry. Since every author is assigned gender and age tags at the time of writing the entry, the same author can have a different age tag in their second blog entry. This is the case for instance with the author of the shortest entry: their first-listed entry 12a is written at age 35 and identified as 'Male35Chronic3.5/Feb2009' and their second entry 12b written at age 37 and named 'Male37Chronic5.5/Feb2011'.

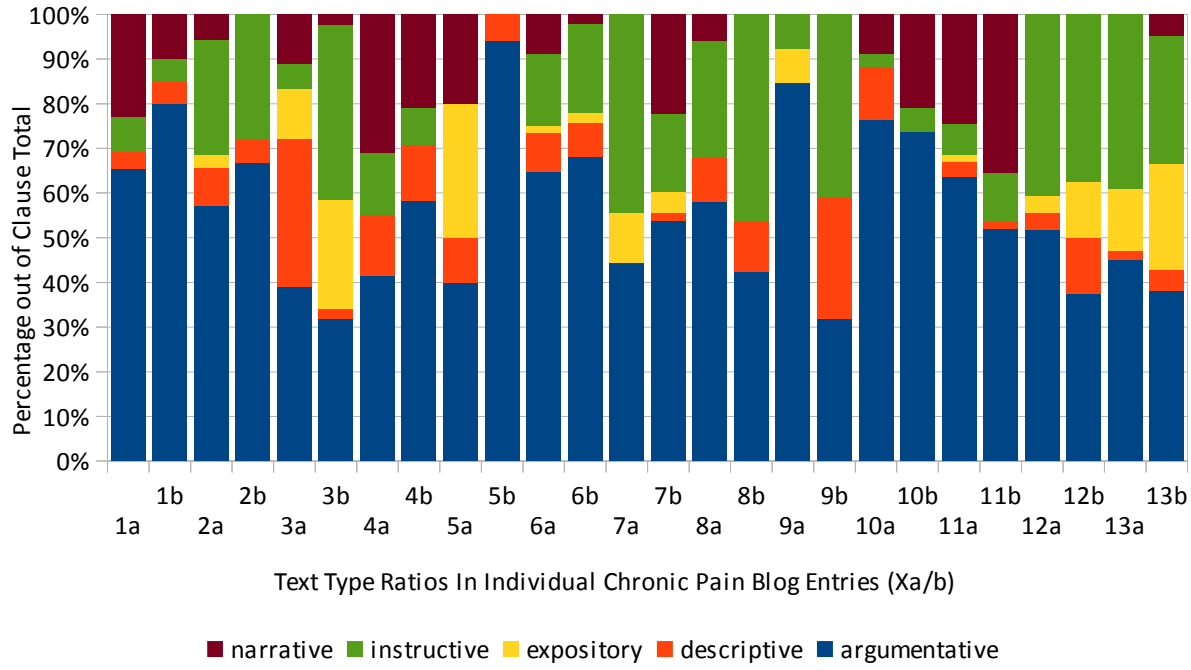
Table 3. Frequency distribution of text types as occurrences of text-typical clauses on entry-specific and group total level in chronic pain blog entries.

Occurrences of text type / blog entry(short form Xa/b)	argumentative	descriptive	expository	instructive	narrative	Total per entry
Fem20-30Chronic3.5/Feb2011 (1a)	17	1	0	2	6	26
Fem20-30Chronic3.5/Mar2011 (1b)	16	1	0	1	2	20
Fem24Chronic6/Sep2010 (2a)	20	3	1	9	2	35
Fem25Chronic7/Feb2011 (2b)	12	1	0	5	0	18
Fem50Chronic5/Oct2009 (3a)	7	6	2	1	2	18
Fem50Chronic5/Dec2009 (3b)	13	1	10	16	1	41
Fem50Chronic14/Mar142011 (4a)	12	4	0	4	9	29
Fem50Chronic14/Mar212011 (4b)	14	3	0	2	5	24
Fem57Chronic24/Feb2011 (5a)	8	2	6	0	4	20
Fem57Chronic24/Mar2011 (5b)	16	1	0	0	0	17
Fem60Chronic20/Jan2010 (6a)	44	6	1	11	6	68
Fem60Chronic21/Feb2011 (6b)	62	7	2	18	2	91
Fem65Chronic5/Oct2010 (7a)	12	0	3	12	0	27
Fem65Chronic6/Feb2011 (7b)	34	1	3	11	14	63
Male25Chronic3/Oct2004 (8a)	29	5	0	13	3	50
Male30Chronic7/Apr2009 (8b)	11	3	0	12	0	26
Male30Chronic7/Nov2009 (9a)	22	0	2	2	0	26
Male30Chronic7b/Dec2009 (9b)	7	6	0	9	0	22
Male31-35Chronic7/Feb2009 (10a)	26	4	0	1	3	34
Male31-35Chronic7/Jul2009 (10b)	14	0	0	1	4	19
Male32Chronic1/Mar2011 (11a)	91	5	2	10	35	143
Male32Chronic1/Apr2011 (11b)	75	2	0	16	51	144
Male35Chronic3.5/Feb2009 (12a)	14	1	1	11	0	27
Male37Chronic5.5/Feb2011 (12b)	3	1	1	3	0	8
Male60sChronic8/Jan2009 (13a)	23	1	7	20	0	51
Male60sChronic9/Aug2010 (13b)	8	1	5	6	1	21
Total per text type	610	66	46	196	150	1068

The total clause counts are needed to determine the ratios of each text type in an entry. Examining the counts in table 3, the most frequent clause count for a chronic pain blog entry hovers between 20 and 40 clauses. The two long entries from the same author might reflect the author's overall writing style with long blog postings. Out of the twenty-six entries, only two were over 100 clauses long. Five entries were under 20 clauses long. The most frequent length is a range between 20 and 40 clauses. Thirteen entries were exactly 20 or between 20 and 40 clauses long which is 50% of entries. The average total clause count for an entry is rounded to 41 but since the data include two long entries, the average count is skewed and thus an unreliable indicator of prevalent blog entry length.

5.3 Common text types on blog-entry level

The common text types as text type combinations on blog entry level are identified by combining the frequency ratio data from table A1 in Appendix 1 and the visual representation of the frequency ratios for each blog entry depicted in figure 1. Table A1 shows the total text type percentages per entry as less or more than 100% for some of the blog entries. This is caused by rounding the figures to one decimal. In terms of clause frequency across all entries, the blogs are 57.1 % argumentative, 18.4% instructive, 14% narrative, 6.2% descriptive and 4.3% expository. Consisting of numbers, the table does not provide an easy way to observe the frequencies on an individual blog entry so a visual chart is used to identify the most prevalent text types that occur together in the entries. The chart depicting the text type distribution in individual entries is presented in the following figure 1.



Text type totals from left to right: 1a n=26,1b n=20, 2a n=35, 2b n=18, 3a n=18, 3b n=41, 4a n=29, 4b n=24, 5a n=20, 5b n=17, 6a n=68, 6b n=91, 7a n=27, 7b n=63, 8a n=50, 8b n=26, 9a n=26, 9b n=22, 10a n=34, 10b n=19, 11a n=143, 11b n=144, 12a n=27, 12b n=8, 13a n=51,13b n=21

Figure 1. Relative frequency distributions of text types as percentages per individual chronic pain blog entry.

The blog entries in figure 1 follow the same organisation as in table 3. The author age increases from left to right but female-authored blogs are listed first (1a-7b) followed by male-authored entries (8a-13b).

Figure 1 shows that the most frequent text type with 57.1% occurrence in the blog data is also the most prevalent text type. Argumentative type comprises more than 50% of the clauses in 16/26 entries. In many of the entries it seems to co-occur with the second-most frequent text type, instructive, for which table 3 provides the overall frequency of 18.4%. Figure 1 depicts the instructive text type with a frequency of 20% or over in 12/26 entries: nearly half of the entries. When instructive text type frequency is low, narrative type with the overall clause frequency of 14% seems to rise to make up 20% or over of the clauses in 8/26 entries: nearly a third of the entries.

When examining the text type ratios between each two entries representing the 13 individual blogs and situated adjacent to each other in figure 1, the ratios show that individual blogs are fairly uniform in their style in terms of combination of text types. However, the individual entries differ from each other in the frequency ratios of the types and in the organisation of text types as the ratios do not represent any text-organizational features of the entries. Two blogs, represented by blog entries 5a and 5b and 9a and 9b in figure 1, clearly differ from one entry to the other. The difference is created by argumentation dominating one of the entries in each blog. The dominance may be caused by miscategorization: the exposition present in 5a could have been miscategorized as argumentation in 5b as could the description in 9b.

The analysis of the entry frequencies found three common types which are represented by combinations of clause-level text types. The two most common blog entry types with equal occurrence can be characterized as high argumentation-some narration, and instruction-argumentation. The third type was identified as high argumentation-some instruction. The rare types were classified as argumentation-description or argumentation-exposition and high argumentation.

The structure for high argumentation-some narration entry is argumentation (41%-50% ratio of clauses in an individual entry) with some narrative (10-35% ratio) and less instruction (5-14%) and description (5%-14%) (entries 1a, 1b; 4a, 4b; 10a, 10b; 11a, 11b). Prevalence for this text type combination is 8/26 entries or 30.7% or all entries.

The other common type, instruction-argumentation entry, consists of two main text types: instructive (29%-45%) and argumentative (32%-52%). They are joined by some exposition (4-24%) or description (2%-27%) or both (entries 3b; 7a; 8b; 9b; 12a, 12b; 13a, 13b). Narration occurs as a minor text type in two of the instruction-argumentation entries (2%-4%) (entries 3b, 1b). Prevalence of this text type combination is 8/26 entries, 30.7 % of all entries.

The third entry type is high argumentation-some instruction entry with 54%-68% argumentation and 16%-25% instruction (entries 2a, 2b; 6a, 6b; 7b, 8a). Prevalence for this text type combination is 6/26 entries or 23.0% of all entries.

