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DEPARTMENT OF ENGLISH LANGUAGE AND LITERATURE

COMPARISON OF CZECH AND ENGLISH SPEAKERS' USE OF ENGLISH INTERSENTENTIAL CONNECTIVES IN GEOGRAPHIC ARTICLES

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Abstract

The present thesis is a corpus study comparing English and Czech (non-native) speakers' use of intersentential connectives in English geographic articles. The corpus contains English articles written by British English and Czech speakers, and translations from Czech into English. The thesis examines the frequency, formal diversity, semantic categories, position, punctuation, syntactic functions and formality of the connectives in the corpus. The results confirm the original hypothesis that texts written by Czech speakers are less rich in intersentential connectives, which applies both to their frequency and formal diversity. In the other categories, no significant differences were found. The interpretation of the differences is based on negative transfer, later stage in the order of acquiring language components within second language learning and acquisition, and the specificity of Czech scientific writing.

Keywords: intersentential connectives, conjuncts, disjuncts, conjunctions, adjuncts, frequency, formal diversity, position, punctuation, syntactic functions, coherence.

Abstrakt

Tato práce je korpusovou studií srovnávající užívání mezivětných konektorů anglickými a českými (nerodilými) mluvčími v anglických geografických článcích. Korpus obsahuje anglické články psané anglickými a českými mluvčími a překlady z českého do anglického jazyka. Práce zkoumá frekvenci, formální rozmanitost, sémantické kategorie, pozici, interpunkci, syntaktické funkce a formálnost konektiv v korpusu. Výsledky potvrzují původní hypotézu, že texty českých mluvčích jsou méně bohaté na prostředky mezivětné konexe, což platí jak pro jejich frekvenci, tak i pro jejich formální rozmanitost. U ostatních kategorií nebyly nalezeny podstatnější rozdíly. Interpretace rozdílů je založena na negativním přenosu, pozdější fázi v pořadí získávání jazykových dovedností při osvojování cizího jazyka a specifičnosti českého vědeckého stylu.

Klíčová slova: prostředky mezivětné konexe, konjunkty, disjunkty, spojky, adjunkty, frekvence, formální rozmanitost, pozice, interpunkce, syntaktické funkce, koherence.

Abbreviations

CS	Czech (non-native) speaker
CSS	Czech (non-native) speakers' subcorpus
EFL	English as a foreign language
ENS	English native speaker
ENSS	English native speakers' subcorpus
L1	language one, first language; i.e. the mother tongue of the speaker in question
L2	second language
SLA	second language acquisition
TS	translation subcorpus

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1 Introduction

For some time, I worked for the Faculty of Science of Charles University. My task was to rewrite and correct English scientific texts written by non-native speakers of English. The texts contained many technical terms from the field of geography and thus they were very difficult to process, especially for an outsider into the discourse community. Correcting grammatical mistakes often did not make the texts look native-like. While doing the job, I realized that sometimes the language of non-native speakers differed from the language of native speakers in a very subtle way. This finding became the first impulse to study the differences more carefully.

I decided to collect some native- and non-native speakers' texts for a deeper analysis. In cooperation with Prof. RNDr. Jan Kalvoda, DrSc., Professor Andrew Goudie and other scholars and scientists, I gathered a number of texts for a corpus that subsequently served as the material for this research.

I realized that in comparison with some native speakers' texts, non-native speaker's papers were perhaps less rich in connectives. This observation soon became the leading hypothesis for my final diploma thesis.

The thesis compares the frequency and usage of English intersentential connectives in geographic articles written by English (native) and Czech (non-native) speakers.

2 Secondary literature

In the Czech Republic, not many contemporary sources are available that deal with intersentential connectives. In this chapter, some of the crucial notions and works used for this thesis will be briefly introduced.

Connectives may be defined as "expressions from various syntactic categories that express relations between propositions or facts"[1]. They are function words that conjoin words, phrases, clauses, sentences or even larger parts of a text. They create partly semantic and partly grammatical relationships in a text and help to build up coherence. **Van Dijk**, 1977 emphasizes the importance of distinguishing between intersentential and intrasentential connectives. The former refers to connective elements within the same sentence, linking two clauses or clause elements together; the latter term refers to connection between sentences or larger parts of texts.[2]

My interpretation of **coherence** is based on **Bublitz**, 1999. He describes coherence as a "context-dependent hearer-(or reader-) oriented and comprehension-based interpretive notion"[3]. In this treatment, coherence is a subjective process of understanding a text. It is "not given in the text invariantly but it 'comes out' of the text"[4]

The most important work for my understanding of texts and textual relations has been **Halliday and Hasan's** *Cohesion in English*[5] . Their treatment of cohesion and especially conjunction is vital for this work. **Cohesion** is described as "a semantic relation; it refers to relations of meaning that exist within the text, and that define it as a text. Cohesion occurs where the interpretation of some element in the discourse is dependent on that of another."[6]

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[1] Van Dijk, 1977, p. 52
[2] The terminology in the area of intersentential connection is vague. There is not one simple term for intersentential connectives. Some linguists call them conjunctive adjuncts (Halliday, Hasan), or linking adjuncts, but they are also called discourse particles, discourse operators, or discourse markers.
[3] Bublitz, 1999, p. 2.
[4] Bublitz, 1999, p. 2.
[5] Halliday and Hasan, 1976.
[6] Halliday and Hasan, 1976, p. 4.

The authors present a compact system of textual cohesive relations. These are reference, substitution, ellipsis, conjunction and lexical cohesion.[7] "**Conjunction** is rather different in nature from the other cohesive relations... It is not simply an anaphoric relation. Conjunctive elements are cohesive not in themselves but indirectly, by virtue of their specific meanings; ... they express certain meanings which presuppose the presence of other components in the discourse".[8] In conjunction, it is the two connected elements that create cohesion. Conjunction is "a specification of the way in which what is to follow is systematically connected to what has gone before"[9].

Within conjunction, Halliday and Hasan have designed a semantic classification of connectives.[10] This contains five categories: additive, adversative, causal, temporal and other relations.

In their work, Halliday and Hasan do not provide the reader with a complete list of connectives nor do they state exactly what the syntactic function of connectives (conjunctive adjuncts) is. They do not specify the word class in further detail, apart from referring to connectives as adverbials or conjunctions.

Halliday and Hasan also divide connectives into two categories – **external** and **internal**. If "cohesion has to be interpreted in terms of the EXPERIENTIAL function of language", then the conjunction is external; "it is a relation between meanings in the sense of representations of "contents", (our experience of) external reality". Halliday and Hasan's example of external conjunction is *next* in the sentence: "*Next* he inserted the key into the lock". Conversely, if "cohesion has to be interpreted in terms of interpersonal function of language", then the conjunctive relation is internal. Internal conjunction is "a relation between meanings in the sense of representations of the speaker's own 'stamp' on the situation – his choice of speech role and rhetorical channel, his attitudes, his judgments and the like." Internal

[7] The term *conjunction* denotes two different phenomena. The first is conjunction as a word class. By this term, the syntactic function is specified. The second is the cohesive textual relation described here.
[8] Halliday and Hasan, 1976, p. 226.
[9] Halliday and Hasan, 1976, p. 227.
[10] Halliday and Hasan use the term *conjunctive adjuncts* for what I call *connectives*. I did not adopt their term because in Quirk et al.'s terminology the term *adjunct* applies to a different linguistic phenomenon. Quirk et al. divide adverbials into three (four) subcategories: adjuncts, (subjuncts), disjuncts and conjuncts, and *adjuncts* are only marginal means of intersentential connection.

conjunction is exemplified by "Next, he was incapable of inserting the key into the lock".[11]

For a formal distinction, I have made use of a comprehensive analysis of adverbials done by **Quirk et al.** (Quirk et al. 1973), especially their classification of adverbials into three groups: adjuncts, disjuncts and conjuncts.[12] The cohesive relation of conjunction can be realized from among others by words from these three categories of adverbials.

Conjuncts (e.g. *however*, *as a result*, *for example*, *firstly*, *secondly*, *in addition*, etc.) "... serve to conjoin two utterances or parts of an utterance, and they do so by expressing at the same time the semantic relationship (e.g. of time or contingency) obtaining between them". Or it is rather the speaker's "assessment of how he views the connection between two linguistic units. The units concerned may be very large or very small: sentences, paragraphs, or even larger parts of a text at one extreme (19.86); at the other extreme, they may be constituents of a phrase realizing a single clause element". They represent the centre of intersentential connection. They have "a relatively detached and superordinate role".[13]

Some **disjuncts** (*briefly*, *unfortunately*, *indeed*, etc.) can also connect sentences. Like conjuncts, they are not integrated in the clause structure. They either convey the speaker's comment on the form of what he is saying, or comment on the content of communication.

Not all **adjuncts** are connectives but some of them can have a connective function (e.g. *also*, *even*, *still*, etc). Their role in intersentential connection is marginal, because unlike disjuncts and conjuncts, they are integrated into the clause structure and they connect parts of sentences rather than sentences as a whole. Adjuncts "1) can come within the scope of predication pro-forms or predication ellipsis; 2) can

[11] All citations in this paragraph are taken from Halliday and Hasan, 1976, p. 239.
[12] In Quirk et al., 1985 the distinction is more detailed. They divide adverbials into four categories: conjuncts, disjuncts, adjuncts and subjuncts. However, for the purposes of this thesis, the distinction between adjuncts and subjuncts is not important because both of these categories could be considered rather marginal within intersentential connection.
[13] All citations in this paragraph taken from Quirk et al., 1985, p. 632.

be the focus of limiter adverbials such as only; 3) can be the focus of additive adverbials such as also; 4) can be the focus of a cleft sentence".[14]

For the ability to distinct between adjuncts, disjuncts and conjuncts more precisely, I have consulted **Greenbaum, 1969**. In his treatment, he presents examples and methods of distinguishing between them and offers a detailed justification for his claims.

For comparison with the Czech system of connectives, I have used **J. Hoffmannová's** analysis of connectives[15]. Connectives in her treatment are a complex means of textual coherence. She includes also cases that have not been involved in the category of connectives in this thesis. Her treatment goes deep into sentence structure on the one hand, and covers the connection of larger text units on the other hand. Under the term of metaspeech commentaries and text orientators, she understands a number of means, for example "this implies...", "they say", "it is said", "more precisely", etc. She also mentions a tension between the traditional clear-cut classification of word classes and the actual functional use of some expressions, which also had to be coped with in this thesis.

Hoffmannová draws out seven categories of logic relations: additive, adversative, alternative, gradative, causal, temporal and spatial. In a way, these categories resemble Halliday and Hasan's classification. In fact, J. Hoffmannová includes their four main categories and adds, or perhaps rather emphasizes, three others as separate categories.

A number of studies into intersentential connection by **R. Pípalová** (Pípalová, 1990, 1992, 1993, and 1997) have been consulted. She defines connectives as "polyfunctional, non-sentential, explicit, specialized exponents of a particular type of contact, vs. distant, anaphorically vs. cataphorically oriented intersentential linkage and logicosemantic contiguity"[16]. I have adopted her semantic classification into four categories of sequence, confrontation, consequence and correspondence (see Table 1) and her division into central and marginal area of intersentential connection. She divides intersentential connective means into central and marginal

[14] Quirk et al., 1973, p. 209.
[15] Hoffmannová, 1984, and 1987.
[16] Pípalová, 1997, p. 91.

connectives. In the centre, she involves "conjunctions (AND, BUT), conjuncts (HOWEVER, THUS), (connective) disjuncts (NATURALLY, OBVIOUSLY), and multiple central connectives (AND THEREFORE, OR IN PARTICULAR). Besides these central connectives, which themselves form a kind of a continuous scale, there are peripheral connectives, distinguished from the former group by a higher degree of integration into the sentence structure."[17] In the latter group, she involves "peripheral conjunctions (TILL BECAUSE), subjuncts (ALSO, STILL), temporal expressions (AFTERWARDS, THEN), and peripheral multiple connectives (THEN AGAIN)."[18]

She has studied intersentential connectives from a number of aspects that have been studied in this thesis. Because of similar methodology, it is possible to compare and contrast some of her findings with what I have found.

Table 1. Semantic categories of intersentential connectives suggested in R. Pipalová, 1997.

1.	Sequence	a.	additive	(moreover, also, and)
		b.	enumerative	(first, secondly)
		c.	chronological	(then, later)
		d.	discoursal i. direct	(well)
			ii. indirect	(by the way)
		e.	alterative inclusive	(alternatively)
2.	Confrontation	a.	alterative exclusive	(either – or)
		b.	antithetic/contrastive	(in contrast)
		c.	concessive	(however, yet)
3.	Correspondence	a.	reformulatory	(in other words, rather)
		b.	particularization	(for instance)
		c.	summative	(to sum up, all in all)
		d.	confirmative	(surely, certainly)
		e.	simultaneous	(meanwhile)
		f.	equative/comparative	(equally)
4.	Consequence	a.	cataphoric	(because)
		b.	anaphoric i. simple	(hence, thus)
			ii. inferential	(obviously)

[17] Pípalová, 1997, p. 91
[18] Pípalová, 1997, p. 91.

3 Methods

3.1 The corpus

When collecting samples of texts, the aims were clear: to gather contemporary geographic insider-talk articles, to include as many speakers as possible and to balance the proportion of individual areas of geography.

The corpus contains 9000 sentences. It has two main parts: ENSS (English native speakers' subcorpus) and CSS (Czech [non-native] speakers' subcorpus), both comprising 4500 sentences. ENSS involves 30 extracts from scientific articles written by British English native speakers (ENSS) and the other contains a representative sample of 30 extracts from articles written in English by Czech scientists, non-native speakers of English (CSS). There are also two extracts of translated articles from Czech into English in a translation subcorpus (TS).[19] However, this part of the corpus is not the main area of research. It serves only for comparison. All extracts are 150 sentences long. Each extract is written by a different speaker or group of speakers.[20] Abstracts, résumés, footnotes, and comments on pictures have not been included.

All the articles are geographical. The CSS is quite balanced as it includes various branches, ranging from physical to social geography. The ENSS contains mostly articles from physical geography; social geography is less represented.

The articles are quite contemporary, all of them having been published less then eight years ago. They are scientific, taken from various journals and publications. They could be considered insider-talk texts as they are obviously aimed at an erudite reader.

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[19] I did not include translations in the CSS. Rather, I put them in a separate part of the corpus (TS), because I believe that translating involves different processes from writing straight in the non-native language. When writing in native language, the writer has more freedom to write without constraints caused by his/her lesser knowledge of the language and the main effort is then made by the translator, who has less freedom to work with sentences creatively.
The two texts were chosen at random.

[20] In my treatment, a sentence starts with a capital letter, has a finite verb, and ends either with a full stop, or a major punctuation mark (colon or semicolon) when supported by paragraphing. When a clause is divided by colon or semicolon and the division is not supported by paragraphing, I consider it one sentence.

Some of the articles have been corrected by native speakers.[21]

3.2 Processing the texts

All sentences in the corpus were numbered and counted. When an article was too short (i.e. shorter than 150 sentences) it was extended with a similar article by the same speaker or the same (or very similar) group of speakers. It was sometimes difficult to achieve absolute identity of teams of writers.

3.3 The treatment of the connectives

A number of means were included in the category of intersentential connectives.[22] Conjuncts (*in addition*, *therefore*, *on the other hand*, *for example*...), coordinating conjunctions (coordinators), cohesive disjuncts (*clearly*, *unfortunately*, *obviously*, etc.) were counted as the centre of intersentential connection. Other adverbial expressions, namely adjuncts indicating time relations *(then*, *subsequently)*, focusing adjuncts, (*also*, *still*, *even*) and subordinating conjunctions were considered marginal. This distinction was adopted from Pipalová, 1997 (see chapter 2).

Intrasentential connectives were not included and I did not include expressions like *under these conditions*, *for that reason*, *in this way*, *in this respect*, *for this purpose*, *after that*, *before* that, *because of that*, *in this context*, *this is because*, *that is why* etc. Although they certainly indicate cohesive links and although they express

[21] I suppose that native speakers' correction does not matter in the research. Presumably, native speakers do not interfere as deep as into intersentential connection. There are a number of possible reasons. First, if a native speaker asked to revise an article is not an expert in the subject matter s/he may not able to insert connectives appropriately because the topics of all the articles are very demanding. Second, even if s/he were an expert, s/he may not feel authorized to insert connectives. S/he may perhaps divide too long a sentence into two sentences, replacing a conjunction with a conjunct from the same logicosemantic category or disambiguate vague links. Presumably, it would affect just a small percentage in the whole research. Third, when revising texts, readers concentrate mostly on grammar mistakes. While doing so, they use bottom-up approaches and thus above-sentence structures are backgrounded.
There exists a very useful tool for revising texts in computational linguistics. It is corpus approach. This tool is able to spot such subtle differences as frequency of connectives. However, application of systemic functional linguistics or corpora approach in writing and revising is not so well-known in the Czech Republic to be widely used. In addition, as far as I know, it was not used with the texts from the corpus.

