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On the comprehension of metonymical expressions by Arabic-speaking EFL learners: A cognitive linguistic approach

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Abstract

This study aims to examine the comprehension of L2 metonymies by Arabic-speaking EFL learners and to investigate the extent to which the participants' L1 conceptual and linguistic knowledge of metonymies can affect the processing of L2 metonymies. A comprehension task was administered to elicit data, and the results showed that the participants encountered various degrees of difficulty comprehending different types of metonymies. Though metonymy has been regarded as a universal cognitive device, numerous factors can collaborate to hinder its comprehension process. The researchers argued that the non-conventionality of conceptual metonymies, the non-compositional nature of metonymy processing, the lack of direct exposure to metonymy as a cognitive referential device in L2, and the differences between L1 and L2 possibly contributed to the participants' faulty answers on the administered test. The study concluded with a set of pedagogical implications and recommendations for further research studies.

Key words

linguistics, cognitive semantics, second-language acquisition, metonymy, Arabic-speaking EFL learners

1. Introduction

Since the publication of Lakoff and Johnson's seminal book on conceptual metaphor, *Metaphors We Live By* (1980), scholars from disciplines as diverse as philosophy, sociology, linguistics, literature, translation and even business, tourism, politics and psychology, have shown progressive interest in metaphor and metonymy. As a result, a new and coherent area of scholarship related to the linguistic forms of metaphor and referred to as "metaphor studies," has emerged (Herrmann, 2013, p. 20; Denroche, 2014, p. 31). Yet, the importance of metonymy, which is viewed as intricately related to and yet different from metaphor (Radden, 2003; Al-Sharafi, 2004; Barnden, 2010) has been underestimated (Barcelona, 2002, p. 215;

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Radden, 2005, p. 11; Rundblad and Annaz, 2010). Rundblad and Annaz (2010, p. 547) argue that the persistent focus on metaphor at the expense of metonymy among other tropes results in “an incomplete and potentially skewed picture of figurative language comprehension and production”. Though scholarship on metonymy has started to grow in the last two decades, mainly because of its connectedness to metaphor (Denroche, 2014, p. 31), cross-linguistic research on metonymy in the EFL context is still limited, especially if compared to similar research on metaphor (Rundblad and Annaz, 2010; Littlemore, May and Arizono, 2016).

The need to address the issue of metonymy cross-linguistically and within the context of language teaching and learning becomes even more pressing if we consider the following three well-established claims: first, that, as initially proposed by Lakoff and Johnson (1980), metaphors, and by extension metonymies, are central to the way people think, act and understand the world around them. Second, that metonymy is more ubiquitous in language and thinking than metaphor (Dirven and Pörings, 2002; Panther, Thornburg and Barcelona, 2009; Tóth, 2015), and, therefore, is more likely to be encountered by language learners. Third, that figurative language, especially metaphor and metonymy as the most important, is probably the most challenging area in language learning (Leung and Crisp, 2011, p. 44; Krawczyk, 2017, p. 20; Chen, 2019, p. 50). Chen and Lai (2012, p. 246) and Littlemore (2015, p. 189), convincingly argue that an explicit focus on metonymy and metaphor in language classrooms are likely to improve learners’ comprehension and interpretation of metaphorical and metonymical expressions. Though some studies have drawn attention to learning metonymies in L2 contexts (Panther and Thornburg, 2003; Littlemore, May and Arizono, 2016; Slabakova, Cabrelli Amaro and Kang, 2016; among others), studies, to the best of our knowledge, that have solely tackled the acquisition of metonymies by Arabic-speaking EFL learners are scarce (see Zibin, 2016a; 2016b).

The focus on Arabic-speaking EFL learners in particular is driven by the idea that there are both similarities and differences between English and Arabic with regard to conceptual and linguistic metonymies, especially given the fact that English and Arabic are typologically different (i.e. English is Germanic while Arabic is Semitic). Thus, choosing Arabic as an L1 in the current study would enable the researchers to investigate whether conceptual and linguistic knowledge of metonymies in L1 has an impact on conceptual and linguistic knowledge of L2 (cf. Charteris-Black, 2002; Zibin, 2016a; 2016b). Accordingly, this study aims to examine the comprehension of metonymical expressions by Arabic-speaking EFL learners and to explore whether the learners’ L1 conceptual and linguistic knowledge has an impact on the way they perceive metonymies in English. By extension, this study also sheds light on the universality of metonymy as a conceptual device (see Lakoff and Johnson, 1980) and investigates whether the production of certain metonymical expressions is governed by some conceptual, cultural and linguistic factors.

2. Literature review

2.1 What is metonymy?

Metonymy has often been defined in terms of its similarities to and differences from metaphor. This is logically acceptable because, in the words of Chen and Lai (2012, p. 235), “the interactions of metonymy and metaphor are so intricate that the boundary forms not a dichotomy but a continuum”. In fact, the two tropes are so closely intertwined that Goossens (1990) coined the term “metaphonymy” in order to highlight the interplay between them.

Following the publication of *Metaphors We Live By* (1980), there became an almost unanimous agreement on the following points: first, that metaphor and metonymy are not merely linguistic figures of speech but part of the human conceptual system which are grounded in human thinking and experience. Second, that metaphor and metonymy involve different conceptual mapping processes: metaphoric mapping takes place across distinct conceptual domains while metonymic mapping is intra-domain. That is, the conceptual mappings between two entities in metonymy occur within one conceptual domain. These two important issues are included in the widely accepted definition of metonymy provided by Kövecses (2002, p. 145): “Metonymy is a cognitive process in which one conceptual entity, the vehicle, provides mental access to another conceptual entity, the target, within the same domain, or idealized cognitive model (ICM)”.

Radden and Kövecses (1999, p. 20) explain that ICM includes people's encyclopedic knowledge of a certain domain as well as the cultural models they are part of. Many types of ICMs have been identified, e.g. physical entities (in which a part of an entity represents the whole or vice versa), constitution (in which the material that a particular object is made of is used to refer to the object itself), events (in which a part of an event refers to the event as a whole), among others (Radden and Kövecses, 1999, p. 30).

