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# Source of Errors in English Headless Relative Clauses Produced by Persian Learners/Speakers of English

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## Abstract

This paper focuses on errors made by Persian learners of English as a Foreign Language (EFL) when producing English headless relative clauses (RCs). Although English does not allow interrogative structure in headless RCs, Persian EFL learners tend to produce them in the interrogative form. In the course of the present research, potential sources of this error were explored, and eventually, the Markedness Differential Hypothesis (MDH) showed to have more explanatory power and made up the theoretical framework of the research. The oral and written corpus of the study was obtained in two years through diverse sources from 137 female and male Iranian participants. The collected, naturally-occurring data yielded a pool of 126 ill-formed RCs, consisting of 85 (67.46%) ordinary headless, 25(19.84%) headed, and 16 (12.69%) free headless RCs. Scrutiny into the data led to recognizing systematic errors in two main types (headless RC in subject or object position) and two subsidiary types (headless RC in subject position including copula verb) of English headless RCs. These systematic errors can be attributed to the markedness differential hypothesis, not in the sense that the forms are different across the two languages, but because of the wider functionality of interrogative and declarative forms in English headless RCs, compared to Persian. This study calls for linguistic analysis of other facets of such systematic errors, more collaboration of linguists and language pedagogues to recognize and address learning problems, and studies on educational solutions for related problems.

***Keywords*:** Headless relative clause, markedness differential hypothesis, error analysis, second/foreign language acquisition

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## INTRODUCTION

The study of the acquisition of relative clauses (RCs) in various second/foreign languages has held the attention of several researchers (e.g., Abdollahnejad & Marefat, 2018; Alizadeh & Khaleghizadeh, 2015; Azmude, Amuzade & Rezaei, 2017; Bahrami, 2016; Comrie, 1996; Gennari & McDonald, 2007; Kanno, 2007; Rahmany, Marefat, & Kidd, 2013; Taghvaipour, 2004, 2005, 2014). Several studies have recognized wh-embedded forms as difficult structures that are learned towards the late stages of interlanguage development (Bettoni & Di Biase, 2015; Clahsen, 1984; Pienemann, 1999, 2007; Pienemann & Johnston, 1987; Saric, 2016; Spinner & Jung, 2018). One seminal study in this regard is Macky's (1995) research on the processability of language elements during interlanguage development. Investigating the developmental stages of English question formation, Mackey (1995) proposed six phases for interlanguage development among English learners. These phases consist of single units; canonical word order with question intonation; direct questions with main verbs; pseudo inversion of to be verb and subject in wh-questions and movement of auxiliary and modal verbs to the sentence-initial position in yes/no questions; inserting auxiliary and modal verbs before subjects in wh-questions; making tag questions, negative questions and inserting wh-questions in can-inverted questions, and wh-embedded structures (e.g., Can you see what the time is?).

As a special RC type, headless RCs have peculiar properties that distinguish them from other RCs. These properties have been studied in English and some other languages (e.g., Keenan & Comrie, 1977; Mowlaei Kuhbanani, Alizade & Sharifi, 2018; Turnbull-Sailor, 2000), yet their structure and features as contributed to learning English as a second/foreign language by Persian learners have not been investigated. This study means to address part of this need, first, through introducing the concepts of headed versus headless RCs in English, as compared to Persian. Then, a frequent problem that Persian learners of English face when producing these

structures will be presented. This problem which consists of producing English headless RCs in interrogative – rather than declarative – form was probed and potential reasons for making such errors were investigated. This was conducted through analyzing a corpus of real data, collected in oral and written forms from Persian learners' spontaneous productions of English utterances. Eventually, according to heuristic arguments and data-driven findings, Markedness Differential Hypothesis (MDH), could explain the potential source of this error, and consequently made up the theoretical framework of the present research.

Regardless of various classifications of RCs proposed from a variety of perspectives, only headed, headless and free RCs, will briefly be reviewed as they made up the most frequent RC types (mis)produced by the participants. To keep the trace of the underlying sources of errors, headed and free RCs are occasionally used in data analysis, yet the focal point is headless RCs, which incur the largest number of errors.

## LITERATURE REVIEW

### Headed Relative Clauses in English and Persian

A relative clause is "a clause that modifies a phrasal constitute, generally a noun phrase" (Riemsdijk, 2006, p. 338). The noun phrase modified by the relative clause is called the head of the relative clause. Therefore, a more accurate term for such a clause is headed relative clause. For instance, in sentence (1), 'which' is a relative marker that functions as the modifier of 'the food', i.e., the head of the relative clause, hence called a headed RC. In other words, the head of the RC is the antecedent of the relative pronoun.

(1) They ate the food which they had bought from that restaurant.

Keenan and Comrie (1977) consider any syntactic object an RC, conditioned that it specifies a set of objects in two steps:
A larger set is specified, called the domain of relativization, and then

restricted to some subset of which a certain sentence, the restricting sentence, is true. The domain of relativization is expressed in surface structure by the head NP, and the restricting sentence by the restricting clause, which may look more or less like a surface sentence depending on the language. (p. 64)

Accordingly, in example (1), the domain of relativization is the set of foods, the head NP is food, the restricting sentence is they bought it from that restaurant, and the restricting clause is that they bought from that restaurant.

English uses different wh-elements depending on the human versus non-human feature of the head of the wh-element in the matrix, as well as on wh-element function in the subordinate clause (Hall & Azar, 2010). In other words, it is the head that determines the type of the relative pronoun i.e., which, who, whom, etc. (Riemsdijk, 2006, p. 339). For instance, if the noun phrase in the main clause is a human, playing the role of the object in the subordinate clause, then the RC marker whom must be used as in:

(2) This is the man whom I told you about.

