A Comparative Corpus-based Analysis of Collocational Patterns in Self and Other-translators

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Abstract

With the dawn of post-colonialism and a surge in migrations, several bilingual authors started translating their original texts into the target language. As a result, translation studies started distinguishing it from other-translations owing to its special status based on various extra-linguistic features. Consequently, now it goes by the term self-translation studies (Anselmi, 2012) - a field of its own. However, none of the studies have distinguished self and other-translations at the basic linguistic level. This study aims to trace and compare the patterns of collocations in other-translations and self-translations with reference to non-translated texts. For this purpose, a corpus-based on a monolingual comparable model (Baker, 1993) and consisting of three further sub-corpora i.e. *other-translators*, *self-translators,* and *Pakistani writers* is used. The lexical collocations model proposed by Benson et al. (1997) provides a theoretical framework for this study. The sub-corpora are tagged by TagAnt 1.2.0 and treated further using AntConc 3.5.8. The findings of the study reveal that self-translators employ more collocate types and they are more homogeneously distributed around a single node in comparison to the other-translators. The results are significant for the theoretical understanding of self-translations and invite more investigations at the linguistic level to set apart the features of the two categories.

Keywords: collocations, self-translations, other-translations, Pakistani writers, monolingual comparable corpus

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Translation studies have received traction in recent years owing to the world becoming a global place and the focus away from nationalism to globalism. It led to the world especially the West opening its doorways for multiple ideas, many even in contradiction to their own. This saw an enormous rise in translations over the years especially in the lingua franca English which is a huge market. As a result, not only professional translators were hired who would translate texts of an author into the target language, but sometimes the bilingual authors themselves would take the charge in their own hands to increase the reach of their writings to a far audience. These two kinds of translators i.e. other-translators and self-translators respectively have been widely differentiated theoretically; however, little research has given any concrete evidence to differentiate between the two.

Theoretically, it has been established that self-translations are "the most faithful of all possible translations" (Vansina, 2004, p. 489) because "self-translators can access their original intention and the original cultural context or literary intertext of their original work" (Jung, 2002, p. 30) in a better way than the other-translators. Therefore, self-translators enjoy authority over the original text (Bozkurt, 2014) which is not possible for an ordinary (other) translator. Apart from these and similar other descriptive studies a couple of studies have explored these two categories from a narrative and stylistic point of view (Ehrlich, 2009; Obaid et al., 2018; Saldanha, 2011), But none of the studies have explored them at the basic lexical level to provide any concrete difference in the use of language. The present study aims to fill this gap by comparing the lexical patterning of self and other-translations particularly through the study of collocations.

The primary aim of this study is to identify the differences in the collocational patterns of self and other-translations. For this purpose, a corpus based on a monolingual comparable model (Baker, 1993) has been taken which consists of three sub-corpora. Two translated sub-corpora i.e., *other-translators* and *self-translators* which are benchmarked against the third non-translated *Pakistani writers'* sub-corpus. The study has been framed using the lexical collocations model of Benson et al (1997). However, keeping in view the scope only those types of lexical collocations are investigated which have a noun as its node. The study is further limited by taking into account only the ten most frequent nodes and their collocates. This study answers the following research questions to address the aim of this study:

1. What is the number of collocate types used in other and self-translators in comparison to the non-translated *Pakistani writers*?
2. How are the collocate types distributed in other and self-translators in comparison to the non-translated *Pakistani writers*?

Review of the Relevant Literature

The word collocation finds its origin in the Latin word "collocare" meaning "to set in order/to arrange" (Martyńska, 2004, p. 2). The words 'order' and 'arrange' imply that collocations are a kind of formulaic language with some sort of arrangement. However, this etymological meaning of the term requires further definitional elaboration. In order to present a

relatively narrow and more focused view of collocations, section 2.1 reviews previously postulated definitions and presents an operational definition of collocation formulated for the purpose of the present study. Section 2.2., in line with the aim of the present study, reviews those studies in which collocations are investigated in translational corpora. Consequently, gaps are identified and a niche is developed for the present study.

What are Collocations?

The studies on collocations date back to the previous century, still, there is no one agreed-upon definition of collocations yet. It has been established that "what goes under the header of 'collocation' is very heterogeneous" (Wouden, 1997, p. 53). Hence, the plethora of definitions is categorized into two broad approaches i.e., frequency-based approach and phraseological approach (Barfield & Gyllstad, 2009; Nesselhauf, 2003, 2005). Frequency-based approach, also called "statistically oriented approach" (Herbst, 1996, p.380), to defining collocations considers a collocation as "the co-occurrence of words at a certain distance" (Nesselhauf, 2005, pp. 11-12) which "are found together more often than their individual frequencies would predict" (Jones & Sinclair, 1974, p. 19). Different association measures such as MI-score and t-score are used to determine the statistical associational strength between a node and collocates. A 'node' is the word under investigation, a 'collocate' is its co-occurring word, and 'span' stands for the designated environment in which a node and collocate may co-occur (Halliday, 1966; Sinclair, 1991). Different studies vary this span concerning the purpose of their research; however, an optimal span is considered to be +/-4 (Jones & Sinclair, 1974) words from the node. This means four words to the left and four to the right of the node. In contrast to the frequency-based approach, the phraseological approach, also called the "significance-oriented approach" (Herbst, 1996, p.380), defines collocations as "a type of word combination, i.e., an abstract combination with instantiations in actual texts" (Nesselhauf, 2005, p. 14). This means that the collocations are realizations of structural elements in a syntactic construction.

Studies show that several researchers (Benson et al. 1997; Hill, 2000; McCarthy & O'Dell, 2005) have classified the collocations based on the syntactic characteristics of their constituents. Benson et al. (1997) are a pioneer among these researchers and classified collocations into lexical and grammatical collocations. Lexical collocations consist of two open-class lexical words (such as nouns, verbs, adjectives, adverbs) joined together, and they lack any grammatical feature such as prepositions, infinitive, etc. Grammatical collocations, in contrast, consist of a grammatical feature and an open-class word. A further categorization of these major types is given in figures 1 and 2 below.

Many later researchers, based on this classification by Benson et al. (1997), proposed their classifications, but all of them merged the two major categories of grammatical and lexical collocations providing no distinction between them. Also, most of the classifications are derived from Benson et al. while omitting and substituting a few elements. Therefore, the classification of Benson et al. is adapted. It will focus only on lexical collocations keeping in view the practicality of the present research.