Littlemore (2015, p. 21) argues that using real-world data, e.g. corpus data, enables the researcher to uncover particular characteristics of metonymies, e.g. that the meaning of the same metonymy can vary across different contexts and languages. For instance, Littlemore (2015, p. 28) provides the following metonymical expressions reflecting an action conceptual metonymy discussed by Radden and Kövecses (1999), i.e. MANNER FOR ACTION:

- (1) I rose to my feet and *tiptoed* through the hall.
- (2) A man from a different company *sprang out* of his office.

(Littlemore, 2015, p. 28)

According to Littlemore (2015, p. 28), the metonymies in (1-2) are common in English but almost non-existent in other languages. This could be attributed to the fact that different languages encode information pertaining to the manner of movement differently. Littlemore (2015, p. 28) refers to Talmy's (1985) classification of languages based on the way in which their speakers conceive of movement. In particular, "satellite-framed" languages, e.g. English, are centred on the manner, which is conveyed within the verb. However, the direction of movement is conveyed through a preposition, e.g. *creep up*. Conversely, in "verb-framed" languages, e.g. Spanish, the verb only conveys the direction, while a non-finite verb is used to express the manner of movement, e.g. "*Sali corriendo a la calle*" ('I exited running into the street') (Littlemore, 2015, p. 28). This suggests that Spanish centres on the direction of movement rather than on the manner. Such comparison between these two languages proposes that, metonymies are: (1) conceptual; (2) conceptually connected "contiguous" elements; and (3) grounded in human experience (Barcelona, 2011, pp. 48-49).

One of the main concepts that have been discussed pertaining to metaphors and metonymies is whether they have been conventionalized. When the figurative meaning of a particular concept is used repeatedly, people become acquainted with the intended meaning of the metaphor or metonymy, and thus, they become conventional (Boeynaems et al., 2017, p. 2862). Simply put, conventional metaphors/metonymies are those that are widespread and known (Pragglejaz Group, 2007, p. 30). According to Velasco (2000, p. 52), metonymies can be conventionalized on two levels, namely: the first one pertains to the conceptual mapping process, and the second one pertains to the metonymical/linguistic realizations of these conceptual mappings. Hence, based on these two levels of conventionalization, we can have three patterns of cross-linguistic analysis if we compare two languages: (1) both languages share the same conceptual mappings and all the metonymical/linguistic realizations; (2) the conceptual mappings exist in one language but not in the other, which means that they do not share any metonymical/linguistic realizations; and (3) both languages share the conceptual mappings but some of the metonymical/linguistic realizations do not appear in one language (Velasco, 2000, p. 52). The notion of conventionalization is discussed in relation to the results in section 5.

Several types of metonymy were discussed in the relevant literature; the following section offers a summary of these types.

2.2 Typology of metonymy

Traditional typologies of metonymy vary in the number of categories as well as in the degree of generality (Warren, 2006, p. 41). Some of these categories are quite general, (e.g. PART FOR WHOLE), while others are very specific (GARMENT FOR PERSON). Warren views this absence of a finite list of conceptual metonyms as probably an indication that they are not intended as part of a classification. A quick survey of a number of the ways metonymy was categorized by various scholars helps to explain why a complete inventory of metonymy types is still non-existent.

Radden and Kövesces (1999, p. 8) suggest that metonymy-producing relationships may be subsumed under the dichotomy 1) a whole ICM and its part(s) and 2) parts of an ICM. Within this type of relationship, the researchers identify 46 types of metonyms pointing out that this inventory is not exhaustive. Al Sharafi (2004) proposes the existence of a metaphor-metonymy continuum and, using a semiotic approach, identifies nine types of metonyms based on Radden and Kövesces's (1999) inventory. Ruiz de Mendoza (2000), on the other hand, distinguishes between three basic types: target-in-source; source-in-target; and part-for-part. Panther and Thornburg (2005) propose a classification of metonyms into five types: three pragmatic metonyms (referential, predicational and illocutionary) (p. 37) and two coerced (constructional and lexical) (pp. 47-49). Warren (2006, p. 5) categorizes metonyms as referential and propositional based on their linguistic features and truth-conditionality. She proposes that referential metonymy relates one entity with another while propositional metonymy relates two propositions. Peirsman and Geeraerts (2006, p. 277) use an inventory of 23 metonymic patterns (i.e. conceptual metonymies), which they stress was not meant to be a comprehensive classification list but only an empirical basis for their discussion. They classify the conceptual metonymies prototypically based on the different types of contiguity along three dimensions: strength of contact, boundedness and domain. The metonymy and metaphor index in Panther, Thornburg and Barcelona (2009, pp. 403-405) has more than 100 types. Again, this is not proposed as an exhaustive list, but only an alphabetical arrangement of the conceptual metonyms and metaphors discussed in the volume.

As for the universality of metonymies, traditional grammar approaches place contiguity as the most essential element in the definition of metonymy relations in the physical world, whereas cognitive approaches place them at the conceptual level and more specifically within ICMs (Radden and Kövesces, 1999). This view is the most feasible description of metonymy as it considers not only the encyclopaedic knowledge of individuals, but also their knowledge of culture (Slabakova, Cabrelli Amaro and Kang, 2016). Within ICM, Radden and Kövesces (1999, p. 22) examine the types of ICMs that allow metonymic referential transfer and conclude that stereotypicality gives rise to the conceptualization of metonymies. In accordance with this view, Panther and Thornburg (2003) suggest that understanding and producing metonymies is based on some conceptual metonymies, e.g. PART-WHOLE, CAUSE-EFFECT, PERSON-ROLE, etc. Such conceptual metonymies are reflected not only in language (linguistic metonymies), but also in other semiotic systems which may allude to their near-universality. However, that does not mean that linguistic differences between languages concerning metonymy are non-existent. On the contrary, some languages, as discussed in section 2.1, may share the same conceptual metonymies but yield different linguistic ones due to their different linguistic structures (see Velasco, 2000). Other languages may have certain conceptual metonymies but not others. For instance, in their analysis of the conceptualization of FEAR through metonymy and metaphor in Jordanian Arabic, Zibin and Hamdan (2019, p. 255) maintain that the metonymic schema METAPHORICAL CHANGE IN HAIR COLOR STANDS FOR FEAR does not make an appearance in English, yet metonymic schema such as LAPSSES IN HEART BEAT STANDS FOR FEAR is realized linguistically in both English and Jordanian Arabic with some language differences.

