

Iranian Undergraduate Non-English Majors' Interpretation Of English Structures

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Abstract

The present study sought to determine whether Iranian non-English major students with or without the experience of attending language institutes, were more influenced by the type of verb or the argument structure patterns in their interpretation of English structures. To answer this question, 100 non-English major participants took part in a grouping task which was designed to reveal the participants' preference in sentence interpretation. Except for those who did not have the required knowledge base and displayed no grouping preference, the participants of the study exhibited three different grouping or sorting strategies in their performance: verb-centered strategy and two types of construction-based performance. The results of a Chi square test indicated that regardless of attending language institutes, the said participants were more inclined to group the structures (i.e., through interpreting them) by relying on the structures' verb types rather than paying attention to the argument structure patterns around which the structures were configured. The implication of these findings is that at least in a foreign language context, a verb valency-based reading strategy is needed to enhance the foreign language learners' information processing skills. The pedagogical overtones of the findings would affect both teaching activities as well as syllabus design and material development for non-English majors' English books used in the university.

Keywords: verb, argument structure, processing, non-English major.

Introduction

It has been argued that the lexical representation of a verb specifies the number and type of arguments related to the participants described by the verb (Chomsky, 1965). This characteristic of the verb is generally referred to as its sub-categorization frame argument structure (Cook, 1991). According to this view the verb is the best predictor of sentence interpretation. To make this point more lucid, consider the lexical representation of the verb_' give'_ . The lexical presentation of this verb specifies that it requires three arguments: a subject, a direct object, and an indirect object as in:

1- John **gave** a book to Kim.

The argument structures of this verb may be changed through a transformation that would have no effect on the overall meaning of the structure as in:

2- John **gave** Kim a book.

Then, one may assert that a particular verb may in fact be manifested through different argument structure patterns. This phenomenon has given way to a series of psycholinguistic studies where the main aim has been to see whether in the interpretation of a structure the processor is more biased toward the verb or toward the argument structure. For example, Healy and Miller (1971) found that English-speaking participants were more likely to group together structures having the same verb than structures having the same subject argument. Thus, Healy and Miller concluded that the verb is the main determiner of sentence meaning (Bencini & Goldberg, 1999).

More recently, however, the observation that a particular verb may occur in many more argument structure patterns than was generally assumed (Goldberg, 1995) has somewhat complicated the prediction that the verb is the main predictor of the sentence meaning. For example, the verb_'kick'_, which is traditionally assumed to be a transitive verb, can occur in various arguments structure configurations:

- 3- Pat kicked the wall.
- 4- Pat kicked Bob black and blue.
- 5- Pat kicked the ball into the stadium.
- 6-Pat kicked the ball.
- 7-Pat kicked her foot against the chair.
- 8- Pat kicked Bob the ball.
- 9-Horses kick.
- 10-Pat kicked his way out of the operating room.

These sentences designate a variety of event types, ranging from simple transitive for structure (3), to caused change of state in structure (4), to caused motion in (5), to attempted action in (6), to transfer in (8), and to motion of subject in (10). Thus, it may be concluded that in non- transformational structures, the verb _'kick'_ denotes a different sense in the event that it constructs.

Hypotheses

The present study is geared toward answering the questions of whether for non-English majors, sentence interpretation is more a function of the type of verb or that of the type of argument structure within which the sentence is configured and whether non- English majors' sentence interpretation is affected by their experience of attending language institutes. Given, the contradictory views and findings on this topic, this researcher opted for (1) a non-directional hypothesis with the following null hypothesis:

H0: There is no difference in the parser's preference for verbal or argument structure cues of the sentence and (2) a directional hypothesis:

H1: Non- English majors attending language institutes are more inclined to interpret English structures by relying on the argument structure pattern.

