

Processing figurative language in a multi-lingual task: Translation, transfer and metaphor

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Abstract

This paper reports on a study of metaphor comprehension and production in a multi-lingual setting using a translation task. Subjects were asked to translate sentences to and from their native language (Turkish) and their second language (English). The proportion of metaphors transferred between the languages during translation was examined. The results do not support forward transfer between L1 and L2, but rather indicate a translation advantage from L2 to L1. An activation-based framework is proposed to explain the experiment results and in general, metaphor processing in multi-language environments. The study indicates that figurative language processing by bilinguals or in multilingual tasks could be an interesting area of research.

1. Introduction

One of the active areas in modern cognitive science and linguistics is the study of metaphor. Recent research on metaphor has emphasized the psychological aspects of metaphor as well as social, cultural and linguistic aspects (e.g., Lakoff & Johnson 1980, Murphy 1997, Verbrugge 1984). Although there is certainly room for further exploration, cross-cultural and cross-linguistic studies of metaphor and other figurative aspects of language have also received some attention (Buchowski 1996, Souto Silva 2000, Van Brabant 1986).

On the other hand, abundant research has been carried out on second language learning, processing, and production. Within this literature, a subfield that has received much attention is that of interference between the languages a person speaks. Interference often takes the form of *forward transfer*, in which strategies from the native language (L1) are used to learn and process the second language (L2). *Backward transfer* is where the reverse pattern occurs. Forward transfer has been demonstrated several times, mainly within tasks and domains that are syntactic and phonetic; with semantic priming the results have been less consistent (see Odlin 1989, Gass & Selinker 1994 for good overviews; see also Jones & Tetroe 1987, Ritchie & Bhatia 1996).

Translation has also been studied in bilingualism and second language research (de Groot 1992, de Groot et.al. 1994, Gekoski 1968, Kroll & Stewart 1993, Sholl et.al. 1995). Early studies have reported a translation advantage (usually measured temporally and thereby using short pieces of text as stimuli) from L2 to L1. This is argued to be due to translation being automatic from L2 to L1 (e.g., Gekoski 1968) or translation being conceptually mediated from L1 to L2 but lexically mediated from L2 to L1 (Sholl & Stewart 1994, Sholl et.al. 1995).

In this paper, the term *transfer* is used in a broad sense that encompasses both forward transfer from L1 to L2 and the effects of translation advantage (or, backward transfer) from L2 to L1. The term also refers to any and all aspects of language, not limited to phonology, syntax and semantics, but also including pragmatic and sociological aspects. I believe using the term to refer to such an array of phenomena is still appropriate, even though part of the literature uses the term for a concept narrower in scope, because as noted by Lado:

individuals tend to transfer the forms and meanings, and the distribution of forms and meanings in their native language and culture to the foreign language and culture - both productively when attempting to speak the language and to act in the culture, and receptively when attempting to grasp and understand the language and the culture as practiced by natives (Lado 1957, p.2; also cited in Gass & Selinker, 1994, p.53).

There are few studies focusing on semantic, pragmatic and figurative aspects of second language comprehension and production (Francis 1996, Kirstein 1972, Opoku 1987, Souto Silva 2000).

Translation of metaphors across languages has been studied within the context of poetry, literature and religion, but a processing account has not been provided. Linguistic transfer of figurative aspects of language is clearly an area open for further exploration.

This paper studies metaphor comprehension and production in a multi-lingual setting using a translation task. The goal is to examine whether, under translation, metaphors exhibit forward transfer, or whether they show backward transfer (i.e., whether there is a translation advantage from L2 to L1).

2. Methods

Subjects: Ten native speakers of Turkish, aged 21-51, participated in this study. These subjects were chosen to represent native speakers of Turkish (henceforth L1) who are competent enough in English (their second language, henceforth L2) for the purposes of the translation task. All used Turkish as their dominant language, and none had professional translation experience or training. Individuals with translation experience were excluded from the study to increase the chance of translated sentences giving us an idea about metaphor processing, and not about the execution of learned skills. All subjects had completed all or part of their higher education in English, and indicated that they read books and magazines, and watching movies in this language.