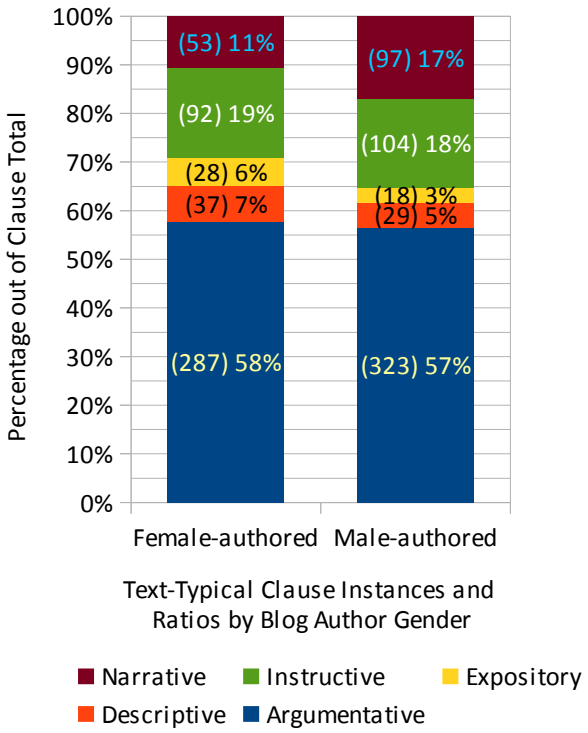
The two less common entry types are argumentation-description or argumentation-exposition with around 40% argumentation and 30% description or exposition (entries 3a; 5a) and a high argumentation entry type with over 80% argumentation (entries 5b; 9a). Prevalences for the less common text type combinations are 7.7% for argumentative-descriptive or argumentative-expository and 7.7% for high argumentative entry type.

5.4 Socio-linguistic variables

The frequency counts are reorganized according to gender, age and chronic pain duration in order to provide information of the possible effect of the three socio-linguistic variables on the frequency of each text type observed in the entries.

5.4.1 Frequent text types according to author gender

Figure 2 depicts both the clause totals and percentages of text type distributions in the entries. The clauses of all entries are pooled together and organized according to the gender variable as male- or female-authored.

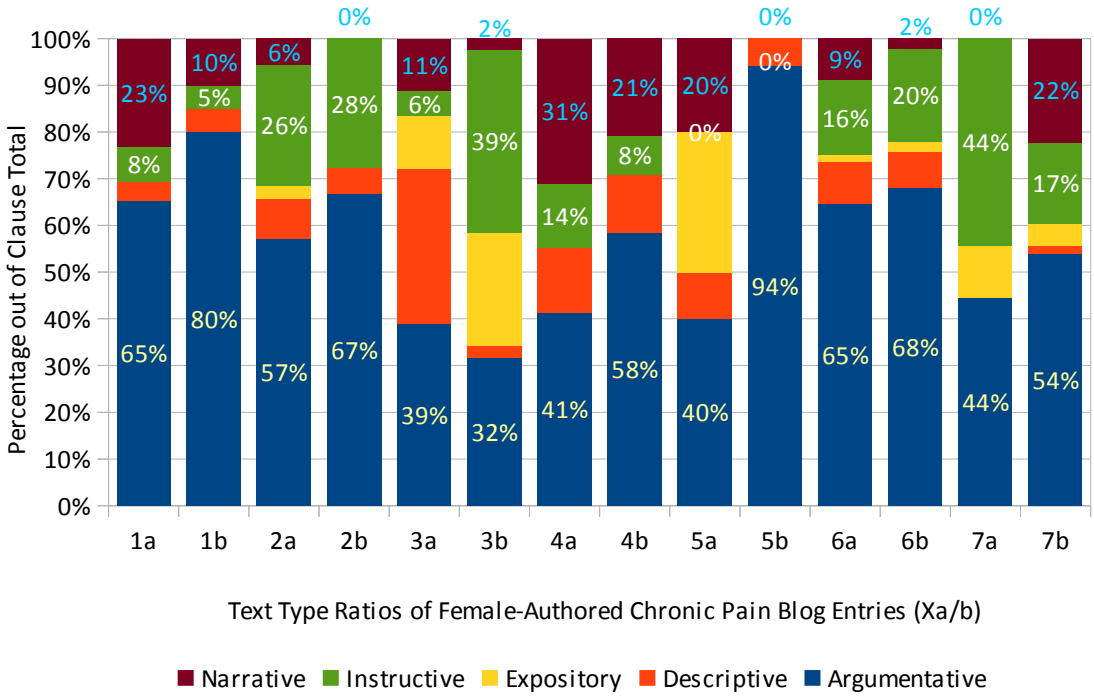


Text type totals: Female n=497, Male n=571

Figure 2. Relative frequency distribution of text types in female- and male-authored blog entries presented as occurrences of text-typical clauses (displayed in parentheses) and as percentages out of total number of text type clauses with data divided according to dependent variable 'text type' and independent author variable 'gender'.

The frequency distribution chart in figure 2 shows that gender does not seem to have an effect on text type distribution. The order of all the text types from most to least frequent is identical with both genders. The most frequent or dominant text type is argumentative, followed by instructive and narrative. The only difference between genders seems to appear in the relation between the second and third most frequent text type. The instructive and narrative types are nearly equal in frequency in the male-authored blogs with 1% difference but the ratios in female blog entries are 8% in favour of instructive text type. Comparing the narrative text type frequencies between genders shows that it is more frequent in male-authored blogs with 6% more narration when compared to female blogs.

Figure 3 presents the text types in percentages for individual female-authored and figure 4 for male-authored blogs. In figure 3, following from the observed frequencies in figure 2, there are three text types which are singled out for significance by labelling them with percentage values which are presented in light yellow, white and sky blue font colours: the argumentative, instructive and narrative text types.



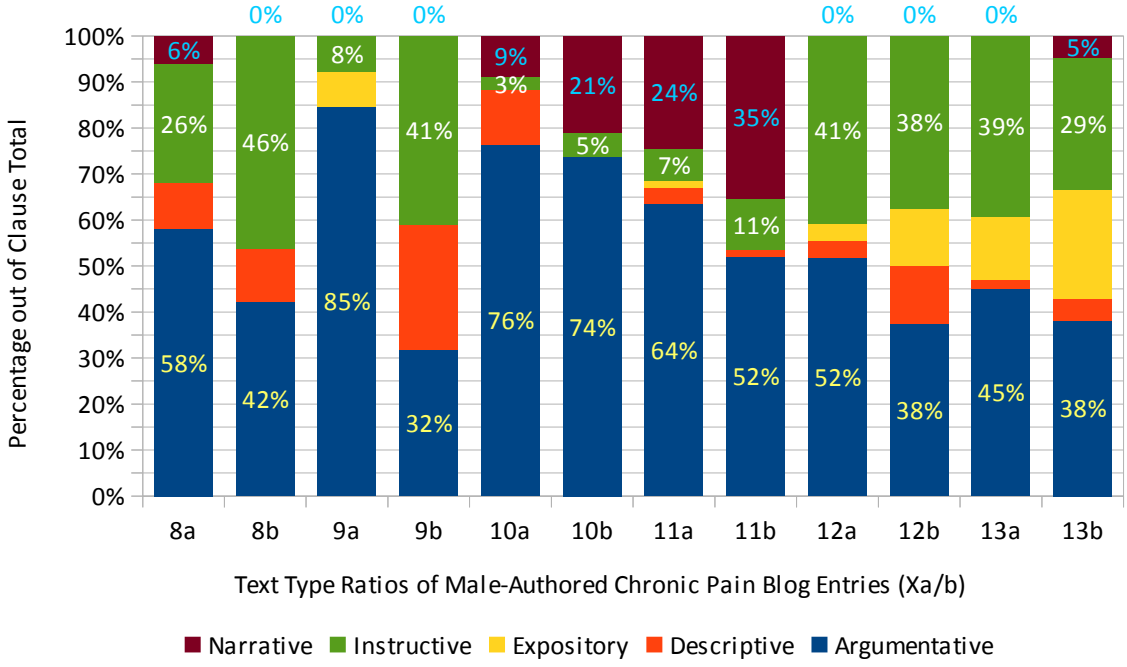
Text type totals from left to right: 1a n=26,1b n=20, 2a n=35, 2b n=18, 3a n=18, 3b n=41, 4a n=29, 4b n=24, 5a n=20, 5b n=17, 6a n=68, 6b n=91, 7a n=27, 7b n=63

Figure 3. Relative frequency distributions of text types as percentages per female-authored blog entry.

The graph in figure 3 shows a clear common text type in female-authored blog entries: argumentative text type. It is the chosen form for more than 50% of the clauses in more than half (9/14) of the blog entries. The typical female blog entry is more than 50% argumentative. The second most common text type is instructive with a ratio of more than 15% of the clauses in seven out of fourteen entries. On closer inspection of this group, the majority or six out of fourteen entries, are 15-30% instructive. So the typical female blog entry is 15-30% instructive. When the total text type percentages in figure 2 are observed, narrative is the third most frequent text type in the charts. However, it is not typical

as it is not frequent across the entries. In five out of fourteen entries more than 15% of the clauses are narrative but in nine out of fourteen entries under 15% of the clauses are narrative. So a typical female blog entry is under 15% narrative.

The text types percentages for the individual entries by male authors are presented in figure 4 below. Similarly to figure 3, the three text types of argumentative, instructive and narrative are singled out for significance by labelling with percentage values.



Text type totals from left to right: 8a n=50, 8b n=26, 9a n=26, 9b n=22, 10a n=34, 10b n=19, 11a n=143, 11b n=144, 12a n=27, 12b n=8, 13a n=51, 13b n=21

Figure 4. Relative frequency distributions of text types as percentages per male-authored blog entry.

