

On the Use of Linking Adverbials by Chinese College English Learners*

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Abstract—The aim of this research is, through a general comparison between learners' corpora and NSs' corpora, to probe into the characteristics of Chinese EFL learners with regard to their use of linking adverbials in speaking and writing, and give a detailed description about the non-nativeness that the learners demonstrate in the use of linking adverbials. In this research, we mainly adopt learner corpus based approach. This research has been conducted through three steps. The first step is to find out the related corpora. The corpora used in this study contain two parts, namely, the learner corpora (CLEC and COLSEC) and the native speakers' corpora (LLC and LOCNESS). Second, with the aid of MicroConcord, we search the linking adverbials one by one in the four corpora respectively, and get the normalized frequencies and the context information. The final step is data processing and multifold analyses. We carry out a contrastive study on the individual linking adverbials used by the two groups through investigating the frequencies and the context information and try to find out the differences. It is found: (1) Chinese EFL learners have shown an overall overusing tendency in using linking adverbials in their speaking and writing. (2) Despite the general overusing tendency, Chinese EFL learners display two opposite tendencies in the use of corroborative adverbials in different registers. Namely, they overuse the corroborative linking adverbials in their speaking, but underuse them in their writing. (3) Chinese EFL learners demonstrate a different pattern of writing-speaking difference as the NSs do in the use of linking adverbials, i.e., they tend to use more linking adverbials in their speaking than they do in their writing; conversely, NSs use more linking adverbials in their writing than they do in their speaking. (4) The results have shown that the factors which contributing to Chinese EFL learners' use of linking adverbials are multifold, such as mother tongue transfer, pedagogical instructions, stylistic awareness, semantic understanding, pragmatic considerations. The implications of this research for EFL learning and teaching are also discussed.

Index Terms— corpus, linking adverbials, CIA, Chinese EFL learner

I. INTRODUCTION

Nowadays linking adverbials are no longer a victim of discrimination in vocabulary learning research, nor in vocabulary teaching. Linking adverbial is now recognized as important as other word categories to any language acquisition process, native, or non-native (Odlin, 2001). Therefore, with regard to the use of linking adverbials, the related researches have been conducted and now become more and more widespread.

Oshima and Hogue (1997) defined linking adverbials as words or phrases that connect the idea in one sentence or clause with the idea in another. However, Halliday and Hasan (1976) called it conjunction. "It is a kind of semantic relation which functions as a specification of the way in which what is to follow is systematically connected to what has gone before"(Halliday and Hasan, 1976, p. 227). Some linguists have defined this set of linking devices as sentence connectors, which conjoin two independent sentences/clauses and explicitly mark logical relations in discourse (Biber et al, 1998). But Biber et al (2000) described them as linking adverbials, which can "state the speaker/writer's perception of the relationship between two units of discourse"(p. 558-559). These linking devices also have been defined as conjuncts (Schleppegrell, 1996), which indicate how the speaker views the connection between two linguistic units. Such an indication does not conversely entail the use of a conjunct (Quirk et al 1985, p. 631-647). Beside these, there are some other terms that refer to such kind of linking devices, for example, adverbial connectors (Altenberg and Tapper, 1998), discourse connectives or discourse markers (Liu, 2004), discourse particles (Li, 1998), discourse operators (Bomber, 1982), or pragmatic markers (He and Ran, 2009). In this research, we adopt the term linking adverbial to indicate this kind of linking devices.

In order to carry out this descriptive study, we need first develop a framework of linking adverbials. We basically adopt Biber et al's framework and include the six categories of linking adverbials listed by Biber et al (2000). The main reason is that they carried out a systematic analysis which based on a large corpus. Their taxonomy of linking adverbials is more suitable for our computer processing. And for the most important, Biber et al's classification of linking adverbials is a comparatively reasonable one because they consulted much more former researches and absorbed the

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quintessence of them. More specifically, Biber et al have explored the frequencies and functions of linking adverbials in the LSWE corpus which is thus beneficial for us because it provided not only confirmation for our corpus-based methodology, but also some handy findings and conclusions that we can use as reference in our study. Beside this, we also add the corroborative linking adverbials in this research, which include some stance adverbials such as *in fact*, *indeed* and *actually*. Generally speaking, the syntactic forms of linking adverbials used in this research include single adverbs (e.g., *so*, *though*, *therefore*), adverb phrases (e.g., *more precisely*, *even so*), prepositional phrases (e.g., *in addition*, *on the other hand*), finite clauses (e.g., *that is to say*) and non-finite clauses (e.g., *to conclude*). Before we begin our research, we have conducted a preliminary study on all the English linking adverbials, and excluded those which do not appear in these four corpora. The appendix shows the details.