Stimuli: The sentences for translation were taken from a text on “Istanbul’s Coffee Houses” originally written in Turkish and translated professionally into English (Sungur 1999a, 1999b). These texts were taken from Turkish Airlines’ *SkyLife* magazine. After a detailed analysis of the texts, 10 pairs of sentences were chosen. Two stimuli sets were composed by dividing up the pairs of sentences so that each set contained 5 Turkish sentences and 5 English sentences. Each subject was randomly assigned to one of the stimulus sets. Therefore, each subject translated 5 sentences from English to Turkish and 5 from Turkish to English.

All pairs but one contained metaphors in both languages. Below is a list of the 10 sentence pairs, with the metaphorical expressions they contain identified.

- Turkish:** “Günesli günlerin devri bitip, yağmurlu havalar saltanatini ilan edince, İstanbul’un insanları da kendilerine sığınacak yer aramaya başlar.”
Metaphor: DURATION IS REIGN
CHANGE IS SUCCESSION
Literal Gloss: “When the reign of the sunny days is over and rainy weather declares sovereignty, the people of Istanbul start looking for shelter”
English: “When the sunny days of summer pass and the weather turns cold and rainy, the inhabitants of Istanbul look for somewhere to take refuge.”
Metaphor: TIME IS SOMETHING THAT MOVES
CHANGE OF STATE IS CHANGE OF DIRECTION

2. **Turkish:** “Masmavi gökyüzünün kani kaynatan özgürlük duygusu, yerini gri havaların melankolik ruh haline birakmistir.”
Metaphor: INTENSE EMOTIONS ARE HEAT
CHANGE IS REPLACEMENT
Literal Gloss: “The freedom feeling of the blue sky that boils one’s blood has left its place to the melancholy mood of gray weather.”
English: “The sense of freedom which lent vitality under blue skies is replaced by gloomy lethargy under lowering grey clouds.”
Metaphor: PROPERTIES ARE POSSESSIONS (which can thus be lent)
CHANGE IS REPLACEMENT
3. **Turkish:** “Sadece soguktan kaçmak için değil, vakit geçirmek, dinlenmek, kimi zaman da bir iki dostun muhabbetine kulak vermek üzere mekan degistirmek gerekir.”
Metaphor: TIME IS SOMETHING THAT MOVES
ACTION (listen/hear) IS THE FACILITATOR/ENABLER (ear) OF ACTION
Literal Gloss: “It is necessary to go different places not only to escape the cold, but also to pass the time, relax, or to give ear to the conversations of a few friends.”
English: “Now it is time to leave the open air, not just to escape the cold, but to pass the time, relax, and enjoy a spot of conversation.”
Metaphor: TIME IS SOMETHING THAT MOVES
A SMALL AMOUNT OF CONVERSATION IS A SMALL THING IN SPACE (a spot)
4. **Turkish:** “Kahveler yazın da hizmet verirler, ancak psikolojik ihtiyaçlara ayak uydurmak için, dumani tüten demli çaylar ve fokurdayan nargilelerle kislik ortamlarını hazırlarlar müdavimleri için.”
Metaphor: TO ADAPT IS TO MATCH WALKING PACE
Literal Gloss: “Coffehouses are open in summer too; but to match feet with the psychological needs, they prepare winter environments for their customers, with steaming well-brewed tea and humming water pipes.”
English: “Although open in summer too, it is in winter that these really respond to psychological needs, with steaming glasses of hot strong tea, and the sound of bubbling nargiles.”
Metaphor: NONE
5. **Turkish:** “Kahveler, İstanbul'un karmasik dokusunu yansitan aynalar gibidir. Ülkenin siyasi durumuna ilişkin degerlendirmeler, futbol karsilasmalari için atesli kritikler, okuldaki, isteki durumlara ilişkin son dedikodular kahvelerde konusulur.”
Metaphor: TO EXEMPLIFY IS TO REFLECT LIKE A MIRROR
INTENSE CONVERSATIONS ARE HEAT
Literal Gloss: “Coffee houses are mirrors of İstanbul’s complex texture. It is here that people assess the political situation, carry out heated critiques of soccer games and exchange latest gossip from school or work.”
English: “Coffee houses are mirrors of İstanbul's complex social texture, the place for heated discussions of politics, the latest football results, and the latest gossip from school or work.”
Metaphor: TO EXEMPLIFY IS TO REFLECT LIKE A MIRROR
INTENSE CONVERSATIONS ARE HEAT
6. **Turkish:** “Hikayenin sonrasi ise, giderek ün kazanip zirveye oturan bir hanendenin öyküsüne benzer.”
Metaphor: WORKING FOR SUCCESS IS STEADY CLIMBING
LONG-TERM PURPOSEFUL ACTIVITY IS A JOURNEY
CONTROL IS UP
ACTION IS SELF-PROPELLED MOTION