Figure 4 also confirms that the most common text type in male-authored blog entries is argumentative with more than 50% of clauses argumentative in seven out of twelve entries. So a typical male entry, in 7/12 entries, is more than 50% argumentative. The second most common text type is instructive with more than 15% of clauses instructive in seven out of twelve entries. In this group of more than 15% instructive, the majority of male entries have around 26-46% instructive text types, five entries out of twelve are closer to 40% or over. So a typical male entry is nearly 40% instructive. As with the female entries, narrative type, which is the third most frequent text type, is

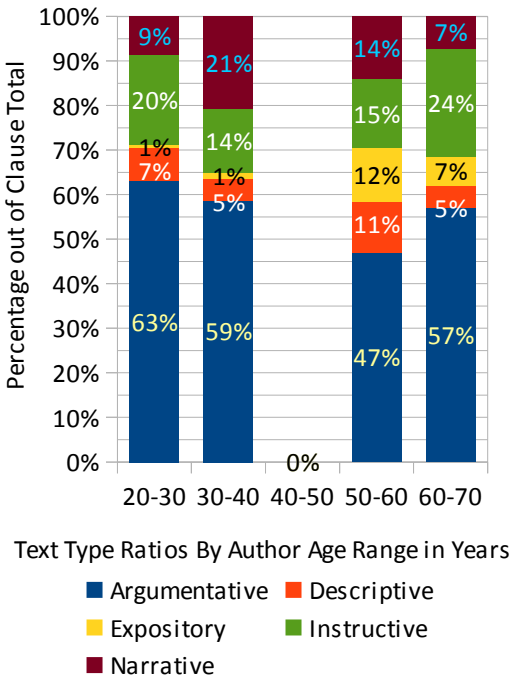
not typical. Only three entries out of twelve show the percentage as 15% or more, and nine out of twelve have under 15% frequency for narrative text type. So typical male entry is under 15% narrative.

Comparing the individual female entries to the male entries, both typical female and male entries are more than 50% argumentative. Instructive text type is less common in female- than male-authored entries. A typical female entry is 15-30% instructive in less than half, 6/14, of the entries whereas a male entry is nearly 40% instructive in more than half, 7/12, of the entries. In female entries only two entries are close to 40% instructive so only in 2/14 entries. Narrative text type is less typical in both female and male entries. A typical female entry is less than 15% narrative in 9/14 entries and a male entry less than 15% in 9/12 entries. However, narrative text type is still more typical in the female blog entries than with male entries. A typical female entry is more than 15% narrative in 5/14 entries and male entry more than 15% narrative in 3/12 entries. In addition, female entries are more than 0% narrative in 11/14 entries and male entries more than 0% narrative in 6/12 entries which means female entries more often than not have some narrative clauses.

5.4.2 Frequent text types according to author age

As a difference to previous analyses depicted in figures 3 and 4, the following figure 5 depicts the text types as grouped by author age at the time of posting the blog entry. The counts are not differentiated by individual entry. The frequencies have been pooled together and organised according to age range to identify the highest text type frequencies per age group.

The entries have been grouped according to the age variable in five age ranges of 20-30, 30-40, 40-50, 50-60 and 60-70 years. Since the authors' ages were often estimated from the blog data, the categories are very rough and serve as indications of a possible co-occurrence of certain text types and an age range. The entries whose authors were around the minimum age of the range are included in that range. For instance an author with the age tag 30 is placed in the range 30-40. Furthermore, there is a missing data column in the chart as there were no entries present in the data with authors aged between 40-50 at the time of writing the blog. To clarify the distribution of individual blog entries which is not presented in figure 5, there were 5 entries in range 20-30, 9 entries in 30-40, 0 entries for 40-50 and 6 entries in range 50-60 and 6 entries in 60-70 range.



Text type totals: 20-30 n=149, 30-40 n=449, 40-50 n=0, 50-60 n=149, 60-70 n=321

Figure 5. Relative frequency distributions of text types in chronic pain blog entries as percentages out of total number of clauses and spread over five 10-year age ranges with data divided according to dependent variable 'text type' and independent author variable 'age' .

The chart in figure 5 reaffirms the prevalence of the argumentative text type in the blog entries as it is the most frequent text type across all age ranges. In contrast there seems to be a drop in argumentative text type instances between the age ranges of 30-40 and 50-60. Furthermore, as the 40-50 range is not present in the data, the changes from one age range to another cannot indicate a continuous trend. Therefore the results can be used only to indicate a possible general division in text type use between author ages under 40 and over 50.

When the text type ratios of the four age ranges are compared to each other, argumentative is the most frequent text type in all of them. It constitutes 63% of the clauses written by the authors at 20-30 years of age, 59% at 30-40 years of age, 47% at 50-60 years of age and 57% at 60-70 years of age. The smallest percentage is at the 50-60 year range. In relation to the other text types in author age range of 50-60, the result indicates authors increasing their use of other text types.

The biggest increase in frequency occurs with expository text type with a change from 1% to 12 % when comparing the age ranges 20-30 and 30-40 to the 50-60 range. Within the 50-60 age

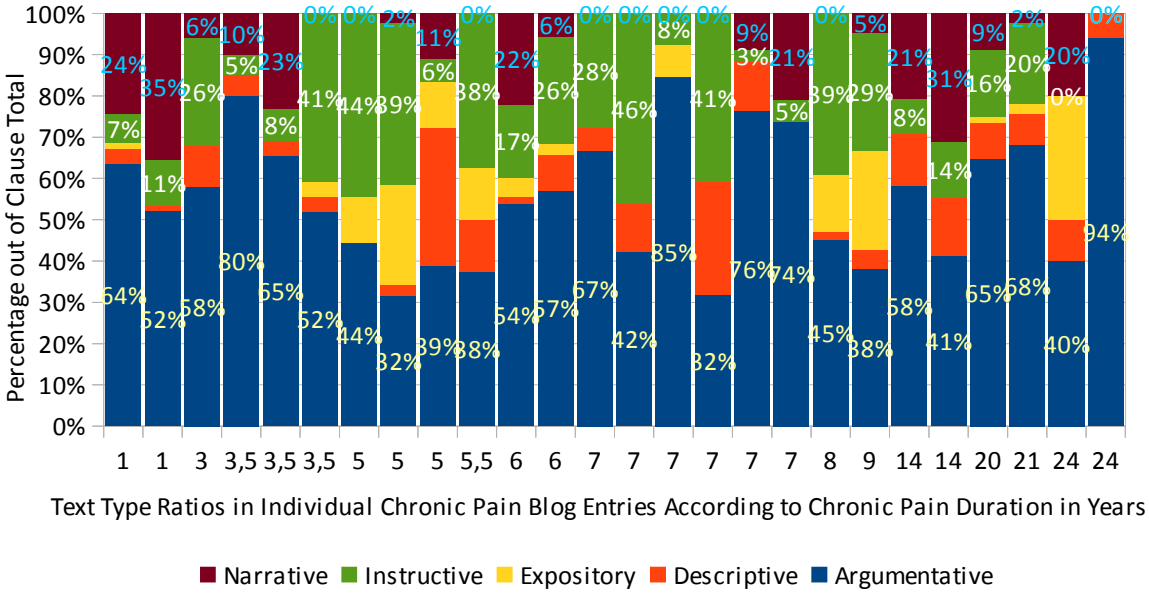
range, the text types other than the dominant argumentative type distribute evenly with 11% descriptive, 12% expository, 14% narrative and 15% instructive. In the older, 60-70 year category, instructive is the second most frequent text type after argumentative. This is similar to the ratios observed in the 20-30 age range where 20% of the clauses are in instructive text type. In the 30-40 year age range, the second most frequent text type is narrative with 21% frequency. The descriptive text type frequencies retain their ratio at the levels of 5% to 11 % in all age ranges with the highest, 11% at 50-60 year range.

The results indicate that age could have an effect on the use of text types. While argumentative text type is the most frequent type at all age ranges, the second most frequent text type varies according to the age when writing the blog entry. When 20-30 years old the authors use more instructive, at 30-40 years narrative clauses. At 50-60 years more expository and descriptive clauses are used at the slight expense of argumentative clauses and finally at 60-70 years of age the authors return to more instructive clauses.

5.4.3 Frequent text types according to author chronic pain duration

Similar to the gender variable analysis, observation of the author chronic pain duration moves back to the blog entry level. Instead of counting the most frequent text types at clause level, it compares the frequencies between entries to estimate the most common text types.

In figure 6 below, individual blog entries have been set on the x-axis according to the number of years that the author has suffered from chronic pain at the time of posting the blog entry. As several entries share the same value of this attribute, the numbers representing the values of individual entries can repeat themselves in the x-axis. The y-axis represents the text type ratios as percentages from the total clause counts per individual entry.



Blog tags and text type totals from left to right: 11a n=143, 11b n=144, 8a n=50, 1b n=20, 1a n=26, 12a n=27, 7a n=27, 3b n=41, 3a n=18, 12b n=8, 7b n=63, 2a n=35, 2b n=18, 8b n=26, 9a n=26, 9b n=22, 10a n=34, 10b n=19, 13a n=51, 13b n=21, 4b n=24, 4a n=29, 6a n=68, 6b n=91, 5a n=20, 5b n=17

Figure 6. Relative frequency distributions of text type in chronic pain blog entries as percentages out of total number of clauses with data divided according to dependent variable 'text type' and independent author variable 'Chronic Pain Duration'.

In figure 6 the individual entries are reordered according to author pain duration. Figures 3, 5, 6 and 8 show that argumentative type is the dominating type. Even as a low frequency, it constitutes between 32% to 40% of the text types.

More specifically, from the pain duration perspective, the argumentative text type is at the low level in merely five out of twenty-six entries: twice at 5 years then at 5.5, 7 and 9 years. In contrast it has more than 60 % ratio in ten out of twenty-six entries at 1 year, twice at 3.5 years, four times at 7 years, and once at 20, 21 and 24 years of pain.