II. DATA AND METHODOLOGY

This study is intended to examine the use of linking adverbials by Chinese EFL learners in their written and spoken productions. It is cross-sectional in that it does not address the question of order in which the English linking adverbials have been acquired, but investigates the ways they are used by the learners and makes comparisons of use between the learners and the native speakers of English, using a corpus-based approach. The research questions addressed in this study are as follows: (1) What are the differences in the use of linking adverbials between Chinese EFL learners and the native speakers (NSs)? (2) Do Chinese EFL learners overuse or underuse the linking adverbials differently between speech and writing? (3) What are the most frequently used linking adverbials employed by Chinese EFL learners and NSs respectively? (4) Do Chinese EFL learners demonstrate a similar pattern of writing-speaking difference as the NSs do in the use of linking adverbials? If not, what are the differences? (5) To what extent can the observed differences in the linking adverbial use be explained in light of the Chinese learners' cultural and educational background?

The aim of the present research, i.e., to carry out a comparative study of linking adverbials in written and spoken productions between NSs and non-native speakers (NNSs), determines the corpora we use in this research contain two parts, namely, the learner corpora and the NS' corpora. In order to investigate the learners' writing-speaking difference with regard to the use of linking adverbials, we choose Chinese Learners' English Corpus (CLEC) and the College Learners' Spoken English Corpus (COLSEC) as two learner corpora, and choose Louvain Corpus of Native English Essays (LOCNESS) and London-Lund Corpus (LLC) as the NSs' control corpora. The descriptive data of these four corpora are showed in Table I.

TABLE I:
DESCRIPTIVE DATA OF FOUR CORPORA USED IN THE PRESENT STUDY

Type of corpus		Size of the corpus	Total words
The learner corpora	CLEC (ST3, ST4)	474,511	1,182,972
	COLSEC	708,461	
The control corpora	LOCNESS	265,411	798,656
	LLC	533,245	

Using Wordlist Tools (Liang, 2010), a very popular concordancing software, we searched all the linking adverbials included in our framework and try to find the frequencies, the collocates and the contexts of each search word. Then we use one of its main functions of SPSS, namely, Chi-Square Test to see whether there is a significant difference between two sets of variables.

III. RESULTS

A. Overall Frequencies of Linking Adverbials in Learners' Corpora and NSs' Corpora

We have examined the occurrence frequency for each of the 103 linking adverbials in our list one by one by applying Wordlist Tools, calculated the total number of their tokens and types in each corpus (see table II). Here, in order to arrive at comparable frequencies across corpora of different size, normalized data¹ are provided.

TABLE II:
OVERALL FREQUENCIES OF LINKING ADVERBIALS IN THE FOUR CORPORA

	Learners' corpora		NSs' corpora	
Name	CLEC	COLSEC	LOCNESS	LLC
Size	474,511	708,461	265,411	533,245
Frequencies of LAs	10,149	11,793	3,239	6,991
Tokens/10,000 words	213	167	178	131
Types	91	78	78	51
Total	169		129	

From table II we can see that Chinese EFL learners use much more linking adverbials than NSs, either in their speaking (167>131) or in their writing (213>178). Moreover, the numbers of linking adverbials' types used by Chinese

¹ The raw counts of their frequencies are averaged by the size of the corpus. In this research, we adopted the frequency/10,000 words as our normalized frequency.

EFL learners are bigger than that of NSs' (speaking: $78 > 51$; writing: $91 > 78$). But we cannot say that the use of linking adverbials by Chinese EFL learners tend to be more variable than NSs because the size of the four corpora is different. Normally, the larger one corpus is, the more lemma will appear in this corpus.

