

Cohesion in contrast: A case study of English and German user manuals

**Christoph Schubert
Universität Vechta**

Abstract

In traditional English-German Contrastive Linguistics (CL), the focus used to be on phonology, morphosyntax, and vocabulary, while intersentential relations were largely neglected. Thus, in order to further substantiate current text-linguistic advances in CL, the present paper investigates cohesive ties in English and German user manuals. This genre, which usually appears in several languages simultaneously, is particularly well-suited for this objective, since it is geared towards user-friendly comprehensibility by means of unambiguous reference and precision. After distinguishing between text deixis and cohesion, this study concentrates on coreferential chains as well as on English renderings of German pronominal adverbs. While *explicitness* is here conceptualized as a qualitative category at the informational level, *density* is measured on the basis of quantity, so that both are scalar rather than absolute notions. On this basis, the present case study reviews the general tendency of the German linguaculture to be explicit with reference to special features of user manuals.

Keywords: cohesion, user manuals, contrastive linguistics, text deixis, explicitness, density, coreference

1 Introduction

It is a truism that for most readers user manuals form an unpopular genre, since they are often associated with boring details, confusion and difficulties in understanding (Rothkegel 1986: 389). As a result, style guides in the area of technical documentation give ample advice on the formal and linguistic composition of such written instructions (Robinson 2009; Whitaker & Mancini 2013). In addition, linguists have found descriptive interest in user manuals during the past decades, as these texts

are very common in everyday life and usually published in several languages simultaneously. To name but a few, relevant publications are the monograph by Nickl (2001) as well as articles by Rothkegel (1986), Kussmaul (1990) and Schreiber (2004). However, these studies mainly focus on syntactic and pragmatic features, whereas grammatical and lexical ties across sentences are hardly taken into account.

In discourse analysis, *coherence* is usually defined as the result of cognitive processing and inferencing on the part of the addressee, who uses context and world knowledge to create discursive meaning (de Beaugrande & Dressler 1981: 85; Bublitz 1999: 2). By contrast, *cohesion* refers to perceptible lexicogrammatical features that signal semantic connections between sentences. In particular, cohesive ties can be divided into grammatical and lexical categories (Halliday & Hasan 1976: 6; Halliday & Matthiessen 2004: 532–538; Schubert 2012: 31–58). The former are realized mainly by pro-forms, ellipsis, and coordinating conjunctions, while the latter rely on lexical repetitions as well as semantic relations and fields. Although cohesion is a fundamental constitutive feature of texts, it used to be largely neglected by both contrastive linguistics and translation studies. This is confirmed by the fact that the text-linguistic level is missing in major publications on English-German contrasts, such as the influential study by John Hawkins (1986) or the recent textbooks by König and Gast (2012) as well as by Beck and Gergel (2014). In addition, the standard compendium *Handbuch Translation* (Snell-Hornby, Höning, Kussmaul & Schmitt 1999) hardly deals with contrastive cohesion.

However, following up on the seminal paper by Blum-Kulka (1986), individual articles have recently started to highlight specific aspects of cohesion as a feature of language contrast (e.g. Hansen-Schirra, Neumann & Steiner 2007; Klein 2012; Neumann & Fest 2016). Along these lines, the present study intends to further develop and substantiate this emerging research strand on the basis of data retrieved from ten randomly chosen user manuals mainly referring to common electronic household appliances. This technical genre is well-suited for an in-depth contrastive analysis of cohesion, for the success of its informative intention heavily depends on clear and unambiguous referential relations between sentences, ensuring user-friendly comprehensibility. Since the feature of clarity is equally significant across all languages represented in user manuals, a contrastive approach is particularly promising. Thus, as the English and German versions of the manuals serve exactly the same situational functions, they are readily comparable also from a register perspective (Teich 2003: 222).

Furthermore, this paper aims to point out that the “German tendency to be explicit” (House 1996: 354) also holds true for cohesive ties in user manuals. In doing so, the main focus will be on text deixis, German pronominal adverbs and coreferential items such as pro-forms and nouns at the text-linguistic microlevel. On this theoretical basis, the paper proposes a terminological distinction between explicitness and density with reference to the parameters of quality and quantity.

2 The genre of user manuals and the dataset

As the mere titles of the ten items in the dataset demonstrate, the genre of user manuals may appear under a variety of labels, such as “owner’s manual”, “user instructions”, “instruction manual”, “operating instructions”, “getting started guide”, or “instructions for use”. These differences in the signifiers may indicate varying lengths of the texts but do not correspond with distinctions on the side of the signified, since the individual manuals share typical content-related and functional characteristics. In order to define the genre of user manuals, Gläser (1990: 50) pragmatically classifies it as a technical text type addressing non-specialists. Along these lines, the genre belongs to the wider discourse domain of technical documentation, which calls for specific formal and structural properties that meet the desirable attributes “correct”, “clear”, “complete”, “consistent” and “changeable”, according to the style guide by Whitaker and Mancini (2013: 27). Since the primary communicative function of user manuals is to give instructions on the use of a particular appliance (Schreiber 2004: 54), they form a genre that accompanies a physical product. Thus, although the linguistic forms may be different in various languages, the illustrating images present in user manuals are commonly identical, as is the corresponding gadget. For the sake of informativity, the aim of the manuals is to be unambiguous and brief but still exhaustive. However, heightened informational density, as it is typical of such manuals, may require increased processing efforts on the recipients’ side.

