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Fictive motion categories in modern Persian: A cognitive semantic approach

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Abstract
Motion is the cornerstone of cognitive structures which can be signified factively and fictively. Fictive motion events in English are classified into six categories (Talmy 2000a). While Iranian linguists have worked on verbs and typology of fictive motion, they almost failed to discover these categories. This study made an attempt to examine these categories by addressing the questions: What are fictive motion categories in Persian? To what extent is the speakers' cognition influenced by the structure of the language they speak? What are Persian speakers' preferable tenses? With this aim, using convenience sampling and qualitative research design, sixteen sentences extracted from Talmy's model plus nine fillers were rendered into Persian. To avoid ordering effect, sixty participants were organized in a counterbalanced technique and accomplished completion and picture description tasks so that one half of the participants filled the completion task first and dealt with the picture description task later, while others acted in the reverse order. In completion task the participants performed accurately except the pattern paths category. However, they did not produce fictive motion sentences for the prospect, pattern, and advent paths, frame relative with factively stationary observer and site manifestation in the picture description task. They tended to adopt present tense in producing fictive motion sentences for the depicted categories. More importantly, the paper analyses the participants' performance in completing the tasks related to the sixteen fictive motion categories and shows that cognition is influenced by the linguistic structure of the speakers. It is hoped that this study can be a contribution to the field of cognitive and semantic linguistics and also advance fictive motion studies in different languages.
Keywords: *fictive motion, fictive motion categories, Persian language, present tense*

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Категории фиктивного движения в современном персидском языке: когнитивно-семантический подход

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Аннотация
Движение является краеугольным камнем когнитивных структур, которые могут обозначаться фактически и фиктивно. В английском языке фиктивные события подразделяются на шесть категорий (Talmy 2000a). Иранским лингвистам, исследовавшим глаголы и типологию фиктивного движения, практически не удается обнаружить эти категории. В данной работе предпринята попытка исследовать данные категории и ответить на следующие вопросы: Что такое категории фиктивного движения в персидском языке? В какой степени на познание говорящих влияет структура языка, на котором они говорят? Какие времена глагола предпочитают говорящие на персидском языке? Для этой цели использовалась сплошная выборка и качественные методы; на персидский язык были переведены шестнадцать предложений, извлеченных из модели Талми, плюс девять дополнений. Чтобы избежать эффекта последовательности действий, использовалась уравновешивающая методика; шестьдесят участников были организованы следующим образом: половина участников сначала выполняла задание на заполнение пробелов, а затем – на описание изображения, другая половина действовала в обратном порядке. Участники достаточно точно выполнили задания, однако в категории шаблонных путей они не создали предложений с фиктивным движением для перспективы, шаблона и траектории движения, относящихся к фрейму фактически неподвижного наблюдателя и смены местонахождения в задаче описания изображения. При описании изображенных категорий фиктивных движений они использовали настоящее время. Анализ показал влияние структуры исполтьзумого языка говорящих на когнитивную деятельность. Данное исследование может стать вкладом в семантику и когнитивную лингвистику, а также способствовать изучению категории фиктивного движения в разных языках.
Ключевые слова: *фиктивное движение, категории фиктивного движения, персидский язык, настоящее время*

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1. Introduction

Motion is one of the key cognitive structures of human experience which is closely entwined with the perceptual mechanisms. Notably, the verbalization of motion in real life involves specific visual representations which are manifested through special linguistic codes. Such a relationship between conceptual and linguistic representations of motion has long been a matter of great interest in linguistic studies since languages differ in the way they code instances of motion linguistically.

Generally, motion is defined as a change or displacement of an object's position over time. It should be borne in mind that if an object does not change relative to its surroundings, it is believed to be motionless and stationary. The basic motion event comprises the figure, a moving or located object, with regard to another object and the ground (Blomberg 2014). Notably, two internal components of fictive motion are path and motion. While path is the occupied location by the figure object in relation to the ground object, the existence of the motion or location event signifies the motion itself (Talmy 2000a).

Fictive motion events in English are classified into six distinct categories (Talmy 2000a). They include emanation, pattern paths, frame-relative motion, advent paths, access paths, and coextension paths. Emanation is the first category of fictive motion events which embraces four subclasses such as orientation paths, radiation paths, shadow paths, and sensory paths. Orientation paths are in turn classified into five different classes, namely prospect paths, alignment paths, demonstrative paths, targeting paths, and line of sight (Talmy 2000a). These subgroups play a prominent role in identifying fictive motion events. Moreover, frame-relative motion is classified in two types. The first is the frame relative motion involving a factively moving observer, and the second is a relative motion with a factively stationary observer. The advent path consists of two key subtypes: the site arrival containing the object's fictive motion and site manifestation which is a fictive change of the object on its location.

Owing to the significant work of Leonard Talmy, motion has been recently known as a well-examined domain in cognitive linguistics and semantics (Matlock & Bergmann 2015). Not surprisingly, several Iranian linguists have been working on fictive motion events; however, they have failed to address the full range of categories and dimensions defined by Talmy (2000a) and merely relied on linguists' intuition. They have worked on the fictive motion typology (Azkia & Sasani 2012, Hamedi Shirvan & Sharifi 2014) and last category of fictive motion; namely, coextension paths (Afrashi & Rahmani 2014), while ignoring the other categories of the operational framework. Moreover, neglecting other fictive motion categories by the Iranian scholars motivated the researcher to give more strength to this study in Persian through adopting Talmy's model of fictive motion categories as a comprehensive framework in order to create a holistic account of the concept of fictive motion using both quantitative and qualitative methodologies.

The principal aim of the present paper is to answer the questions: what are fictive motion categories in Persian? To what extent are these categories produced and recognized by Persian speakers? To what extent is the speakers' cognition influenced by the structure of the language they speak? What are Persian speakers' preferable tenses in producing fictive motion sentences? To this end, a completion and a picture-description tasks were employed for sixty participants to fill the blank verbs and prepositions in completion task and create sentences for the given pictures.

2. Literature review

Leyton (1992) disputes convincingly that the past recovery is carried out as the mind uses shape and intrinsically forms a basis for the memory. Having centralized his study on symmetry, Leyton illustrated its significance, the way in which shape is modified into memory, to the human cognitive process. Additionally, he argues that perception is primarily the time withdrawal from shape.

As an approach to language study, cognitive linguistics is presenting linguistic knowledge as a part of general cognition and thinking. In addition, linguistic behavior is not detached from other general cognitive abilities adopting an integrative approach whereby other mental processes such as reasoning, memory, attention and learning also play a prominent role (Saeed 2009).

Focusing on grammatical differences evoked by fictive motion events in order to study the effect of visual scene perception on such events, Flecken (2011) observed two groups of native speakers of German and English. By presenting animated videos to English and German native speakers displaying a dot traveling along a trajectory towards a geometrical shape, he concluded that English native speakers' attention to both trajectory and endpoint of motion events was identical while the German participants only paid attention to the endpoints (Flecken 2011).

Whorfianism, also known as the hypothesis of linguistic relativity, is a principle which assumes that the speakers' cognition or worldview is influenced by the structure of the language they speak, and thus their perceptions are relative to their spoken language (Blomberg 2014). Not surprisingly, the concept of motion in human languages is closely associated with the relationship between thought and language.

In another study, Huumo (2017) analyzed the interaction between two systems expressing temporal relations, that is, veridical and metaphorical systems. By adopting a cognitive grammar framework, he maintained that veridical time and metaphorical path are two relevant conceptualizations of time underlying metaphorical expressions. It was demonstrated that changing the position of an entity on the metaphorical path against veridical time is followed by a motion metaphor of time. Consequently, he concluded that tense and aspect are major contributors involved in the conceptualization motion – that is, metaphorical motion events are grounded by tense.