Having discussed metonymy and its types, the following section reviews some empirical studies on processing metonymies in L1 and L2 contexts.

2.3 Previous studies on metonymy processing in L1 and L2 contexts

As pointed out earlier, the prevalence of metonymical expressions in spoken and written discourses, on the one hand, and the challenges these expressions pose to EFL language learners and teachers, on the other, place considerable importance on the investigation of metonymy cross-linguistically and in the context of foreign-language learning and teaching. Though an increasing number of researchers have started to pay attention to this important area, these studies are still limited (Littlemore, 2015), and only a limited number of them, to the best of our knowledge, have investigated the acquisition of metonymy (comprehension in particular) in relation to Arabic-speaking learners of English (see Zibin, 2016a; 2016b). An investigation of this type can shed light on the similarities and differences regarding metonymy in various languages. This in turn may help cognitive linguists understand this cognitive device and the way it cross-linguistically functions. It may also help L1 and L2 teachers find more effective methods to teach this device.

Among the growing body of research studies aiming to scrutinize the pervasiveness of metaphor and metonymy in academic discourse are those conducted by Kreuzthale and Schulz (2012) in medicine, Koteyko and Atasanova (2016) in science and technology and Jimenez-Munoz and Martinez (2017) in business, geography and chemistry. These studies, among many others, reported the presence of both metaphor and metonymy in the examined texts, which may suggest that different fields make use of these cognitive devices to get some abstract ideas and concepts across to their readers. This encourages the inclusion of instruction and training on the comprehension of metonymical and metaphorical expressions in English for Specific Purposes (ESP) and EFL classes. Given their importance in everyday communication, numerous studies have investigated the acquisition of metonymies in both L1 and L2/EFL contexts.

Recently, Rundblad and Annaz (2010) conducted a study using a developmental approach to compare metaphor- and metonym-comprehension with conventional figurative meanings. Forty-five typically developing individuals from age 5 to 37 participated in the study which used a verbal comprehension task incorporating 20 short picture-stories. The results show that comprehension of metaphor and metonymy improved with chronological and mental age. It was also found that participants, across all ages, consistently showed around 21% better performance on metonymy than on metaphor probably because, cognitively, metonymy is more basic than metaphor. This result was supported by Zibin and Altakhaineh (2018) who investigated metaphorical and/or metonymical compounds in L1 and the effect of their conventionality and semantic transparency on their processing by L1 speakers. The answers were elicited from 12 native speaker informants who were asked to provide the meanings of 35 metaphorical and/or metonymical compounds in L1 out of context. The respondents' answers showed that the presence of metonymy in the compound facilitated its processing due to the existence of an inherent link between the entities which provided cognitive access to that link between them.

On the other hand, Chen and Lai (2011) explored the ability of EFL Taiwanese learners to identify expressions which include figurative language. Twenty-eight participants were asked to rate forty sentences based on whether they found them figurative. The results showed that the topics of the sentences significantly affected the responses of the participants. In addition, although the learners were generally capable of distinguishing literal expressions from figurative ones, they were more certain when judging metaphorical expressions than metonymical ones. This result is not in agreement with the results of Rundblad and Annaz (2010) and Zibin and Altakhaineh (2018) as far as the processing of metaphor and metonymy is concerned, which may suggest that the processing of metonymies still requires further investigation. Chen and Lai recommend that ideas of conceptual metonymy and metaphor be integrated in EFL course material in order to raise learners' awareness of figurative language. The results of Rundblad and Annaz (2010) and Zibin and Altakhaineh (2018) who discussed metonymy processing in L1 and Chen and Lai (2011) who did so but in L2 context suggest that differences may exist between L1 and L2 as far as metonymy processing is concerned. They also indicate that L1 metonymies can possibly have an influence on L2 ones, which proposes that more studies are needed to shed light on these differences.

Slabakova, Cabrelli Amaro and Kang (2016) carried out two off-line comprehension tasks investigating whether Korean and Spanish learners of English at various proficiency levels differentiated between conventional and novel metonymy, and whether the acceptability of metonymical expressions in L2 affects the learners' judgments in L2. The findings of this study support the psychological reality of the distinction between conventional and unconventional or novel metonymy, but only in the target language, i.e. English. The results also show that the L2 acquisition of conceptual metonymies is not unusual in that it starts with L1 transfer, moves to grammar restructuring and ends with full acquisition of L2. This study shows the effect that L1 conceptual and linguistic knowledge can possibly have on the processing of L2 figurative devices, which may suggest that L1 could be an important variable in the processing of L2 metonymies.

Similarly, another study which focused on metonymy comprehension in EFL was conducted by Littlemore, May and Arizono (2016). The researchers investigated the comprehension of metonymy by Japanese learners of English. It was found that to understand metonymical expressions, students employed several strategies such as the use of contextual clues, interference from Japanese (see Slabakova, Cabrelli Amaro and Kang, 2016, who also alluded to the effect of L1 on the processing of L2 metonymies) and the activation of a particular metonymy type. Errors that students made in trying to interpret the metonyms are

similar to those they make when dealing with metaphors and included providing too little information, focusing on the wrong part of the ICM, misinterpreting contextual cues or the syntax and interpreting metonyms as if they were metaphors.