[22] The word intersentential may be confusing since it is not only sentences that are connected. The scope of intersentential connectives can go beyond sentences. They often connect groups of sentences, whole paragraphs, or even larger parts of texts.

logicosemantic relations, such cohesive ties are realized by reference, not by conjunction (Halliday, Hasan, 1976).

3.4 Justification of focusing attention on intersentential ties only

Intrasentential connectives function within one sentence. They are represented mainly by conjunctions, which are either coordinating (*and*, *or*, *but*; some linguists include *for* and *so that*, or even *so* and *yet* – which may be classified as conjuncts) or subordinating (*because*, *when*, *although*, *while*, *after*, *if*, etc.) and some connective adverbs, namely conjuncts (*yet*, *therefore*, etc.), but also disjuncts and some adjuncts.

The reason I have chosen intersentential and not intrasentential connectives to compare native and non-native English texts may not be obvious, but the choice is deliberate and purposeful. Intrasentential and intersentential ties are different in nature. Clauses and parts of a sentence cohere together by means of structure, whereas the relationship between higher units – sentences or paragraphs or even larger parts of texts – is not structural; they cohere by means of cohesion (Halliday, Hasan, 1976). The core of my interest does not lie in structural relations, but in higher relations, i.e. those that could be called text-forming relations (although some scholars consider intrasentential connectives text-forming, as well). I believe that their usage is more difficult to learn. With intrasentential connectives, especially in hypotaxis, a writer or speaker may be forced to use a connective by the structure of the sentence, i.e. on grammatical grounds. With intersentential links, the reason for inserting a connective into a new sentence, and thus linking it to the previous sentence, is purely semantic, based on the need to express the logical connection.

Texts consisting of more sentences reach beyond structural relations. The nature of these text-forming relations was ingeniously expressed by Halliday and Hasan:

> *"... we shall not expect to find the same kind of structural integration among the parts of a text as we find among the parts of a sentence or clause. – unity of a text is a unity of a different kind".*[23]

[23] Halliday and Hasan, 1976, p. 2.

3.5 Assorting the connectives

In both the subcorpora, connectives were found, classified and written into tables. They were assorted according to their semantic category, position, punctuation, syntactic function and other parameters. The division into semantic categories was vital. For semantic categories, I adopted and modified R. Pipalová's classification (see Table 2)[24]. The modified classification is presented in Table 2. The category of discoursal connectives was not included, a gradative category was added and names of some categories were simplified ("antithetic/contrastive" became "contrastive" and "equative/comparative" was called "comparative", because I preferred one word terms in the graphs).

Table 2. My modification of semantic categories of intersentential connectives (adopted from Pipalová, 1997).

1.	Sequence	a. additive	(also, and)
		b. gradative	(furthermore, moreover)
		b. enumerative	(first, secondly)
		c. chronological	(then, later)
		d. alterative inclusive	(alternatively)
2.	Confrontation	a. alterative exclusive	(either – or)
		b. contrastive	(in contrast)
		c. concessive	(however, yet)
3.	Correspondence	a. reformulatory	(in other words, rather)
		b. particularization	(for instance)
		c. summative	(to sum up, all in all)
		d. confirmative	(surely, certainly)
		e. simultaneous	(meanwhile)
		f. comparative	(equally)
4.	Consequence	a. cataphoric	(because)
		b. anaphoric i. simple	(hence, thus)
		ii. inferential	(obviously)

When there were borderline cases between two categories, I included the connective in both of them, counting half a point in each category in question.

The computer software used for the work was Microsoft Office Word, Excel, and Notetab for text statistics.

[24] Pípalová, 1997, p. 91.

4 Results

4.1 ENSS and CSS

The language of the CSS is very advanced. There are a few grammatical mistakes, but when skimming the texts swiftly one would not usually recognise that they are not written by native speakers.

4.11 The frequency of connectives

The hypothesis that Czech speakers use less intersentential connectives when writing in English than English native speakers do was confirmed. The result was quite striking. There were 935 connectives in the ENSS as against 500 occurrences in the CSS. This means that the frequency of connective use in these two corpora was almost 53.5% lower with non-native speakers. Thus, it can be concluded that English native speakers inserted a connective into every 4.82 sentence, whereas Czech speakers did so in every ninth sentence.[25] The average number of connectives per one extract was 31.17 for ENS and 16.7 for CS.

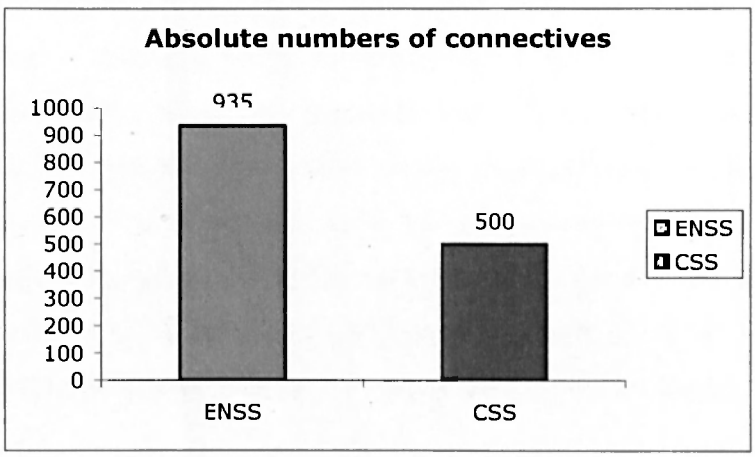


Figure 1. Absolute numbers of connectives for both the ENSS and the CSS.

As far as frequency is concerned, ENS texts turned out to be more balanced in frequency than CS texts. There were considerable differences. Although the overall

[25] The result is quite low also in ENS texts in comparison with other researches. For example, Pipalová, 1997 compared scientific, journalistic and fiction style and in scientific style, every 3.4 sentence contained a connective. In my corpus, the frequency was lower, in ENS texts also. R. Pipalová's corpus contained texts from linguistics and literature. In my corpus, there were purely geographical texts. Presumably, in the humanities in contrast with the sciences, the frequency of connectives may be generally higher. This could be because in the humanities, there is more space for interpretation and individual opinions than in science.

non-native frequency of connective insertion was much lower, quite paradoxically, the article with the largest number of connectives was written by a Czech speaker. This article contained 62 connectives per 150 sentences, which means that the author linked every 2.41 sentence. In contrast, some Czech authors used only five connectives in the whole 150 sentence long extract. Within the translations, one text contained only three connectives. What is more, in this extract, there was only one conjunct; the other two connectives were adjuncts, which could be considered a marginal category of intersentential connection because of their integration in the clause structure. In the ENSS, the total numbers of occurrences did not differ as much among the writers as in the CSS corpus. The average deviation from the average frequency was 24.2% for ENS, as against 58.3% for CS.[26]

4.12 Formal diversity in connector use

Not surprisingly, the corpus showed that ENS used a wider range of different connectives within one text than CS did. The average number of different connectives used in one extract was 13.47 for ENS and 9.03 for CS.

The difference between ENS and CS seems less significant if we recall that the average number of tokens (counting reiterated cases) are 31.13 for ENS and 16.67 for CS. In this context, it can be concluded that in fact CS reiterated connectives less than ENS did. This, however, would also be a simplification because the range of connective means is finite and some central connectives simply tend to be repeated (*however*, *therefore*, etc.). This means that, for example, speakers that used 40 tokens (including reiterated cases) per one extract were more likely to reiterate some of them than writers employing five connectives in the whole article.

The abovementioned numbers may be found irrelevant because there was a significant difference between ENS and CS in the number of connectives per the whole subcorpus. Furthermore, especially in the CSS, speakers sometimes used fewer connectives in the whole text than the average number of different connectives in one article. Thus, it could be objected that the speakers could not manage to use the whole range of their connective repertoire within as few as 150

[26] First, I counted the average numbers of connectives per one extract in both the subcorpora. Second, I counted deviations in frequency of all authors from their subcorpus' average and the arithmetic average of the absolute values of the individual deviations. Finally, I expressed the average deviation in percents.

sentences. On the other hand, this might be also true of the ENS. For the results in each semantic category see chapter 4.17.

4.13 Position

The percentage of initially placed connectives was almost the same for both the subcorpora. For the ENSS, it was 59.9% and for the CSS it was 60.9%.

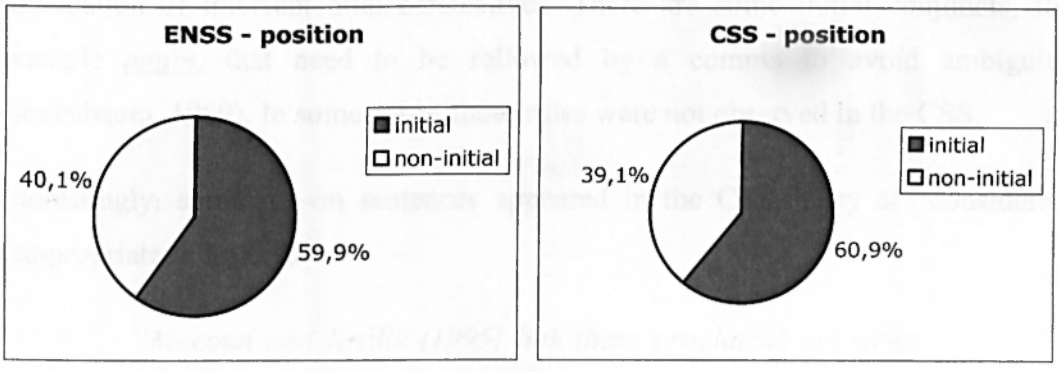


Figure 2. Proportion of initial and non-initial position of intersentential connectives for the ENSS and the CSS.

4.14 Punctuation

ENS punctuated 61.0% of their connectives and CS 57.5%.

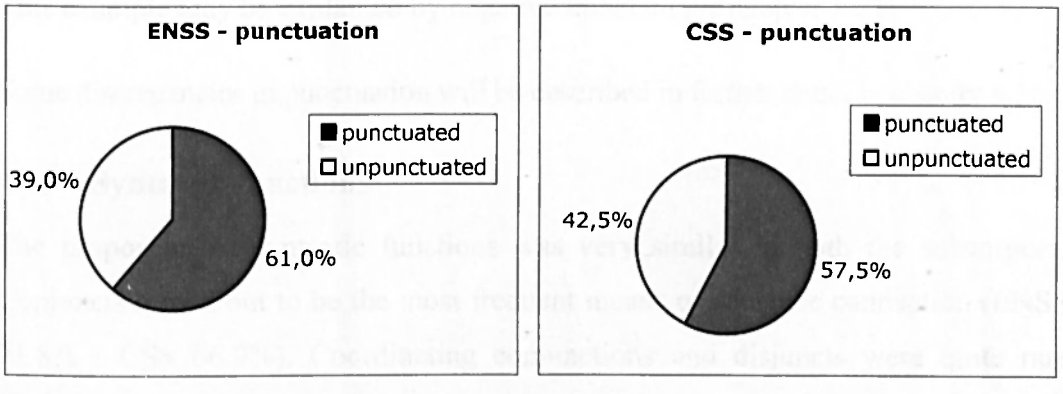


Figure 3. Proportion of punctuated and unpunctuated intersentential connectives for the ENSS and the CSS.

In punctuation, CS were more consistent. If they punctuated a certain element (for example an initial *however* or *therefore*) they did so throughout the whole article. Individual ENS often used both forms (i.e. punctuated and unpunctuated) within one article and sometimes even within one chapter.

> *116* ***However*** *the ice flow patterns developed in such models are very similar to those reproduced in our more simple model.*

*136 **However**, geophysical evidence from the Bear Island Trough mouth fan shows complete glaciation of the Barents Sea at the LGM.*

(14.ENSS)

On the whole, the use of punctuation did not show any significant differences. There are not many obligatory rules in English that would determine the punctuation of intersentential connectives. There are some initial conjuncts, for example *again*, that need to be followed by a comma to avoid ambiguity (Greenbaum, 1969). In some cases, these rules were not observed in the CSS.

Interestingly, some run-on sentences appeared in the CSS. They are considered inappropriate in English.

"Macoun and Králik (1995) link these proglacial sediments to the Early Saalian glaciation (Jítrava glaciation in local stratigraphical scale), however the exact age is still obscure."

(18. ENSS)

This example may be explained by negative transfer (see chapter 5.21).

Some discrepancies in punctuation will be described in further detail in chapter 4.16.

4.15 Syntactic functions

The proportion of syntactic functions was very similar in both the subcorpora. Conjuncts turned out to be the most frequent means of sentence connection (ENSS 71.8% / CSS 66.0%). Coordinating conjunctions and disjuncts were quite rare (ENSS 3.9% / CSS 4.5%). Adjuncts and subordinating conjunctions, which could be considered marginal means of intersentential connection, were found to be more frequent in the CSS (26.8%) than in the ENSS (22.8%).

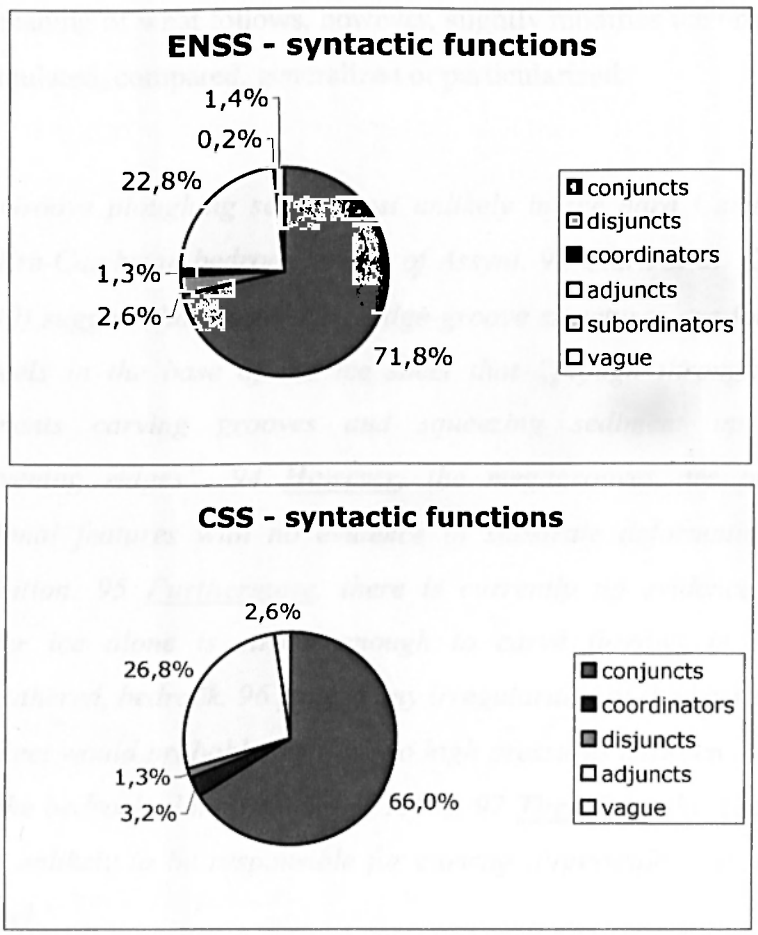


Figure 4. Proportion of syntactic functions in the ENSS and the CSS.

4.16 Semantic categories

Connectives were classified into one of four semantic categories. I adopted R. Pípalová's categories: *sequence*, *confrontation*, *consequence*, and *correspondence*.[27] Unlike all other classifications, this division seemed most in accordance with formal logic, corresponding to the four logical categories of *conjunction* ($\wedge$), *disjunction* ($\vee$) (in the treatment of formal logic it is a solely exclusive disjunction, thus imposing contrast), *implication* ($\rightarrow$), and *equivalence* ($\leftrightarrow$).

The relation of sequence could be best described by the coordinating conjunction "and", confrontation could be characterized by "but" or "yet", and consequence by "so". Correspondence is more difficult to describe in one or two words. Items connected by means of correspondence are in apposition, meaning basically the

[27] Pípalová, 1997, p. 91.

same. The meaning of what follows, however, slightly modifies the original item. It can be reformulated, compared, generalized or particularized.