B. Semantic Distribution of Linking Adverbials in the Four Corpora

The research question of this study concerns the extent Chinese EFL learners use linking adverbials to mark the same semantic relations as the NSs. Figure 1 is a broken-line diagram of linking adverbials' semantic distribution that based on the normalized frequencies. As shown in figure 1, the distribution of different semantic categories is roughly the same in the four corpora, namely, contrast/concession and enumeration/addition are most common, summative and transitional relations are relatively rare. In these four corpora, both Chinese EFL learners and the NSs frequently use the categories of contrast/concession and enumeration/addition to mark the semantic relations in language productions. These findings have been supported by Biber et al. (2000). As they put it, contrast/concession and enumeration/addition are common in all registers, but transitional adverbials are rare (p: 880). We also find that there is a general tendency of overusing in Chinese EFL learners' corpora. Chinese EFL learners use linking adverbials much more frequently than the NSs, not only in written register, but also in spoken register. However, the type of transition is an exception. There is much more overlapping between CLEC and LOCNESS, while the gap between COLSEC and LLC is much bigger. In the use of certain types of linking adverbials, such as enumeration and addition, summation, apposition and contrast/concession, the overlapping in CLEC, COLSEC and LOCNESS are relatively significant. The results of Chi-Square Test (see table III) have confirmed our conclusion. The value(.000) tells that there is a significant difference between Chinese EFL learners' use of linking adverbials and that of the NSs. So we conclude that there is a general tendency of overusing linking adverbials in Chinese EFL learners' written and oral communications.

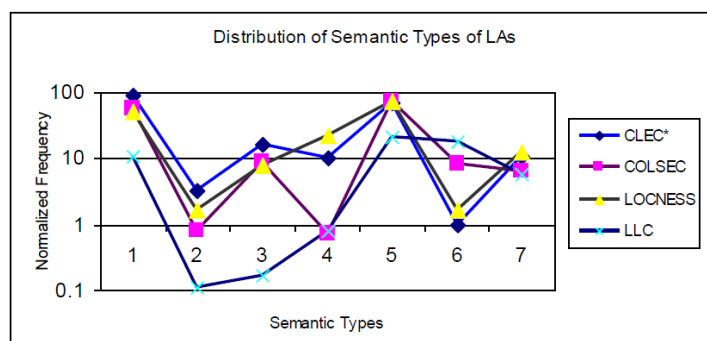


Figure 1: Distribution of semantic types of linking adverbials in the four corpora

Note: On X axis, from 1 to 7, the numbers indicate enumeration and addition, summation, apposition, result/inference, contrast/concession, transition and corroboration respectively.

TABLE III:
CHI-SQUARE TEST

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.768(a)	6	.000
Likelihood Ratio	35.500	6	.000
Linear-by-Linear Association	15.390	1	.000
N of Valid Cases	584		

Giving a closed examination figure 1, we can find that Chinese EFL learners overuse corroborative adverbials in speaking, but underuse them in their writing. The only reason we can suggest is that Chinese EFL learners seem to establish a somewhat more objective and impartial persona in their writing by using less corroborative adverbials; however, they try to state their own views and persuade others to accept their opinions in conversations by using more such kind of adverbials.

C. Findings of the Specific Study

In this section, we will conduct a specific study on some of individual linking adverbials, namely, the top fifteen linking adverbials (TFLAs) in NSs' corpora and the learners' corpora. We first concordance each linking adverbial in NSs' corpora and the learners' corpora and work out a list of TFLAs in these two kinds of corpora. Then, on the basis of TFLAs which appeared in NSs' corpora, we carry out a series of studies on the individual use of TFLAs by Chinese EFL learners and the NSs. By doing this, we can discover the features of Chinese EFL learners' use of linking adverbials in their English production. Through a close examination of the TFLAs, we can get a clear picture that the use of some linking adverbials in which learners deviate notably from the NSs, however, some are used similarly by the two groups.

1. TFLA Use in Learners' Written Corpus

TABLE IV:
COMPARISON OF TFLA USE BETWEEN CLEC AND LOCNESS

	LAs	CLEC	LOCNESS	Difference	Tendencies
1	so	38.30	12.15	26.15	4 overused Average normalized frequency difference: 7.85
2	in fact	6.68	3.74	2.94	
3	then	15.66	13.91	1.75	
4	of course	2.57	2.03	0.54	
5	finally	3.10	3.08	0.02	1 similar 10 underused Average normalized frequency difference: 3.29
6	anyway	0.15	0.77	-0.62	
7	also	23.39	24.14	-0.75	
8	well	0.19	1.43	-1.24	
9	indeed	0.32	2.20	-1.88	
10	though	2.70	5.17	-2.47	
11	actually	0.72	3.57	-2.85	
12	still	4.03	8.96	-4.93	
13	yet	0.55	5.55	-5.00	
14	even	8.51	13.53	-5.02	
15	therefore	2.85	11.00	-8.15	
Total		109.72	111.23	-1.51	