In both English and German user manuals, cohesion and coherence are supported by the predominance of instructive speech acts (Schreiber 2004: 52), which show a limited set of formal realizations in this genre. As a result, the grammar of user manuals is marked by formulaic phrases, relatively short coordinated sentences and a high percentage of ellipsis, which precludes redundancy and facilitates cognitive processing (Nickl

2001: 32–33). As for contrastive grammar, Kussmaul (1997: 75–77) points out that directive illocutions are commonly realized by infinitives in German, while English makes use of imperatives. However, the dataset used for this study shows that German user manuals increasingly contain imperatives as well (see, for instance, examples 3, 4, 5, 6, 9, 10 and 11 below), which may be caused by loan syntax or the greater appeal of directness. The vocabulary of user manuals may contain numerous technical terms, which can have the effect of making the text difficult to comprehend for non-initiated readers.

As far as intersentential structures in user manuals are concerned, previous research on the macrostructural level has provided mainly general observations. For instance, since manuals arrange information like schedules, Nyman (1994: 67) stresses their logical structure, which is heavily influenced by their iconic character, evoking a sequence of physical actions that is based on spatial or chronological parameters (Robinson 2009: 53). Along these lines, Stolze (1999: 154) differentiates between the logic of the product and the logic of the user, who is interested in the sequence of different actions in order to achieve a goal. Whenever the two perspectives deviate, the text is bound to fail in its aim of providing concise and clear instructions. The layout or design concept, which usually shows numerous headlines, distinct paragraph structuring and “numbered lists for sequential steps” (Whitaker & Mancini 2013: 31), also supports the patterned character of the instructions (Stolze 1999: 156). Since the different sections of user manuals typically focus on specific parts of the product and on the single steps in dealing with repeated concepts (Robinson 2009: 67), it is particularly fruitful to investigate coreferential items. As nouns and pronouns with referential identity abound in this genre, its texture shows a great variety of grammatical and lexical cohesion.

The following contrastive analysis of cohesion is based on a dataset of ten user manuals, nine of which refer to electronic household appliances – a fan heater, a camcorder, an oven, a TV set, a stereo amplifier, a turntable system, a laser jet printer, a body fat monitor, and a microwave. The tenth is a book-length volume entitled *The Baby Owner's Manual: Operating instructions, trouble-shooting tips, and advice on first-year maintenance* (Borgenicht & Borgenicht 2003), which has been translated into German under the title *Das Baby: Inbetriebnahme, Wartung und Instandhaltung* (‘The Baby: Startup operations, servicing, and maintenance’). Owing to its humorous intention, the book appears not to match the other samples, yet it

is precisely because of its parodistic and intertextual composition that this text closely resembles prototypical user manuals with regard to its use of linguistic devices.

As for the research methodology, the English and German texts were extracted from the manuals and all cases of text deixis, coreferential cohesive chains and instances of German pronominal adverbs were investigated contrastively. Since the cohesive relation of a given pronoun is difficult to ascertain by means of computerized corpora (Klein 2012: 162), all occurrences were analysed manually. Thus, owing to the small-scale dataset, the present approach basically has an exemplary character, pointing out significant genre- and language-related tendencies. In contrast to early work on cohesion (Halliday & Hasan 1976: 9), this paper takes into account cohesive ties both across and within orthographic sentences, since cohesion additionally supports the internal syntactic connectedness. On this basis, representative sample extracts from the ten manuals are used in order to demonstrate cohesive differences between German and English.

3 Cohesive explicitness and density in contrast

The heyday of text-linguistic research on cohesion was in the seventies and early eighties of the previous century, as exemplified by the systemic-functional approach by Halliday & Hasan (1976) and the procedural model by de Beaugrande & Dressler (1981: 48–83). After a few decades of reduced linguistic activities in this field, there has been renewed interest in text-linguistic research on cohesion in recent years. In particular, new approaches have dealt with the dynamic relationship between cohesion and coherence (Tanskanen 2006), lexical cohesion from a corpus-linguistic perspective (Flowerdew & Mahlberg 2009), cohesive profiling in weblogs (Hoffmann 2012), contrastive cohesion in various registers of German and English (Neumann 2014: 215–256) as well as cohesive ties across registers in national varieties of English (Neumann & Fest 2016).

As regards cross-linguistic comparisons of cohesion, Eckert (1981: 31) points out salient differences in anaphoric relations. For instance, English uses the anaphoric pro-adverb *there* for spatial adverbials with both local (e.g. *in the forest*) and directional meanings (e.g. *to the forest*), while German provides the simple adverb *dort* ('at that place') for the local and the complex adverb *dorthin* ('to that place') for the directional meaning. In addition, German may prefer anaphora, whereas English shows ellipsis, as in *Ich verspreche es* in contrast to *I promise*, or in *Wie funktioniert das?* –

Ich zeige es Dir as opposed to *How does it work? – I'll show you* (Eckert 1981: 33). In her monograph on English-German translation, Königs (2004: 568) also dedicates a minor chapter to the stylistic effects of cohesion. Her central conclusion in this area is that in translations from German into English, cohesive adverbs and coordinators may occasionally remain untranslated. Naturally, changes in cohesion also affect coherence, since less cognitive inferencing on the recipients' part is necessary if the cohesion in a text is more close-knit and explicit.