The second-most frequent text type is the instructive text type. From the pain variable point of view, the ratio is nearly or over 40 % in seven out of twenty-six entries at years 3.5, twice at 5, once at 5.5, twice at 7 and once at 8. Instructive clauses are not present in the two entries at 24 years of pain but this could be a stylistic choice since both entries are written by the same author. The two consequent entry labels '24' in the chart represent entries 'Fem57Chronic24/Feb2011' and 'Fem57Chronic24/Mar2011'. Even the argumentative clause frequencies differ between the two

entries from 40% to 94%. This highlights the problem of quantifying the observed clause frequencies at the blog entry level to the level of blog entries as a group.

The author attribute of chronic pain duration does not seem to affect the choice of text type. There are high frequencies of the argumentative type in both at or under 7 years of pain and at or over 20 years or pain. Results from the sample size of twenty-six entries do not show a clear difference in text type frequencies between the entries with short or long duration of chronic pain measured in years.

5.5 Summary of results

The hypotheses described in section 2 are revisited to compare the suggested text type variation, frequencies with the results. The variable effects are exploratory due to the small number of individual blogs in the data. The result is therefore more interesting as a description of what chronic pain blog entries tend to look like as text types.

In terms of most frequent text types, the blog data sample consisted of mostly argumentative, instructive and narrative clauses. The frequencies across all entries, with no regard to the delimiting whole-text level of an individual blog entry, as presented in table 6 are 57 % argumentative, 18% instructive, 14% narrative, 6% descriptive and 4% expository in chronic pain blogs.

The two most common blog entry types with equal occurrence of 30.7% (8/26 entries) were characterized as high argumentation-some narration, and instruction-argumentation. The third type was identified as high argumentation-some instruction with 23% (6/26 entries). There were two rare types were classified as argumentation-description or argumentation-exposition and high argumentation both with 7.7% (2/26 entries) occurrence.

The socio-linguistic analysis for the first author variable of gender did not show a major difference in the use of text types in female and male-authored blog entries. A typical female-authored chronic pain blog entry is more than 50% argumentative, 15-30% instructive, under 15% narrative. A typical male-authored blog more than 50% argumentative, nearly 40% instructive and under 15 % narrative. A typical female-authored blog has less instructive clauses than male-authored blog but is more likely to have some narrative clauses with more than 0% narrative clauses in 11/14 entries compared to 6/12 entries in male-authored blogs.

Comparison of charts in figures 2, 3 and 4 note the difference between frequency and prevalence: the chart for male-authored blog entries in figure 2 shows 17% frequency for narrative clauses compared to 11% in female-authored blogs. This would at first glance indicate that the hypothesis for more narration in male blogs is proved right. However, the chart in figure 4 shows the total blog entry count for male authors as 12 and only 6 of the entries have narrative clauses with most of the narrative clauses in 4 entries. The chart depicting female-authored blog entries in figure 3 is needed as the set against which the prevalence is measured and, as it turns out, a larger proportion of female-authored blog entries feature narration when compared to the proportion of male-authored entries. So narration is not prevalent in male-authored blog entries and it cannot be claimed as a typical feature of male-authored chronic pain blogs .

The effect of the second author variable of age was observed in all the clauses in blog data regardless of blog entry boundaries. The hypothesis was that older authors use more instructive text types since age is seen to increase confidence and thus an author would feel more inclined to instruct others in their blog entries. The frequency ratios indicate no such association. After identifying the most frequent text type as argumentative in all age ranges, the instructive text type follows as second in both the youngest and the oldest age groups. Instructive clause frequency was 20% at 20-30 years and 24% at 60-70 years. In contrast in the age range 30-40 years, the second-most frequent text type was narrative with 20%. The hypothesis on age and instructive text type does not seem to be supported by the small sample of 1068 clauses of this chronic pain blog study.

The third author variable of author chronic pain duration was expected to show an association in which the length of the pain duration in years is reflected in the increased frequency of the instructive text type. The instructive text type frequency was nearly or over 40 % in 7/26 entries. From the chronic pain duration point of view these frequencies occurred in entries written between 3.5 to 8 years of author chronic pain. This does not indicate the suggested association.

6 Discussion

Although the text-typical methodology of this chronic pain blog study seemed to suit the analysis of chronic pain blogs, Werlich's text types created several issues with comparing the results to the findings of previous studies on blogs. In chronic pain blogs the reported attention-directing effect of chronic pain (Busch 2007; Wilson et al. 2009) seemed to favour a blog definition that describes the linguistic features in blogs as realizations of author attention. Werlich's (1983) text types that define texts in terms of their cognitive focus were chosen to represent the effect of chronic pain on author attention. Changes in the text type of a blog entry reflect a change in attention. Text types were expected to be more representative of author focus than methods of content analysis when describing presumably attention-skewed language in chronic pain blogs. Since content was not analysed in the study, no personal-external references were counted to see where the attention was focused on interpersonal terms. This omission of interpersonal or involvement content was the result of time constraints since the qualitative analysis of text types required the analysis of each clause in the blog entries. The features realizing author attention were therefore limited to observing changes in focus between author cognitive processes.

In contrast, previous research of blog types has commonly defined blogs by identifying an overall blog purpose and differences in general content. The categorization of content has focused on the personal-external division of topics. Only a few studies have identified linguistic features of blog types. Studies suggested that chronic pain blog entries represent both of the general blog genres of diary and filter (Grieve et al. 2010; Herring & Paolillo 2006; McNeill 2009; Miller & Shepherd 2009; Myers 2010) but only two studies were found that identified any sets of linguistic features as bases for the two types. Initial observation also added a book review as a possible genre parallel but all comparisons between blog entries and conventional text genres were left out of the study. Surprisingly, only one of the blog studies had analysed features on a blog entry level. The study of gender-genre interactions by Herring & Paolillo (2006) on the hypothetical gender-related linguistic features in blogs had set blog genre as entry-level type. Their study provided a few features comparable to the set of features realizing Werlich's text types such as first person pronouns. Yet the features did not represent separate blog author cognitive foci, and would not correspond to separate text types in Werlich's theory. First person pronouns can for instance realize narration and argumentation but also be part of the author giving instructions to themselves.

Survey studies on chronic pain suffering blog writers had identified specific purposes for blog writing which were expected to be realized in different language use by the blog writers. Not only did the purposes show a variety in focus from self and personal life reflection to mentoring and advocacy but also a gradual change from the former to the latter purposes (Merolli et al. 2015; Ressler et al. 2012). The studies on blog writing purpose and therapeutic effects (Hollenbaugh 2011; Merolli et al. 2015; Ressler et al. 2012) suggested interactions between socio-linguistic variables and writing style but seem to require an analysis combining interpersonal features to text-typical analysis. The two survey studies on chronic pain sufferers' blog use had applied a qualitative and a quantitative method of analysis which together supported the similar findings of the studies. Although the present study applied a text-typical method that did not directly analyse features that could represent a blog purpose, the combined analytical methods of the survey studies ensured that the purposes identified by the studies would also be present in the entries analysed for text types.

The common text types in blogs undifferentiated by topic were studied by Grieve et al. (2010). The study proved that a successful method needs to examine the functional tendencies of typical co-occurring linguistic features and is likely to confirm the existing division of blogs types if the blog types were defined according to overall purpose. Thus the entry types found in the present chronic pain blog study applying a similar text-typical method are likely to be the linguistic realizations of the two or three purposes identified by the survey studies.

The text-typical method does not represent a singular correspondence between a clause-level text type and a purpose but instead suggests that the typical combinations of clause-level text types refer to specific purposes. If blog purpose is defined in terms of interpersonal aspect of language as a focus on author or reader or topical dimension of personal-external, Werlich's (1983) text types do not represent these dimensions of language use. Werlich's text types describe cognitive purposes instead. The problem of purpose extended to the question if purpose can be defined on a clause level which is the level of Werlich's (1983) cognitive focus and individual text types. The issue was resolved by defining an overall purpose on blog entry level which in the analysis was represented by a combination of Werlich's clause-level text types. Yet, similar to the co-occurring linguistic features that were estimated to function in a certain way in blog dimensions (Grieve et al. 2010), the features that define an instructive text type can be claimed to have a tendency to occur in texts for mentoring purpose. The presence of instructive clause-level text type in an entry signals a mentoring purpose in that entry because of the association of a feature with a common aspect of language. The linguistic features that are more directly connected with the interpersonal dimension or involvement

in language use are needed to show if the purpose is present in the entry. Individual text types work on the clause level which, in most text types, are impossible to analyse as carrying a single purpose such as sharing experiences, mentoring or reflection on thoughts.

The study by Grieve et al. (2010) mapped common text types in blogs with linguistic basis similar to this chronic pain blog study but the differences in analytical methods and the size of the unit of analysis for text type prevent the comparison of results between the studies. Because Werlich's text types consist of predefined sets of linguistic features that partially correspond to but also differ from the sets identified by Grieve et al., the text type and blog dimension categories of the two studies are not directly comparable. The blog foci used to define the blog types in Grieve et al. included an interpersonal division of features on a personal-impersonal dimension. The cognitive division by Werlich does not categorize the features according to their involvement or interpersonal functions. As a result of the differences in categorizing the linguistic functions, the individual blog foci by Grieve et al. (2010) seem to contain several of Werlich's text types. When examining the blog text examples illustrating the blog foci, argumentation features are found in thematic-variation focus, informational focus, personal focus and addressee focus, Werlich's narrative features in personal, narrative and thematic-variation foci, and exposition features in informational and thematic-variation foci.

The unit of analysis is the length of text chosen to represent the linguistic features that decide the text type of that unit. In Grieve et al. (2010) it is a sample of text from a single blog containing text from several blog entries. The identified text type defines the entire blog represented by the text sample. In the present chronic pain blog study, the unit of analysis is the individual blog entry: the identified text type combination defines an individual entry. The results of an analysis from blog-level text type and from a blog entry level text type cannot be compared. Only the assumed uniformity of entries within an individual blog could line up the results with each other but as Herring & Paollilo (2006) had shown in their study of gender and genre interactions in blogs, blog genre seems to be an entry-specific category. In addition, the previous studies on blogs (McNeill 2009) suggested that most blogs are hybrid forms of the two types defined according to blog purpose. This can be extended to refer to type variation on entry level, as shown by Herring & Paolillo (2006).

