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Linguistic Complexity of Mixed Episode in Sadegh Hedayat's Letters: The Effect of Bipolar Mood Disorder

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ABSTRACT: This paper investigates the syntactic complexity of mixed episode in Sadegh Hedayat, supposedly suffering from Bipolar Disorder. The first study studies depressive and hypomanic states in the episode. The results illustrate that Hedayat shows the highest complexity in the hypomanic state, whereas he has a significant simplicity in syntax in depressive state. The results are analyzed by studying three types of sentences (i.e., simple, paratactic and hypotactic) and embedded clauses. Moreover, in the second study, the complexities of the hypomanic episode and the hypomanic state in mixed episode are compared.

KEYWORDS: Bipolar Mood Disorder, mixed episode, syntactic complexity, hypomania

Introduction

One of the most significant current discussions in Linguistics is complexity. In recent years, there has been an increasing interest in the issue, which has drawn a host of scholars' attention; such as Flesch (1948), Ure (1971), Halliday and Matthiessen (2004) and Castello (2008). Complexity, when of interest in Linguistics, encompasses several comprehensive fields in general. Syntactic complexity is at the heart of this study specifically.

It is difficult to define syntactic complexity. Still, a variety of definitions of the term syntactic complexity have been put forth; such as the one suggested by Halliday (2009), who considered it as the measure of clause complexity in the text. For instance, Halliday (2004, 1985) claimed that language complexity is divided into three categories: lexical, syntactic and metaphoric. In detail, the mentioned syntactic complexity is directly related to the number of subordinate clauses in proportion to their complex sentences. Moreover, in a study regarding the issue of complexity, Newnham (2013) found that in low levels of text reading, independent clauses were predominant among the other types of sentences (i.e. paratactic and hypotactic sentences). On the other hand, in higher levels, paratactic and hypotactic sentences were observed. He asserted that hypotactic sentences are more complex than paratactic sentences. The most uncomplicated form of these sentences is a simple one.

Recent developments in complexity have heightened the need for conducting a variety of studies concerning the types of disorders in which language plays a fundamental role. For example, Raghibdoost and Malekshahi (2009) claimed that people suffering from Down Syndrome showed much less capability in terms of understanding simple and complex structures (i.e. paratactic sentences and hypotactic sentences) than the control group. Likewise, disability in comprehending complex structure was more obvious. Dasjerdi Kazemi (2009) demonstrated that children with mental retardation have the weakest comprehension of hypotactic sentences.

Durrleman et al. (2015) have recently discovered that individuals suffering from ASD, apart from their background in language development, perform widely worse than the control group when it comes to objective relative clauses. In addition, people with ASD, given a history of language delay, perform worse on subject relatives in comparison with those affected by ASD without language delay. It can be concluded that people with ASD have more difficulties in complex sentences, including relative clause.

Thomas (1996) investigated schizophrenic patients with negative symptoms suffering from reduced syntactic complexity, observing that they produced shorter sentences, which, in turn, were consisted of lower classes of embedded clauses.

Despite the fact that grammatical complexity has been increasingly studied with respect to various kinds of disorders, as mentioned above, there has been little research on Bipolar Mood Disorder in terms of language complexity. This paper sets out to focus on syntactic complexity in

Bipolar Mood Disorder, particularly in mixed episode and hypomania. A case study approach is used to give an account of the issue in a framework of an analytic study.

So far, a few studies have been conducted regarding language and Bipolar Mood Disorder. For instance, Landis (1964), Sadock and Sadock (2007), Sanfillipo and Hoffman (1999) and Forgeard (2008) mentioned some linguistic characteristics of these disorders, such as similarity in sound and rhyme in a string of words, using joke and humor, speaking of taboos with high tendency, shifting from one issue to another topic without reaching a goal and excessive pressure of speech leading to an overproduction of speech, which are related to hypomanic or manic episode. On the other hand, less production of speech, i.e. poverty of speech, and persistent thoughts of suicide and death in a patient's language, are some symptoms of depressive episode. Furthermore, Sanfillipo and Hoffman (1999) painted a portrait of a linguistic trait in hypomania, i.e. circumstantiality, which says that speech is considerably postponed by excessive details and parenthetical comments.