According to Blum-Kulka, a comparison of source language texts with target language texts often shows “shifts in levels of explicitness” (1986: 18), which, she argues, can be explained in two ways: either there are different stylistic preferences in languages, or translation itself involves an inherent explicitation process which triggers increased redundancy in the target language. Referring to the study by Stemmer (1981), Blum-Kulka points out that in the production of English by German learners, “it was *lexical cohesion* (e.g. lexical repetition) as well as conjunctions which were markedly overrepresented in the learner data, with a non-comitant underrepresentation of *reference linkage* (e.g. pronominalization)” (1986: 19, emphasis original).¹ This is proof of the fact that linguistic transfer in EFL discourse occurs not only at the morphosyntactic but also at the text-linguistic level.

With reference to the Cross-Linguistic Corpora (CroCo) project, Erich Steiner (2012: 59) distinguishes between explicitness and explicitation: a text is more explicit if it contains complete constructions instead of reduced structures, while explicitation denotes a dynamic process that can be caused by translation and results in a higher level of explicitness in the target language text. For instance, German texts are typically more explicit regarding postmodifying clauses (Hansen-Schirra et al. 2007: 252), since German makes more use of finite relative clauses, in which tense and mood are overtly expressed, while English texts contain a higher percentage of non-finite constructions.

¹ Surprisingly, Mark Twain makes similar observations in his humorous, impressionistic and highly subjective account of German entitled “The Awful German Language” (1880): “The Germans do not seem to be afraid to repeat a word when it is the right one. They repeat it several times, if they choose. That is wise. But in English when we have used a word a couple of times in a paragraph, we imagine we are growing tautological, and so we are weak enough to exchange it for some other word which only approximates exactness, to escape what we wrongly fancy is a greater blemish. Repetition may be bad, but surely inexactness is worse” (Twain 1997: 400).

According to the cross-cultural pragmatic approach by Juliane House (1996; 1997), a “cultural filter” (1997: 29) governs “shifts and changes along various pragmatic parameters”, so that House establishes five dimensions of cross-cultural difference: German is characterized by “directness”, “orientation towards self”, “orientation towards content”, “explicitness”, and “ad-hoc formulation”, while English shows “indirectness”, “orientation towards other”, “orientation towards persons”, “implicitness”, and the “use of verbal routines” (House 1997: 84). In order to elicit relevant data, House conducted interviews with British and American informants, many of whom highlighted “the preference of members of the German culture to produce detailed signs regulating various aspects of public life” (1996: 354). In this context, explicitness means that more information is provided than would be expected in an English-speaking environment, that new topics in discourse are introduced explicitly, and that rules and regulations may be repeated in case they are not observed. Since House analyses explicitness from a pragmatic perspective, it is illuminating to apply her model to text grammar and cohesion as well.

Instead of “explicitness”, Halliday & Hasan speak of “tight and loose” texture (1976: 295), which corresponds to the cohesive density of a text. They argue that cohesion is stronger within paragraphs of a text, while there are fewer cohesive ties across different paragraphs, since here gradual topic drift occurs. Accordingly, they point out that “[t]extuality is not a matter of all or nothing, of dense clusters of cohesive ties or else none at all. Characteristically we find variation in texture, so that textuality is a matter of more or less” (Halliday & Hasan 1976: 296). This scalar notion of cohesive density may be equally utilized in contrastive text linguistics, as shown by Kunz’s (2007) model of investigating coreferential expressions. Kunz (ibid. 276) draws attention to the fact that “the more often a referent is reactivated, i.e. the higher the number of coreferring expressions in one reference chain, and the smaller the textual distance between these expressions, the higher the referent is in focus of attention”. Consequently, this approach will be useful for the comparison of cohesive density in the English and German linguacultures.

On the basis of these terminological premises, I propose the following use of the two terms *explicitness* and *density*: *Explicitness* will be seen as a matter of quality, referring to the degree of informativity in one particular

cohesive tie.² For example, the use of a synonym or hypernym as a coreferential item yields greater explicitness than a semantically empty pronoun. Hence, I adopt a wide concept of *explicitness* which comprises the notions of both Hansen-Schirra & Neumann & Steiner (2007; 2012) and House (1997). By contrast, the term *density* refers to cohesive quantity along the lines of Kunz's (2007) scalar approach to coreferential items, so that the density of a German and an English passage can be compared on the basis of the sheer number of cohesive ties present in a given stretch of discourse.