However, if the same noun phrase plays the role of the subject in the subordinate clause, then the RC marker who is used as in the following example:

(3) This is the man who left the meeting soon.

One significant point about English is that it "postulates the same wh marker for relativization and interrogation" (Kuroda, 1968, p. 244). For instance, which functioned as an RC marker in example 1, and as an interrogative marker in the following example:

(4) Which food did they eat?

Similar to English, Persian RCs are NP initial, i.e., the modified NP precedes the modifying clause. The RC element in Persian is ke which functions as an invariant relative complementizer, and can equally be used for relativized elements with any of subject, object, oblique, possessive, and adjunct functions, regardless of the matrix head being a human or non-human entity (Najafi, 1995; Tabibzadeh, 2012), as in the following examples:

(5) In dokhtari ast ke ketabi ra qarz gereft. (Ke is used to relativize a human subject)
This the girl is who a book borrowed. (Who is used to relativize a human subject)
This is the girl who borrowed a book. (Correct English)

(6) Zahra ketabi ra ke qarz gerefteh bud bargardand. (Ke is used to relativize a non-human object)
Zahra the book which she had borrowed returned. (Which is used to relativize a non-human object)
Zahra returned the book which she had borrowed. (Correct English)

Contrary to English, which applies the same markers for both relativization and interrogation, Persian does not use ke for interrogation. Rather, it incorporates a series of interrogative markers to question the time, place, person, number, age, quality, quantity, and the like. In example (7), the interrogative marker che is used to mean which:

(7) Anha che ghazayee ra khordand?
They which food [object marker] ate?
Which food did they eat? (Correct English)

Acquisition of English headed RCs by Persian learners has been the

subject of several studies, from which we suffice to mention two, to save space. Investigating the presence of Persian resumptive elements as comprehension aids in object relative clauses, Rahmany, Marefat, and Kidd (2013) found that they facilitate the processing of object RCs. In another study, the way native and SL learners of English and Persian used parsing references (early versus late) when reading ambiguous relative clauses were investigated. It was found that Persian monolinguals tend to use high attachment while English monolinguals prefer low attachment. Moreover, this study revealed that English and Persian bilinguals used the same parsing strategies as those in their L1 (Marefat & Meraji, 2006).

## Headless RCs in English and Persian

Unlike headed RCs which modify a head noun in the matrix sentence, headless RCs do not modify an overt head. That is the reason why Radford (2004, p. 233) names this group "antecedentless" RCs. The following example can clarify the point:

(8) They ate what they had bought from that restaurant.

In this example, unlike headed RCs, *what* cannot find its antecedent in the clause; hence, it is called a headless wh-relative clause.

In Persian, the same concept can be structured through the headless RCs, as in example (6):

(9) Anha anche ra ke az resturan kharide budand khordand.

In example (9), anche– an equivalent for *what* in example (8) – cannot be indexed to any antecedent in the matrix sentence.

When headless RCs are used as embedded clauses, they generally follow two main types of verbs, namely the wonder type or discover type verbs. Properties of these verb types in the matrix clause and the way headless RCs are (mis)produced when embedded are discussed in the following part.

***Wonder Type Versus Discover Type***

Researchers have long noticed the differential behavior of verbs in selecting their embedded clauses (Turnbull-Sailor, 2007). They identify two types of headless relatives in English concerning the selectional behavior of the matrix verbs, i.e., *wonder type* and *discover type*. Wonder type verbs such as *wonder, inquire,* and *ask* embed clauses that behave like true questions. On the contrary, *discover-type* verbs like *discover, know, find out* and *forget* in matrix clauses select clauses that are not like questions. Sentence (10) is an example of wh-relative embedded under a wonder type verb and sentence (11) is an instance of wh-relative clause embedded under a discover type verb. Any of the examples are followed by typical erroneous forms, frequently produced by Persian learners:

(10) a. They asked where they should go after the class.
b.* They asked where should they go after the class.

(11) a. They easily forget what they promise.
b.* They easily forget what do they promise.

Although the two sentence types may seem structurally identical, they can delicately be distinguished. Turnbull-Sailor (2007, p. 1) proposes that the clause embedded under *wonder* type verbs can be detached from the matrix clause prosodically by making a pause between the matrix and the embedded clause while clauses under *discover* type verbs cannot:

(12) a. The man wondered who had broken in.
b. The man wondered: who had broken in?

(13) a. The man discovered who had broken in.
b.* The man discovered: who had broken in?

As the examples present, the interrogative form is not allowed in embedded clauses in standard English. Yet, several varieties of English allow interrogatives in embedded clauses. Trurnbull-Sailor (2007) quotes Henry (1995) and McCloskey (2006) who report dialects of Irish English

that exhibit interrogatives in wh-embedded clauses.

(14) I wonder what should we do.

(15) The baritone was asked what did he think of Mrs. Kearny's conduct. (p. 11)

The interesting point is that questions from wh-clauses are embedded just under wonder-type verbs which naturally/semantically demand questions. Similarly, some varieties of non-standard American English allow interrogative structure in wh-embedded clause (examples from Turnbulll-Sailor, 2005, p. 12):

(16) a. The district attorney asked who did the police arrest.
b.* The district attorney discovered who did the police arrest.

(17) a. Henry inquired when would their flight arrive.
b. *Henry knew when would their flight arrive.

## Free Relative Clauses in English And Persian

Free relatives in English bear a close resemblance to Wh complements in headless relative clauses, but there is one morphological difference in that "the free relative pronoun can be suffixed by *–ever*," as in the following example by Bresnan and Grimshaw (1978, p. 334):

(18) I'll buy whatever he is selling.