More recently, Esmaeelpour and Sasani (2015) demonstrated that Sadegh Hedayat, one of the most renowned Iranian writers, presumably suffered from Bipolar Mood Disorder by using linguistic tools, i.e. semantic field and move. They analyzed Sadegh Hedayat's letters to one of his friends (Shahid Nourai), categorizing his letters into four episodes of Bipolar Mood Disorder (i.e. depressive, hypomanic, euthymic and mixed) linguistically.

Bipolar I disorder is growingly considered as the occurrence of both depressive episode and manic episode. On the other hand, bipolar II disorder is characterized by the occurrence of depressive episode and hypomanic episode, which is the milder type of mania without any psychotic symptoms (Sadock and Sadock, 2010). Furthermore, 40 percent of patients affected by Bipolar Mood Disorder experience mixed episode, which is a mixture of depressive and manic or hypomanic episode (Miklowitz 2001). Interestingly, bipolar II disorder is widely known as a disorder overshadowing creativity and a myriad of artists (poets, writers, musicians, painters and actors/actresses) suffer from this type of disorder (for example Jamison 1995; Jones et al. 2002).

As pointed out before, this study aims to analyze Sadegh Hedayat's letters to Shahid Nourai in terms of syntactic complexity in mixed episode divided into two episodes, i.e depressive and hypomanic, and draws a comparison between hypomanic episode and mixed episode regarding syntactic complexity, given the fact that Sadegh Hedayat may have had Bipolar Mood Disorder.

Method

Participants and Materials

A case study approach was chosen to carry out an indepth analysis of syntactic complexity with respect to Bipolar Mood Disorder. As Esmaeelpour and Sasani (2015) claimed Sadegh Hedayat was supposedly affected by Bipolar Mood Disorder using linguistic tools, and Fadai (2009) provided evidence that Sadegh Hedayat suffered from Bipolar Mood Disorder in the framework of descriptive psychiatry, therefore Sadegh Hedayat's letters were used as the subject matter of this paper.

Materials

The private letters of Sadegh Hedayat addressed to Shahid Nouraie (Pakdaman 2000) were chosen for the study. Importantly, the addressee was kept fixed to diminish effective elements, such as linguistic differences among different registers and styles (for example see Esmaeelpour and Sasani, 2015). Esmaeelpour and Sasani divided Sadegh Hedayat's letters into 4 episodes based on certain semantic fields and moves: 40 letters were related to hypomanic episode, 36 letters were related to mixed episode, 5 letters were associated with euthymic episode and 1 letter was related to depressive episode. In this research, the letters related to hypomanic episode and mixed episode are analyzed to shed a light on the syntactic complexity observed in mixed episode and hypomania.

Procedure

To date, methods of one form or another have been developed and introduced to measure syntactic complexity. But it was decided that the best method to adopt for this analysis was to

measure the number of simple sentences, paratactic and hypotactic sentences and embedded clauses within a sentence in each text, which is introduced in Bateni's description of syntactic language in agreement with the Persian language (1969).

In language, there are three types of sentences: simple, paratactic and hypotactic. A sentence contains at least one clause or more, which can be divided into two classes: the main clause and the subordinate clause or coordinate clause. A sentence can be consisted of one main clause, which is obligatory, and several subordinate or coordinate clauses, which are optional. Therefore, a sentence can enjoy two parts: main clause and subordinate or coordinate clause(s). In hypotactic sentences, the main clause can be independent, while subordinate clause(s) depends on the main clause. Table 1 presents some examples. In order to transcribe the examples in the Persian language, the symbols based on IPA are used.

Table 1: Examples of hypotactic sentences

Subordinate clause	Main clause	Subordinate clause
	/to hatman boro/ You must go	
	/to hatman boro/ You must go	/agar u telefon kard/ If he calls you.
/zirɒ u hasɒs ast/ Because he is sensitive	/to hatman boro/ You must go	/agar u telefon kard/ If he calls you.