The rationale for the directional hypothesis is attributable to the results obtained by Sepassi and Kamyab (2005). They found that Iranian EFL learners, majoring in English, were more influenced by the argument structure patterns in their interpretation of English structures. Their participants had taken a great variety of English proficiency courses in all the four skills and were either in the midst of or had actually completed courses in 'linguistics', 'discourse', 'contrastive analysis', and other courses, of the more technical nature. Hence, it was assumed that non-English majors with the experience of attending language institutes, and taking English proficiency courses in all the four skills over there, were more inclined to pay attention to the argument structure patterns rather than verb type, in their interpretation of English structures.

Significance of the Study

It hardly needs to be mentioned that should the findings of the present study provide evidence for processing preferences based on verb type or construction type, the pedagogical overtones of the findings would affect both teaching activities as well as syllabus design and material development for non-English majors' English books used in the university. More specifically, by focusing either on the type of verb or the construction patterns related to it, both material developers as well as the instructors can facilitate the process of learning in the classroom.

Methodology

Participants

A total of 100 non-English major students from Azad University of Dehaghan took part in the study. All the subjects were first-year students from the Humanities Department taking the "General English" course. They had studied English formally for six years in junior and senior high school. Thirty-five students had the experience of attending language institutes. The subjects ranged in age from 17 to 25.

Stimuli

By crossing four verbs with four construction types, Sepassi and Kamyab (2005) created sixteen English sentences for their English major students which were presented in a random order. Their sentences were adapted and amended for non-English majors in this study (see Appendix A). As in Healy and Miller (1971) and Sepassi and Kamyab (2005), the participants were asked to complete the task of interpreting the sentences by grouping them together. This design yielded four sets of sentences with the same verbs ('_throw'_ , '_take'_ , '_get'_ , and '_slice'_), and there were four sentences each with the following argument patterns: transitive , intransitive, caused motion, and resultative constructions. No content words other than the main verbs were repeated through the stimuli set. All of the names used in constructing the stimuli were of the same gender to avoid introducing an irrelevant factor.

Procedure

The participants were provided with 16 sentences. They were then asked to group or sort the sentences into four sets, paying special attention to the meaning of each sentence as well as its structure. After the grouping task was completed, each group or set would contain four sentences that fell in the same overall class of meaning. Thus, sentences considered to be closer in the overall meaning would be placed in the same group. It was anticipated that this grouping task would shed light on the determining factor employed by the participants in the interpretation of the sentences. It was further anticipated that the participants might utilize one of the following strategies in their grouping activity:

- a- Grouping based on verb type (i.e. each group or set would be made up of four similar verbs), or
- b- Grouping according to the argument structure of the sentences.

Results

As will be recalled, a total of 100 participants took part in this study and 35 students had the experience of attending language institutes. The grouping task administered to the participants was designed to register their preference for the effect of the verbs of the sentences versus argument structures of the sentences. The task was composed of 16 separate sentences with four different verbs and argument structures. It was anticipated that in their endeavor to sort the sentences into four sets, the participants would take into consideration the type of the sentence verbs or the argument structures. It was further anticipated that participants attending the language institutes, would rely on the argument structures.

In order to test the hypotheses, a chi-square frequency analysis was carried out. The justification for choosing this particular formula is that the constructs with which the present study is concerned are operationalized as nominal variables. Consequently, whereas in comparing two means of the interval type the t-test is used, with variables of the nominal type the chi square formula is used to compare their means. Results are presented in the Tables 1 and 2 below:

Table 1: Grouping preference of the participants

Attending language institutes	By verb	By argument structure	No sorting preference
Yes	14(40.0%)	16(45.7%)	5(14.3%)
No	29(44.6%)	20(30.7%)	16(24.6%)
Total	43(43.0%)	36(36.0%)	21(21.0%)

Table 2: Inferential statistical analysis

Hypotheses	Chi square	Sig
Null (H0)	17.840	.000
Directional (H1)	2.686	.443
$\alpha \leq .05$		

As shown, there is a difference in participants' grouping preference. 43.0% of students relied on the verb type to group the sentences (i.e. four groups with four sentences having the same verb in each group). On the other hand, 36.0% of the participants sorted the sentences into four groups according to the type of argument structure of the sentences and 21.0% of them displayed no sorting preference. In other words, they grouped the sentences randomly and their preference for sorting was determined purely by chance. It may be due to a lack of the required knowledge base and their low proficiency level.