In a more recent study, Feinmann (2020) examined the potential relation between the way native speakers linguistically express motion and conceptualize it. For this purpose, he compared English and Spanish native speakers who had different typological telic motion encoding in two types of verbal and non-verbal experiments. The results provided convincing evidence in favor of cognitive universalism.

Lewandowski and Ozçalışkan (2021) also examined 'fictive motion expressions' by two groups of bilinguals (Polish and German) and monolinguals. The results highlighted the vital role of inter and intra-typological differences on motion event expressions. The results further revealed that the complexity of the

motion expressions in L1 and L2 influences the inter-typological and intra-typological patterns.

The popularity of motion events and their behaviour across different languages has had important research repercussions in the Iranian context. Experts in linguistics and cognitive linguistics have tried to fathom out the characteristics of the structures enacting motion in Persian language.

Babai (2011) examined the change of state and motion in Persian fictive motion events. She found out that Persian was one of the languages in which speakers tend to use compound verbs rather than simple verbs to encode motion events. The results revealed that the Persian language utilises both head-framed and non-head framed constructions to encode path in motion events.

In a similar paper, Mesgarkhoyi (2012) found out that there were fourteen paths for fictive motion verbs in the Persian language. Using a corpus of 148 motion verbs from the "Soxan" dictionary, she reached the conclusion that the path components are more frequently used by Persian speakers compared with the others.

Akhlaghi et al. (2018) evaluating and comparing narratives in two groups of children and adults based on Talmy's theoretical framework and using Pear story film, a six-minute film that was produced to test the distinction of a simple story from language to language, found out that there was a meaningful difference in using self-contained motion verbs such as *shiver, tremble, spin and twirl* used by male and female native speakers. However, the application of the verbs like *walk* and *run*, there was no meaningful difference. Finally, they concluded that cognitive processes underlying motion verbs are the same for both groups and were completed before the age of nine.

Badiee & Imani (2022) adopting both Talmy's (2000a&b) theory of motion event and Ibarretxe-Antuñano's (2006a) classification of motion verbs analyzed 100 motion verbs of manner and introduced 16 types of motion verbs in Persian. More importantly, they proved that there is at least one verb for each category in Persian excluding two of the categories and the semantic nature of the verbs is the cornerstone of their distinction in Persian.

In general, fictive motion has become the focus of attention in both psycholinguistics and cognitive linguistics. Axiomatically, the scholars who have worked on fictive motion events and categories in Persian have provided an atomistic account of how fictive motion events, categories, and corresponding issues work in the Persian language. Hence, the primary significance of the present study is to investigate the semantic/conceptual constituents of fictive motion categories. In other words, the principal goal of this scrutiny is to authenticate the nature of fictive motion categories perceived and interpreted by the Persian speakers. As such, it seeks to reveal how they are lexicalised and coded in the Persian language. Therefore, the findings may contribute to the ongoing research in the domain of semantics, linguistic typology, language universals, cognitive linguistics and other related disciplines. In point of fact, they may have important

implications for disciplinary and/or interdisciplinary majors such as translation, teaching English as a second language, and cognitive studies.

3. Method

According to Talmy's (2000a) theoretical framework representing various fictive motion categories and subcategories, this paper aimed to investigate Persian speakers' intuition in the recognition of fictive motion sentences. Accordingly, sixteen samples of fictive motion sentences extracted from "Toward *a Cognitive Semantics"* (Talmy 2000a) were utilized as a baseline for preparing the data sources required for designing the tasks; namely, a completion task, and a picture description task. Consequently, relying on the insights from the interpretive paradigm, this study principally aimed to clarify the underlying causes of how Persian speakers interpret and process the information related to fictive motion events and whether their conceptualization of motion aspects is unique, and as a consequence, different from other languages.

To this end, a qualitative design was adopted because the choice of the study samples was made by the researchers themselves. Such a non-randomized design is commonly used when it is not feasible to randomize participants into groups for comparison. However, the design can involve the use of the targeted data from the same or different participants at different time intervals.

To ensure the reliability of the instruments involved in collecting the required data, a pilot study was also used. The application initiates a pre-testing or trying out of a particular research data collecting instrument. By assessing the practicalities of the instruments, a pilot study can greatly enhance the quality of the main research with regard to its implementation and utility (Gudmundsdottir & Brock-Utne 2010). As such, eight participants were interviewed online and the feedback they provided became the source of modification leading to the change and/ or the addition of certain pictures to the picture description task and the reduction of number of the blanks in the completion task sentences.

3.1. Participants

Convenience sampling, a type of nonprobability sampling in which individuals are sampled mainly because they are available sources of data for the research at hand, was utilized. Accordingly, sixty participants with an age range between 28 and 60 with different background knowledge were asked to accomplish the target tasks. They were divided into two equal groups. The first group, thirty participants, was asked to fill in the blanks in the completion task and then create sentences based on the pictures in the picture description task. The second group, which also included thirty participants, however, were given the tasks in the reverse order so that they first had to generate a related sentence for each picture and then fill in the blanks of the test prompts in the completion task.

3.2. Picture description task

Talmy (2000a) introduced a variety of fictive motion categories and subcategories with certain examples to minimize their conceptual complexity. Therefore, sixteen examples were purposefully chosen for each category and an appropriate Persian translation was constructed for each one. Subsequently, nine filler sentences were added to those sixteen examples. Then, both translated sentences and the fillers were given to an artist to create a smooth and professional finish.

Overall, an album was prepared with twenty-five colorful pages. To get the participants' attention, each picture was placed on one page. To avoid any misunderstanding, the exercise on the first page was done by the researcher. In fact, providing the participants with a brief explanation served as a useful guideline or a springboard helping participants to follow a clear direction in dealing with the pictures and the sentences on each page. Notably, straightforward and clear rubrics play a crucial role in authentic assessment because it clarifies what the participants should exactly do and attracts their attention to the targeted variables under scrutiny as objectively as possible.

3.3. Completion task

A sentence completion task containing twenty-five stems with blanks in specific places was utilized. Each sentence comprised one or two blanks targeting the verbs and prepositions in fictive motion sentences which were arranged in a numerical order. Clear instructions, in effect, helped the participants to fill the blanks considering their general meanings. Since the data collection in this study was concurrent with COVID-19 pandemic, due to limitations imposed by the protocols related to the pandemic, social media such as Telegram and Whatsapp were used for collecting the required data. Largely because of the limitations of the face-to-face data collection technique a recorded voice was initially used and sent to all candidates to draw their attention to the technicalities involved in responding to the target tasks.

3.4. Data collection procedures

Since this inquiry was guided by the inherent characteristics of Talmy's theoretical framework concerning fictive motion categories in Persian, the examples related to each fictive motion category were translated from English into Persian. Consequently, for each translated sentence, a related picture was employed. Counterbalancing techniques were utilized to control the order effect which could sometimes negatively influence the responses provided by the participants. As a result, the participants were divided in two groups and each group was presented by a different order of the targeted tasks.

3.5. Data analysis

The collected data were also analyzed by appropriate statistical techniques. After computing the frequency and percentage values of the participants' responses to the task items, a chi-square statistical technique was applied. Subsequently, by running a descriptive task, the mean and standard values for motion events categories were computed. Next, a one-way ANOVA test was employed to determine whether the existing variations among the mean values are statistically meaningful.