4 Text deixis

In order to get an accurate picture of cohesion in contrast, it is necessary to make a clear distinction between text deixis and cohesion. In their *cohesive* use, pronouns can have anaphoric or cataphoric reference (Halliday & Hasan 1976: 33), since they can point backward or forward to coreferential noun phrases. By contrast, text deixis “concerns the use of expressions within some utterance to refer to some portion of the discourse that contains that utterance” (Levinson 1983: 85). In other words, text-deictic items directly point to other passages in the same text without having a common extralinguistic referent, such as *in the previous chapter* or *in the next paragraph*. In this way, text deixis supports the textual interconnectedness merely on the surface level of the signifier. Along these lines, example (1) shows differences in explicitness between the German and the English text.³

- (1) a. *This* manual applies to several TV models. Some of the functions or settings may not be available on the model that you have bought. (*TV User Manual* 1999/2000: E1)
- b. *Die vorliegende* Anleitung ist mehreren Fernsehgeräten gemeinsam. Daher kann es vorkommen, dass einige der *hier beschriebenen* Funktionen bzw. Einstellungen an dem von Ihnen erworbenen Modell nicht vorhanden sind. (*TV User Manual* 1999/2000: D1)

² The term *explicitation* is avoided in the present study, since the direction of translation cannot be inferred from the texts in the dataset.

³ In all examples, the relevant lexical items are highlighted by italics. “E1” refers to page one in the English text, while “D1” indicates page one in the German version.

Here the German version contains two clear instances of holistic text deixis, since they point to the complete brochure. The first item, *die vorliegende [Anleitung]* ('the present [manual]'), consists of the definite article and the present participle of a full verb, while the English equivalent is the demonstrative determiner *this*. The second German case includes the deictic adverb *hier* ('here') in collocation with the past participle *beschriebenen* ('described'), whereas in the English version this instance is completely absent. Consequently, the German text is more explicit because there are more content words involved, and it is denser than the English one, as there is one additional case of textual connectedness at the deictic level. In the German examples (2b) and (3b), the exact position of the deictic centre is more significant than in the English equivalents, since the German versions show the phenomenon of forward-pointing text deixis.

- (2) a. Accessories supplied depend on the model. (*Oven* 2005: E14)
- b. Der Backofen kann je nach Modell mit *nachstehendem* Zubehör ausgerüstet sein. (*Oven* 2005: D6)
- (3) a. Change the bulb (see note). (*Oven* 2005: E17)
- b. Wechseln Sie die Glühlampe aus (siehe *nachstehenden* Hinweis). (*Oven* 2005: D9)

In (2b) the present participle *nachstehendem* ('following') has no equivalent in the English version in (2a). Owing to the greater explicitness in German, readers are significantly supported in their text comprehension, while English recipients will have to infer where in the text the *accessories* are described. In example (3) the syntactic structures in the two languages are quite similar, but once again, the German section of the manual in (3b) facilitates the process of searching the *note* ('Hinweis') mentioned by adding the text-deictic present participle *nachstehenden*.

5 Cohesive ties in contrast

In the comparison of English and German cohesive ties I will focus on two phenomena that are particularly striking in user manuals. First, coreferential chains are pervasive, since manuals tend to focus on specific continuous topics, and second, German pronominal adverbs have the

characteristic function of linking individual instructions, but they rarely have literal counterparts in English.

5.1 Coreferential chains

Chains of coreferring expressions consist of two or usually more linguistic items that refer to the same extralinguistic entity. In their analysis, important factors are the “textual distance” between the single instances and the “frequency of reactivation” (Kunz 2007: 276), which guide the readers’ centre of interest.⁴ Usually, such chains consist of noun phrases, which can have different realizations. While pronouns belong to the set of function words and thus constitute grammatical cohesion, lexical cohesion can include identical repetitions, synonyms, and hypernyms. As has been observed by de Beaugrande & Dressler (1981: 79–81), these categories differ in their textual functions: while pro-forms compact the text and thus contribute to language economy and efficiency, literal repetitions help to avoid misunderstandings and support the precision and stability of the text. Since the signifiers are different in synonyms and hypernyms, these semantic relations call for more inferencing on the readers’ part than identical repetitions, but they all fulfil similar functions in the continuous activation of concepts. In general, cohesive relations of pronouns are clearer in German than in English because of grammatical concord, which makes the reference between pronouns and presupposed nouns more obvious (Klein 2012: 163). As the examples will show, however, this fact does not trigger a pronounced preference for pronouns in German cohesive chains. Extract (4) demonstrates in which way coreferential chains may differ in English and German.

- (4) a. Exterior of the oven
Clean with a damp cloth. If *it* is very dirty, add a few drops of washing up detergent to the water. Wipe with a dry cloth. (*Oven* 2005: E15)

⁴ Kunz (2007: 270) shows that readers may occasionally need to make use of their culture-specific world knowledge in order to detect coreference between expressions. However, this is hardly the case in user manuals, since here the appliances described will be known to the target audiences in the different nations where the products are distributed.

b. Reinigung der Backofen-Vorderseite

Reinigen Sie die *Vorderseite* mit einem feuchten Tuch. Wenn die *Vorderseite* sehr stark verschmutzt ist, reinigen Sie *sie* mit Wasser und ein paar Tropfen Geschirrspülmittel. Wischen Sie die *Vorderseite* anschließend mit einem trockenen Tuch ab. (*Oven* 2005: D7)