As the Chi square test in the preceding section reveals, the statistical evidence for rejecting the null hypothesis is substantial at the 0.05 level of confidence. Thus, the findings of the study indicated that at least for these participants, the verb type of the sentences was of higher importance than the argument structure pattern of a structure in their grouping task. Contrary to what was predicted in H1, the striking point about these results is that, argument structure tendencies for grouping the sentences (45.7%) did not significantly outperform verb-centered preferences (40.0%) for the students with the experience of attending language institutes. In other words, there is no significant difference between the students with or without the experience of attending language institutes, in their grouping preferences.

As a result, as the Chi square test for H1 reveals, the statistical evidence for accepting the directional hypothesis (Non- English majors attending language institutes, are more inclined to interpret English structures by relying on the argument structure pattern) is not significant ($p=0.05$). The interesting point is that while only 5 students with the experience of attending language institutes, displayed no grouping preference, 16 students without such an experience, grouped the sentences randomly.

To take this argument to a higher level, one may conclude that the type of verb used in the same structures, has a higher significance in the interpretation of English structures by Iranian non-English majors. The above findings have colossal implications for material developers and the teachers of EFL classes in Iran.

Discussion

Except for those who did not have the required knowledge base and displayed no grouping preference (21.0%), the participants of the study exhibited three different grouping or sorting strategies in their performance. A summary of these strategies is offered hereunder.

Verb-centered strategy

Out of a total of 100 participants who took part in the study, 43 students sorted the structures based on the type of the verb encountered. In other words, in their decision to group structures having a common base, the criterion that was deemed most essential to them was that the structures were made up of the same verb.

Construction-based performance of the first type

Of the remaining participants, 16 sorted the groups in such a fashion that each group contained four different argument structure patterns. Simply stated, to these participants the lexical aspect of the verb was of no significance; rather the type of role associated with the verb was the determining criterion in their sorting activities. Quite surprisingly, not only had these participants become aware of the significance of the argument structure patterns to their sorting activity, they also made sure that each group contained the four different patterns.

Construction-based performance of the second type

The remaining participants, a group of 20 individuals, embarked on a construction-based activity which was different from the previously mentioned group of participants. More specifically, the strategy used by these participants consisted of placing four constructions of exactly the same type within each group. For example, the sorting activity of these participants was based on placing, say, 4 transitive structures in each group. Before discussing the behavior of each group, the following table is intended to clarify the sorting strategies exhibited by each group.

Table 3: Sorting strategies displayed by each group

Groups		Strategies		
one	V1A1,V1A2 V1A3,V1A4	V2A1,V2A2 V2A3,V2A4	V3A1,V3A2 V3A3,V3A4	V4A1,V4A2 V4A3,V4A4
two	V1A1,V2A2 V3A3,V4A4	V1A2,V2A1 V3A4,V4A3	V1A3,V2A3 V3A3,V3A4	V4A1,V4A2 V4A3,V4A4
three	V1A1,V2A1 V3A1V4A1	V1A2,V2A2 V3A2,V4A2	V1A3,V2A3 V3A3,V4A3	V1A4,V2A4 V3A4,V4A4

Key: V=Verb, A= Argument Structure Pattern

Discussion

In this section, the strategies sought in sorting the structures are discussed with the aim of explaining them.