4. Results

The required data were collected through two tasks, the picture description and completion tasks, the results of which are displayed in this section. As it might be recalled, Talmy's model – Fictive motion events – comprised sixteen categories and subcategories of prospect paths, alignment paths, demonstrative paths, targeting paths, line of sight, radiation paths, shadow paths, sensory paths, pattern paths, frame-relative motion with factively moving observer, frame-relative motion with factively stationary observer, advent paths, site arrival with active verb, advent paths, site arrival with passive verb, advent paths, site manifestation, access paths, and coextension paths. These subcomponents are all separately dealt with here through tables and figures in six analytic and descriptive sections.

4.1. The frequency counts, percentage and chi-square test in completion task

To see which sentence constituent evoked fictive motion, the completion task had to be applied with verb or preposition blanks. This task was used for various purposes such as personality analysis, attitude and achievement assessment, and cognitive development, among others in this research. To this end, the participants were required to fill the blanks, verbs or prepositions, in the translated sentences which were extracted from Talmy's model of fictive motion (2000a).

The reported data of which are presented in this section. Inasmuch as each choice in Table 1 carried frequency counts, percentage, chi-square and significance probability of correct and incorrect answers. Table 1 displays the frequency, the percentage, the chi-square and the significance probability of correct and incorrect responses.

As is displayed in Table 1, the chi-square of the produced sentences in completion task in every category identifies the significant difference between the correct and incorrect answers of all the sixteen categories. The *p* under the Sig. column for correct and incorrect answers in each category were smaller than the significance level ($p < .05$), which means that the difference between them is statistically significant. It could be vividly observed that the number of incorrect answers in Pattern paths, the 9th category, is more than that of the correct answers. However, all the participants produced correct sentences for the seventh category. The number of correct answers in the 1st,2nd, 3rd, 4th, 5th, 6th, 8th, 10th, 11th, 12th, 13th,

15th, and 16th categories was statistically significant more than that of incorrect answers. The results obtained here are also graphically shown in the bar chart below.

Table 1. **Frequency count, percentage and chi-square test of 16 categories in the first task (completion task)**

	Sentence	Correct		Incorrect		Chi-Square	Sig
		f	%	f	%		
1	Prospect paths	53	88.3	7	11.7	35.27	0.001
2	Alignment paths	48	80	12	20	21.6	0.001
3	Demonstrative path	55	91.7	5	8.3	41.67	0.001
4	Targeting paths	59	98.3	1	1.7	56.07	0.001
5	Line of sight	58	96.7	2	3.3	52.27	0.001
6	Radiation paths	57	95	3	5	48.6	0.001
7	Shadow paths	60	100	0	0	-	-
8	Sensory paths	58	96.7	2	3.3	52.27	0.001
9	Pattern paths	13	21.7	47	78.3	19.27	0.001
10	Frame-relative motion with factively moving observer	58	96.7	2	3.3	52.27	0.001
11	Frame-relative motion with factively stationary observer	56	93.3	4	6.7	45.07	0.001
12	Advent paths, site arrival with passive verb	53	88.3	7	11.7	35.27	0.001
13	Advent paths, site arrival with active verb	57	95	3	5	48.6	0.001
14	Advent paths, site manifestation	40	66.7	20	33.3	6.67	0.01
15	Access paths	51	85	9	15	29.4	0.001
16	Coextension paths	59	98.3	1	1.7	56.07	0.001

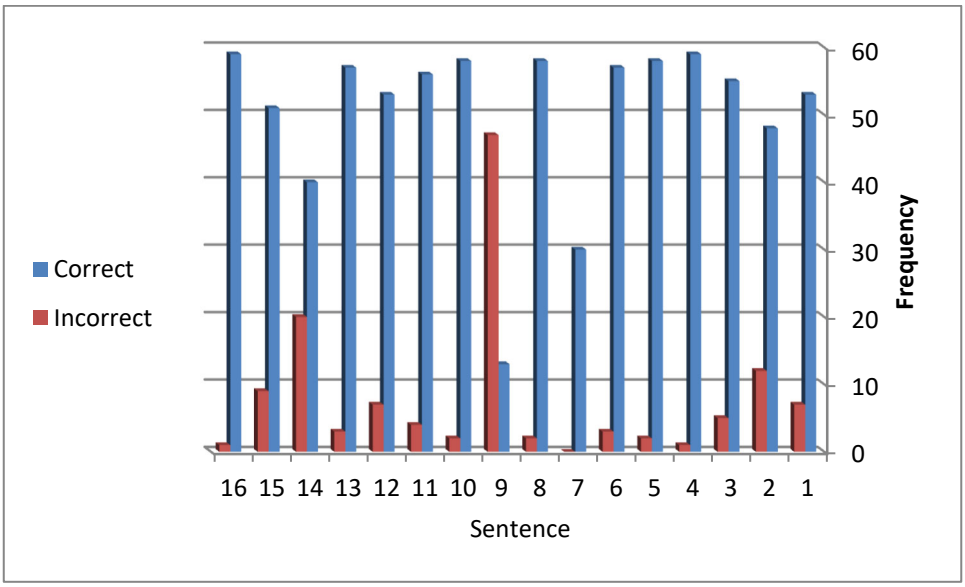


Figure 1. Frequency of answers in the first task by sentences

The bar graph in the figure above illustrates a drastic difference between correct and incorrect answers in all the categories except the ninth category in which the number of incorrect answers was more than that of the correct answers.

4.2. The frequency count, percentage and chi-square test in picture description task

The third research questions of the study asked what the fictive motion categories were. In this section the reported data from participants' response are illustrated through frequency counts, chi-square test, and statistical significant. Since in this task, picture description, the participants were assumed to create the sentences relevant to the pictures, several sentences were uttered, however, the most appropriate one was singled out. The following table is displaying the frequency, percentage and chi-square test of the participants' answers.

Table 2. **Frequency, percentage and chi-square test in 16 categories of the second task (picture description)**

	Sentence	Correct		Incorrect		Chi-Square	Sig
		f	%	f	%		
1	Prospect paths	12	20	48	80	21.6	0.001
2	Alignment paths	55	91.7	5	8.3	41.67	0.001
3	Demonstrative path	50	83.3	10	16.7	26.66	0.001
4	Targeting paths	59	98.3	1	1.7	50.07	0.001
5	Line of sight	54	90	6	10	38.4	0.001
6	Radiation paths	56	93.3	4	6.7	45.07	0.001
7	Shadow paths	49	81.7	11	18.3	24.07	0.001
8	Sensory paths	53	88.3	7	11.7	35.26	0.001
9	Pattern paths	-	-	60	100	-	-
10	Frame-relative motion with factively moving observer	49	81.7	11	18.3	24.06	0.001
11	Frame-relative motion with factively stationary observer	21	35	39	65	5.4	0.02
12	Advent paths, site arrival with passive verb	57	95	3	5	48.6	0.001
13	Advent paths, site arrival with active verb	36	60	24	40	2.4	0.121
14	Advent paths, site manifestation	10	16.7	50	83.3	26.67	0.001
15	Access paths	38	63.3	22	36.7	4.27	0.039
16	Coextension paths	52	86.7	8	13.3	32.27	0.001

As is shown in Table 2, the results of all the categories were statistically significance except the 13th category which is 0.121 larger than 0.05. Regarding categories 1, 11, 14, the number of incorrect answers was more than correct ones; in fact, Persian speakers couldn't produce motion sentences after receiving and observing the pictures related to preceding categories. Unexpectedly, all the answers to the 9th category were incorrect and none of the participants could

produce motion sentences. The statistical significance of the correct and incorrect sentences in the other categories was noticeable since the number of correct answers was more than the incorrect ones. Figure 2 presents the results of the categories' frequency in this task.