A free relative is a type of headless clause whose antecedent is more general and less specified than other headless relatives. It may come with ever, as in wherever, or without it, but it can keep the meaning of ever in either case. The word *ever* in interrogatives remains unattached to the interrogative element and is used as a "temporal quantifier or a rhetorical intensifier" (Brensan & Grimshaw, 1978, p. 334), as in the following examples:

(19) What EVER is the matter with him now?

Or

(20) What is EVER the matter with him now? (Bresnan & Grimshaw, 1978, p. 334, capitalizations in original)

Similar to other RCs, the English complementizer element in free relatives is often identical to those of interrogatives.

Contrary to English, Persian free relatives are *prefixed* –rather than *suffixed*, by *hær*, which means *ever*, to function differently from simple interrogatives. This prefix is followed by either a wh-word like *chi (what), ki (who), koja (where),* or a noun like *kæs (person), ja (place), væqt (time)* to denote the meaning of ever (Taghvaipour, 2005, Abdollahnejad & Marefat, 2018). It is noteworthy that the complementizer *ke* which is required in headed RCs is optional in free headless RCs (Taghvaipour, 2005). Example 21 below is a Persian equivalent for example 18:

(21) Man har chizi ra (ke) ou beforoushad mikharam.

## Markedness Differential Hypothesis

Markedness was first introduced by Trubetzkoy (1939) and Jakobson (1941) mainly to explain phonetic differences (Eckman, 1996), but it was gradually expanded to include other areas such as applied linguistics, semantics, and pragmatics (Jiang & Shao, 2006). Traditionally, markedness has been explained in two general terms: *complexity principle* and *contextual neutralization* (Yang, 2018). Complexity principle links language to thought in the sense that more complex thought is likely to demand a more complex expression. For instance, since the unreal condition in the past is conceptually more complex compared to real condition─ for being abstract, past and not real─ unreal conditional sentences are more complex than real conditional sentences, in that they demand a larger number of linguistic elements for their formation.

Contextual neutralization assumes that "if expression A can

neutralize in meaning in contexts that the almost equivalent expression B cannot, then B is more complex," and consequently more marked (Clark & Clark, 1978, p. 231). In this sense, markedness is defined as distinctions made between pairs of linguistic items based on the presence or absence of particular properties, such that the "normal" (Jiang & Shao, 2006) or "basic" (Ellis, 1994) structure/meaning is generally recognized as *unmarked*, while the "special" (Jiang & Shao, 2006) or "more specific" (Crystal, 1992) structure/meaning is defined as *marked*. Present-tense verbs and singular nouns can be named as examples of unmarked linguistic elements, while past tense verbs and plural nouns can be classified as marked elements.

Adopting a *typological* perspective towards second language acquisition, Eckman (1977) introduced the markedness differential hypothesis (MDH) to explain why some structures are more difficult for second language (SL) learners than others. He proposed that the difficult areas of a language for SL learners are those which are both different from the first language and more marked. He revised the contrastive analysis hypothesis (CAH), to "incorporate a notion of degree of difficulty," (Eckman, 1977, p. 315) asserting that those areas that are different from SL learner's L1 but are not relatively more marked will not be difficult for second language learners. Markedness, from Eckman's (1985) perspective, means *a broader functioning* in one of a pair of compared languages:

> A phenomenon or structure X in some language is relatively more marked than some other phenomenon or structure Y if cross-linguistically the presence of X in a language implies the presence of Y, but the presence of Y does not imply the presence of X. (p. 290)

An example Eckman (1977) provides is the distribution of voice contrast in pairs such as /t/and /d/. In English, the contrast appears in word-initial (like ten/den), middle (like betting/bedding), and final (like cat/cad) position. In German, however, the contrast appears between pairs in initial and middle positions but not in the final position. Eckman hypothesizes that the difficulty German learners of English experience in this area is due to more functionality of minimal pairs in English compared to German, i.e., to the markedness of voice minimal pairs in English. He asserts that the reason why some first language structures are transferred to the L2 acquisition

process but not the others is related to the degree of markedness of the structures in different languages.

In a wider scope, Universal Grammar (UG) suggests that the degree of markedness depends on compared features across languages, being part of either the *core* or the *periphery;* the more they depart from core rules in UG─ i.e., the more they approach the periphery_ the more they are marked (Ellis, 2004). In a similar vein, some typological studies reveal the presence of some features which are universal or widely occurring in most of the world languages; they are assumed to be unmarked. Quite the contrary, other features that are limited to particular languages or are present in a few languages are taken as marked features (VanPatten, 1992; White, 2003; Zobel, 1984).

Another way of viewing markedness is through the lens of psychology. Kellerman (1979) was among the first to claim that a structure or meaning is marked when other structures or meanings which communicate the same message are psychologically simpler. Arguing about the sources of L1 transfer, he proposed "prototypicality" to describe the learners' perception of their native language. Accordingly, a feature is marked (as opposed to prototypical) if it is perceived as "infrequent, irregular, semantically or structurally opaque, or in any other ways exceptional" (Yi, 2012, p. 2373). This perception decides which features from L1 are more likely to transfer to L2. In the same vein, Kasper and Fareh (1987) suggested that it is the degree of markedness of a feature in L1 which decides its transfer to L2.

The last type of markedness, which is cognitive, proposes that prototype categories through which people know novel things are unmarked, and the process of acquiring the world is from prototypical or unmarked to non-prototypical or marked. In this sense, markedness is understood as a departure from the neutral or usual form. For instance, black sheep is marked, and white sheep is unmarked since sheep are expected to be white (Yang, 2018). In this study, Echman's (1985) conceptualization of markedness, as *a broader functioning* in one of a pair of compared languages, has been adopted.