A sentence can enjoy recursion, which is of 2 types: paratactic and hypotactic recursion. In paratactic recursion, all elements have equal value. That is, they are paratactic. Moreover, this type of recursion encompasses free clause per se. In general, these clauses are connected to each other by "va (and)", "yɒ (or)" and "but (amma)" in the Persian language. The following sentence shows an example of paratactic recursion:

1- /man be madrese raftam, moalemam rɒ didam va dar kelɒs ketɒbam rɒ xɒndam/
'I went to school, saw my teacher and read my book in the class.'

In hypotactic recursion, not all elements exhibit equal value. In other words, they are hypotactic. In addition, this kind of recursion encompasses both main clauses and subordinate clauses. Predominantly, these clauses are related to each other by several connectors, such as "ke (which)", "vaqti ke (while)" and "zirɒ (because)" in the Persian language. An example of hypotactic recursion is presented in the sentence below:

2- /man hads zade budam ke to mitavɒni dars bexɒni zirɒ to bɒhuʃ hasti/
'I had guessed that you could study because you are smart.'

Moreover, Halliday (2009) considered syntactic complexity as the density of paratactic and hypotactic clauses. Another type of clause includes embedded clauses, which are definitions of nouns accompanied by "ke" in the Persian language (Halliday and Mathiessen 2004). It is exemplified in the sentence below:

3- /doxtari <u>ke</u> ɒnjɒ bud ketɒb mixɒnd/
'The girl, <u>who</u> was there, was reading a book.'

To begin with, all 36 letters related to mixed episode (Esmaeelpour and Sasani, 2015) were analyzed using chi-square in SPSS, including 3 types of sentence (i.e. simple, paratactic and hypotactic) and embedded clauses (for example see Bateni 1969; Halliday 2009) to clarify the syntactic complexity of mixed episode. Secondly, all the letters associated with hypomanic episode, as well as all the letters related to mixed episode (Esmaeelpour and Sasani 2015), were studied using chi-square in SPSS including the 3 abovementioned types of sentence and embedded clauses in order to identify whether there is a considerable difference in syntactic complexity between the hypomanic state in mixed episode and hypomanic episode. If the number of paratactic and

hypotactic sentences and embedded clauses was high in comparison to the low number of simple sentences in hypomanic state in mixed episode compared to depressive state in mixed episode, it could be concluded that those parts of letters related to hypomanic state in the episode might show syntactic complexity. In addition, if the number of paratactic and hypotactic sentences and embedded clauses was low and the number of simple sentences was high, those parts attributed to depressive state could exhibit syntactic simplicity.

Results

As said above, in the first study, all 36 letters related to mixed episode given the 2 types of states (i.e. hypomanic and depressive) were analyzed using chi-square in SPSS, regarding 3 types of sentence (i.e. simple, paratactic and hypotactic) and embedded clauses. The results of the analysis were evidently in agreement with the expectations. The table below illustrates the percentages of the mentioned types of sentences and clauses in the states.

Table 2: Percentage of each type of sentences and clauses in mixed episode

Mixed episode	sentence			
	simple	Paratactic	Hypotactic	embedded
Depression	94.75	6.25	0	0
Hypomania	18.53	36.58	34.39	10.50

Comparison among types of sentences regarding their psychological state was made using chi-square test. There was a significant difference ($x^2(df = 3) = 117.126$ and $p= 0.00 > 0.001$). In addition, Table 2 shows that most of the more complex sentences were mostly written in hypomanic state in mixed episode (i.e. those sentences with subordinate and coordinate clauses as well as embedded clauses account for 81.47% of the total percentage, which is to say only 18.53% of all sentences are simple.) This could be associated with pressured speech and circumstantiality. In contrast, most of the sentences were written in simple form in depressive state of mixed episode; only approximately 6% of the total sentences were complex.

In the second step, due to the lack of sufficient data concerning depressive episode, only the letters related to hypomanic episode were analyzed in terms of syntactic complexity. Then, a comparison between syntactic complexities was drawn in hypomanic episode, as well as in hypomanic state associated with mixed episode, to see whether there is a noteworthy difference. The table below provides information about the issue.

Table 3: Percentage of each type of sentences and clauses in hypomanic episode and hypomanic state in mixed episode

episode	Sentence			
	simple	paratactic	hypotactic	Embedded
Hypomanic state in mixed episode	15.82	35.67	39.69	8.82
Hypomanic episode	18.53	36.58	34.39	10.50

Chi-square test was used to analyze the data. There was no significant difference between the two conditions based on Table 3 ($x^2(df = 3) = 0.957$ and p= 0.812 > 0.05). The figures of both states are so close together. It clearly shows that the mood of individuals in hypomanic episode and hypomanic state in mixed episode is approximately the same.