Example 1

> *"92 Groove ploughing seems most unlikely in the hard Cambrian and Pre-Cambrian bedrock terrain of Assynt. 93 Clark et al. (2003, p. 240) suggest that large-scale ridge-groove structures are formed by keels in the base of the ice sheet that "plough through soft sediments carving grooves and squeezing sediment up into intervening ridges". 94* ***However****, the megagrooves are purely erosional features with no evidence of substrate deformation or deposition. 95* ***Furthermore****, there is currently no evidence that glacier ice alone is strong enough to carve furrows in hard, unweathered, bedrock. 96* ***Indeed*** *any irregularities at the base of an ice-sheet would probably melt due to high pressures between the ice and the bedrock plane (Paterson, 1994). 97* ***Therefore****, this process looks unlikely to be responsible for carving large-scale grooves in bedrock."*
>
> (3. ENSS)

In this paragraph, there are connectives of all four categories of sequence, confrontation, consequence and correspondence. The paragraph is concerned with the origin of ridge-groove structures in the area of Assynt. First, the author presents a topic sentence – his doubt that the ridge groove structures could have been formed by keels, i.e. groove ploughing. Then in the following sentence, which is connected asyndetically, he presents a hypothesis about their origin that contradicts the first sentence. The confrontational relation, however, is not explicitly expressed. The reader has to figure it out. In sentence 94, the author contradicts the hypothesis and adduces the reason for his disagreement. Here, the **confrontational** connection is made explicit by the conjunct *however*. In sentence 95, he adds another reason for contradicting the hypothesis or rather diminishing its justification or validity. The **sequential** relation is expressed by the gradative *furthermore*. Sentence 96 is connected by the conjunct *indeed*. It is related in terms of **correspondence** with sentence 95. Its function is to support the previous statement (still disagreeing with

sentence 94). The final sentence of the paragraph, introduced by *therefore*, establishes a **consequential** relation with the previous sentence. At the same time, it summarizes what was written before. Sentence 97 means virtually the same as the introductory sentence 92, but the relation of correspondence is not made explicit by a connective.

The semantic classification had to be based on the context and on the relationship between the connected elements. Some connectives identical in form can belong to different semantic categories. For example *also* can express sequence (see Example 2) or (comparative) correspondence (see Example 3), *then* can mean sequence or consequence, etc. Other cases of such dualism found in the corpus are shown in Appendix 1.

Example 2

> *"24 Finsterwalderbreen is **also** the only glacier which is believed to be capable of surging in the near future (Nuttall et al. 1997)."*
>
> (13. ENSS)

Example 3

> *89 This trend is particularly apparent in maximum rates of change for both channel width change and lateral movement that more than double between 1948–1963 and 1963–1976. 90 Mean rates of change in both parameters **also** show an increasing trend, although caution in drawing firm conclusions from this data is required as all mean values are considerably below measurement error estimates for the respective photograph dates.*
>
> (1. ENSS)

The proportion of semantic relations

Although there was quite a significant difference in the frequency of connectives between the two subcorpora, the difference in the proportion of semantic categories was not so significant (see Fig. 5). The order of relations according to decreasing frequency was the same for both the subcorpora. The most frequent connective type was sequence, next was confrontation, then consequence, and finally correspondence.

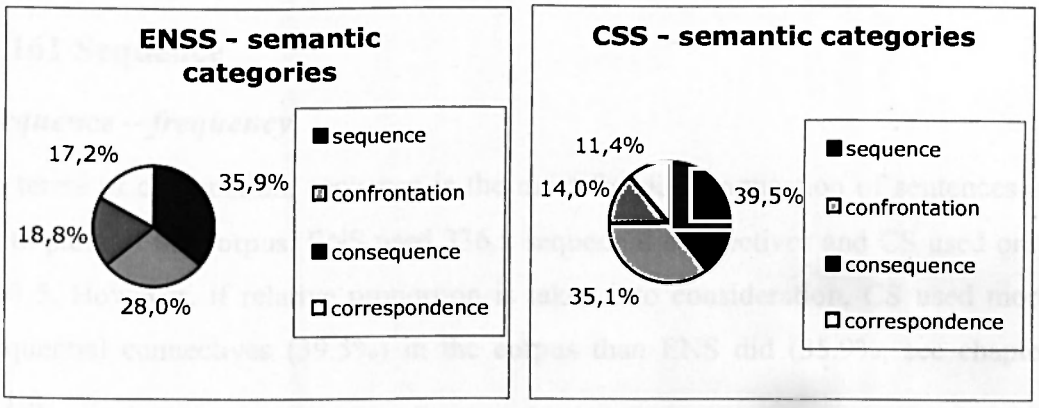


Figure 5. Proportion of semantic categories in the ENSS and the CSS.

When compared to ENS, CS emphasized confrontation (ENSS 28.0% / CSS 35.1%) and sequence (ENSS 35.9% / CSS 39.5%) and slightly under used consequence (ENSS 18.8% / CSS 14.0%) and correspondence (ENSS 18.8% / CSS 11.4%). The ENSS was more balanced in the proportion of semantic relations (for absolute numbers of occurrences see Table 3).

Table 3 Absolute numbers and percentages of semantic categories in the ENSS and the CSS.

	ENSS		CSS	
semantic category	**occurrences**	**percentage**	**occurrences**	**percentage**
sequence	336.5	35.9%	197.5	39.5%
confrontation	260	27.8%	175.5	35.1%
consequence	174.5	18.7%	70	14.0%
correspondence	164	17.5%	57	11.4%

4.161 Sequence

Sequence – frequency

In terms of conjunction, sequence is the most frequent connection of sentences in both parts of the corpus. ENS used 336.5 sequential connectives and CS used only 197.5. However, if relative proportion is taken into consideration, CS used more sequential connectives (39.5%) in the corpus than ENS did (35.9%, see chapter 4.16).

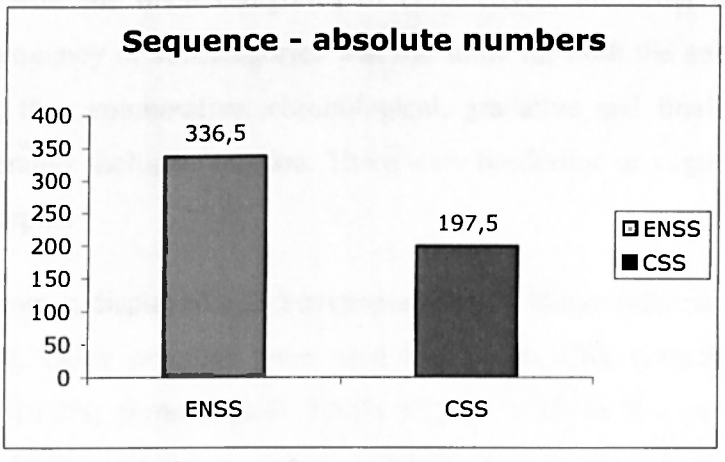


Figure 6. Sequence – absolute numbers of intersentential connectives in the ENSS and the CSS.

Sequence – semantic subcategories

Sequence was divided into five categories: additive, gradative (emphasized) enumerative, chronological and alterative inclusive. Some examples from each category are shown in Table 4.

Sequence is a relatively loose relation. In some cases, the linked items can change their position. This can happen with some additive, enumerative and alterative connectives, but only unless one element is more important or more general than the others are. With gradative and chronological connectives, the swapping could put more emphasis on a less important item, or revert and distort the sequence.

Within sequence, some expressions can belong to more than one category whereas others are relatively stable. For example *subsequently* is predominantly chronological whereas *then* or *next* can function as chronological or gradative connectives.

Table 4. Sequence – examples of connectives from semantic subcategories.

Semantic subcategory	Examples
Additive	also, in addition,
Gradative	furthermore, further, moreover
Enumerative	first (1), second (2), finally, then, next
Chronological	at the beginning, then,
Alterative (inclusive)	alternatively

Similarly as with the main categories of connectives, the order determined by decreasing frequency of subcategories was the same for both the subcorpora. First was additive, then enumerative, chronological, gradative and finally in the CSS there was alterative inclusive relation. There were borderline or vague cases in both parts of the corpus.

The CSS subcorpus displayed a higher proportion of additive relation (ENSS 48.4% / CSS 57.4%). Other relations were used less in the CSS (enumerative: ENSS 21.7% / CSS 16.0%; chronological: ENSS 17.2% / CSS 14.0%; gradative: ENSS 9.5% / CSS 10.5%; alterative inclusive: ENSS 1.5% / CSS 0.0%; some cases remained vague). For absolute numbers see Table 5.

Interestingly, there were quite significant discrepancies even within the subcategories. For example, within the gradative subcategory, ENS largely preferred *furthermore* (ENSS 22 / CSS 3 occurrences) and CS *moreover* (ENSS 4 / CSS 13). The difference was enormous and it was not caused by one or two speakers.

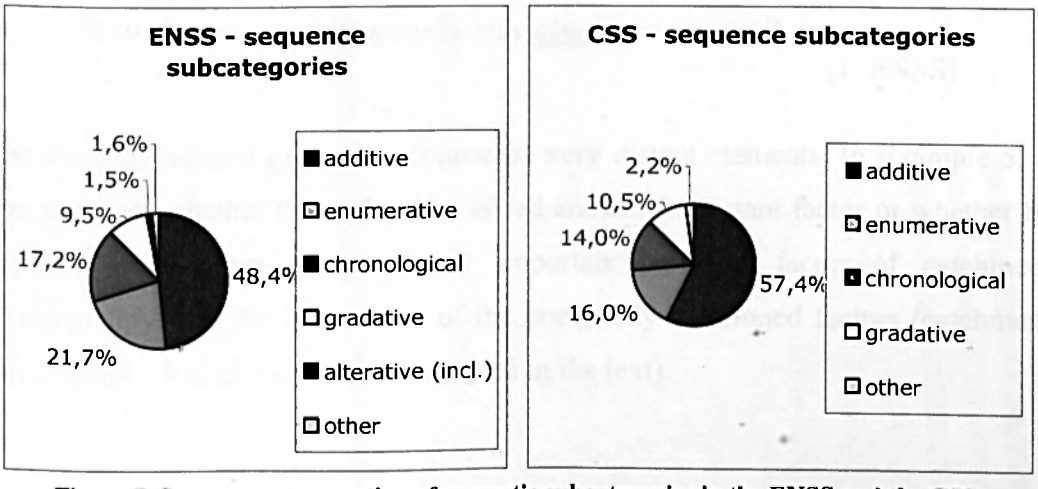


Figure 7. Sequence – proportion of semantic subcategories in the ENSS and the CSS.

Table 5. Sequence - absolute numbers and percentages of semantic subcategories in the ENSS and the CSS.

Semantic subcategory	ENSS		CSS	
additive	163	48.4%	115	57.4%
enumerative	73	21.7%	32	16.0%
chronological	58	17.2%	28	14.0%
gradative	32	9.5%	21	10.5%
alterative	5	1.5%	0	0.0%
other	5.5	1.6%	4.5	2.2%

Sequence – borderline and ambiguous cases

Sequence most often verged on the borderline with **correspondence**. This was mostly the case of *again*, *at the same time* (additive sequence / simultaneous or comparative correspondence – see Example 4) and the subjunct *also* (additive sequence / comparative correspondence – see example Example 5).

Example 4

> "*In Britain, a significant minority of around 10% of city-centre shoppers are fearful for their personal safety (Nottingham Safer Cities Project, 1990), while more substantial minorities express anxieties concerning fears of being robbed (c. 20%), or of threats posed by groups of youths and vagrants (c. 40%) (Thomas & Bromley, 1996). 24* ***At the same time****, there has been a steady growth of public houses and night clubs in city centres, increasingly catering for an evening and late-night 'youth market'...*"
>
> (21. ENSS)

Example 5

> "*149 Catchment physiography may* ***also*** *be important.*"
>
> (1. ENSS)

The focusing adjunct *also* often connected very distant elements. In Example 5, it was not clear whether the author just added another important factor or whether he (by the word *also)* compared the importance of the factor of catchment physiograhpy with the importance of the previously mentioned factors (catchment physiography had already been mentioned in the text).

Some connectives were on the borderline between sequence and **consequence**. This was mainly the case of *then* (see Example 6).

Example 6

> *15 The current upsurge of interest in morphometric analysis is* ***therefore*** *strongly linked to recent developments in both ground-based and remote survey technologies, which now present the opportunity to acquire fully distributed three-dimensional terrain datasets, less sensitive to sampling resolution. 16 Sediment budgets can* ***then*** *be derived through pairwise comparison of digital elevation models (DEMs), producing maps of difference to visualize and quantify the pattern of channel change.*
>
> (4. ENSS)

On the borderline between sequence and **confrontation** were *unfortunately* and *alternatively.* With *alternatively* it was not always clear if the alteration suggested was inclusive or exclusive (see Example 7).

Example 7

> *"141 The lobe may have a large surface area and low enough elevations to ensure that ablation matches the ice flux delivered by the ice stream. 142 Fig. 7a shows the surface profile and plan view of this configuration which has no modern analogue but closely resembles the inferred configuration of the Des Moines lobe (Patterson, 1997). 143* ***Alternatively****, a terrestrial ice stream may terminate in a proglacial lake and evacuate ice rapidly via a calving front."*
>
> (23.ENSS)

Sequence – position

Both ENS and CS preferred a non-initial position (ENSS 45.9% / CSS 41.5%). These numbers correspond to the proportion of adjuncts, which tend not to occur in the initial position.

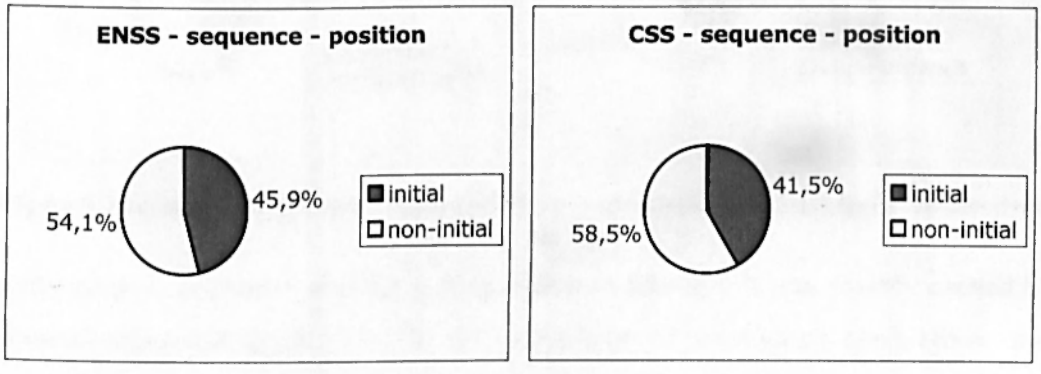


Figure 8. Sequence – proportion of initial and non-initial position in the ENSS and CSS.

Some linguists argue that an initial position of *and* is inappropriate for the formal register. There was no initial *and* in ENSS. In the CSS, there were two occurrences.

Czech speakers often placed *also* in the initial position although it was an adjunct (see Example 8).

Example 8

> *"43 Tourist routes are an important mandatory supplement of content in biking maps. 44 Tourist marking is important orientation element in terrain also for biking tourists. 45 The classic colour lines, which are thinner than lines of biking routes, are suitable for display on tourist maps. 46* ***Also*** *the educational paths are mandatory elements of this content, because are marked in terrain and also used for orientation in biking"*
>
> (16. CSS)

Sequence – punctuation

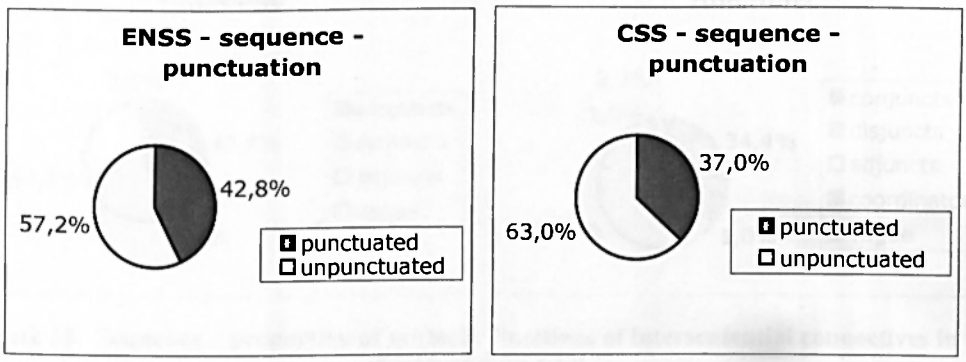


Figure 9. Sequence – proportion of punctuated and unpunctuated intersentential connectives in the ENSS and the CSS.