CHANGE IS MOTION

Literal Gloss: “The rest of the story resembles that of a ruler who incrementally gains fame and finally sits at the summit.”

English: “The rest of the story resembles that of a dynasty which steadily climbs the hill of power and fame until it settles on the summit to rule unchallenged.”

Metaphor: WORKING FOR SUCCESS IS STEADY CLIMBING
LONG-TERM PURPOSEFUL ACTIVITY IS A JOURNEY
CONTROL IS UP
ACTION IS SELF PROPELLED MOTION
CHANGE IS MOTION

7. **Turkish:** “Kahvehane çeşitleri, zamanlarının sosyo-kültürel yapısına uygun bir yelpaze olusturmaktadır.”
Metaphor: GRADED DIVERSITY IS A FAN
Literal Gloss: “The types of coffee houses have constituted a socio-cultural fan for their times.”
English: “The varieties of coffee houses have reflected the socio-cultural spectrum of their times.”
Metaphor: GRADED DIVERSITY IS A SPECTRUM
8. **Turkish:** “İstanbul'un kahvehanelerinin önce renkleri, sonra hayalleri, en son da kokuları karışıp gitmiştir hayatın akısına.”
Metaphor: WEAKENING THINGS BLEND AWAY
LIFE IS A FLOWING BODY OF WATER
Literal Gloss: “First the colors, then the dreams, and finally the smells of Istanbul’s coffee houses have blended away and gone into the flow of life.”
English: “The coffee houses of Istanbul today are but a faint shadow of their counterparts in earlier centuries.”
Metaphor: WEAKENING THINGS ARE SHADOWS
9. **Turkish:** “Diğerleri ise müşterilerinin tercihlerine göre kabuk degistirmis simdinin kahveleridir.”
Metaphor: CHANGING APPEARANCE IS CHANGING SKIN
Literal Gloss: “The remaining are modern coffee houses that have changed skin to adapt their customers’ preferences.”
English: “The remainder have changed in step with the times to suit a new type of customer.”
Metaphor: TO ADAPT IS TO MATCH WALKING PACE
10. **Turkish:** “Sonradan ithal Fransız café'lerinin egemenligine inat, İstanbul onları eski bir dostun hatırası gibi özenle saklar.”
Metaphor: WIDESPREAD EXISTENCE IS SOVEREIGNTY
OLD BUT LOVED THINGS ARE OLD FRIENDS
Literal Gloss: “Despite the sovereignty of newly imported French cafés, İstanbul protects them like memories of an old friend.”
English: “Despite the newfangled 'cafés' which have mushroomed in fashionable districts, İstanbul obstinately protects its old friends.”
Metaphor: APPEARING SUDDENLY IS SURFACING LIKE MUSHROOMS
OLD BUT LOVED THINGS ARE OLD FRIENDS

Procedure: Subjects were provided with the original sentences and asked to translate them into English if the sentence was in Turkish, or into Turkish if the sentence was in English. They were allowed to use as much time as they needed. However they were encouraged not to try to make their translations perfect, and to rely on their instincts when in doubt.