Figure 1

Categorization of lexical collocations by Benson et al. (1997) (as cited in Ahmed, 2012)

Type	Pattern	Example
L1	Verb (denoting creation and /or activation) + Noun/ pronoun or a prepositional phrase	Make an impression, set an alarm.
L2	Verb (denoting eradication and/or nullification) + Noun.	lift a blockade, withdraw an offer
L3	Adjective + Noun	Strong tea
L4	Noun + Verb (the verb names an action characteristic of the person or thing designated by the noun)	Blood circulates, bomb explodes
L5	Noun + noun	A colony of bees, an article of clothing
L6	Adverb + Adjective	Deeply absorbed, hopelessly addicted
L7	Verb + Adverb	Anchor firmly, amuse thoroughly

Figure 2

Categorization of grammatical collocations by Benson et al. (1997) (as cited in Ahmed, 2012)

Type	Pattern	Example
G1	noun + preposition	Blockade against, apathy towards
G2	noun + *to*-infinitive	He was a fool to do it; they felt a need to do it.
G3	noun + *that*-clause	We reached an agreement that she would represent us in court, he took an oath that he would do his duty.
G4	preposition + noun	By accident, in agony
G5	adjective + preposition	Fond of children, hungry for news
G6	adjective + *to*-infinitive	It was necessary to work, it's nice to be here
G7	adjective + *that*-clause	She was afraid that she would fail, it was imperative that I be here
G8	19 different verb patterns in English e.g. verb + *to*-infinitive and verb + bare infinitive	They began to speak, we must work.

For the present study, it is difficult to select a definition belonging to any one of these approaches i.e., frequency-based approach and phraseological approach because they are defined widely different in these approaches and are sometimes vague. There, it is important to devise an operational definition keeping in view the aims of this study. For this purpose, a complementary approach is used which rather than taking the two approaches to the definitions of collocations in opposition provides a good mix of them. Hence, collocations in this study are defined as follows:

A pair of two open-class, non-idiomatic, and restricted word forms which occurs in a corpus (within a window of ±5) above chance (f > 5 and MI > 3) (adapted from Farooqui, 2016)

In short, the frequency-based approach adds all the statistical elements, whereas the phraseological approach adds all the qualitative characteristics to the definition of collocations. For details on how the elements of this definition have been integrated into the present study see section 3 on methodology.

Collocations in Translation Studies

Many studies have already been conducted on the use of collocations in translated texts corpora. These studies can be broadly categorized into two areas based on the type of corpus used. One area of research is collocation studies based on parallel corpus and the other is based on the comparable corpus. A parallel corpus comprises original texts in language A and their translations in language B. Contrarily, a comparable corpus consists of translated as well as non-translated texts in the same target language. Both the corpora have their advantages and disadvantages. For example, a couple of studies of collocations using a parallel corpus (Kenny, 2001; Øverås, 1998) show that translators tend to use target language collocations over creative source text coinages. However, these findings are derived by a comparison of source texts with their translations, and also take into account the effect of language-specific differences. In comparison to a parallel corpus, a comparable corpus is given more value because it is used "to identify patterning which is specific to translated texts, irrespective of the source or target languages involved" (Baker, 1995, p. 234). This way a translation is no more characterized as an individual act whose burden falls solely on the individual whims of a translator, but it is given the status of a communicative event in the target language regulated by socio-cultural norms (Bernardini. 2007).

Very few studies (Baroni & Bernardini, 2003; Bernardini, 2007; Dayrell, 2007; Marco, 2013) have been conducted to investigate collocational patterns in translated texts through a comparable corpus. Baroni and Bernardini (2003) conducted a preliminary exploratory study where one set of corpora consisted of articles originally written in Italian and the other set consisted of articles translated into Italian from a variety of languages. Through a bigram analysis, it was concluded that translated texts have a clear tendency to contain a large number of bigrams with stronger association measures. However, because of the bigram extraction method, the study considered any frequently adjacent pair of words as collocations. Hence, the results were based on a "rather generous and vague notion of what counts as a collocation" (Barnoi & Bernardini, 2003, p. 5).

In another attempt, Bernardini (2007) explored collocations in translated language using bi-directional parallel corpora as well as a reference corpus. The bi-directional corpus further comprised of two small parallel corpora, one of them comprised of original and translated English (source texts in Italian), and the other consisted of original and translated Italian (source texts in English). Thus, these two parallel corpora individually made a comparable corpus each. Results were drawn for a single pattern i.e., N prep|conj N. The results tentatively suggested that translated texts seem to be more collocational than the original texts. However, this finding cannot be claimed with certainty because of the reduced comparability of the two corpora. Bernardini himself points out that the Italian novels in translation (i.e., English texts

translated from Italian) used in this study are more highbrow in comparison to original English novels which are mass-market fiction. This factor of language property may have intervened in the results.

In her study, Dayrell (2007) for the first time conducted a corpus-based study with neatly developed methods to study collocations in monolingual comparable corpora. It employed Brazilian Portuguese comparable corpus consisting of fictional texts. The aim of this study was to find out if the collocational patterns are less diverse in translated texts in comparison to non-translated texts. The findings of the study supported the hypothesis. However, one of the limitations of the methodology, i.e., the two corpora were not comparable concerning the number of texts used, questions the reliability of this research.

Marco (2013) investigated collocations in translated and non-translated literary language using a parallel and a comparable corpus. The three sub-corpora consisted of English source texts, their Catalan translations, and the texts originally written in Catalan. He contested two hypoteses relevant to translated and non-translated texts. The first hypothesis that "there will be fewer clusters for each node in the translated than in the non-translated component", and the second one that "the frequency of occurrence of clusters for each node will be higher in the translated than in the non-translated component" (p. 175) were not supported by the findings of the study. Also, the arrangement of this corpus was such that similar to Dayrell's (2007), it also lacked in comparability to the number of texts. Hence, the findings of the study need further investigation.

The review of these studies shows that there is a huge scope for further research in this area and that a number of gaps are still left in the field. Firstly, the patterns of collocations are still unexplored in English translations especially with reference to a monolingual comparable corpus which is useful in bringing out the patterns of the translational language. Secondly, it is still to be seen whether the status/authority of translators affects the collocation patterns or not. The present study aims to fill in these gaps by investigating lexical patterns of collocations used in self and other translations.