## PURPOSE OF THE STUDY

The main purpose of the present research was to recognize the reason for a

very frequent error in producing headless RC structures in embedded clauses, among Persian learners of English. This error consisted of producing headless English RCs in interrogative, rather than declarative form. Adopting a linguistic-oriented perspective, the researcher meant to discover the potential source(s) of this error through a step-by-step analysis of real data and checking them across different hypotheses to find which one has a stronger explanation power. Inspired by some hypotheses such as $L_1$ transfer, processability in interlanguage, overgeneralization within $L_2$, and markedness hypothesis, the researcher conducted data analysis. Eventually, the data was explored through MDH in terms of the diversity of functionality in English headless RCs to find if it could account for a large number of ill-formed headless RCs, produced by Persian learners. Consequently, MDH was applied as the theoretical framework to answer the following research question: What is the source of errors in English headless RCs produced by Persian learners/speakers of English?

# METHOD

## Data Collection

The data were obtained from diverse sources in two years. One major source was spontaneous utterances produced in English by Persian speakers in English classes and other academic settings like conferences and defense sessions while discussing educational issues; describing personal experiences; presenting research papers and classroom projects, MA theses, and Ph.D. dissertations, and working and discussing in small groups in the classroom. To expand this oral corpus, similar classroom activities in six private English institutes were also video or audio recorded by the researcher's friends who taught those classes. Moreover, some institutes published the video files of their English learners' presentations, performances, and free discussions on social networking platforms such as their public channels on Telegram for free; this made up another source for our data. These recordings were not made for the present study, and this resulted in producing naturally occurring data in terms of the subject of this study. There were also documentaries, movies, TV series, and personal stories played or narrated by Persian speakers in English, broadcast on Iranian TV or published on the Web, which was audited, and the relevant

parts were extracted and transcribed.

The written data were obtained through English students' term projects, reports, exam papers, proposals, theses and dissertations, emails, and messages on social networking services. The information was also recorded in terms of the contexts of the events, such as the participants, the place and purpose of the event, oral or written mode, and the like. "Such contextual information may be indispensable in data analysis" (Kasper, 2000). To avoid memory restrictions, when audio or video recording was not possible, textual and contextual information was recorded at the earliest time while or after the events. In sum, the collected data offered the researcher the chance to analyze the errors made in both oral and written forms.

Although it took the researcher two years to collect the naturally occurring data, it was worth this much time and energy since the obtained data were quite natural in that the participants' conscious attention was not drawn to the headless RCs. Other alternative techniques, which demand elicitation of data, such as (gated) sentence completion or combination tasks, listening comprehension checks, picture selection, and grammaticality judgment would require conscious recognition or production of RCs and, hence, would not lead to such natural, realistic samples of data mirroring the real performance of Persian learners of English. The collected data yielded a pool of 414 RCs, including 126 ill-formed RCs, which will be deeply analyzed in the following parts.

## Participants

Participants of this study who produced RC structures were 137 female and male Iranians consisting of 98 Persian learners of English (group one), 10 teachers of English (group two), and 29 film and TV programs producers and actors, web-page owners, and social networking platforms administrators and members (group three).

Most RC errors were recognized among group one, group three, and group two, respectively. Group one produced 279 utterances including well-formed and ill-formed RCs out of which 101 were ill-formed (36%). This made up 80.15% of all the errors collected from the three groups. Group three produced 68 RCs comprising 16 ill-formed structures (23.52%). In the pool of 126 ill-formed RCs produced by all groups, 12.69% of the errors

belonged to this group. In group two, 9 errors were recognized out of 67 RCs. This indicated that 13.43% of RCs in this group were ill-formed, and this made up 7.14% of all collected errors. Since the naturally occurring data comes from spontaneous productions of intact participants in different contexts, it was not possible to conduct proficiency tests to decide their level. However, it can tentatively be said from their university or institute levels/degrees that they were at intermediate or advanced levels of English proficiency. The collected data revealed that most RC errors

## Data Analysis

Since finding the source of error is done in an exploratory manner in the course of data analysis, series of contrastive examples in Persian and English are provided. For each structure, some examples have been fabricated by the researcher to clarify the underlying concepts. This is followed by citing examples from the research corpus. The analysis of the data revealed that while English RCs are explicitly taught both in private institutes and university grammar courses, the participants still tended to produce them ─ especially the headless ones─ in interrogative, rather than in declarative, forms. The first reason which could explain this error was that Persian learners associate wh elements with interrogative function and make question-like clauses wherever there is a wh element. To check this latter hypothesis, two other structures that were more frequent in the collected data, namely the *headed* and *free RCs,* were analyzed in terms of the application of interrogative or declarative forms.

As it was mentioned in the literature review, English headed RCs are constructed through different RC complementizers such as which, who, whom, whose, etc., while Persian uses the single complementizer *ke* for any of the English RC markers. In the following sentence, the relative marker "ke" functions for whom in English:

(22) In mardi ast ke ma dirooz dar madreseh didim.
This the man is whom we yesterday at school saw.
This is the man whom we saw at school yesterday. (Correct English)

The error made by Persian learners of English is like the following

example:

(23) * This is the man whom did we see at school yesterday.

As for free relatives, the structure in English and Persian seems to be similar, except for the English relative element being suffixed by *ever*, While Persian relative element is prefixed by *har*, as in the following examples:

(24) I will buy what(ever) you sell.

(25) Man khaham kharid (*har*)che (ke) to beforushi.

The ill-formed English free RC produced by Persian learners is likely to be like the following example:

(26) * I will buy whatever do you sell.

When it comes to headless RCs, Persian and English structures seem similar in that they use various RC elements, as in the following examples:

(27) I don't know whom she met at school.

(28) (I) nemidanam che kasi ra dar madreseh molaqat kard.