The results of the chronic pain blog analysis show that a dominant text type on an entry level cannot be identified and as such entries themselves are text-typical hybrids if analysed as clause-level text types. Werlich's (1983) text type frequencies vary within entries. So at best, the partially corresponding blog dimensions of Grieve et al. to Werlich's text types are seen as quantitative

validations of Werlich's intuitive categories. The text types found by Grieve et al. are seen as representations of blog types at a register level which refers to categories not bound by limits of single texts. Single texts in blogs are marked by the limits of individual blog entries. The partial correspondence of the linguistic features between Werlich's text types and the blog foci of Grieve et al. (2010) suggest a blog type that consists of a mixture of instructive, argumentative and narrative types and a blog with less expository and some narrative and instructive features. The third blog type would be of mainly expository text type.

Moving from methods to results of the chronic pain blog study, the analysis seemed to answer the questions placed at the beginning of the study. A dominant text type described by the first research question was not identified but frequent types were found and as the first hypothesis suggested, there were several text types in the entries. The first hypothesis also assumed that narration and argumentation would be frequent in the chronic pain blogs. The findings from the text-typical analysis prove the claim as argumentation was found to be the most frequent and most common text type. Narration was surprisingly only the third most frequent text type and concentrating on few entries it was analysed as less common.

The second hypothesis claimed that combinations of text types vary and produce several types of chronic pain blog entry. With the hypotheses the point of view changed from a dominant text type to a definition of entries as combinations of clause-level text types. The results on the 26 blog entries indicate that the text type combinations do vary and produce more than on type of blog entry. The two most common blog entry types with equal occurrence were characterized as high argumentation-some narration, and instruction-argumentation. The third type was identified as high argumentation-some instruction. The three rare types were classified as argumentation-description or argumentation-exposition and as high argumentation.

The third hypothesis answered the second research question and suggested interaction between specific text types and the variables of gender, age and chronic pain duration. Unlike the hypothesis predicted, the results of the analysis show that in the small corpus of 6 male and 7 female blog writers description was not used more by women than men but instead was rare in all the entries. Narration was not preferred by men either as the predicted gender effect. Instructive text type did not increase with age but was found instead to be frequent both in the younger and older chronic pain blog writers, dropping in frequency in the mid-range of ages. The longer duration of chronic pain did not seem to increase the frequency of instruction.

The results answering the second hypothesis of common text types are the more valid than the results of the socio-linguistic analysis since the small number of individual blog writers contributing to the corpus make the results of the themselves hypothetical. A larger number of blogs would need to be analysed to prove statistical significance even if the personal chronic pain blogging community is small or hard to reach as noticed in the data gathering stage of the study. Since the data gathering year of 2011, the long chronic pain blog entries written by chronic pain sufferers might be even harder to find as commercial interest and information-focused web sites on chronic pain have inundated the web search results. In contrast to the socio-linguistic representation issue caused by the small number of blog authors in the corpus, the corpus is seen as representative of the text type frequencies in chronic pain blog entries because of the incorporation of two entries per blog into the corpus. Analysing each individual clause in the corpus and grouping them according to individual entries enabled the comparison between entries. Thus the analysis could determine the typical combinations of clause-level text types for a chronic pain blog entry. The difference observed between two entries representing one blog proved text types as a blog entry-level linguistic phenomena.

The changes in common text type combinations in entries could indicate a change in blog writing purpose between the entries. The common types of high argumentation-some narration and instruction-argumentation in the chronic pain blog data could represent the common blog purposes of personal life reflection and mentoring or advocacy. Argumentation could represent the high frequency of evaluation in the text brought on by the author describing their chronic pain with quality-attributing sentences. The narrative clauses would be explained by the recounts of daily life with pain. The entries with this combination could be diary blogs.

The second common type of instruction-argumentation could represent the author planning the blog readers' future behaviour which is common in texts meant to function as tools in mentoring and advocating a cause. Giving advice on managing chronic pain would be realized with commands and clauses with modals which define instructive text type. The argumentation in the combined type would represent the claims made about chronic pain or its management or they could also represent the evaluations of author's own experiences. Similar to instructions, qualitative sentences in author opinions can also function as tools for mentoring and advocacy.

The third type was identified as high argumentation-some instruction. This type could again refer to the mentoring and advocacy purposes with the moderate frequency of instruction although the text type category of instruction does not differentiate between the target of the instruction. The

author could be planning their own future behaviour and the function would be to reflect on personal life instead of mentoring. The three rare types were classified in the results as argumentation-description or argumentation-exposition and as high argumentation. The text types of description and exposition in the combinations consist of linguistic features that tend to function as more objective information sharing. They could refer to the filter blog genre as well as purposes of mentoring and advocacy although Werlich's (1983) text type categories do not separate clauses with topical or interpersonal differences.

In order to identify specific purposes in blog text, a method chosen for analysis should include the linguistic features that separate each purpose from another. The differences between the two common blog types and between the two, or three, blog writing purposes for chronic pain blogs seem to be defined by linguistic features that reflect involvement with self and others or describe blog content. The cognitive-focus reflecting categories of Werlich's (1983) text types do not match the requirements for analysing blog purposes. Involvement or content features were not chosen by Werlich to define the text-typical clauses so the same text type can describe clauses with different points of view. Therefore a change from one text type to another in Werlich's text types does not describe a change in involvement or content and cannot be used to identify blog writing purposes.

The following text types illustrate the undifferentiated involvement in text types. The text type of narration can be both narration of self in 1st person point of view and objective narration with 3rd person point of view. Assigning the text type alone for a clause does not describe which type of narration it represents. The text type of instruction can be author- or reader-focussed, or both. It can refer to planning the future behaviour of the addressee and show in text as higher frequency of pronoun *you* but also refer to the future plans of the author for themselves reflected in use of 1st person references and pronoun *I*. Further, instead of being expressed by the expected objective type of exposition, the purpose of sharing information could take the form of the author describing their own planned future behaviour to the reader. The description of habitual behaviour is categorized as instruction where it functions as a useful example of some issue shared with the readers. Identifying involvement in text clearly requires different methodology.

Study findings reflecting interaction between a socio-linguistic variable and text type carry the same problem of several text types realizing blogging purposes. The survey studies did not have a linguistic basis for the identified blog writing purposes. Helping and informing purposes had been linked with older age and reflection purpose with female gender (Hollenbaugh 2011) and the chronic pain specific purposes had been reported to have changed for some chronic pain blog writers from

personal life focus to mentoring and advocacy focus (Ressler et a. 2012). The purposes could be linked to chronic pain duration and pain management (Ressler et a. 2012; Vasudevan 2015) but they cannot be identified on a clause level unlike text types. The finding of gender-associated pain description styles does have a linguistic basis as the styles were identified using content analysis (Strong et al. 2009). The resulting gender interactions were defined as recounting pain events as common for men and describing pain with several linguistic devices as common for women. The results in chronic pain blogs showed only a slightly higher overall frequency for narration in male-authored clauses but in the entries there was no difference between the genders. If the female pain description is interpreted as text type description, it was not high in either female clauses or entries. The other findings by the pain description study, such as details in the use of similes and emotional language, could not be explored by Werlich's (1983) text types. If there had been a clear difference between the frequencies, a content-analysis identifying pain descriptions in chronic pain blog entries would still have been required. Not all blog entries in chronic pain blogs describe a past pain event whereas pain description was the task presented to the students on whose language use the pain language study results are based on.

Returning to the text type findings of this chronic pain blog study, the prevalence of the argumentative text type in blog entries could be a result of an analytical issue caused by fuzzy category definitions and text-typical examples provided by Werlich (1983). The clauses could have been miscategorized as argumentative. An argumentative monotype so to speak, veering on Werlich's ideal text type, seemed to be very close in some of the analysed entries. When viewing the actual texts, the clauses do not seem that uniform. The text type of argumentation is presented by Werlich in a way that perhaps favours the interpretation of the clause focus as argumentative: judging of relations between concepts and phenomena. The examples of text-typical clauses provided from the chronic pain blog data illustrate the cases where two text types were deemed possible for an independent sentence but the presence of quality-attributing or its variants decided the conflict in favour of argumentation. As Werlich provides clause variants that cross the text type boundaries, they create complex and easily overlapping categories. Also a feature common in blog entries is reported speech and thought which is not clearly specified in Werlich as belonging to either narrative or argumentative text type. The only analytical aid comes in the form of a variant for argumentative clause which provides locutionary 'say' and mental verbs 'think', 'feel', and 'assume' followed by that-clauses in object position. The features are described as statement-validity limiting and hence argumentative. In general, Werlich provides argumentation with the most variant forms of all the text types which could also attest to its prevalence in several real life texts.

The high text type frequency for instruction was not surprising as the preliminary content analysis had shown topics such as medication and migraine book review. The topics of pain management and specific pain condition joined with the author's own daily pain management and a possible purpose of mentoring tend to be realized as recommendations involving both the author and the readers. Yet when clauses were being classified into instructive text type, the analysis was complicated by the interference caused by the cognitive process as was the case with argumentative type classification. The data examples of text typical clauses illustrated how the focus on planning future behaviour could be achieved by means of other structures than the ones listed by Werlich (1983). The cognitive focus seemed to converge to an illocutionary meaning of clauses which is the author intended communicative meaning. With instruction and argumentation, the cognitive process classifying the structures in Werlich's theory was seen as in direct competition with the actual clause structure which represents the textual meaning of the clause. When emphasizing the structure in analysis, the sentences that seemed to be structured in way that was not featured or mentioned in Werlich's work but with an instructive meaning nonetheless, were not categorized as instructive. Although some argumentative clauses with features from two text types were analysed as instructive because the effects of a planning focus and a future-referring structure were deemed too strong when compared to the quality-attributing of the clause structure.