Research Methodology

Theoretical Framework of the Study

The framework selected for investigating collocational patterns is that of Benson et al. (1997) (for more detail on Benson et al.'s models see section 2.1). Keeping in view the scope, this study has focused only on lexical collocations which further comprise seven types, and out of these seven types, this study took only five types for further consideration. These five types are L1, L2, L3, L4, and L5 (see section 2.1). The reason for choosing these particular 5 types is that all of them have a noun as their node. Since the study did not require an in-depth identification of the type of verbs; therefore, the types L1 and L2 were merged for further convenience. For this study, we will call this merged type L1+2. Therefore, it can be summarized that the node noun collocates with i) a verb denoting creation and/or activation or denoting eradication and/or nullification in the type L1+2, ii) an adjective in type L3, iii) a verb which names an action in type L4, and iv) a noun in type L5. It is also important to mention that except type L4 all the collocates occur on the left side of the node. That is why the

collocations of types L1+2 and type L4 were generated separately in this study though both of them have verbs as their collocates.

Corpus Design

The corpus employed for the present study is designed as per the monolingual comparable model suggested by Baker (1993). It consists of three English language sub-corpora, two of them i.e. *other-translators* and *self-translators* are translated, whereas one of them i.e. *Pakistani writers* is non-translated. The texts in the two translated sub-corpora have their source texts in the Urdu language. *Other-translators* category consists of texts which are translated by anybody but the author of the source texts, whereas *self-translators* category consists of texts translated by the author of the source text. Each of the three sub-corpora consists of three texts each belonging to the genre of fiction. The texts in the sub-corpus of *Pakistani writers* are "Ice Candyman", "The Stone Woman" and "Blasphemy"; in the *other-translators* are "The Sea Lies Ahead", "Umrao Jan Ada" and "Godavari"; whereas in the *self-translators* are "The Sun that Rose from the Earth". Weary Generation" and "River of Fire". The whole corpus consists of 975,561 tokens/words. The size of each sub-corpus is given in the table below:

Table 1

Size of each sub-corpus

Sub-corpus	Number of Texts	Number of Tokens
Pakistani Writers	3	242037
Other-translators	3	236822
Self-translators	3	496702

The difference in the number of tokens is leveled out in the results by either normalizing the frequencies or deriving their ratios.

Corpus Tools

The corpus tools employed for this study are TagAnt 1.2.0 and AntConc 3.5.8. TagAnt 1.2.0 is used to tag the whole corpus initially for parts of speech since the grammatical class of nodes and collocates were decided beforehand as per Benson et al.'s (1997) model. Afterwards AntConc 3.5.8 is used to draw not only nodes common to the three sub-corpora but also their respective collocates.

Method of Analysis

This study roughly consisted of two major steps. The first one aimed to draw the ten most frequent nodes common to the three sub-corpora. The second step focused on deriving collocates of these ten nodes from the three sub-corpora. Before elaborating on these two steps, it is important to mention that the corpus was the first part of speech tagged through TagAnt 1.2.0 before being subjected to further analysis. The tagged data were then analyzed further through subsequent steps in AntConc 3.5.8.

Method for Drawing and Selecting Nodes

This study took only 10 nodes which were selected based on three criteria. It has already been established in section 3.1 that nouns were narrowed down to be the nodes for this study. So, the grammatical class of the node was restricted to nouns, particularly common nouns since proper nouns do not collocate. Secondly, nodes were selected as word forms instead of lemmas since different word forms exhibit different collocational patterns (Mason, 1997; Sinclair, 1991), so choosing a lemma as a node may flatten those differences. Lastly, the range of the node was set to be nine. The reason is that there were nine texts in the whole corpus, so only those nodes were selected which had the highest frequency in all the nine texts; thus, making it necessary for each node to exist in each text of the whole corpus.

In order to draw nodes, this study used the clusters feature of the AntConc 3.5.8. The clusters feature helped to find nouns from the whole tagged corpus by using the tag of common nouns as a search term. The cluster size was set to be two, and the range was set to be nine. After sorting the results by frequency, the first ten most frequent words were taken as nodes for the present study. The list of these ten nodes and their frequencies is given below:

Table 2

Frequencies of the 10 nodes

Node	Frequency in the Sub-corpora			Total
	Pakistani Writers	Other-translators	Self-translators	Frequency
Time	439	505	984	1928
Day	352	352	575	1279
Eyes	441	255	538	1234
Man	289	262	676	1227
People	160	396	487	1043
House	272	242	504	1018
Life	280	238	430	948
Way	219	240	434	893
Face	315	140	405	860
Men	211	152	447	810

Method for Retrieving Collocates

Four criteria were set for retrieving collocates. As established in section 3.1 that only certain collocational patterns were investigated; therefore, the grammatical class of collocates was restricted in line with the patterns discussed in the said section. Secondly, the minimum collocate frequency was set to be four. Generally, there is no consensus among scholars over the cut-off point of the frequency of co-occurrence. The cut-off point 4 was inspired by Dayrell (2007) upon which the present study is modeled. Thirdly, the window span in which the collocate occurs near the node was set to be ten. Again, there is no set consensus among scholars on this value, but it is generally taken to be five. This study doubled this number because the collocates were derived from tagged sub-corpora and AntConc 3.5.8 counts a tag also as a word. Lastly, the measure for the strength of association between node and collocate was chosen to be MI + Log-Likelihood ($p<0.05$). The reason for choosing this collocate

measure was that it not only provides mutual information index but also makes sure that the results are significant. The minimum value for this measure was taken to be 4 again in accordance with Dayrell's study.

The collocates were retrieved using the collocates option of AntConc 3.5.8. The results were sorted as per the stat. All those collocates were taken into consideration and analyzed in their concordance lines that had a minimum stat value of 4 or above. Only those words were considered as collocates that passed all the above-mentioned four criteria. Appendix 1 provides lists of all the collocates of each node for the three sub-corpora.

Computation of Results

After drawing collocates, they were further processed in the following ways keeping in view the research questions designed for this study.

Computation of Number of Collocate Types

After the retrieval of collocates, overall collocate types were counted for a given node in a given sub-corpus. Since the number of tokens in each sub-corpus varied widely and it could potentially affect the results; therefore, ratios for collocate types were computed per node frequency. More details for the interpretation of ratios are given in section 4.1.

Computation of the Range of Collocate Types

In order to know if all the nodes have an equal distribution of collocate types in each sub-corpus, a chi-square test was conducted. The Chi-square test followed by the level of significance of chi-square value i.e., p-value ≥ 0.05 revealed whether the distribution was homogeneous or not. For these purposes, an online chi-square calculator and a p-value calculator were used. Further detail on the calculation and interpretation of chi-square value and the p-value is given in the section 4.2.