Zibin (2016a; 2016b) are among the few studies to discuss metaphor and metonymy in relation to EFL learners in the Arab world. Zibin follows a contrastive approach to test the ability of EFL learners whose first language is Jordanian Arabic to comprehend and produce metaphorical and metonymical expressions in English. In line with the results of Littlemore, May and Arizono (2016) and Slabakova, Cabrelli Amaro and Kang (2016), the findings of Zibin's two studies highlight the impact of L1 on the comprehension and production of metaphorical and metonymical expressions in English. For example, students found metaphor and metonymy types which were conceptually and linguistically comparable to those found in Jordanian Arabic easier to understand, and that students utilized their L1 conceptual and linguistic knowledge to produce such expressions. Conversely, the types of metaphors and metonymies that were different in L1 and L2 were more challenging to process and to produce.

In sum, and based on the above discussion, metonymy is regarded as a productive referential technique where one sense of a word or expression is extended to another sense based on the closeness of association or contiguity (see Radden and Kövecses, 1999). Such a conceptual process is experientially real and emerges from a universal computation mechanism (Slabakova, Cabrelli Amaro and Kang, 2016), yet may be different in terms of frequency, conventionalization and context-dependent and linguistic factors (see Velasco, 2000; Zibin and Hamdan, 2019). In addition, it appears that when it comes to L2 acquisition of metonymy, the majority of studies have been conducted within the cognitive linguistic approach in which the importance of comprehending figures of speech such as metonymy and metaphor is emphasized to attain full communicative competence (see Littlemore, 2015; Zibin, 2016a; 2016b). Some studies also (e.g. Rundblad and Annaz, 2010) suggest that the comprehension of metonymy could be easier than that of metaphor, but such a suggestion needs to be compared to the results of other studies to provide more insight into the acquisition process of this cognitive device. In addition, a number of studies that tackled the acquisition of L2 metonymies have proposed that L1 conceptual and linguistic knowledge can possibly affect the processing and production of L2 metonymies (Littlemore, May and Arizono, 2016; Slabakova, Cabrelli Amaro and Kang, 2016; Zibin, 2016a; 2016b). Numerous studies have explored such acquisition by EFL learners belonging to different linguistic backgrounds (e.g. Japanese, Korean, Spanish, etc.). Yet, studies on the comprehension of metonymy by Arabic-speaking EFL learners or on how L1 can have an impact on metonymy processing in L2 are scarce. This study aims to bridge this gap by testing the following hypotheses:

- (H1) Based on the literature discussion, Arabic-speaking EFL learners are likely to comprehend certain types of metonymy more than others.
- (H2) Arabic-speaking EFL learners are likely to find L2 metonymies which are conceptually and/or linguistically similar to the ones they have in their L1 easier to comprehend.
- (H3) Arabic-speaking EFL learners are likely to find L2 metonymies which are conceptually and/or linguistically different to the ones they have in their L1 more challenging to comprehend.
- (H4) Arabic-speaking EFL learners are likely to find conventionalized metonymies easier to comprehend.

3. Methodology

3.1 Methodological approach

Since this study aims to investigate the comprehension of L2 metonymies by Arabic-speaking EFL learners, the researchers employed a mixed-methods approach consisting of a comprehension task which elicits quantitative data and a semi-structured focus-group discussion which elicits qualitative data. The reason for such an integration was the need for qualitative data to support the quantitative data elicited by the test. Denscombe (2010) argues that semi-structured focus-group discussions are one of those flexible tools that enable the researcher to elicit more in-depth information pertaining to the topic under investigation. This flexibility gave the participants the chance to talk more freely about their experience, allowed the researchers

to compare the participants' performance on different types of metonymies on the test, and, thus, brought more insight into the processing procedure of L2 metonymies.

3.2 Sample

Sixty Arabic-speaking EFL learners, students at Al Ain University, Al Ain, United Arab Emirates (UAE) participated in our experimental study. The participants were second-year students enrolled in the English 2 Course with a mean age of 22. All were native speakers of different varieties of spoken Arabic (Emirati, Jordanian, and Gulf). Their English proficiency level was determined by their IELTS scores. We ensured that the participants who took part in this study had comparable English proficiency levels; their IELTS test scores were 5.5 or 6. Participants with lower IELTS scores were excluded from the study based on our belief that the administrated test requires a higher English proficiency level and intellectual ability (see Zibin, 2016a; 2016b).

3.3 Data collection

The researchers included 36 target metonymies in the test which belonged to 12 types based on: first, key metonymy types found in several studies in the relevant literature and adapted by Warren (2006). Second, these metonymy types are the closest typology that shows the similarities and differences between Arabic and English. That is, these types were filtered so that the items on the test were selected based on L1-L2 congruency and/or difference. This was done in order to test the impact of the similarity and/or difference between the two languages on the participants' answers on the test. In an attempt to avoid any culturally specific knowledge, (for instance, not all participants may know *Watergate*), we included only metonymic mappings consisting of elements that are more relevant to general global knowledge, e.g. *Geneva* and local contexts, e.g. *Al Ain* (cf. Slabakova, Cabrelli Amaro and Kang, 2016). In addition, example (3) was modified because students are unlikely to be familiar with the historical reference:

(3) *Pearl Harbor still has an effect on our foreign policy.*

Example (4) was excluded because of the potential difficulty of the word cistern:

(4) *The cistern is running over.*

We piloted our test items with 10 native speakers of English to ensure the feasibility of our test design. The final version of the test only included those metonymies that received similar judgement from 70% and above of the informants. Table 1 below shows the metonymies used in the test.

Table 1. Types of metonymies included in the test

Type	Example
1.CAUSE-EFFECT	<ol style="list-style-type: none"> 1. I can hear <u>the TV</u> from my room. 2. My sister decided to live by <u>the pen</u>. 3. Can you give Mariam a <u>ring</u>?
2.PART-WHOLE	<ol style="list-style-type: none"> 1. Ahmad has a good <u>head</u>. 2. They are taking on new <u>hands</u> down at the factory. 3. There are many <u>mouths</u> to feed in this city.
3.WHOLE-PART	<ol style="list-style-type: none"> 1. The grateful old lady thanked <u>the store</u>. 2. He picked up <u>the phone</u>. 3. Set <u>the oven</u> to a very high temperature.
4.CONTAINER-CONTENT	<ol style="list-style-type: none"> 1. <u>The kettle</u> is boiling. 2. You have eaten <u>your whole lunch box</u>. 3. He poured <u>the glass</u> in the sink.