Sorting by attending to verb type

As was mentioned previously, only a total of 43 participants sorted the structures by attending to verb type. In this type of processing the constituent elements of the structure like the verb 'are' of utmost importance to the processing of the whole structure, hence the label data-driven processing or bottom-up is applied to this type of processing (Chastain, 1988). In this type of processing the reader/listener attends to the individual words and structures in the text itself, using these to build up an interpretation of the whole text or structure. Thus, 43% of the participants in this study resorted to a data-driven mode of processing which in effect indicates that to these participants the emphasis was on the language of the structures in their comprehensions of the sentences. In other words to these participants, meaning resided in the structures' linguistic input and that no attempt was made on their part to derive the structures' meaning by activating their prior or world knowledge in arriving at the meaning.

Sorting by attending to different argument structures

Given that each verb type was associated with four different argument structures that denoted different events and relationship in the external world, those participants that categorized according to different argument structures as their criterion were in effect categorizing based on their knowledge of the external world and the relationship thereof whereas the previous group of participants based their decision on purely linguistic criteria (i.e., verb type).

There were two different types of conceptually driven or top-down strategies detectible for the participants. However, before entering in to any discussion of the two types, a general definition of conceptually driven or top-down strategies is in order. Top-down processing reflects a direction of thought that begins its operation from a knowledge base to work on specific pieces of information (Chastain, 1988). In reading for example, the top-down reader not only possesses a general knowledge base about the world, but also some knowledge about reading in general (Chastain, 1988). Thus, equipped with these bases of knowledge, rather than relying merely on the linguistic input provided by the text, he/she makes sense of the text.

From this point onward, this discussion of the findings is devoted to the two types of top-down strategies displayed by the participants of this study, namely sorting by attending to argument structures a) as a group, and b) on an individual basis.

Sorting by attending to the argument structures as a group

As will be recalled, one of the ways of sorting the structures was based on grouping the four cards based on the properties of the four different argument structure types. The following scheme is helpful to understand the strategy undertaken by these participants:

Table 4: Sorting strategy utilized by group 2

Sorting sets	1	2	3	4
Group 2	V1A1,V2A2 V3A3,V4A4	V1A2,V2A1 V3A4,V4A3	V1A3,V2A3 V3A3,V3A4	V4A1,V4A2 V4A3,V4A4

As the table shows, these participants sorted each set by placing the four types together with their different argument structure manifestations in each sorted deck of cards. Hence, to these participants the main criterion in sorting was the role relationships denoted by each verb. In other words, a top-down processing strategy was utilized in that the participant had to resort to their prior world knowledge about role relationships in order to process in this fashion.

Moreover, in assigning the different role relations to each verb, the whole variety of such relationships was considered as the sorting criterion (i.e., all possible argument structures related to a verb were considered). In this light, these participants, sorting strategy maybe referred to as purely top-down. Thus, to these participants, each verb had found its rightful place in the schema network of the participants. For this reason, one may assert, that this group of participants had succeeded in associating linguistic elements, in this case the verb, with their other bases of knowledge, and in so doing, had culminated their pragmatic competence.

Sorting by attending to the same type of argument structures

The third group of participants sorted each category based on the particular type of argument structure which was deemed as the criterion in sorting.

Table 5: Sorting by attending to the same type of Argument Structure

Sorting sets	1	2	3	4
Group 3	V1A1,V2A1 V3A1,V4A1	V1A2,V2A2 V3A2,V4A2	V1A3,V2A3 V3A3,V4A3	V1A4,V2A4 V3A4,V4A4

In this particular type of sorting strategy, the participants' main criterion in sorting was a top-down view of the argument structures associated with the verb. However, unlike the previous group, the sorting strategy was limited to associating a particular argument structure to each verb encountered rather, than going down the whole range of argument structures associated with each verb. Hence, to these participants each verb was only associated with one type of argument structure, and hence in their sorting of the 16 structures into 4 similar sets, it was this preconceived relationship between the type of the verb and the related argument structure which was the determining factor, for example the participant may have through top-down or conceptually driven strategies have come to associate the verb, throw to the argument structure, say, the transitive.