Results

In this section, the results are organized and presented keeping in view the two research questions posed in chapter 1. The section is thus divided into two major sub-sections where each sub-section presents results pertaining to the two research questions.

Comparison of the Number of Collocate Types for Each Node

The first research question of this study asks for a comparison of the number of collocate types for each of the 10 nodes among *self-translators*, *other-translators and Pakistani writers* category. The results for this question presented in table 3 below are derived by simply counting the number of collocate types for each node in the three sub-corpora. The results show that for all the nodes i.e. a 100%, the number of collocate types is the highest in *self-translators* in comparison to the other two sub-corpora. This is followed by *other-translators* where 80% of the nodes have a higher number of collocate types in comparison to the non-translated *Pakistani writers*. These results imply that translated texts employ more number of collocate types in comparison to the non-translated texts.

It can be argued, however, that these high percentages of collocate types may be reflective of the higher node frequency i.e., the higher the node frequency, the more the collocate types. For example, table 3 shows that the node frequencies of all the 10 nodes are the highest for *self-translators* in comparison to the other two sub-corpora. This can be illustrated in the specific case of the node *man* where in *self-translators* the node frequency is 676 and has 20 collocate types, in *Pakistani writers* the node frequency is 289 and has 8 collocate types, whereas *other-translators* has the node frequency 262 and has 7 collocates. Therefore, in order to provide a clearer picture of the frequencies, table 4 provides the ratios which are calculated by dividing the node frequency with the number of collocate types. For example, in the case of the node *time* for *Pakistani writers* 439 is divided by 13 to get 33.77. These ratios remove the influence of the node frequency, and provides transparent results for collocate types. The ratios reflect the mean number of times each collocate type occurs in a hypothetical situation where all collocate types collocate in equal proportions with the node. Hence, a higher ratio indicates that each collocate type collocates with the node a higher number of times, which reflects a lower number of collocate types.

Table 3

Number of collocate types for each node

Node	Pakistani Writers		Other-translators		Self-translators	
	Node frequency	No. of collocate types	Node frequency	No. of collocate types	Node frequency	No. of collocate types
Time	439	13	505	06	984	24
Day	352	05	352	07	575	14
Eyes	441	08	255	12	538	14
Man	289	08	262	07	676	20
People	160	04	396	10	487	19
House	272	05	242	07	504	18
Life	280	08	238	10	430	11
Way	219	03	240	06	434	12
Face	315	03	140	05	405	06
Men	211	02	152	07	447	16

Table 4 below provides the ratios for each node in the three sub-corpora, and also declares the sub-corpus with the highest and lowest number of collocate types for each node. The results in this table 4 clearly show that in many cases the high node frequency was responsible for the higher number of collocate types in table 3. For example, table 3 shows that for the node *time*, *self-translators* category has the highest node frequency, and also has the highest number of collocate types. However, table 4 shows that in reality *Pakistani writers* category has the highest number of collocate types for the node *time* even though it has less node frequency i.e. 439 in comparison to the *self-translators* which has 984.

The results in table 4 show that *self-translators* category indeed has the highest number of collocate types as 50% of the nodes still have the highest number of collocate types compared to the other two sub-corpora. This is followed by *other-translators* category where 40% of the nodes have the highest number of collocate types in comparison to the other two

categories. Contrarily, the non-translated *Pakistani writers* category has the lowest number of collocate types for each node as its 70% of the nodes have the lowest number of collocate types.

Table 4

Ratio of the collocate types with reference to the node frequency

Node	Pakistani Writers (PW) ratio	Other-translators (OT) ratio	Self-translators (ST) ratio	Sub-corpus with the LOWEST number of collocate types	Sub-corpus with the HIGHEST number of collocate types
Time	33.77	84.17	41	OT	PW
Day	70.4	50.29	41.07	PW	ST
Eyes	55.13	21.25	38.43	PW	OT
Man	36.13	37.43	33.8	OT	ST
People	40	39.6	25.63	PW	ST
House	54.4	34.57	28	PW	ST
Life	35	23.8	39.09	ST	OT
Way	73	40	36.17	PW	ST
Face	105	28	67.5	PW	OT
Men	105.5	21.71	27.94	PW	OT

In order to strengthen the validity of these findings, if we compare the results in the table 3 based on frequencies with those of table 4 based on ratios of the number of collocate types, it is found out that 5 out of the 10 nodes analyzed in this study have the same pattern of occurrences among the three sub-corpora. The comparison of those five nodes is presented in the table 5

Table 5

Comparison of the frequencies and ratios of the collocate types of five nodes

Node	PW		OT		ST		Lowest No.	Highest No.
	Freq.	Ratio	Freq.	Ratio	Freq.	Ratio		
Day	05	70.4	07	50.29	14	41.07	PW	ST
Man	08	36.13	07	37.43	20	33.8	OT	ST
People	04	40	10	39.6	19	25.63	PW	ST
House	05	54.4	07	34.57	18	28	PW	ST
Way	03	73	06	40	12	36.17	PW	ST

The results from the table 5 show that 100% of the nodes have the highest number of collocate types in the *self-translators* category. In contrast, 80% of the nodes have the lowest number of collocate types in the *Pakistani writers* category. These results affirm the previously concluded findings that *self-translators* has the highest number of collocate types for each node, whereas non-translated *Pakistani writers* has the lowest number of collocate types.

**Comparison of the Range of Collocate Types for Each Node**

The second research question helps determine which of the sub-corpora draw heavily on a small number of collocate types rather than the full range. For this purpose, chi-square test is applied. Chi-square test is used to find if the two sets of data differ significantly. More precisely, it tests the null hypothesis that there is no difference between the two sets of comparable data and that the differences are purely by chance (Oakes, 1998, p. 9). For this study, chi-square test is used to establish if the difference between the actual distribution of collocate types of a node and their mean distribution in a hypothetical situation is statistically significant. Mean distribution implies that all the collocate types of a node are distributed equally, and that they collocate in equal proportions with the node in a given sub-corpus. The value for mean distribution is computed by dividing the total number of collocate occurrences with the total number of collocate types of a given node.