The German headline in (4b) contains the endocentric compound *Backofen-Vorderseite* ('front of the oven'), while the text body shows three identical repetitions of the head of this complex word, which creates a strong cohesive and coreferential chain. The second sentence additionally contains the coreferential third-person singular pronoun *sie*, not to be confused with the second-person pronoun *Sie*, which addresses the reader. While the textual distance between the single items is rather small, the frequency of reactivation is very high, which results in a significant degree of redundancy that precludes ambiguity. In this respect, the text resembles legal registers, which also include numerous repetitions for the sake of precision and clarity (Crystal & Davy 1969: 202). In the English version (4a), however, the headline *exterior of the oven* is exclusively referred to by the personal pronoun *it*. In two cases, the German grammatical object *Vorderseite* ('front') is absent in the English version, since the verbs *clean* and *wipe* can appear in both monotransitive and intransitive complementation. Hence, the direct object is notionally implied but formally ellipsed on the English textual surface. In addition, the second English sentence does not include an equivalent to the German verb *reinigen* ('clean') but only advises to add detergent to the water, while the cleaning process is merely implied. Consequently, English is more concise and economical, while German shows both a greater explicitness, based on the lexical content of the nouns, and an increased density, owing to the greater number of ties. What is more, the German manual is more precise in using the noun *Vorderseite*, which provides a direction, in contrast to the English expression *exterior*. In the following extract (5), the English original is less explicit than the German version because of a syntactic peculiarity of the English language.

(5) a. Sit the baby on your lap, facing away from you. (Borgenicht & Borgenicht 2003: E96)

b. Setzen Sie das Baby so auf Ihren Schoß, dass *es* von Ihnen weg sieht. (Borgenicht & Borgenicht 2004: D92)

In the German sentence, the pronoun *es* in the clause of result refers back to the noun phrase *das Baby* ('the baby') in the superordinate clause. The English equivalent is a subjectless present participle clause whose implied subject is identical with the direct object of the superordinate clause. Therefore, the reader of the English sentence has to expend more cognitive effort because of the lower degree of explicitness in English. In general, the characteristic adverbial *-ing* clauses are semantically rather open (Quirk et al. 1985: 1123), whereas a German translation needs to introduce an appropriate finite clause and subordinator. Hence, the German sentence is more explicit because of the discontinuous subordinator *so ... dass* ('so that') and the coreferential pronoun, and these two features also increase the density of the sentence. The next contrastive example (6) illustrates another English construction which has no direct counterpart in German.

- (6) a. Unravel the Supply Cord before use. Failure *to do so* could cause overheating and possible fire hazard. (*Fan Heater* 2004: E4)
- b. *Wickeln Sie das Kabel vollständig ab.* Ein nicht vollständig *abgewickelt*es Kabel kann zu Überhitzung führen und einen Brand verursachen. (*Fan Heater* 2004: D7)

In the terminology of Halliday & Hasan (1976: 122), this use of the pro-adverb *so* in collocation with the pro-verb *do* constitutes a case of verbal substitution, which means that neither the verb [*u*]n*ravel* nor the noun *Supply Cord* need to be repeated. In German, however, there is no literal equivalent to this construction (Hansen-Schirra et al. 2007: 256), so that the German manual contains lexical repetition: in the second sentence the noun *Kabel* ('cord') is used again, premodified by the participle *abgewickelt* ('unravelling'), which reiterates the discontinuous imperative [*w*]i*ckeln* [...] *ab* in the first sentence. As a further result, the English verbal construction *to do so* is contrasted with a German nominal construction. Hence, the German version is denser than the English one, for it contains two cohesive ties instead of one, and the German text is more explicit, since it repeats the autosemantic items *Kabel* and *abwickeln*, as opposed to the synsemantic pro-adverb and pro-verb in English. In the following example (7) the English use of a non-finite subject clause likewise has no direct equivalent in German, which also affects the use of coreferential items.

- (7) a. Damp in rooms where *the set* is installed should not exceed 85% humidity. If you have to use *the television* outdoors, do not expose *it* to water from rain or splashing. Moving *it* from a cold atmosphere into a warm one can cause condensation on the screen (and on some components inside *the television*). (*TV User Manual* 1999/2000: E1)
- b. Die Luftfeuchtigkeit im Aufstellungsraum *des Geräts* darf 85% nicht übersteigen. Wenn Sie *Ihr Gerät* im Freien betreiben müssen, schützen Sie *es* unbedingt vor Regen bzw. Spritzwasser. Der Umzug *des Fernsehgeräts* aus einer kalten in eine warme Umgebung kann zur Bildung von Kondensfeuchtigkeit auf dem Bildschirm (sowie an Bauteilen im Innern *des Geräts*) führen. (*TV User Manual* 1999/2000: D1)

In both versions the coreferential chains consist of five items, so that the level of density is identical. However, the degree of explicitness is different, as shown by the members of the chains: in English they are *the set* > *the television* > *it* > *it* > *the television*, while the German text contains *des Geräts* ('of the set') > *Ihr Gerät* ('your set') > *es* ('it') > *des Fernsehgeräts* ('of the television set') > *des Geräts*. The most important difference is the repeated use of the pronoun *it* in English, while in the German version the second pronoun is translated as *des Fernsehgeräts*. In English the pronoun is the direct object of the present participle *moving* in the non-finite clause, which cannot be directly imitated in German. Consequently, the German text contains a noun phrase with a genitive postmodification in [*d*]er *Umzug des Fernsehgeräts* ('the relocation of the television set'). It is also striking that the German version makes the possessive relation explicit with the pronoun in *Ihr Gerät*, as opposed to *the television*.