Participant may have come to associate the same verb to the other 3 remaining argument structures. Hence, in his/her sorting activity, the participant well aware of the connection between the different type of argument structures, or external world relationships, and one specific verb starts off on a top-down processing mode with inklings of bottom-up processing when he/she associates the same verb with 4 different relationships in the real world, or bottom-up processing.

On the whole, the participants of this study with or without the experience of attending language institutes, embarked 4 different processing strategies when faced with grouping strategies. In the first group, comprising 43 participants, the processing was purely bottom-up since the criterion for sorting was based on a purely linguistic notion, the verb, with no external characteristics of relationship attached to the constituent. For the second group of participants (n=16) the primary emphasis was finding a balance between the different types of argument structures and their linguistic manifestation through the verb. This type of processing although taking a great amount of impetus from the top-down processing made in the initial stages, later display some signs of bottom-up processing strategy; hence one may refer to this type of strategy as semi-top-down strategy. The third group of participants, (n= 20), embarked on a purely top-down sorting strategy. In fact, the main criterion to them in classifying structures of the same type was the role relationships that they had conceptually come to associate with each verb. The last group of participants, 21 in all, displayed no sorting preference and grouped the sentences purely by chance. Their sorting behavior may be due to their low English proficiency and lack of the required knowledge base.

Conclusions and Implications

The results of this study were quite different from those obtained from Iranian English majors by Sepassi and Kamyab (2005) in that they were most affected by argument patterns of the structures, whereas participants of this study, with or without the experience of attending language institutes, were most attentive to verb type and to some extent to the argument structure. One may argue that the reason for the participants' preference for verb type over the argument structure pattern of the structure, may be that the students who took part in this study were all non-English majors. In other words, contrary to English majors, they had not previously become aware of the importance of argument structure patterns to sentence making, taking the linguistic courses.

On the whole, the pedagogical implication of these findings is that as Dobrenov-Major (2005) states, at least in a foreign language context, a verb valency-based reading strategy is needed to enhance the foreign language learners' information processing skills. The notion of valency was introduced into linguistics by Tesniere (1959). Hudson (1984) describes valency as "the term ... used in dependency theory to refer to the particular demand of individual words for modifiers". In his Government and binding theory Chomsky (1993) points out that one of the basic rules of Universal Grammar is that words have the inherent lexical property to take certain complements. Allerton (1982), Kakourites (1990), Abraham (1978), Mel'cuk (1979) have published substantial

theoretical works on valency. A top down information processing approach can be successfully combined with a bottom up information processing approach (Chastain, 1988). She believes that, in the early stages of language learning and at lower levels of proficiency, students will profit from looking for the verbs, finding the main governing verb and separating important information from less important information. This will enhance their information processing skills and at a higher level, in their effort to process the text, they will utilize their knowledge of verb valency, carried over from their mother language into the target language. They will ask the right questions and search for the answers in the text. She recommends a more explicit cognitive awareness raising approach for advanced group of learners.

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Appendix A

Barbara sliced the bread.
Meg sliced the cake on the plate.
Jennifer sliced Terry an apple.
Nancy sliced the tire open.
Michelle got the book.
Beth got Mary an invitation.
Laura got the ball into the net.
Dana got the phone fixed.
Jane took the watch.
Kim took the rose into the house.
Paula took Sarah a message.
Rachel took the wall down.
Arita threw the hammer.
Chris threw Linda the pencil.
Pat threw the keys onto the roof.
Lyn threw the box apart.

About the author

Azam Noora (M.A in TEFL) is a member of the academic staff at Islamic Azad University of Dehaghan. Her latest publications are: (1) Perceived pragmatic transferability of L1 request strategies by Persian learners of English", accepted for 31st International Conference on Intercultural Pragmatics in Laundau, Germany in 2006, (2) Non-English majors' language learning preferences: The role of language institutes published in *Developing Teachers* in 2007, and (3) Non-English majors' language learning preferences, published in *GEMA Online Journal of Language Studies* in 2008. Her research interests include pragmatics, SLA, ESP and non-English majors' affairs.