The procedure of applying chi-square test can be illustrated through the example of the node *people*. The node *people* has 4 collocate types which have total 26 occurrences in the *Pakistani writers* corpus. In a hypothetical situation these 4 collocate types will have a mean distribution where each collocate would co-occur with the node *people* equal number of times i.e., 6.5 (26 divided by 4). The chi-square test then compares the actual observed number of occurrences of each collocate with the hypothetical distribution where each collocate co-occurs 6.5 times. This gives a chi-square value of 9.3846 which in turn gives the level of significance i.e., p value of 0.0246 in the *Pakistani writers* category. Following the same procedure for the sub-corpus of *other-translators* gives a chi-square value 16.1211 and a p-value 0.0644, and for *self-translators* a chi-square value 19.4716 and a p-value 0.3633.

These levels of significance (p-values) are then interpreted regarding the already established significance level. For most research studies the pre-established level of significance is taken to be 0.05; therefore, for this study also 0.05 is considered to be the level of significance against which our null hypothesis is tested. This value means that the rejection of null hypothesis is not possible "unless there are fewer than five chances in 100" (Oakes, 1998, p. 9) of obtaining the said result. For the present study, the level of significance $p \geq 0.05$ means that the difference between the actual distribution of collocate types and their mean distribution in a hypothetical situation is not statistically significant; hence, the collocates are distributed homogeneously in the said sub-corpus and the null hypothesis is not rejected. Contrarily, if the p-value is ≤ 0.05 then it means that there is a significant difference between the actual and mean distribution; therefore, the collocates are not homogenously distributed in that specific sub-corpus and the null hypothesis is rejected. Applying these interpretations to the example of the node *people* elaborated in the previous paragraph, it can be established that both *other* and *self-translators* show no significant difference between the actual and mean distributions as their p-values are 0.0644 and 0.3633 respectively which are greater than 0.05. Therefore, both the sub-corpora have a homogenous distribution of collocates for the node *people*. Contrarily, *Pakistani writers* category has a p-value 0.0246 which is less than 0.05; therefore, it does not have a homogenous distribution of collocates for the node *people*. The distribution of collocates for the node *people* in the graphical form is given below:

Figure 3

Graphical representation of the distribution of collocates for the node people in PW
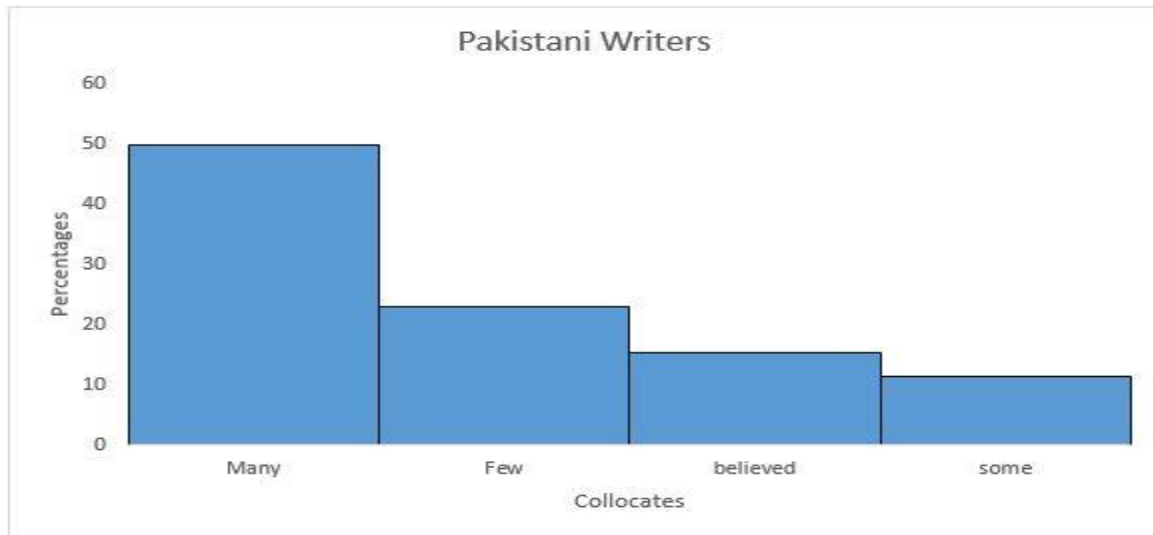
This graph clearly shows that *Pakistani writers* category is drawing heavily on the collocate *many.* Hence, it does not have a homogenous representation of collocates for the node *people.*

Figure 4

Graphical representation of the distribution of collocates for the node people in OT
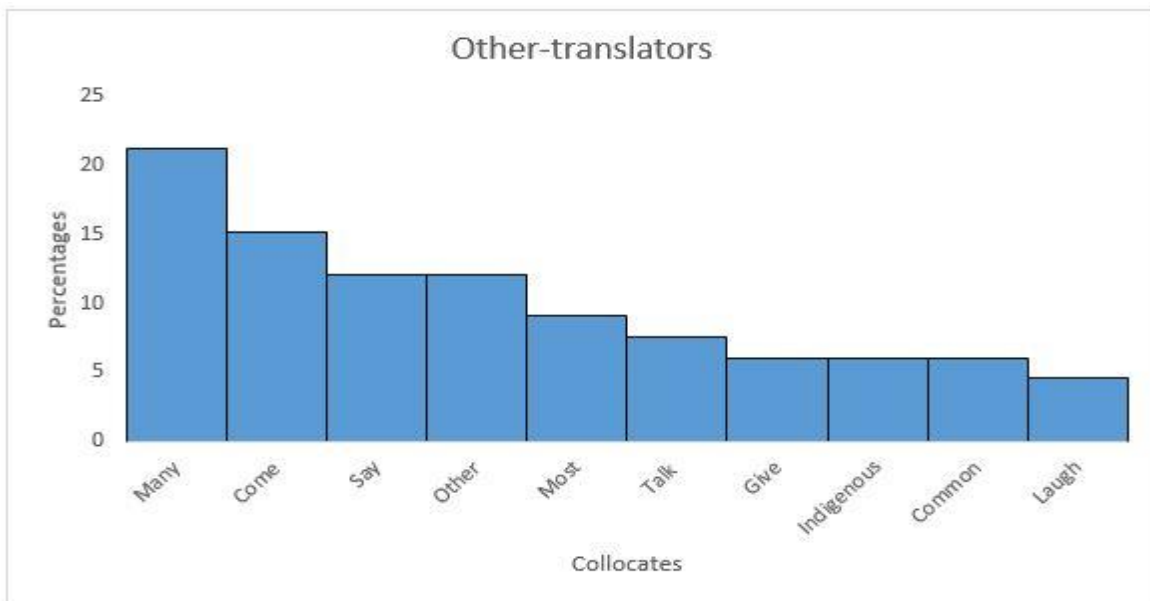
Figure 5