Moreover, the German cohesive chain contains more lexical repetitions, while in English there is variation between the hypernym *the set* and *the television*. The German text also places more emphasis on the warning by adding the adverb *unbedingt* ('by all means'), which has no equivalent in the English text. In addition, the negated modal verb *should not* in the first sentence is translated as *darf [...] nicht* ('must not'), which is more determined in expressing prohibition. Finally, the English text again contains one instance of substitution, in this case the nominal type in the form of *a warm one*, which is not literally translatable. Here the German equivalent is cataphoric ellipsis in the passage *aus einer kalten [Umgebung] in eine warme Umgebung* ('from a cold [environment] into a warm environment'). As demonstrated by example (8), enhanced

explicitness in German may be caused by a much more verbose and morphologically redundant texture.

(8) a. If *the AC plug of this unit* does not match the AC outlet you want to use, *the plug* must be removed and *appropriate one* [sic] fitted. Replacement and mounting of *an AC plug* on the power supply cord of this unit should be performed only by qualified service personnel. If connected to an AC outlet, *the cut-off plug* can cause severe electrical shock. Make sure *it* is properly disposed of after removal. (*Integrated Amplifier* 2012: E3)

b. Falls *der Netzstecker des Netzkabels dieses Geräts* nicht in die Zusatzsteckdose einer anderen Komponente passt, muss *er* gegen *einen Netzstecker der geeigneten Ausführung* ausgewechselt werden. Ein derartiger Austausch *des Netzsteckers* muss vom Kundendienstpersonal vorgenommen werden. Wenn *der vom Netzkabel abgeschnittene ursprüngliche Netzstecker* in eine Netzsteckdose eingesteckt wird, besteht akute Stromschlaggefahr! Daher ist unbedingt dafür zu sorgen, dass *der abgeschnittene Netzstecker* sofort vorschriftsmäßig entsorgt wird. (*Integrated Amplifier* 2012: D3)

This is a characteristic warning note, typically to be found in the opening section of user manuals, so that referential clarity is paramount. Consequently, the central object is verbalized a number of times in different formal realizations, as illustrated by Table 1.

Table 1. Referential noun phrase chains in English and German (example 8)

Item	English	German
(1)	<i>the AC plug of this unit</i>	<i>der Netzstecker des Netzkabels dieses Geräts</i>
(2)	<i>the plug</i>	<i>er</i>
(3)	<i>[appropriate one]</i>	<i>[einen Netzstecker der geeigneten Ausführung]</i>
(4)	<i>an AC plug</i>	<i>des Netzsteckers</i>
(5)	<i>the cut-off plug</i>	<i>der vom Netzkabel abgeschnittene ursprüngliche Netzstecker</i>
(6)	<i>it</i>	<i>der abgeschnittene Netzstecker</i>

Both the English and the German version show the same number of noun phrases continuing the subject, so that the quantitative density is identical. In both texts, however, the third item is not coreferential with the others, since it refers to an alternative AC plug. As a result, English makes use of nominal substitution through *one* (Halliday & Hasan 1976: 91), whereas German uses lexical repetition (*Netzstecker*) in the head of a postmodified noun phrase. Although both versions contain one pronoun in this cohesive

chain, i.e. *it* and *er*, the German text may again be said to be more explicit because of extended premodification by past participles such as *abgeschnittene* and because of postmodification by prepositional phrases such as *der geeigneten Ausführung* ('of an appropriate kind'), all of which serve the function of unambiguous reference. Apart from this coreferential chain, the German version is marked by multimorphemic compounds such as *Kundendienstpersonal* ('customer service personnel'), *Zusatzsteckdose* ('additional power outlet') and *Netzsteckdose* ('mains power outlet'), which do not have direct formal equivalents in English. These words are responsible for morphemic redundancy through partial repetition, as the morpheme *netz* ('the mains') appears eight times altogether in this short extract.

Increased urgency is expressed in the German version by the additional adverbs *unbedingt* ('by all means') and *sofort* ('immediately') in the final sentence. Furthermore, the German text employs the modal verb *muss* ('must') in collocation with *Kundendienstpersonal*, expressing unconditional obligation, while English uses the less absolute modal *should*. The impression of authority and rigour in the German text is also supported by the exclamation mark after *Stromschlaggefahr* ('electric shock hazard'), as opposed to the full stop in English. Concerning cohesion, the final sentence in the German version is additionally introduced by the connective adverb *daher* ('therefore'), which is not reflected in the English text.