In my corpus, sequence was the least punctuated relation. It was mainly caused by adjuncts (*also* and *then*). For CS, the percentage of punctuated connectives was lower. This may have been caused by the CS preference of adjuncts.

Sometimes CS punctuated their connectives more than necessary. In Example 9, the connective *then* is punctuated and used as a conjunct, although the meaning does not seem to be enumerative (where the use of a conjunct would be appropriate) or as a synonym to *furthermore*.

Example 9

> "*34 The main limb of the solifluction streams has its source under the saddle of the borderline ridge. 35 Porphyry boulders under the saddle cover the left valley slope (710–750 m above sea level, south aspect ratio of 15–35°) in the area of 200–250 m in its broadest part. 36* ***Then****, the flow continues within the full extent of the valley (670 m above sea level), the width of the valley bottom is 30 m at the mouth of flow*"
>
> (23. CSS)

Sequence – syntactic functions

The sequential relation was realized mainly by adjuncts (especially by the adjunct *also*) in both the subcorpora (ENSS 54.1% / CSS 61.3% of all sequential connectives). 43.3% in the ENSS against 34.4% in the CSS were conjuncts. Only a small part of sequential relation was realized by disjuncts (ENSS 0.4% / CSS 1%). In the CSS, there were two coordinating conjunctions (1%). No coordinating conjunctions were used intersententially in the ENSS within the category of sequence. 2.3% in the ENSS and 2.1% in the CSS remained vague.

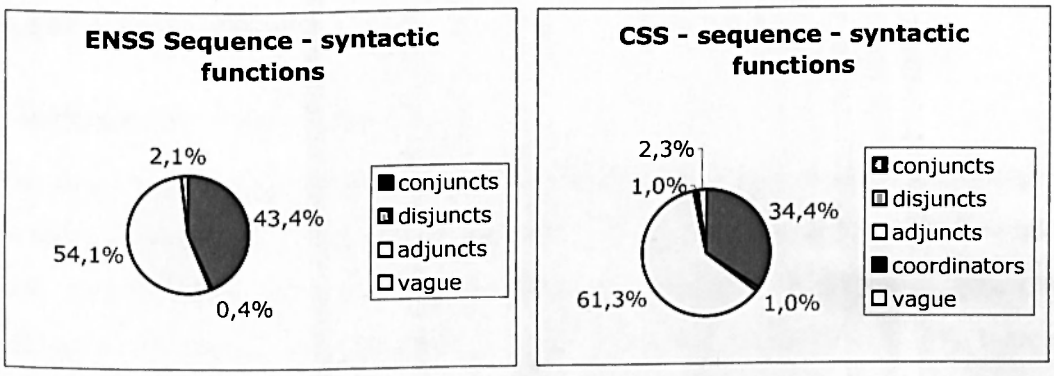


Figure 10. Sequence – proportion of syntactic functions of intersentential connectives in the ENSS and the CSS.

Sequence – formal diversity

ENS articles were richer in variety of sequential connectives than CS were. The average number of different connectives per text was 5.37 in the ENSS, as against 3.83 in the CSS. Some speakers relied solely on adjuncts (especially *also* and *then*) and enumerative conjuncts; others used more sophisticated forms of sequential connection (for example *moreover*, *besides*, *additionally*).

4.162 Confrontation

Confrontation – frequency

The frequency of confrontational intersentential connectives was again much higher in the English articles (English [260] /Czech [175,5] – see Figure 11), but if we take into consideration only the relative proportion in relation to other semantic categories of connectives, there was more confrontation in the CSS (35.1%) than in the ENSS (28.0% – see Figure 5).

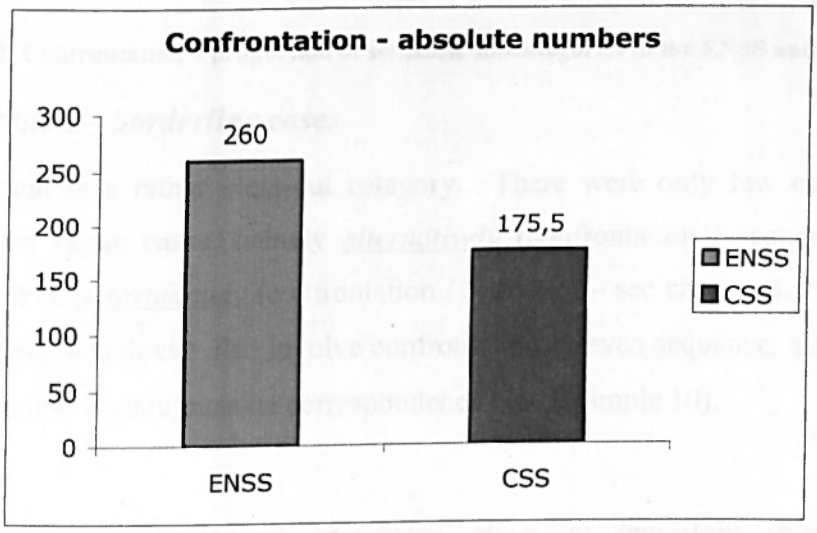


Figure 11. Confrontation – absolute numbers of intersentential connectives in the ENSS and the CSS.

Confrontation – semantic subcategories

The whole category of confrontation was divided into 3 groups. In both the subcorpora, the most frequent relation is concessive (ENSS 81.9% / CSS 75.5%), followed by comparative (ENSS 16.8% / CSS 23.4%) and there are a few instances of exclusive alteration (ENSS 0.2% / 0.5%). Some cases remained vague. Concessive relation (A. However, B; A. Yet B) could be paraphrased as "*A. Despite this, B*" or "*Although A, B*"). Contrastive relation *"A. In contrast B"* could be reformulated with "as against" ("A, as against B"). The third relation – exclusive alteration – is also confrontational. It means "A or B", where A and B are mutually incompatible. This relation may be represented by *alternatively* or *or*.

Predominantly concessive connectives are: *however*, *but*, *yet*, *nevertheless*, *still*, etc. Contrastive relations usually take the form of: *in contrast*, *by contrast*, *conversely*, and *on the other hand*.

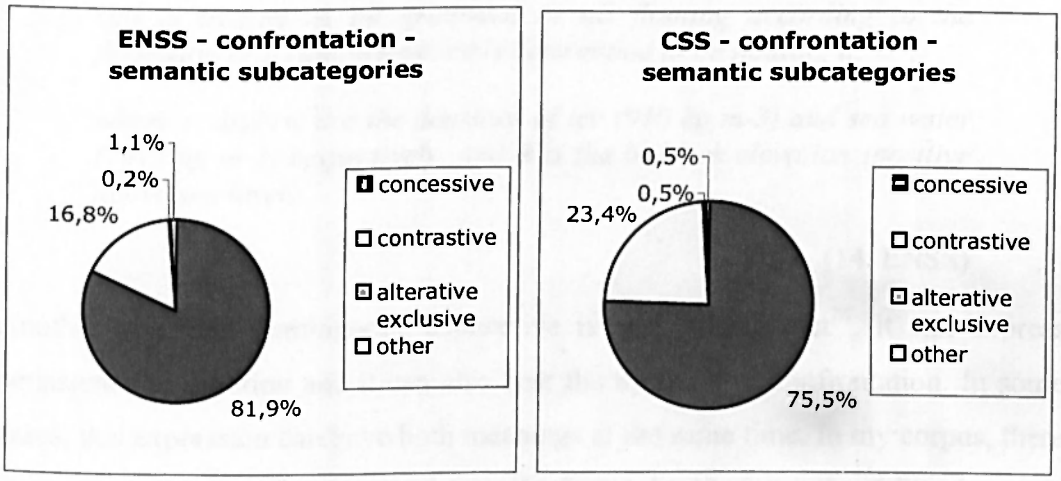


Figure 12. Confrontation – proportion of semantic subcategories in the ENSS and the CSS.

Confrontation – borderline cases

Confrontation is a rather clear-cut category. There were only few connectives classified as vague cases, namely *alternatively* (confrontation / sequence – see chapter 4.161), *unfortunately* (confrontation / sequence – see chapter 4.161) and *at the same time*, which can also involve confrontation or even sequence, although its central meaning is simultaneous correspondence (see Example 10).

Example 10

> "*18 The geoecological knowledge plays an important role especially in the rural landscape planning still dominated with natural processes. 19* ***At the same time****, the impact of natural factors is strongly suppressed in urban landscapes.*"
>
> (12. CSS)

There are three words that sometimes verge on the border between confrontation and **correspondence**: *indeed*, *rather* and *instead*. These expressions presuppose some kind of contrast and they are often preceded by a negative sentence. However, the second sentence usually differs from the previous one only to a certain degree or only in some aspect (see Example 11). Although Greenbaum, 1969 considers them contrastive, they function rather as a reformulation and the sentence introduced by one of these expressions is not in disagreement with what was said before. One has to read the surrounding context very carefully, though.

Example 11

> *129 This model does not explicitly consider the transition zone between grounded and floating ice. 130* ***Rather****, ice within a given*

cell is treated as all grounded or all floating according to the floatation criterion, where ice is determined to be floating if:

where ri and rw are the densities of ice (910 kg m-3) and sea water (1024 kg m-3) respectively, and B is the bedrock elevation (positive above sea level).

(14. ENSS)

Another potentially ambiguous connective is *still*. As adjunct[28], it can express persistence or duration and it can also bear the meaning of confrontation. In some cases, this expression can have both meanings at the same time. In my corpus, there was not such an ambiguous instance. In Example 12 from the CSS, *however* disambiguates the meaning of still. There, it is temporal. If there were not *however* in the sentence, it would not be clear whether *still* expressed confrontation or whether it was a temporal adjunct.

Example 12 (After an outline of the development of some trends in geography):

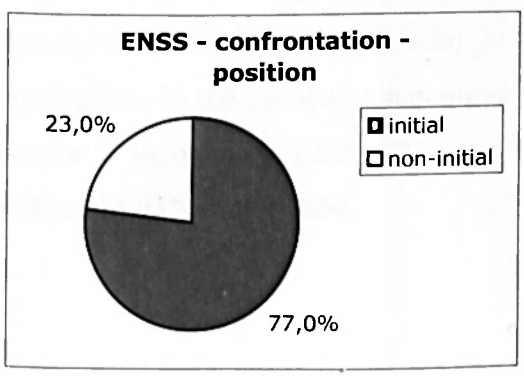
*"34 **However**, the issue of a controversial existence of geographical regularities and organizational principles is **still** present here."*

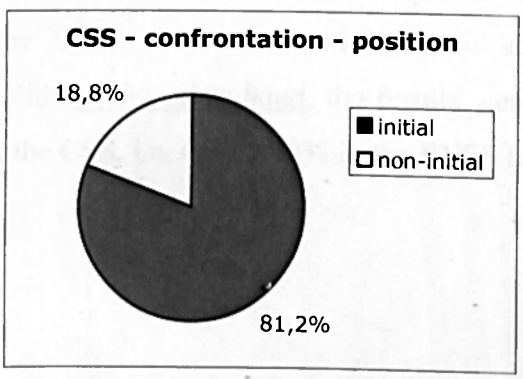
(2. CSS)

Borderline cases were rare in confrontation. Thus, perhaps no conclusion can be drawn concerning the differences between non-native and native use of these expressions.

Confrontation – position

In the ENSS, the non-initial position was more frequent than in the CSS. The percentage was 23.0% for the former and 18.8% for the latter.





[28] In Quirk, 1985, this use of *still* would be treated as subjunct.

Figure 13. Confrontation – proportion of initial and non-initial position of intersentential connectives in the ENSS and the CSS.

Confrontation – punctuation

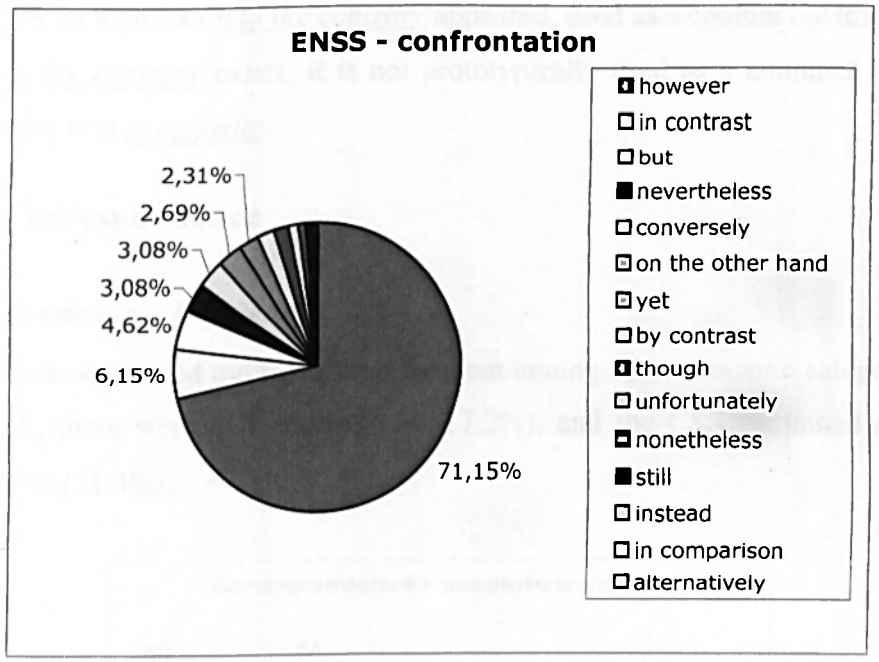
In the corpus, confrontational connectives were in most cases punctuated, both in the English and non-native corpus. Czech writers tended to separate initial confrontational conjuncts more than ENS did. The percentage was 12.5% (ENSS) as against 26.9% (CSS). This could be caused by non-native uncertainty as to whether the unpunctuated form is correct, as it might often be the case with less frequent forms.

Confrontation – syntactic functions

In both the subcorpora, confrontation connectives were mostly conjuncts (*however*, *nevertheless*, *yet*, *by contrast*). In the ENSS, conjuncts accounted for 94.4%, and in the CSS, they took 91.4% of all confrontational connectives.

Confrontation – formal diversity

The average number of different connectives per one speaker in the ENSS was 2.8 as against 2.43 in the CSS. This would mean that CS were less inventive in the use of confrontational connectives. However, if we set different criteria for measuring diversity, CS would seem in a way more inventive in the category of confrontation: In both the subcorpora, *however* was the central and predominant means of expressing intrasentential confrontation. In the ENSS, *however* accounted for 71.15% of confrontational means as against 52.12% in the CSS. CS made use of other means such as *on the other hand*, *nevertheless*, *on the contrary*, and *but* more than ENS. For example, there were eight instances of *nevertheless* (used by six writers), which is only 3.08% of all confrontational connectives, as against 22 occurrences (used by 12 writers) in the CSS, which makes 12.46% of all connectives in the particular subcorpus. With *on the other hand*, the results were similar (7 items in the ENSS / 23 cases in the CSS, i.e. only 3.08% in the ENSS as against 13.03% in the CSS).



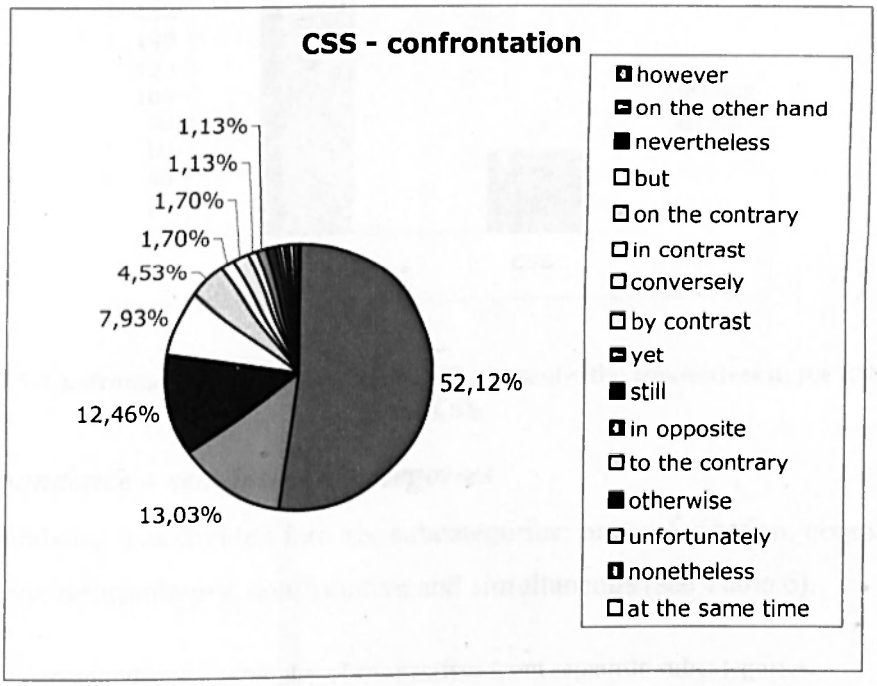


Figure 14. Confrontation – proportion of individual intersentential connectives in the ENSS and the CSS.