At first sight, we will misunderstand that Chinese EFL learners and the NSs are identical in the use of TFLAs in their writing. Chinese EFL learners totally use 109.72 TFLAs in ten-thousand-word writing. The NSs use 111.23 TFLAs in the same length writing. The difference (-1.51) of their total normalized frequencies is minor. However, a close examination to the frequencies of each TFLA shows the complexities of the picture. Among 15 linking adverbials, Chinese EFL learners overuse 4 TFLAs. There are 10 TFLAs underused by the learners. They use only one TFLA similarly (here, we set 0.1 as the boundary of overuse and underuse. We believe that there is a difference between two groups if the absolute value is bigger than the value of 0.1 or vice versa). This finding indicates that Chinese EFL learners overuse certain TFLAs but underuse others in writing. Moreover, the average normalized frequency difference (7.85>3.29) shows that Chinese EFL learners underuse 10 TFLAs but overuse only 4 ones, their overusing tendency is stronger than their underusing tendency. There are big differences between Chinese EFL learners and the NSs with regard to the use of other TFLAs in their writing, such as *so*, *in fact*, *therefore*, *even* and etc.

2. TFLA Use in Learners' Spoken Corpus

As the data shown in table V, TFLAs are considerably more common in Chinese EFL learners' speaking than in their writing. Chinese EFL learners use 124.96 TFLAs in average ten thousand word speaking but 109.72 ones in the same length writing. Conversely, the NSs tend to use much more TFLAs in their writing. There are 111.23 TFLAs used in average ten thousand word NSs' writing. However, NSs only use 36.80 TFLAs in the same length speaking. Chinese EFL learners use 88.16 TFLAs more than the NSs. From table V we can find that Chinese EFL learners overuse 13 TFLAs, i.e., *so*, *also*, *well*, *of course*, *therefore*, *then*, *even*, *yet*, *still*, *finally*, *in fact*, *indeed*, and *anyway*. Only *though* and *actually* are underused by Chinese EFL learners. Moreover, the data demonstrates a pattern different from that found in the comparison between CLEC and LOCNESS: Among 15 linking adverbials, Chinese EFL learners not only overuse 13 TFLAs but underuse 2, therefore, the average normalized frequency difference of overusing tendency (7.09) is far greater than that of underusing tendency (1.99). It indicates that Chinese EFL learners' overusing tendency is much stronger than their underusing tendency. Finally, Chinese EFL learners rely heavily on several linking adverbials especially the words *so* and *also* while they are speaking. The normalized frequencies of *so* and *also* are 61.82 and 25.75 respectively. The sum of their normalized frequencies of these two words occupies more than one half of the total ones.

TABLE V:
A COMPARISON OF TFLA USE BETWEEN COLSEC AND LLC

	LAs	COLSEC	LLC	Difference	Tendencies
1	so	61.82	11.51	50.31	13 overused TFLAs Average normalized frequency difference: 7.09
2	also	25.75	1.29	24.46	
3	well	7.90	2.27	5.63	
4	of course	4.12	0.53	3.59	
5	therefore	2.82	0.28	2.54	
6	then	10.91	8.85	2.06	
7	even	3.47	2.57	0.90	
8	yet	1.43	0.71	0.72	
9	still	2.30	1.63	0.67	
10	finally	0.54	0.02	0.52	
11	in fact	0.96	0.53	0.43	
12	indeed	0.35	0.19	0.16	
13	anyway	0.34	0.19	0.15	
14	though	1.33	1.82	-0.49	2 underused 1.99
15	actually	0.92	4.41	-3.49	
Total		124.96	36.80	88.16	

3. Chinese EFL Learners' and the NSs' Writing-Speaking Differences in TFLA Use

Table VI is a detailed description of the writing-speaking difference of TFLA use both in Chinese EFL learners' corpora and the NSs' corpora. Figure 2 is a pattern-diagram of writing-speaking difference which based on each group's register difference in using TFLAs. Table VI and figure 2 show that the writing-speaking difference in the NSs' corpora is positive (4.96). That is to say, the NSs use fewer TFLAs in speaking than they do in writing. In contrast, the writing-speaking difference in the learners' corpora is negative (-1.02). It indicates that Chinese EFL learners use more TFLAs in speaking than they do in writing. Therefore, we can draw a conclusion that Chinese EFL learners' and the NSs' writing-speaking difference patterns are skewed in opposite directions. Figure 2 gives us a general picture of each TFLA's register: most of the TFLAs used by NSs are written register sensitive. The NSs' curve rises and falls gently. However, more than one half of the TFLAs used by Chinese EFL learners are spoken register sensitive. Its curve rises and falls strongly.