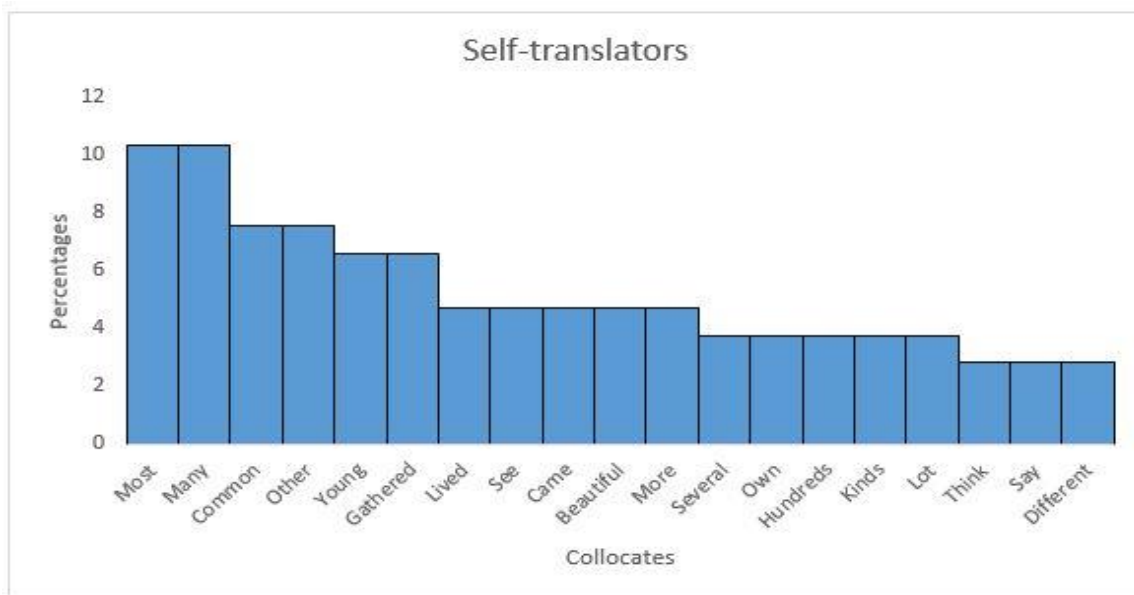*Graphical representation of the distribution of collocates for the node people in ST*

Figure 4 and 5 make it evident that *other-translators* and *self-translators* show a relatively even distribution of collocate types. Levels of significance for all the 10 nodes are given in the table 6.

Table 6

Level of significance (p-values) of the distribution of collocates

Nodes	PW	OT	ST
Time	Less than 0.0001	Less than 0.0001	Less than 0.0001
Day	0.0008	Less than 0.0001	Less than 0.0001
Eyes	0.1295	0.1126	Less than 0.0001
Man	Less than 0.0001	Less than 0.0001	Less than 0.0001
People	0.0246	0.0644	0.3633
House	0.7216	0.5852	0.9547
Life	0.5849	0.4373	0.9831
Way	0.0004	0.9012	0.7428
Face	0.5837	0.9649	0.3492
Men	0.0116	0.1372	Less than 0.0001

Note: Grey boxes= $p \le 0.05$; Yellow boxes= $p \ge 0.05$

The results in table 6 roughly show that translated text categories i.e., *self-translators* and *other-translators* have for the most number of nodes p-value higher than 0.05 in comparison to *Pakistani writers*. This implies that translated texts draw more homogenously on the collocate types in comparison to the non-translated texts which draw more on the small number of collocates. The table also shows that 60% of the nodes display similar patterns of collocation distribution in all the three sub-corpora. Among these 60%, 30% nodes i.e., *time*, *day* and *man*

have the level of significance less than 0.05 for the distribution of collocates in the three sub-corpora. This means that the collocates of these three nodes are not homogenously distributed in all the three text categories. On the other hand, the other 30% nodes i.e., *house*, *life* and *face* have significance level more than 0.05 for all the three sub-corpora. This implies that collocates are homogenously distributed for these nodes in all the sub-corpora.

However, it is important to note that though the three sub-corpora may have similar patterns of distribution, still the proportion of individual collocates vary among the sub-corpora i.e., there are still differences in the frequencies of the collocations in the three corpora. Therefore, in order to make the results clearer for the 6 nodes in this study which show similar distribution in the three text categories, it is important to compare the individual collocate frequencies. For this purpose, percentages are calculated for the first three collocates having the highest number of occurrences in a sub-corpus. The frequencies of these collocates are divided by the total number of collocates in that sub-corpus. The higher the number, the higher the propensity to draw heavily on a small number of collocates since it shows that the three collocates are the most frequent collocates of that particular sub-corpus and make up a large proportion of collocates. The percentages of the three highest employed collocates around the six nodes in each sub-corpus are given below:

Table 7

Percentages of the sum of the first three collocates for the six nodes with similar distribution in the three sub-corpora

Node	PW	OT	ST	LEAST diverse	MOST diverse
Time	63%	90%	49%	OT	ST
Day	81%	71%	53%	PW	ST
Man	75%	77%	68%	Not established	ST
House	69%	57%	24%	PW	ST
Life	55%	45%	34%	PW	ST
Face	100%	67%	68%	PW	Not established

Note: Adjacent grey boxes show that the difference between the two percentages is less than 5 points, hence no finding can be established from them.

Table 8

Percentages of the sum of the first three collocates for the four nodes with similar distribution in at least two sub-corpora

Node	PW		OT		ST		LEAST diverse	MOST diverse
	p-value	%	p-value	%	p-value	%		
Eyes	>0.05	55%	>0.05	42%	<0.05	-	PW	OT
People	<0.05	-	>0.05	49%	>0.05	28%	OT	ST
Way	<0.05	-	>0.05	57%	>0.05	36%	OT	ST
Men	<0.05	79%	>0.05	-	<0.05	48%	PW	ST

Note: Grey boxes= both sub-corpora have p > 0.05; Yellow boxes= both sub-corpora have p < 0.05

It is important to note that for the rest of the four nodes where 2 out of three sub-corpora showed the same pattern of distribution, this method of finding the individual differences in the

collocations can be applied as well in order to draw clear results. Table 8 shows the percentages for the four nodes.