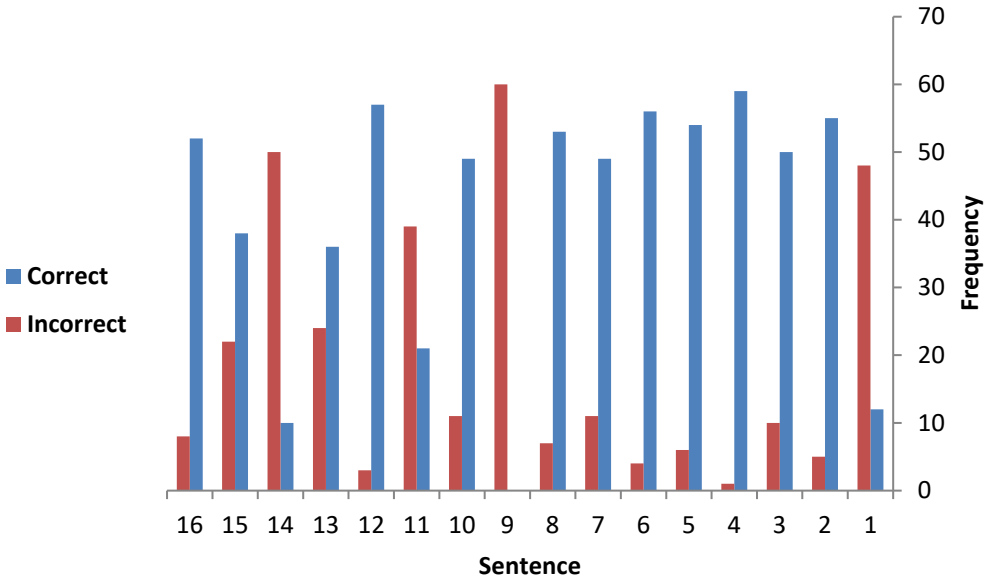


Figure 2. Categories Frequency in Picture Description Task

The bar graph in the figure above illustrates that except 1st, 11th, and 14th categories, the number of correct sentences was more than the incorrect ones in the other categories; however, the answers to the 9th category were completely incorrect.

4.3. The frequency counts, percentage and chi-square test for both groups in completion task

The required data were collected through a counterbalancing technique in which the participants were divided into two groups and the results of which are displayed in this and the next section respectively. The former group received the completion task first and the picture description task while the latter group performed quite the reverse. Table 3 shows the frequency percentage of the correct and incorrect answers, statistical significance, and chi-square test in both groups.

As is shown in Table 3, the *p* value under the Sig. column of the completion task should be examined; in case the *p* value is larger than the significance level of .05, the distribution of scores for that given test could be considered to be normal. Because all the *p* values lined up under the Sig. column here were found to be larger than .05, except 11th and 12th categories, it could be concluded that the correct and incorrect answers of both groups of the participants in completion task formed

normal distributions. The results of this comparison indicate that, in completion task, the second group responded better than the first group whereas they first went through the picture description task and then through the completion task. The number of incorrect answers in pattern paths, 9th category, in both groups was more than correct ones. The results of Frequency percentage are displayed in Tables 4.6:

Table 3. **Frequency Counts, percentage and chi-square test of 16 categories in completion task for both groups**

	Sentence	Group1				Group2				Chi-Square	Sig
		Correct		Incorrect		Correct		Incorrect			
		f	%	F	%	f	%	F	%		
1	Prospect paths	26	86.7	4	13.3	27	90	3	10	.162	.688
2	Alignment paths	22	73.3	8	26.7	26	86.7	4	13.3	1.67	.197
3	Demonstrative path	27	90	3	10	28	93.3	2	6.7	.218	.640
4	Targeting paths	30	100	0	0	29	96.7	1	3.3	1.02	.313
5	Line of sight	28	93.3	2	6.7	30	100	0	0	2.07	.15
6	Radiation paths	27	90	3	10	30	100	0	0	3.15	.076
7	Shadow paths	30	100	0	0	30	100	0	0	-	-
8	Sensory paths	29	96.7	1	3.3	29	96.7	1	3.3	0.001	.999
9	Pattern paths	5	16.7	25	83.3	8	26.7	22	73.3	.884	.347
10	Frame-relative motion with factively moving observer	28	93.3	2	6.7	30	100	0	0	2.07	.15
11	Frame-relative motion with factively stationary observer	26	86.7	4	13.3	30	100	0	0	4.28	.038
12	Advent paths, site arrival with passive verb	25	83.3	5	16.7	28	93.3	2	6.7	1.46	.228
13	Advent paths, site arrival with active verb	27	90	3	10	30	100	0	0	3.15	.076
14	Advent paths, site manifestation	18	60	12	40	22	73.3	8	26.7	1.22	.273
15	Access paths	22	73.3	8	26.7	29	96.7	1	3.3	6.405	.011
16	Coextension paths	29	96.7	1	3.3	30	100	0	0	1.02	.313

As it could be seen in Figure 3, correct answers in groups one and two were not substantially different from one another in the completion task. For example, in the 7th and 8th categories the number of correct answers is identical in both groups; however, the differentiation between the correct answers in the groups is not remarkable in other categories. Moreover, there was not a large discrepancy between incorrect answers in both groups except the fifteenth category in which it is observable.

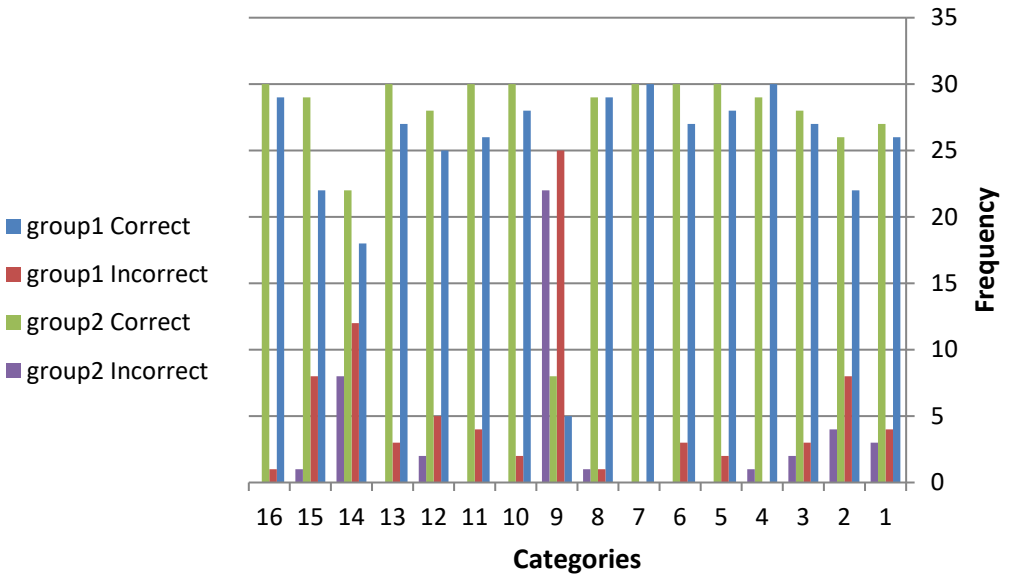


Figure 3. Answers' frequency in completion task for both groups

4.4 The frequency counts, percentage and chi-square test for both groups in picture description task

To control the order effect of the completion and picture description tasks, half of the participants were required to create relevant sentences related to the given pictures and then fill the blanks in the completion task. The frequency counts, percentage, and chi-square test are displayed in Table 4.