There is no *though* in the CSS. This fact may be caused by negative transfer, as there is perhaps no comparable counterpart of this connective in Czech. There are some expressions with similar meaning, but none of them could be placed at the end of a sentence, as *though* usually is.

In the CSS an expression *to the contrary* appeared, used as a conjunct. Although the phrase *to the contrary* exists, it is not prototypically used as a conjunct. Another such phrase was *in opposite*.

4.163 Correspondence

Correspondence – frequency

Correspondence turned out to be least frequent among other semantic categories. In the ENSS, there were 164 connectives (17.2%), and the CSS contained only 57 connectives (11.4%).

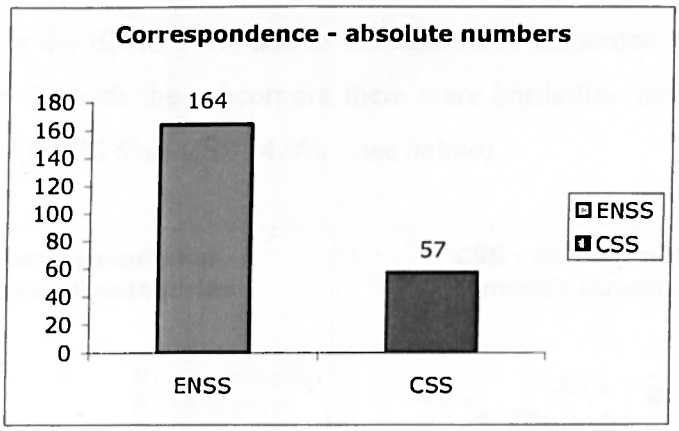


Figure 15. Confrontation – absolute numbers of intersentential connectives in the ENSS and the CSS.

Correspondence – semantic subcategories

Correspondence was divided into six subcategories: particularization, comparative, summative, reformulatory, confirmative and simultaneous (see Table 6).

Table 6. Correspondence – examples of connectives from semantic subcategories.

Subcategory	Examples
particularization	for example, for instance, in particular
comparative	similarly, also, in comparison, too
summative	in summary, in sum, clearly
reformulatory	in other words, that is, it means
confirmative	indeed, undoubtedly
simultaneous	at the same time, meanwhile

Surprisingly, the order of subcategories according to decreasing frequency was again almost the same in the two subcorpora in question.

In both the subcorpora, the most prominent was particularization (ENSS 42.7% / CSS 33.3%). In this subcategory, the predominant means were *for example* and *for instance*. Second was comparative correspondence (ENSS 31.7% / CSS 33.3%). This was followed by confirmative correspondence (ENSS 12.2% / CSS 7.0%). The fourth subcategory was reformulatory correspondence (ENSS 5.5% / CSS 7.0%). The ENSS contained a few instances of summative correspondence (1.8%). In the CSS all instances of summative correspondence were included in borderline cases (they were on the borderline with consequence). In the ENSS 0.6% and in the CSS 5.3% accounted for simultaneous correspondence. In both the subcorpora there were borderline cases, mainly with correspondence (ENSS 5% / CSS 14.0% – see below).

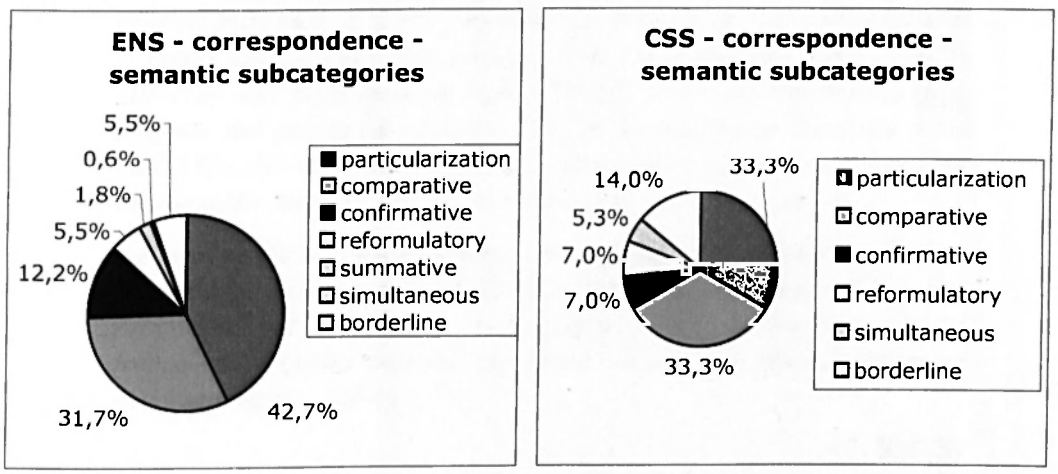


Figure 16. Correspondence – proportion of semantic subcategories in the ENSS and the CSS.

Correspondence – borderline cases

Correspondence (namely summative correspondence) was often on the borderline with **consequence**. The distinction depended on whether the part introduced by a summarizing connective was just a mere revision of the preceding facts, offering some kind of generalization, or a conclusion drawn from the preceding facts. Connectives that bordered summative correspondence and inferential consequence were *in summary*, *in sum*, *accordingly* and *clearly* (see Example 13). These borderline cases are difficult to present, because their scope typically exceeds one paragraph.

Example 13

> *"78 **Clearly**, it is problematic to test the kind of hypotheses represented by Fig. 1, Fig. 2 and Fig. 3, or more complex bodies of theory, unless we have a method of routinely monitoring at high resolution—one that can ascertain geomorphological system state between individual forcing events, so that the erosional impact of each event can be separately quantified."*
>
> (15. ENSS)

Another problematic connective in terms of ambiguity was *thus*. This word sometimes expresses both consequence and correspondence at the same time, its meaning varying from *therefore* and *by implication* to *it means*, or it can also express some kind of summary (see Example 14). It is sometimes difficult to figure out the meaning of this connective from the context. Implication is almost always present, either internal or external (Halliday and Hasan, 1976).

Example 14

> *"When plotted against silt–clay content, the increase in mass of eroded material at 55% silt–clay is clear (Fig. 5). 128 The soil samples divide into two groups; low erosion from 30% to 50% silt–clay and high erosion from 55% to 75%. 129 The results **thus** suggest the presence of some kind of discontinuity between 50% and 55% silt–clay, rather than a continuous relationship existing between the mass of eroded material and silt–clay content....*
>
> *...Previous studies **thus** suggest that soil silt–clay content will have a bearing on the susceptibility of a river bank to subaerial erosion processes, but laboratory investigation of drying–wetting and of freeze–thaw cycles has concentrated largely on consideration of soil 'aggregate stability'."*
>
> (7. ENSS)

Correspondence – position

Connectives of correspondence were balanced as regards position. In the ENSS, 65% of connectives were placed in initial position, whereas in the CSS it was 66%.

Correspondence – punctuation

Connectives of correspondence were in most cases punctuated in both the subcorpora. The rate differed only by 1.3% (ENSS 68% / CSS 69.3%).

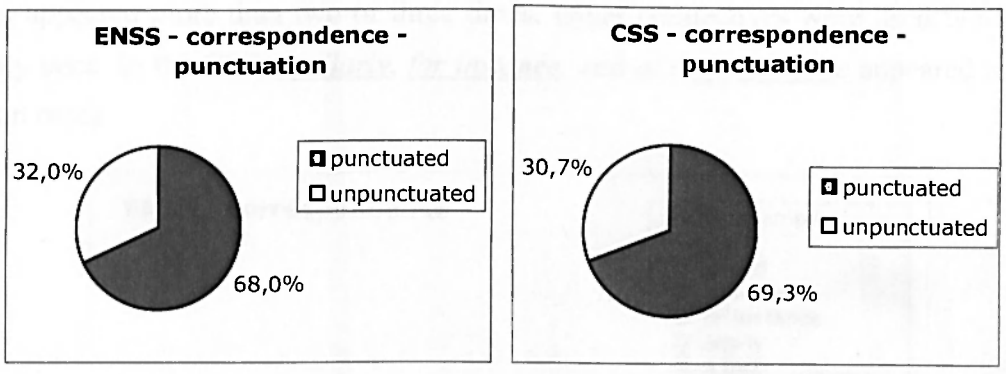


Figure 17. Correspondence – proportion of punctuated and unpunctuated intersentential connectives in the ENSS and the CSS.

Correspondence – syntactic functions

Both the subcorpora were similar in the distribution of syntactic functions. Conjuncts were used most (ENSS 68.0% / CSS 64.0%), adjuncts were second in frequency (ENSS 18.9% / CSS 23.7%). Disjuncts were more frequent in the ENSS (11.3%) than in the CSS (7.9%). This was mainly caused by *indeed*, which was used only once by Czech speakers whereas ENS used this disjunct quite frequently.

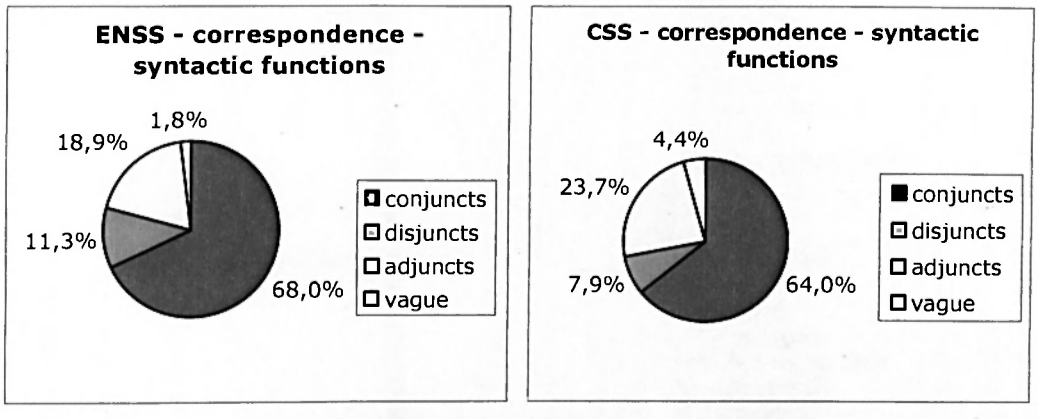


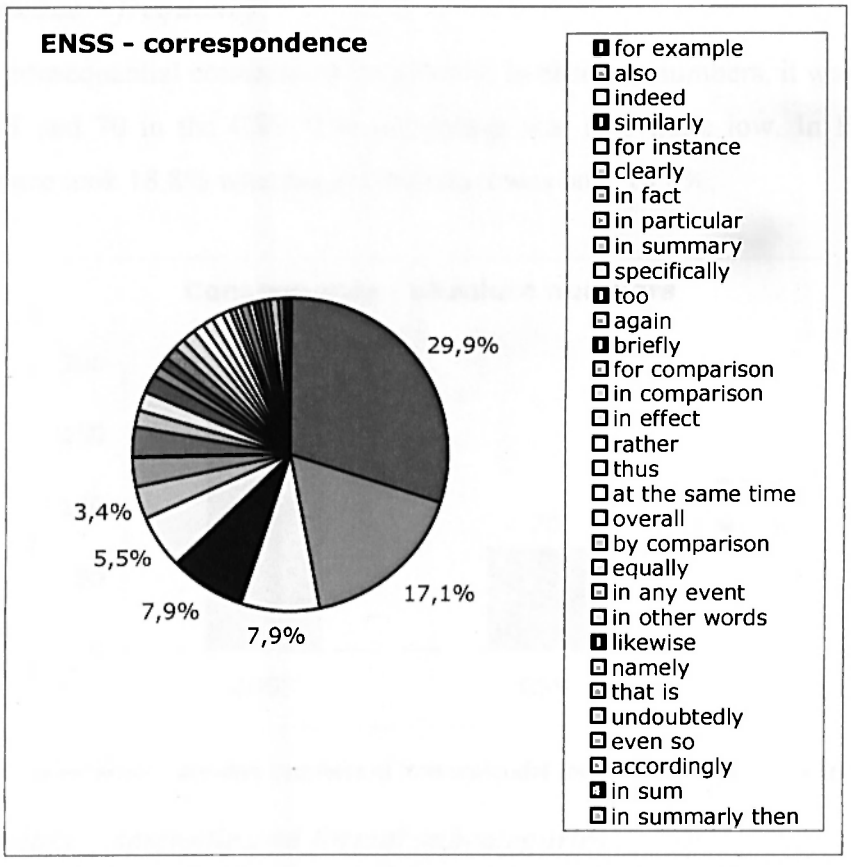
Figure 18. Correspondence – proportion of syntactic functions of intersentential connectives in the ENSS and the CSS.

Correspondence – formal diversity

Although the number of connectives was quite low in the CSS, the repertoire of CS was not that poor in comparison with ENS. There were 32 different connectives of correspondence in the ENSS, and 25 connectives in the CSS.

In both the subcorpora *for example* was the most frequent connective within correspondence. In this category, it took 30% in the ENSS and 23% in the CSS. The second connective in frequency was *also* with 17% in the ENSS and 22% in the CSS. Then the order according to frequency began to differ. In the ENSS *indeed*, *similarly*, *for instance*, *clearly*, *in fact*, *in particular*, *in summary*, *specifically* and

too appeared more than two or three times. Other connectives were used twice or only once. In the CSS, *similarly*, *for instance*, and *at the same time* appeared more than twice.



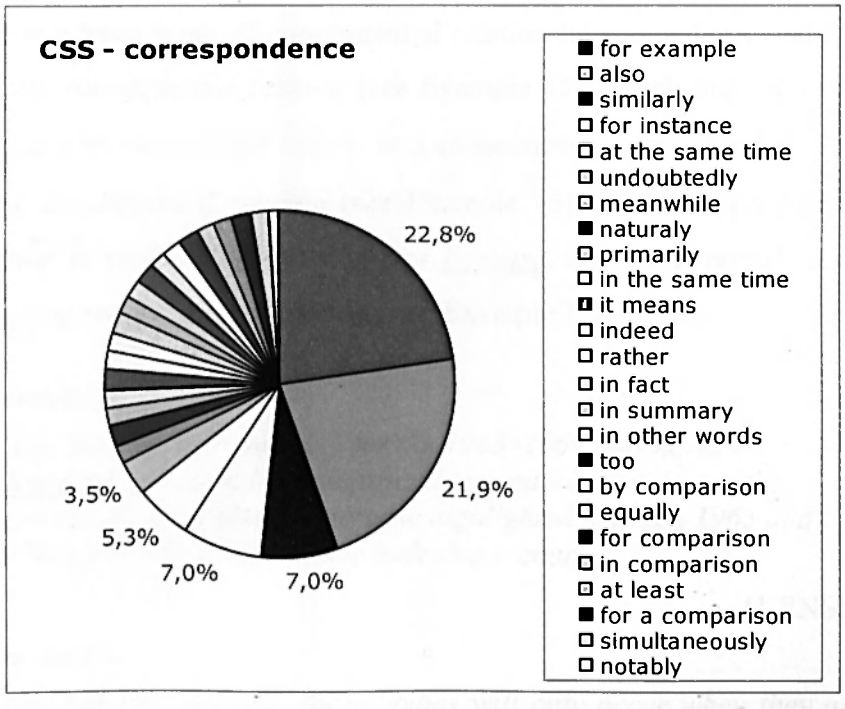


Figure 19. Correspondence – proportion of individual intersentential connectives in the ENSS and the CSS.

4.164 Consequence

Consequence is a tight relation, in some cases almost verging on hypotaxis.

Consequence – frequency

CS used consequential connectives very rarely. In absolute numbers, it was 174.5 in the ENSS and 70 in the CSS. The percentage was also quite low. In ENS texts consequence took 18.8% whereas in CS texts it was only 14.0%.