The low prevalence of narrative type in chronic pain blogs was surprising as presenting a sequence of events is an expected feature of a diary. The preliminary content analysis of the blog entries pointed to the author's daily activities as the most referred to topic and narrative text type would be expected. Judging by the examples illustrating blog foci in Grieve et al. (2010), descriptions of the author's personal life and feelings can be found in blogs categorised as representing different styles. The diary-resembling features can be found in the blog examples by Grieve et al. representing blog foci labelled as personal, narrative and thematic variation. Arriving at their final text types, they had conflated the features of addressee, narrative and thematic variation foci into the online diary text type. Most chronic pain blog entries mention the author's daily activities so following the text types of Grieve et al., the chronic pain blog entries would be of the personal diary text type. Because of the differences in the linguistic features forming the blog foci and Werlich's (1983) text types, the correspondence could not be verified by examining the text-typically defined blog entries of this study. When comparing common diary features to Werlich's text type theory, the cognitive processes of evaluating actions and describing feelings would require the use of argumentative and descriptive text types. Although it is not clear if describing feelings can be thought of description with reference to phenomena in space which is the definition of description in Werlich's theory. Consequently it was

disappointing that Werlich did not inlude any examples of text-typical analysis of a diary which is a genre generally thought to represent these content features.

Similar to the problems when classifying instruction, the cognitive focus in the analysis could have turned instances of narration, which was the third-most frequent text type, into instances of argumentation. The difference between the frequencies of the two types in the blog entries could also be explained if one of the types is more common in conventional diaries. In addition many blogs seem to start out as diaries and evolve into blogs covering a specific topic because of some major change affecting the blog writer. The change could be realized as more argumentation which tends to be the text type common for reporting on an issue to a reading public as shown by Werlich (1983). Some of the blogs analysed by Myers (2010: 74–75) are mentioned as having gone through a change from diary to regularly covering a specific topic because of a historical event such as war. The specialization could be an effect of the blog as a public medium although chronic pain would probably be covered in most entries of a private blog if written by a chronic pain sufferer. The frequency of pain references could be affected by the author's coping mechanisms or success in pain management. Pain term analysis was not covered by the text-typical study.

Evaluation of the qualities of the author's own activities, thoughts and feelings is inherent to writing from a personal point of view. Recounting daily life with chronic pain probably adds a heightened emotional dimension to the narration. Perhaps what an unaffected blog writer would have narrated without too much emotional intervention has turned into narration with value judgements in the blogs of chronic pain sufferers. The value judgements as quality-attributing would result in the text type being classified as argumentation. The same emotional load linked to a chronic pain condition could also explain the prevalence of instruction. In the face of persistent pain, the blog is seen as a necessary channel to share information and help others.

Considering the frequency of the other blog type as identified in previous research, the filter blog was not expected to be particularly frequent because of the personal topic of pain and the predicted dominance of diary-style entries in the chronic pain blogs. In the study defining health blogs through blog content analysis and blog writer demographic data, only 15,1% of health blogs were categorised according to content as “health research and news” (Miller & Pole 2010). Most blogs were categorised as expressing personal experiences with a specific condition. In the present chronic pain blog study, the attribute ”personal chronic pain blog” describing the data refers to the personal experience of pain but did not expect all of the entries to be of the online diary type. The authors were expected to write about their daily lives but as the initial content analysis performed

prior to the study had indicated, the content of the blogs varied from diaries to reviewing books and explaining types of medications. The latter two could be categorised as the content of filter blogs although it remained unclear from previous blog research (Herring & Paolillo 2006) how much of the entry should cover external topics to warrant a filter blog status as defined by the researchers. The entries discussing medication tended to be high in exposition although content was not analysed in the present study. The content also links to an important consideration on the author attributes when gathering the data. The author of the entry discussing medication seemed to write in a professional style, addressing their readership which lead to uncertainty in their inclusion in the data. They were ultimately included because of the requirement of personal pain experience and each author of the entries that were included had stated that they suffer from chronic pain.

Judging by the difficulties in analysing clause-level text types in personal chronic pain blogs, Werlich's (1983) categories need to be adjusted to include linguistic features common in diaries. The representations of thoughts, feelings and speech, would be considered against the cognitive process most represented by the clause structure. The multiple processes observed within independent clauses also point to the need for readjusting or clarifying the definitions for some of the cognitive processes. As a whole, an analysis using Werlich's text types is too complex if priority is not decided between the cognitive process and the list of structures provided as its textual representations.

The analysis showed that personal chronic pain blogs are not uniform in their use of text types. The common entry text types, high argumentation – some narration, instruction-argumentation and high argumentation – some instruction, are all different in the amount of focus that specific cognitive process receives from the author. Yet when observed together they all point to the overall purpose of personal diary blogs as identified by Grieve et al. (2010) in blogs undifferentiated by topic. The chronic pain blog study is more accurate in that the blog entry level analysis enabled observing the differences between entries instead of between blogs. This means that some authors use different text type combinations to express differences in cognitive focus perhaps reflecting a specific purpose for an entry. A bigger sample is required to study the effect of author attributes on the change in structure or purpose. Individually the text types seem to represent the chronic pain blog specific purposes of reflection, sharing information, mentoring and advocacy but without content cues and some interpersonal features, it is impossible to tell which entry represents which purpose. The text types do not describe the entries in enough detail in order to reflect the differences associated with conventional genres as observed in the preliminary content analysis.

7 Conclusion

The study defined personal chronic pain blogs through their common text typical entries because Werlich's text types were expected to represent the attention-altering effect of chronic pain in the language use of the sufferer. Analysing the language of chronic pain blogs from the author's focus point of view is important as chronic pain affects cognitive abilities and sufferers use the blog for writing about their pain and to help and educate others. The blog readership is highly likely to actively search for information and experiences in blogs on a condition that rarely comes with a cure.

The analysis studied chronic pain blog entries and their text-typical clauses but the common blog structures representing author thoughts, feelings and reported speech proved to be difficult to categorize according to the cognitive foci of text types. Previous research on chronic pain has concentrated on identifying blog purposes without linguistic basis that would aid in identifying purposes in blog text. Previous research in blogs had identified two common blog types as diary and filter blogs according to both blog overall purpose and text type. The possible text type and socio-linguistic variable interactions were also primarily found by studies identifying blog purposes without linguistic features as basis for different purposes.

The study found two equally common blog entry types as text-typical combinations with a third type slightly less common than the two and an additional two types as the least common in the entries. The entry types showed a high frequency of argumentation and instruction and their combinations as expected with chronic pain blogs that were most likely written for sharing and reflection on personal life with pain and for chronic pain mentoring and advocacy. Narration was unexpectedly uncommon and the prevalence of argumentation surprisingly high. It was also clear that on their own Werlich's text types could not describe the necessary linguistic dimensions of the different texts observed in the preliminary content analysis. If the observed texts in blogs are seen as representations of a conventional genre, describing the different texts in blog entries requires a method that compares the linguistic features of conventional genres to those identified in blogs.

On the surface, the findings of this chronic pain blog study supported the division of blogs into diary and filter blogs with diary blogs being more common. Werlich's text types were close to the categories of linguistic features identified for blogs. However, with a closer look, it was noted that the blog types defined according to purpose allow for more than one text type to realize the same blog purpose. It is the effect of the text-typical category focus on general cognitive aspects of the author's

language use that disregard content and the target of involvement. Therefore content categorization or the addition of interpersonal features was recommended as a necessary additional method if analysing blogs through Werlich's text types and blog purposes.

If analysing blogs with Werlich's text types, the argumentative text type should be redefined as it seems to be the category with most variety in structures and very high frequency in the analysis. Perhaps emotional terms and topical features should be combined to text types to differentiate between argumentation referring to author's life and pain and argumentation referring to more external topics such as pain medication. Though both the degree of emotion and the personal-external dimension of topics would be difficult to measure for individual words. The text type of instruction could be complemented by analysing features that represent author-reader dimensions to find out the target for the planning of future behaviour. The specific blog purposes of mentoring and advocacy could act as a template that prefers certain placement for instruction in text.

Werlich's text types were chosen to study chronic pain blog texts because the method focuses on the author. Instead of frequencies of cognitive text types, a blog entry could be defined as a more text-organisational unit and consisting of communicative phases. Werlich mentions text types that frame other text types such as description that begins a narrative section. The text-organizational function could be explored by analysing the placement of text types within an entry. The text type of instruction for example could occur in the middle of a text or at the end functioning as a closing phrase or for a peer-supportive purpose. Text types could be described as a text-organisational tool and the clauses beginning each sentence and paragraph could be analysed according to Theme-Rheme categories that study the fronted textual features organizing the text.

In general, analysing the language in chronic pain blogs could give clues to the blog writer's success in managing their condition, which is of clinical interest. Though not analysed in this study, the occurrence and degree of affective language between entries could be used to compare pain management between different blog writers. It could also be used to examine the level of adoption of a more professional and detached blog writing style and it's correlation with a specific blog writing purpose. A comparative study between entries written by the unaffected writers and chronic pain suffering blog writers could show differences in style such as differences in pain descriptions since the attribute of suffering from a hard-to-treat condition tends to draw attention to pain-related terms. Connected to chronic pain sufferer's attention is the individual pain neuromatrix which is the hypothesized complicator causing inconsistencies in response to observing pain-related terms. Some

common dimensions of the pain neuromatrix could be mapped by analysing the pain-related terms used by the chronic pain blog writers.

Finally, there is also a question of what form the personal chronic pain blog will take in the near future since personal blogs are difficult to find. Five to ten years is enough time for old genres of computer-mediated communication to adopt new forms. Blog search engines have disappeared hiding the personal blogs even deeper into a hidden population of blogs written about personal experiences. Perhaps the blogs have become restricted access viewing, accessible by members only and creating a more private community. The public space of the internet is also a network of closed pockets of information although the text types chosen by the writers might not change with the change in audience size. The recipients for mentoring and information sharing will still be there.