In more detail, sentences below (Esmaeelpour and Sasani 2015) could be considered as examples of the four types of sentences in both states in mixed episode and hypomanic episode.

1. Simple sentence:

Letter 46: /ruye-ham-rafte bekr o maʃqulkonande bud./
'Overall, it was unique and interesting.'

2. Paratactic sentence:

Letter 2: /az hame tʃiz e otɒqam asabɒni hastam va oqam mineʃinad./
'I am angry at everything in my room and I feel nauseous.'

3. Hypotactic sentence:

Letter 78: /xejli tajob kardam ke dar asar e faʔɒlijathɒ je mihanparastɒne je mɒ kɒr be jɒji keʃide ke dar modat e jek ruz kɒqaz az Pɒris be Tehrɒn miresad./
'I was so surprised that our patriotic activities had such an impact that a letter came from Paris to Tehran over a day.'

4. embedded clause:

Letter 31: /bɒ in modat e kami ke dar piʃ dɒrid, jek dore je modɒvɒ naxɒndan e ruznɒme bokonid xejli moʔasser ast./
'Given the short time you have, you must practice not reading newspapers as a cure. It would be very effective.'

Discussion

The current study firstly aimed to examine syntactic complexity in two states regarding mixed episode (i.e. hypomanic and depressive) and to find out whether there is a significant difference between these two conditions. According to some experts, such as Newham (2013) paratactic and hypotactic sentences are the most complex, and the simple ones are the most uncomplicated. The results of the first study indicate that there is a significant difference in syntactic complexity between hypomanic and depressive states with respect to mixed episode. Depressive state exhibits syntactic simplicity in all types of sentences with its high rate of simple sentences, whereas the other state shows most syntactic complexity including a high percentage of complex sentences (i.e. hypotactic and paratactic sentences and embedded clauses).

The second study made a comparison between hypomanic episode and hypomanic state in mixed episode in terms of syntactic complexity. The results of this study did not show any significant differences between the two conditions. That is, Sadegh Hedayat, supposedly suffering from Bipolar Mood Disorder, experienced a similar mood in both mentioned states.

As mentioned in the literature review, bipolar people are able to produce excessive complex sentences in certain moods (i.e. hypomanic episode and hypomanic state in mixed episode), while, according to Thomas (1996), schizophrenic ones only have the capability of producing shorter sentences, including lower types of embedded clauses. Likewise, Durrlemon et al. (2014) claimed that people suffering from ASD have deficiency in relative clause production.

As mentioned before, Landis (1964), Sadock and Sadock (2007), Sanfillipo and Hoffman (1999) and Forgeard (2008) noted some linguistic traits of Bipolar Mood Disorder; for instance, shifting from one topic to another, and excessive pressure of speech leading to overproduction of speech, which are related to hypomanic or manic episode, which, in turn, can be considered as one of the root causes of syntactic complexity in the episode. In addition, less production of speech, i.e. poverty of speech is one of the symptoms of depressive episode, which can lead to the simple production of simple sentences. Moreover, Sanfillipo and Hoffman (1999) shed light on a linguistic trait in hypomania, i.e. circumstantiality, asserting that speech is considerably delayed by too much detail and parenthetical comments, resulting in more embedded clauses and complex sentences.

It is demonstrated that mixed episode in bipolar disorder based on Sadegh Hedayat's letters enjoys mixed syntax. In hypomanic state, there is a strong syntactic complexity, while in depressive

episode simplicity in syntax is clearly observed. Furthermore, there is no significant difference between hypomanic episode and hypomanic state in mixed episode regarding syntactic complexity.

Conclusion

This study has provided an explanation of syntactic complexity in mixed episode of Bipolar Mood Disorder in Sadegh Hedayat's letters. The research has shown that Hedayat experienced simplicity in syntax while being in depressive state, and he showed syntactic complexity in hypomanic episode and hypomanic state in mixed episode alike.

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