The results from tables 7 and 8 show that for 70% of the nodes *self-translators* display the highest tendency towards more dispersed collocates, and that they have the least tendency to draw heavily upon a small number of collocate types. Hence, they have a more homogenous distribution of collocate types. *Other-translators* show this tendency only for 20% of the nodes. Contrarily, *Pakistani writers* dominate the category of the sub-corpora having the least dispersed collocates since 60% of the nodes for this category draw heavily upon a small number of collocate types. Therefore, it does not have a homogenous distribution of collocate types. This means that *self-translators* show the most variety while employing collocates whereas *Pakistani writers* employ the least variety of collocate types.

Discussion

The aim of this study is to compare the patterns of collocations of *other* and *self-translators* with the non-translated *Pakistani writers* category. It investigated collocational patterns by posing two major research questions. The focus of the first research question was to find out the number of occurrences of collocation types in the three sub-corpora, and the results suggested that *self-translators* employ the highest number of collocate types in their texts, whereas *Pakistani writers* employ the least number of collocate types in comparison to the other two text categories. The second research question further investigated the range or distribution of those collocate types in order to determine if they are evenly distributed around a node in the sub-corpora. The results seemed to bend again towards *self-translators* as they had a more homogenous distribution of the collocations; whereas *Pakistani writers*, being consistent with the results of the first research question, showed the least diversity. It is also worth mentioning that the category of *other-translators* showed no specific trend and their patterns for both the research questions fell in between the trends displayed by *self-translators* and *Pakistani writers*. Hence, no conclusive findings can be derived for this category. However, generally it may be established that translated sub-corpora have more number of collocate types which are more homogenously distributed in comparison to the non-translated sub-corpus.

These findings when compared with the findings of previous literature can help us make some strong conclusions. The findings of this study seem to be completely in line with Baroni and Bernardini (2003) and Bernardini (2007) who reported that translated texts seems to be more collocational than the non-translated texts. However, Dayrell (2007) on whose research this study is based reported completely opposite trends. According to Dayrell translated texts contain lower number of collocates and are reduced in range (not homogenously distributed) in comparison to the non-translated texts. But at the same time, she also mentions the shortcomings of her methodology as the corpus for her study consisted of 8 texts for non-translated sub-corpus and 5 texts for the translated sub-corpus. Even though the number of words in both the sub-corpora were balanced; nevertheless, a more diverse variety of texts for the non-translated category assumes an increase in the variety of collocational patterns as well. For the purpose of the present study, this methodological shortcoming was avoided by taking equal number of texts for each sub-corpora i.e., three texts for *Pakistani writers*, *self-translators* and *other-translators* each. On the basis of this discussion, it may be claimed that

translated texts are indeed more collocational than the non-translated texts as the current study also supports these findings.

As for the difference between the sub-corpora of *self-translators* and *other-translators* where *self-translators* are more collocational than the *other-translators*; it can be assumed that since *self-translators* have an authority over the original texts they are translating, it lends them an edge over *other-translators*. The authority over the content of the original text combined with an understanding of the target language and in some cases culture as well, gives them the freedom to be less cautious and less inhibited which results in the diversity of language employed and ultimately collocation patterns. Also, *self-translators* owing to the authority over the text sometimes mold the source text to fit the target language and culture. Therefore, this gives them an additional freedom to employ language and patterns fit for the target language without caring about the source language/text to which *other-translators* are rigidly bound.

It is also important to mention that caution must be exercised with regards to these findings. The reason is that only the collocates of ten nodes were investigated in this study, and the nodes were also restricted to be belonging to only one grammatical class i.e. nouns. In addition, the corpus for this study is also limited. Only three texts comprise of a single sub-corpus which is a small size to draw any valid conclusions. Also, due to the small size of the sub-corpus there are more chances that a single text may be responsible for the co-occurrence of a collocate with a node. For example, when the highest collocate of each node in all the three sub-corpora were analyzed in their concordance lines, it was found out that for *Pakistani writers* and *other-translators* category the highest collocate of each node was contributing more than 50% towards the frequency of that particular collocation, whereas for *self-translators* this trend was noticed for the four nodes. In order to compress the results, table 9 below provides all the highest collocates with their respective nodes which have at least 75% instances from one single text.

The results in table 9 show that not only particular collocations draw on a single text, but a whole sub-corpus may also draw on a single text for its collocations. As it is clear from the table that all the highest collocates for the 5 nodes of *Pakistani writers* draw heavily on a single text 'The Stone Woman'. That is also the case for *other-translators* where all the highest collocates for its 4 nodes draw on a single text 'The Sea Lies Ahead'. This may be owing to the style of the particular writer/translator of these texts or because of it subject-matter. Whatever the case may be, it cannot be ignored that this skews the results.

Another limitation of this study is that it only took translated texts which had their original texts written in Urdu. So, it is possible that the differences in the collocational patterns may be reflective of the language from which these texts were translated. Adding to this, all the texts were fictitious which could further add the burden of genre intervention in the findings since each genre has particular features. Therefore, it is important that the findings of this study may be weighed up against these limitations and future researchers should work on eliminating them.

Table 9

Collocations with at least 75% examples from a single text

Sub-corpus	Node	Collocate	Frequency of the collocation	Frequency in a single text	% in a single text	Text
PW	Time	Long	39	35	90%	The Stone Woman
	Eyes	Shut	12	9	75%	The Stone Woman
	Man	Old	31	25	81%	The Stone Woman
	House	Walked + Left	7	7	100%	The Stone Woman
	Life	Rest	8	6	75%	The Stone Woman
OT	Time	Long	85	66	78%	The Sea Lies Ahead
	Eyes	Opened	14	13	93%	The Sea Lies Ahead
	Life	Previous	9	9	100%	The Sea Lies Ahead
	Way	Same	7	7	100%	The Sea Lies Ahead
ST	Life	Take	7	6	86%	The Sun that Rose forms the Earth

Conclusion

This study aimed at determining the patterns of collocations in *self* and *other-translators* with their results being benchmarked against non-translated *Pakistani writers*. This aim was materialized with the help of two research questions which focused on the number of collocate types and their diversity in a particular sub-corpus. It was found out that *self-translators* not only employed most number of collocate types but also had the most homogenous distribution for these collocates. Non-translated *Pakistani writers*, in contrast, were found to be on the opposite end of this trend i.e., they had the least number of collocate types and were the least diverse. As for *other-translators*, no visible trend was found out.