The ill-formed English headless RC produced by Persian learners is likely to be like this:

(29) * I don't know whom did she meet at school.

As the preceding examples reveal, Persian learners tend to use interrogative forms in subordinate clauses of both headed, free and headless relatives. More scrutiny into our data revealed that they tend to produce interrogative clauses in headless relatives more than headed and free RCs. This has been displayed in Table 1 which reports the total number of the three RC types, obtained for this research, and the percentage of all well-formed and ill-formed structures. Headless RCs that are not *free* were named *ordinary* RCs for more distinction and precision. Table 1 shows that within all instances of ordinary headless RCs, quite a large number of statements, namely, 85 out of 151 (56.29%), were ill-formed. Similarly,

37.20% of the collected free RCs and 11.36% of collected headed RCs were ill-formed. This indicates that ordinary headless RCs have been the most difficult structures for the participants. Free and headed RCs ranked second and third respectively, in terms of the percentage of errors they triggered. It was also found that in the pool of all ill-formed RC types, headless relatives recorded a drastically high percentage (67.46), compared to other RCs.

**Table 1:** Percentages of well-formed and ill-formed RC types

| RC types | Number | All instances of an RC type | Percentage within an RC Type | Percentage in the pool of ill-formed RCs | Total percentage |
|---|---|---|---|---|---|
| **Ill-formed ordinary headless RCs** | 85 | 151 | 56.29 | 67.46 | 20.53 |
| **Ill-formed headed RCs** | 25 | 220 | 11.36 | 19.84 | 6.03 |
| **Ill-formed free RCs** | 16 | 43 | 37.20 | 12.69 | 3.86 |
| **Total errors** | 126 | 414 | - | 100 | 30.43 |
| **Well-formed RCs** | 288 | 414 | - | _ | 69.56 |
| **Total headed/headless RCs** | 414 | 414 | - | _ | 100 |

To explain the potential reasons for these differences, the structures of the three RCs were analyzed concerning their contrastive markedness, as exemplified in Table 2.

**Table 2:** RC markers in Persian and English

| RC types | Persian | English |
|---|---|---|
| **Headless RCs** | Kei, koja, kodam, ki (subject), ki (object if preceded or followed by particles), ki (possession), chetor (chgouneh), che qadr, chand ta, che moddat, chand vaqt yek bar, chand saleh… | When, where, which, who, whom, whose, how, how much, how many, how long, how often, how old… |
| **Headed RCs** | NP + ke | NP + RC markers (When, where, which, who, whom, whose, why, that) |
| **Free RCs** | Har vaqt, har ja, har kodam/har kas (subject, object, possessor roles marked by particles), har tor | When(ever), where(ever), which(ever), whoever, whom(ever), how(ever) |

According to Table 2, had it been for the markedness hypothesis, English headed relative clauses would be more difficult for Persian learners because in Persian, there is one single "ke" as the sole RC marker, but in English, there are a variety of RC markers. However, this structure is not as difficult for Persian learners as headless relatives, which are even less marked according to Table 2. Therefore, simple markedness cannot explain the reason for this trouble.

More scrutiny, uncovers other layers of markedness, as displayed in Table 3. According to this table, another facet of markedness is the difference between Persian and English RCs in terms of the interrogative or declarative structure of embedded RCs, i.e., the mood of a clause. It suggests that English and Persian headed and free RCs are similar in keeping the declarative mood. Headless RCs, however, are not the same across the two languages; English keeps using the declarative form while Persian applies an interrogative form. This latter type of markedness is more likely to account for the ill-formed utterances than markedness in terms of the difference between the *number* of words used for a particular function in two languages, as it was the case in Table 2.

**Table 3:** Mood in RCs across Persian and English

| RC type | Mood in Persian | Mood in English |
|---|---|---|
| **Headless RCs** | Interrogative | Declarative |
| **Headed RCs** | Declarative | Declarative |
| **Free RCs** | Declarative | Declarative |

Keeping the trace of how mood functions in English headless RCS, the researcher recognized two clause types were under embedded headless relatives, including wh element functioning as *subject (Type 1 with two subcategories)*, and *object (Type 2)*, which are explained in the following sections.

### *Type 1 Headless RC Structure*

In English headless relatives, RC elements may function as subject (e.g., who) or part of a subject (e.g., whose). In the subject role, as with who/what/which/whose/how much/how many/how old, etc., English keeps the same structure in both interrogative and declarative functions. This structure is called *Type 1* in the present research, as in the following

examples:

(30) a. Who borrowed the book? (independent interrogative clause)

b. I don't know who borrowed the book. (headless relative clause)

(31) a. What was borrowed? (independent interrogative clause)

b. I don't know what was borrowed. (headless relative clause)

(32) a. Which book was borrowed? (independent interrogative clause)

b. I don't know which book was borrowed. (headless relative clause)

(33) a. Whose book was borrowed? (independent interrogative clause)

b. I don't know whose book was borrowed. (headless relative clause)

As the preceding examples show, identical structures are used in English independent interrogative and headless relative clauses when the RC element takes the subject position. This structure is similar to Persian headless RCs, where the interrogative structure is maintained, as in the following examples:

(34) a. Ki Ketab ra amanat gereft? (independent interrogative clause)

Who the book borrowed? (Who borrowed the book?)

b. Nemidanam ki Ketab ra amanat gereft. (headless relative clause)

I don't know who the book borrowed. (I don't know who borrowed the book.)

(35) a. Kodam ketab amanat gerefteh shod? (independent interrogative clause)
Which book borrowed was? (Which book was borrowed?)
b. Nemidanam kodam ketab amanat gerefteh shod. (headless relative clause)
I don't know which book borrowed was. (I don't know which book was borrowed.)