5.CONTENT-CONTAINER	1. <u>The milk</u> tipped over, go bring the mop to clean it. 2. Go bring your <u>water</u> from the kitchen. 3. Your <u>water</u> is leaking, fix it!
6.OBJECT-HUMAN	1. The <u>beef burger</u> is waiting for his order, hurry up! 2. She married <u>money</u> , so now she doesn't have to work. 3. <u>The taxis</u> don't like their salaries so they are protesting.
7.HUMAN-OBJECT	1. <u>The man with the cigar</u> is parked beside the tree. 2. <u>You</u> have a flat tire. 3. <u>I</u> am parked over there.
8.PLACE-EVENT	1. A lot of Americans protested during <u>Vietnam</u> . 2. <u>Geneva</u> has an effect on our understanding of human rights. 3. <u>Yemen</u> changed our politics.
9.PLACE-OBJECT	1. <u>Al Ain</u> decided to host the football match. 2. <u>Your nose</u> is running. 3. <u>The whole village</u> enjoyed the president's visit.
10. INSTITUTION FOR PEOPLE RESPONSIBLE	1. <u>Carrefour</u> has raised its prices again. 2. <u>The company</u> hired a new editor. 3. <u>Abu Dhabi</u> has started negotiations to solve the problem of oil.
11.PRODUCER -PRODUCT ARTIST-WORK OF ARTIST	1. I have read <u>Shakespeare</u> last night. 2. <u>Taha Hussein</u> is fun to read. 3. My friend always wears <u>Chanel</u> .
12.TEXT->ANONYMOUS WRITER OF TEXT	1. This <u>book</u> describes the problems of unemployment. 2. <u>The article</u> discusses facts about marriage. 3. <u>Al Bayan</u> reported on the event that took place in Abu Dhabi yesterday.

3.4 Instrument and procedure

On the day of the experiment, the test took place in a classroom at Al Ain University during the Spring Semester of the academic year 2018/19 and lasted for 60 minutes. The participants were asked to work alone to provide the intended meaning for the listed 12 types of metonymies with 3 test items under each type, totalling 36 metonymical expressions, without using a dictionary. The sentences included in the test were adapted from the existing literature on metonymy (cf. Slabakova, Cabrelli Amaro and Kang, 2016). To ensure that the participants fully understood the task, two illustrative examples were provided. The participants' answers were considered correct or accurate if they were able to provide the meaning of the underlined metonymical expressions correctly. For example, in

(5) *Can you give Mariam a ring?*

The answer is considered correct if the participant was able to state that the intended meaning of the underlined word 'ring' in the above example is 'call'. It should be noted that the participants were only indirectly exposed to metonymy in their classes; that is, their textbooks did not contain explicit lessons on metonymy, but the teacher occasionally pointed out some examples when the participants came across metonymies in their textbooks. Explicit instruction was avoided given its controversial role in second-language acquisition (see Ellis, 2002 for more details).

After the test was administered, the researchers conducted a semi-structured focus group discussion with the participants in both groups to obtain a deeper insight into their experience during the test and to know whether they found the test difficult to complete (cf. Altakhaineh and Zibin, 2017). During the focus-group discussion, the researchers, first, asked the participants about the notion of metonymy and whether they rely on L1 to process L2 metonymies. Second, the researchers asked the participants to elaborate on their use of metonymical expressions in everyday life. Finally, the participants were encouraged to discuss the challenges they faced during the test and the methods they used to process the metonymies. They were also

given time to share comments not elicited by our questions. The session was tape-recorded, transcribed and the participants' answers and comments were analysed by the researchers to obtain a better understanding of the participants' answers and areas of difficulties they encountered during the test. Since the type of data generated by these discussions is of a qualitative nature, they are presented in the discussion section to support the quantitative results.

3.5 Statistical analysis

In order to determine whether the differences between the participants' answers on the types of metonymies were statistically significant, One-way ANOVA was conducted. The most common applications of One-way ANOVA are studies that compare three or more means. The current study compares the means of 12 types of metonymies to identify the most challenging types to comprehend (cf. Ionin and Wexler, 2002; Alnamer, Altakhaineh and Alnamer, 2019). In addition, this test was chosen since it provides descriptive statistics and shows whether there are statistically significant differences between and within groups (Charteris-Black, 2002; Zibin, 2016a). The data for the test was coded using SPSS where the researchers entered the values of correct answers for each item in each type (i.e. the values for items were grouped under one type) and then ran One-way ANOVA using SPSS to obtain the results. The results and their interpretations are discussed in the following section.

4. Results

This section reports the accuracy results on the test administered in this study. Table 2 below presents the number of accurate answers provided on each test item.

Table 2. Number of accurate answers provided by the participants on the test

Metonymy type	Test items	Number of accurate answers	Total	%
1.CAUSE-EFFECT	1. I can hear <u>the TV</u> from my room.	30	45	25%
	2. My sister decided to live by <u>the pen</u> .	3		
	3. Can you give Mariam a <u>ring</u> ?	12		
2.PART-WHOLE	1. Ahmad has a good <u>head</u> .	25	83	46%
	2. They are taking on new <u>hands</u> down at the factory.	31		
	3. There are many <u>mouths</u> to feed in this city.	27		
3.WHOLE-PART	1. The grateful old lady thanked <u>the store</u> .	23	50	28%
	2. He picked up <u>the phone</u> .	17		
	3. Set <u>the oven</u> to a very high temperature.	10		
4.CONTAINER-CONTENT	1. <u>The kettle</u> is boiling.	14	46	26%
	2. You have eaten <u>your whole lunch box</u> .	20		
	3. He poured <u>the glass</u> in the sink.	12		
5.CONTENT-CONTAINER	1. <u>The milk</u> tipped over, go bring the mop to clean it.	4	34	19%
	2. Go bring your <u>water</u> from the kitchen.	16		
	3. Your <u>water</u> is leaking, fix it!	14		
6.OBJECT-HUMAN	1. The <u>beef burger</u> is waiting for his order, hurry up!	13	56	31%
	2. She married <u>money</u> , so now she doesn't have to work.	26		
	3. <u>The taxis</u> don't like their salaries so they are protesting.	17		
7.HUMAN-OBJECT	1. <u>The man with the cigar</u> is parked beside the tree.	4	30	17%
	2. <u>You</u> have a flat tire.	13		
	3. <u>I</u> am parked over there.	13		