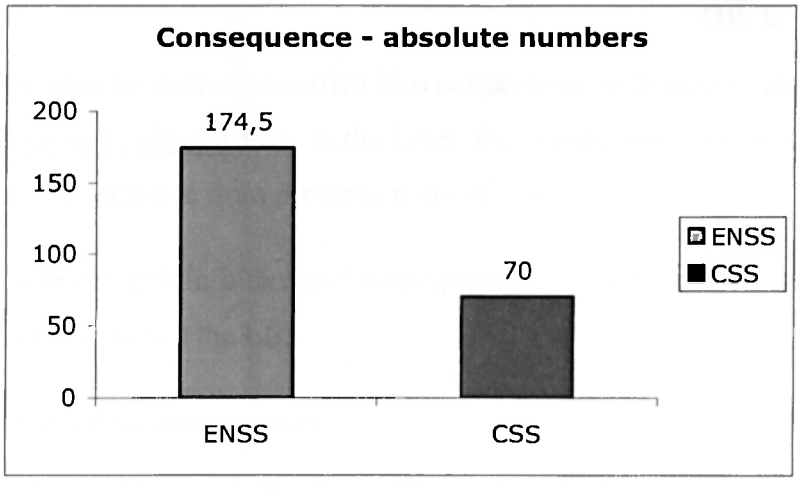


Figure 20. Consequence – absolute numbers of intersentential connectives in the ENSS and the CSS.

Consequence – semantic and formal subcategories

There are two basic types of consequential relationships; anaphoric and cataphoric. In anaphoric consequential relation (see Example 15), which may be expressed as A→B, A is a presupposition and B is a consequence, implication or conclusion. Cataphoric consequential relation (see Example 16) may be expressed as A←B. This relation is realized by initial *for* or *because*. However, not all instances of initial *because* and *for* are conjunctive (see Example 17).

Example 15

"133 No data are available for the 1963–1969 period. 134 ***Therefore****, it cannot be categorically stated whether or not the potential channel change increase highlighted between 1963 and 1976 is a result of substantive hydrologic change".*

(1.ENSS)

Example 16

"120 ***Further****, creep of these bodies will only occur when they are reasonably contiguous or interconnected. 121* ***For****, if the strength of*

the surrounding material is much greater than that of ice (or ice/fines mixture), then creep will be impeded."

(28. ENSS)

Example 17

"*63 Hey Clough was revisited in May 1974 (Table 3) and a route was taken linking the 32 sites. 64 Because many of the scars had changed greatly (see below) the catchment was visited the following year and monitoring began of the eroding slopes of Back Tor (Evans, 1990).*"

(10. ENSS)

Consequence may be further classified into connectives with simple and inferential meaning (*obviously*, *clearly*, etc). In the latter, the consequence link is not apparent directly, but it is inferable from previous parts of a text.

The ENSS was not rich in inferential consequential connectives, but there were no inferential connectives in the CSS.

Consequence – borderline cases

All borderline cases found in the corpus were described in chapters 4.161 (Sequence) and 4.163 (Correspondence). I did not find any connective that would represent the borderline between consequence and confrontation.

Consequence – position

In both the subcorpora, the percentage of initially to non-initially placed consequential connectives was similar. In the ENSS, 54.7% and in the CSS, 57.1% of consequential connectives were placed in the initial position.

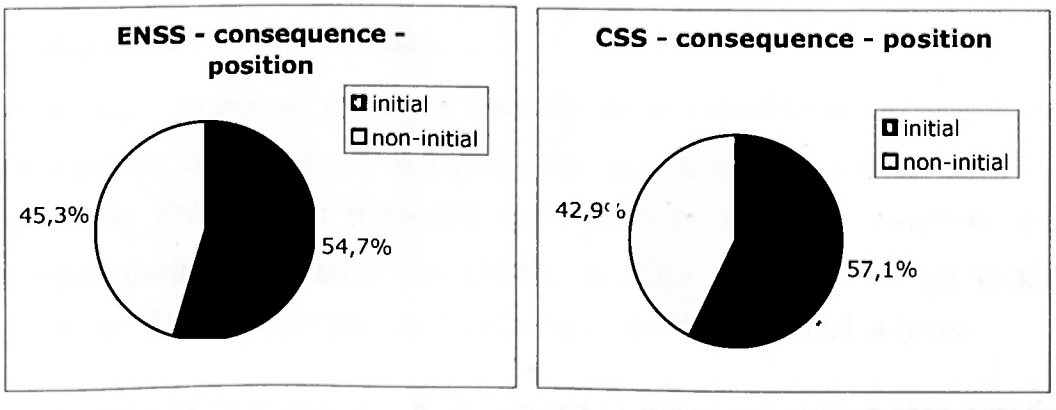


Figure 21. Consequence – proportion of initial and non-initial position of intersentential connectives in the ENSS and the CSS.

Consequence – punctuation

ENS left most of their consequential connectives unpunctuated (in the ENSS, 42% consequential connectives were punctuated), whereas in the CSS most connectives were punctuated (54.3%). This means that the difference in punctuation between the ENSS and the CSS is 12.3%.

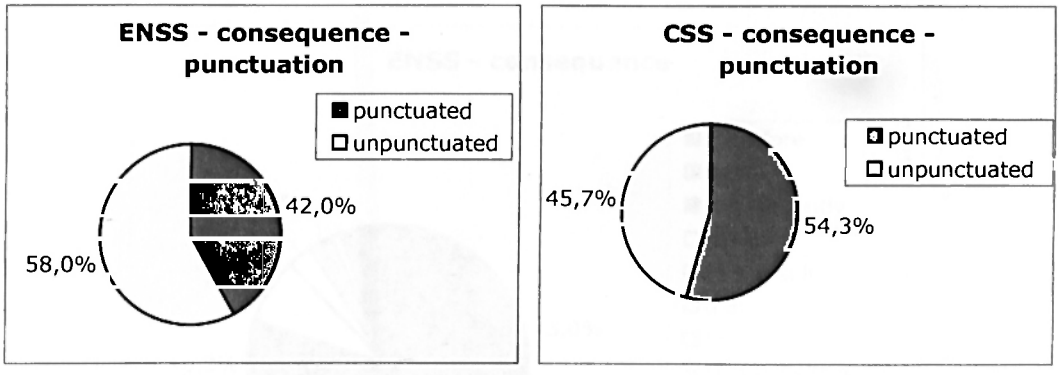


Figure 22. Consequence – proportion of punctuated and unpunctuated intersentential connectives in the ENSS and the CSS.

The CSS also contained some run-on sentences with *therefore* (see examples 18 and 19).

Example 18

"*71 The biking content is the main theme of biking maps, therefore it must be readable and point out from the map field.*"

(16. CSS)

Example 19

"*111 The foothill plains lie at 120 – 170 m a.s.l. therefore there is a difference in altitude of over 400 m.*"

(25. CSS)

Consequence – formal diversity

In the corpus examined, the Czech repertoire of consequential connectives seems much poorer, containing only *therefore*, *thus*, *then*, *as a result*, *consequently*, and *so*. In the ENSS, there were also such examples as *hence*, cataphoric *for*, *as a consequence*, *by implication*, *clearly*, *in effect*, *overall*, and *accordingly*. Altogether, ENS used as many as 17 different connectives. CS used only six.

In both parts of the corpus, the most frequent connective to express consequential intersentential relation was the conjunct *therefore* (ENSS 43.0% / CSS 54.9% of all

consequential connectives). It was followed by *thus* (ENSS 26.9% / CSS 22.5%). In the ENSS, the third most frequent connective was *consequently*, followed by *hence*, *as a result*, *then*, and *for*, etc. In the CSS, the order was *therefore*, *thus*, *then*, *as a result*, *consequently* and *so*. Although *hence* was quite often used in the ENSS (13 occurrences, i.e. 7.4% of the means of consequential relation), it did not appear in the CSS.

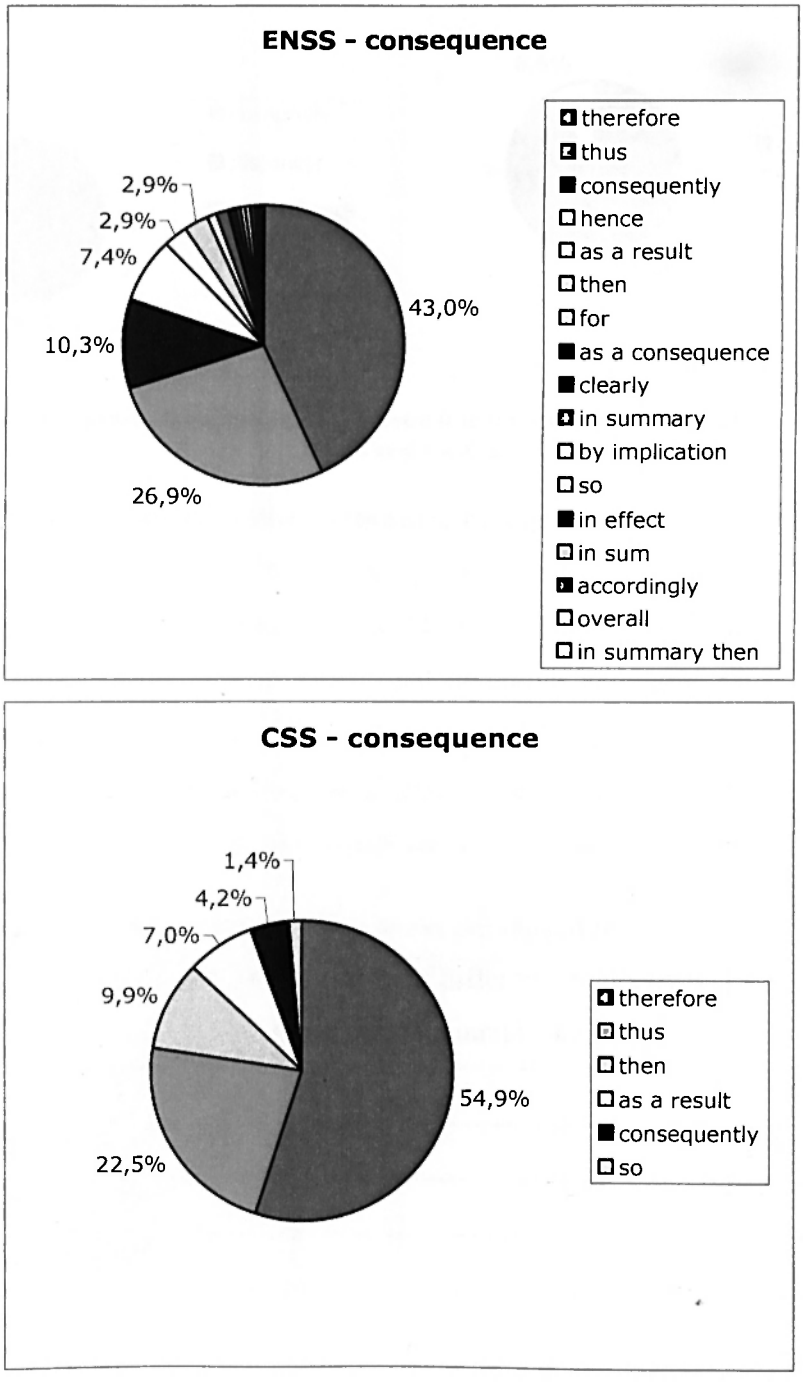


Figure 23. Consequence – proportion of individual intersentential connectives in the ENSS and the CSS.

Consequence – syntactic functions

Consequence was mostly realized by conjuncts (ENSS 96.3% / CSS 91.4%). In the ENSS, there were also some disjuncts (*clearly* – 0.9%) and the subordinator *for* (1.1%). The vague cases are usually instances of *then*. Czech speakers relied on *then* in its sequential-consequential meaning more than ENS did.

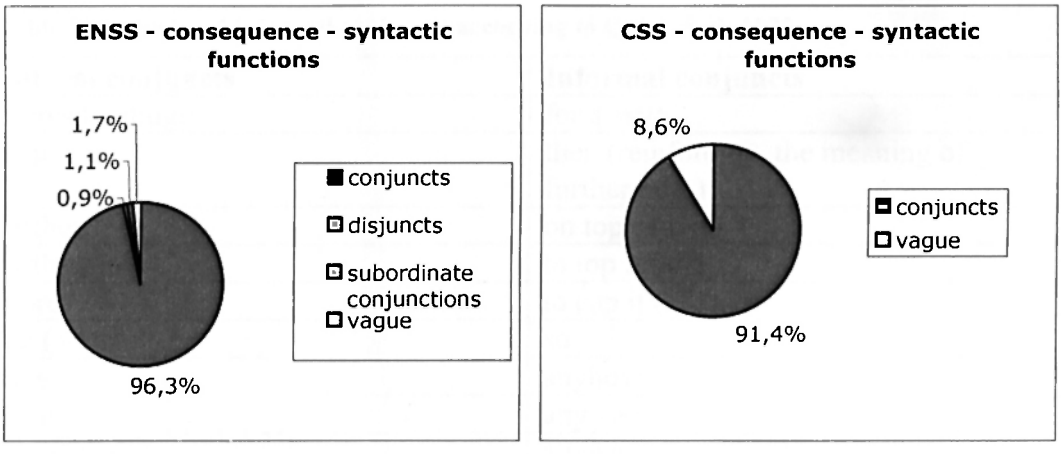


Figure 24. Consequence – proportion of syntactic functions of intersentential connectives in the ENSS and the CSS.

4.17 Formal diversity within semantic categories

The range of means within semantic categories is summarized in Table 7. In both the subcorpora, each writer employed a different range of connectives within each category. Some of the writers were very inventive and used several means to express the same function and others often reiterated one or two connectives within one category. In all subcategories the diversity was lower in the CSS. It means that CS displayed lower repertoire of connectives in all categories.

Table 7. Average numbers of different connectives per one extract.

Semantic category	ENS (average number of different connectives per extract within each semantic category)	CS
sequence	5.37	3.83
confrontation	2.8	2.43
consequence	2.83	1.47
correspondence	3.8	1.57

4.18 Formality

The intersentential connectives from the two subcorpora were classified according to their formality. The division into formal and informal connectives was adopted from Quirk et al., 1985 (see Table 8)[29].

Table 8. Formal and informal conjuncts according to Quirk et al. 1985.

Formal conjuncts	Informal conjuncts
correspondingly	for a start
again	then (reinforcing, the meaning of furthermore)
further	on top of it all
furthermore	to top it (all)
more	to cap it (all)
viz (=namely)	so
thus	anyhow
hence	anyway
contrariwise	anyways
conversely	only
nonetheless (none the less)	still and all
notwithstanding	now
in any event	
subsequently	
henceforth	
thereupon	
thereafter	
henceforward	

I added *what's more* to this list as an informal connective, because contracted forms are not considered appropriate for academic writing. From connectives in other syntactic functions, initial *and* and initial *but* were classified as informal.

In the ENSS, there were 104 formal connective means. Among them *thus* (49), *furthermore* (22), and *hence* (13) were most numerous. They were followed by *conversely* (8), *again* (5), *subsequently* (3), *nonetheless*, *further* (1), and *thereafter* (1). In the CSS, 28 connectives were classified as formal. The subcorpus contained *thus* (16), *subsequently* (5), *conversely* (3), *furthermore*, and *nonetheless* (1).

There were not many informal connectives in the corpus. The ENSS involved 12 occurrences of initial *but*, one case of *so* and one *then* in the meaning of

[29] Quirk et al., 1985, p. 634.

furthermore. In the CSS, there were initial *but* (14), initial *and* (2), *what's more* (1), so (1) and *then* in the meaning of furthermore (1).

Altogether, there were 104 (11.1%) formal and 14 (1.5%) informal connectives in the ENSS. The CSS involved 28 formal (5.6%) and 19 (3.8%) informal means of intersentential connection. Clearly, CS did not use formal connectives as much as ENS did. On the other hand, the CSS contained more instances of informal intersentential connectives.

4.2 TS

The TS contains two translated text (1.TS and 2.TS). Together, they contain 25 intersentcntial connectives. Interestingly, there are three connectives in the first text and 22 in the second text. Thus, the average is 12 connectives for one extract. This means that every twelfth sentence of the TS contains a connective. For illustration, the connectives are listed here:

1. TS:

1. However
2. too
3. too

2. TS:

1. Nevertheless
2. Moreover
3. Nevertheless
4. thus
5. also
6. still
7. Also
8. also
9. too
10. In contrast
11. also
12. Nevertheless
13. Undoubtedly
14. Still
15. Nevertheless
16. Nonetheless
17. True
18. Nevertheless
19. also
20. However
21. also
22. also

In 1.TS, there are two different connectives (*too*, *however*), in 2.TS, there are 11 different connectives (*however*, *too*, *nevertheless*, *moreover*, *thus*, *also*, *still*, *in contrast*, *undoubtedly*, *nonetheless*, *true*). Thus, the average number of different connectives per one speaker in the TS is 6.5, which is less than in the ENSS and even less than in the CSS.

Semantic categories

Within TS, there were 11 instances of confrontation (44.0%), eight sequential connectives (32.0%), six cases of correspondence (24.0%), and no consequential connective (0.0%).