3. Results

Analysis was carried out to measure whether there was a difference in the proportion of metaphors that were carried over into the target language during translation. In doing so, the availability of the metaphor in the target language was taken into consideration.

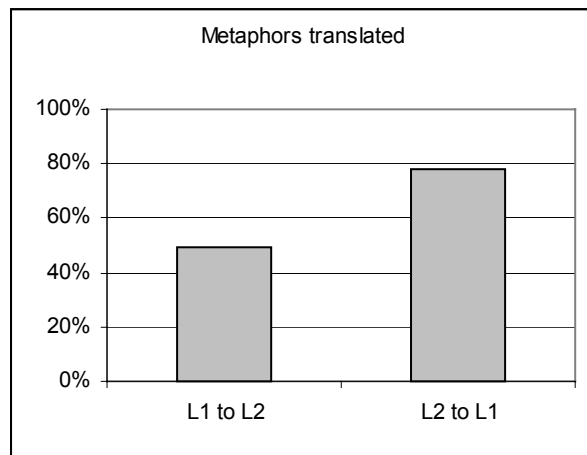
The number of metaphors translated by the subjects into Turkish and into English were counted, as well as the metaphors that did not make it into the translated sentences and new metaphors which emerged in the translations. Taking into consideration whether a translation of each metaphor into the target language is at all available, chi-square tests were run on the distributions of translated and non-translated metaphors in the two target languages.

The results indicate that a significantly greater proportion of metaphors were translated literally when subjects translated from their L2 to their L1, namely from English to Turkish, as shown in table 1 and figure 1. Overall, when the metaphorical usage was possible in the target language, subjects translated 49% of the metaphors from Turkish to English and 78% of those from English to Turkish. The chi-square test of independence was significant at $p < 0.001$.

Table 1. *Translation of metaphors in each direction*

	Metaphors translated	Translatable metaphors	Percentage
Turkish to English (L1 to L2)	41	83	49%
English to Turkish (L2 to L1)	56	72	78%

Figure 1. *Translation of metaphors in each direction*



Further analysis was carried out to demonstrate that the result generalizes across subjects. The proportion of metaphors translated over the total number of those that can be translated into the target language was calculated separately for each of the ten subjects and languages. The paired t-test for the means was significant at $p < 0.01$.

We will briefly outline some of the qualitative results: For sentence pair 1, subjects tended to carry over one of the RULING OF SEASONS metaphors to English. But the reverse was also true; about half of them carried over the MOTION OF TIME metaphor into Turkish. In the translated languages both metaphors are available but infrequent. In sentence pair 2, all subjects used the expression “left its place to” in their Turkish translations for “replace”. However, the transfer was

much weaker in translation from Turkish to English. For the third sentence pair, subjects usually translated “pass the time” which is available and frequent in both languages. The usages “a spot of conversation” and “give ear to” were not translated, probably because of the infrequency of the corresponding forms in the target languages. Sentence pair 4 did not have a metaphor in the English component. No subject carried over the metaphor TO ADAPT IS TO MATCH WALKING PACE from Turkish to English. In pair 5, most subjects carried over the MIRROR metaphor (could also be considered simile), but surprisingly, the HEAT metaphor did not transfer as much as may be expected. Although many subjects translated all of the metaphors in pair 6, some did not translate any, and provided literal sentences instead. About half of the subjects translated the GRADED DIVERSITY metaphor in pair 7. The metaphor in pair 8 was translated to a great extent, by almost all of the subjects. Subjects who translated pair 9 from English to Turkish sometimes made use of the “match feet” idiom. The CHANGING SKIN metaphor was not carried over much into English. Finally, in pair 10, almost all metaphors were translated by all subjects. In this question, the unavailability of “mushroom” as a verb in Turkish led the subjects to come up with similar metaphors in their translations (e.g., emerge like mushrooms, emerge like grass).

4. Discussion

Here, I will propose an activation-based model for metaphor comprehension and production that may help explain the transfer effects observed in the experiment described above.