8.PLACE-EVENT	1. A lot of Americans protested during <u>Vietnam</u> .	7	25	14%
	2. <u>Geneva</u> has an effect on our understanding of human rights.	8		
	3. <u>Yemen</u> changed our politics.	10		
9.PLACE- OBJECT	1. <u>Al Ain</u> decided to host the football match.	9	27	15%
	2. <u>Your nose</u> is running.	0		
	3. <u>The whole village</u> enjoyed the president's visit.	18		
10. INSTITUTION FOR PEOPLE RESPONSIBLE	1. <u>Carrefour</u> has raised its prices again.	15	50	28%
	2. <u>The company</u> hired a new editor.	21		
	3. <u>Abu Dhabi</u> has started negotiations to solve the problem of oil.	14		
11.PRODUCER - PRODUCT ARTIST-WORK OF ARTIST	1. I have read <u>Shakespeare</u> last night.	24	53	29%
	2. <u>Taha Hussein</u> is fun to read.	19		
	3. My friend always wears <u>Chanel</u> .	10		
12.TEXT-> ANONYMOUS WRITER OF TEXT	1. This <u>book</u> describes the problems of unemployment.	11	36	20%
	2. <u>The article</u> discusses facts about marriage.	11		
	3. <u>Al Bayan</u> reported on the event that took place in Abu Dhabi yesterday.	14		
Total			535	M=25%

A careful examination of Table 2 demonstrates that the highest number of accurate answers was provided on PART-WHOLE metonymies (i.e. 83) with a percentage of 45%, while the lowest number was scored on PLACE-EVENT (i.e. 25) with a percentage of 14%. Out of the overall 2,160 (36*60) accurate answers, the total number of accurate answers scored on the test was 535 which is almost 25%. The latter percentage suggests that the participants faced considerable difficulty in comprehending English metonymies. This in turn confirms H1 which states that Arabic-speaking EFL learners are likely to comprehend certain types of metonymy more than others. Furthermore, Table 2 also shows that within each type, the participants' scores differed. For instance, the following example

(6) *My sister decided to live by the pen.*

which is item 2 under CAUSE-EFFECT, elicited a lower number of accurate answers compared to item 1 in the same category

(7) *I can hear the TV from my room.*

This result can be ascribed to the differences between L1 and L2 linguistic metonymies (see section 5 for more detail). In addition, the difficulties encountered by the participants could be attributed to the frequency of occurrence of the metonymies. The low frequency of occurrence of metonymical expressions representing certain conceptual metonymies in Arabic could possibly also explain the reason PLACE-EVENT metonymies produced the lowest number of accurate answers. As for the effect of local/cultural references, under type 12 TEXT->ANONYMOUS WRITER OF TEXT, item 3

(8) *Al Bayan reported on the event that took place in Abu Dhabi yesterday.*

yielded a higher number of accurate answers compared to items 1 and 2

(9) *This book describes the problems of unemployment.*

(10) *The article discusses facts about marriage.*

possibly because the participants were highly familiar with *Al Bayan* since it is a daily newspaper published in the UAE. The conventionality of certain metonymies may have also played a role in the participants' answers on the test. For example, PART FOR WHOLE metonymies yielded the highest number of accurate answers compared to the other types since the metonymies found under this type are mostly conventionalized; that is, both the conceptual metonymy and the metonymical expression are conventionalized due to the frequency of use. These reasons are discussed further in section 5. Table 3 below displays the means of accurate answers on each metonymy type together with their standard deviation and error.

Table 3. Means, standard deviation and error of accurate answers on the test

Metonymy types	N	Mean	Std. Dev.	Std. Error
Type 1 (CAUSE-EFFECT)	3	15	8.1854	4.7258
Type 2 (PART-WHOLE)	3	28	3.0551	1.7638
Type 3 (WHOLE-PART)	3	17	6.5064	3.7565
Type 4 (CONTAINER-CONTENT)	3	15	4.1633	2.4037
Type 5 (CONTENT-CONTAINER)	3	11	6.4291	3.7118
Type 6 (OBJECT-HUMAN)	3	19	6.6583	3.8442
Type 7 (HUMAN-OBJECT)	3	10	5.1962	3
Type 8 (PLACE-EVENT)	3	8	1.5275	0.8819
Type 9 (PLACE-OBJECT)	3	9	9	5.1962
Type 10 (INSTITUTION FOR PEOPLE RESPONSIBLE)	3	17	3.7859	2.1858
Type 11 (PRODUCER-PRODUCT ARTIST-WORK OF ARTIST)	3	18	7.0946	4.0961
Type 12 (TEXT->ANONYMOUS WRITER OF TEXT)	3	12	1.7321	1

A study of Table 3 reveals that some types of metonymies were more challenging than others. For instance, PLACE-OBJECT and PLACE-EVENT were more difficult to process than PART-WHOLE metonymies. Specifically, accuracy results show that the order of metonymy types based on their means is: (1) PART-WHOLE (28), OBJECT-HUMAN (19), followed by PRODUCER -PRODUCT ARTIST-WORK OF ARTIST (18), INSTITUTION FOR PEOPLE RESPONSIBLE and WHOLE-PART (17), CONTAINER-CONTENT and CAUSE-EFFECT (15), TEXT->ANONYMOUS WRITER OF TEXT (12), CONTENT-CONTAINER (11), HUMAN-OBJECT (10), PLACE-OBJECT (9), and finally PLACE-EVENT (8). The reasons for these levels of difficulty are discussed in section 5. To determine whether the differences between the participants' answers on the metonymy types were statistically significant, the results of One-Way ANOVA are reported in Table 4.