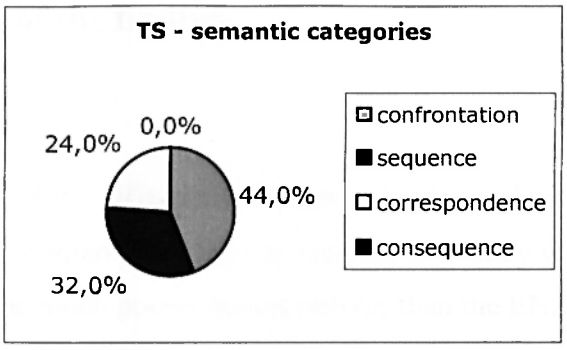


Figure 25. Proportion of semantic categories in the TS.

Counting percentages for punctuation, position and other categories would not be very useful in the TS, because the number of connectives in the corpus is very low.

Interestingly, in the TS, the consistency in punctuation typical for the CSS (see chapter 4.14) was not found in the TS. There was one case of different punctuation of one positional variant of *nevertheless*.

Initial placement of the adjunct *also*, quite untypical for the ENSS and frequent in the CSS, was also found in the TS. (If *also* were meant as a conjunct and equivalent to *in addition*, it should have been punctuated).

Example 20

86 New forest plots came to existence through purposeful forestation in some part of wet meadows, sloping pastures, plots alongside water courses, small arable land plots, and abandoned plots of farmhouses, eventually villages. 87 ***Also*** *uncultivated meadows and pastures no longer used turned gradually to forest plots through self-seeding.*

(2. TS)

In the TS, there was the word *true*, used initially and punctuated, expressing correspondence. Such an example was not found in the ENSS. This connective may have been translated literally from Czech.

Example 21

"*129 As a whole, the landscape in the Pohořsko study area features growing areas of forest, diminishing areas of arable land, and enlarging of wetland; in the landscape we can also observe discontinued cultivation of meadows and pastures and the poor performance of surface and subsurface drainage. 130·* ***True****, the landscape pattern has gone 'coarser', but the area covered by important biologically stabilizing open landscape cover elements has remained intact or it has slightly expanded.*"

(2. TS)

The TS also confirmed the Czech overuse of *nevertheless*.

4.3 Summary of the findings

Frequency

In the investigation of the differences between Czech speakers and native speakers of English in terms of intersentential connectives, frequency was the most sensitive feature. The CSS was much poorer in connectives than the ENSS.

The CSS was less balanced in frequency as there were considerable differences between authors. Individual ENS all inserted similar numbers of connectives per text, whereas the numbers of connectives per text used by CS differed significantly.

Formal diversity

The repertoire of connectives of individual speakers was lower in all semantic categories in the CSS than in the ENSS. This was especially true of consequential connectives. In contrast, CS's confrontational connectives were relatively varied.

Semantic categories

In all semantic categories, the absolute numbers of connectives were lower in the CSS than in the ENSS. Therefore, for estimating the results, I counted the proportion of individual semantic categories in percents. In contrast with ENS, Czech speakers preferred sequence and confrontation. Consequence and correspondence were used less in the CSS than in the ENSS.

Borderline cases

CS used similar borderline cases and they were mostly able to see the vagueness, and sometimes even twofoldness of some connectives.

Position

There were almost no differences in the proportion of initially and noninitially placed connectives between the CSS and the ENSS. The placement of connectives was similar in all semantic categories. This would suggest that CS were sensitive to scientific style and its higher use of non-initially placed connectives in comparison with other functional styles (cf. Pípalová, 1993).

Punctuation

CS punctuated their connectives slightly less than ENS, but the difference between punctuated and unpunctuated cases roughly corresponded to the disproportion between conjuncts and adjuncts. (Adjuncts are usually not punctuated because of their integration in the clause structure.)

CS seemed more consistent in punctuation than ENS. For example, when they punctuated an initial *therefore*, they did so throughout the whole text. This was not true of the TS.

Syntactic functions

The proportion of syntactic functions of connectives was also very similar. The CSS displayed a slightly higher frequency of adjuncts and coordinators and a lower percentage of conjuncts and disjuncts.

Formality

CS did not rely on formal connectives (*thus*, *furthermore*, *hence*, etc.) as much as ENS did. On the other hand, the CSS contained more instances of informal intersentential connectives (initial *and*, initial *but*, *what's more*, etc.). This might be explained by the fact that when learning English from textbooks of general English, CS do not come across the formal means as often as across informal connectives. They may not be so sensitive to formality and stylistic appropriateness.

5 Discussion

5.1 Pragmatic functions of intersentential connectives

Intersentential connectives are important for **cohesion** and help build up the **coherence** of a text. They relate sentences together and thus they make texts compact and facilitate reading.

Erasing most intersentential connectives does not matter to the texts in terms of their grammatical correctness, but it is certain that something from the text is lost. In fact, the text changes considerably when viewed from the point of text linguistics or pragmatics.

Appropriately used connectives function as **signposts** of the discourse. They help organize thought. Sometimes the reader may not realize why the writer arranges the sentences in that particular order, because the relationships between sentences are not that apparent. With well placed connectives, the structure of a text is clearer. Writers can allow the reader to follow more easily the writer's stream of thinking, for example by inserting *in summary* to indicate that a particular part of a text is a summary of what has been said.

Connectives **show relationships between ideas and concepts**. I think that they are indispensable in texts in general, but even more in scientific texts. Insiders can usually figure out relations more easily than people from outside the discourse community in question. For an outsider, connectives are sometimes the only hints that indicate relations between unknown technical statements. Every recipient needs to know how the presently read sentence or argument is linked to the preceding one. Reading is more comfortable and smoother when the reader can see straight away if some fact contradicts or agrees with what has been written before. If s/he does not understand s/he could be discouraged from reading.

Inserting connectives where suitable is in accordance with the **Cooperative Principle** (cf. Yule, 1996), because it helps the reader. Interpreting or figuring out relationships if they are only implicit and not indicated by a connective requires mental effort on the side of the recipient. When making relationships explicit by inserting connectives it is the writer who bears the effort. I think that the mental

effort of the writer when inserting connectives is lesser than the effort of the reader in figuring out relationships, because the writer already has the structures in mind whereas the reader has to build them up. Connectives make the discourse more **interactive** and **user-friendly**.

Unlike cohesion, coherence is a subjective notion where two worlds meet – the world of the producer (writer or speaker) and the world of the recipient (reader or hearer). They have different stocks of knowledge and both bring a different paradigm to the discourse. Connectives represent a means to disambiguate what we mean when producing a text. By making relations in a text explicit, we can, if only to a certain degree, avoid undesirable interpretations of the text by different readers.

5.2 Interpretation of the differences

There are a number of possible reasons for the discrepancy between the two subcorpora. Firstly, many differences could be explained on the basis of negative transfer. Secondly, some differences could stem from the so-called order of second language acquisition. Thirdly, we have to take into account contrastive rhetoric and the differences of Czech and English scientific styles. A lower frequency of intersentential connectives in the CS could also be explained by the assumption that Czech speakers rely on different ways of expressing logicosemantic relationships.

5.21 Negative transfer

The first and most conspicuous reason for differences in connective use could stem from the dissimilarity of both languages. According to the *Contrastive analysis hypothesis* by Robert Lado (Ellis, 1985) "if there is a distinction between L1 and L2, students tend to make errors in L2 because of negative transfer from L1". Some inappropriately used connectives could be explained by this theory.

In the following example, negative transfer may apply to punctuation. Here, the example with run-on sentences could be used. A semicolon is used differently in Czech and English. In Czech, this sentence would be appropriate:

> *Na některých komunikacích je velký provoz, proto jsou pro jízdu na kole nebezpečné.*

However, the English counterpart is considered as a run-on sentence, and therefore inappropriate.

> *117 Some communications have a big frequency of transport, <u>therefore</u> they are dangerous for biking.*
>
> (16. CSS)

In English, the writer would either have to use a semicolon or coordinating conjunction, or split the sentence into two.

The basic principle of this theory does not have to apply to errors only. Frequency may also be explained with the help of negative transfer. It could be interesting to examine the frequency of connectives in Czech texts. Unfortunately, the scope of this work is not broad enough to look into Czech scientific texts written in Czech. There are only two translated texts (in the TS) available for comparison. Presumably, when translating, people are more prone to influence from negative transfer than when writing straight in the foreign language. The TS fits with what I have found so far in terms of frequency. The TS frequency is much lower there than in the ENSS. It is even lower than in the CSS. However, whether negative transfer is the key factor to explain the lower frequency of the CSS remains a question.

I tried to analyse the Czech system of connectives. For the analysis, I used two papers by J. Hofmannová (Hofmannová, 1984, and 1987). The Czech system seems poorer in the use of connectives, as there are fewer major connectives.

Connectives may be likely to attract negative transfer between Czech and English. Many English connectives do not have an adequate equivalent in Czech. By adequate I mean carrying the same or at least a very similar meaning, occurring in the same position, occupying a similar position on the formality scale and displaying similar frequency. For example, not many Czech connective expressions can be fronted and punctuated with a comma, as conjuncts in English often are. This might also explain the tendency of CS to use adjuncts more than ENS when writing in English.

On the basis of negative transfer we could assume that a speaker who 'thinks' partly in Czech and partly in English may recall the Czech word promptly and then translate it into English. Thus, English words with no Czech equivalents would be used less. Such words without adequate equivalents might be for example the conjuncts *though*, *however*, *consequently*, *in addition*, *again* (as a conjunct), *rather*, *in summary*, *yet* etc. *Though*, for example, could be translated as *ale* or *však*, but neither of these words could be used at the end of a clause. Similarly, the Czech equivalent of *yet* in terms of position and meaning (not punctuation) could be *jenže*, but in contrast with *yet*, *jenže* is slightly informal and therefore perhaps not appropriate for the formal register. Most expressions that I classified as having no adequate equivalent were used less in the CSS.

We have to bear in mind that there are also Czech intersentential connectives that do not have their English counterparts. They are, for example, *totiž* (as cataphoric consequential connective), *přece*, and *sice* (which in fact usually functions intrasententially). In these cases, I think when the writer (or translator) thinks in Czech s/he has to rewrite and reformulate what s/he originally had in mind. Thus, the connection may sometimes remain implicit.

Czech speakers often tended to express the presupposition of some connective expressions like *besides*, *in addition*, *in contrast*. Thus they used for example "*besides it*", "*besides recorded point pollution sources*", "*besides these crystalline rocks*", "*in addition to these examples*". In these cases, they relied on cohesive devices other than conjunction. The question is whether the overuse of these expressions is really based on negative transfer. It might be the case of *besides* or *in contrast* with Czech equivalents *vedle toho* and *naproti tomu*, but for *in addition*, in Czech, there is *navíc* but not **navíc k tomu*.

Sometimes there are also connectives without a fully synonymous equivalent in L2 and still the item is overused by Czech speakers (e.g. *nevertheless* in initial position). Certainly, negative transfer cannot explain all differences.

5.22 Second Language Acquisition (SLA)

Negative transfer does not explain all discrepancies between Czech non-native and native scientific texts. Interpretation could be also searched for in the acquisition of the language.

Both SLA and L1 acquisition are very complex processes. There is a hierarchy in both of them. The order of mastering components of language is relatively similar for both processes. When learning a second language, we usually start with the easy and frequent items of grammar and continue with the more difficult ones. In this order, second language acquisition is very similar to L1 acquisition (Ellis, 1985). It is called "order of development" Ellis, 1985.

In connection with the Norwegian non-use of connectors Lyntermann-Rygh mentions Evensen's "late mastery hypothesis" that difficulties in acquiring more sophisticated text linguistic devices apply not only to EFL but also to L1. Discourse competence is believed to be gained very late in L1 acquisition (Lyons et al., 1987). Lyons et al., 1987 mention that children who have mastered morphology and syntax (relations within one sentence) still have problems with the structuring of discourse, "which extends well beyond sentences" (Lyons et al,1987). Teachers complain that even native speakers attending secondary schools have problems with structuring their speeches and essays. It seems that items functioning beyond sentences are gained later in L1.

5.23 The specificity of Czech academic style

Language and rhetoric is a cultural matter. Some of the discrepancies could be explained by the difference in the nature of English and Czech academic style. The occurrence of intersentential connectives (discourse markers) is connected with the logical structure of the speech or text. I will present two contrastive studies looking into the structure of the Czech academic style.

When investigating the Czech academic style, we can make use of one of the pioneering pieces of research in contrastive rhetoric "*Cultural thought patterns in intercultural education*" by Kaplan, 1966. He identifies five types of paragraph development in relation to the culture they stem from. He mentions five distinct rhetorical tendencies. As a result, he designs diagrams which should typify the

mainstream rhetoric of each culture. English is described as linear and direct; whereas German, Russian, Oriental and Romanic cultures use different strategies to express their ideas (see Fig. 26). Czech is believed to resemble the Russian model of certain jumps and deviations from the main thematic line, including irrelevant information. Thus, the stream of information may seem somewhat disorganized.

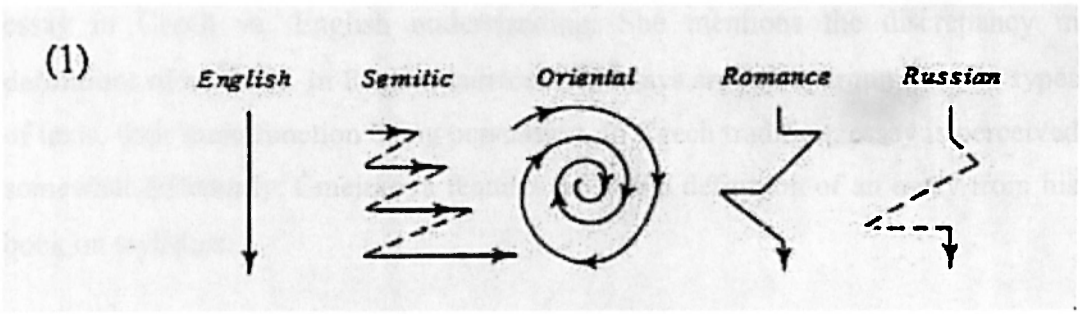


Figure 26. Schemes of paragraph development in English, Semitic, Oriental, Romance and Russian culture (Kaplan, 1966)

Another, more elaborate description of Czech English academic writing patterns has been outlined by **S. Čmejrková** (Čmejrková, 1987). She summarizes differences between English and Czech academic writing in four points:

Firstly, the **reader's responsibility** is ascribed to the Czech style. Czech writing seems to be less interactional, according to Čmejrková. The writer is the one who knows and it is up to the reader to figure out what the writer means. The Czech reader is supposed to read between the lines and not everything is said overtly. This assumption might partly explain the Czech lower use of connectives because the use of connectives and the reader's responsibility seem to be in accordance. The reader has the responsibility of figuring out relationships between facts.

Secondly, she mentions the **delayed purpose**. In English academic writing, the purpose and goals of a text should be stated right at the beginning. In the Czech culture, delayed purpose is tolerated. Czech texts tend to disclose their purpose later, after very general introductory passages and subsequent chains of associations.

The third aspect is described as **baroqueness**, **associativeness** and **multiplicity of standpoints**. According to Čmejrková, Czech writers do not write directly, but sometimes depart and come back to the original stream of thought, trying hard to supply the reader with as many associations and details as possible. They offer

a multiplicity of standpoints, introducing to the reader many points of view. For an English native speaker the texts often seem overcomplicated, jumping from one thing to another.

Fourthly and finally, English writing is described as purpose oriented whereas Czech writing is freer. Here, Čmejrková points out the different purposes of an essay in Czech vs. English understanding. She mentions the discrepancy in definitions of an essay. In English curriculum, essays are rather argumentative types of texts, their main function being persuasion. In Czech tradition, essay is perceived somewhat differently. Čmejrková features Mistrik's definition of an essay from his book on stylistics:

> "An essay is a short reflection on a scientific topic or current social problem. It is witty, vivid and spirited. It is a contemplation that shows the author's original attitude. The essay does not intend to do anything either in the sphere of science or in the sphere of art. It has childish charm, it is spontaneous, non-systematic, humorous and free. It is an attempt at a free expression of one's self. Its structure is mosaic-like, fragmentary, incohesive, not compact. The vocabulary of an essay is large, variegated and colourful. It combines expressions belonging to the opposite registers: monosemantic and exact expressions on the one hand and polysemantic and ambiguous or even metaphorical expressions on the other. This genre is full of surprises and unpredictable turns. The emphasis dwells on synsemantic and modal expressions which modify the basic meaning, supplying it with genuine, but highly significant connotations. (Mistrik 1974:132ff)"[30]

I think that these two descriptions directly cohere with my findings. The frequency of connectives is in perfect correspondence with "reader's responsibility", "lower interactivity", "non-systematic" progression, and "incohesiveness" of Czech texts (see chapter 5.1)

[30] Čmejrková, 1996, p. 146.