The blog form of personal chronic pain blogs could also be getting shorter than before alongside the short forms of social media. Currently the blog in its regular length form is perhaps less popular than the shorter microblogs or short-form blogs that are featured in services such as Twitter for extremely short posts and Tumblr for slightly longer blogs. This bears on the requirements for the methods of analysis as short-form blogs might carry more images than the long blog entries. Additionally, the unit of a whole text could be spread over several blog posts in a medium promoting brief expression. The question is where to draw the limit of a single text.

As more young people seem to be developing a chronic pain condition, the topic is likely to move to short-form social media. The prediction of short chronic pain blog entries is also based on the prevalence of blogs in two of the most popular blog platforms which are Tumblr.com and Wordpress.com, with Tumblr hosting over 500 million short-form blogs and favoured by younger people. Wordpress.com and .org are used for longer blogs providing 60–70 million blogs which is estimated from the number of monthly blog posts. Judging by the large number of chronic pain themed blog posts on Tumblr, the platforms have become an easier place to find personal experiences of chronic pain than the web search engine results which are overtaken by websites with a non-personal point of view. Chronic pain sufferers will have to follow.

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Appendices

Appendix 1

Table A1. Relative frequency distribution of text types as percentages out of total number of clauses on entry-specific and group total levels in chronic pain blog entries.

Percentages of text type / blog entry (short form Xa/b)	Argumentative %	Descriptive %	Expository %	Instructive %	Narrative %	Total per entry %	Total per entry (n)
Fem20-30Chronic3.5/Feb2011 (1a)	65.4	3.8	0	7.7	23.1	100	(26)
Fem20-30Chronic3.5/Mar2011 (1b)	80	5	0	5	10	100	(20)
Fem24Chronic6/Sep2010 (2a)	57.1	8.6	2.9	25.7	5.7	100	(35)
Fem25Chronic7/Feb2011 (2b)	66.7	5.6	0	27.8	0	100.1	(18)
Fem50Chronic5/Oct2009 (3a)	38.9	33.3	11.1	5.6	11.1	100	(18)
Fem50Chronic5/Dec2009 (3b)	31.7	2.4	24.4	39	2.4	99.9	(41)
Fem50Chronic14/Mar142011 (4a)	41.4	13.8	0	13.8	31	100	(29)
Fem50Chronic14/Mar212011 (4b)	58.3	12.5	0	8.3	20.8	99.9	(24)
Fem57Chronic24/Feb2011 (5a)	40	10	30	0	20	100	(20)
Fem57Chronic24/Mar2011 (5b)	94.1	5.9	0	0	0	100	(17)
Fem60Chronic20/Jan2010 (6a)	64.7	8.8	1.5	16.2	8.8	100	(68)
Fem60Chronic21/Feb2011 (6b)	68.1	7.7	2.2	19.8	2.2	100	(91)
Fem65Chronic5/Oct2010 (7a)	44.4	0	11.1	44.4	0	99.9	(27)
Fem65Chronic6/Feb2011 (7b)	54	1.6	4.8	17.5	22.2	100.1	(63)
Male25Chronic3/Oct2004 (8a)	58	10	0	26	6	100	(50)
Male30Chronic7/Apr2009 (8b)	42.3	11.5	0	46.2	0	100	(26)
Male30Chronic7/Nov2009 (9a)	84.6	0	7.7	7.7	0	100	(26)
Male30Chronic7b/Dec2009 (9b)	31.8	27.3	0	40.9	0	100	(22)
Male31-35Chronic7/Feb2009 (10a)	76.5	11.8	0	2.9	8.8	100	(34)
Male31-35Chronic7/Jul2009 (10b)	73.7	0	0	5.3	21.1	100.1	(19)
Male32Chronic1/Mar2011 (11a)	63.6	3.5	1.4	7	24.5	100	(143)
Male32Chronic1/Apr2011 (11b)	52.1	1.4	0	11.1	35.4	100	(144)
Male35Chronic3.5/Feb2009 (12a)	51.9	3.7	3.7	40.7	0	100	(27)
Male37Chronic5.5/Feb2011 (12b)	37.5	12.5	12.5	37.5	0	100	(8)
Male60sChronic8/Jan2009 (13a)	45.1	2	13.7	39.2	0	100	(51)
Male60sChronic9/Aug2010 (13b)	38.1	4.8	23.8	28.6	4.8	100.1	(21)
Total per text type	57.1	6.2	4.3	18.4	14	100	(1068)

Appendix 2

Table A2. Key to notations and their explanations used in the blog entry analysis tables.

Notations for Syntactic Function	Notations for Syntactic Form	Other notations
A =adverbial Co =object complement Cs =subject complement O =object Od =direct object Oi =indirect object P =predicator S =subject	Adj =adjective Adj inherent =adjective that denotes a quality that is inherent to an object it describes e.g. The cat was warm. Adj noninherent =adjective that denotes a quality that is noninherent to an object it describes e.g. The cat was new. AdjP =adjective phrase Adv =adverb anticipatory 'it' =substitute subject that anticipates the extraposed 'real' subject cl =clause conj.=conjunction conjunct =adverb not integrated in clause structure, links what is being said in a sentence to what was said before coordin. =coordinating conjunction delayed S =subject that is substituted by existential 'there' and comes later in a sentence after the predicate disjunct =adverb not integrated in clause structure, evaluates what is said EN =EN-form of a verb, past participle EN-cl =non-finite clause with EN-form as its principal verbal component existential 'there' ='there' functioning as a subject with empty meaning extraposed S =the 'real' subject that is substituted by 'it' in subject position and comes later in a sentence after the predicate focusing adverb =adverb that limits the validity of statement to the focused or referred to word/phrase/clause; e.g. 'only', 'especially', 'also', 'similarly' INF =infinitive, unmarked base form	+ =implying the connection between elements in syntactic form ( ) =beginning '(' and end ')' of an element in text-typical analysis [ ] =beginning '[' and end ']' of an element in text-typical analysis ' ' =base form of a word Px =paragraph where x denotes paragraph number vs. =versus, comparison of e.g. sentence structures in the analysis

Notations for Syntactic Function	Notations for Syntactic Form	Other notations
	of verb ING =ING-form of verb, present participle and gerund ING-cl =non-finite clause with ING-form as its principal verbal component interjection =class of words outside clause structure, express emotive meaning N =noun NP =noun phrase Prep =preposition PrepP =prepositional phrase pronoun =not abbreviated TO-inf =infinitive form of a verb preceded by ‘to’ V=verb V Aux=auxiliary verb Vchange=verb of change, verb with a meaning implying action or change Verb of intention=hope, would like to viewpoint adverb=adverb that limits the validity of a statement to a field of reference or point of view denoted in the adverb, e.g. ‘politically’ Vnonchange=verb of nonchange, verb with a meaning implying state or condition, e.g. 'see', 'feel' Vocative=proper noun substituting noun or pronoun, addressing a hearer or reader	

Appendix 3.

Table A3. List of Werlich's text-typical clauses, their equivalent forms in other text-typical clauses and their clause structures.

Text type	Text-typical clauses	Text-typical clause structures
Description	Descriptive clauses (Werlich 1983: 28, 207, 217, 254)	
	-phenomenon-registering of a quality (quality observed with senses)	S + P(V 'be'/ non-change) + Cs(Adj non-inherent quality)
	-phenomenon-registering with adverbial of place	S + P(be/non-change) + A(Adv place)
	-existential 'there is', 'there are'	(exist. 'there') + P(V 'be') + delayed S + optional A(Adv place)
	-continuous action-recording	S + P(V Aux 'be' + Vchange + ING)
Narration	Narrative clauses (Werlich 1983: 60–61, 69, 207, 217, 255)	
	-action-recording in past tense	S + P(Vchange + Past) + A(Adv place) + A(Adv time)
	-action-recording in present tense*	S + P(Vchange + Present) + O/A*
Exposition	Expository clauses (Werlich 1983: 201, 257)	
	-phenomenon-identifying with verb 'be' in P or equivalent verb phrases with semantic meaning of definition, classification such as 'refer to', 'be defined as', 'be called'	S + P(V 'be'/ 'refer to'/ 'be defined as'/ 'be called' + Present) + Cs(NP)
	-quality-attributing with Adj of inherent quality in Cs e.g. 'woollen'	S + P(V 'be' + Present) + Cs(Adj inherent quality)
	-phenomenon-linking with verb 'have' in P or equivalent verb phrases with semantic meaning of "part of -relationship" such as 'consist of', 'contain', 'comprise'	S + P(V 'have' / 'consist of' / 'contain'/ 'comprise' + Present) + O(NP)
	-non-continuous action-recording indicating permanent behaviour, links different behaviour as parts of the whole concept	S + P(Vchange + Present + noncontinuous)
Argumentation	Argumentative clauses (Werlich 1983: 107, 201, 208, 257, 259-264)	
	-negated quality-attributing	S + P(V 'be' + NOT + Present) + Cs(Adj)
	-quality-attributing with Adj of non-inherent quality e.g. 'new'	S + P(V 'be' / non-change) + Cs(Adj of non-inherent quality)

Text type	Text-typical clauses	Text-typical clause structures
	-action-recording with quality in Co	S + P(Vchange + Present) + O(NP) + Co(Adj)
	-phenomenon-identifying with quality-attributing by noun premodification or postmodification or substitution with nonsituational lexeme in Cs	S + P + Cs(NP[premod. Adj + N]) S + P + Cs(NP[N + postmod. PrepP/ postmod. cl.]) S + P + Cs(N non-situational lexeme)
	-modal 'can', 'may', V 'seem' premodification, limit possibility of statement being true	S + P(V Aux 'can' / 'may' / + V) + Cs/O/A S + P(V 'seem') + Cs/O/A
	-using nominal that-clause introduced by verbs 'think', 'feel', 'assume', locutionary 'say' which limit the validity of the statement in the subordinate that-clause in O to the experience of S	S + P(V 'think' / 'feel' / 'assume' / 'say') + O(subord. that-cl.)
	-anticipatory 'it' and existential 'there' with verb 'be' introduce a category in Cs to which the following that-clause is related	S('it'/'there') + P(V 'be') + Cs(NP) + extraposed S/delayed S(that-cl.)
	-modification by viewpoint adverbs or their equivalent PrepP e.g. 'linguistically' or 'from a linguistic point of view' that limit the validity of the statement to the referred point of view	A(Adv viewpoint/PrepP) + S + P + (A) + Cs/O + (A)
	-modification by focusing adverbs e.g. 'simply', 'only', 'mostly', 'also', 'too', 'similarly' that limit the validity of the statement to the focused, referred word, phrase or clause	(A[Adv focusing]) + S + (A[Adv focussing]) + P + (A[Adv focusing]) + Cs/O
Instruction	Instructive clauses (Werlich 1983: 265, 266)	
	-action-demanding	[S omitted]/S(Vocative) + P(V + INF)
	-commands (emphasising DO, minor sentences)	P(V Aux 'do' + V) Cs(Adj)!
	-statements (verbs of intention, if-conditional clauses, verb premodification with modals)	S + P(V 'hope'/ 'would like to'/'want') + O S + P(V Aux 'should' / 'have to' / 'must'/ 'shall' + V)
	-questions	P(V Aux 'could' / 'would' / 'can' / 'will') + S + P(V) + (Cs/O)?