To figure out whether the differences between the participants' response of per category in picture description task and those of which in completion task were statistically significant or not, the *p* value of all categories was computed and presented under the Sig. column. Regarding Table 4, the difference between the correct and incorrect answers of both groups of participants was statistically significant in the 2nd, 6th, 11th, 14th, and 16th categories of the task. It indicates the better function of the second group rather than the first group in confronting these categories in pictures description task. However, the first group performed preferably in category number 14. The 9th category in the above table revealed the incorrect answers of the participants in both groups, for that reason there was not a statistically significant difference between these two groups. Drawing an analogy between the numbers of correct answers in both groups disclosed a mild increasing trend in the 1st, 2nd, 5th, 6th,10th, 11th, 12th, 15th, and 16th categories, however in the 3rd, 4th, 7th, 8th, and 14th categories the trend is decreasing. The participants' answers in both groups were equal in 9th and 13th categories. The answers frequency counts and percentage in the picture description task is also evident in Figure 4.

Table 4. ***Frequency counts, percentage and chi-square test of 16 categories in picture completion task for both groups***

	Sentence	Group1				Group2				Chi-Square	Sig
		Correct		Incorrect		Correct		Incorrect			
		f	%	f	%	f	%	f	%		
1	Prospect paths	7	23.3	23	76.7	5	16.7	25	83.3	.417	.519
2	Alignment paths	25	83.3	5	16.7	30	100	0	0	5.45	.02
3	Demonstrative path	27	90	3	10	23	76.7	7	23.3	1.92	.166
4	Targeting paths	30	100	0	0	29	96.7	1	3.3	1.02	.313
5	Line of sight	26	86.7	4	13.3	28	93.3	2	6.7	.741	.389
6	Radiation paths	26	86.7	4	13.3	30	100	0	0	4.29	.038
7	Shadow paths	25	83.3	5	16.7	24	80	6	20	.111	.739
8	Sensory paths	28	93.3	2	6.7	25	83.3	5	16.7	1.45	.228
9	Pattern paths	0	0	30	100	0	0	30	100	-	-
10	Frame-relative motion with factively moving observer	23	76.7	7	23.3	26	86.7	4	13.3	1.002	.317
11	Frame-relative motion with factively stationary observer	6	20	24	80	15	50	15	50	5.93	.015
12	Advent paths, site arrival with passive verb	28	93.3	2	6.7	29	96.7	1	3.3	.351	.554
13	Advent paths, site arrival with active verb	18	60	12	40	18	60	12	40	.000	1.000
14	Advent paths, site manifestation	10	33.3	20	66.7	0	0	30	100	12	.001
15	Access paths	18	60	12	40	20	66.7	10	33.3	.287	.592
16	Coextension paths	22	73.3	8	26.7	30	100	0	0	9.23	.002

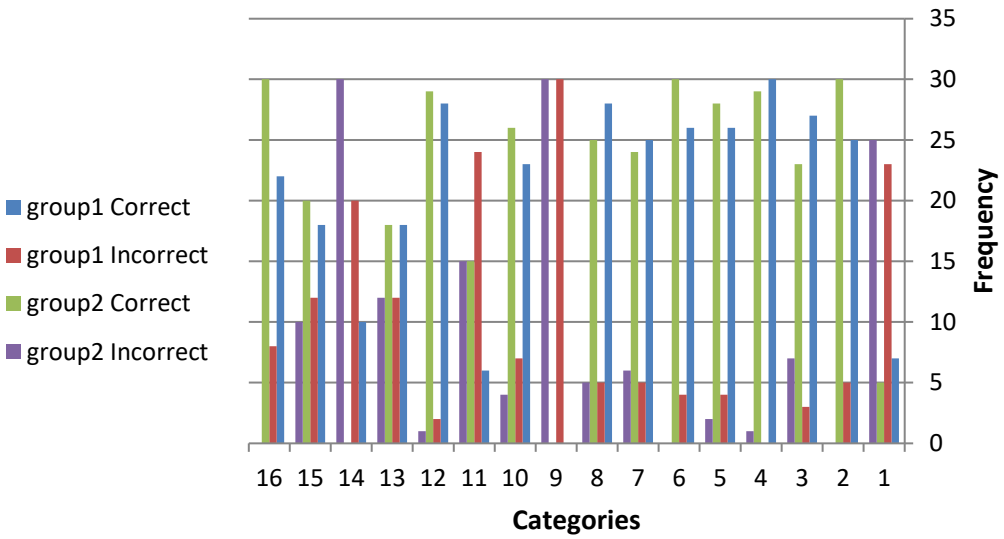


Figure 4. Answers' frequency in picture description task for both groups

As it could be seen in Figure 4, the frequency counts of the correct and incorrect answers of both groups ranged from 0 to 30 in which the minimum amount belonged to the 9th category in both groups and 14th category in the second group. Additionally, the maximum amount of frequency was observed in the 4th category in the first group and 2nd, 6th, and 16th categories in the second group.

4.5. The answers' differences in completion and picture description tasks

Descriptive findings are required to repurpose formidable quantitative insights and used to summarize or describe the features of the data set qualitatively. Measures of central tendency such as the mean, standard deviation and maximum and minimum of the answers were enumerated to estimate the performance of the participants in both tasks qualitatively and distinctly. The results of descriptive findings are presented in Table 5 below:

Table 5. **Descriptive findings of the tasks**

Task	N	Minimum	Maximum	Mean	Std. Deviation
1	30	11.00	16.00	13.9100	1.3186
2	30	7.00	13.00	10.5800	1.4359
total	60	19.00	29.00	24.7700	2.1735

Table 5 displays the descriptive findings of the tasks entailed the maximum and minimum values, mean, and standard deviation. As quite basic yet marginal statistics, minimum and maximum values in the data set are shown up in calculations for other statistics. They ranged from 11.00 to 16.00 in completion task and from 7.00 to 13.00 in picture description task. The tasks' means were 13.9100 and 10.5800 respectively, indicating the mean of correct and incorrect answers. The standard deviation, the amount of variation of a set of values, was 1.3186 in the first and 1.4359 in the second task.

Table 6. **Paired sample t-test to compare the mean scores of the first and second tasks**

Descriptive			Paired Differences					t	df	Sig
task	Mean	Std. Deviation	Mean difference	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
						Lower	Upper			
1	13.91	1.32	3.067	1.69	.22	2.63	3.50	14.05	59	.000
2	10.58	1.44								

As portrayed in Table 6, Paired sample t-test, also called the dependent sample t-test, is used to compare the mean scores in the completion and picture description tasks. The tasks' mean scores, the central tendency measurement of a test, was calculated and compared with one another. The tasks' mean scores turned out to be 13.91 and 10.58 respectively and their mean difference equaled 3.067 which was statistically significant. The tasks' mean difference is owing to the lower amount of

correct answers in the picture description task than in the completion task. To show the amount of variation from the average, standard deviation was operationalized for both tasks and it was 1.69. Since there were two population samples and the standard deviation was 1.69, the 95% confidence interval for the differences between their means was computed. A quick look at Table 6 reveals that, the lower and upper bands of the 95% confidence interval of the difference are 2.63 and 3.50 respectively. The results obtained here are also graphically shown in the bar chart below.