Table 4. One-Way ANOVA results

Source	Degrees of Freedom DF	Sum of Squares SS	Mean Square MS	F-Stat	P-Value
Between Groups	11	942.9787	85.7253	2.5739	0.0256
Within Groups	24	799.3346	33.3056		
Total:	35	1742.3134			

The analysis of variance shows that the differences between the participants' answers on the test were statistically significant ($p=0.0256<0.05$). Thus, we can assume that indeed some types of metonymies were more difficult to comprehend than others. In the following section, we discuss these results to test H2, H3 and H4.

5. Discussion

Drawing on the results discussed in the previous section, it appears that the participants found the processing of metonymy relatively hard since the total percentage of correct answers was only 25% (cf. Chen and Lai, 2011). The results demonstrated that certain types of metonymies were more challenging than others.

Particularly, metonymies such as PART-WHOLE, OBJECT-HUMAN, PRODUCER-PRODUCT, INSTITUTION FOR PEOPLE RESPONSIBLE and WHOLE-PART were less challenging to process than other types. It can be argued that the cognitive associations that underlie these conceptual metonymies are more conventionalized, suggesting that they were either stored as lexical items or they were produced via a productive lexical process. In this regard, Bowdle and Gentner (2005) suggested that when metaphors become conventional, the mode of processing shifts from comparison to categorization. They indicate that if metaphors are processed through categorization, their intended meaning is only retrieved from the mind of the recipient because it is already stored. A similar process possibly occurs with conventionalized metonymies, yet studies are required to confirm this hypothesis. Their conventionalization could be attributed to them being grounded and entrenched in human experience (cf. Barcelona, 2011) as they arise out of ICMs that exist at the conceptual level and, in turn, are reflected quite frequently in the language itself (cf. Radden and Kövecses, 1999).

It has been proposed that while certain types of ICMs give rise to metonymic referential transfer of meaning, the stereotypicality of metonymies makes them more likely to be conventionalized. This stereotypicality together with the fact that metonymy is based on contiguity and that it is grounded in human experience have shaped the notion that metonymy is a universal computation mechanism even though it may rely on conceptual structures, cultural knowledge and pragmatic principles, e.g. context-dependent factors (Slabakova, Cabrelli Amaro and Kang, 2016). This argument may account for the higher accuracy results on metonymies such as PART-WHOLE. However, if metonymy is in fact a universal cognitive device that generates various metonymical expressions, then the following question arises: why were some types of metonymy more difficult to process than others? Although metonymy is a universal computation mechanism, this mechanism lacks compositionality, which suggests that processing metonymy requires more cognitive processing than other types of compositional meaning (cf. Slabakova, Cabrelli Amaro and Kang, 2016). In addition, the participants' familiarity with the notion of metonymy and the lexical items used to establish metonymic transfer is essential. If these two elements are inaccessible, then it can be predicted that comprehension will fail (see section 6).

One of most important factors that might have had an impact on the participants' performance is L1 conceptual and linguistic knowledge. This knowledge has been regarded as a significant player in processing metonymy in L2 in studies such as Zibin (2016a; 2016b) and Slabakova, Cabrelli Amaro and Kang (2016). These researchers argued that the additional meaning of metonymy can be computed by transferring knowledge from the participants' native language. For example, Zibin (2016a; 2016b) explains that when similarity in the conceptual basis and linguistic expressions of metaphors and metonymies exist between two languages, processing these cognitive devices becomes easier and vice versa. Slabakova, Cabrelli Amaro and Kang (2016) also reported evidence of transfer from the participants' L1 and ascribed it to low English proficiency levels, the novelty of certain metonymies that required understanding of the context and lack of input from L2. These two factors, possibly, called for higher processing efforts on the part of the participants especially given the fact that metonymical processing necessitates non-compositional computing.

Data analysis of the participants' scores revealed that the participants probably relied not only on their L1 conceptual knowledge but also their L1 linguistic knowledge to process metonymies in English. Specifically, the conceptual metonymy was possibly found easier if it is conceptualized and yields similar metonymical expression in Arabic (i.e. the participants' native language), which confirms H2. This is reflected in the higher scores on the test. For example, under the universal and conventionalised CAUSE-EFFECT metonymy, the item

(11) *I can hear the TV from my room*

can be literally translated into Arabic as *sa:miŕ ttifizyo:n min yurfiti*, which resulted in a higher number of accurate answers on the test (30 accurate answers). If the conceptual metonymy is conceptualized but yields a different metonymical expression in L1, the participants found it more challenging and scored lower on the test, which confirms H3. For instance, in the metonymy PRODUCER -PRODUCT which is quite

conventionalized in Arabic, the example *Taha Hussein is fun to read* is differently encoded in Arabic, i.e. *lqira:ʕa la ta:ha hse:n hilweh/mumtiʕa* ‘a reading by Taha Hussein is fun’. The latter example shows that the metonymy is encoded as a possessive transfer of meaning in which an object stands for the person who possesses that object and that possessive relationship is encoded in L1, i.e. *la* ‘for’. Conceptual metonymies that are less conventionalized in L1 compared to L2 yielding a different metonymical expression were extra difficult to process. For instance, the least number of accurate answers were provided on the less conventionalized metonymy, namely, PLACE-EVENT (see Table 2). These results suggest that conventionalization possibly plays a role in processing target metonymies, that is, conventionalized conceptual metonymies in L1 which yield a similar metonymical expression in Arabic are easier to comprehend than conventionalized ones yielding a different metonymical expression in Arabic compared to English. The latter are easier to comprehend than less conventionalized conceptual metonymies in L1 compared to L2 yielding a different metonymical expression in Arabic, which were the most challenging ones to comprehend. This suggests that the conventionalization of conceptual metonymies in L1 is influenced by their metonymical realizations in L1 and L2, which partially confirms H4. Based on the above, it is possible to conclude that L1 conceptual and linguistic knowledge can possibly impact the processing of metonymies in L2. The following section presents the qualitative data which are based on the participants’ answers during the focus-group discussion.