Appendix 4. Blog entry “Fem20-30Chronic3.5/Feb2011”

20 Feb 2011

Seven

I feel kind of uncertain posting my pain level today, so that 7 is tentative and subject to change (likely by the time I finish posting, LOL!)

Yesterday was hellish, more so because it came on suddenly and nothing seemed to help at all. There was a spot yesterday when I hit a 9, it was that rough. I still have no definite idea what did it, or what it was, although I suspect that one of my ovarian cysts may have burst.

In any case, shortly after I posted yesterday, I had a sudden onset of very sharp, deeply painful, stabby pains in my right side (where I have cysts). This is a fairly familiar pain and I think I must have done something to make one of them burst. If it’s any consolation, it made my back feel better by comparison! :D

Yesterday: 8 xs tylenol, 3 xs ibuprofen, 3 applications of lidocaine, 2 hydromorphone, 2 gravol and 1 sleeping pill before bed. Even then, it was barely managing. Pretty nasty stuff.

Today – a brisk mile and a half walk – in the cold, gah! I’ve been moving around very carefully today, worried that the sudden pain would come hopping back onto the stage. So far it’s been okay but I’m not willing to rely on that.

For medication today – 4 xs tylenol so far and an application of lidocaine. I’ve kept the gravol close by in case I get the sudden onset of yuckiness but so far, so far it seems to be holding okay. In any case, I’m going to try to wrap up my news reading before I begin my exercises and then lie down.

280 words

Reference

Fem20-30Chronic3.5/Feb2011. Seven. Posted 20th February 2011. Accessed 6th November 2011 at http://painihasit.wordpress.com/2011/02/20/20-feb-2011/

Appendix 5. Blog entry “Fem20-30Chronic3.5/Feb2011” in table format

Table A4. The text-typical analysis of clauses according to clause structure and their classification into text types in the blog entry “Fem20-30Chronic3.5/Feb2011”.

Px	Sentence	Text-typical analysis	
		Text-typical clause Clause structure	Resulting text type per clause
1	Seven	perception in space Numeral ‘seven’ in Cs denotes an inherent quality of omitted NP ‘pain level’ in S [omitted S(NP) + P(V)] + Cs(Num)	descriptive
2	I feel kind of uncertain posting my pain level today, so that 7 is tentative and subject to change (likely by the time I finish posting, LOL!) [emphasis in upper case original]	quality-attributing + quality-attributing + quality-attributing S + P(Vnonchange inert perception ‘feel’) + Cs[Adj non-inherent + postmod- ING-cl.] A(resultative ‘so that’ cl. [Adv + conj. + S + P(Vbe + Cs(Adj non-inh) + Cs(N ‘subject’ + TO-cl.) A (rel cl. [omit S+P ‘which is’ + Cs(Adv ‘likely’) + A(Adv temp. cl.)]	argumentative + argumentative + argumentative
3	Yesterday was hellish, more so because it came on suddenly and nothing seemed to help at all.	quality-attributing + quality-attributing S + P(V‘be’) + Cs(Adj non-inherent) [omit S + P] + Cs(Adj comparative ‘more so’) + A (causal clause)	argumentative + argumentative
3	There was a spot yesterday when I hit a 9, it was that rough.	action-recording + quality-attributing existential ‘There ‘+ P(V ‘be’+past) + delayed S(NP) + A (time) + A (relative wh-clause) S + P(V ‘be’) + Cs(emphasiser + Adj non-inherent)	narrative + argumentative
3	I still have no definite idea what did it, or what it was, although I suspect that one of my ovarian	quality-attributing + quality-attributing S + A + P(Vnonchange ‘have’) + O(particle NO +	argumentative + argumentative

Px	Sentence	Text-typical analysis	
		Text-typical clause Clause structure	Resulting text type per clause
	cysts may have burst.	Adj + N + postmod. wh-cl. + conj. + postmod. wh-cl.) A + S + P(Vnon-change 'suspect') + Cs (nominal that-clause)	
4	In any case, shortly after I posted yesterday, I had a sudden onset of very sharp, deeply painful, stabby pains in my right side (where I have cysts).	action-recording S + P V change 'have pain' + Past + Cs[noun premodified with Adv + Adj]	narrative
4	This is a fairly familiar pain and I think I must have done something to make one of them burst.	quality-attributing + quality-attributing S + P(V'be') + Cs[noun premod. with Adv + Adj] main cl. 'I think' limits validity of that-cl. in O into individual thought	argumentative + argumentative
4	If it's any consolation, it made my back feel better by comparison! :D	quality-attributing A(disjunct 'if it's any consolation') + S + P(Vchange 'make feel') + Cs(NP) + Co(Adj) + A(PrepP)	argumentative
5	Yesterday: 8 xs tylenol, 3 xs ibuprofen, 3 applications of lidocaine, 2 hydromorphone, 2 gravol and 1 sleeping pill before bed.	action-recording A(Adv time) + [omitted S + P(Vtake/have) + Past] + O(Num+NP..x6) + A(temporal AdvP)	narrative
5	Even then, it was barely managing.	quality-attributing V 'be' + Past + Cs(premodified with Adv), A(AdvP time) + S + P(V 'be' + Past) + Cs(Adv manner + Vchange +ING)	argumentative
5	Pretty nasty stuff.	quality-attributing [omitted S + P(V 'be')] + Cs(premod. Adv intensifying + Adj + N)	argumentative
6	Today – a brisk mile and a half walk – in the cold, gah!	action-recording A(Adv time) + [omitted S + P(V change 'do' / 'have' + Past)] + O[premod. Adj + premod. NP +	narrative

Px	Sentence	Text-typical analysis	
		Text-typical clause Clause structure	Resulting text type per clause
		N)] + A(place PrepP) + interjection	
6	I've been moving around very carefully today, worried that the sudden pain would come hopping back onto the stage.	action-recording S + P(V Aux 'have' + V Aux 'be') + Vchange + ING + Prep) + A(AdvP manner) + A(Adv time) + A(causal ED-cl.[Vchange 'worry' + ED + postmod. nominal that-cl)	narrative
6	So far it's been okay but I'm not willing to rely on that.	quality-attributing + quality-attributing Adv + S + P(Vbe + present perfect) + Cs(Adj) S + P(V+Not)+Cs(ING-cl.)	argumentative + argumentative
7	For medication today – 4 xs tylenol so far and an application of lidocaine.	action-recording A(PrepP) + A(Adv time) + [omitted S + omitted P(Vchange 'take' + Past] + O(NP) + A(AdvP time) + O(NP)	narrative
7	I've kept the gravol close by in case I get the sudden onset of yuckiness but so far, so far it seems to be holding okay.	quality-attributing + quality-attributing S +P(Vnonchange 'keep' + Perfect) + O + A(Adv loc.) + A(purposive cl) A(Adv temp.) + S + P(V mental 'seem' + Present) limits the statement probability in Cs(TO-cl) + A(Adv manner)	argumentative + argumentative
7	In any case, I'm going to try to wrap up my news reading before I begin my exercises and then lie down.	action-demanding + action-demanding A(PrepP) + S + P(V aux intent 'be going to' + V nonchange 'try' + O(to-cl.) + Co (NP) + A(temp cl.) A(Adv temp) + omit S + P(omit 'am going to') + Vchange 'lie down' V "be going to" is a verb of intention, refers to future action that author is going to perform	instructive

Key to column headings:

Px = paragraph number	Sentence = sentence reproduced as in the blog entry	Text-typical analysis	
		Text-typical clause = choice of perception in space, perception in time, quality-attributing, phenomenon-identifying/phenomenon-linking, action-demanding Clause structure = clause structure with abbreviated structural units	Resulting text type per clause Text type = choice of descriptive, narrative, argumentative, expository, instructive; '+' sign indicates clause change

Additional notes:

- Analysis per clause means that if a sentence has two main clauses, there are two text types
- N/A = not applicable
- Question = text type is in the form of a question
- The text in column 2 is presented in its original uncorrected form of online text excluding the following notation:
  - [AUTHOR NAME] = author's name has been removed for anonymity
  - [emphasis in x original] = the author's use of emphasis with x denoting the type of emphasis used
  - [LINK x] = author has included a link with x denoting the text that carries the link
  - [VIDEO] = a linked video file in the blog entry

Summary of results for blog entry "Fem20-30Chronic3.5/Feb2011":

Instances of text types in descending order from most to least frequent:
17/26 argumentative
6/26 narrative
2/26 instructive
1/26 descriptive
0/26 expository