"Multiplicity of standpoints" could serve as an explanation for higher use of confrontational connectives. In my corpus, Czech writers really tended to compare and contrast various theories about the topic in question extensively. Associativeness and baroqueness are in accordance with a higher use of sequential connectives.

5.24 Czech speakers may rely on other ways of expressing logicosemantic relationships

In academic writing, logico-semantic relationships are very important. Intersentential connectives are of course not the only way to make them explicit. They can be expressed in various ways and intersentential connectives represent one way to do it. Most of these relationships are expressed within one sentence. The examples below show some ways of expressing causal links.

Examples:

a) "*The system of agricultural terraces is built on exceedingly steep slopes.* ***Therefore (As a result)****, the system is affected by slope movements.*" (26. CSS)

b) *The system of agricultural terraces is built on exceedingly steep slopes.* ***As a result of the steepness****, the system is affected by slope movements.*

c) *The system of agricultural terraces is built on exceedingly steep slopes,* ***and therefore*** *it is affected by slope movements.*

d) ***As*** *the system of agricultural terraces is built on exceedingly steep slopes, it is affected by slope movements.*

e) *The steepness of slope where agricultural terraces are built* ***causes*** *the system to be affected by slope movements.*

Only a) and b) represent intersentential cohesion. However, only a) is conjunctive. b) is an example of a referential and lexical tie. In all the other examples, the cohesion exists only within one sentence. This means the tie is intrasentential and

more or less structural, but still, all these examples express logicosemantic relations that facilitate understanding.[31]

5.3 Other contrastive studies

This thesis is of course not the only research into connector usage. There have been other pieces of research comparing other languages with English in the usage of connectors. Ventola and Mauranen note an underuse of connectors with Finnish writers. Lack of variety has also been found in Norwegian EFL connector usage (Lyntermann-Rygh, 1985). Lorenz, 1999 reports, referring to research done by Field and Yip, 1992[32] and Milton and Tsang 1993[33], that Hong Kong learners, in contrast, have been reported to overuse logical connectors – "possibly due to the fact that Hong Kong examination guidelines award points for the mere presence of connectors, often regardless of their appropriacy"[34].

5.4 Can connectives indicate good quality?

Some scholars tried to find out whether there was any correlation between the number of connectives and quality of a text. The results are not clear cut.

Lintermann-Rygh, 1985 considers intra- and intersentential connectives to be a highly discriminating indicator of text quality in an EFL context. Her research was carried out on 48 students' compositions. The essays were evaluated and put into four categories according to quality. She used school teachers as evaluators because they seemed to her to be more objective in classification than linguists who may be trained to look for connectors as indicators of essay quality. She found out that

[31] To supplement my major findings and to contextualize them, I tried to make some marginal research into logicosemantic relations within one sentence; namely in the category of confrontation. I compared occurrences of the subordinating conjunction "although". The result was striking. In English articles the number of occurrences reached 122, whereas the Czech corpus contained only 27 occurrences. Similarly, there were 31 occurrences of "despite", as against 10 non-native occurrences. However, words containing the stem of the word opposite were nine in the ENSS and 19 for the CSS. Although this contribution cannot be taken seriously it would suggest that Czech speakers use also intrasentential connection less and thus perhaps express logicosemantic relationships less or in a different or perhaps more implicit way.

[32] FIELD, Y. AND YIP, L. (1992), A comparison of internal cohesive conjunction in the English essay writing of Cantonese speakers and native speakers of English. *RELC Journal* 23: 15 – 28.

[33] Milton, J. and Tsang, E. (1993), A corpus-based study of logical connectors in EFL student' writing, in: R. Pemberton and E. Tsang (eds), Studies in Lexis. Hong Kong: HKUST, 215 – 246.

[34] Lorenz, 1999, p. 56.

"connector density correlates positively with text quality in EFL.[35] She also states that "several text linguistic devices are not acquired until a fairly late stage in language development". In connection with non-use of connectives she mentions

Ventola and Mauranen also "found a positive correlation of frequency and EFL proficiency" (Lorenz, 1999). **I. Lintermann-Rygh**, 1985 however states that some research contradicted the idea of correlation between connectors and quality of a text.

In my corpus, the speakers with grammatical mistakes in their texts usually (in almost all cases) belonged to the "underscorers". However, it would be absurd to measure the essay quality by the number of connectives used. Every writer has his/her own idiolect and his/her way of structuring texts. Ultimately, no one can decide which way is better or worse.

[35] Interestingly, I. Lintermann-Rygh also found that criteria for evaluating EFL and L1 compositions differ considerably and that connective density correlates negatively with text quality in L1.

7 Conclusion

7.1 This thesis is a corpus study, comparing Czech and English native speakers' use of English intersentential connectives in geographic articles.

Czech scientists nowadays need to produce well-written texts in English because their articles are more likely to be published if they are not deficient in form or lacking in coherence. The norms imposed on writing skills in English are very strict. Czech speakers often write their English texts by themselves and have them revised by a native speaker. Even after native speakers' proofreading, however, their texts may still differ from papers written by native speakers. One of the areas where non-native texts may differ is connectives. The hypothesis for the thesis was that non-native speakers' texts are less rich in intersentential connectives.

7.2 To verify the hypothesis, I collected a corpus of contemporary English geographic articles written by Czech and British English native speakers. The corpus had three parts: ENSS (English native speakers' subcorpus), CSS (Czech [non-native] speakers' subcorpus), and TS (translation subcorpus). Both, the ENSS and the CSS, contained 30 extracts of geographic scientific insider-talk articles each. All the extracts were 150 sentences long and each was written by a different author or a group of authors. The TS included only two extracts 150 sentences in length, each. The main focus of the thesis was the comparison between the first two subcorpora (ENSS and CSS) and the TS served only for subsequent comparison with the findings from the CSS. The TS was believed to be more closely linked to Czech than the CSS. In the three subcorpora, connectives were found and assorted into a number of categories.

Connectives were examined comprehensively, i.e. from formal, syntactic, semantic and pragmatic aspects. More specifically, semantic categories (sequence, confrontation, correspondence, or consequence – adopted from Pípalová, 1997), syntactic functions (conjuncts, disjuncts, conjunctions, or adjuncts), position (initial or non-initial), punctuation and formality were described. I also compared formal diversity of connectives for each author in both the main subcorpora.

7.3 The first part of the study – comparison between ENSS and CSS – showed that Czech speakers used far fewer connectives in their texts than native speakers did. The frequency of connectives in the CSS was lower by almost 50% compared to the frequency of the ENSS (see chapter 4.11). In addition, CS used a poorer repertoire of intersentential connectives than ENS did (see chapter 4.12). This was true of all semantic categories (see chapter 4.27). The difference in formal diversity between the two subcorpora was the least in confrontation and the biggest in correspondence. Interestingly, however, in other aspects of connective usage, the ENSS and the CSS were strikingly similar.

The division into four semantic categories showed an interesting parallel between the ENSS and the CSS as the order of semantic categories according to decreasing frequency was the same for both the subcorpora. In the CSS, sequence and especially confrontation were foregrounded. Conversely, correspondence and consequence were backgrounded (see chapter 4.16).

The proportion of syntactic categories (conjuncts, disjuncts, coordinating conjunctions, adjuncts and subordinating conjunctions) did not differ much between the two subcorpora (see chapter 4.15). Czech speakers slightly emphasized adjuncts and coordinating conjunctions, which could possibly be explained by negative transfer. On the other hand, they underused conjuncts and disjuncts.

In positioning and punctuation, at least in the aspects examined (initial vs. non-initial position, punctuated vs. unpunctuated), native- and non-native speakers barely differed differ (see chapters 4.13 and 4.14). ENS punctuated their connectives slightly more frequently. In fact, the difference corresponded to the Czech higher use of adjuncts, which were mostly unpunctuated. Interestingly, Czech speakers (in the CSS) were more consistent in punctuation. This means that each positional variant was consistently either punctuated or unpunctuated throughout the whole article.

CS did not rely on formal connectives (*thus*, *furthermore*, *hence*,..etc.) as much as ENS did. On the other hand, the CSS contained more instances of informal intersentential connectives (initial *and*, initial *but*, *what's more*, etc.). This was

interpreted by non-native lower sensitivity to stylistic appropriateness and formality as such.

There were not many instances of non-standard use of connectives in the CSS. Indeed, these cases may have been corrected by native speakers. Among these remaining non-standard features, there were contracted forms, initial *and*s, run-on sentences, and other cases of inappropriate punctuation.

The Translation Subcorpus, which was relatively insignificant in comparison with the ENSS and CSS, confirmed a lower frequency and lower formal diversity of intersentential connectives for non-native speakers (see chapter 4.2). Other characteristics were not examined because the TS was limited in the number of connectives. Clearly, the process of translation did not increase the frequency of intersentential connectives and their use was not more varied.

7.4 The interpretation of the differences between the subcorpora was based on three possibly interconnected phenomena – negative transfer, later stage in the order of acquiring language components within second language learning and acquisition, and the specificity of the Czech scientific style.

Some, particularly formal, aspects of the differences in connective use could have been motivated by negative transfer. Negative transfer might serve as an explanation for the Czech lesser use of conjuncts, higher use of adjuncts, run-on sentences, the tendency to express the presupposition of connective prepositional phrases, and perhaps also the Czech generally lower frequency of intersentential connectives in the CSS. The Czech lower frequency of connectives was also confirmed by the TS, which was believed to resemble Czech more than CSS. Unfortunately, I have not examined Czech texts written in Czech. Therefore, interpretations in the field of negative transfer should be further verified.

Another possible hint in explanation of the differences between native and non-native use of connectives may be inherent in second language acquisition and the order of development. Intersentential connectives are believed to be gained quite late (both in EFL and in L1 acquisition), long after the learner's mastering the elementary grammar and syntax. Children who have mastered the level of sentence still have problems with discourse beyond individual sentences. Interestingly, the

level of English proficiency and number of connectives in the CSS seemed to correspond. Certainly, the writers whose texts contained grammatical mistakes belonged to the underscorers in terms of intersentential connectives.

The findings could also be seen in a broader context. Their pragmatic functions, which have been suggested in this thesis (see chapter 5.1), seemed to correspond with theories on the Czech specificity of academic writing (see chapter 5.23). Connectives could be viewed as a useful tool with the power of signposting texts, making connections explicit, disambiguating the meaning, and making the discourse more interactive. The lower frequency of connectives in the CSS corresponds to the "lower interactivity", incohesiveness, lower degree of coherence, and "non-systematic progression" assigned to Czech written discourse. (These terms were mentioned by Čmejrková, 1987.) Czech "multiplicity of standpoints" was thought to be in accordance with the Czech higher use of confrontational connectives, and similarly, "associativeness and baroqueness" seemed to correspond with the Czech higher use of sequential connectives.

7.5 There have been attempts to find positive correlation between the number of connectives and essay quality. I do not think that a large number of intersentential connectives can serve as an indicator of good quality as such. The example of Honk Kong students might be used here, who tried to insert connectives in their texts because they knew that their performance would be assessed among others also by the quantity of connectives (see chapter 5.4). A careful and appropriate insertion of a connective into a text can sometimes enhance its quality. However, intersentential connectives are just one way of making texts more coherent. The means have to be seen comprehensively and in particular contexts.

7.6 The scope of this thesis was narrow and many questions remained unanswered. For our understanding of the relationship between Czech and English use of intersentential connectives, it would be useful to collect a purely Czech corpus that would contain texts written in Czech, possibly by the same speakers as in the CSS. Thus, we could find out if intersentential connectives are really used less in Czech also. Such a corpus could confirm or disprove some speculations connected with negative transfer suggested in the thesis. Secondly, texts other than geographic could also be looked into. This requirement comes out of the

observation that articles from social geography seem to display more connectives than those from, for example, physical geography or geomorphology. This might be explained by the hypothesis that in the more socially oriented sciences there is more space for opinion, comparing opinions, different interpretations and discussion, and thus, connectives are more needed. Thirdly, examining other means of expressing logicosemantic relationships (e.g. intrasentential connectives, prepositional phrases and individual words carrying connective meaning) would be also inspiring. The question would thus be answered as to whether or not Czech speakers tend to express logicosemantic relationships generally less or whether they just tend to under use intersentential connectives. The interpretations of the results are certainly not all-encompassing. They should rather be taken as suggestions of possible motives.

7.7 This thesis strives to add one stone to the mosaic of our understanding of the Czech academic writing. Its results might be used and confronted in translations. It could be also used as a motivation for students and teachers in the teaching process. Although the textbooks available on the Czech market seem to deal with connectives in argumentative writing practice, it is not clear, if language teachers at secondary schools and universities (other than departments of linguistics) encourage their students to practice argumentative writing and if they draw their students' attention to the benefits of the use of connectives in their texts. The results of the thesis suggest that the importance of intersentential connectives (like the importance of writing skills in general) might be emphasized less in the Czech Republic than in the English scientific community. Particularly in courses specializing in academic writing, which are not numerous in the Czech Republic, teaching connectives might help make science more user-friendly and accessible to its recipients.

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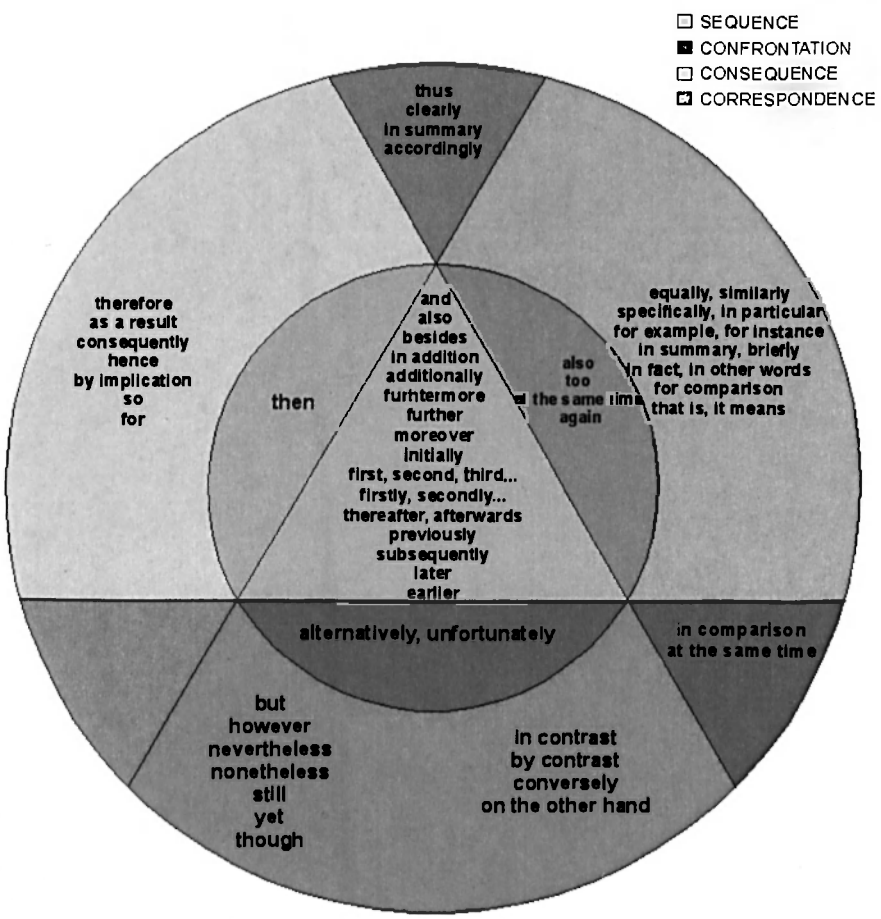
Appendix 1


SEQUENCE
CONFRONTATION
CONSEQUENCE
CORRESPONDENCE
thus
clearly
in summary
accordingly
therefore
as a result
consequently
hence
by implication
so
for
then
and
also
besides
in addition
additionally
furthermore
further
moreover
initially
first, second, third...
firstly, secondly...
thereafter, afterwards
previously
subsequently
later
earlier
also
too
the same time
again
equally, similarly
specifically, in particular
for example, for instance
in summary, briefly
in fact, in other words
for comparison
that is, it means
alternatively, unfortunately
in comparison
at the same time
but
however
nevertheless
nonetheless
still
yet
though
in contrast
by contrast
conversely
on the other hand