More speculations revealed that within Type 1 structures, still two more types of headless RCs can be recognized in English, which contributed to markedness and could account for some errors. They contained copula verbs as their main verbs, and were called Type 1-1 and 1-2 structures in this research:

***Type 1-1. Copula verb followed by an adjective/adverb phrase:*** In English, if the copula verb is followed by an adjective or an adverb phrase (usually adverb of time or place), the interrogative form is kept in headless RC, while functioning as a declarative clause. The following examples including adjectives can clarify the point:

(36) a. Which part of the exam was more difficult? (copula verb + adj)
b. I am not sure which part of the exam was more difficult. (Interrogative form maintained.)

(37) a. What is here in the classroom? (copula + adverb of place)
b. I don't know what is here in the classroom. (Interrogative form maintained.)

Similarly in Persian, the interrogative form is kept in headless RCs, as in the following examples which are the counterparts of the preceding English examples, respectively:

(38) a. Kodam qesmat e emtehan sakht tar boud? (wh element + adj. + copula)

b. Motma'en nistam Kodam qesmat e emtehan sakht tar boud. (Interrogative form maintained.)

(39) a. Che chizi inja dar kelas ast? (wh element + adverb of place + copula)

b. Nemidanam che chizi inja dar kelas ast. (Interrogative form maintained.)

***Type 1-2. Copula verb followed by a noun phrase:*** If an English interrogative clause includes a copula verb which is followed by a noun phrase, it changes to a declarative form when embedded in headless relatives. Examples are as follow:

(40) a. What is the problem? (copula+n.)
b. I don't know what the problem is. (Interrogative changed to declarative.)

In Persian, However, the interrogative form is kept in any of the above instances:

(41) a. Moshkel che ast (chist)? (noun + wh element + copula)
b. Nemidanam moshkel che ast (chist). (noun + wh element + copula)

Sample errors from the research corpus are as follows. All names used in this research are pseudonyms.

(42) …we use trustworthiness to describe *how believable is the research*… (Saman, M.A. student of TEFL, thesis)

(43) Do you know *what is code switching*? (Samira, M.A. student of TEFL presenting a lecture in class)

It can be hypothesized that since Type 1 and 1-1 are similar in

English and Persian, in that the interrogative forms are kept in headless RCs, they are less marked for Persian learners. This is the case in Type 1-1 structure with other RC elements─ like who, whose, which, how many, how much─ in subject position with copula verbs, when followed by adjective/adverb phrases. Thus, one can propose that wh-initial positioned clauses including adjective/adverb phrases are easier for Persian learners. This was verified by our corpus in which most well-formed headless RCs fell under Type 1 and 1-1 category, while ill-formed RCs were found under Type 1-2 category as well as to Type 2 category which is described in the following part.

***Type 2 Headless RC Structure***

In syntactic roles other than Type 1, English changes the interrogative to declarative form in headless RCs. They are called Type 2 in the present research, as in the following examples:

(44) a. When did she borrow the book? (independent interrogative clause)

b. I don't know when she borrowed the book. (headless relative clause)

(45) a. Whose book did she borrow? (independent interrogative clause)

b. I don't know whose book she borrowed. (headless relative clause)

In Persian, on the contrary, the interrogative form is kept in both type 1 and type 2 forms, as in the following examples:

(46) a. Kei ou ketab ra amanat gereft? (independent interrogative clause)

When she the book borrowed? (When did she borrow the book?)

b. Nemidanam Kei ou ketab ra amanat gereft. (headless relative clause)

I don't know when she the book borrowed. (I don't know

when she borrowed the book.)

(47) a. Ketab e che kasi ra ou amanat gereft?
Book whose she borrowed? (Whose book did she borrow?)
b. *Nemidanam Ketab e che kasi ra ou amanat gereft.*
I don't know the book whose she borrowed. (I don't know whose book she borrowed.)

Persian learners of English tended to produce type 1 English headless RCs correctly, while type 2 English headless RCs made up frequent errors in the corpus of the present research. What follows is a sample of real data from this research corpus:

(48) …when the process starts, it is not evident where does it end to… (Mona, M.A. student of TEFL, final exam paper of applied linguistics)

(49) The teacher should not dictate students what should they do…. (Azin, M.A. student of TEFL presenting a lecture in class)

Interestingly, 93.02 percent of all errors made by Persian learners of English fell under Type 2 and Type 1-2 headless RCs. These systematic errors can be attributed to the markedness differential hypothesis, not in the sense that the forms are different across the two languages, but because of the wider functionality of interrogative and declarative forms in English headless RCs, compared to Persian. Borrowing Eckman's (1977) terms, one can state that English headless RCs are marked for Persian learners of English since the presence of Type 1, 2, 1-1, and 1-2 headless RCs in English can imply the presence of Type 1 and Type 1-1 as well, but the verse is not true. Since Persian headless RCs are of Type 1 and Type 1-1 structure, they can hardly imply the presence of Type 2 and Type 1-2. Accordingly, it can be hypothesized that the difficulty that Persian learners experience is due to the broader functionality of headless RCs in English, compared to Persian. Here is an excerpt from this research corpus including both Type 2 and Type 1-2 error:

(50) We want to find out what is their attitude toward spirituality (error in Type 1-2) and how do they define it (error in Type 2). (Morvarid, M.A. student of TEFL, term project)

Another facet of complexity in English is that in the process of change from interrogative to declarative structure, headless RCs adjust their tense to that of the main clause, as in the following example:

(51) What is difficult? (present tense)

(52) I didn't know what was difficult. (past tense in RC, following the main clause)

In Persian, however, since speakers tend to keep the interrogative structure of headless RCs, naturally their tense will not change to follow the main clause tense, as in the following examples which are the Persian equivalents of the preceding pair of examples:

(53) Chi sakht ast? (present tense)

(54) Nemidanestam chi sakht ast. (present tense in RC, not following the past tense in the main clause)

The change of tense in English headless RCs, as opposed to Persian headless RCs, can be another source of trouble for Persian learners of English. However, as it was discussed in argument types 1 to 3, since Persian RCs maintain their interrogative form when in embedded positions, it is taken for granted that the tense of embedded interrogative RCs does not change either. In other words, although the difference between English and Persian in terms of their RC tense may add to the interlinguistic complexity of the structure, still tense difference falls under the same issue of interrogative versus declarative functionality markedness, hence, not discussed in specific.