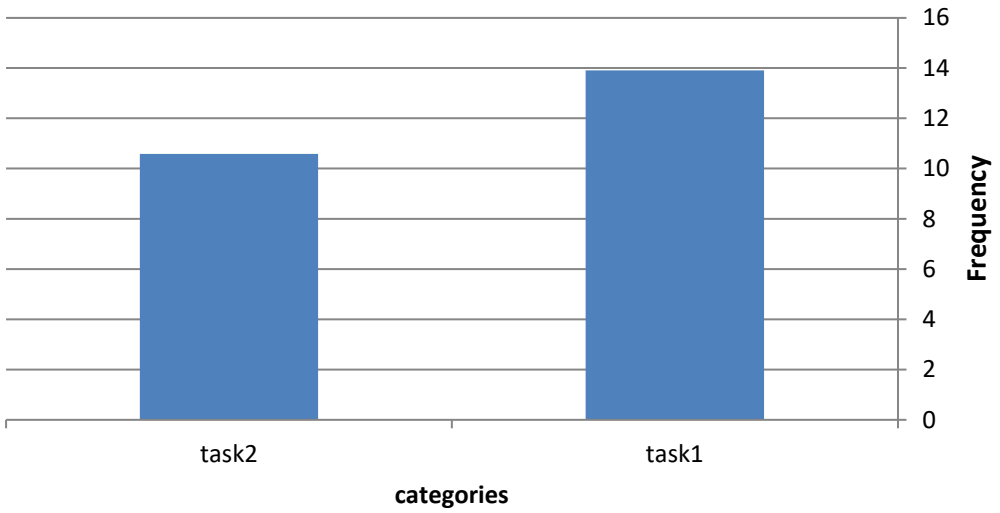


Figure 5. Mean of the first and second tasks

This bar chart shows the mean scores of the participants in completion and picture description tasks. The first column with the mean of 13.91 is indicating the participants' superior performance in the first task than in the second task.

4.6. Descriptive results

To meet the qualitative requirements of the research, it is essential to include the following section. As it might be recalled from above, sixteen fictive motion categories from Talmy' model were randomly drawn and translated into Persian. Subsequently, the visualized sentences were distributed among the participants to be described and verbalized.

The sentence related to the 1st category "*The cliff wall faces toward the valley*." in which the verb *face* and the preposition *toward* depict motion synchronically and even more remarkably than the other sentence constituents, was largely produced without the verb *face* in Persian. The participants uttered "*saxre (cliff) ru be/samte (toward) darre (valley) ʔast/qarâr dârad (is/located)*." in some cases. They were unable to describe the photo properly due to using the static verbs *ʔast* or *qarâr dârad* which led to the motionless sentences production.

Perceiving the picture of the 2nd category "*The snake is lying toward the light*." a number of participants produced the fictive motion sentences. The repetitive preposition *ru be* or *samte (toward)* and the verb *derâz kešide ʔast (is lying)*in the sentence "*mâr (snake) ru be nur (the light) derâz kešide ʔast.*" were uttered. Significantly, *mâr* is a motionless and point-type-front figure whose lying position and linearity conjured up fictive motion for the participants.

In the third picture demonstrative paths, "*The arrow on the signpost pointed toward the town*." the participants produced the verbs such as *nešân midahad (pointed)* or *ʔšâre mikonad (pointed)* and the subject *feleš (arrow) ruye (on) tâblo (signpost)* the linearity and the front-end features of which eject a hypothetical line.

The next subclass, targeting paths, "*I pointed (my finger/ camera) into the living room*." evoked several fictive motion sentences in the mind of the participants such as, "*angoštam (my finger) râ ru be (into) ʔotaq (living room) gereftam (pointed).*" or "*ʔu (he/she) be (to) ʔotâq ʔšâre mikonad (point).*" or/and "*man (I) ru be/be/samte/be tarafe (toward) ʔotâq (living room) ʔšâre mikonam (point).*" It should be noted that a fictive line from the front-bearing object trails a path related to the object's surroundings. Therefore, this hypothetical line caused the participants to verbalize their thoughts.

In line of sight, the fifth category, "*I slowly looked toward the door*", the path is specified by the preposition *toward* and, more importantly, an intangible line appears and is developed by the eyes. Produced sentences such as *be/ru be/samte (toward) dar (door) negâ kardam/mikonam (looked or is looking)* illustrated a type of hypothetical line emanating from the eyes of the agent toward the door. However, the only object that physically moves toward the door is the turning head.

In the sentence "*xoršid (sun) be darune (into) qâr (cave) mitâbad (is shining or shines)*" extracted and translated from radiation paths, "*The sun is shining into the cave*", *xoršid* is an energy source containing a type of radiation and *qâr* is the irradiated object. The invisible emitted light from *xoršid* and the verb *mitâbad* depict fictive motion for the participants. Therefore, they were able to produce the expected fictive motion sentence for this category after receiving the photo since the gerund verb *tâbidan* entails motion in nature.

In the shadow paths, "*The pillar's shadow fell onto the wall*", the verb *ʔoftâd (fell)* and the preposition *ruye (onto)* conjure up fictive motion; however, the participants once in a while employed the static verbs such as *dârad (has)*, *ʔast (is)* and *qarâr dârad (is situated)*. The shadow of the pillar involves some kind of fictive motion on the surface, like the *divâr (wall)* which is ground and *sotun (pillar)* comprising the object with the shadow is the figure. The path preposition *ruye* comes with the motion verb *ʔoftâd*.

Sensory paths, "*I can see him all the way from where I am standing*", embrace another kind of fictive motion events which involve visual paths. It should be noted that, picturizing this type of fictive motion category required some changes. For example, a girl named Mina was drawn behind a window as if she was watching a cat. Therefore, the participants could comfortably satisfy the aim of the picture and

a great number of them provided the relevant fictive motion sentences. The fictivity of this motion is depicted from the experiencer's location to the experienced, that is, *ʔaz (from) pošte (behind) panjere (window)* to the cat's location. Moreover, the girl in this picture emanates something forth to observe the cat at a distance.

In order to receive the fictive motion sentence regarding the 9th category, pattern paths, a picture was drawn in which a painter was painting the ceiling while a line of paint spots progressed across the floor. However, the verb *kešide mišod* (progressed) along with the figure *xati (a line) ʔaz (from) qatarât rang (paint spot)* depicts fictive motion, the participants failed to provide the appropriate verb form. The motionless verbs such as *rixt (poured)*, *bud (was)*, and *čekid (dropped)* and the preposition *ruye (on)* were uttered by the participants while the linear pattern of paint spots on the floor elucidates fictive motion.

The 10th and 11th fictive motion categories are respectively two types of frame-relative motion with factively moving observer and stationary observer. Facing the 10th category's picture, "*I was walking through the woods and this branch sticking out hit me*.", the participants produced factive motion sentences such as *doxtarak/ʔân doxtar (the girl) dar (through) pârk/jangal/xiʔâbân (park, jungle, street) qadam mizad/râh miraft (walked)* and then changed them into fictive ones such as *ke (that) ʔin (this) šâxe (branch) deraxt (tree) yekdafe/nâgahân (suddenly) raft (went) dar/tu/dâxel (into) češmaš (her eyes)*. Interestingly, for the 11th category, less than half of the participants provided fictive motion sentences such as *rudxâne (river) ʔaz (from) kenâr (near) xâneʔye (house) man (me)/Ali migozarad/ʔobur mikonad/rad mišavad (pass)* and the remains produced motionless sentences such as *xâneʔye (house) man (I) kenâr (near) rudxâne (river) ʔast/qarâr dârad (is)*.