In our native language, we are capable of understanding the meanings of metaphorical utterances effortlessly. In most cases, we do not even have to consciously process the underlying metaphors; the surface form seems to be translated into meaning almost instantly. However, priming and sentence processing research indicates that multiple interpretations are often activated even though it is clear from the context which meaning is intended. Therefore during translation, upon encountering a metaphorical usage, both the underlying metaphor and the literal meaning are likely to be active. Given that processing is faster and more robust in the native language, in L1, the activation caused by the literal meaning is likely to be much smaller and to “die out” quickly. Thus, the priming effect of the literal meaning will be much bigger for a translation into L1 than for a translation into L2. We must also note the differences in production between L1 and L2. Naturally, people are able to use their native language more comfortably than they use their L2. In particular, in composing sentences in L2 it is conceivable that they may be less confident that a metaphorical usage is appropriate in that language, even though, conceptually, they might have the metaphor available to them. In L1, however, they should be able to make use of conceptual metaphors in their linguistic output.

Given this context, an activation-based account is provided to explain the outcome of the study: When translation is from L1 to L2, we may assume that subjects have a good understanding of the original sentence. Now, their task is to explain the meaning in L2. Since subjects’ sentence production in L2 is not as comfortable as it is in their L1, they may choose to provide the meaning of the sentence using a literal and rather direct style. Given a solid understanding of the underlying meaning of the sentence to be translated, and the assumption that the literal meaning of the original metaphor is not significantly active, producing a sentence that has metaphorical usages in it will put more effort on the production system. The path of least resistance is to ‘take it from there’ and not add stylistic elements to it.

Metaphor transfer occurs significantly while translating from L2 to L1. A similar activation-based explanation can be made for this. For metaphors that were provided originally in L2, we hypothesized that the literal meaning could still be priming the translation. In comprehending L2, people presumably make use of all the cues they can get. The underlying metaphor can aid comprehension, especially if a similar metaphor exists in L1. This can partly explain metaphor transfer from L2 to L1. Moreover, the priming caused by the literal meaning of the metaphor can activate related concepts in L1. The activated literal meanings in L1 can, in turn, activate related metaphors in L1, which may both aid production and facilitate comprehension of the original metaphor. Even if the original metaphor does not have a counterpart in the second language, the

literal meanings can activate related concepts and this might give rise to “analogy making on the fly”, which might, in turn, activate some metaphorical usage in L1.

As can be seen, within the framework of an activation-based theory, we can account for both lack of transfer from L1 to L2 and the transfer from L2 to L1. In fact, what might be happening could be complex and dynamic patterns of activation, rather a unidirectional transfer from one language to another.

5. Conclusion

The experiment designed to observe across-language transfer of metaphors that was presented in this paper revealed some surprising results: it was observed that during a translation task non-professional translators carry over significantly more metaphors from their L2 to their L1.

The results suggest that earlier findings that bilinguals have a translation advantage from L2 to L1 may generalize to figurative aspects of language. An activation based model was provided to suggest the kind of cognitive processing that may yield the outcome obtained in the experiment.

The present study has many limitations and proposing further work in this area is not difficult: First of all, despite yielding some very reliable effects, this was a small study. The languages studied in this paper were Turkish and English. Similar experiments with more subjects and on other languages should be carried out to test the generality of the results presented here. More research would not only help generalize the results, but may also yield more appropriate methodologies or experimental designs. While using translation as a psycholinguistic task is one good tool for the study of language processing, this type of research should ideally be complemented with online tasks to obtain a better picture of the cognitive processing underlying the phenomena of interest.

The study presented here indicates that work on metaphor in multilingual tasks can shed more light on theories on bilingualism and second language, as well as on metaphor processing in general. Previous cross-linguistic studies of metaphor have mostly been carried out within the context of linguistics, sociolinguistics, metaphor theory, or machine translation. Looking at cognitive psychological aspects of metaphor and other aspects of figurative language in multilingual tasks is an area calling for further attention.

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