### *Analysis of Wonder Type Versus Discover Type Matrix Verbs*

Within headless RCs, the errors were analyzed to find out if there is a significant difference between the frequency of interrogatives embedded under any of the *wonder type* or *discover type* verbs. As Table 4 displays, the distribution of errors between these two verb types was very similar, and the difference was not significant ($X^2$ (1, N= 85) = 0, P>.05).

**Table 4:** Percentage of errors in wonder type and discover type index verbs

| RC Type | Number of Errors | Percentage of Errors |
|---|---|---|
| **Wonder Type** | 47 | 55.29 |
| **Discover Type** | 38 | 44.70 |
| **Total** | 85 | 100 |

As the difference between the errors that occurred under any of wonder or discover type verbs is not significant, it was decided that the errors could not be contributed to the index verb type.

## RESULTS

Our data revealed that Persian learners of English tended to produce ill-formed, interrogative clauses in headless relatives significantly more than headed and free RCs. If it were for the simple markedness hypothesis, English headed relative clauses would be more difficult for Persian learners because in Persian there is one single "ke" as the sole RC marker, but in English there are a variety of RC markers. However, this structure was not as difficult for Persian learners as headless relatives. Therefore, simple markedness could hardly explain the reason for this trouble.

More scrutiny into the data showed that English and Persian headed and free RCs are similar in keeping the declarative mood. Headless RCs, however, are not similar across the two languages in that English keeps using the declarative form while Persian applies an interrogative one. More speculation of mood in English and Persian headless RCs led to the recognition of two clause types in English: wh element functioning as *subject (Type 1 with two subcategories)*, and as *object (Type 2)*. Under Type 1, i.e., when the RC element takes the subject position, identical structures are used in English independent interrogative and headless relative clauses.

This structure is similar to Persian headless RCs, where the interrogative structure is maintained.

Within Type 1 structure in English, still, two more types of headless RCs could be recognized: Type 1-1 and 1-2. The former included a copula verb which was followed by an adjective or an adverb phrase (usually adverb of time or place), and – similar to Persian – the interrogative form was kept in headless RC. In the latter, the copula verb was followed by a noun phrase, and the declarative form was used in embedded headless relatives, unlike its Persian counterpart. Our data analysis revealed that producing English Type 1-1 structure is much easier for Persian learners of English. Syntactic roles other than Type 1 were called Type 2, where English changed the interrogative to declarative form in headless RCs. This latter type is quite contrary to Persian, and our data suggested several errors under this category.

In sum, Persian learners of English tended to produce type 1 and 1-1 English headless RCs correctly, while type 2 and 1-2 English headless RCs made up frequent errors in the corpus of the present research. It is noteworthy that 93.02 percent of all errors made by Persian learners of English fell under Type 2 and Type 1-2 headless RCs, and there were a limited number of errors in other RC types. These systematic errors can be attributed to the markedness differential hypothesis, not in the sense that the forms are different across the two languages, but because of the wider functionality of interrogative and declarative forms in English headless RCs, compared to Persian. Borrowing Eckman's (1977) terms, one can observe that English headless RCs are marked for Persian learners of English since the presence of Type 1, 2, 1-1 and 1-2 headless RCs in English can imply the presence of Type 1 and Type 1-1 as well, but the verse is not true. Since Persian headless RCs are of Type 1 and Type 1-1 structure, they can hardly imply the presence of Type 2 and Type 1-2.

Accordingly, it can be hypothesized that the difficulty that Persian learners experience is due to the broader functionality of headless RCs in English, compared to Persian. In other words, the markedness hypothesis can account for this error, not in terms of the number of different structures across the two languages, since the number was even larger in English headed RCs compared to Persian, but they were not as difficult as English headless RCs for the participants. Rather, the markedness differential

hypothesis can account for this error, for the wider functionality of headless RC in English in comparison to Persian. Table 5 summarizes the findings related to the mood of headless RCs in English and Persian:

**Table 5:** Mood in headless RC types in English and Persian

| Headless RC Type | English | Persian |
|---|---|---|
| **Type 1** | Interrogative | Interrogative |
| **Type 1-1** | Interrogative | Interrogative |
| **Type 1-2** | Declarative | Interrogative |
| **Type 2** | Declarative | Interrogative |

He proposed that the difficult areas of a language for SL learners are those which are both different from the first language and more marked. He revised the contrastive analysis hypothesis (CAH), to "incorporate a notion of degree of difficulty," (Eckman, 1977, p. 315) asserting that those areas that are different from SL learner's L1 but are not relatively more marked will not be difficult for second language learners. Markedness, from Eckman's (1985) perspective, means *a broader functioning* in one of a pair of compared languages:

## DISCUSSION

The results of this study corroborate that the markedness differential hypothesis, as modified by Eckman (1985), could explain the source of the investigated error with more certainty, compared to other potential hypotheses. It supported the argument that markedness is a matter of degrees, and the mere presence of difference among languages does not necessarily lead to errors (Eckman, 1977). Accordingly, it was proved through real data that English headed RCs with a larger number of elements as compared to their Persian counterpart, i.e., *ke*, were even easier for Persian learners, compared to headless RCs. It was also revealed that markedness in terms of the broader functionality of English headless RCs can account for this error. Thus, it can be argued through MDH that the wider functionality of English RC structures makes them more complex compared to their Persian counterparts, and hence more difficult to learn and produce. This wide functionality presents itself in a variety of moods, i.e.,

interrogative versus declarative structures, within the single structure of English headless RCs.