The following three categories are different types of advent paths, site arrival with passive and active verbs, and site manifestation. Sentences such as, "*termite mounds are scattered all over the plain*.", "*the beam leans away from the wall*.", and "*this rock formation appears near volcanoes.*" were depicted and presented into the participants. For the picture associated with the 12th category, the number of depicted termite mounds induced the participants to provide fictive motion sentences. They formed the fictive motion sentences like, *tape (mounds) muriʔâne hâ/ tape hâye muriʔâne (termite) dar (over) kole/hameye/sar tâ sar (all) dašt (plain) paxš šode ʔand/ parâkande ʔand/ parâkande šode ʔand (are scattered)* in which the motion-specifying verbs are the fictive representation of the objects with the motion in their sites. For the 13th category, *nur xoršid (beam) kaj/movarab (leans away) be (to) divâr mitâbad (leans away)* the beam, wall, and the curve like beam are visualized in a way that the participants provided fictive motion sentences as above. In site manifestation, the location of the rock formation as an effect of materialization is denoted fictively. It is worth bearing in mind that only a few participants were capable of creating acceptable fictive motion sentences corresponding to this category.

The relevant picture into the 15th category was drawn clearly; however, part of the participants produced fictive motion sentences like, *ʔabr ha (clouds) hezâr*

kilumetr (1000 kilometer) ʔaz (from) zamin (earth) bâlâtar (upper) ʔand/hastʔand (are). or ʔabr ha bâlâtar ʔaz zamin ʔand (are). or ʔaz sathe zamin ʔabr ha bâlâtar ʔand.

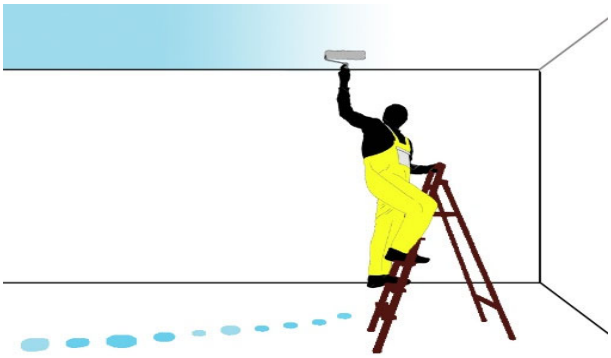
Since the illustrator failed to draw the fence in the last category of fictive motion, she replaced it with a flower land. Surprisingly, the participants expressed the form, location and orientation of the object in their sentences. For example, they uttered *dašte (plateau) gol (flower) be (to) darre (valley) mirasad/ xatm mišavad/sarâzir mišavad (descend) or golhâ (flowers) be (to) darre (valley) mirasand (descend).*

5. Discussion

In light of the fact that counterbalancing technique was appropriated in this study, data were computed for both groups on the whole and separately, however the obtained results tended to be similar. The results of the research questions for the participants unearth that regardless of the 9th category in completion task and 1st, 9th, 11th, and 14th categories in the picture description task, they performed accurately to a significant extent. One reason why the Persian speakers responded to the former categories erroneously in the tasks, could be related to the findings of Blomberg (2015) from the viewpoint of cognitive linguistics. He believed that, since the main objective of cognitive linguistics is to explain the relationship between language and thought, verbalization of thoughts is the only way to understand them. These two are sometimes detachable – our experience is that a thought cannot be always put into words. This indicates that language and thought are not the same thing; however, they are connected in subtle ways.

Another reason for such responses could be related to the findings of Langacker (1987, 2005, 2008) and Talmy (1996, 2000) in which they indicated that translating expressions containing fictive motion events has recently created a problem. Duff (1981) and Newmark (2003) also believed that a full-scale one to one correspondence is unattainable in interlanguage translations and this may create a serious problem for translators. Another reason could be attributed to the findings of Talmy's (2000a) investigation. He provides distinctive definitions and examples for all these fictive motion categories. It is worth recalling from Section 3 that both translated sentences and the fillers with pictures were given to an artist to create a smooth and professional finish. Talmy's sample of pattern paths, 9th category, along with its Persian translation, is displayed as the following.

The pattern Paths:



Pattern Paths Category in Picture Description Task

(a) As I painted the ceiling, (a line of) paint spots slowly progressed across the floor (Talmy 2000a).

(b) Vaqti ke saqf râ rang kardam PST1st (xati ʔaz) qatarât rang beʔârâmi ruye zamin kešide šod PST3rd (Researchers' translation).

According to Slobin and Talmy (1996 and 1985), figure, ground, path, and manner are four semantic elements of motion events, parsed as the following in both English and Persian in Pattern paths. For example, *paint spots (qatarât rang), progressed (kešide šod)*, *across (ruye),* and *the floor (zamin)* are the figure, motion verb, path and ground in English and Persian respectively. As the participants were required to fill out the blanks with the appropriate verb in completion task, the verb *kešide šod* was used by 13 participants, and the rest applied such verbs as, *rixt*, *bud*, and *ĉekid*. However, what was produced by the Persian speakers was akin to (a) in terms of tense and contradictory in the verb type, that is, motion verb.

In picture description task, the participants devised sentences as they perceived the photos, however they couldn't produce any similar sentences to simulate a fictive motion event. Due to Talmy' s (2000a) definition of pattern paths, it is believed factively that the object is either fixed or moves along the path. As the physical objects must factively show some sort of motion for the fictive effect, it can be concluded that the fictive effect has not occurred for Persian speakers to create a fictive motion sentence with the manner verb in picture description and completion tasks.

Additionally, the prospect paths, Frame-Relative Motion with factively stationary observer, and advent paths site manifestation were among the categories that the participants couldn't appropriately produce fictive motion sentences in Persian as they received the photos. Talmy's (2000a) sample of these categories and their Persian translations are as follows. It should be recalled that the pattern paths were formerly explained in detail, and only 1st, 11th, and 14th categories have been discussed here.

1st category: The prospect Paths:

Prospect Path Category in Picture Description Task

(a) The cliff wall faces toward the valley (Talmy 2000a).
(b) Saxre ru be PP darre piš ʔâmadegi dârad3rdPRS (Persian translation).

The word *cliff (saxre)* characterizes a fictive course of motion emanating from its face and along with the preposition *toward* (*ru be*) moves through the path. As it is obvious from Table 1 a large number of participants filled the blank out with the proper preposition (*ru be*). However, the written clues in picture description task did not lead the Persian speakers to state the predicted fictive motion sentence. The participants produced sentences in which the motion was illustrated only through the semantic element, path, *ru be.* According to the Oxford Dictionary, the verb *face* means to be looking or pointing in a particular direction therefore the Persian equivalent, *piš ʔâmadegi dâštan*, suggested by the researchers to depict motion with *ru be* for the participants. On the other hand, Talmy (2000a: 108) believes that the literal sense of the sample in this category depicts a fictivity in which something emanates from the cliff wall toward the valley. However, this is in conflict with the factivity containing the belief that all the referent objects in this sample involve no motion.

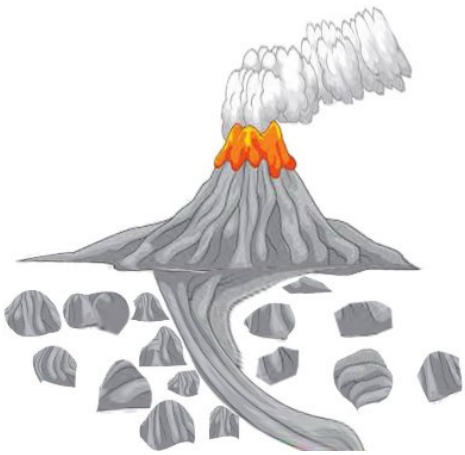
11th category: Frame relative with factively stationary observer:

Frame relative with factively stationary observer Category in Picture Description Task

(a) The stream flows past my house.
(b) Rudxâne ʔaz kenâr xâneʔye man migozarad PRS 3rd (Persian translation).