TABLE VI:
A COMPARISON OF REGISTER DIFFERENCE

	Word	Difference (LOCNESS-LLC)		Word	Difference (CLEC-COLSEC)
1	also	22.85	1	in fact	5.72
2	even	10.96	2	even	5.04
3	therefore	10.72	3	then	4.75
4	still	7.33	4	finally	2.56
5	then	5.06	5	still	1.73
6	yet	4.84	6	though	1.37
7	though	3.35	7	therefore	0.03
8	in fact	3.21	8	indeed	-0.03
9	finally	3.06	9	anyway	-0.19
10	indeed	2.01	10	actually	-0.20
11	of course	1.50	11	yet	-0.88
12	so	0.64	12	of course	-1.55
13	anyway	0.58	13	also	-2.36
14	well	-0.84	14	well	-7.71
15	actually	-0.84	15	so	-23.52
Average		4.96	Average		-1.02

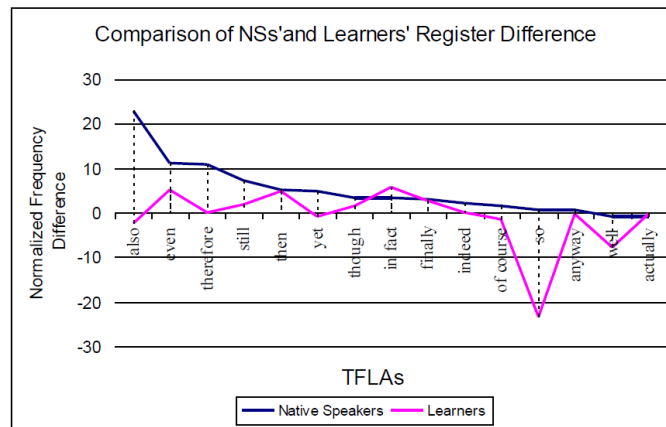


Figure 2: Comparison of NSs' and learners' register difference

Note: On this figure, X-axis is the boundary of written register and spoken register. If the fall point of a word is above X-axis and its value is higher than zero, it suggests that this word is written register sensitive; conversely, if the fall point of one word is under X-axis and the value is lower than zero, it indicates this word is spoken register sensitive; if by chance, the fall point is on the X-axis, the word is register neutral.

Through a close examination of TFLAs we find that the NSs are more likely to use *also*, *even*, *therefore*, *still*, *then*, *yet*, *though*, *in fact*, *finally*, *indeed*, *of course*, *so* and *anyway* in writing than in speaking, but tend to use *well* and *actually* in speaking than in writing. Differently, Chinese EFL learners demonstrate another writing-speaking difference pattern of TFLA use in terms of register. As shown in table VI and figure 2, they tend to use *in fact*, *even*, *then*, *finally*, *still*, *though* in writing than in speaking, but are more likely to use *anyway*, *actually*, *yet*, *of course*, *also*, *well*, *so* in speaking than in writing. Chinese EFL learners are likely to use *therefore* and *indeed* equally.

IV. CONTRIBUTING FACTORS

From the corpora alone, it is difficult to pin down the reasons for the differences between Chinese EFL learners and NSs in the use of TFLAs. However, several factors might be underlying what was observed in corpus analysis.

A. Mother Tongue Transfer

We find that Chinese EFL learners tend to use such linking adverbials as *first(ly)*, *for example*, *so*, *then*, *of course* and *in fact*, but underuse or not use the ones such as *instead*, *yet*, *anyway* and etc. The reason why Chinese EFL learners overuse the former but underuse or not use the latter might come down to their Chinese mother tongue transfer. In Chinese, there are translational equivalents to the linking adverbials such as *first(ly)*, *for example*, *so*, *then*, *of course* and *in fact*, namely, 首先 (第一), 例如, 因此, 然后, 当然, 实际上 in Chinese.