The study also argued that the findings should be weighed up against several corpus formation factors. There is considerable evidence that due to the small size of corpus, single texts contributed majorly to different collocations and even to the collocations of whole sub-corpus. It was also proposed that the genre and source language may also have influenced the patterns of collocations, though further investigation is required on this front.

This study did provide some evidence regarding the aim of this study that there is indeed a difference between the collocational patterns of *self-translators* and *other-translators*, and that *self-translators* have a more homogenous distribution of collocations which is also evident from table 9 where the highest collocations of a single node in *self-translators* are hardly limited to a single text. However, it is important that in order to make these findings more expansive future studies may be carried out with a larger corpus containing texts form different genres and with translated sub-corpora having source texts in a variety of languages. Another important area of inquiry may be a diachronic investigation of collocation patterns in the translated texts which may show if the use of language has evolved in translations over time. Hence, the present study acts as a stepping stone for future endeavors.

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Appendix 1

The collocates are arranged by frequency of collocation first and then by alphabetical order.

Table 1

Collocates for the node time

Pakistani Writers		Other-translators		Self-translators	
Collocate	Frequency	Collocate	Frequency	Collocate	Frequency
Long	39	long	85	first	76
First	28	first	31	long	42
same	20	same	7	same	24
Last	13	last	5	last	16
spent	6	take	5	spent	16
much	5	waste	3	second	12
Next	5			other	10
spend	5			short	10
other	4			took	10
passage	4			next	7
came	3			passed	7
more	3			take	7
Only	3			spend	6
				appointed	5
				best	5
				good	5
				length	5
				most	5
				spare	5
				pass	4
				spent	4
				passing	3
				poet	3
				seemed	3

Table 2

Collocates for the node day

Pakistani writers		Other-translators		Self-translators	
Collocate	Frequency	Collocate	Frequency	Collocate	Frequency
Next	19	next	33	next	38
First	9	other	9	other	20
whole	6	third	6	third	17
single	5	last	6	following	10
spent	3	fortieth	5	first	9
		rest	5	spent	9
		forth	4	whole	6
				end	5
				fourth	5
				light	5
				second	5
				single	5
				previous	4
				sunny	4

Table 3

Collocates for the node eyes

Pakistani writers		Other-translators		Self-translators	
Collocate	Frequency	Collocate	Frequency	Collocate	Frequency
shut	12	Opened	14	closed	25
opened	5	Closed (after node)	10	opened	22
rolling	5	Closed (before node)	8	raised	14
fixed	4	Own	7	rubbed	11
green	4	Met	6	large	9
shining	4	Opened	6	fixed	7
stared	3	Big	5	closed	6
tearing	3	Front	5	set	6
		Droop	4	shut (after node)	6
		Flashed	4	shut (before node)	6
		Open	4	met	4
		Cast	3	own	4
				raise	4
				turned	4

Table 4

Collocates for the node man

Pakistani writers		Other-translators		Self-translators	
Collocate	Frequency	Collocate	Frequency	Collocate	Frequency
old	31	young	30	young	102
holy	15	old	18	old	75
young	14	elderly	11	said	18
bearded	4	came	6	white	9
dead	4	dear	5	holy	8
kind	4	looked	4	sick	8
poor	4	love	3	blind	7
strange	4			poor	7
				sat	6
				tall	6
				knew	5
				saw	5
				wounded	5
				brave	4
				dear	4
				pious	4
				proud	4
				spoke	4
				great	3
				started	3

Table 5

Collocates for the node people

Pakistani writers		Other-translators		Self-translators	
Collocate	Frequency	Collocate	Frequency	Collocate	Frequency
Many	13	many	14	many	11
Few	6	come	10	most	11
Believed	4	other	8	common	8
Some	3	say	8	other	8
		most	6	gathered	7
		talk	5	young	7
		common	4	beautiful	5
		give	4	came	5
		indigenous	4	lived	5
		laugh	3	more	5
				see	5
				hundreds	4
				kinds	4

lot	4
own	4
several	4
different	3
say	3
think	3

Table 6

Collocates for the node house

Pakistani writers		Other-translators		Self-translators	
Collocate	Frequency	Collocate	Frequency	Collocate	Frequency
Left	7	went	10	walked	9
Walked	7	go	8	big	8
Big	4	come	7	built	8
Come	4	left	6	door	8
Large	4	old	5	entered	7
		came	4	left	7
		own	4	front	6
				go	6
				own	6
				came	5
				little	5
				lived	5
				built	4
				come	4
				live	4
				old	4
				small	4
				wing	4

Table 7

Collocates for the node life

Pakistani writers		Other-translators		Self-translators	
Collocate	Frequency	Collocate	Frequency	Collocate	Frequency
Rest	8	previous	9	take	7
Whole	8	entire	5	long	6
Own	7	married	4	new	6
Live	4	saved	4	own	6
Lived	4	story	4	real	6
New	4	way	4	give	5
Stage	4	lived	3	kind	5
One	3	remembe	3	daily	4

Collocate	Frequency	Collocate	Frequency
red			
whole (as adjective)	2	live	4
whole (as noun)	2	lost	4
		spent	3

Table 8

Collocates for the node way

Pakistani writers		Other-translators		Self-translators	
Collocate	Frequency	Collocate	Frequency	Collocate	Frequency
Only	21	same	7	lost	10
Other	7	find	5	made	9
possible	4	made	5	find	7
		only	5	other	7
		strange	5	went	7
		long	3	come	6
				own	5
				see	5
				best	4
				proceeded	4
				same	4
				wended	4

Table 9

Collocates for the node face

Pakistani writers		Other-translators		Self-translators	
Collocate	Frequency	Collocate	Frequency	Collocate	Frequency
See	6	show	6	turned	9
Turn	4	pretty	5	appeared	7
Straight	3	see	5	see	5
		covered	4	reflected	4
		turned	4	covered	3
				saw	3

Table 10

Collocates for the node men

Pakistani writers		Other-translators		Self-translators	
Collocate	Frequency	Collocate	Frequency	Collocate	Frequency
other	15	young	14	young	34
many	4	other	8	old	13
		mad	7	sat	8
		masked	6	other	7
		came	5	holy	6
		come	5	few	5
		old	4	gathered	5
				many	5
				white	5
				began	4
				came	4
				fighting	4
				group	4
				older	4
				stood	4
				strange	3