5.2 Pronominal adverbs

German pronominal adverbs such as *dabei*, *dafür*, *hierfür*, and *hierbei* are of particular interest here for two reasons. First, they are a cohesive specialty of German and usually do not have literal equivalents in English, and second, they express notions of purpose, effect, and means, which makes them suitable for technical instructions. Formally, they consist of one of the pro-adverbs *da-*, *hier-* and *wo-* in combination with a preposition, so that they can replace prepositional phrases. Owing to their anaphoric and cataphoric functions as pro-forms, they are called "Pronominaladverbien" ('pronominal adverbs') and form a large group among German pro-forms (Brinker 2005: 33; Wermke et al. 2005: 585–590). They may refer to presupposed prepositional phrases or to an extended passage of discourse, often describing a course of action. As for

their equivalents in English, there are the possibilities of explicitation and omission, depending on context and genre:⁵

“Typisch deutsche” Konstruktionen wie “Ich fürchte mich nicht *davor*, ich freue mich *darauf!*” müssen je nach Makrokontext stark expliziert oder stark vereinfacht werden; entweder man sagt ausdrücklich, *wovor* man sich nicht fürchtet und *worauf* man sich freut, oder man sagt nur, *daß* man sich nicht fürchtet, sondern freut. (Albrecht 2005: 125, emphasis original)

In other words, German pronominal adverbs can be translated into English by prepositional phrases or they can be replaced by zero, so that the cohesive function is lost (Fabricius-Hansen 2000: 338). Of course, there are English adverbs such as *thereof*, *hereto*, and *hereunder*, which are direct formal equivalents, since they are also composite lexemes consisting of adverb and preposition. However, they partly have deviating meanings and show significant connotations of obsolescence and formality, as they chiefly appear in the conservative register of legal English, in which they also serve the purpose of exact reference (Crystal & Davy 1969: 208).⁶ Example (9) demonstrates that pronominal adverbs can clearly enhance explicitness in German.

- (1) a. To reduce the risk of electric shock, do not remove cover (or back). No user serviceable parts inside. Refer servicing to qualified service personnel. (*HD Camcorder* 2008: E2)
- b. Um das Risiko von elektrischen Schlägen auszuschließen, öffnen Sie das Camcorder-Gehäuse nicht. Innerhalb des Geräts gibt es keine vom Benutzer zu reparierende Teile. *Dafür* ist ausschließlich der qualifizierte Kundendienst zuständig. (*HD Camcorder* 2008: D2)

The third German sentence is here introduced by the adverb *dafür* (‘for that’), which anaphorically refers to the intention of opening the cover and repairing the camcorder, as mentioned in the two previous sentences.

⁵ English translation: “Typically German” constructions, such as “Ich fürchte mich nicht *davor*, ich freue mich *darauf!*” need to be either strongly explicitated or simplified, depending on the respective macro-context; either you explicitly say *what* you are not afraid of and *what* you are happy about, or you merely say *that* you are not afraid but happy.

⁶ As for the frequent use of anaphora in legal English, Crystal & Davy (1969: 208) additionally comment that “it seems possible to see in the almost ritualistic repetitiveness more than a little reverence for tradition”.

Moreover, the English version is strongly elliptical and thus much less explicit, particularly in the second sentence, which does not contain a verb, in contrast to the German counterpart. Besides *dafür*, the adverbs *hierbei* and *hierzu* often increase German explicitness in cohesion, as illustrated by examples (10) and (11).

- (2) a. Never pull out fully loaded shelves. Use extreme caution. (*Oven* 2005: E13)
- b. Vermeiden Sie es, voll beladene Zubehörteile aus dem Backofen zu ziehen. Seien Sie *hierbei* zumindest äußerst vorsichtig. (*Oven* 2005: D5)
- (3) a. You are able to [...] delete channels that are duplicated or of poor quality. Follow the instructions at the foot of the screen. (*TV User Manual* 1999/2000: E3)
- b. Sie können [...] doppelt oder schlecht eingerichtete Sender löschen. Folgen Sie *hierzu* den im unteren Bildrand eingeblendeten Anweisungen. (*TV User Manual* 1999/2000: D3)

In (10b), the adverb *hierbei*, whose modal-instrumental meaning (Fabricius-Hansen 2000: 337) could be semantically paraphrased as “bei dieser Handlung” (‘during this action’), refers anaphorically to the action mentioned in the previous sentence, while the English text does not contain an equivalent. Since the English version lacks this cohesive tie, the reader must expend more cognitive effort in order to create coherence between the sentences. In addition to its greater cohesive explicitness, the German warning also gains more emphasis by the adverb *zumindest* (‘at least’), likewise not reflected in English. In (11b), the adverb *hierzu* verbalizes an adverbial of purpose that could be paraphrased as “zu diesem Zweck” (‘for this purpose’). In the English version, however, readers are expected to construct the cognitive link between the two sentences on their own. In exceptional cases, the English text may contain a more elaborate phrase as an equivalent to the German pronominal adverb, as example (12) demonstrates.

- (4) a. Do not heat sealed containers in the oven (except for packages specifically designed *for this purpose* [...]). (*Oven* 2005: E13)
- b. Verwenden Sie auch keine Behälter aus synthetischen Materialien zur Zubereitung von Speisen im Backofen (ausgenommen solche, die speziell *dafür* geeignet sind; [...]). (*Oven* 2005: D5)

The meaning of the German adverb *dafür* in (12b) is represented by an English prepositional phrase in (12a), consisting of the preposition *for*, the demonstrative determiner *this* and the noun *purpose*. Hence, in such rare cases, the English manual is more explicit, while the quantity-related density is identical in both languages. Apart from that, English also has the possibility of using alternative constructions, as exemplified by extract (13).