It can be inferred from Table 1 that almost all the participants completed the blank accurately, however they couldn't perform correspondingly in the picture description task. Around two third of the produced sentences were motionless since they uttered *Xâneʔye man kenâr Rudxâne ʔst* instead of *Rudxâne ʔaz kenâr xâneʔye man migozarad,* the sentence which is grammatically and semantically proportionate, but involves no motion. The difference in the viewpoints in these two sentences is attributed to the difference in the participants' intentions, which is considered as the cognitive mechanism of construal of an object in cognitive linguistics (Iriskhanova & Cienki 2018). More importantly, the findings of this stage are also in line with those of Blomberg (2014) that the speakers' cognition or worldview is influenced by the structure of the language they speak, and thus their perceptions are relative to their spoken language.

14th category: Advent Paths, Site Manifestation:



Advent Paths, Site Manifestation Category in Picture Description Task

(a) This rock formation appears near volcanoes (Talmy 2000a).
(b) ʔin tarkib sang nazdike ʔâtašfešân padidâr mišavad PRS 3rd (Persian translation).

In the completion task, the verb of the sentence is left blank to evaluate the participants' intuition in creation of a verb type that, along with the figure and path, simulate motion. Unquestionably, in this example, the location of the rock formation which is the effect of materialization is denoted fictively. It is believed that the site's occupation of this rock formation for a very long time has been synchronized with the fictive representation (Talmy 2000a: 135). However, the site's occupation of the rock formation is illustrated clearly in the photo above; the obtained result was not in agreement with the research expectations. According to Leyton (1992), the perception of an arbitrary curved surface resembles the deformed version of a simple surface. Notably, in Gestalt psychology, certain forms are discerned considering some process of deformation used to an invisible basic form.

By the same token, the results are in line with those of Feinmann (2020) in that he examined the potential relation between the way native speakers linguistically express motion and conceptualize it. For this purpose, he compared English and Spanish native speakers who had different typological telic motion encoding in two types of verbal and non-verbal experiments. The results provided convincing evidence in favor of cognitive universalism.

Table 6 displays the participants' performance in filling out the prepositions and the verb blanks of sixteen fictive motion sentences. The obtained results are in keeping with that of Flecken 's (2011) inspection, in which English native speakers attend to both trajectory and endpoint of motion events identically. Likewise, Persian native speakers in this study attended to the path and motion verbs similarly.

According to Huumo (2017), tense and aspect are major contributors involved in the conceptualization motion – that is, metaphorical motion events are grounded by tense. Surprisingly, the obtained results in the recent scrutiny reveal that, regardless of the tense of translated sentences extracted from Talmy's (2000a) model, produced fictive motion sentences in Persian conceptualize motion more in prepositions and less in verbs and tense. That is, the tense of produced sentences by the participants differed from the Persian translation and Talmy's sample in certain categories. To exemplify, in Targeting Paths, the tense in English and Persian sample is simple past, yet the tense of the produced sentences by the participants is simple present and still illustrating the fictivity.

To reflect the tense of fictive motion sentences in both English and Persian, a comparative table is presented below. The following table displays the tense of translated fictive motion sentences in Persian by the researcher and Persian speakers. As it was mentioned earlier, the participants couldn't produce fictive motion sentences for the 1st, 9th, 11th, and 14th categories; however, the present tense is obviously more productive in Persian. Sandy (2023) hypothesized that tense and aspect in Jish Arabic resemble that in some other Arabic dialects. For instance, *to be* in Moroccan, Egyptian, Syrian, and Kuwaiti Arabic is as common as progressive marker *am* in Syrian and Egyptian Arabic, which is in line with our research.

Table 7. ***English and Persian Tense Comparative Table***

No	Fictive motion categories	English	Persian	
			Researcher	Speakers
1	prospect paths	simple present	simple present	
2	alignment paths	present continuous	present perfect	present perfect
3	demonstrated paths	simple past	simple present	simple present & simple past
4	targeting paths	simple past	simple past	simple present
5	line of sight	simple past	simple past	simple present
6	radiation paths	present continuous	simple present	simple present
7	shadow paths	simple past	simple past	present perfect
8	sensory paths	simple present	simple present	simple present
9	pattern paths	simple past	simple past	
10	frame-relative paths	simple past	simple past	simple past
11	frame-relative paths	simple present	simple present	

No	Fictive motion categories	English	Persian	
			Researcher	Speakers
12	advent paths	simple present (passive)	simple present (passive)	simple present (passive & active)
13	advent paths	simple present	simple present	simple present
14	advent paths	simple present	simple present	
15	access paths	simple present	simple present	simple present
16	coextension paths	simple present	simple present	simple present

It is worth mentioning that the researchers were wary of making generalizations from the results of the analysis. As a case in point, the present study was concurrent with COVID-19 pandemic, therefore social media such as Telegram and Whatsapp were used for collecting the required data that may have influenced our results and highlighted the importance of face-to-face interview in picture description task in this survey. Additionally, due to the research design and methodology of this study which is the reduplication of Talmy' s (2000a) theoretical framework in Persian, offering the exact equivalents or translations for fictive motion sentences and creating their pictures as a photo album were complex yet time consuming. Moreover, the bulk of research on fictive motion translation across languages has revealed that the rendering of factive motion events is less complex than those of fictive motion expressions (Rojo & Valenzuela 2003, Stosic & Sarda 2009). Last but still important, lack of previous research studies with various methodologies on fictive motion events (yet not motion events) in English and particularly in Persian may highlight the need for further research studies.

As with the research on motion and fictive motion events, the primary objectives of almost all motion and fictive motion studies have stemmed from surpassing cognitive needs of languages and their speakers' intuition, as well as insights for linguists and linguistic purposes. Much like these studies, the present research investigates fictive motion categories in Persian to assist the development and comprehension of fictive motion events among linguists, language translators and cognitive semanticists.

Alternatively, the findings in this inquiry may contribute to the ongoing research in the domain of semantics, due to the meaning transference from Talmy's model of fictive motion from English into Persian. Since the results in phase one revealed either the availability of fictive motion events in Persian or the studies in other languages, the findings may open a new avenue for linguistic universal studies. One promising fact is that the translation of Talmy's model of fictive motion categories into Persian in the recent study can be seen as a reliable source for some relevant investigations.

6. Conclusion

This investigation represents an attempt to shed light on the studies on fictive motion events in Persian within Talmyan approach. Talmy's (2000a) exhaustive

analysis of fictive motion categories and issues has allowed us to consider the perception of fictive motion events in Persian from a cognitive semantic perspective. This paper views Talmy's model of fictive motion categories in Persian through completion and picture description tasks. The data elicited from sixty participants unveiled that they had arduousness in transmutation of certain pictures into the sentences, however performed better in filling verb and preposition blanks, that is completion task.

The overall findings authenticate the existence and frequency of Talmy's fictive motion categories in Persian barring 1st, 9th, 11th, 14th categories. Additionally, analytic results of the study showed that Persian speakers tended to adopt the present tense in the production of fictive motion sentences. Moreover, the obtained results in both tasks led us to the conclusion that the verbalization of depicted sentences, regardless of research limitations, is not as straightforward as the conceptualization of the sentences, which means that cognition is influenced by the structure of the speakers' language.

Data Availability Statement

The underlying data for this article are included in the Appendix.

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