Error analysts believe that errors are worth deliberate studies since they provide clues to the nature and system of second language acquisition and development (Brown, 2007; Khansir, 2012). The findings of the present research verified this claim in that the produced errors follow a system of mood, which can explain how interrogative and declarative clauses are selected and used by Persian learners of English. The very finding that Persian learners hardly produce ill-formed Type 1 and Type 1-1 RC structures in English corroborates the presence of an SLA system, which is by no means haphazard.

Although no research has been conducted particularly on headless RCs learning problems among Persian learners of English, this study can support several investigations that have declared the complexity of English RC structures, uncovering various facets of difficulty experienced by ESL/EFL learners (e.g., Eckman, Bell, & Nelson, 1988; Gennari & McDonald, 2007; Haghbin & Asadi, 2015; Rahmany, Marefat & Kidd, 2013; Saric, 2016; Spinner & Jung, 2018; Turnbull-Sailor, 2000). This, in particular, underlines the need for more contrastive studies on RCs, to disclose other aspects of their structure, learning problems, and pedagogic solutions.

Some researchers (Eckman, 1985; Robinson, 1998) suggest that marked RCs require explicit teaching and teachers' focal attention, while unmarked RCs can be acquired even without instruction. Regardless of the latter part of this claim, the present research emphasizes the need to invest more in techniques of teaching this structure to Persian learners. Moreover, while the order of presentation is suggested to be from less marked to more marked forms, due to processability and learnability concerns (Mackey, 1985), marked forms need to be taught with more elaboration, precision, and practice. Moreover, it has been proposed by MDH that the "direction of generalization of learning is from more marked structures to less marked structures," not the verse (Eckman, 1985; Eckman, Bell & Nelson, 1988). The present research verifies this claim in that Persian learners of English tended to generalize the application of an interrogative (marked) form to declarative (unmarked) form.

## CONCLUSION AND IMPLICATIONS

Adopting MDH as its theoretical framework, this research investigated the potential sources of frequent errors in producing English headless RCs in interrogative rather than declarative form among Persian learners of English. It recognized systematic errors in two main types (headless RC in subject or object position) and two subsidiary types (headless RC in subject position including copula verb) of English headless RCs. Through the analysis of naturally occurring data and their subsequent heuristic arguments, the researcher hypothesized that the *diversity of mood functionality* in English, as compared to Persian, could account for this problem. In addition to the new findings, this study has implications for interlanguage error analysis and English pedagogy.

The research findings are significant in interlanguage studies, suggesting that many of these error sources have not been examined thoroughly, and some not at all, leaving gaps for future studies. Some such studies can include the investigation of other errors within RC structures such as those related to adjustments of pronouns and clause tenses when the interrogative clauses change to become declarative ones in Type 1-2 and 2. Moreover, since Persian is a wh-in-situ language in default (Dabir-Moghaddam, 1999; Miremadi, 1997), and English a wh-fronted one (Shiamizadeh, Caspers & Schiller, 2018), further studies can investigate how this may account for cross-lingual RC errors. This problem can also be examined among Persian speakers from a variety of Iranian local languages like Kurdish, Turkish, Baluchi to learn about the contribution of other L1s to this problem. This can be comparatively studied across oral and written data, investigating the potential differences in error types.

Research findings are also significant in English pedagogy. These ill-formed structures are so frequent, among Persian learners/users of English, although they are taught in grammar courses of public and private English centers, and the participants who were at rather high levels of English proficiency are assumed to have learned them before. Therefore, alternative teaching techniques and more emphasis on elaborate teaching of these structures seem to be an essential need, and a crucial research area in teaching English to Persian learners. This also highlights the significance of conscious attention and practice of this form on the part of learners, planned

and facilitated by syllabus designers, materials developers, and teachers. Similar to other pedagogic studies that suggest the explicit, elaborate teaching of troublesome language components and skills (e.g., Mohseni & Samadian, 2019; Shahidipour & Tahririan, 2018), this research underscores explicit teaching of headless RCs in the Persian EFL educational settings.

Moreover, since the present research was conducted with 137 participants in two years through an uncontrolled, spontaneous collection of naturally-occurring data, the number of produced utterances was limited. Subsequent studies with a larger corpus and a variety of data collection techniques can enhance the validity of the hypothesis and the generalizability of the findings. In this study, data were collected from high intermediate and advanced Persian learners/speakers of English. The researcher's experience indicates that the investigated errors are even more frequent among English learners at lower proficiency levels, and this underlines the need to rethink the techniques of teaching and practicing RCs in academic settings. Further studies can examine this problem among Persian learners/users of English with lower proficiency levels, or across different levels of English proficiency.

In addition to suggestions which were due about the topic of this paper, this research invites linguists and English pedagogues and researchers to draw fresh attention to the role of L1 in explaining learners' SL/FL errors, especially since recent years have witnessed a decline of attention to contrastive studies across languages. Recognizing the sources of errors would hopefully lead to creative ways to teach complex structures and solve the related learning problems. To shed light on the structure and function of RCs in English and Persian, this research calls for the linguistic analysis of pedagogical problems. It suggests closer cooperation between linguistics and TEFL, to recognize and solve problems, which, otherwise, could hardly be addressed.

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No potential conflict of interest was reported by the authors.

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