B. Pedagogical Instructions

Chinese EFL learners overuse the enumerative linking adverbials *first(ly)*, *second(ly)*, *third(ly)* and *finally* to list their arguments and use many appositive linking adverbials such as *for example* to exemplify a point, reformulate the information they express or state it in more explicit terms (Wen and Ting, 2003). These writing patterns are very popular in senior high school students' and non-English major college students' writing. This is most probably due to the pedagogical instructions they have accepted. English teachers and some English writing handbooks usually tell the students that they can get high marks in composition test if they adopt such fixed writing patterns in their writing (Ellis, 1985; Gass and Selinker, 1983). Students themselves believe that if they use these linking adverbials to mark the relations overtly, their essays would become more coherent and well organized.

C. Register Awareness

Chinese EFL learners usually use very formal words (written-register sensitive) such as *moreover* alongside the ones preferred in speech such as *anyway* and *actually*. From this research we find that there are many occasions that it would be better to replace the informal LAs by the more formal equivalents in essay writing. Here it may be due to their poor awareness of different registers. It needs to have a further study later.

D. Semantic Understanding

Apart from the lack of register awareness, Chinese EFL learners also seem to lack a full understanding of semantic properties of some linking adverbials, especially their hidden and slight differences in meaning. The reflections of such linguistic deficiency is, on the one hand, Chinese EFL learners tend to use the words that they are familiar with and avoid to use the ones that they are not.

E. Pragmatic Considerations and Other Possible Factors

One of the reasons that why some linking adverbials (for example, corroborative linking adverbials) are underused by Chinese EFL learners may partly come down to learners' pragmatic considerations (Granger & Tyson, 1996). We know that corroborative linking adverbials are typically associated with registers that reflect the speaker's or writer's convictions, which a low frequency of such kind of linking adverbials is characteristic of language users' attempts of being depersonalized or impartial.

Apart from the above five reasons, there are some other possible factors contributing to the observed differences, such as different communication tasks, language users' cultural backgrounds and writer's style in choosing linking adverbials. With the limitation of time and scope, we did not investigate linking adverbial use from these aspects. This may point to a direction for future study to extend the present research.

V. IMPLICATIONS IN THE FIELD OF SECOND LANGUAGE ACQUISITION

For Chinese EFL learners, they should: (1) learn to differentiate the choices of linking adverbials and try to acquire linking adverbials in a direct manner; (2) place more emphasis on the restrictions imposed on certain linking adverbials and improve semantic understanding of linking adverbials; (3) expose to a greater range of registers to improve register awareness; (4) be aware that learning the native English writing and speaking conventions is inextricable from learning to write and speak in English.

For English teachers, they are suggested to: (1) urge their students to learn not only how to use linking adverbials, but how to use them appropriately; (2) help students internalize the English language conventions and the specific language patterns in the teaching process; (3) provide a large range of different registers and help students acquire a better understanding of the strategies of linking adverbial use typically in speech and writing.

APPENDIX: A SUMMARY OF LINKING ADVERBIALS USED IN THE PRESENT STUDY

1. Enumeration and addition: *first(ly)*, *second(ly)*, *third(ly)*... *in the first place*, *in the second place*, *in the third place*, *first of all*, *for one thing*...(and)*for another(thing)*, *to begin with*, *next*, *then*, *finally*, *last(ly)*, *last but not least*, *likewise*, *similarly*, *in the same way*, *also*, *further*, *furthermore*, *moreover*, *too*, *what's (is) more*, *in addition*, *besides*, *additionally*, *in particular*, *above all*, *as well*.

2. Summation: *altogether*, *overall*, *(all) in all*, *in conclusion*, *in sum*, *to sum up*, *to summarize*, *in general*, *generally speaking*, *on the whole*, *in short*.

3. Apposition: *namely (viz)*, *that is(i.e.)*, *that is to say*, *in other words*, *for example (e.g.)*, *for instance*, *specifically*.

4. Contrast/concession: *rather*, *on the other hand*, *conversely*, *instead*, *on the contrary*, *in contrast*, *by contrast*, *in*

comparison, by comparison, anyhow, anyway, however, nevertheless, nonetheless, at the same time, still, though, even, so, yet, in any case, in spite of that, after all, all the same, admittedly.

5. Result/inference: accordingly, consequently, hence, so, therefore, thus, in consequence, as a result, somehow, (or) else, otherwise, then, in other words, in that case.

6. Transition: incidentally, meantime, meanwhile, in the meantime, in the meanwhile, well, now.

Corroboration: actually, in fact, as a matter of fact, in effect, of course, indeed, apparently.

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