(5) a. Feeding should begin automatically. *As the baby feeds*, the ears will move, and you will hear him swallowing. (Borgenicht & Borgenicht 2003: E82)

b. Das Baby beginnt automatisch zu trinken. *Dabei* bewegen sich seine Ohren und Sie hören es schlucken. (Borgenicht & Borgenicht 2004: D82)

The English version (13a) here contains the additional adverbial clause of time [*a*]s *the baby feeds*, which incorporates the subject that in the German text is introduced in the previous sentence (*Das Baby*). Thus, while German uses the pro-adverb [*d*]abei ('during that action'), there is no pro-form in English, so that in (13a) cohesion results from the recurrence of the word stem *feed* in [*f*]eeding and *feeds*. Hence, whenever German pronominal adverbs do not have a zero equivalent in English, their meaning may be rendered by various structural equivalents in English.

6 Conclusion

All in all, the analyses have shown that text deixis and cohesion play a significant role in the degree of explicitness and density of user manuals. While explicitness is based on the informational quality of a single cohesive tie, density refers to the overall quantity of ties present in a passage or complete text, so that both categories are not absolute but scalar notions. In the genre of user manuals, German is closer to the explicit and dense pole than English, which manifests itself in three features: First, text deixis is more specific and frequent in German instructions, which facilitates the readers' orientation on a specific written page (Section 4). Second, in coreferential chains the German manuals contain more lexical cohesion, especially literal or morphemic repetition, as opposed to pro-forms and partly elliptical expressions in English. The reason for ellipsis in English can be the intransitive use of potentially transitive verbs and the occurrence of subjectless non-finite clauses. The English preference for

pro-forms partly relies on language-specific substitution such as (*do*) *so* or *one*. Increased explicitness in German coreferential chains may also be triggered by extended pre- and postmodification in noun phrases (Section 5.1). Third, pronominal adverbs usually contribute to the greater explicitness and density of German manuals, since these pro-forms do not have direct equivalents in English. However, if they are occasionally reflected in the English version, the English text may be more explicit in these exceptional cases, owing to more elaborate paraphrases. The greater explicitness usually noticed in the German versions is further enhanced by adverbs of urgency such as *unbedingt* ('by all means') or *sofort* ('immediately'), which are especially salient in warning notices (Section 5.2).

Consequently, the increased explicitness and density of German user manuals corresponds to Juliane House's observations concerning the different linguacultures. From an interdisciplinary perspective, thus, the present research on contrastive text linguistics is in line with results from cross-cultural pragmatics. Furthermore, these general tendencies of the two languages show specific functions in the genre of user manuals. In a nutshell, German manuals put greater emphasis on precision and exactness by means of unambiguous cohesive ties, while in English instructions the fundamental aim is conciseness and language economy. Both precision and economy are central concerns of user manuals but at the same time contradict each other, so that an adequate choice of cohesive ties is crucial for both the successful production and translation of user manuals.

From the perspective of Relevance Theory (Sperber & Wilson 1995; Clark 2013), the relevance of a text is based on the relation between cost and benefit in cognitive processing. As Sperber & Wilson (1995: 124) put it, "[t]he assessment of relevance, like the assessment of productivity, is a matter of balancing output against input: here contextual effects against processing effort". In other words, a user manual is more relevant if the reader gains the desired information about the appliance by expending as little processing effort as possible. Hence, according to this theoretical framework, the English user manuals have a slightly lower degree of "relevance" than the German ones, since they contain fewer cohesive ties, so that more inferencing on the readers' part is necessary to grasp the meaning of the texts. By contrast, the German manuals are more "relevant" in this sense, as intersentential relations are more easily accessible, which facilitates comprehension. Increased lexical redundancy in the German manuals may to some extent prolong the reception process but ultimately

serves the purpose of unambiguousness. According to the Cognitive Principle of Relevance (Clark 2013: 107), the maximisation of relevance will therefore be somewhat easier for the recipients of German user manuals. Of course, further corpus-based research will be necessary to provide large-scale statistics, but the relatively small collection of manuals used here already gives quite clear evidence for the typical features of contrastive cohesion in this technical genre.

Dataset of user manuals

- Body fat monitor / scale, UM-022 / UM-023: Instruction manual.* 2003. The Barn, Philpots Close, Yiewsley, Middlesex: Tanita Corporation.
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- Fully automated turntable system DP-200USB: Owner's manual.* Denon. D&M Holdings Inc., no publication year.
- HD camcorder: Instruction manual.* 2008. HG20 / HG21. Amstelveen, The Netherlands: Canon.
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- Laserjet professional P1100 printer series: Getting started guide.* 2010. Hewlett-Packard Development Company, L.P.
- Microwave oven & grill: Instructions for use.* 2010. Sundern: Severin.
- Oven: Instructions for use.* 2005. Wiener Neudorf: Whirlpool.
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Contact information:

Christoph Schubert
Universität Vechta
Anglistische Sprachwissenschaft
Driverstraße 22
D-49377 Vechta
Germany
e-mail: christoph(dot)schubert(at)uni-vechta(dot)de