6. Qualitative analysis

As discussed in the previous section, due to their non-compositional processing, metonymies possibly require more cognitive effort to be processed. In our semi-structured focus group discussion with the participants following the administration of the test, many of them indicated that they had neither been exposed directly to metonymy in English at school nor at university. Although we provided illustrative examples for the participants in the test, lack of direct exposure to this device and by extension lack of understanding of its tenets probably hindered the participants’ ability to process it. So, given its non-compositional processing technique accompanied by lack of direct exposure to metonymy, the participants found this cognitive device to be a stumbling block to comprehension on the test conducted in this study. In this regard, Zibin (2016a, p. 51) explains that exposure is insufficient on its own for EFL learners to process and produce L2 metaphorical/metonymical expressions. She suggests that the underlying conceptual mappings in the case of metaphor and referential transfer of meaning in the case of metonymy should be explained clearly to the learners to ensure their understanding.[†]

The focus-group discussion also revealed that L1 conceptual and linguistic knowledge could have an impact on the way the participants processed metonymies and by extension their answers on the test. Based on their answers and comments, we observed that when EFL learners were confused or unable to provide answers, they resorted to what they know. In this case, they resorted to their L1 to process L2 metonymies.[‡] Such a strategy is illustrated by the number of accurate answers on the test, where the highest number was obtained on the types whose conceptual and linguistic metonymies are similar in both English and Arabic, which confirm H2. For instance, 11 participants indicated that items such as:

(12) *The company hired a new editor.*

were easier to process than others because a literal translation from Arabic would give them the answer: *ʕarrikeh waḏḏafat mudaqqiq dzdi:d*. Thus, by analysing the Arabic translation, the participants were able

[†] Despite changing some lexical items on the test to ensure that the participants did not face difficulties related to unfamiliarity with some lexical items, based on the focus-group discussion, lack of understanding or knowledge of some lexical items, e.g. *tipped over*, *kettle*, and *Geneva*, resulted in the participants’ poor performance on some items on the test. This could be regarded as a limitation of the test design.

[‡] Note, here, that the participants’ self-reporting and attitudes mentioned in this study may not necessarily reflect actual linguistic behavior (cf. Zibin and Al-Tkhayneh, 2019, p. 170).

to deduce that the institution in this example stands for the people in charge of that institution. Conversely, items such as

(13) *My sister decided to live by the pen.*

were more difficult to process since there are differences between L1 linguistic metonymy and that of L2; hence, less accurate answers were elicited on this item, which confirms H3. To conclude, the participants' answers and comments in the focus-group discussion demonstrate that L1 linguistic and conceptual knowledge of metonymy could possibly have an impact on that of L2.

7. Pedagogical implications

It could be argued based on the results that Arabic-speaking EFL learners encounter obstacles in processing metonymies in English despite the fact that metonymy is quite ubiquitous in their native language. It has also been suggested that L1 possibly plays a role in the acquisition process of L2 metonymies. Thus, it can be proposed that the use of metonymy and metaphor as cognitive devices should be integrated into an L2 curriculum. This is because, based on our experience as EFL teachers, these devices are still largely presented as mere figures of speech at the school as well as at the university level. However, prior to explaining metonymy in L2, teachers are advised to explain to students the concept of referring and how it is used in language. They are also encouraged to present metonymy in the students' native language first to help them understand how metonymies actually work (cf. Chen and Lai, 2011; Zibin, 2016a). Once teachers are satisfied with the students' understanding of metonymy in their L1, they can move to metonymy in L2 and discuss the similarities and differences between the two languages. In this way, L1 conceptual and linguistic knowledge can possibly be used to help students access their L2 conceptual and linguistic knowledge of metonymies. Furthermore, teachers are also advised to illustrate the difference between metaphor and metonymy through explaining the mappings in the case of metaphor and the contiguity relations in the case of metonymy. For example, teachers can explain that metonymy emerges from closeness of association comprising various types, e.g. action, production, containment, causation, control, possession, etc. (see Radden and Kövecses, 1999). For students in lower classes, teachers can use mental maps to illustrate how metonymy works and they can ask students to think of their own examples after being exposed to real-life examples of metonymy in both L1 and L2. Such implications could be tested by conducting an experiment to test whether explicit instruction of L2 metonymies enhances EFL learners' ability to acquire them.

8. Conclusion

This study examined the comprehension of metonymies in English by Arabic-speaking EFL learners and explored whether the participants' L1 conceptual and linguistic knowledge of metonymies can have an impact on how metonymies are processed in L2. The results revealed that the participants encountered challenges in processing metonymies in L2 and that certain types of metonymies were more difficult than others. We argued that the metonymies that scored the highest number of accurate answers, e.g. PART-WHOLE, OBJECT-HUMAN, etc. are more conventionalized than others as this makes them more accessible and easier to process. The conventionalization of these metonymies resulted from the fact that they are more grounded in human experience and thus are more likely to be reflected in the language.

Despite the ubiquitous nature of metonymy which makes its processing reliant on universal cognitive computation, it is non-compositional. Subsequently, it was suggested, in line with other studies, that processing metonymy requires more cognitive processing than is needed in other types of compositional meaning. Lack of direct exposure to the main tenets of metonymy also contributed to the number of faulty answers on the test. However, it was also suggested that the participants' L1 conceptual and linguistic knowledge of metonymies could be a major player in the comprehension process of L2 metonymies. It was suggested that the similarities between the two languages made processing metonymies in English easier, whereas differences between the two languages in terms of conventionality and linguistic encoding had the opposite effect. The study concluded with pedagogical implications that may help teachers acquaint EFL

learners with metonymy as a cognitive referential device. Finally, it can be recommended that studies which investigate how conventional and less conventional metonymy is encoded linguistically in Arabic comparing these linguistic expressions with those of English are needed to shed light on linguistic and contextual factors that may affect how L2 metonymies are acquired.

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